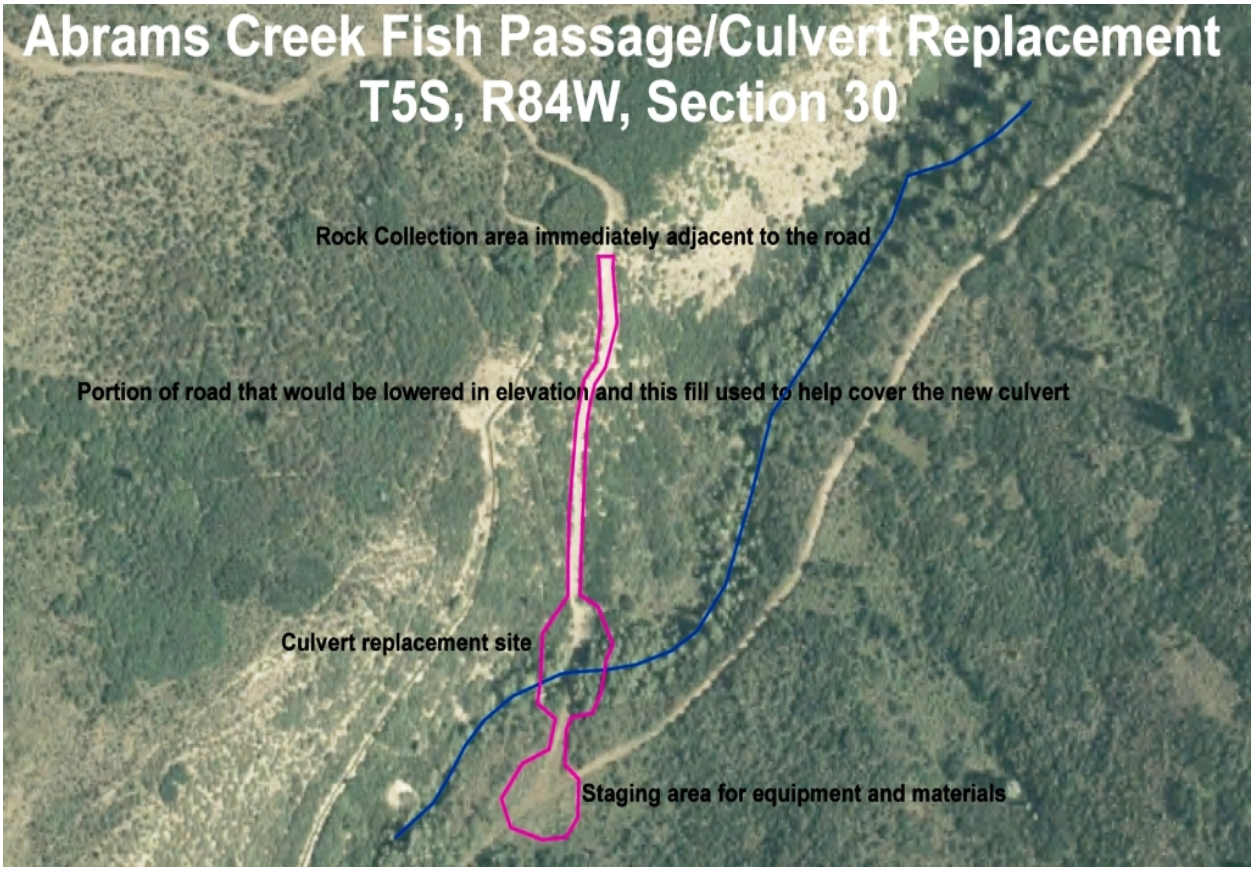
U.S. Department of the Interior
Bureau of Land Management
Glenwood Springs Field Office
2300 River Frontage Road
Silt, Colorado 81652

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CO-N040-2010-0021-EA

PROJECT NAME: Abrams Creek Fish Passage Culvert Replacement

LEGAL DESCRIPTION: 6th P.M., Township 5 South, Range 84West, Section 30 (see map)



APPLICANT: BLM

BACKGROUND:

Abrams Creek contains a Core Conservation population of pure Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*). This is the only known core conservation population in the Eagle River watershed and is important with respect to future reclamation planning within the watershed and overall conservation efforts for this BLM sensitive species.

PURPOSE AND NEED:

This population of cutthroat trout is small and limited in part by a road crossing/culvert that is undersized and serves as an upstream movement barrier for resident fish. Fish can move downstream but cannot move back up above the culvert. This presents a problem in that the majority of year-round flow in the stream is found upstream of the culvert and a large seasonal water diversion, the JPO Ditch. Fish that seasonally move downstream under favorable flow conditions are not capable of moving back up into more optimal habitat when flows below the JPO Ditch recede during the summer irrigation season.

The purpose of this project is to reconnect two distinct sub-reaches of stream for seasonal use by resident cutthroat trout. The project would help facilitate movement of fish upstream through the road crossing that is currently acting as a barrier to upstream fish movement.

Abrams Creek

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Proposed Action – Culvert Replacement and Rock Grade Control Structures:

The Proposed Action would consist of contracting out the removal of the existing undersized culvert located on BLM Road #8380 at its crossing on Abrams Creek and the placement of a new 40-foot-long, 6-foot-diameter corrugated metal pipe culvert. Upon completion of installation of the new culvert, BLM personnel would construct in-channel rock grade-control structures that would provide step-pool stream habitat within the culvert. Currently the stream gradient both above and below the existing culvert is approximately 5.5%. Within the road-crossing footprint, the grade is near 11%. To reduce the gradient

through the road crossing, some in-channel stream and road approach work would be required. This would consist of heavy equipment excavating aggraded stream material above the culvert, lowering the roadbed at the crossing and road elevation north of the stream crossing to obtain fill, and filling in portions of the stream channel immediately downstream of the culvert. To facilitate work at the site, a temporary cofferdam would be constructed via sandbags just upstream of the culvert site to divert stream flow around the culvert site via either a small ditch or temporary plastic culvert.

Culvert Replacement Upstream View

The project would require excavation and removal of the existing culvert. The stream channel would then be manipulated and the steep gradient would be reduced by reducing the in-channel fill above the road-crossing site and adding fill downstream of the road-crossing site. All of this work would be done using a rubber tired backhoe or track-type excavator. It is estimated that up to 100 cubic yards of new fill would be needed to achieve the desired road-crossing gradient. This fill material would come from the existing roadbed, which would be lowered as well as from portions of the road located just north of the stream crossing that would also be lowered in elevation. The material will be moved to the culvert site using a rubber tire loader.

The new culvert would be placed within the streambed and partially buried so as to contain native stream substrate in which to re-create and maintain a natural stair-step pool habitat complex within the culvert.

Road looking from stream crossing North where road will be lowered and fill obtained

To help facilitate the creation and maintenance of the in-channel gradient control structures, the new culvert would come with up to six pre-fabricated metal baffles affixed within it staggered on each side throughout the length of the pipe. This would help to reduce streamflow velocities within the pipe and retain streambed substrates and larger rock structures needed to provide for successful upstream fish movement. Rock grade-control structures would be placed at 10-foot intervals within the native streambed just above, within, and below the culvert. Rocks would be obtained from a site located just north of the project site along the existing road. It is anticipated that up to 60 rocks up to 1 foot in diameter would be needed to create the six grade control structures for a total of up to 20 cubic yards of fill into the stream. These structures would be constructed by hand placement of rocks within the stream channel either in the streambed (above and below the culvert) or next to the metal baffles within the culvert to help keep them in place. Each structure would contain up to ten rocks. Upon placement of the culvert and completion of the grade-control rock structures, raw banks and slopes would be recontoured, the cofferdam and temporary stream re-route removed, and the stream returned to its natural channel.

Total disturbed area would be approximately 0.2 acre, including the area where rock would be collected, the culvert placement site, in-channel modification, road elevation changes, and staging of equipment and materials. The staging area would be located just south of the project site at the junction of BLM Roads #8380 and #9712. It is anticipated that the culvert and heavy equipment would be placed/parked at this site for the duration of the project.

Rock Collection Site – Just north of project area adjacent to road

The project would be scheduled for late July or early August of 2010 and would take approximately 2 weeks to complete. All work except the small grade-control structures would be done by a private contractor under a construction contract administered by BLM's Engineering Field Office staff. All work would be conducted during daylight hours.

Up to five larger willow plants could be removed to facilitate placement of the new structure. To replace lost habitat values, three 5-gallon willow plants would be planted for every one willow removed. To minimize offsite soil movement, all areas to be disturbed would have straw wattles placed between the disturbance area and the creek. In addition, upon completion of the project, all disturbed areas would be seeded with a locally adapted native grass and forb seed mix as specified in the Vegetation Section.

Monitoring:

Monitoring would be performed to determine success of several facets of the project. Upon completion of the project, data would be collected on the new culvert and we would run the FishXing model to determine barrier status. In addition, working with Colorado Division of Wildlife Aquatic Biologist, BLM personnel may collect fish from above the culvert, mark them, and place them directly below the culvert. We would then sample periodically to document successful fish passage through the new road crossing. Other monitoring would include looking for weeds and determining site reclamation success including reseeding and willow planting efforts.

Project Staging Area

No Action Alternative:

No new culvert would be placed at the site and no ground disturbance would result. Under this alternative only continued routine maintenance of the existing road/culvert would be occur.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:

Other than slight modifications with regard to culvert size and type, no other alternatives were identified. The Proposed Action was designed with assistance from Glenwood Springs Field Office and the BLM Engineering Field Office staff as the most reasonable course of action to effectively fix the fish passage issue on Abrams Creek.

PLAN CONFORMANCE REVIEW:

The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Glenwood Springs Resource Management Plan.

Date Approved: Jan. 1984, revised 1988, amended in November 1991 – Oil and Gas Leasing and Development – Final Supplemental Environmental Impact Statement; amended Nov. 1996 – Colorado Standards and Guidelines; amended in August 1997 – Castle Peak Travel Management

Plan; amended in March 1999 – Oil & Gas Leasing & Development Final Supplemental Environmental Impact Statement; amended in November 1999 – Red Hill Plan Amendment; and amended in September 2002 – Fire Management Plan for Wildland Fire Management and Prescriptive Vegetation Treatment Guidance.

Decision Number/Page: Page 15, Planned Management Actions, Appendix A.

Decision Language: Monitor *and/or* improve aquatic habitat of streams and lakes identified on Map 5 and listed in Table 3, Appendix A (Fish Passage, Conduits, and Culverts).

STANDARDS FOR PUBLIC LAND HEALTH:

The five Land Health Standards cover upland soils, riparian systems, plant and animal communities, special status species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. The BLM is in the process of completing land health assessments on a landscape basis.

The Proposed Action would occur within the Eagle River South Landscape Unit, which had a land health assessment conducted in 2002. The project area is within and immediately adjacent to Abrams Creek and lies on the boundary between the East Hardscrabble and West Hardscrabble Common allotments. The assessment found that Abrams Creek was meeting Standard 2 for riparian systems, Standard 4 for special status species and Standard 5 for water quality. The assessment also determined that the upper portions of the East Hardscrabble and West Hardscrabble Common Allotments (which includes the project area) were achieving Standard 1 for soils and Standard 3 for plant and animal communities. The lower elevations of these allotments had certain land health problems that included more bare ground than expected, less litter than expected, pedestalling and water flow patterns, poor cover and diversity of herbaceous vegetation and encroachment of pinyon pine and Utah juniper into sagebrush parks.

Because a standard exists for these five categories, the impact analysis must address whether the Proposed Action or any alternatives being analyzed would result in impacts that would maintain, improve, or deteriorate land health conditions for that specific parameter.

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES / MITIGATION:

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and No Action alternative. In addition, the section presents comparative analyses of the direct and indirect consequences on the affected environment stemming from the implementation of the various actions.

CRITICAL ELEMENTS:

A variety of laws, regulations, and policy directives mandate the evaluation of the effects of a Proposed Action and alternative(s) on certain critical environmental elements. Not all of the critical elements that require inclusion in this environmental assessment are present or if they are present, would be affected by the Proposed Action. Mandatory critical elements that are present and affected are indicated in Table 1, below, and discussed in alphabetical order following the table. Selected non-critical elements are also discussed, in alphabetical order, following the critical element.

Table 1.

Critical Element	Present		Affected		Critical Element	Present		Affected	
	Yes	***No***	***Yes***	***No***		***Yes***	***No***	***Yes***	***No***
Air Quality	X		X		Prime or Unique Farmlands		X		X
ACECs		X		X	Special Status Species*	X		X	
Cultural Resources		X		X	Wastes, Hazardous or Solid	X		X	
Environmental Justice	X			X	Water Quality, Surface and Ground*	X		X	
Floodplains	X			X	Wetlands and Riparian Zones*	X		X	
Invasive, Non-native Species	X		X		Wild and Scenic Rivers		X		X
Migratory Birds	X		X		Wilderness/WSAs		X		X
Native American Religious Concerns		X		X					

* Public Land Health Standard

AIR QUALITY

Affected Environment:

The Proposed Action area (Eagle County) has been described as an attainment area under CAAQS (Colorado Ambient Air Quality Standards) and NAAQS (National Ambient Air Quality Standards). An attainment area is an area where ambient air pollution amounts are determined to be below NAAQS standards. For more information on existing air quality in the area, refer to the Roan Plateau RMPA and EIS, which describes potential effects from oil and gas development (BLM 2006:4-26 to 4-37).

Environmental Consequences/Mitigation:

Proposed Action:

The Proposed Action would result in short-term localized emissions from dozer and vehicle operations associated with the removal and replacement of the culvert, in channel work, and transportation of personnel, equipment, and materials to and from the project area. Additionally, there is a potential for some dust generation if these activities occur in dry conditions while removing and replacing fill associated with the 8380 Road. These effects would be minor, of short duration, and overall would have little or no effect on local air quality. Since emissions and dust would be minimal and short-lived, no mitigation is recommended for these activities.

No Action Alternative:

The No Action alternative would have no effect on air quality.

CULTURAL RESOURCES

Affected Environment:

A Class III cultural resources inventory (GSFO# 5405-16) has been conducted along a portion the BLM road #8380 covering the Proposed Action. The survey covers an area 50 feet on each side of the road centerline. No cultural resources were identified.

Environmental Consequences/Mitigation:

Proposed Action:

As long as all ground-disturbing activity is restricted to 50 feet on each side of the road centerline there should not be any direct affects to cultural resources. Therefore, a determination of **No Historic Properties Affected** can be made in accordance with the National Historic Preservation Act (16U.S.C 470f), National BLM/SHPO Programmatic Agreement (1997), and Colorado Protocol (1998). The Inadvertent Discovery stipulation needs to be added and all personnel need to be informed about reporting and protecting cultural resources.

Mitigation:

All ground-disturbing activity including the collection of rocks for in-stream structures is restricted to 50 feet on each side of the road centerline. If additional area is needed to complete the project, a cultural resources inventory may be required.

Education/Discovery/NAGPRA Stipulation

The National Historic Preservation Act (NHPA) requires that if newly discovered cultural resources are identified during project implementation, work in that area must stop and the agency Authorized Officer notified immediately (36 CFR 800.13).

The Native American Graves Protection and Repatriation Act (NAGPRA), requires that if inadvertent discovery of Native American Remains or Objects occurs, activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice made to the BLM Authorized Officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)). Further actions also require compliance under the provisions of NHPA and the Archaeological Resource Protection Act.

No Action Alternative:

This alternative would be neither beneficial nor detrimental to cultural resources.

ENVIRONMENTAL JUSTICE

Affected Environment:

Review of 2004 data from US Census Bureau indicates the median annual income of Eagle County averages $59,037 and is neither an impoverished nor a wealthy county. U.S. Census Bureau data from 2006 shows the minority population of Eagle County comprises less than 0.3 % of the total population of Colorado. Median household income in Eagle County in 2004 was

estimated to $59,037 (Source: U.S. Census Bureau: State and County QuickFacts; last revised January 2, 2008).

Environmental Consequences/Mitigation:

Proposed Action:

The Proposed Action and alternatives are not expected to create a disproportionately high and adverse human health impact or environmental effect on minority or low-income populations within the area.

No Action Alternative:

Under the No Action alternative, no fence repair would be conducted. No disproportionately high and adverse human health impact or environmental effect on minority or low-income populations within the area would result.

INVASIVE NON-NATIVE SPECIES

Affected Environment:

No known infestations of noxious or invasive weeds have been documented at the project site. However, Canada thistle is highly likely to occur in the general vicinity.

Environmental Consequences/Mitigation:

Proposed Action:

Surface-disturbing activities associated with the Proposed Action would create a niche for noxious and invasive weeds to establish and potentially spread. Equipment and vehicles associated with the project could vector noxious weed seed and reproductive vegetative plant parts to the project area, resulting in new infestations.

Mitigation:

The operator is to ensure equipment involved in land disturbing actions be clean of noxious weed seeds or propagative parts prior to entry on site. When working in areas with noxious weeds, equipment should be cleaned prior to moving offsite.

The project leader is to assess the site one growing season after completion to determine the extent of noxious or invasive weed establishment. If noxious and invasive weeds are found at the project site, the project leader will coordinate with GSFO's Weed Coordinator to take appropriate action. The project leader will ensure reestablishment of vegetation occurs on all areas of soil disturbance. Proper dates and the seeding mix to be used will be provided by the Glenwood Springs Field Office. Only certified weed free seed and mulch will be used in the reestablishment of vegetation. All reseeded sites should be monitored and spot reseeding conducted as required.

No Action Alternative:

Under this alternative, the disturbance associated with the Proposed Action would not take place and noxious weeds are expected to continue at current levels.

MIGRATORY BIRDS

Affected Environment:

BLM Instruction Memorandum No. 2008-050 provides guidance toward meeting the Bureau of Land Management's (BLM) responsibilities under the Migratory Bird Treaty Act (MBTA) and the Executive Order (EO) 13186. The guidance directs Field Offices to promote the maintenance and improvement of habitat quantity and quality. To avoid, reduce or mitigate adverse impacts on the habitats of migratory bird species of conservation concern to the extent feasible, and in a manner consistent with regional or statewide bird conservation priorities.

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the U.S. Fish and Wildlife Service (USFWS) to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973." The 2008 list of Birds of Conservation Concern (BCC) (USFWS 2008) is the most recent effort to carry out this mandate.

The MBTA prohibits the "take" of a protected species. Under the Act, the term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The USFWS interprets "harm" and "kill" to include loss of eggs or nestlings due to abandonment or reduced attentiveness by one or both adults as a result of disturbance by human activity, as well as physical destruction of an occupied nest.

The conservation concerns are the result of natural or human-caused population declines, small ranges or population sizes, threats to habitat, or other factors. Habitat loss is believed to be the major reason for the decline of many species. When considering potential impacts to migratory birds the impact on habitat, including: 1) the degree of fragmentation/connectivity expected from the proposed project relative to before the proposed project; and 2) the fragmentation/connectivity within and between habitat types (e.g., within nesting habitat or between nesting and feeding habitats. Continued private land development, surface-disturbing actions in key habitats (e.g. riparian areas) and the proliferation of roads, pipelines, powerlines, and trails are local factors that reduce habitat quality and quantity for many species.

The GSFO is within the Southern Rockies/Colorado Plateau Bird Conservation Region (BCR). The 2008 BCC list includes the following species that are known to occur or are considered potentially present in the GSFO area: bald eagle *(Haliaeetus leucocephalus)*, ferruginous hawk *(Buteo regalis)*, golden eagle *(Aquila chrysaetos)*, peregrine falcon *(Falco peregrines)*, prairie falcon *(Falco mexicanus)*, yellow-billed cuckoo *(Coccyzus americanus)*, Lewis's woodpecker *(Melanerpes lewis)*, willow flycatcher *(Empidonax traillii)*, gray vireo *(Vireo vicinior)*, pinyon jay *(Gymnorhinus cyanocephalus)*, juniper titmouse *(Baeolophus ridgwayi)*, Brewer's sparrow *(Spizella breweri)*, black rosy-finch *(Leucosticte atrata)*, brown-capped rosy-finch *(Leucosticte australis)*, and Cassin's finch *(Carpodacus cassinii)*.

The GSFO provides both foraging and nesting habitat for a variety of migratory birds that summer, winter, or migrate through the area. The habitat diversity provided by the expanses of sagebrush, mixed mountain shrub, oakbrush, aspen, pinyon-juniper woodlands, other types of coniferous forests and riparian and wetland areas support many bird species. The gray vireo, pinyon jay, juniper titmouse, and Lewis's woodpecker are characteristically found in pinyon/juniper woodlands, while the Brewer's sparrow is found in sagebrush habitats. Several raptor species such as the red-tailed hawk (*Buteo jamaicensis*), Cooper's hawk (*Accipiter*

cooperii), sharp-shinned hawk (*A. striatus*), American kestrel (*Falco sparverius*), and great horned owl (*Bubo virginiana*) also occur in the area. Raptor surveys have not been conducted in the project area.

Bald eagles are increasing in numbers throughout their range and were removed from the Federal list of threatened and endangered species in 2007. They are protected under the MBTA and the Bald and Golden Eagle Protection Act. Bald eagles winter along portions of the Colorado, Eagle, and Roaring Fork Rivers and major tributaries and are generally present from mid-November to mid-April. Large cottonwood trees along the rivers and tributaries are used as roosting and perching sites, while the waterways provide the main food sources of fish and waterfowl. Upland habitats adjacent to the waterways are used as scavenging areas, primarily for winter-killed animals. Major threats include habitat loss, human disturbance, and illegal shooting.

Abrams Creek is within a mapped winter foraging area for bald eagles. Winter foraging areas are defined as areas frequented by wintering bald eagles between November 15 and March 15. These generally are large mapped areas radiating from preferred roosting sites along river corridors.

Environmental Consequences/Mitigation:

Proposed Action:

Limited specific bird count or species data exists for the area. Generally, responses of individual bird species to land management activities are often habitat and species specific. No intentional take of native bird species is anticipated under the Proposed Action. The project will affect a small portion of riparian and upland habitats (0.02 acre) previously impacted by the installation of the original culvert and the road.

The effect of the Proposed Action on migratory bird habitat is expected to be minimal and isolated, and not enough to influence populations of migratory birds on a landscape level or cause clear direct or indirect impacts. The project work will be performed in late July or early August 2010, so the odds of accidentally destroying occupied ground/tree/shrub nests has been mitigated since the young will be fledged by that time.

No Action Alternative:

No new culvert would be placed at the site and no other ground disturbance or human disturbance would occur. Compared to the Proposed Action, the No Action alternative would cause neither beneficial nor detrimental impacts to migratory birds or their habitat.

NATIVE AMERICAN RELIGIOUS CONCERNS

Affected Environment:

The Ute tribes claim this area as part of their ancestral homeland. At present, there are no areas of Native American concern within the proposed project. Also, the cultural resource survey did not identify any areas of concern. The Ute Tribes have indicated that they do not want to be notified or consulted with if the project is small or if there are no areas of Native American concern within the Proposed Action.

Environmental Consequences/Mitigation:

Proposed Action:

Although there would be no direct impacts from the Proposed Action, indirect impacts from increased access and personnel in the vicinity of the proposed project could result in impacts to undiscovered Native American resources. These impacts could range from illegal collection to vandalism.

Mitigation:

The Inadvertent Discovery should be stressed to all personnel involved in this project about the importance of protecting Native American values, including informing them of their responsibilities to report any Native American resources encountered.

No Action Alternative:

This alternative would be neither beneficial nor detrimental to Native American areas of concern.

THREATENED, ENDANGERED, AND SENSITIVE SPECIES

Special Status Species – Plants (includes an analysis on Public Land Health Standard 4)

Affected Environment:

Federally Listed, Proposed or Candidate Plant Species:

According to the latest species list from the USFWS (http://mountain-prairie.fws.gov/endspp/CountyLists/COLORADO.pdf), the only Federally listed, proposed, or candidate threatened or endangered plant species that may occur, have habitat, and/or be impacted by actions in Eagle County is the Ute ladies'-tresses orchid (*Spiranthes diluvialis*). Habitat for this threatened species is found below 6,500 feet along streams, lakes or in wetland areas with seasonally saturated or subirrigated soils. The project area is at approximately 8,000 feet elevation, which is above the elevation range of this orchid species.

BLM Sensitive Plant Species

The only BLM sensitive plant species with habitat and/or occurrence records in Eagle County is Harrington's penstemon (*Penstemon harringtonii*). Harrington's penstemon is found in open sagebrush communities or sagebrush/mixed mountain shrub communities between 6,400 and 10,000 feet. Harrington's penstemon is known to occur within 0.5 miles of the project site in pen sagebrush habitat. However, habitat at the culvert site consists of aspen woodlands, and along the road the vegetation is oakbrush/mixed mountain shrublands. There is a small amount of big sagebrush adjacent to the staging area, but little or no disturbance to this vegetation should occur. The staging area itself is a disturbed area that consists mostly of bare soil and a few perennial grasses.

Environmental Consequences/Mitigation:

Proposed Action:

Federally Listed, Proposed or Candidate Plant Species:

Due to the absence of known occurrences or suitable habitat for the Ute ladies'-tresses orchid, the Proposed Action would have **"No Effect"** on this listed species.

BLM Sensitive Plant Species

No Harrington's penstemon plants have been documented within the project area. The Proposed Action would have no impact on this sensitive species.

No Action Alternative:

Under the No Action alternative, the project would not occur, and no plants would be impacted.

Analysis on Public Land Health Standard for Special Status Plant Species:

The project area is on the boundary between the E Hardscrabble and W Hardscrabble Common Allotments. Standard 4 for special status plant species, namely Harrington's penstemon, was not being met in the West Hardscrabble Common allotment at the time of the land health assessment in 2003. Reasons for not meeting the standard included unregulated OHV use within occupied habitat for Harrington's penstemon, drought, lack of fire, and ungulate grazing. Neither the Proposed Action nor the No Action alternative would deteriorate land health conditions for special status plants.

Special Status Species – Terrestrial Wildlife (includes an analysis on Public Land Health Standard 4

Affected Environment:

Federally Listed, Proposed or Candidate Species – Terrestrial Wildlife

According to the latest species list from the USFWS (2008), the following Federally listed, proposed, or candidate terrestrial wildlife species may occur within or be affected by actions within the GSFO (see Table 2 on next page). These species, along with their status, distributions, habitat associations, and their potential association to the project area, are summarized below.

Black-footed Ferret (*Mustela nigripes*). Federally listed as endangered. Black-footed ferrets have ranged statewide but never have been abundant in Colorado. Their habitat included the eastern plains, the mountain parks and the western valleys – grasslands or shrub lands that supported some species of prairie dog, the ferret's primary prey. Little is known about their natural history. They mate in early spring and give birth to a litter of three or four mouse-sized pups after a seven-week gestation period. Black-footed ferrets are reported to be killed. They are susceptible to distemper, predators like owls and coyotes, and vehicles. It is assumed that plowing for agriculture and programs to eradicate prairie dogs have driven the black-footed ferret to the verge of extinction. State and Federal biologists have established two major black-footed ferret colonies: one at Coyote Basin (Colorado-Utah border west of Rangely) and another at the

BLM's Wolf Creek Management Area southeast of Dinosaur National Monument (CDOW 2009a). Because no known occurrences have been documented and the occurrence of the species in this area is unlikely due to range and habitat conditions, this species is not considered further.

Table 2.

Terrestrial Wildlife Species	**Habitat/Range**
Black-footed Ferret (*Mustela nigripes*)	In Colorado habitat includes the eastern plains, mountain parks, and western valleys. Specifically grasslands or shrublands that supported some species of prairie dog, the ferret's primary prey.
Canada lynx (*Lynx canadensis)*	Mesic forests of lodgepole pine, subalpine fir, Engelmann spruce, and quaking aspen in the upper montane and subalpine zones, generally between 8,000 and 12,000 feet in elevation.
Mexican spotted owl *(Strix occidentalis lucida)*	Mature montane forests, shady canyons, and steep canyons. Key components in montane forests are common to old-growth forests: uneven-age stands with high canopy closure and tree density, fallen logs and snags.
Western yellow-billed cuckoo *(Coccyzus americanus occidentalis)*	Mature riparian forests of cottonwoods and other large deciduous trees with a well-developed understory of tall riparian shrubs. Uncommon summer resident of Colorado.
Uncompahgre fritillary butterfly *(Boloria acrocnema)*	Patches of snow willow (*Salix nivalis*) at high elevations.

Canada Lynx (*Lynx canadensis*). Federally listed as threatened. The Canada lynx was listed as a Federally threatened species, effective April 24, 2000 (Federal Register Volume 65, No. 58). Canada lynx occupy high-latitude or high-elevation coniferous forests characterized by cold, snowy winters and an adequate prey base (Ruggiero et al. 1999). The preferred prey of Canada lynx throughout their range is the snowshoe hare (*Lepus americanus*). In the western United States, lynx are associated with mesic forests of lodgepole pine, subalpine fir, Engelmann spruce, and quaking aspen in the upper montane and subalpine zones, generally between 8,000 and 12,000 feet in elevation. Although snowshoe hares are the preferred prey in Colorado, lynx in also feed on other species such as the mountain cottontail (*Sylvilagus nuttallii*), pine squirrel (*Tamiasciurus hudsonicus*), and dusky grouse (*Dendragapus obscurus*).

The U.S. Forest Service (USFS) has mapped suitable denning, winter, and other habitat for lynx within the White River National Forest (WRNF). The mapped suitable habitat in the WRNF comprises several areas known as Lynx Analysis Units (LAUs). These are management areas that contain suitable lynx habitat and approximate the size of a female's home range. Several LAUs border BLM lands, but no areas large enough to be considered LAUs occur within the GSFO. BLM lands within the GSFO generally support the dispersal of lynx to a new area or, potentially, to lower elevations during severe winter weather in search of prey. No mapped habitat or linkage areas occur within the project area, and this species is not considered further.

Mexican Spotted Owl (*Strix occidentalis*). Federally listed as endangered. This owl nests, roosts, and hunts in mature coniferous forests in canyons and foothills. The only extant populations in Colorado are in the Pikes Peak and Wet Mountain areas of south-central Colorado and the Mesa Verde area of southwestern Colorado. Because no known occurrences have been documented and the occurrence of the species in this area is unlikely due to range and habitat conditions, this species is not considered further.

Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*). Candidate for Federal listing. This secretive species occurs in mature riparian forests of cottonwoods and other large deciduous trees with a well-developed understory of tall riparian shrubs. Western cuckoos breed in large blocks of riparian habitats, particularly woodlands with cottonwoods (*Populus deltoides, P. angustifolia*) and tall willows (*Salix* spp.). A few sightings of yellow-billed cuckoo have occurred in western Colorado along the Colorado River near Grand Junction (USFWS 2009c). Riparian areas in the project area do not provide suitable habitat for this species due to the patchy nature of the stands and the general lack of a tall-shrub understory. Because occurrence in the area is unlikely due to range and habitat conditions, this species is not considered further.

Uncompahgre Fritillary Butterfly *(Boloria acrocnema).* Federally listed as endangered. The butterfly has been verified at only two areas in the San Juan Mountains in Colorado. There is anecdotal evidence of other colonies in the San Juans and the southern Sawatch Range in Colorado. The butterfly occurs above treeline in patches of its larval host plant, snow willow. The butterfly is most often found on north and east facing slopes, which provide a moist, cool, microclimate. The greatest known controllable threat is butterfly collecting. Climatological patterns, disease, parasitism, predation, and trampling of larvae by humans and livestock might pose additional threats. Because no known occurrences have been documented and the occurrence of the species in this area is unlikely due to range, elevation and habitat conditions, this species is not considered further.

BLM Sensitive Species – Terrestrial Wildlife

According to the latest *Colorado BLM State Director's Sensitive Species List (Animals and Plants) June 2000,* the following sensitive terrestrial wildlife species may occur within or be affected by actions within the GSFO (Table 3):

Table 3.

Name	Habitat/Range	Occurrence
Townsend's big-eared bat (*Corynorhinus townsendii*) and Fringed myotis (*Myotis thysanodes)*	Occur as scattered populations at moderate elevations on the Western Slope, along the foothills of the Front Range and the mesas of southeastern Colorado. Maximum elevation is 7,500 feet. Breed and roost in caves, trees, mines, and buildings; hunt over pinyon-junipers, montane conifers, and semi-desert shrublands. Potential in caves, mines, or trees.	Present
Northern goshawk (*Accipiter gentilis)*	Resident in foothills and mountains and occasional in migration and winter at lower elevations. Predominantly uses mature stands of aspen, and pines (ponderosa and lodgepole). Uncommon – seasonal.	Present
Barrow's goldeneye (*Bucephala islandica)*	Rare winter resident and spring/fall migrant in lowlands and mountains; a few breed in the northern mountains. Uncommon – seasonal.	Absent
White-faced ibis (*Plegadis chihi)*	Inhabits wet meadows, marsh edges, and reservoir shorelines. Very rare, non-breeding summer migrant in western Colorado valleys and mountain lakes. Main breeding area is in the San Luis valley.	Absent
Greater sage-grouse (*Centrocercus urophasianus)*	Resident of relatively large, open sagebrush flats or rolling sagebrush hills. Uncommon and unlikely in this part of the GSFO or associated habitats.	Present

The following paragraphs address species with a habitat potential for presence in the project area.

Townsend's Big-eared Bat (*Plecotus townsendii*) and Fringed Myotis (*Myotis thysanodes*). Occur as scattered populations at moderate elevations on the Western Slope of Colorado. Habitat associations are not well defined. Both of these bats forage over water and along the edge of vegetation (pinyon-juniper woodlands, montane conifer woodlands, and semi-desert shrublands) for aerial insects. Although they commonly roost in caves, rock crevices, mines, or buildings, they also may roost in tree cavities. Both species are widely distributed and usually occur in small groups. They roost in rock crevices, caves, mines, buildings, and trees. Townsend's big-eared bat is not very abundant anywhere in its range and this is attributed to patchy distribution and limited availability of suitable roosting habitat (Gruver and Keinath 2006).

Northern Goshawk *(Accipiter gentilis)*. The Northern goshawk is the largest North American accipiter. The goshawk is a forest habitat generalist that uses a variety of forest type, forest ages, structural conditions, and successional stages. Goshawks prey on small-medium sized birds and mammals. It breeds in coniferous deciduous and mixed forests. The nest is typically located on a northerly aspect in a drainage or canyon and is often near a stream. Nest areas contain one or more stands of large, old trees with a dense canopy cover. A goshawk pair occupies its nest area from March until late September. The nest area is the center of all movements and behaviors associated with breeding from courtship through fledging.

Greater Sage-grouse (*Centrocercus urophasianus)*. Sage-grouse, as the name implies, are found only in areas where sagebrush is abundant, providing both food and cover. Although these birds are found at altitudes of 6,000 to 8,500 feet, they are not forest grouse and prefer relatively open sagebrush flats or rolling sagebrush hills. In winter, sagebrush accounts for 100% of the diet for these birds. In addition, it provides important escape cover and protection from the elements. In late winter, males begin to concentrate on traditional strutting grounds or leks. Females arrive at the leks 1 to 2 weeks later. Leks can occur on a variety of land types or formations (windswept ridges, knolls, areas of flat sagebrush, and flat openings in the sagebrush). Breeding occurs on the leks and in adjacent sagebrush, typically from March through May. Females and their chicks remain largely dependent on forbs and insects for food well into early fall. Cultivated herbaceous broad-leaved plants (alfalfa, clover) are important early fall food sources when available (CDOW 2009b). The Northern Eagle/Southern Routt population, while small (<500 birds), probably has or formerly had a relationship with the larger population in Moffat, Rio Blanco, and western Routt counties, and probably with the Middle Park population to the east. Sage-grouse are still present in the Radium area between State Bridge and Kremmling (Northern Eagle/Southern Routt Greater Sage-Grouse Work Group 2004) and likely to occur in the Gypsum Hills area and the area north of Wolcott.

Environmental Consequences/Mitigation:

Proposed Action:

Federally Listed, Proposed or Candidate Species – Terrestrial Wildlife

No USFWS-designated critical habitat for any of the above terrestrial wildlife species is found within the GSFO. No occupied habitat is present within the vicinity that could be directly or indirectly affected by the Proposed Action. Due to the absence of any known occurrences, suitable habitat or landscape linkage for any listed, proposed or candidate terrestrial wildlife species, the Proposed Action should have "**No Effect**" on these species.

BLM Sensitive Species – Terrestrial Wildlife

Townsend's Big-eared Bat and Fringed Myotis. Distribution seems is likely to be locally determined by availability of roosts, such as caves, mines, tunnels, crevices and masonry structures with suitable temperatures. No bat roosts or hibernacula have been documented within the area of the Proposed Action.

The greatest threats in order of priority to Townsend's Big-eared Bat (and likely Fringed Myotis) are the: (a) loss/modification/disturbance of roosting habitat resulting from uninformed closure of abandoned mines, recreation and renewed mining at historical sites; (b) loss, modification, or disturbance of foraging habitat resulting from the conversion of native shrub and grasslands to urban or agricultural uses; and (c) exposure to environmental toxins (Gruver and Keinath 2006). It is not plausible that a 0.2-acre disturbance in a previously disturbed area will contribute to the decline of the functionality of foraging habitat for bats.

Northern Goshawk. The GSFO RMP currently protects raptor nesting and fledging habitat is with a timing limitation stipulation. This limitation restricts certain disturbing activities within a one-quarter mile buffer zone around the nest site from February 1 to August 15. No nest sites are known to occur within the area of the Proposed Action.

Mitigation:

If a goshawk nest is found the within 0.25 mile of the project area, disturbing activities will be mitigated or curtailed.

Greater Sage-grouse. A limited amount of potential/suitable habitat still exists within the area. There is CDOW mapped historic habitat (where viable populations have not occurred in 5 years or more) in Alkali Creek, one mile to the north, and Hernage Creek, 2 miles to the east. However, no birds have been seen in many years, and no historic or active lek sites have ever been identified. It is not plausible that a 0.2-acre disturbance in a previously disturbed area will contribute to the decline of the functionality of habitat for sage-grouse if the species were to reestablish in the area.

No Action Alternative:

No new culvert would be placed at the site and no other ground disturbance or human disturbance would occur. Compared to the Proposed Action, the No Action alternative would have "**No Effect**" on Federally Listed, Proposed, or Candidate terrestrial wildlife species and would cause neither beneficial nor detrimental impacts on any BLM sensitive terrestrial wildlife species.

Analysis on Public Land Health Standard 4 for Terrestrial Wildlife Special Status Species (partial, see also Plants and Aquatic Wildlife):

BLM utilizes *standards* (conditions needed to sustain public land health) and *guidelines* (management tools, methods, strategies, and techniques designed to maintain or achieve healthy public lands as defined by the standards) to assess and manage livestock grazing (BLM 1997). In 2002, the BLM GSFO conducted a formal land health assessment of the Eagle River South Watershed, which encompassed the project area. The assessment noted that Standard 4 for greater sage-grouse was not currently being met on the West Hardscrabble allotment for the following reasons: 1) OHV and other human recreation use, 2) habitat fragmentation, 3) lack of fire - juniper encroachment, 4) ungulate grazing, 5) drought, and 6) physical loss of habitats on

private lands (BLM 2003). The Proposed Action will not contribute directly or indirectly to any of these factors and further decrease the suitability of the area for greater sage-grouse. Neither the Proposed Action nor the No Action alternative would prevent the continued achievement of Standard 3 for other special status terrestrial wildlife species.

Special Status Species – Aquatic Wildlife Species (includes an analysis on Public Land Health Standard 4

Affected Environment:

Federally Listed, Proposed, or Candidate Species – Aquatic Wildlife

According to the latest species list from the USFWS (2008), the following Federally listed, proposed, or candidate aquatic vertebrate species may occur within or be affected by actions within the GSFO (Table 4):

Table 4.

Aquatic Wildlife Species	**Habitat/Range**
Greenback cutthroat trout *(Oncorhynchus clarki stomias)*	Cold, clear, gravelly headwater streams and mountain lakes. Originally found in the mountain and foothill areas of the Arkansas and South Platte river systems in Colorado and part of Wyoming.
Bonytail *(Gila elegans)*	Large, fast-flowing waterways of the Colorado River system.
Colorado pikeminnow *(Ptychocheilus lucius)*	Swift flowing muddy rivers with quiet, warm backwaters of the Green, Yampa, White, Colorado, Gunnison, San Juan, and Dolores rivers.
Humpback chub *(Gila cypha)*	Deep, fast-moving, turbid waters often associated with large boulders and steep cliffs such as canyon-bound portions of the Colorado River system such as Black Rocks and Westwater canyons.
Razorback sucker *(Xyrauchen texanus)*	Deep, clear to turbid waters of large rivers and reservoirs over mud, sand, or gravel. Currently low numbers in the Yampa, Colorado, and Gunnison rivers. Reproducing populations remain only in the Colorado River near Grand Junction.

These species, along with their status, distribution, habitat associations, and as appropriate their association to the project area, are summarized below.

Greenback Cutthroat Trout (*Oncorhynchus clarki stomias*). Federally listed as threatened. The greenback cutthroat trout was not identified on the USFWS list for Garfield County; however, recent surveys have identified a population in Cache Creek, located several drainages east of the project area. The greenback is the subspecies of cutthroat trout native to the Platte River drainage on the Eastern Slope of Colorado, while the Colorado River cutthroat trout is the subspecies native to Garfield County and throughout the Western Slope of Colorado. Although the occurrence of greenbacks in Cache Creek and potentially elsewhere in the GSFO and WRNF areas is apparently the result of human intervention (e.g., sanctioned or *ad-hoc* transplantation of fish from the Eastern Slope), its status as threatened applies to Western Slope populations. However, because drainages within the project area do not support this species, it is not considered further.

Endangered Big-River Fishes. Four species of Federally listed big-river fishes occur within the Colorado River drainage basin downstream from the project area. The main factor identified as potentially affecting these fishes is the consumptive use of water from the Colorado River or its tributaries, resulting in decreased flows and adverse modification of critical habitat. These ecologically similar species are discussed below:

- Colorado Pikeminnow (*Ptychocheilus lucius*). Federally listed as endangered. The Colorado pikeminnow (formerly Colorado squawfish) was once abundant in the main stem of the Colorado River and most of its major tributaries in Colorado, Wyoming, Utah, New Mexico, Arizona, Nevada, California, and Mexico. Now, they exist primarily in the Green River below the confluence with the Yampa River, the lower Duchesne River in Utah, the Yampa River below Craig, Colorado; the White River from Taylor Draw Dam near Rangely downstream to the confluence with the Green River; the Gunnison River in Colorado; and the Colorado River from Palisade, Colorado, downstream to Lake Powell. Biologists believe that Colorado pikeminnow populations in the upper Colorado River basin are now relatively stable and in some areas may even be growing. Designated Critical Habitat for the Colorado pikeminnow includes the Colorado River and its 100-year floodplain west (downstream) from the town of Rifle.

- Humpback Chub (*Gila cypha*). Federally listed as endangered. The nearest known habitat for the humpback chub and bonytail is within the Colorado River approximately 70 miles downstream from the project area. Only one population of humpback chub, at Black Rocks west of Grand Junction, is known to exist in Colorado.

- Bonytail (*G. elegans*). Federally listed as endangered. This large chub is a member of the minnow family. Their current distribution and habitat status are largely unknown due to its rapid decline prior to research into its natural history. Historically, bonytails were present in the Colorado River system, which includes the Yampa, Green, Colorado, and Gunnison rivers. The bonytail is extremely rare in Colorado, and no self-sustaining population is known to exist anywhere in the Colorado River basin. Only one individual bonytail has been captured in the state since 1980. Restoration stocking of bonytail in the wild to develop adult populations is the priority recovery action in Colorado.

- Razorback Sucker (*Xyrauchen texanus*). Federally listed as endangered. The razorback sucker was once widespread throughout most of the Colorado River Basin from Wyoming to Mexico. In the upper Colorado River Basin, they are now found only in the upper Green River in Utah, the lower Yampa River in Colorado and occasionally in the Colorado River near Grand Junction. Because so few of these fish remain in the wild, biologists have been actively raising them in hatcheries in Utah and Colorado and stocking them in the Colorado River. Designated critical habitat for the razorback sucker includes the Colorado River and its 100-year floodplain west (downstream) from the town of Rifle.

BLM Sensitive Species – Aquatic Wildlife

According to the latest *Colorado BLM State Director's Sensitive Species List (Animals and Plants) June 2000*, the following sensitive aquatic wildlife species may occur within or be impacted by actions within the GSFO (Table 5).

Table 5.

Name	Habitat	Occurrence
Northern leopard frog (*Rana pipiens)*	Wet meadows and the banks and shallows of marshes, ponds, glacial kettle ponds, beaver ponds, lakes, reservoirs, streams, and irrigation ditches.	Present
Bluehead sucker (*Catostomus discobolus*)	Primarily larger rivers and streams but may also be found in smaller tributaries with good connectivity to larger river systems.	Absent
Flannelmouth sucker (*Catostomus latipinnis)*	Generally restricted to rivers and larger tributaries.	Absent
Mountain sucker (*Catostomus platyrhynchus*)	Small low to mid elevation streams and rivers primarily in northwestern Colorado. Within the GSFO, only known in Piceance Creek.	Absent
Roundtail chub (*Gila robusta)*	Generally restricted to rivers and larger tributaries.	Absent
Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus)*	Prefers clear, cool headwaters streams with coarse substrates, well-distributed pools, stable streambanks, and abundant stream cover.	Present in Abrams Creek Within the Project Area

The following paragraphs address species with a habitat potential to be present in the project area.

Leopard Frog (*Rana pipiens*). Northern leopard frogs are generally found between 3,500 to 11,000 feet in Colorado, in wet meadows and in shallow lentic habitats. Northern leopard frogs require year 'round water sources, deep enough to provide ice free refugia in the winter. The presence of northern leopard frogs has been associated with sites with more herbaceous cover as opposed to sites with earlier successional stages of emergent vegetation. Leopard frogs feed primarily on emergent adults of aquatic insects or on terrestrial insects attracted to the water. Within the GSFO, this species has been documented in various locales. Suitable habitat is abundant within the GSFO where quality riparian vegetation exists in conjunction with reliable perennial water sources. Population declines have been attributed to habitat alteration and loss, the effects of introduced bullfrogs and gamefishes, aerial pesticide applications, and droughts that limit the availability of year-round water

Flannelmouth Sucker (*Catostomus latipinnis*), Bluehead Sucker (*C. discobolus*), and Roundtail Chub (*Gila robusta*). These native nongame fishes generally have habitat requirements similar to those of the Federally listed big-river fishes described above. All three species are known to occur in the Colorado River. They are potentially affected by major activities that alter water quality or flow regimes in the Colorado River mainstem and its larger tributaries. Decreased flow reduces the usability of important habitats components including backwaters, spawning bars, eddies, and periodically flooded bottomlands. In addition, both sucker species are susceptible to hybridization with the non-native white sucker (*Catostomus commersonii*), which can reduce the genetic integrity of these species.

Mountain Sucker (*Catostomus platyrhynchus*). The mountain sucker is found primarily in smaller rivers and streams with gravel, sand, and mud bottoms. Colorado specimens are found in

areas of undercut banks, eddies, small pools, and in areas of moderate current. Young fish prefer backwaters and eddies. A population of mature adults is found in at least one Colorado impoundment, Steamboat Lake. They can be affected by reduced flow regimes, and may hybridize with non-native white suckers, which can lead to reduced genetic diversity.

Colorado River Cutthroat Trout (*Oncorhynchus clarki pleuriticus).* Colorado River cutthroat trout are one of three subspecies of native trout found in Colorado. This Conservation Strategy has been initiated by the wildlife agencies in Colorado, Utah, and Wyoming to reduce threats to CRCT. CRCT are readily outcompeted by non-native salmonids, primarily brook and brown trout, and are susceptible to hybridization with other *Oncorhynchus* species including rainbow trout and other sub species of cutthroat, which reduces the genetic integrity of this subspecies (CRCT Coordination Team 2006). Abrams Creek contains a Core Conservation Population of pure Colorado River cutthroat trout.

Environmental Consequences/Mitigation:

Proposed Action:

Federally Listed, Proposed or Candidate Species – Aquatic Wildlife

Abrams Creek does not contain greenback cutthroat trout. The Proposed Action does not directly affect the Colorado River and therefore will have little or no direct effect on the four endangered big-river fishes or their habitat. Due to the (a) absence of any known occurrences within the area, (b) lack of suitable habitat for any listed, proposed or candidate aquatic wildlife species within the area, and (c) negligible indirect and offsite negative impacts from the Proposed Action, it is concluded that the proposed project will likely have "**No Effect**" on any of these species.

BLM Sensitive Species – Aquatic Wildlife

Northern Leopard Frog. The Proposed Action could impact adults and eggs at wetland margins and remove riparian vegetation. Water quality and siltation could affect insect and frog reproduction. However, no frogs are known to occur within the area of the Proposed Action and their presence is unlikely due to the distance from known populations.

Colorado River Cutthroat Trout. The Proposed Action would have short-term impacts to resident cutthroat primarily via increased suspension of sediments and potential for some offsite soil movement and increased sedimentation. Increases in sediments entering the stream can adversely affect resident cutthroat trout by covering spawning/rearing areas, thereby reducing the survival of fish embryos and juveniles (USDA Forest Service 2000). While there is some potential for this, the proposed timing of work was chosen with the spawning season in mind. Project activities would begin after the spring spawning season and when eggs and young larval fish are most susceptible to impact.

Excessive sedimentation can also fill in important pool habitats reducing their depth and making them less usable by cutthroat and other aquatic organisms. Pool habitats are important as over-summer and over-winter thermal refugia areas for these fish and are limited especially in Trapper Creek. A number of sublethal effects to resident cutthroat may also occur as a result of sedimentation, including avoidance behavior, reduced feeding and growth, and physiological stress (Waters 1995). Over the long-term, increased sediment loads reduce primary production in streams (USDA Forest Service 2000). Reduced insect productivity results from excessive sediment that fills in the interstitial spaces between stream substrates needed by these aquatic

invertebrates. This loss is stream productivity can disrupt the food chain and result in reduced food sources for resident cutthroat as well as terrestrial bird and bat species. While there is potential for all of these effects to occur, given the scale of work, the intensity and duration of impacts should be limited. In addition, the Proposed Action calls for the placement of erosion control structures between disturbed soils and the stream, which should reduce sediment impacts.

The reduction of streamside riparian vegetation can alter the nutrient dynamics of aquatic habitat. In areas where riparian vegetation has been depleted or lost, a shift in energy inputs from riparian organic matter to primary production by algae and vascular plants have been predicted (Minshall et al. 1989) and observed (Spencer et al. 2003). The increased solar radiation that results from the loss of streamside (or poolside, etc.) vegetation causes temperatures, light levels, and autotrophic production (i.e., plants and algae) to increase. This change in a stream's food web could alter the composition of food and thus energy sources that are available to resident cutthroat and aquatic invertebrates. Terrestrial insect diversity and productivity also decreases with reductions in streamside vegetation, which also affects food availability for resident fish. Increased stream temperatures affect cutthroat by reducing their growth efficiency and increasing their likelihood of succumbing to disease. This project would result in the loss of up to five large willow plants. The Proposed Action calls for the replacement of these with up to fifteen 5-gallon native willow plants. In addition, the proposed work is very site specific and would affect only a small portion of the stream. All impacts addressed would be short-term and of minimal intensity.

Mitigation:

To minimize the spread of aquatic nuisance species and disease vectors, all equipment to be used in live water will be sprayed with a diluted Sparquadt industrial strength germicide solution prior to use. This mixture and its application will be provided and conducted by BLM personnel on site.

No Action Alternative:

No new culvert would be placed at the site and no other ground disturbance or human disturbance would occur. Compared to the Proposed Action, the No Action alternative would have "**No Effect**" on Federally Listed, Proposed, or Candidate aquatic wildlife species and would cause neither beneficial nor detrimental impacts on any BLM sensitive aquatic wildlife species. However the existing culvert would continue to impede upstream movement and migration of resident Colorado River cutthroat trout.

<u>Analysis on Public Land Health Standard 4 for Aquatic Wildlife Special Status Species (partial, see also Plant and Terrestrial Wildlife):</u>

In 2002, the BLM GSFO conducted a formal land health assessment of the Eagle River South Watershed, which encompasses the project area. The assessment noted that water quality and riparian conditions in Abrams Creek were providing good aquatic habitat. Standard 4 was being achieved for Abrams Creek as it contains a genetically pure population of wild, self-sustaining Colorado River cutthroat trout. The population appears to be stable despite water diversions that divert a significant amount of flow, and prior to placement of a fish screen, may have accounted for seasonal losses of fish (BLM 2003). The Proposed Action would help ensure that Standard 4 for Colorado River cutthroat trout would be achieved in future assessments.

WASTES, HAZARDOUS OR SOLID

Affected Environment:

Fuels and lubricants would be used for the operation of all vehicles and equipment during project implementation. The majority of the proposed activities would occur either in Abrams Creek or within close proximity to Abrams Creek.

Environmental Consequences/Mitigation:

Proposed Action:

In order to implement the proposed activities it would be necessary for vehicles and equipment to be in close proximity to Abrams Creek when performing in channel operations and during the removal and replacement of the existing culvert. At times it would be necessary to cross Abrams Creek during project implementation. In the event of a spill, there is the potential for contaminants to be transported to nearby Abrams Creek, which would negatively impact water quality and aquatic organisms.

Mitigation:

Fuels and lubricants would be stored in appropriate containers and refueling would occur in designated areas at a minimum of 100 feet from Abrams Creek. To minimize the likelihood of spills and the delivery of hazardous materials to Abrams Creek, it is essential that vehicle and equipment remain out of the channel while performing in channel activities. By remaining above the channel banks (preferably the high water mark), heavy equipment can still perform in channel work using a bucket or similar attachment.

When crossing Abrams Creek, equipment and vehicles should move quickly and without incident. Appropriate BMPs as outlined in the Proposed Action should be used to minimize the potential transport of fuels and lubricants to Abrams Creek during runoff events. Following daily operations, vehicles and equipment shall be removed from the Abrams Creek vicinity and stored overnight in a staging area a minimum of 100 feet from the creek. In addition, the contractor would be required to have an accurate spill prevention plan on site at all times.

No Action Alternative:

Under the No Action alternative there would be no fuel or lubricants present associated with vehicles and equipment.

WATER QUALITY, SURFACE AND GROUND (includes an analysis on Public Land Health Standard 5)

Affected Environment:

Proposed activities would occur on BLM managed lands south of I-70, the Eagle River, and the Town of Eagle; and southeast of the Town of Gypsum, west of Brush Creek, and north of the White River National Forest. These activities would occur entirely within the 9,748-acre Abrams Creek 6th field subwatershed that contains the perennial Abrams Creek. Northeast of the project area and south of the Town of Eagle, Abrams Creek is tributary to the perennial Brush Creek, which is in turn tributary to the Eagle River.

The surface geology in the area consists of fluvial (water-deposited) and eolian (wind-deposited) sedimentary rocks primarily from the Mesozoic Era and the Jurassic and Triassic Periods. Following is a brief description of the formations encountered from lower to higher elevations that coincide with age from youngest to oldest. Within the project area, the surface geology consists of Upper Jurassic Morrison and Entrada Formations. The Morrison Formation contains light gray to green shale, mudstone, sandstone, and limestone while the Entrada Formation contains light gray to orange sandstone. Just upstream of the project area, the surface geology consists of the Upper Triassic Chinle Formation that contains brown to red calcareous siltstone, mudstone, and sandstone. Surface geology in the headwaters on the north slope of Hardscrabble Mountain consists of the Lower Triassic and Permian State Bridge Formation that contains orange-red to red-brown siltstone and sandstone.

Abrams Creek has a relatively small watershed with its headwaters originating on the north slope of the approximately 10,500-foot, southeast- to northwest-trending Hardscrabble Mountain. In the vicinity of the project area, Abrams Creek is a step-pool channel that could be classified as a Rosgen A-type channel. The channel is entrenched, width to depth ratios are low, and sinuosity is low. Gradient is high approaching 6% and bankful widths range from approximately 4 to 6 feet. Substrate consists of material ranging in size from silt-sized particles to small boulders with an average particle size closer to gravel. As mentioned in the previous paragraph, these materials are primarily sedimentary in origin.

Upstream and southwest of the project area approximately 0.3 mile is a diversion ditch along the left bank of Abrams Creek. According to the Colorado Decision Support Systems (CDSS) map viewer, which is a water management system being developed by the Colorado Water Conservation Board and the Colorado Division of Water Resources; this diversion is the Gulch Ditch which is currently being used for agricultural and domestic purposes. On July 10, 2009 discharge measurements were taken above this diversion and above the culvert within the project area. The result was approximately 1.63 cubic feet per second above the diversion and 1.2 cubic feet per second above the culvert. Essentially the ditch was diverting approximately 0.5 cfs or one-third of flows at the time measurements were taken. Currently the BLM is working with the State of Colorado and the Gulch Ditch users to change the point of diversion to benefit native cutthroat trout throughout this crucial stretch of Abrams Creek.

According to the State of Colorado's *Stream Classifications and Water Quality Standards* (CDPHE, Water Quality Control Commission, Regulation No. 33) list, Abrams Creek is within the Eagle River Basin segment 10b that consists of Abrams Creek, including all tributaries and wetlands, from the source to the eastern boundary of the United States Bureau of Land Management lands. This segment has been classified aquatic life cold 1, recreation E, water supply, and agriculture. These classifications indicate that this segment is capable of sustaining a wide variety of cold water biota, used for primary contact recreation, and suitable or intended to become suitable for potable water supplies and agricultural purposes that include irrigation and livestock use.

In addition to the classifications listed above, this segment has been given an Outstanding Waters designation by the State of Colorado. This designation is based on three determinations that include: 1) existing water quality is equal to or better than that specified for the protection of aquatic life class 1, recreation P, and domestic water supply uses; 2) the waters constitute an outstanding natural resource based on the fishery it maintains and it has been determined to be of

exceptional recreational or ecological significance; and 3) the water requires protection beyond that provided by the assigned water quality classifications and standards.

Abrams Creek is not currently listed on the State of Colorado's *303(d) List of Water Quality Limited Segments Requiring TMDLS* (CDPHE, Water Quality Control Commission, Regulation No. 93) or the *Monitoring and Evaluation List* (CDPHE, Water Quality Control Commission, Regulation No. 94) as a waterbody suspected to have water quality problems. At this time very limited water quality data are available for Abrams Creek. Table 6 displays area water quality data collected by the BLM Glenwood Springs Field Office as part of the Eagle River South Watershed Land Health Assessment and includes additional samples collected in 1981.

Table 6.

2002 Eagle River South Watershed Land Health Assessment							
Stream Name	**Date**	**Discharge (cfs)**	**Temp. (°C)**	**Cond. (µS\cm)**	**pH**	**Salinity 0/00**	**Sediment (mg/l)**
Alkali Creek near Gypsum	5/23/2002	0.59	8.2	193	8.3	0	
McHattan Creek (5S,85W,Sec 23,NWSE)	5/30/2002	0.028	14.5	258	8.4	0	
Spring Creek near Gypsum (above culvert)	5/30/2002	0.53	16	310	8.3	0	
Abrams Creek @JPO-2 diversion	6/4/2002	0.14	6	140	8.5	0	
West Middle Fork Abrams Creek above confluence	6/4/2002	0.223	6.5	141	8.3	0	
East Middle Fork Abrams Creek above confluence	6/4/2002	0.375	9	180	8.3	0	
Abrams Creek @ Mrs. Paye Ditch diversion	6/4/2002	0.074	14	1600	8.2	1.25	
Hernage Creek Spring	6/21/2002	0.002	11.5	179	8.2	0	
Third Gulch Spring	6/27/2002	0.005	12	1225	8.5	1	
Salt Creek tributary to Brush Ck nr Eagle	6/28/2002	0.06	13	262	7.8	0	
Trail Gulch tributary to Brush Ck nr Eagle	6/28/2002	0.018	17	440	8.6	0	
Grundell Creek	7/8/2002	0.07	13	318	8.7	0	
Hardscrabble Gulch	7/8/2002	0.11	13	203	8.4	0	
Old Mann Gulch	7/8/2002	0.09	17.5	650	8.4	0	
Fitzpatrick Gulch	7/9/2002	0.002	10	1820	7.9	1.5	
Brush Creek (7 samples)	1/9/1981	15-78	6.8	796	8	-	26-372
Salt Creek (2 samples)	8/9/1981	2.5-3.9	13.5	2225	8.75	-	
Abrams Creek (3 samples)	5/8/1981	0.1-0.7	8	957	8.5	-	

Environmental Consequences/Mitigation:

Proposed Action:

The proposed activities would result in the removal of vegetation, soil compaction, and soil displacement in close proximity to Abrams Creek. The removal of vegetation and soil displacement would occur along the existing road cut and just upstream and downstream of the existing culvert. Additional sediment available for transport to Abrams Creek would be generated during the removal and replacement of the existing culvert. In addition, some soil compaction would occur during culvert replacement and in stream activities through the use of heavy equipment just above the high water mark of Abrams Creek.

The Proposed Action would result in some sediment transport to nearby Abrams Creek during project implementation and prior to vegetation establishment during runoff events. To minimize the negative effects of sediment transport to Abrams Creek, it is essential that standard water quality BMPs (as identified in the Proposed Action) and mitigation measures be installed and maintained on a frequent basis to ensure that water quality in Abrams Creek is not impaired by the proposed activities. In addition, it would be necessary to divert flow from Abrams Creek around the project site during in-stream and culvert replacement activities. If the outlet of this diversion is inadequately rip-rapped or aligned, the result could be scour of the channel substrate or banks.

No Action Alternative:

The No Action alternative would have little to no effect on water quality but would continue to negatively impact stream geomorphology above and below the culvert as well as inhibit aquatic passage. Currently the stream is aggrading above the culvert and slightly scouring the right bank below the culvert. This is the result of an undersized culvert, one that is out of alignment, and one that is at a steep grade. In extreme cases, the scouring and aggradation could lead to excessive sediment input in the system during high runoff events that could negatively impact aquatic organisms.

Analysis on Public Land Health Standard 5 for Water Quality:

In 2002 the BLM Glenwood Springs Field Office assessed area drainages as part of the Eagle River South Watershed Land Health Assessment (see table above). During that time, overall water quality was good and all waters evaluated were meeting Standard 5 for Water Quality.

It is not likely that the Proposed Action or the No Action alternative would prevent Standard 5 from being met.

WETLANDS AND RIPARIAN ZONES (includes a analysis on Public Land Health Standard 2)

Affected Environment:

The project area contains a riparian area along Abrams Creek. Vegetation is a deciduous woodland dominated by aspen with a few mature (tall) willow clumps. A 2002 Proper Functioning Condition (PFC) assessment of this reach of Abrams Creek rated it as proper functioning condition. Photos of the riparian area indicate that it is good condition (late seral stage).

Environmental Consequences/Mitigation:

Proposed Action:

Disturbance to the riparian area would occur from excavation required for culvert installation. It is estimated that the extent of disturbance would be 20 to 30 feet both upstream and downstream from the culvert. Based on this, there would be approximately 0.04 acre, or less, of riparian vegetation that would be lost in the short-term. Field observations indicate this would result in the loss of five large willow plants; however, three 5-gallon willow plants would be planted for every one willow removed which would offset most of the impacts to the riparian area. Disturbance to the riparian area would also be expected to recovery naturally within a short period of time (within 5 years) given the current condition of the riparian area. No long- term loss of riparian vegetation would occur.

Mitigation:

Mitigation measures for impacts to the riparian area have been incorporated into the Proposed Action.

No Action Alternative:

There would not be any loss or disturbance to riparian area vegetation under this alternative.

Analysis on Public Land Health Standard 2 for Riparian Systems:

The Proposed Action including the incorporated mitigation would result in minor, short-term, impacts to the riparian area; therefore, would not deteriorate or prevent the achievement of Standard 2 for riparian systems. Under the No Action alternative, there would be no loss or disturbance to the riparian area; therefore, would not deteriorate or prevent the achievement of Standard 2 for riparian systems.

WILD AND SCENIC RIVERS

Affected Environment:

The Wild and Scenic River Act seeks to protect and enhance a river's natural and cultural values and to provide for public use consistent with its free-flowing character, its water quality, and its outstandingly remarkable values (ORVs). A wild and scenic rivers study process is composed of two main components: the eligibility phase and the suitability phase. At this point, BLM has only conducted the eligibility phase of the wild and scenic rivers study process for the GSFO. The eligibility phase was conducted in accordance with BLM guidelines (BLM 2007).

Abrams Creek contains a genetically pure population of native Colorado River cutthroat trout, a BLM sensitive species. This self-sustaining population is considered a core conservation population in the *Range-Wide Status of Colorado River Cutthroat Trout*.

The preliminary classification is "Recreational" because of a road, road crossing, and minor diversion. Recreational opportunities are, or have the potential to be, popular enough to attract visitors from throughout or beyond the region of comparison or are unique or rare within the region. Visitors are generally willing to travel long distances to use the river resources for recreation. River-related opportunities include, but are not limited to, sightseeing, wildlife

observation, camping, photography, hiking, fishing, and floatboating. Also under this classification, interpretive opportunities may be exceptional and may attract or have the potential to attract visitors from outside the region of comparison. Additionally, the river may provide or have the potential to provide settings for national or regional usage or competitive events (BLM 2007). The Recreational classification also allows for some shoreline development (BLM 2007).

Environmental Consequences/Mitigation:

Proposed Action:

The Proposed Action is consistent with the ORVs in the Abrams Creek area.

No Action Alternative:

The existing culvert would continue to act as a barrier to upstream fish movement.

WILDERNESS

Affected Environment:

No designated wilderness or Wilderness Study Areas (WSAs) are present in the area of the Proposed Action. Since wilderness or WSAs are unaffected by the Proposed Action or the No Action alternative, these designations will not be considered further.

NON-CRITICAL ELEMENTS ALSO ADDRESSED IN THIS ASSESSMENT

In addition to the critical elements discussed above, this environmental assessment also addresses the following elements due to the involvement of Standards for Public Land Health:

SOILS (includes a analysis on Public Land Health Standard 1)

Affected Environment:

According to the *Soil Survey of Aspen-Gypsum Area, Colorado: Parts of Eagle, Garfield, and Pitkin Counties* (USDA 1992), the proposed activities would be located on the soil map units Gypsum land-Gypsiorthids complex and Torriorthents-Camborthids-Rock outcrop complex which have water erosion hazards that range from slight to severe. More specifically, areas upstream and downstream of the crossing and north of the crossing along the 8380 Road are mapped as Gypsum land-Gypsiorthids complex while areas south of the crossing along the 8380 Road and the proposed staging area at the intersection of the 8380 and 9712 Roads are mapped Torriorthents-Camborthids-Rock Outcrop complex. In addition, some areas adjacent to Abrams Creek and approximately 85 feet upstream of the crossing are mapped CSU 4 (Controlled Surface Use) for erosive soils on slopes greater than 30%. Following is a brief description of the two soil map units encountered in the project area.

- Gypsum Land-Gypsiorthids Complex (55). This soil map unit is found on mountainsides, hills, and in drainageways on slopes of 12% to 65%. Approximately 65% of the unit is Gypsum Land and 20% Gypsiorthids. The remaining 15% is composed of a mix of map units. The Gypsum Land is primarily exposed parent material with high gypsum content, while the Gypsiorthids are shallow, moderately deep, well drained, and derived from

colluvium with high gypsum content. Surface runoff for this unit is very rapid; water erosion hazard is slight to severe. These soils are used primarily for wildlife habitat.

- Torriorthents-Camborthids-Rock Outcrop complex (105). This soil map unit occurs on south-facing mountainsides, hills, and ridges with slopes ranging from 45% to 95%. Approximately 45% is Torriorthents, 20% Camborthids, and 15% Rock Outcrop. The Torriorthents are shallow to moderately deep, well drained, and derived from sedimentary rock. Surface runoff is rapid, and the water erosion hazard is severe. The Camborthids are shallow to deep, well drained, and derived from sandstone, shale, and basalt. Surface runoff is rapid, and the water erosion hazard is severe. The Rock Outcrop component consists of exposed sandstone, shale, and basalt. These soils are used primarily for wildlife habitat.

Environmental Consequences/Mitigation:

Proposed Action:

As mentioned above, the proposed activities would occur on soils with slight to severe erosion hazards and on slopes primarily less than 30% (17°). However, the proposed activities would result in loss of vegetation, soil compaction, and soil displacement in proximity to Abrams Creek. The removal of vegetation and soil displacement would occur along the existing road cut and just upstream and downstream of the existing culvert. Additional sediment available for transport to Abrams Creek would be generated during the removal and replacement of the existing culvert. In addition, some soil compaction would occur during culvert replacement and in stream activities through the use of heavy equipment just above the high-water mark of Abrams Creek.

The proposed activities would result in some sediment transport to nearby Abrams Creek during project implementation and prior to vegetation establishment during runoff events. To minimize the negative effects of sediment transport to Abrams Creek, it is essential that standard water quality BMPs and mitigation measures be installed and maintained on a frequent basis to ensure that water quality in Abrams Creek is not impaired by the proposed activities.

No Action Alternative:

The No Action alternative would have no effect on soil resources in the area.

Analysis on Public Land Health Standard 1for Upland Soils:

In 2002, the BLM Glenwood Springs Field Office assessed area soil conditions as part of the Eagle River South Watershed Land Health Assessment. Portions of two allotments—the 8,018-acre East Hardscrabble and the 16,300-acre West Hardscrabble—are within the project area and were assessed at that time. The results of the assessment suggested that the East Hardscrabble Allotment was achieving standards with problems that included more bare ground than expected, less litter than expected, and pedestalling and water flow patterns at lower elevations. The West Hardscrabble Allotment was also achieving with similar problems that BLM staff attributed primarily to unregulated OHV use in the area. Given the scale and duration of the Proposed Action, it is not likely that the proposed activities or the No Action alternative would prevent Standard 1 for Upland Soils from being met.

VEGETATION (includes an analysis on Public Land Health Standard 3)

Affected Environment:

Three primary plant communities are present within the project area. At the culvert site, vegetation consists of a quacking aspen (*Populus tremuloides*) woodland with a few mature willow (*Salix* spp.) clumps, some Gambel oak (*Quercus gambelii*), and various grasses. At the rock gathering site and the site where the road elevation would be lowered, vegetation is primarily Gambel oak with snowberry (*Symphoricarpos* spp.), serviceberry (*Amelanchier alnifolia*), and a few big sagebrush (*Artemisia tridentata* ssp.) plants. The staging area is a previously disturbed site at the junction of two roads. The site is characterized by sparse ground cover and dominance of early successional species.

Environmental Consequences/Mitigation:

Proposed Action:

Construction activities associated with the Proposed Action would result in the removal or destruction of up to 0.3 acre of vegetation, including several willows, mesic upland shrubs and grasses and forbs. If necessary, a few aspen trees may also be removed. In addition, some soil compaction would occur during staging activities, culvert replacement and lowering of the road elevation through the prolonged use of heavy equipment in the area. Surface-disturbing activities provide a niche for the invasion of noxious weeds and other invasive plant species, and soil compaction hinders reestablishment of desirable vegetation.

Mitigation:

To alleviate compaction and aid in restoring a native plant community to the site, all areas of compaction will be ripped prior to seeding. All disturbed areas beyond the edge of the roadway will be seeded following construction with native perennial grasses and forbs adapted to the site. Willows will be replanted along the streambank at a ratio of three 5-gallon willow plants for every plant removed. The approved seed mix and PLS (pure live seed) application rates are shown in Table 7.

Table 7

Species	**Variety**	**Application Rate (PLS lbs/acre)***
Mountain brome	Garnet	12.0
Slender wheatgrass	San Luis	6.0
Bluebunch wheatgrass	P-7, Anatone, Secar	6.5
Indian ricegrass	Nezpar, Paloma	4.5
Northern sweetvetch	VNS	5.5
TOTAL		**34.5**

Species substitutions may be allowed with prior concurrence from the BLM.

All seed to be applied will be certified weed-seed free. Seed may contain up to 2.0% of "other crop" seed by weight, including the seed of other agronomic crops and native plants; however, a lower percent of other crop seed is recommended. Seed that does not meet the above criteria shall not be applied to public lands.

The seed may be applied by broadcast-seeding, followed by raking or harrowing to provide 0.25 to 0.5 inch of soil cover, or by drill-seeding, using one-half the application rate above and drilled to a depth of 0.25 to 0.5 inch.

No Action Alternative:

Under the No Action alternative, a new culvert would not be placed at the site and no additional ground disturbance would result. No direct changes to vegetation would occur. Effects on vegetation from existing land uses and disturbances would continue.

Analysis on Public Land Health Standard 3 for Plant and Animal Communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial):

In 2002, the BLM Glenwood Springs Field Office conducted a formal land health assessment of the Eagle River South Watershed, which encompasses the project area. The assessment determined that the upper portions of the East Hardscrabble and West Hardscrabble Common Allotments (which includes the project area) were achieving Standard 3 for plant and animal communities. Vegetation in this portion of the landscape was generally in good condition with good diversity of species and age classes and adequate ground cover to maintain soil stability. The Proposed Action or the No Action alternative would not prevent the achievement of Standard 3 for plant communities.

WILDLIFE, TERRESTRIAL (includes an analysis on Public Land Health Standard 3)

Affected Environment:

The GSFO planning areas supports a wide variety of terrestrial wildlife species that summer, winter, or migrate through the area. The habitat diversity provided by the broad expanses of sagebrush, mixed mountain shrub, aspen, pinyon-juniper woodlands, other types of coniferous forests, and riparian/wetland areas support many species. The current condition of wildlife habitats varies across the landscape. Some habitat is altered by power lines, pipelines, fences, public recreation use, residential and commercial development, vegetation treatments, livestock and wild ungulate grazing, oil and gas development, and roads/trails. These factors have contributed to some degradation/fragmentation of habitat as well as causing disturbance to some species.

Reptiles. Reptile species most likely to occur include the western fence lizard (*Sceloporus undulatus*) and gopher snake (bullsnake) (*Pituophis catenifer*) in xeric shrublands or grassy clearings and the western terrestrial garter snake (*Thamnophis elegans*) along creeks. Other reptiles potentially present along creeks, although more commonly found at lower elevations than the site, are the milk snake (*Lampropeltis triangulum*) and smooth green snake (*Opheodrys vernalis*).

Birds. Passerine (perching) birds commonly found in the area include the pinyon jay, western scrub-jay (*Aphelocoma californica*), American robin (*Turdus migratorius*), and black-billed dusky [blue] grouse (*Dendragapus obscurus*), are also found here.

Birds of prey (eagles, falcons, hawks, and owls) may migrate through the area or nest in cottonwoods, conifers, or very tall oaks, while the numerous songbirds and small mammal populations provide the primary prey base. Common raptor species in the area include the red-tailed hawk, golden eagle, American kestrel, Cooper's hawk, and sharp-shinned hawk, and great horned owl.

Numerous streams, rivers, reservoirs, ponds, and associated riparian vegetation provide habitat for a wide variety of waterfowl and shorebirds. Common species include the great blue heron (*Ardea herodias*), Canada goose *(Branta canadensis)*, mallard *(Anas platyrhynchos)*, pintail *(A. acuta)*, gadwall *(A. strepera)*, and American wigeon *(A. americana)* .

Small Mammals. Numerous small mammals reside within the planning area, including ground squirrels *(Spermophilus* spp.*)*, chipmunks (*Neotamias* spp.), rabbits *(Sylvilagus* spp.), skunks *(Mephitis mephitis)*, and raccoons *(Procyon lotor)*. Many of these small mammals provide the main prey for raptors and larger carnivores. These species are most likely to occur along the drainages, near the margins of dense oakbrush, in pinyon-juniper woodland, or in the small area of aspen and spruce/fir.

Carnivores. Larger carnivores expected to occur include the bobcat (*Lynx rufus*) and the coyote (*Canis latrans*). Black bears (*Ursus americanus*) make use of oaks and the associated chokecherries and serviceberries for cover and food, while mountain lions (*Felis concolor*) are likely to occur during seasons when mule deer (*Odocoileus hemionus*) are present.

Big Game Ungulates. The mule deer *(Odocoileus hemionus)* is a recreationally important species that is common throughout suitable habitats in the region. Another recreationally important big game ungulate (hoofed animal), the Rocky Mountain elk *(Cervus elaphus nelsonii)*, is also present. Mule deer and elk usually occupy higher elevations, forested habitat, during the summer and then migrate to sagebrush-dominant ridges and south-facing slopes at lower elevation in the winter.

Environmental Consequences/Mitigation:

Proposed Action:

Reptiles. Impacting upland and riparian vegetation could disturb or kill individual reptiles and their prey populations. Mainly, the project area is outside the range (overall, elevation, and habitat) of most reptile species of interest and known to occur in the GSFO and likely will have negligible impacts on reptiles.

Birds and Small Mammals. Grazing invariably reduces the height and ground cover of plants, at least temporarily, thus reducing the cover they need for protection, feeding, roosting, and nesting. There is no indication or data to support that the small area affected by the Proposed Action Proposed Action would have any large-scale negative impacts to density, composition, or frequency of bird and mammal species.

Big Game. In entire area is CDOW mapped mule deer and elk summer range defined as that part of the overall range of elk where 90% of the individuals are located between spring green-up and the first heavy snowfall. The area is also mapped mule deer and elk winter range defined as that part of the overall range of elk where 90% of the individuals are located during the average five winters out of ten from the first heavy snowfall to spring green-up. Summer range is not necessarily exclusive of winter range; in some areas, winter range and summer range may

overlap. There is no information to support that the small area (0.2 acres) affected by the Proposed Action would have any large-scale negative impacts to the quality or connectivity of big game habitat.

No Action Alternative:

No new culvert would be placed at the site and no other ground disturbance or human disturbance would occur. Compared to the Proposed Action, the No Action alternative would cause neither beneficial nor detrimental impacts on any terrestrial wildlife species.

Analysis on Public Land Health Standard 3 for Terrestrial Animal Communities (partial, see also Vegetation and Wildlife, Aquatic):

BLM utilizes *standards* (conditions needed to sustain public land health) and *guidelines* (management tools, methods, strategies, and techniques designed to maintain or achieve healthy public lands as defined by the standards) to assess and manage livestock grazing (BLM 1997). In 2002, the BLM GSFO conducted a formal land health assessment of the Eagle River South Watershed, which encompasses the project area. The assessment determined that the upper portions of the East Hardscrabble and West Hardscrabble Common Allotments (which include the project area) were achieving Standard 3 for plant and animal communities. Vegetation in this portion of the landscape was generally in good condition, with good diversity of species and age classes and adequate ground cover to maintain soil stability. Neither the Proposed Action nor the No Action alternative would prevent the continued achievement of Standard 3 for terrestrial wildlife species.

WILDLIFE, AQUATIC (includes an analysis on Public Land Health Standard 3):

Affected Environment:

Amphibians. Amphibians of interest found within the GSFO include the boreal toad *(Bufo boreas boreas)* and Great Basin spadefoot toad (*Spea intermontana).* The distribution of the boreal toad is restricted to areas with suitable breeding habitat in spruce-fir forests and alpine meadows generally between 7,500 and 12,000 feet elevation. Breeding habitat includes lakes, marshes, ponds, and bogs with sunny exposures and quiet shallow water. Great Basin spadefoots occupy arid grasslands and high sagebrush, desert shrub, and pinion-juniper woodlands. Great Basin spadefoot has been documented in the western third of the field office from the town of Rifle west to the boundary with the Grand Junction Field Office. This represents the eastern extent (fringe) of the species overall range and populations are believed to be small and sporadic. Another amphibian species, the northern chorus frog (*Pseudacris triseriata*), could be present in the watershed but has not been documented.

Fish. Based on several sampling events by BLM and CDOW personnel, Abrams Creek is only known to contain Colorado River cutthroat trout. This species is addressed in detail in the section above on Threatened, Endangered, and Sensitive.

Environmental Consequences/Mitigation:

Proposed Action:

Fish (also see Special Status Species) and Amphibians. The Proposed Action would have short-term impacts to amphibians primarily via increased suspension of sediments and potential for

some offsite soil movement and increased sedimentation. Increases in sediments entering the stream can impact amphibians by smothering egg masses. All impacts addressed would be short-term and of minimal intensity causing negligible impacts on any resident amphibians.

No Action Alternative:

No new culvert would be placed at the site and no other ground disturbance or human disturbance would occur. Compared to the Proposed Action, the No Action alternative would cause neither beneficial nor detrimental impacts on any aquatic wildlife species.

Analysis on Public Land Health Standard 3 for Aquatic Animal Communities (partial, see also Vegetation and Wildlife, Terrestrial)**:**

BLM utilizes *standards* (conditions needed to sustain public land health) and *guidelines* (management tools, methods, strategies, and techniques designed to maintain or achieve healthy public lands as defined by the standards) to assess and manage livestock grazing (BLM 1997). In 2002, the BLM GSFO conducted a formal land health assessment of the Eagle River South Watershed, which encompasses the project area. The assessment determined that water quality and riparian conditions in Abrams Creek were providing good aquatic habitat. Neither the Proposed Action nor the No Action alternative would prevent the continued achievement of Standard 3 for aquatic wildlife species.

OTHER NON-CRITICAL ELEMENTS

Additional elements of the human environment that are indicated in Table 8 as both applicable and present are also analyzed in this environmental assessment.

Table 8.

Element	Not Applicable or Not Present	Applicable and Present, Not Affected	Applicable and Present and Affected
Travel/Access			X
Cadastral Survey	X		
Fire/Fuels Management	X		
Forest Management	X		
Geology and Minerals	X		
Law Enforcement	X		
Paleontology	X		
Noise	X		
Range Management		X	
Realty Authorizations	X		
Recreation		X	
Socio-Economics		X	
Transportation		X	
Visual Resources		X	

TRAVEL/ACCESS

Affected Environment:

BLM Road #8380 is open to motorized travel. Due to the culvert being removed and the presence of construction equipment, it is likely that the road would be closed during some parts of the construction process. This would temporally restrict access in the area.

Environmental Consequences/Mitigation:

Proposed Action:

The proposed work could interrupt travel access for up to two weeks during construction.

Mitigation:

Public notice in the form of signing at the start of BLM Road #8380 shall be given at least one week prior to construction of the culvert stating that BLM Road #8380 may be closed at the Abrams Creek crossing during construction.

No Action:

Under the No Action alternative, a new culvert would not be placed at the site and no disturbance to travel or access would result.

CUMULATIVE IMPACTS SUMMARY:

Other than as discussed below, no cumulative impacts have been identified. A culvert already exists at the project site and would be replaced with a larger structure in the same place. Given the reclamation and mitigation proposed, no cumulative impacts are anticipated.

SOIL AND WATER

The proposed activities would result in an overall small amount of ground disturbance that would include soil compaction, soil displacement, and loss of vegetation cover. These activities would however, occur in close proximity to Abrams Creek. Some erosion and sediment transport is expected to occur during runoff events prior to the establishment of vegetation and the stabilization of the road cut. Without adequate BMPs and stormwater controls along with timely reclamation of disturbed areas, there is potential for increased erosion and sediment transport to Abrams Creek.

PERSONS / AGENCIES CONSULTED:

Livestock Grazing Permittees
Craig Wescoatt, Colorado Division of Wildlife
Kendall Ross, Colorado Division of Wildlife

INTERDISCIPLINARY REVIEW:

GSFO staff who participated in the preparation of this environmental assessment are listed in Table 9.

Table 9.

Name	Title	Responsibility
Tom Fresques	Fisheries Biologist	NEPA Lead, T/E/S Aquatic, Aquatic Wildlife
Mike Kinser	Range Management Specialist	Range Management, Wetland & Riparian Zones
Jeff O'Connell	Hydrologist	Surface Water, Soils, Geology
Carla DeYoung	Ecologist	ACECs, T/E/S Plant Species, Land Health Standards, Vegetation
Brian Hopkins	Wildlife Biologist	T/E/S Animal Species, Migratory Birds, Terrestrial Wildlife
Greg Wolfgang	Outdoor Recreation Planner	Wilderness, Wild & Scenic Rivers, Visual Resources, Transportation, Recreation
Cheryl Harrison	Archaeologist	Cultural Resources, Native American Religious Concerns
Dereck Wilson	Rangeland Management Specialist	Invasive Non-Native Species

REFERENCES:

Bureau of Land Management (BLM). 1997. [Online]. Website: http://www.blm.gov/co/st/en/ BLM_ Programs/grazing/rm_stds_guidelines.html. [Accessed on 12-24-2009].

_____. 2000. [Online]. Website: http://www.blm.gov/co/st/en /BLM_Programs/botany/Sensitive_Species_List_.html. [Accessed on 12-22-2009].

_____. 2003. Land Health Assessment, Eagle River South Watershed. Glenwood Springs Field Office. Unpublished. 37 pages.

_____. 2007. Glenwood Springs Field Office (Online). Website: http://www.blm.gov/style/medialib/blm/co/programs/land_use_planning/rmp/kfo-gsfo/KFOWSR.Par.97085.File.dat/FinalEligibilityReport_Mar2007.pdf. [Accessed on 01-04-2010].

Burton, T.A., E.R. Cowley, and S.J. Smith. 2008. Monitoring Streambanks and Riparian Vegetation – Multiple Indicators. Version 5.0. USDI Bureau of Land Management. Idaho State Office, Boise.

Colorado Division of Wildlife (CDOW). 2009a. [Online]. Website: http://wildlife.state.co.us/ WildlifeSpecies/SpeciesOfConcern/Mammals/BlackfootedFerret.htm. [Accessed on 12-22-2009].

_____. 2009b. [Online]. Website: http://wildlife.state.co.us/WildlifeSpecies/Profiles/Birds/ GreaterSageGrouse.htm. [Accessed on 12-22-2009].

_____. 2009c. [Online]. Website: http://wildlife.state.co.us/ apps/gmumaps/BigGameGMUmap.pdf. [Accessed on 12-23-2009].

Cornell Lab of Ornithology (CLO). 2009. [Online]. Birds of North America Online. Website: http://bna.birds.cornell.edu/bna/species/548/articles/distribution. [Accessed on 12-28-2009].

CRCT (Colorado River Cutthroat Trout) Coordination Team. 2006. Conservation strategy for Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) in the States of Colorado, Utah, and Wyoming. Colorado Division of Wildlife, Fort Collins. 24p.

Gruver, J.C., and D.A. Keinath. 2006. [Online]. Townsend's big-eared bat (*Corynorhinus townsendii*): a technical conservation assessment. USDA Forest Service, Rocky Mountain Region. Available: http://www.fs.fed.us/r2/projects/scp/assessments/townsendsbigearedbat.pdf. [Accessed on 12-22-2009].

Minshall, G.W., J.T. Brock, and J.D. Varley. 1989. Wildfires and Yellowstone's Stream Ecosystems. BioScience 39:7070715.

Northern Eagle/Southern Routt Greater Sage-Grouse Work Group. 2004. Northern Eagle / Southern Routt Greater Sage-Grouse Conservation Plan. Colorado Division of Wildlife, Denver, Colorado.

Spencer, C.N., K.O. Gabel, and F.R. Hauer. 2003. Wildfire Effects on Stream Food Webs and Nutrient Dynamics in Glacier National Park, USA. Forest Ecology and Management 178:141-153.

U.S. Department of Agriculture Forest Service (USDA Forest Service). 2002. Biological Assessment for the Implementation of the Preferred Alternatives for the Sierra Nevada Forest Plan Draft Environmental Impact Statement. Forest Service Pacific Southwest Region. Vallejo, California.

U.S. Fish and Wildlife Service (USFWS). 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at <http://www.fws.gov/migratorybirds/>]

_____. 2009a. [Online]. Website: http://www.fws.gov/mountain-prairie/endspp/CountyLists/COLORADO.pdf. [Accessed on 12-22-2009].

_____. 2009b. [Online]. Website: http://ecos.fws.gov/docs/recovery_plan/940317.pdf. [Accessed on 12-22-2009].

_____. 2009c. [Online]. Website: http://ecos.fws.gov/docs/candforms_pdf/r8/B06R_V01.pdf . [Accessed on 12-27-2009].

Waters, T.F. 1995. Sediment in Streams: Sources, Biological Effects, and Control. American Fisheries Society Monograph 7. Bethesda, Maryland.

FONSI
DOI-BLM-CO-N040-2010-0021-EA

The environmental assessment analyzing the environmental effects of the Proposed Action has been reviewed. The Proposed Action with the approved mitigation measures detailed below result in a Finding of No Significant Impact (FONSI) on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the Proposed Action.

DECISION RECORD

DECISION: It is my decision to implement the Proposed Action with the following disclosed mitigation.

RATIONALE: The project would benefit Colorado River cutthroat trout a BLM Sensitive Species, as these native fishes would be able to move freely up and down the stream. The project would eliminate habitat fragmentation of important stream habitats used by this species.

MITIGATION MEASURES:

Cultural Resources and Native American Religious Concerns

Mitigation:

All ground-disturbing activity including the collection of rocks for in-stream structures is restricted to 50 feet on each side of the road centerline. If additional area is needed to complete the project a cultural resources inventory may be required.

Education/Discovery Stipulation. The National Historic Preservation Act (NHPA) requires that if newly discovered cultural resources are identified during project implementation, work in that area must stop and the agency Authorized Officer notified immediately (36 CFR 800.13). The Native American Graves Protection and Repatriation Act (NAGPRA), requires that if inadvertent discovery of Native American Remains or Objects occurs, activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice made to the BLM Authorized Officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)). Further actions also require compliance under the provisions of NHPA and the Archaeological Resource Protection Act.

Invasive Non-Native Species

Mitigation:

The operator is to ensure equipment involved in land disturbing actions be clean of noxious weed seeds or propagative parts prior to entry on site. When working in areas with noxious weeds, equipment should be cleaned prior to moving offsite.

The project leader is to assess the site one growing season after completion to determine the extent of noxious or invasive weed establishment. If noxious and invasive weeds are found at the project site, the project leader will coordinate with office's Weed Coordinator to take appropriate action.

The project leader will ensure that reestablishment of vegetation occurs on all areas of soil disturbance. Proper dates and the seeding mix to be used will be provided by the Glenwood Springs Field Office.

Only certified weed free seed and mulch will be used in the reestablishment of vegetation. All reseeded sites should be monitored and spot reseeding conducted as required.

To reduce the opportunities for weeds to become established, the disturbed areas particularly where dozing is proposed would be reseeded with a mixture of native grasses and possibly forbs (native or non-aggressive, exotic forbs) adapted to the site. All seed to be applied on public land must have a valid seed test, within one year of the acceptance date. The seed will be accepted if accompanied by an official seed analysis report that provides documentation to show no noxious, prohibited, or restricted weed seed per Colorado, Utah, and Wyoming weed law and no more than 0.5% by weight of other weed seeds.

Noxious weed seed and plant material could be transported to uninfested areas on the tracks and undercarriage of dozers and other equipment. To mitigate against the introduction of new noxious weeds to the project site, the contractor will be required to wash the tracks and undercarriage of the dozer before delivering the equipment to the project site.

Threatened, Endangered, and BLM Sensitive Species

Mitigation:

Northern Goshawk. If a goshawk nest is found the within 0.25 mile of the project area, disturbing activities will be mitigated or curtailed.

Colorado River Cutthroat Trout. To minimize the spread of aquatic nuisance species and disease vectors, all equipment to be used in live water will be sprayed with a diluted Sparquadt industrial strength germicide mix prior to use. This mixture will be provided by BLM personnel on site.

Wastes, Hazardous or Solid

Mitigation:

Fuels and lubricants would be stored in appropriate containers and refueling would occur in designated areas at a minimum of 100 feet from Abrams Creek. To minimize the likelihood of spills and the delivery of hazardous materials to Abrams Creek, it is essential that vehicle and equipment remain out of the channel while performing in channel activities. By remaining above the channel banks (preferably the high water mark), heavy equipment can still perform in channel work using a bucket or similar attachment.

When crossing Abrams Creek, equipment and vehicles should move quickly and without incident. Appropriate BMPs as outlined in the Proposed Action should be used to minimize the potential transport of fuels and lubricants to Abrams Creek during runoff events. Following daily operations, vehicles and equipment shall be removed from the Abrams Creek vicinity and stored overnight in a staging area a minimum of 100 feet from the creek. In addition, the contractor would be required to have an accurate spill prevention plan on site at all times.

Water Quality, Surface and Ground, and Soils

Mitigation:

- Project implementation shall begin in late June at the earliest following spring runoff to avoid saturated soil conditions and high flows in Abrams Creek.

- Ground-disturbing activities requiring the use of heavy equipment shall only occur in dry conditions.
- Heavy equipment tires or tracks shall be limited to above the high water mark to avoid unacceptable degradation to the active channel.
- Newly disturbed cut slopes shall be no greater than 2:1 (50%) and are highly recommended to be 3:1 (33%) for revegetation success and to minimize erosion processes during runoff events.
- New cut slopes and stockpiles shall be secured with biodegradable matting, bales, or wattles of weed-free straw or weed-free native grass hay, or well-anchored fabric silt fence shall be used on cut-and-fill slopes and along drainages to protect against soil erosion and sediment transport. These BMPs shall be installed and frequently maintained during project implementation and prior to the establishment of vegetation.
- Exposed areas shall be seeded promptly with an approved certified weed free seed mix.
- Flows shall be diverted around the project site using either a coffer dam or diversion pipe of adequate size. Diversion pipe shall be aligned and rip-rapped to avoid channel scour at the inlet or outlet
- All hazardous materials that include but are not limited to fuels and lubricants shall be stored in appropriate leak proof containers a minimum of 100' from Abrams Creek in the staging area.
- Equipment shall be stored daily in the staging area following daily operations to minimize the transport of hazardous materials to Abrams Creek in the event of an overnight leak or runoff event.

Vegetation

Mitigation:

To alleviate compaction and aid in restoring a native plant community to the site, all areas of compaction will be ripped prior to seeding. All disturbed areas beyond the edge of the roadway will be seeded following construction with native perennial grasses and forbs adapted to the site. Willows will be replanted along the streambank at a ratio of three 5-gallon willow plants for every plant removed.

The seed mix and application rate are shown in the following table:

Species	**Variety**	**Application Rate (PLS lbs/acre)***
Mountain bromegrass	Garnet	12.0
Slender wheatgrass	San Luis	6.0
Bluebunch wheatgrass	P-7, Anatone, Secar	6.5
Indian ricegrass	Nezpar, Paloma	4.5
Northern sweetvetch	VNS	5.5
TOTAL		**34.5**

*PLS = pure live seed

Species substitutions may be allowed with prior concurrence from the BLM Authorized Officer.

All seed to be applied will be certified weed-seed free. Seed may contain up to 2.0% of "other crop" seed by weight, including the seed of other agronomic crops and native plants; however, a lower percent of

other crop seed is recommended. Seed that does not meet the above criteria shall not be applied to public lands.

The seed may be applied by broadcast-seeding, followed by raking or harrowing to provide 0.25 to 0.5 inch of soil cover, or by drill-seeding, using one-half the application rate above and drilled to a depth of 0.25 to 0.5 inch.

Travel and Access

Mitigation:

Public notice in the form of signing at the start of BLM Road #8380 shall be given at least one week prior to construction of the culvert stating that BLM Road #8380 may be closed at the Abrams Creek crossing during construction.

NAME OF PREPARER: Tom Fresques

SIGNATURE OF AUTHORIZED OFFICIAL:

Allen B. Crockett
Supervisory NRS/Phys. Sci.

DATE SIGNED: January 6, 2010

APPENDICES: None

ATTACHMENTS: None