Survey of Selected Wetlands within the Bureau of Land Management Kremmling Field Office Management Area (Grand County, CO) 2006

Natural Heritage Program COLORADO

Colorado State University

Knowledge to Go Places

Survey of Selected Wetlands within the
Bureau of Land Management
Kremmling Field Office Management Area
(Grand County, CO)

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Cover photographs (clockwise): Landfill Seep and Sulphur Spring. Photos taken by Jennifer Jones

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We appreciate all of the landowners who allowed us access through their property. The Colorado Natural Heritage Program staff in Fort Collins, including Jodie Bell and Amy Lavender worked with us patiently throughout the project.

EXECUTIVE SUMMARY

In 2005, the Colorado Natural Heritage Program (CNHP) and Colorado State University received funding from the Bureau of Land Management (BLM), Kremmling Field Office to survey selected wetlands, with emphasis on seeps and springs, located on BLM lands in Grand County, Colorado.

The project was conducted concurrently with the Survey of Critical Biological Resources in Grand County (Culver and Jones 2006), thus leveraging both money and staff towards identifying critical biological resources throughout Grand County. Additionally, this project continues to build upon data compiled from six previous BLM Seeps and Springs Survey Projects (Rocchio et al. 2001, Doyle et al. 2002, Doyle 2003, Culver 2004, Rocchio 2004, Neid 2006).

Springs and seeps are unique habitats, which have often been found to harbor concentrations and refuges of endemic plants and animals. Because seeps and springs provide relatively constant water temperature and chemistry, due to their dependence on subterranean flow through aquifers, many spring source species do not occupy downstream habitats where temporal fluctuations in water temperature and flow are greater (USDI BLM 2000; Martinson 1980). Surveys conducted in the Great Basin have shown that seeps and springs are often hot spots of biological diversity, providing habitat for many uncommon species of plants and animals. In Colorado, several rare plant and animal species are known to be limited to these wet areas within otherwise dry landscapes, especially on the west slope. Seeps and springs are important to regional landscape diversity, where most areas receive less than 10 inches of annual precipitation, as they provide small but widely distributed habitat that offers a source of water, food, cover, nesting habitat, and habitat for rare and/or unique species.

During the field season of 2005, CNHP surveyed a total of 45 parcels; 16 were in Proper Functioning Condition, 12 were Functioning At Risk, and 17 were Nonfunctional. Thirteen significant plant communities were documented; one globally imperiled (G2), seven globally vulnerable (G3), four globally secure (G4), and one demonstrably secure globally (G5).

Eight parcels were designated as Potential Conservation Areas and assigned a Biodiversity Rank, according to Natural Heritage Program methodology. The Upper Troublesome Creek was determined as a wetland of very high biodiversity value (B2) due to the presence of the globally rare (G2?S2) American mannagrass (*Glyceria grandis*) herbaceous wetland plant association. Three sites were determined as a wetland of high biodiversity significance (B3) due to the presence of globally vulnerable (G3) wetland plant communities that were in good condition. Four sites were determined to be of moderate biodiversity significance (B4). These sites will also be included in the Survey of Critical Biological Resources in Grand County final report (Culver and Jones 2006).

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF PHOTOS

INTRODUCTION

Surveys conducted in the Great Basin have shown that seeps and springs are often hot spots of biological diversity, especially for rare and endemic species of spring snails (Sada et al. 2001; USDI BLM 2001). Because seeps and springs provide relatively constant water temperature and chemistry, due to their dependence on subterranean flow through aquifers, many spring source species do not occupy downstream habitats where temporal fluctuations in water temperature and flow are greater (USDI BLM 2001; USDI BLM 2000; Martinson 1980).

Factors affecting the quality of the seeps and springs in the Grand County, especially in Middle Park, include spring development and livestock grazing. Most of the seeps and springs on BLM land in Middle Park have been developed for use as livestock water sources. Many changes occur at seeps and springs that are developed or disturbed from their natural condition. For example, non-native taxa comprise a greater proportion of the riparian vegetation at disturbed springs. Because human activity has been focused on these ecosystems, leading to alteration and loss of native species, it is important to identify any seeps and springs in good condition, and to assess impacted areas for restoration potential.

The objective of this project was to survey and evaluate proper functioning condition for selected seeps and springs (lentic) and riparian (lotic) wetlands on BLM land in Grand County. This project was completed in conjunction with the Survey of Critical Biological Resources in Grand County, CO, with financial support from the Colorado Department of Natural Resources funded via a wetland program grant from the Environmental Protection Agency, Region 8, Grand County, Division of Wildlife, Great Outdoors Colorado, and Colorado State Forest (Culver and Jones 2006).

Seeps/Springs Ecology

Seeps and springs are small wetland ecosystems that are hydrologically supported by groundwater discharge (Sada et al. 2001; Hynes 1970). They are distinctive from other wetland and riparian habitats by the relatively constant water temperature and chemistry of the discharging groundwater (Sada et al. 2001). This results from the groundwater being in contact with minerals for an extended period of time, which equilibrates solute concentrations. Thus, spring water tends to have constant concentrations of dissolved minerals while surface-fed streams vary in response to rainfall and snowmelt (McCabe 1998).

Seeps differ from springs in that they often periodically dry and consequently support a lower diversity of wetland vegetation. Springs often have a more persistent source of water and thus support a greater diversity of wetland vegetation and provide aquatic habitat (Sada et al. 2001). However, springs supported by local aquifers may periodically dry, since local aquifers are comparatively small and shallow, and the amount of groundwater discharge associated with them varies in response to local precipitation levels. Springs supported by regional aquifers, or aquifers covering thousands of square

kilometers, rarely dry, even during droughts, since the quantity of water within the aquifer is high and the groundwater flow is typically slow (Sada et al. 2001).

Many springs in western North America, below an elevation of 7000 feet, are isolated from other wetlands, frequently flow a short distance before infiltrating back into the ground, and periodically dry out (Hendrickson and Minckley 1984). This lack of connectivity restricts dispersal of many macroinvertebrates and fishes and thus, along with unique environmental characteristics (water chemistry, geology, etc.), has resulted in many unique and endemic species occupying isolated spring wetlands.

Spring environments (water temperature, water chemistry, etc.) are typically less variable than other aquatic habitats such as lakes, ponds, and streams. This results in low variability in macroinvertebrate populations at spring sources while downstream habitats typically show more variability in population dynamics (Sada et al. 2001). In addition, the factors that lead to the evolution of endemic species or to the value of these isolated wetlands as refugia for relict species can also result in low species richness due to the small size, isolation, and adverse conditions of these wetlands (Myers and Resh 1999). Martinson (1980) found that macroinvertebrate populations in the Piceance Basin, Colorado had greater density and biomass but fewer species (less diversity) at spring sources than in downstream habitats. This may be attributed to various factors: (a) constant, or less variable, environmental conditions at spring sources may prevent the initiation or completion of the life cycles of some species; (b) those organisms able to survive these conditions may be able to expand their populations due to less competition; (c) the absence of suspended particles in discharging groundwater does not allow filter feeding organisms to survive; and (d) drift patterns may play a role, since there are no upstream sources of macroinvertebrates for the springs (many occur at the headwaters of first-order streams) (Martinson 1980). In that study, Martinson also found that, although many spring sources had similar water temperatures and water chemistry, they often exhibited a different suite of macroinvertebrate species. This may be due to the variation in topographic gradients in which the springs occur, which influence water depth, water velocity, seasonal fluctuations, and substrate type (e.g. gravel vs. silt).

Seeps and springs often exhibit diverse flora composition and structural characteristics that provide potential cover for resting, nesting, and feeding for many different organisms, especially birds (Sada et al. 2001). For example, submergent vegetation such as pondweed *(Potamogeton* sp.), duckweed (*Lemna* sp.), ditch-grass (*Ruppia* sp.), horned-pondweed (*Zannichellia* sp.), and watercress (*Rorippa* sp.) provide a food source for waterfowl, while watercress has been shown to be a critical resource for mollusks (Sada and Nachlinger 1996). Sedges (*Carex utriculata*), rushes (*Juncus balticus* and *J. saximontanus*), grasses (*Agrostis gigantea* and *Glyceria striata*), and other herbaceous species such as alkali crowfoot (*Halerpestes cymbalaria* ssp. *saximontana*), which are often found growing along the banks of spring brooks and in spring wetlands, help regulate water temperatures and provide areas for hiding and nesting, in addition to the habitat they provide for macroinvertebrates (Sada and Nachlinger 1996). Some springs in the project area support an over story of occasional trees (*Populus angustifolia*) and

shrubs such as thinleaf alder (*Alnus incana*) and various willows (*Salix* spp.), which provide excellent habitat for birds and browse for large mammals.

Many seeps and springs in the Middle Park Basin have been altered and/or modified from their natural condition due to anthropogenic disturbances such as livestock grazing and diversions and impoundments to capture water for human or livestock use. These disturbances can result in an increase in non-native species, decrease in vegetation cover, inundation of spring brook habitat, replacement of species requiring flowing water with those more adapted to stagnate or slow moving water (lakes, ponds, etc.), and cause the extirpation of endemic spring species (Sada and Vinyard 2002). Sada and Nachlinger (1996) found higher levels of biodiversity in undisturbed springs while disturbed springs had a high percentage of non-native species present.

Diversions, which decrease flow from spring sources, can result in greater variation of water temperature which causes a shift in the composition of macroinvertebrate species from those adapted to spring source habitats, where water temperature is fairly constant, to those adapted to downstream habitats, where water temperature exhibits more variation. In addition, typically an increase in water temperature, which often occurs when water flow is decreased, decreases the number of aquatic invertebrate species found in that location (Myers and Resh 1999). Seeps and springs which are isolated, are especially susceptible to disturbances since they lack connectivity, and thus, have few mechanisms for recolonization via drift and upstream movements. Restoring disturbed wetlands can result in the reestablishment of wetland plant species and adequate vegetation structure; however it does not guarantee the restoration of endemic fauna, especially for species that have limited dispersal capabilities (Myers and Resh 1999).

METHODS

Survey Site Selection

BLM managers determined the wetland locations to be field surveyed from the 1993 BLM water source data layer (Figure 1). A Riparian – Wetland Functional Checklist was completed for every parcel according to the Process for Assessing Proper Functioning Condition for Lotic and Lentic Riparian-Wetland Areas (USDI BLM 1994 and 1998).

Information collected at each wetland included the items listed below. Each item is further described in the following sections.

1. Proper Functioning Conditioning information;
2. General description of parcel and ecological processes, physical and biological disturbances, developments, use by wildlife or livestock and threatened, endangered and sensitive plants and noxious weeds were noted;
3. Classification of wetland and riparian plant associations (Carsey et al. 2003a);
4. Stream channel classification (Rosgen 1996) (lotic wetlands only); and
5. Wetland indicator plants (US Fish and Wildlife Service 1988).

Proper Functioning Condition

Proper Functioning Condition is a qualitative method for assessing the condition of riparian-wetland areas. It enables a consistent approach for considering hydrology, vegetation, and erosion attributes to assess riparian health. (USDI BLM 1993). This method categorized wetlands-riparian areas into three major types:

- Proper Functioning Condition (PFC)—a wetland area that supports adequate vegetation, unaltered hydrology, and erosion/deposition features to dissipate floodwaters, stabilize streambanks, etc.
- Functioning At Risk (FAR)—a wetland area that is in functional condition but an existing soil, water, or vegetation attribute makes it susceptible to degradation. Trends are also noted.
- Nonfunctional (NF)—a wetland area that does not provide adequate vegetation, landform attributes to dissipate floodwaters, improve water quality, etc.

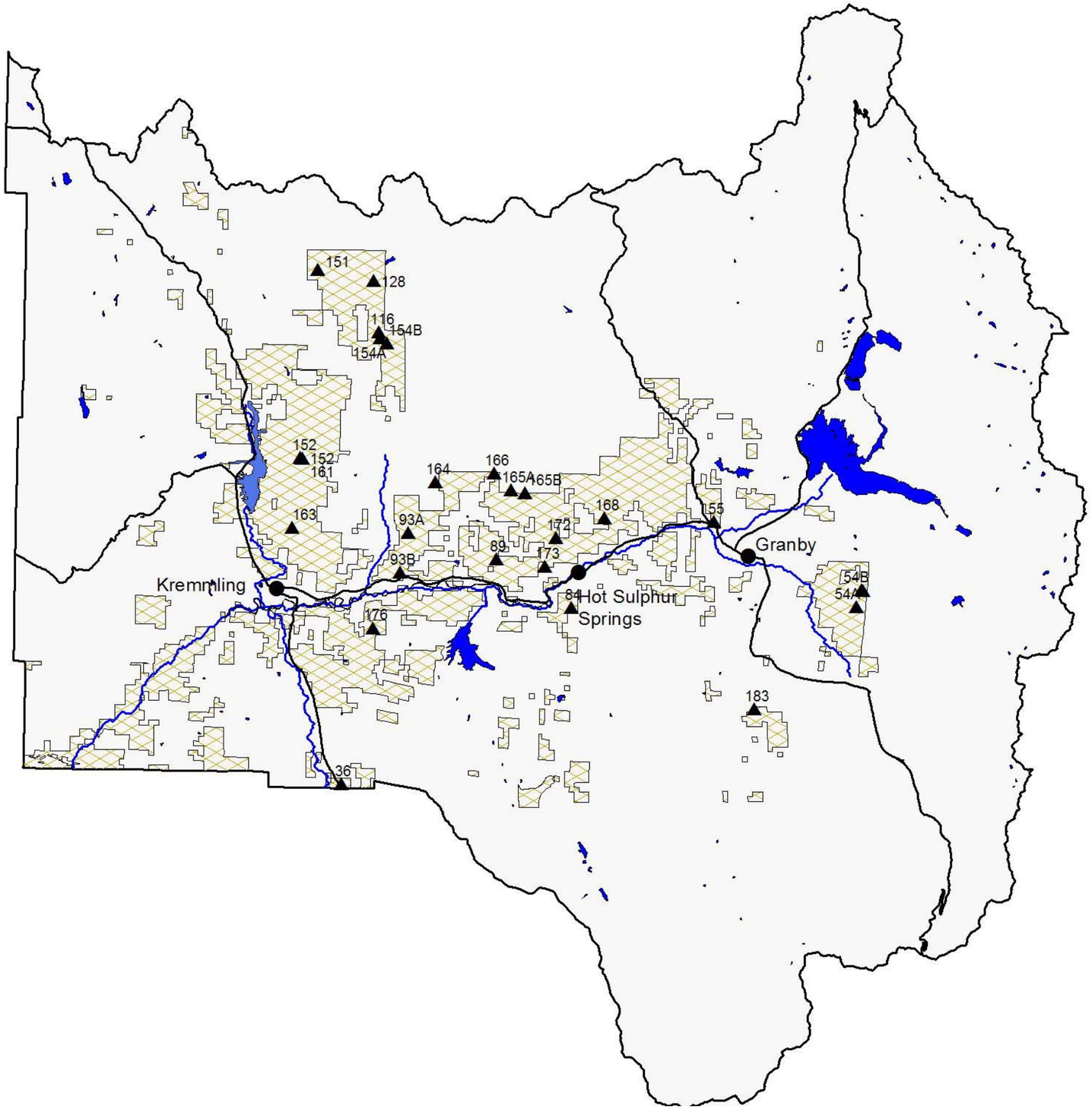

Figure 1. Location of riparian-wetland areas surveyed on BLM Properties in Grand County.

Colorado Natural Heritage Program Wetland and Riparian Plant Association Classification

The Comprehensive Statewide Wetlands Classification and Characterization (CSWCC) (Carsey et al. 2003b) and the Field Guide to the Wetland and Riparian Plant Associations of Colorado (Carsey et al. 2003a) are based on dominant vegetation. The CSWCC follows the International Vegetation Classification System, the national standard for classification and inventory (Comer et al. 2005; Anderson et al. 1998; Maybury 1999).

At each parcel that supported a wetland or riparian area, the CSWCC was used to classify the plant community association (element), designate the global and state rarity rank, and determine its element occurrence rank.

The Natural Heritage Program Ranking System

Key to the functioning of Natural Heritage Programs is the concept of setting priorities for gathering information and conducting inventories. The number of possible facts and observations that can be gathered about the natural world is essentially limitless. The financial and human resources available to gather such information are not. Because biological inventories tend to be under-funded, there is a premium on devising systems that are both effective in providing information that meets users' needs and efficient in gathering that information. The cornerstone of Natural Heritage inventories is the use of a ranking system to achieve these twin objectives of effectiveness and efficiency.

Ranking species and ecological associations according to their imperilment status provides guidance for where Natural Heritage Programs should focus their information-gathering activities. For species deemed secure, only general information needs to be maintained by Natural Heritage Programs. Fortunately, the more common and secure species constitute the majority of most groups of organisms. On the other hand, for those species that are by their nature rare, more detailed information is needed. Because of these species' rarity, gathering comprehensive and detailed population data can be less daunting than gathering similarly comprehensive information on more abundant species.

To determine the status of species within Colorado, CNHP gathers information on plants, animals, and plant associations. Each of these elements of natural diversity is assigned a rank that indicates its relative degree of imperilment on a five-point scale (for example, 1 = extremely rare/imperiled, 5 = abundant/secure) (Table 1). The primary criterion for ranking elements is the number of occurrences (in other words, the number of known distinct localities or populations). This factor is weighted more heavily than other factors because an element found in one place is more imperiled than something found in twenty-one places. Also of importance are the size of the geographic range, the number of individuals, the trends in both population and distribution, identifiable threats, and the number of protected occurrences.

Element imperilment ranks are assigned both in terms of the element's degree of imperilment within Colorado (its State-rank or S-rank) and the element's imperilment over its entire range (its Global-rank or G-rank). Taken together, these two ranks indicate the degree of imperilment of an element.

Global imperilment ranks are based on the range-wide status of a species. State imperilment ranks are based on the status of a species in an individual state. State and Global ranks are denoted with an "S" or a "G" respectively, followed by a number or letter. These ranks should not be interpreted as legal designations.

Table 1. Definition of natural heritage imperilment ranks.

G/S1	Critically imperiled globally/state because of rarity (5 or fewer occurrences in the world/state; or 1,000 or fewer individuals), or because some factor of its biology makes it especially vulnerable to extinction.
G/S2	Imperiled globally/state because of rarity (6 to 20 occurrences, or 1,000 to 3,000 individuals), or because other factors demonstrably make it very vulnerable to extinction throughout its range.
G/S3	Vulnerable through its range or found locally in a restricted range (21 to 100 occurrences, or 3,000 to 10,000 individuals).
G/S4	Apparently secure globally/state, though it may be quite rare in parts of its range, especially at the periphery. Usually more than 100 occurrences and 10,000 individuals.
G/S5	Demonstrably secure globally/state, though it may be quite rare in parts of its range, especially at the periphery.
G/SX	Presumed extinct globally, or extirpated within the state.
G#?	Indicates uncertainty about an assigned global rank.
G/SU	Unable to assign rank due to lack of available information.
GQ	Indicates uncertainty about taxonomic status.
G/SH	Historically known, but usually not verified for an extended period of time.

Element Occurrences and their Ranking

Actual locations of elements, whether they are single organisms, populations, or plant associations, are referred to as element occurrences. The element occurrence is considered the most fundamental unit of conservation interest and is at the heart of the Natural Heritage Methodology. Whenever sufficient information is available, an element

occurrence rank (EO-Rank) is assigned according to the ecological quality of the occurrences to prioritize element occurrences for a given species. This ranking system is designed to indicate which occurrences are the healthiest and most ecologically viable, thus focusing conservation efforts where they will be most successful. The EO-Rank is based on three factors:

Size–a measure of the area or abundance of the element's occurrence, relative to other known, and/or presumed viable, examples. Takes into account factors such as area of occupancy, population abundance, population density, population fluctuation, and minimum dynamic area (which is the area needed to ensure survival or re-establishment of an element after natural disturbance).

Condition/Quality–an integrated measure of the composition, structure, and biotic interactions that characterize the occurrence. This includes factors such as reproduction, age structure, biological composition (such as the presence of non-native versus native species), structure (for example, canopy, understory, and ground cover in a forest community), and biotic interactions (such as levels of competition, predation, and disease).

Landscape Context–an integrated measure of two factors: the dominant environmental regimes and processes that establish and maintain the element, and connectivity. Dominant environmental regimes and processes include herbivory, hydrologic and water chemistry regimes (surface and groundwater), geomorphic processes, climatic regimes (temperature and precipitation), fire regimes, and many kinds of natural disturbances. Connectivity includes such factors as a species having access to habitats and resources needed for life cycle completion, fragmentation of ecological associations and systems, and the ability of the species to respond to environmental change through dispersal, migration, or re-colonization.

Each of these three factors is rated on a scale of A through D, with A representing an excellent grade and D representing a poor grade. These grades are then averaged to determine an appropriate EO-Rank for the occurrence. If not enough information is available to rank an element occurrence, an EO-Rank of E is assigned. EO-Ranks and their definitions are summarized in Table 2.

CNHP tracks all natural communities, however only the best known or highest quality occurrences of common plant communities (G4 and G5) will be prioritized for data entry (Table 3).

Table 2. Element occurrence ranks and their definitions.

A	Excellent viability.
B	Good viability
C	Fair viability.
D	Poor viability.
H	Historic: known from historical record, but not verified for an extended period of time.
X	Extirpated (extinct within the state).
E	Extant: the occurrence does exist but not enough information is available to rank.
F	Failed to find: the occurrence could not be relocated.

Table 3. Element tracking guidelines for plant communities.

	Element Occurrence Rank to be Tracked			
Global Rank	A	B	C	D
G1,G2,G3,GU,G?				
G4,G5				

= Track All EOs

= Track only if it is the highest ranking occurrence known in the study area.

Rosgen Stream Classification

The Rosgen Stream Classification System (Rosgen 1996) was used on parcels supporting riparian habitats. The Classification System categorizes streams based on channel morphology so that consistent, reproducible, and quantitative descriptions can be made (Figure 2).

The Rosgen stream classification consists of four levels of detail ranging from broad qualitative descriptions to detailed quantitative assessments. Figure 2 illustrates the hierarchy (Levels I through IV) of the Rosgen classification inventory and assessment.

- Level I--a geomorphic characterization that categorizes streams as A, B, C, D, DA, E, F, or G.
- Level II--called the morphological description and requires field measurements. For this project, Level I classification was used to classify the stream for riparian areas.
- Level III--assigns a number (1 through 6) to each stream type describing the dominant bed material. Level III is an evaluation of the stream condition and its stability. This requires an assessment and prediction of channel erosion, riparian condition, channel modification, and other characteristics.
- Level IV--verification of predictions made in Level III and consists of sediment transport, stream flow, and stability measurements.

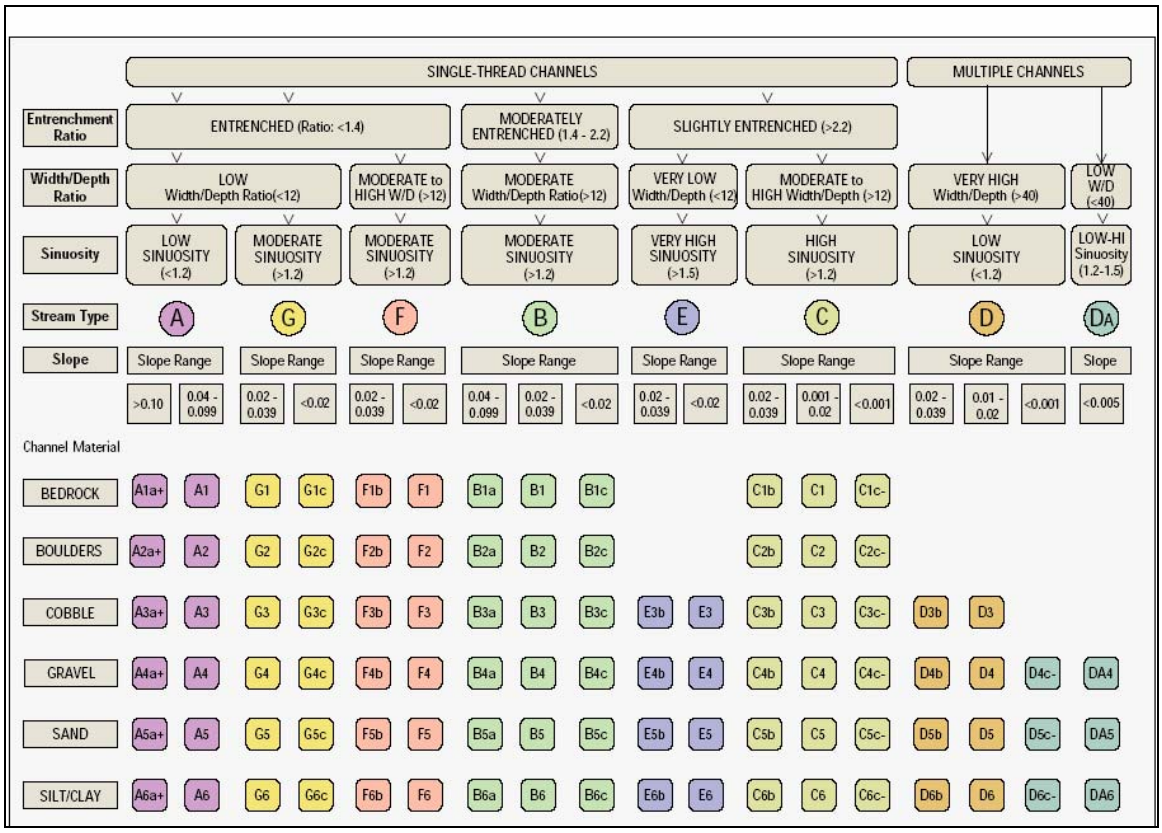

Figure 2. Flow chart for Rosgen Stream Classification (Rosgen 1996).

U.S. Fish and Wildlife Service Wetland Indicator Status

Each parcel that supported wetland or riparian habitat, a list of dominant, wetland-dependent plants were noted and assigned a Wetland Indicator Status (Table 4) (U.S. Fish and Wildlife Service 1988). Wetland Indicator Status reflects the range of estimated probabilities (expressed as a frequency of occurrence) of a species occurring in wetlands versus non-wetland. A frequency of 67%-99% (Facultative Wetland), for example, means that 67%-99% of sample plots containing the species randomly selected across the range of the species would be wetland (U.S. Fish and Wildlife Service 1988).

Table 4. USFWS Indicator Categories for vascular plant species that occur in wetlands (U.S. Fish and Wildlife Service 1988).

Indicator categories		
Code	Wetland Type	Comment
OBL	Obligate Wetland	Occurs almost always (estimated probability 99%) under natural conditions in wetlands.
FACW	Facultative Wetland	Usually occurs in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
FACU	Facultative Upland	Usually occurs in non-wetlands (estimated probability 67%-99%), but occasionally found on wetlands (estimated probability 1%-33%).
UPL	Obligate Upland	Occurs in wetlands in another region, but occurs almost always (estimated probability 99%) under natural conditions in non-wetlands in the regions specified.

RESULTS

Forty five wetlands were surveyed from June 2005 through September 2005 (Appendix A). Sixteen (36%) were determined to be Proper Functioning Condition (Table 5, Figure 3), 12 (27%) 12 were Functioning At Risk (Table 5, Figure 3), and 17 (37%) were determined as Nonfunctional (Table 6, Figure 3). Of the 12 Functioning At Risk wetlands, five were determined to be on an upward trend, four on a downward trend, and four the trend was not apparent.

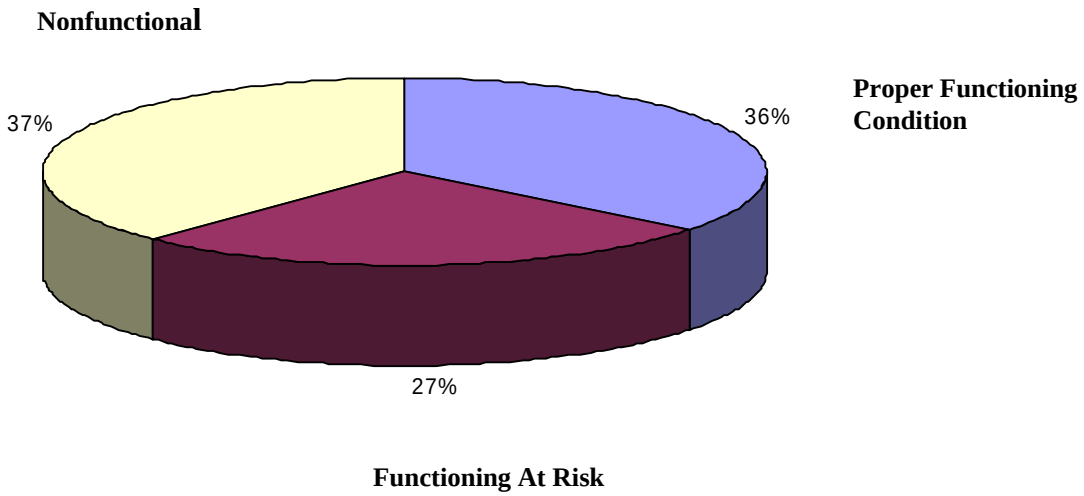

Figure 3. Summary of Proper Functioning Condition analysis.

Table 5. Proper Functioning and Functioning at Risk Survey Sites Arranged by BLM Survey Site Number. CNHP Potential Conservation Sites (Culver and Jones 2006) are indicated in bold.

BLM Survey Site Number	Wetland Type	BLM Site Name	PFC	FAR	FAR Trend	CNHP Plant Association	Global/ State Rank	Element Occurrence Rank	PCA Name/Biodiversity Rank
36	lotic	County Road 381 Spring		x	Down	*Carex utriculata* herbaceous vegetation	G5S4	*	Not applicable
54A	**lotic**	**Behler Creek**	**x**			***Salix monticola* / *Calamagrostis canadensis* shrubland**	**G3S3**	**B**	**Behler Creek/B3**
54B	**lotic**	**Road End Seep at Strawberry Creek**	**x**			***Alnus incana* / mesic forb shrubland**	**G3S3**	**C**	**Road End Seep at Strawberry Creek/B4**
55	lotic	Landfill Seep		x	Up	*Carex utriculata* herbaceous vegetation	G5S4	*	Not applicable
84	lotic	Beaver Creek Tributary		x	Up	*Carex utriculata* herbaceous vegetation	G5S4	*	Not applicable
89	**lotic**	**Lower Corral Creek**	**x**			***Alnus incana* - *Cornus sericea* shrubland**	**G3QS3**	**C**	**Lower Corral Creek/B4**
93A	**lotic**	**Sulphur Spring**	**x**			***Schoenoplectus pungens* herbaceous vegetation**	**G3G4S3**	**A**	**Sulphur Spring/B4**

*element occurrence is globally secure, does not meet CNHP's element ranking criteria, see Table 3.

Table 5 (continued). Proper Functioning and Functioning at Risk Survey Sites Arranged by BLM Survey Site Number. CNHP Potential Conservation Sites (Culver and Jones 2006) are indicated in bold.

BLM Survey Site Number	Wetland Type	BLM Site Name	PFC	FAR	FAR Trend	CNHP Plant Association	Global/ State Rank	Element Occurrence Rank	PCA Name/Biodiversity Rank
93B	lotic	Scholl Spring		x	Up	*Carex utriculata* herbaceous vegetation	G5S4	*	Not applicable
96A	lotic	Wolford Mountain Springs		x	Up	None			
116	**lotic**	**Upper Buckhorn Creek**	**x**			***Alnus incana* / mesic forb shrubland**	**G3S3**	**B**	**Upper Troublesome Creek/B2**
Up8	**lotic**	**Upper Troublesome Creek**	**x**			***Alnus incana - Salix drummondiana* shrubland**	**G3S3**	**B**	**Upper Troublesome Creek/B2**
151	**lotic**	**Rabbit Ear Creek**	**x**			***Salix drummondiana/ Calamagrostis canadensis* shrubland**	**G3S3**	**B**	**Upper Troublesome Creek/B2**
152	**lotic**	**Porphyry Creek**	**x**			***Alnus incana - Salix drummondiana* shrubland**	**G3S3**	**B**	**Upper Troublesome Creek/B2**
154A	**lentic**	**Charlie Creek Meadows**		**x**	**Up**	***Glyceria grandis* herbaceous vegetation**	**G2?S2**	**B**	**Upper Troublesome Creek/B2**

*element occurrence is globally secure, does not meet CNHP's element ranking criteria, see Table 3.

Table 5 (continued). Proper Functioning and Functioning at Risk Survey Sites Arranged by BLM Survey Site Number. CNHP Potential Conservation Sites (Culver and Jones 2006) are indicated in bold.

BLM Survey Site Number	Wetland Type	BLM Site Name	PFC	FAR	FAR Trend	CNHP Plant Association	Global/ State Rank	Element Occurrence Rank	PCA Name/Biodiversity Rank
154B	lotic	Charlie Creek Seep	x			*Salix drummondiana* / mesic forb; *Alnus incana – Salix drummondiana* shrubland; *Alnus incana* / mesic forb; *Salix drummondiana* / *Carex utriculata*	G4S4; G3S3; G3S3; G4S3	*	Not applicable
156A	lotic	The Gunsight Spring		x	Not Apparent	None			
161	lotic	Hay Gulch		x	Not Apparent	*Carex simulata* herbaceous vegetation	G4S3	*	Not applicable
163	**lotic**	**Cow Gulch**	**x**			***Carex pellita* herbaceous vegetation**	**G3S3**	**C**	**Cow Gulch/B4**
164	lentic	Slide Creek	x			None			
165A	**lotic**	**First Creek**	**x**			***Alnus incana* - *Salix drummondiana* shrubland**	**G3S3**	**B**	**First Creek/B3**
165B	**lentic**	**Cabin Seep**	**x**			***Alnus incana* / mesic forb shrubland**	**G3S3**	**C**	**First Creek/B3**

*element occurrence is globally secure, does not meet CNHP's element ranking criteria, see Table 3.

Table 5 (continued). Proper Functioning and Functioning at Risk Survey Sites Arranged by BLM Survey Site Number. CNHP Potential Conservation Sites (Culver and Jones 2006) are indicated in bold.

BLM Survey Site Number	Wetland Type	BLM Site Name	PFC	FAR	FAR Trend	CNHP Plant Association	Global/ State Rank	Element Occurrence Rank	PCA Name/Biodiversity Rank
166	**lotic**	**Black Mountain Reservoir**	**x**			***Alnus incana - Salix drummondiana* shrubland**	**G3S3**	**B**	**Black Mountain Reservoir/B3**
168	lotic	Kinney Creek		x	Down	*Salix monticola* / mesic forb shrubland	G4S3	*	Not applicable
172	lentic	Ute Bill Reservoir	x			None			
173	lotic	Sulphur Butte Tanks		x	Down	*Carex utriculata* herbaceous vegetation	G5S4	*	Not applicable
175A	lentic	Rock Creek Springs		x	Not Apparent	None			
176	lotic	Barger Gulch	x			*Carex utriculata* herbaceous vegetation	G5S4	*	Not applicable
183	lentic	Gaylord Reservoir		x	Not Apparent	*Carex utriculata* herbaceous vegetation	G5S4	*	Not applicable

*element occurrence is globally secure, does not meet CNHP's element ranking criteria, see Table 3.

Table 6. Nonfunctioning Survey Sites Arranged by BLM Survey Site Number.

Survey Site	Wetland Type	Site Name	Field Visit (Y/N)	Comments/Observations
162	N/A	North Wolford Mountain	Y	dry, no wetland vegetation
163A	N/A	Horse Gulch Springs	Y	dry, no wetland vegetation
163B	N/A	Horse Gulch Springs	Y	no water present, weedy
163D	N/A	Horse Gulch Springs	Y	narrowleaf cottonwood present, no perennial hydrology, few wetland species
173A	N/A	Sulphur Butte Springs	Y	capped spring with trough, observed from road
93C	N/A	Sulphur Gulch Springs	Y	Spring capped
93D	N/A	Sulphur Gulch Springs	Y	no wetland vegetation
93E	N/A	Sulphur Gulch Springs	Y	no wetland vegetation
96B	N/A	Wolford Mountain Springs	Y	spring capped
163C	N/A	Horse Gulch	N	dry, no wetland vegetation
165D	N/A	Radio Tower	N	dry, no wetland vegetation
169A,B	N/A	Smith Creek Spring	N	no site visit, private landowner stated spring is capped with horse trough
174A	N/A		N	small draw, ephemeral hydrology, Great Basin ryegrass present
174C	N/A		N	small draw, ephemeral hydrology, aspen with few narrowleaf cottonwood present
182	N/A	City Market	N	dry, no wetland vegetation
47	lentic	Azure Spring	N	difficult access, no on-site survey, observed small dammed pond
93B	N/A		N	no hydrology, small draw with sagebrush

CNHP Significant Element Associated with BLM Springs

Eight BLM survey sites became Potential Conservation Areas (PCAs) and will also be included in the Survey of Critical Biological Resources in Grand County (Culver and Jones 2006) (Appendix B) due to the presence of significant wetland plants and/or plant communities (Table 7). Thirteen CNHP wetland plant associations were documented: 1 globally imperiled (G2), 7 vulnerable globally (G3), 4 apparently secure globally (G4), and 1 demonstrably secure globally (G5) (Table 8).

Table 7. Potential Conservation Areas.

PCA Name	B Rank	BLM Survey Site
Upper Troublesome Creek	B2	BLM #116 Upper Buckhorn Creek BLM #128 Upper Troublesome Creek BLM #151 Rabbit Ear Creek BLM #152 Porphyry Creek BLM #154A Charlie Creek Meadows
Behler Creek	B3	BLM #54A
First Creek	B3	BLM #165A/B
Black Mountain Reservoir	B3	BLM #166
Road End Seep at Strawberry Creek	B4	BLM #54B
Lower Corral Creek	B4	BLM #89
Sulphur Spring	B4	BLM #93A
Cow Gulch	B4	BLM #163

Table 8. CNHP Plant Communities documented on BLM Survey Sites.

CNHP Plant Community Scientific Name	CNHP Plant Community Common Name	Global/ State Rank	BLM Parcel Name
Alnus incana - Cornus sericea shrubland	thinleaf alder – red osier dogwood shrubland	G3QS3	Lower Corral Creek
Alnus incana - Salix drummondiana shrubland	thinleaf alder – Drummond willow shrubland	G3S3	Black Mountain Reservoir; First Creek; Upper Troublesome Creek; Porphyry Creek; Charlie Creek Seep
Alnus incana / mesic forb shrubland	thinleaf alder / mesic forb shrubland	G3S3	Upper Buckhorn Creek; Cabin Seep; Road End Seep at Strawberry Creek
Carex pellita herbaceous vegetation	wooly sedge herbaceous vegetation	G3S3	Cow Gulch
Carex simulata herbaceous vegetation	analogue sedge herbaceous vegetation	G4S3	Hay Gulch
Carex utriculata herbaceous vegetation	beaked sedge herbaceous vegetation	G5S4	County Road 381 Spring; Landfill Spring; Beaver Creek Tributary; Scholl Spring; Sulphur Butte Tanks; Barger Gulch; Gaylord Reservoir
Glyceria grandis herbaceous vegetation	American mannagrass herbaceous vegetation	G2?S2	Charlie Creek Meadows
Salix drummondiana / Calamagrostis canadensis shrubland	Drummond willow / bluejoint reedgrass shrubland	G3S3	Rabbit Ear Creek
*Salix drummondiana / mesic forb sh*rubland	Drummond willow / mesic forb shrubland	G4S4	Charlie Creek Seep
Salix drummondiana / Carex utriculata shrubland	Drummond willow / beaked sedge	G4S3	Charlie Creek Seep

Table 8 (continued). CNHP Plant Communities documented on BLM Survey Sites.

CNHP Plant Community Scientific Name	CNHP Plant Community Common Name	Global/ State Rank	BLM Parcel Name
Salix monticola / Calamagrostis canadensis shrubland	mountain willow / bluejoint reedgrass shrubland	G3S3	Behler Creek
Salix monticola / mesic forb shrubland	mountain willow / mesic forb	G4S3	Kinney Creek
Schoenoplectus pungens herbaceous vegetation	common threesquare herbaceous vegetation	G3G4S3	Sulphur Gulch

DISCUSSION

The Survey of Selected Wetlands within the Bureau of Land Management's Kremmling Field Office Management Area (Grand County, CO) project identified 63% of the BLM parcels as being either Proper Functioning Condition (PFC) or Functioning At Risk (FAR). Five of the wetlands assessed to be FAR were determined to have an upward trend due to recent changes in management practices, in particular grazing regimes. Three of the FAR wetlands had downward trends, mainly due to hydrologic alterations. Trends for the remaining four FAR wetlands were not apparent during the survey.

Eight of the BLM wetlands, all PFC, surveyed were determined to be Potential Conservation Areas due to the presence of significant wetland and riparian plant associations that can serve as priorities for management decisions and ACEC designations. Most notable is the Upper Troublesome Creek (B2-very high biodiversity significance) that encompasses a concentration of several globally imperiled and vulnerable wetland/riparian plant communities: American mannagrass (*Glyceria grandis*), Drummond's willow/ bluejoint reedgrass (*Salix drummondiana/Calamagrostis canadensis*), thinleaf alder – Drummond's willow (*Alnus incana – Salix drummondiana*) and thinleaf alder / mesic forb (*Alnus incana* / mesic forb), Drummond's willow/water sedge (*Salix drummondiana / Carex aquatilis*). The Upper Troublesome Creek PCA is a high quality site in terms of other values including aesthetic and recreational values.

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APPENDIX A

BLM RIPARIAN – WETLAND FUNCTIONAL CHECKLISTS

County Road 381 Spring TIA #36
Functioning At Risk—Downward Trend

Standard Checklist

Grand County
Quadrangle: King Creek — Quadrangle Code: 3910683
Township: 1S, 2S Range: 80W — Section: 34,35,2
UTM: 13S N4419355 E386695 — Elevation: 7766 ft
Date: June 30, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
	X		5) Upland watershed is not contributing to riparian-wetland degradation – Road transects wetland, major source spring and lower wetland connected by culvert, above CR381, drainage highly altered due to OHV use during wet season.
Yes	**No**	**N/A**	**VEGETATION**
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable – There is some erosion due to hoof action along banks from game animals, not enough to put system at risk
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Wetland occurs along a small draw fed by multiple springs originating on Haystack Mountain which are tributaries of the Blue River. Hydrology has been altered from OHV use and the transecting county road, causing disruption of habitat and drainage of the area just above the road. The area just above the road is the main factor contributing to the unacceptable conditions at the site. This area supports many upland and noxious species and at present supports very few wetland components. The private property above this area is functioning properly as is the area below the road which contains a *Carex utriculata* dominated herbaceous community and a small area of unique calcareous floating wetland supplied by a northern spring.

Plants: Species composition is variable throughout with *Carex utriculata* 45%, *Juncus balticus* 5%, *Carex praegracilis* 10%, *Carex simulata* 5%, and *Carex nebrascensis* 15% dominating mesic bottoms along the main drainage. Iris missouriensis 1%, Eleocharis macrostachya 1%, Eleocharis quinqueflora 3% are found at low cover, but are common throughout. Uplands are dominated by xeric Artemisia tridentata shrublands. The site contains a perched, calcareous, groundwater fed fen area that is dominated by Carex simulata, *Eleocharis quinqueflora*, *Triglochin maritimum*, and *Ranunculus cymbalaria*. *Carex viridula*, a state rare species, is found along hummocks on calcareous area of peat soils. Noxious and encroaching upland species present include *Breea arvense*, *Carduus nutans*, *Alopecurus pratensis*, *Hordeum* sp., and *Potentilla* sp. These species are found predominantly along drying edges and disturbed areas, specifically just above road crossing where OHV use is intense.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Carex utriculata	OBL	NI
Carex praegracilis	FACW-, FACW+	FACW
Carex simulata	FACW, OBL	FACW+
Carex nebrascensis	OBL	OBL
Triglochin maritimum	OBL	OBL
Ranunculus cymbalaria	OBL	OBL
Cirsium arvense	FACU-, FAC	FACU
Alopecurus pretensis	FAC, FACW	NI

Soils: Soils along main drainage are clays with moderate organic content in the top horizon. Within perched wetland area supplied by northern, calcareous spring, soils and water smell very metallic, small area has white calcium deposits on the water's surface and species composition varies from the main drainage. Soils within fen are, A = top 14cm, peat, undecomposed organic matter, 10YR 3/2, B = 15-31cm, 10YR3/2 with 50% mineral content, +31cm = more mineral soils 10YR 3/1.

pH = 7.5 conductivity = 2900 micromhos @ 13 degrees Celsius (pH and conductivity tests conducted near perched, calcareous wetland and likely differ from water of main drainage which at the time of survey had very little standing water)

CNHP Wetland Plant Association Classification: *Carex utriculata* Herbaceous Vegetation – G5S4
Rosgen Stream Classification: E Type

Summary Determination

Functional Rating:

Proper Functioning Condition
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk * X

Non-Functional

Unknown

***Trend for Functional At Risk:**

Upward Downward X Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?

Yes No X

If yes, what are those factors?

____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Upper wetland could easily be protected from OHV use, weed cover is still at a point where it could be controlled.

Capability Wetland is functioning below its capability, given the current political, economic, and social constraints and realistic goals for the site. Wetland is functioning-at-risk due to OHV use above CR 381 that has facilitated the spread of weedy species and altered hydrology.

Potential Wetland is not functioning at its potential natural community due to anthropogenic disturbances. Remnants of the sites potential are intact at upper and lower reaches and could be restored if weedy species were controlled and OHV use in at the site were confined to specified areas.

Behler Creek TIA # 54A
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Strawberry Lake — Quadrangle Code: 4010517
Township: 1N Range: 76W — Section: 18
UTM: 13S N4433615 E428185 — Elevation: 9145-9200 ft
Date: August 19, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
	X		2) Where beaver dams are present they are active and stable – Old dams are stable, but inactive
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
X			5) Upland watershed is not contributing to riparian-wetland degradation
Yes	**No**	**N/A**	**VEGETATION**
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Occurrence inhabits a series of drying, successional beaver ponds along Behler Creek, a second order tributary of the Fraser River. Hydrology above the stand is free-flowing and appears to be dependent on a small perennial creek, snow melt, and some groundwater discharge. Disturbances include browsing, beaver activity, and adjacent road which bisects the drainage below beaver dams. Surrounding uplands are dominated by *Pinus contorta* forest ecosystems with patches of *Populus tremuloides*. Beaver ponds are no longer active, but are very stable and help to maintain site hydrology, creating a moisture gradient of inundated, saturated, and mesic soils. *Salix* appears to be either heavily browsed or damaged from low water years, but exhibit extensive, new vegetative growth.

Plants: Community consists of variable *Salix* spp. cover of multiple species along a varied hydrologic gradient of ponds and drier dams with a consistent graminoid layer also varied along hydrologic gradients. *Salix* species are mixed throughout, with *Salix eriocephala*, *Salix boothii*, and *Salix monticola* being dominant. *Salix planifolia* is also present in moderate cover. The herbaceous layer is dominated by graminoid species with *Calamagrostis canadensis* occurring along drier areas and old dams and *Carex utriculata* dominating areas that are saturated year round.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Salix eriocephala	FACW	FACW
Salix boothii	OBL	OBL
Salix monticola	FAC, OBL	OBL
Calamagrostis Canadensis	FAC, OBL	OBL
Carex utriculata	OBL	NI

Soils: Soils consist of rich loams of silty clays. Top 8cm, high organic content, 10YR 2/1, peaty, difficult to tell texture due to organic content, 9-24cm, 2.5Y 3/1 silty clay loam, very rich with shiney silt deposits, 25-32cm, 2.5Y 2.5/1 silty clay, 33-45cm, 10YR 2.5/1, silty clay, 50% mottled, 25% gleying. Water at 42cm, some areas inundated, majority of occurrence on saturated soils.

pH = no standing water conductivity = no standing water

CNHP Wetland Plant Association Classification: *Salix monticola/Calamagrostis canadensis* Shrubland – B – G3S3
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent
Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No
If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities___Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Wetland is functioning at its capability given the current political, social, and economic constraints and realistic goals for the area.

Potential Wetland is functioning below its potential natural community due to road encroachment.

Photo 1. Mountain willow with bluejoint reedgrass riparian shrubland at Behler Creek.

Road End Seep at Strawberry Creek TIA # 54B
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Strawberry Lake — Quadrangle Code: 4010517
Township: 1NRange: 75W — Section 8
UTMs N4435017 E428609 — Elevation: 9605ft
N4434954 E428710
Date: August 19, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
	X		5) Upland watershed is not contributing to riparian-wetland degradation - Portions of adjacent forests have been logged and may be contributing sediment to the system.
Yes	**No**	**N/A**	**VEGETATION**
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Wetland occurs along small spring-fed tributary of Strawberry Creek. Hydrology appears to be perennial with multiple obligate wetland species present throughout. Seep is an important resource to local wildlife populations evidenced by multiple trails and browsing along the drainage. There is no evidence of livestock grazing. Disturbances in the area include past logging and the end of the county road that transects the drainage. Uplands are dominated by *Pinus contorta* woodlands and forests with dense *Pinus contorta* regeneration along the drainage's upper reaches.

Plants: Drainage is dominated by a tall shrub layer of *Alnus incana* 65%. Canopy species also present in the drainage include *Pinus contorta* (1-5%) and *Abies lasiocarpa* (<1%). The herbaceous layer is dominated by a mix of mesic graminoids with none being dominant throughout. *Calamagrostis canadensis* (1-5%) is the most common graminoid but *Bromus cinereus* and Luzula parviflora are also present. *Heracleum sphondylium*, *Osmorhiza depauperata*, *Senecio triangularis*, *Micranthes odontoloma*, *Cardamine cordifolia*, *Mitella pentandra*, and *Equisetum arvense* are all present in low cover. *Poa pratensis* is common along the drainage.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Alnus incana	FACU, FACW	FACW
Calamagrostis canadensis	FAC, OBL	OBL
Bromus cinereus	FACU, FACW	FACU
Luzula parviflora	FACU, FAC	FAC
Heracleum maximum	FACU-, OBL	FAC
Cardamine cordifolia	FACW, OBL	FACW+

Mitella pentandra	FACW, OBL	FACW
Poa pratensis	UPL, OBL	FACU

Soils: Soils along the drainage consist of 6 cm of sandy loam with high organic content, 7.5YR 2/1 over medium to course sand.

pH = 6.85 Conductivity = .03mS Temperature = 11.5 degrees Celsius

CNHP Wetland Plant Association Classification: *Alnus incana* /mesic Forb Shrubland – C – (G3S3)
Rosgen Stream Classification: Type G

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk: Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No

If yes, what are those factors?
____Dewatering____Mining activities_X_Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Logging activities are the main disturbance to the area.

Capability Wetland area is functioning at its capability given the current political, social, and economic constraints and realistic goals for the site.

Potential Drainage is functioning just below its potential natural community due to logging disturbances and proximity to road.

Photo 2. Thinleaf alder / mesic forb plant community at Road End Seep at Strawberry Creek

Landfill Seep TIA #55
Functioning At Risk—Upward Trend

Standard Checklist

Grand County
Quadrangle: Granby — Quadrangle Code: 4010518
Township: 2N Range: 77W — Section: 25, 26
UTM: 13T N4440460 E416725 — Elevation: 8015 ft
Date: June 29, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
	X		1) Floodplain above bankfull is inundated in "relatively frequent" events – The wetland area has experienced extreme disturbances in the past and relies only on groundwater and ephemeral flows.
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
	X		4) Riparian-wetland area is widening or has achieved potential extent – There are many facultative wetland species present as well as upland species encroaching along edges.
X			5) Upland watershed is not contributing to riparian-wetland degradation – Historically, watershed was very disturbed, but currently, there is only a gated road above the wetland and stable Artemisia shrublands.
Yes	**No**	**N/A**	**VEGETATION**
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to

			protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)
Yes	**No**	**N/A**	**EROSION/DEPOSITION**
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy – Step-in-slope wetlands, water gathers on upper steps and seeps slowly to lower slopes
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Seep area is a step-in-slope wetland hydrated by two main springs one just below BLM road and one to the east of the main wetland. There is a BLM road just above upper spring that is locked and the lower reaches of the wetland are confined by Hwy 40. Water from wetland reaches the road and is then ditched along side and under the road to the Windy Gap Reservoir on the other side of the highway. Salix seem to have been deprived of water during last few dry seasons, with many dead branches, but have much vegetative growth from this season. Hoof action is present along many banks which may be deleterious if large hydrologic event came through the area. System also contains multiple floating peat wetlands that occur just around spring origins.

Plants: Vegetation is variable throughout with graminoid dominated areas interspersed with shrub dominated areas of Salix sp. Graminoids present include *Carex utriculata* 65-75%, *Carex nebrascensis* 5-10%, *Juncus balticus* 5%, *Juncus longistylis* 5%, *Carex praegracilis* 10-15%, *Eleocharis macrostachya* 2%. *Salix* present include *S. planifolia* 2%, *S. monticola* 5%, and *S. geyeriana* 5%. *Salix* are concentrated in the lower areas of wetland, along edges, and as small islands and are regenerating as seedlings or new shoots in other areas. Other species present in trace to 1% cover include *Limnorchis* hyperborea, *Salix bebbiana*, *Agrostis* sp., *Poa pratensis*, *Typha latifolia*, and *Pentaphylloides floribunda.*

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Carex utriculata	OBL	NI
Carex nebrascensis	OBL	OBL
Juncus longistylis	FACW, FACW+	FACW+
Carex praegracilis	FACW-, FACW+	FACW
Salix geyeriana	FACW+, OBL	OBL
Limnorchis hyperborea	FACW, FACW+	FACW
Poa pratensis	UPL, OBL	FACU
Daisphora floribunda	FAC-, FACW	FACW

Soils: O horizon, 1cm, 25% organic, clayey, A horizon, 9cm, 10YR 3/1 sandy clay, B horizon, 20+ cm, 10YR 3/2 clay with 2% fine gravel and <1% oxidized root channels, black and rust color, soils were sampled at the edge of the saturated areas

pH = 9.1 conductivity = 360 micromhos Temperature = 13 degrees C

CNHP Wetland Plant Association Classification: *Carex utriculata* herbaceous vegetation (G5S4)
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition_____
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *_____X_____

Non-Functional _____

Unknown _____

*Trend for Functional At Risk:
Upward X Downward Not Apparent _____

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities_X_ Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Wetland area is functioning at its capability given the current constraints. The goal for this area is to maintain a healthy system, wildlife habitat, and good vegetation cover that will aid in removing toxins that may be seeping from old landfill soils.

Potential The potential natural community for the site is difficult to estimate due to origin of wetland which has been altered due to dirt work in the area. This area is resultant from filling of past landfill and may have originally been a small, Salix dominated drainage.

Photo 3. Beaked sedge herbaceous vegetation at Landfill Seep Site.

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Beaver Creek Tributary TIA # 84
Functioning At Risk—Upward Trend

Standard Checklist

Grand County
Quadrangle: Hot Sulphur Springs — Quadrangle Code: 4010611
Township: 1N Range: 78W — Section: 14, 14, 22
UTM: 13S N4433562 E405208 — Elevation: 7800-8280 ft
Date: 7/11/2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
	X		1) Floodplain above bankfull is inundated in "relatively frequent" events – Drainage supports many upland species and is only saturated seasonally along meadow.
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
	X		4) Riparian-wetland area is widening or has achieved potential extent – Wetland area appears to have decreased, with many upland species present along drainage.
	X		5) Upland watershed is not contributing to riparian-wetland degradation – Multiple roads and historic mining operations are present upstream of site.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X	X		8) Species present indicate maintenance of riparian-wetland soil moisture characteristics - Some areas are inhabited by a varied species composition of FAC wetland and upland species.
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events

X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition) There is currently no running water and flows are likely ephemeral.

Remarks

General Description: Wetland occurs along a small, first order tributary of Beaver Creek. The site may be spring fed, but appears to be dependant on ephemeral flows. The upper reaches of the drainage consist of a small draw with few wetland characteristics, the lower meadow appears to collect water due to clayey soils and therefore supports more wetland obligate species. The main disturbances in the area are from mining claims along both sides of the drainage that have not been used in recent years and access roads which are not well maintained. Surrounding uplands are dominated by stable Artemisia tridentata shrublands.

Plants: Vegetation is highly variable throughout. Upper reaches support few wetland species and soils are dry with only ephemeral flows. *Populus tremuloides, Salix monticola, Salix geyeriana, Artemisia ludoviciana, Prunus virginiana, Leyemus cinereus, Poa pratensis,* and *Geranium caespitosum* are present. Further down the drainage, *Populus tremuloides* and *Populus angustifolia* form a consistent canopy layer. This area supports both facultative and obligate wetland species. Understory species present include *Heracleum* maximum, *Geranium richardsonii, Equisetum arvense, Sidalcea candida, Geum macrophyllum, Glyceria striata,* and *Carex utriculata*. Shrubs present include *Ribes inerme, Rosa woodsii, Acer glabrum,* and *Lonicera involucrata*. Lower in the drainage, a small wet meadow of *Carex* sp. lined with *Salix* sp. interrupts the drainage. Meadow is dominated by *Carex utriculata* with a small amount of *Juncus*

blaticus and *Iris missouriensis* along the edges. *Salix* species that line the drying edges of the meadow include *Salix bebbinana* and *Salix monticola* which dominate the shrub layer and *Salix geyeriana* which is uncommon. Short shrub and herbaceous species occurring along drying edges include *Ribes inerme, Lonicera involucrata*, and *Calamagrostis canadensis*. Non-native species present include *Cirsium arvense, Thlaspi arvense*, and *Bromus inermis* which are common upstream, along edges, and at the outlet of the meadow.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Populus angustifolia	FAC, FACW	FAC
Heracleum maximum	FACU-, OBL	FAC
Equisetum arvense	FACU, FACW-	FAC+
Sidalcea candida	FAC, FACW+	FACW+
Glyceria striata	OBL	OBL
Carex utriculata	OBL	NI
Juncus balticus	FACW, OBL	FACW
Salix monticola	FAC, OBL	OBL
Iris missouriensis	FACW-, OBL	OBL

Soils: Soils in the Populus canopy dominated areas consist of a 2+cm layer of undecomposed organic matter over 18cm of loam, with 2% mottling, 7.5YR 2.5/1, over sandy clay loam, 2.5YR 2.5/1. Meadow soils consist of 6cm of humic matter, over 25+cm of clay loam, 7.5YR 2.5/1, with 25% organic matter, 25% oxidized root channels.

pH = no water at present conductivity = no water at present

CNHP Wetland Plant Association Classification: *Carex utriculata* Herbaceous Vegetation (G5/S4)
Rosgen Stream Classification: G Type (upper drainage), E Type (meadow)

Summary Determination

Functional Rating:

Proper Functioning Condition_____
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk * X

Non-Functional _____

Unknown _____

*Trend for Functional At Risk:
Upward X Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management? Yes X No

If yes, what are those factors?
____Dewatering_X_ Mining activities_X_ Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Upstream road is not well-maintained and may be adding sediment to the drainage.

Capability Wetland area is functioning at its capability given the current political, social, and economical constraints and realistic goals for the area.

Potential Area is functioning below its potential due to past usage in the area, multiple mines and unmaintained road present uphill of drainage could be adding sediment and possibly toxins to the system. As well, non-native species are common in the drainage.

Lower Corral Creek TIA # 89
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Parshall — Quadrangle Code: 4010612
Township 1N, 2N Range 79W — Section 1, 36
UTM: 13S N4437451 E399180 — Elevation: 7760-7845 ft
Date: 9/4/2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
	X		4) Riparian-wetland area is widening or has achieved potential extent – Riparian area has diminished due to road proximity and upland water diversion.
	X		5) Upland watershed is not contributing to riparian-wetland degradation – Road proximity may contribute toxins and sediment to the system.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows

X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X	X		17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition) – Low flows from upstream diversions encourage algal growth.

Remarks

General Description: Wetland inhabits Corral Creek, a second order tributary of the Colorado River. Community occurs in a type A section of river where canyon walls are steep on both sides. There is an adjacent road along the stream side which is cut, chemicals may be used for vegetation control. However, there are suprisingly few weedy species within the community. Water is both dammed and diverted upstream causing low flows, algal growth and some silt and sediment build-up in the stream. Beaver activity is present above and below the community, but not within. Stream exhibits moderate sinuosity, stable streambank vegetation, and moderate amounts of debris to dissipate energy. Uplands are dominated by stable Artemisia tridentata shrublands. Uplands are fragmented by a few roads, but are mainly continuous farmsteads outside of adjacent BLM lands.

Plants: Vegetation is dominated by *Alnus incana* (35-45%) in the tall shrub layer and *Cornus sericea* (15-25%) in the short shrub layer. *Thinleaf* alder is present in associations both up and downstream of the occurrence, but redosier dogwood is confined to the narrow, more shaded sections of the river. A consistent tall shrub and short shrub layer of other species are present throughout at 1-5% cover including *Salix drummondiana, Salix bebbiana, Salix monticola, Ribes inerme*, and *Lonicera involucrata*. The herbaceous layer is dominated by forb species, *Rudbeckia laciniata var. ampla, Rubus idaeus*, and *Cicuta douglasii* are all common at <5% cover.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Alnus incana	FACU, FACW	FACW
Cornus sericea	FAC, FACW+	FACW
Salix drummondiana	FACW, OBL	FACW+
Salix bebbiana	FAC, FACW+	FACW+
Ribes inerme	FAC, FACW-	FAC+
Lonicera involucrata	UPL, FAC	FAC
Rudbeckia laciniata var. *ampla*	FACU, FACW+	FAC+
Rubus idaeus	UPL, FAC	UPL
Cicuta douglasii	OBL	OBL

Soils: Soils along the creek banks are sands over cobble. Top .5cm fine layer of silt, 2.5Y 3/1, .5-8cm 2.5YR 2.5/1 sand with very black organic material, over cobble creek bottom.

pH = 8.06 conductivity = .18mS, at 12 degrees Celsius

CNHP Wetland Plant Association Classification: *Alnus incana* - *Cornus sericea* Shrubland – C – (G3QS3)
Rosgen Stream Classification: A Type

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Wetland is functioning at its capability given the current political, social, and economic constraints and realistic goals for the site.

Potential Wetland is functioning just below its potential natural community due to proximity of adjacent road and low flows from upstream hydrologic alterations.

Sulphur Spring TIA # 93A
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Junction Butte — Quadrangle Code: 4010613
Township 2N Range: 79W — Section: 32
UTM: 13S N4439574 E392116 — Elevation: 7675 ft
Date: June 22, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
	X		5) Upland watershed is not contributing to riparian-wetland degradation – Road just uphill of site may add sediment to the system.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Occurrence inhabits large, open salt flats and continues down Sulphur Gulch drainage for 2.25 miles near its former confluence with the Colorado River. The lowest reach of the drainage is now diverted and dispersed at its junction with Hwy 40. Site hydrology is dependent on multiple warm, mineral springs, just below county road 2757. There are high salt accumulations present from sedimentary substrates carried to the surface by the spring. Site is impacted by wildlife and livestock use as a mineral source, with some areas showing evidence of pogging from use during the wet seasons. Road just above the site does not seem to heavily impact the area.

Plants: Species composition is distinctly separated along the soil moisture gradient. *Schoenoplectus pungens* (55%) and *Triglochin maritimum* (25%) are the dominant species along the areas of perennial hydrology. Eleocharis palustris is common in some areas, but throughout it only occurs at about 10% cover. *Distichlis spicata* (10-15%) occurs on seasonally inundated flats as large patches. *Puccinellia airoides* (5-10%) dominates along edges of inundated areas. *Sarcobatus vermiculatus* and *Halogeton glomeratus*, which is a listed noxious weed in the state of Colorado, are common in the uplands which are interspersed between mesic rivulets. Surrounding uplands are dominated by *Artemisia tridentata* ssp. *wyomingensis*/xeric graminoid communities and pockets of *Artemisia tripartita*.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Schoenoplectus pungens	FACW+, OBL	OBL
Triglochin maritimum	OBL	OBL
Eleocharis palustris	OBL	OBL
Distichlis spicata	FAC+, FACW	FAC+

Puccinellia airoides	FACW, OBL	OBL
Sarcobatus vermiculatus	FACU, FACU+	FACU

Soils: Soils along lower salt flats consist of loamy sands, A horizon 4-5cm 10YR 2/1, B horizon 2cm gley chart 1, 4/10Y. Soils are inundated with water at the surface.

pH = 8.5 conductivity = 3000 micromhos @ 31 degrees Celsius

CNHP Wetland Plant Association Classification: *Schoenoplectus pungens* Herbaceous Vegetation – G3G4S3 - A
Rosgen Stream Classification: E Type

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Wetland is functioning at its capability given the current political, social, and economic constraints and realistic goals for the site.

Potential Site is functioning just below its potential natural community due to exotic species invasion, road proximity, hydrologic alterations at lower reaches, and livestock grazing.

Photo 4. Common three-square herbaceous vegetation at Sulphur Springs.

Scholl Spring TIA # 93B
Functioning At Risk—Upward Trend

Standard Checklist

Grand County
Quadrangle: Junction Butte — Quadrangle Code: 4010613
Township 1N Range 79W — Section 8
UTM: 13S N4436404 E391429 — Elevation: 7536 ft
Date: July 12, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
	X		4) Riparian - wetland area is widening or has achieved potential extent – Multiple upland species are encroaching along the drainage bottom suggesting changing hydrology and constriction of potential extent.
	X		5) Upland watershed is not contributing to riparian-Surrounding uplands are heavily impacted by road, mining, and past livestock grazing.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X	X		9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events – Upland species are encroaching in many areas, but areas just around water are predominantly wetland vegetation.
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to

			protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Scholl Spring occurs along a small draw which is a tributary of Sulphur Gulch. The wetland is dependant upon a small perennial seep and ephemeral flows. Upland ecosystems are composed of xeric *Artemisia tridentata/Chrysothamnus parryi* shrublands. Spring is immediately adjacent to a county maintained road. Just across the road is a quarry that is currently in use. At its upper end, the small drainage meets with Sulphur Gulch which is dominated by *Scoenoplectus pungens* herbaceous vegetation. The surrounding watershed is in good condition, with present disturbances including road proximity and quarry. Exotic species invasion may be evidence of intensive livestock grazing in the past.

Plants: Small area just below spring is dominated by mesic graminoids *Carex utriculata* 75% and *Juncus balticus* 10%. Other species present at low cover along the drainage include *Deschampsia caespitosa, Typha latifolia, Epilobium ciliatum, Veronica catenata, Carex simulata* (which indicates histosols), *Cirsium scariosum,* and *Iris missouriensis*. Non-native species present include *Poa pratensis, Cirsium arvense* (most common), and *Cynoglossum officionale*.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Carex utriculata	OBL	NI
Juncus balticus	FACW, OBL	FACW
Deschampsia caespitosa	FAC, FACW+	FACW
Typha latifolia	OBL	OBL
Epilobium ciliatum	FACU, OBL	FAC
Cirsium scariosum	OBL	NI
Cirsium arvense	FACU-, FAC	FACU

Soils: Soils are saturated in some places, but there is no running water present. Soils along the small drainage below the spring are composed of 1-9cm of 7.5YR2.5/3 sandy clay loams with about 30% organic content and 60% mottling, 10-26cm, 10YR 3/1 sandy clay, 27-36cm, 2.5YR 2.5/1, sandy clay with 75% mottling

pH = no water conductivity = no water

CNHP Wetland Plant Association Classification: *Carex utriculata* Herbaceous Vegetation (G5S4)
Rosgen Stream Classification: Type G

Summary Determination

Functional Rating:

Proper Functioning Condition_____
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *_____X_____

Non-Functional _____

Unknown _____

*Trend for Functional At Risk:
Upward X Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?

Yes X No

If yes, what are those factors?

____Dewatering _X__Mining activities____Watershed condition ____Dredging activities_X_ Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Wetland area is functioning at its capability given the current political and economical constraints and realistic goals for the area.

Potential Area is not functioning at its potential natural community due to multiple limiting factors that are not likely to be amended in the future. Adjacent road and quarry are contributing to weedy species invasion, altering microclimate conditions, and may be adding sediment to the drainage. Large trough for livestock watering is situated below the spring and before its junction with Sulphur Gulch, but it is no longer in use.

Photo 5. Beaked sedge herbaceous vegetation at Scholl Spring Site.

Sulphur Gulch Springs TIA # 93C
Nonfunctional

Standard Checklist

Grand County
Quadrangle: Junction Butte — Quadrangle Code: 4010613
Township 2N Range 79W — Section 32
UTM: 13T N4439495 E392714 — Elevation: 7845ft
13T N4439456 E392597
Date: June 27, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
		X	1) Floodplain above blankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
		X	3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
		X	4) Riparian-wetland area is widening or has achieved potential extent
		X	5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
		X	6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
		X	7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
		X	8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
		X	9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
		X	10) Riparian-wetland plants exhibit high vigor
		X	11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
		X	13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
		X	15) Lateral stream movement is associated with natural sinuosity
		X	16) System is vertically stable
		X	17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Targeted site is a dry, capped spring piped to an old trough which is no longer in use. Small area around spring is fenced off. Secondary coordinates correspond to an area above the spring which appears to have been dug out with heavy equipment for water catchment. This too, is dry and dominated by upland species.

Plants: Some scattered *Juncus balticus* and *Iris missouriensis* are present below the spring indicating presence of some moisture. Surrounding uplands are dominated by xeric *Artemisia tridentata* ssp. *vaseyana* shrublands.

Soils: no wetland soils

pH/ conductivity: no water

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Non-Functional X

Sulphur Gulch Springs TIA # 93D
Nonfunctional

Standard Checklist

Grand County
Quadrangle: Junction Butte — Quadrangle Code: 4010613
Township 2N Range 79W — Section 32
UTM: 13T N4438895 E392838 — Elevation: 7835 ft
Date: June 27, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
		X	1) Floodplain above blankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
		X	3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
		X	4) Riparian-wetland area is widening or has achieved potential extent
		X	5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
		X	6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
		X	7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
		X	8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
		X	9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
		X	10) Riparian-wetland plants exhibit high vigor
		X	11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
		X	13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
		X	15) Lateral stream movement is associated with natural sinuosity
		X	16) System is vertically stable
		X	17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Targeted site occurs along a convex slope dominated by xeric short shrub vegetation. There is a small draw to the east that does not exhibit any wetland components.

Plants No wetland plants are present. Site is dominated by *Artemisia tridentata*. Associated species include *Pseudoroegneria spicata* and *Koeleria macrantha*.

Soils: No wetland soils evident.

pH/conductivity: no water

CNHP Wetland Plant Association Classification: N/A

CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Non-Functional X

Sulphur Gulch Springs TIA # 93E
Nonfunctional

Standard Checklist

Grand County
Quadrangle: Junction Butte — Quadrangle Code: 4010613
Township 2N Range 79W — Section 28, 29
UTM: 13S N4441185 E 392941 — Elevation: 8319 ft.
Date: June 27, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
		X	1) Floodplain above blankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
		X	3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
		X	4) Riparian-wetland area is widening or has achieved potential extent
		X	5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
		X	6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
		X	7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
		X	8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
		X	9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
		X	10) Riparian-wetland plants exhibit high vigor
		X	11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
		X	13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
		X	15) Lateral stream movement is associated with natural sinuosity
		X	16) System is vertically stable
		X	17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Site occurs along convex slope dominated by xeric upland vegetation. Adjacent draw does not support wetland components along upper reaches. Lower reaches support a narrow occurrence of *Populus angustifolia* which appears to depend on ephemeral flows.

Plants: Area dominated by an *Artemisia tridentata* sp. *vaseyana* short shrubland. Common graminoids present include *Poa fendleriana*, *Pseudoroegneria spicata*, *Koeleria macrantha*, and *Hesperostipa comata*. Other species present include *Castilleja flava* and *Gutierrezia* sp. There are no wetland species present.

Soils: No wetland soils evident.

pH/conductivity = no water present

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Non-Functional X

Wolford Mountain Springs TIA # 96A
Functioning At Risk—Upward Trend

Standard Checklist

Grand County
Quadrangle: Kremmling — Quadrangle Code: 4010614
Township 2N Range 80W — Section 31
UTM: 13S N4440254 E380896 — Elevation: 7910ft
N4440131 E380700
Date: June 14, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
X			2) Fluctuation of water levels is not excessive
	X		3) Riparian-wetland area is enlarging or has achieved potential extent – **Riparian area appears to be smaller than in the past**
	X		4) Upland watershed not contributing to riparian-wetland degradation – **Site appears to be recovering from intensive livestock use**
X			5) Water quality is sufficient to support riparian-wetland plants
	X		6) Natural surface or subsurface flow patterns are not altered by disturbance i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities) – **Livestock use in the area is evident, small hydric area is fenced off around spring**
	X		7) Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway) – **Spring is capped**

Yes	No	N/A	VEGETATION
X			8) Diverse age-class distribution (recruitment for maintenance/recovery)
X			9) Diverse composition of vegetation (for maintenance/ recovery)
X			10) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			11) Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow

			events, or overland flows (e.g., storm events, snowmelt)
X			12) Riparian-wetland plants exhibit high vigor
	X		13) Adequate vegetative cover is present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows – **There are areas of bare ground present**
		X	14) Frost or abnormal hydrologic heaving is not present
X			15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics)

Yes	No	N/A	EROSION/DEPOSITION
X			16) Accumulation of chemicals affecting plant productivity/composition is not apparent
X			17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
X			18) Underlying geologic structure/soil material/permafrost is capable of restricting water percolation
X			19) Riparian-wetland is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
X			20) Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) are adequate to dissipate wind and wave event energies

Remarks

General Description: Wetland occurs along the lower, southwestern slopes of Wolford Mountain, approximately 5 km north of Kremmling. Wetland is a small, capped spring that has been fenced off from livestock use. Area supporting both hydric soils and wetland vegetation is very small, approximately 5m X 5m. Surrounding uplands are dominated by xeric *Artemisia tridentata* shrublands with an extensive community of *Juniperus scopulorum* just uphill of the site. Lower spring below road is piped to a trough which appears to be in use, but is currently dry. Disturbances in the area include livestock grazing and road which is not heavily used.

Plants: Small wetland area immediately surrounding spring is dominated by *Juncus balticus*. Other graminoids present in wetland area and surrounding hydric soils include *Carex utriculata*, *Carex praegracilis*, *Carex pellita*, *Glyceria* sp. Forbs present in and

around the spring include *Veronica americana*, *Iris missouriensis*, and *Populus angustifolia* which occurs in a canopy and sapling layer. Downstream of seep species composition is variable with multiple wetland species including *Salix bebbiana* and *Populus angustifolia* which may derive some water from a combination of spring and ephemeral flows. *Poa pratensis* is common throughout the area.

Soils: Surveyed 3m south of cap, top 5cm, clay with low organic content, 6/5Gy, gley chart #1, 6-9cm, black root zone, 10-30cm, 2.5Y clay with 3% fine granular material.

ph = 8 conductivity = 300 micromhos @ 16 degrees Celsius

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition_____
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *_____X_____

Non-Functional _____

Unknown _____

*Trend for Functional At Risk:
Upward ____X____ Downward _____ Not Apparent_____

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes_____ No _____X_____

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities
____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Grazing and hydrologic alterations

Capability Wetland is functioning at its capability given the current political, economic, and social constraints and realistic goals for the site.

Potential Wetland is functioning below its Potential Natural Community due to alterations in hydrology and livestock grazing in area.

Photo 6. Wolford Mountain Springs

Wolford Mountain Springs TIA # 96B
Nonfunctional

Standard Checklist

Grand County
Quadrangle: Kremmling — Quadrangle Code: 4010614
Township 2N Range 80W — Section 29
UTM: 13S N4440965 E382157 — Elevation: 8190 ft
Date: June 2, 2005
ID Team Observers: JJones, DCulver

Yes	No	N/A	HYDROLOGY
		X	1) Floodplain above blankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
		X	3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
		X	4) Riparian-wetland area is widening or has achieved potential extent
		X	5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
		X	6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
		X	7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
		X	8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
		X	9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
		X	10) Riparian-wetland plants exhibit high vigor
		X	11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
		X	13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
		X	15) Lateral stream movement is associated with natural sinuosity
		X	16) System is vertically stable
		X	17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Spring has been capped and troughed for livestock use. Trough is relatively new and is presently dry.

Plants: Vegetation around trough dominated by *Psathyrostachys juncea* which is a non-native cultivated for range stabilization (Weber, 1996). Surrounding uplands are dominated by *Artemisia tridentata* short shublands.

Soils: No wetland soils evident.

pH/conductivity: no water

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Non-Functional X

Upper Buckhorn Creek TIA # 116
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Gunsight Pass — Quadrangle Code: 4010623
Township: 3N Range:79W, 80W — Section: 6,7,12
UTM: 13S N4455777 E389757 — Elevation: 8944 ft
Date: July 19, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
X			5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Wetland inhabits Buckhorn Creek, a first order tributary of Troublesome Creek. Most areas are narrow with moderate slope and very little floodplain. Wetland is confined to streambank and few wider areas influenced by seasonal floodplain hydrology. Community viability has increased significantly since its 1993 survey due to the removal of livestock and reassignment of the area as a BLM wilderness research site. Main disturbances at the site include some seasonal flooding, steep side slopes, and wildlife use. Surrounding uplands are dominated by *Pinus contorta* with patches of *Populus tremuloides*.

Plants: Upper reaches of Buckhorn Creek are dominated by an *Alnus incana* ssp. *tenuifolia*/mesic forbs community. Tall shrub layer is dominated by *Alnus incana* 30% with **Salix drummondiana** 5-10% as co-dominant in many areas. Community occurs only along narrow stream channel and some wide floodplain areas. Understory is dominated by mixed mesic forb species which are common at approximately 5% cover, but do not dominate, *Senecio triangularis, Mertensia ciliata, Geum macrophyllum, Aconitum columbianum, Heracleum sphondyllium, Equisetum arvense,* and *Streptopus fassettii*. Graminoids present at 1-5% cover include *Calamagrostis canadensis, Bromus cinereus,* and *Elymus glauca. Bromus cilatus* and *Poa pratensis* are present in system, but they are not dominant in any areas.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Alnus incana	FACU, FACW	FACW
Salix drummondiana	FACW, OBL	FACW+
Senecio triangularis	FACW, OBL	OBL
Geum macrophyllum	FACW, OBL	OBL
Calamagrostis canadensis	FAC, OBL	OBL

Soils: Creek bottom consists of fine to medium sized gravel, soils adjacent to stream channel consist of a 10YR2/2 sandy loam with fine gravel constituent in the thin A horizon over a large cobble C horizon.

pH = 8.1 conductivity = 80 micromhos @ 12 degrees Celsius
CNHP Wetland Plant Association Classification: *Alnus incana*/Mesic Forbs Shrubland (G3/S3) – B Rank
Rosgen Stream Classification: A Type

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability This riparian area is functioning at its capability given the current political, social, and economic constraints and the realistic goals for the area.

Potential Riparian area along Buckhorn Creek has recovered from heavy grazing observed at last survey and is functioning as its potential natural community.

Upper Troublesome Creek TIA # 128
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Hyannis Peak — Quadrangle Code: 4010633
Township 4N Range 80W — Section 25
UTM 13S N4459873 E389299 — Elevation: 8705 ft
Date: July 18, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
	X		5) Upland watershed is not contributing to riparian-wetland degradation – Upper reaches have been dammed, flows are controlled.
Yes	**No**	**N/A**	**VEGETATION**
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Wetland occurs along the upper reaches of Troublesome Creek a perennial, second and third order tributary of the Colorado River, just below Matheson Reservoir. Surrounding uplands are dominated by mixed coniferous forests of *Pinus contorta*, *Abies lasiocarpa*, and *Picea engelmannii*. Even though the system is in proper functioning condition, hydrology and ultimately occurrence viability is compromised by reservoir and constriction of flows. Some sections of the drainage have steep canyon walls and stream is confined, other areas are open with a wide floodplain. Disturbances in the area include upstream reservoir, spring flooding, and possibly pressures during the fall hunting seasons. Site is surrounded by public lands to the north and east and private property to the southwest. Upper reaches of drainage around reservoir are a privately owned inholding in National Forest. The area is difficult to access by car.

Plants: Wetland is dominated by a tall shrub layer of *Alnus incana* (25-35%) and *Salix drummondiana* (35-45%) with an open canopy of *Abies lasiocarpa* (1-5%) and *Picea engelmannii* (5-10%). The wetland likely formed a contiguous occurrence of *Alnus incana/ Salix drummondiana* with its upper tributary Porphyry Creek before the dam interrupted flows and vegetation. Short shrubs common along the drainage include *Rubus ideaus* and *Lonicera involucrata* at 1-5% cover. *Heracleum maximum*, *Equisetum arvense*, and *Calamagrostis canadensis* are common in the herbaceous layer at 5-10% cover. Other common herbaceous species occurring at 1-5% cover include *Geranium richardsonnii, Senecio triangularis, Mertensia ciliata,* and *Urtica gracile*. *Mimulus guttatus* and *Delphinium barbeyi* occur in trace cover. *Poa pratensis* occurs at 1-5% cover along banks of the drainage.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Alnus incana	FACU, FACW	FACW
Salix drummondiana	FACW, OBL	FACW+
Abies lasiocarpa	UPL, FAC	FACU
Picea engelmannii	FACU-, FAC	FACU-
Rubus ideaus	UPL, FAC	UPL
Heracleum maximum	FACU-, OBL	FAC
Equisetum arvense	FACU, FACW-	FAC+
Calamagrostis canadensis	FAC, OBL	OBL
Mimulus guttatus	OBL	OBL
Delphinium barbeyi	FAC, FAC+	FAC

Soils: Along edges of drainage, top 18cm 10YR 3/3 fine sand, 19-35cm 10YR3/1 medium sand, water at 10cm, soils are small to medium cobble along stream bottoms and loams along stream banks with wide areas of sand deposits.

pH = 8.4 conductivity = 120 micromhos @ 14 degrees Celsius

CNHP Wetland Plant Association Classification: *Alnus incana* - *Salix drummondiana* Shrubland – B – (G3S3)
Rosgen Stream Classification: A Type

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk: Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No

If yes, what are those factors?
__X_Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment ____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Dewatering and altered hydrology caused by privately owned reservoir upstream.

Capability Wetland is functioning at its capability given current political, economic, and social constraints and realistic goals for the area.

Potential Site is functioning below its capability due to altered hydrology and low flows created by upstream dam. Flows would need to be restored to achieve the potential natural community.

Photo 7. Thinleaf alder with Drummond willow riparian shrubland at Upper Troublesome Creek.

Rabbit Ears Creek TIA # 151
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Hyannis Peak — Quadrangle Code: 4010633
Township: 4N Range: 80W — Section: 21, 28
UTM: 13S N4460794 E384842 — Elevation: 9127 ft
Date: July 3, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
	X		2) Where beaver dams are present they are active and stable – Dams in upper reaches of the valley have been abandoned, downstream dams are stable and active.
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
	X		4) Riparian-wetland area is widening or has achieved potential extent – Wetland area may be decreasing due to loss of dams and widened floodplain.
X			5) Upland watershed is not contributing to riparian-wetland degradation – There is an old ditch adjacent to and above the wetland area that is no longer in use.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor

	X		11) Adequate vegetative cover is present to

			protect banks and dissipate energy during high flows – Areas near abandoned dams have little or no vegetation along banks.
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Rabbit Ears Creek is a second order tributary of Troublesome Creek. Wetland occurs on a gently sloped, open floodplain along the middle reaches of the creek. Beaver dams have been abandoned and subsequently breached creating many areas of bare soil along upper reaches. Beaver activity downstream of occurrence is stable. Fish are common along stream in backwater sloughs and channel. There is evidence of bear, elk, and deer in the area. There is an old, abandoned road into the drainage that may be used by hunters and hikers. There is also an old ditch off of an upper tributary, but it does not seem to be in use. There have been logging activities in the area, but none immediately adjacent to the drainage. There are few to no exotic species present and currently very little disturbance.

Plants: Vegetation is dominated by tall shrubs including *Salix drummondiana* 55% (upper reaches), *Salix geyeriana* 35% (lower reaches), with some *Salix monticola*, *Salix planifolia*, and *Alnus incana* mixing. Herbaceous understory is dominated by mesic graminoids including *Carex aquatilis* (15-20%), *Carex utriculata* (5-10%), and *Calamagrostis canadensis* (5-10%). Mesic forbs present include *Senecio triangularis, Heracleum sphondylium,* and *Erigeron peregrinus*.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Salix drummondinana	FACW, OBL	FACW+
Salix geyeriana	FACW+, OBL	OBL
Carex aquatilis	OBL	OBL
Calamagrostis canadensis	FAC, OBL	OBL
Senecio triangularis	FACW, OBL	FACW
Heracleum maximum	FACU-, OBL	FAC
Erigeron peregrinus	FACW	FACW

Soils: Soils surveyed in drying backwater slough, top10-16cm, hemic soils, silt loam, above gravel bottom, 7.5YR 2.5/1, 50% organic matter over cobble, channel bottom cobble with some deposits of sands and silts.

pH = 7.8 conductivity = 55 micromhos @ 13 degrees Celsius

CNHP Wetland Plant Association Classification: *Salix drummondiana/Calamagrostis canadensis* Shrubland – B – (G3S3)
Rosgen Stream Classification: Type E

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Loss of beaver activity has created many areas devoid of vegetation. Extent of mesic, vegetation in the drainage may be reduced in the future unless beaver ponds and dams are reestablished.

Capability Wetland area is functioning at its capability within the present constraints of past logging and recreational use and in congruence with realistic goals for the area.
Potential Wetland area is functioning near its potential natural community. Although there are anthropogenic disturbances present including a ditch and road, both remain as historic disturbances and do not seem to be currently in use. There are no hydrologic alterations other than natural alterations from beaver activity and logging in the area is patchy.

Photo 8. Drummond willow with bluejoint reedgrass riparian shrubland at Rabbit Ears Creek.

Porphyry Creek TIA # 152
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Hyannis Peak — Quadrangle Code: 4010633
Township: 4N Range: 80W — Section: 24
UTM: 13S N4445628 E383399 lower spring — Elevation: 7737 ft
13S N4445591 E383590 upper spring
Date: June 14, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
X			5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: The Porphyry Creek drainage is a small first order tributary of Troublesome Creek. It consists of dense vegetation constricted to the small stream channel. Uplands consist of *Pinus contorta* xeric forest to the southwest and open Artemisia. The mixed Salix dominated opening to the northeast is variable throughout. Even though the system is in proper functioning condition, hydrology and ultimately occurrence viability is compromised by lower reservoir. System is currently healthy, but may need more management in future to retain viability. The main disturbance along the creek and adjacent tributaries is weedy species invasion. Porphyry Creek and Troublesome Creek likely created a continuous occurrence before the reservoir was installed. The reservoir has altered hydrology, introduced weeds, and changed the connectivity of species in adjacent drainages. Most likely, upper areas of reservoir were dominated by *Salix drummondiana* willow carr before it was flooded.

Plants: Occurrences are dominated by a tall shrub layer of *Alnus incana* (35%) and *Salix drummondiana* (25%) with some *Salix monticola* (5-10%) mixing. Common short shrub species include *Rubus idaeus* and *Lonicera incvolucrata*. The herbaceous layer is dominated by *Heracleum maximum, Geum macrophyllum, Senecio triangularis,* and *Delphinium barbeyi* which are all present and common along the mesic areas of the drainage. Graminoids present include *Calamagrostis canadensis* and *Carex microptera. Poa pratensis* is common in some areas and found throughout the drainage.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Alnus incana	FACU, FACW	FACW
Salix drummondiana	FACW, OBL	FACW+
Picea engelmannii	FACU-, FAC	FACU-
Geum macrophyllum	FACW, OBL	OBL
Heracleum maximum	FACU-, OBL	FAC
Equisetum arvense	FACU, FACW-	FAC+
Senecio triangularis	FACW, OBL	OBL
Calamagrostis canadensis	FAC, OBL	OBL
Carex microptera	FAC, FACW	FAC

Soils: Top 18cm 10YR 3/3 fine sand, 19-35cm 10YR3/1 medium sand, water at 10cm, soils are small to medium cobble along stream bottoms and loams along stream banks.

pH = 8.4 conductivity = 120 micromhos @ 14 degrees Celsius

CNHP Wetland Plant Association Classification: *Alnus incana - Salix drummondiana* Shrubland – B – (G3S3)
Rosgen Stream Classification: Type A

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk: Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?

Yes No

If yes, what are those factors?

____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Area is functioning at its capability given the current economical, social, and political constraints, and realistic goals for the area.

Potential Wetland is functioning just below its potential natural community due to past disturbances in the area which have altered hydrology and introduced exotic species.

Charlie Creek Meadows TIA # 154A
Functioning At Risk—Upward Trend

Lentic Standard Checklist

Grand County
Quadrangle: Gunsight Pass — Quadrangle Code: 4010623
Township: 3N Range: 80W — Section: 12
UTMs: 13S N4455264 E389870 — Elevation: 9090 ft
Date: 7/19/2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
X			2) Fluctuation of water levels is not excessive
	X		3) Riparian-wetland area is enlarging or has achieved potential extent – Wetland area seems to be diminishing due to natural filling with sediment from surrounding landscape.
X			4) Upland watershed not contributing to riparian-wetland degradation
X			5) Water quality is sufficient to support riparian-wetland plants
X			6) Natural surface or subsurface flow patterns are not altered by disturbance i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities) – some hoof action evident, not extensive
X			**7) Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway)**
Yes	**No**	**N/A**	**VEGETATION**
X			8) Diverse age-class distribution (recruitment for maintenance/recovery)
X			9) Diverse composition of vegetation (for maintenance/ recovery)
X			10) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			11) Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events, snowmelt)

X			12) Riparian-wetland plants exhibit high vigor
X			13) Adequate vegetative cover is present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows
X			14) Frost or abnormal hydrologic heaving is not present
X			15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics)

Yes	No	N/A	EROSION/DEPOSITION
X			16) Accumulation of chemicals affecting plant productivity/composition is not apparent
X			17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
X			18) Underlying geologic structure/soil material/permafrost is capable of restricting water percolation
X			19) Riparian-wetland is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
		X	20) Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) are adequate to dissipate wind and wave event energies – Site is a meadow, with small open water ponds

Remarks

General Description: Wetland occurs as the upper meadow of a succession of old, seral, step-in-slope meadows. Meadow is underlain by very clayey soils which help to retain water to support wetland species. Surrounding uplands contain multiple seeps that may contribute to hydrology in the meadow. Upper meadow consists of multiple small open water ponds surrounded by areas of inundated soils with surface water present throughout. Surrounding uplands are dominated by *Pinus contorta* forests with patches of *Populus tremuloides*. Past surveys of wetland sites in the area indicate intensive grazing activities that may have encouraged the abundance of weedy species. The area is now contained within a BLM research wilderness area and appears to be in an upward trend towards proper functioning status. There is no evidence of current disturbances aside from wildlife use and hydrologic fluctuation. The site supports a healthy population of *Pseudacris triseriata* and nearby ponds are inhabited by *Ambystoma tigrinum*. Dynamic surface water storage in meadow is high due to the evidence of inundation and dominance by wetland species. Wetland supports proper species and

hydrology to provide important wildlife habitat for amphibians, insects, birds, and mammals.

Plants: Meadow is dominated by mesic graminoids with *Glyceria grandis* 35-45%%, *Carex utriculata* 25% and *Carex aquatilis* 25% being most common. *Glyceria borealis* 1-5%, *Juncus confusus* 1%, *Deschampsia cespitosa* 1-5%, *Carex microptera* 1-5%, and Eleocharis palustris 5-10% are also present. The lower meadows no longer support many wetland species and are dominated by weedy species including *Hordeum brachyantherum* 5-10% and *Alopecurus pratensis* 1-5%. The area was described as being heavily impacted by intense grazing during the last survey which may account for the non-native component. The area does not appear to have been grazed in multiple years and is recovering from past pressures.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Glyceria grandis	OBL	OBL
Carex utriculata	OBL	NI
Carex aquatilis	OBL	OBL
Glyceria borealis	OBL	OBL
Eleocharis quinqueflora	OBL	OBL
Hordeum brachyantherum	FAC, FACW	FACW-
Alopecurus pratensis	FAC, FACW	NI

Soils: Soils consist of an upper layer, 6 cm of peaty muck, over 30cm+ of silty clay, 5YR 2.5/1, water at 17 cm.

pH = 8.4 Conductivity = 130 micromhos @ 17 degrees Celsius

CNHP Wetlands Plant Association Classification: Glyceria grandis Herbaceous Vegetation – B – G2?S2
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition _____
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk * X

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward X Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Meadow is filling in due to natural meadow evolution, only a few small ponds of open water left.

Capability Wetland is currently functioning at its capability given the current political, economic, and social constraints and the realistic goals for the area. Although area will likely continue to fill with sediment from surrounding watershed, the capability of the area to attain potential is very high.

Potential *In* order for this wetland area to attain its potential natural community, the non-native species component would need to be controlled and the area maintained as a natural area in the absence of livestock grazing.

Photo 9. American mannagrass herbaceous vegetation at Charlie Creek Meadows.

Charlie Creek Seep TIA# 154B
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Gunsight Pass — Quadrangle Code: 4010623
Township: 3N Range: 80W, 79W — Section: 7, 12
UTM: 13T N4454846 E390353 — Elevation 9260 ft
Date: July 19, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X	X		4) Riparian-wetland area is widening or has achieved potential extent - Western creek is very small, Salix sp. cover much larger area than floodplain and mix with upland species, southern creek appears to have achieved potential extent
X			5) Upland watershed is not contributing to riparian-wetland degradation – Road spans northern edge of spring and its creeks, does not seem to impact wetland

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor

X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Wetland occurs along a small, perennial seep which feeds in to Charlie Creek, a first order tributary of Troublesome Creek. Mesic soils supported by the seep form a mosaic of four different plant associations occurring along two streams that flow from a single origin. Spring area supports a dense stand of wetland vegetation, while seeps support narrow strips of wetland soils and vegetation with some larger openings. Surrounding uplands are dominated by mixed *Pinus contorta, Populus tremuloides* dominated forests. Disturbances include adjacent road that is no longer heavily used and wildlife use. Area was heavily grazed in the past and is now part of a BLM wilderness research area.

Plants: The area surrounding the source spring is dominated by a *Salix drummondiana*/Mesic forb association. The creek flowing west from the spring is *Salix drummondiana* with an herbaceous layer of mesic forb species becoming mesic graminoids at its lower reaches. The southern stream is dominated by *Alnus incana* with an understory of mesic forbs in the upper forested and steep areas changing to *Salix drummondiana* with mesic graminoids, predominantly *Carex utriculata* further down from the spring before its confluence with Charlie Creek. Species present throughout in varying cover include, *Salix drummoniana, Alnus incana, Geum macrophyllum, Urtica gracile, Carex utriculata, Geranium richardsonii, Ligularia bigelovii, Mimulus guttatus, Poa pratensis, Luzula parviflora, Micranthes odontoloma, Equisetum arvense, Calamagrostis canadensis, Mertensia ciliata, Oxypolis fendleri,* and *Senecio triangularis*.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Salix drummonidiana	FACW, OBL	FACW+
Alnus incana	FACU, FACW	FACW
Carex utriculata	OBL	NI
Geum macrophyllum	FACW, OBL	OBL
Geranium richardsonii	FACU, FACW	FACU
Oxypolis fendleri	FACW, OBL	OBL

Soils: 6cm, clay loam with 30% muck, sapric organic matter, 6-24cm, 10YR 2/1 clay with 15% mottling, +24cm, 10YR 6/2 fine sand, 5% oxidized root channels, soils sampled at edge of creek along western steam

pH = 7.5 conductivity = 70 micromhos @ 9 degrees C

CNHP Wetland Plant Association Classification: *Salix drummondiana*/Mesic Forb Shrubland (G4S4), *Alnus incana* – Salix drummondiana shrubland (G3S3), *Alnus incana*/Mesic Forb Shrubland (G3S3), *Salix drummondiana/Carex utriculata* Shrubland (G4S3)
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk: Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management? Yes No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Area is most likely on an upward trend due to recent protection from grazing. The west flowing stream seems be at a reduced size from past years, but it cannot be determined what may be the cause of the reduction.

Potential Site is functioning at its potential natural community with very few alterations or disturbances.

Photo 10. Charlie Creek Seep.

The Gunsight Spring TIA # 156A
Functioning At Risk—Trend Not Apparent

Standard Checklist

Grand County
Quadrangle: Gunsight Pass — Quadrangle Code: 4010623
Township 3N Range 80W — Section 21
UTM: 13S N4452147 E385207 — Elevation: 8319 ft
Date: June 27, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
	X		5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
	X		9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events – **Streambank vegetation variable with predominantly upland species or no vegetation.**
X			10) Riparian-wetland plants exhibit high vigor
	X		11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows – **Southern bank supports high veg. cover, northern banks supports many weedy species and large areas of bare soil.**

X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X	X		16) System is vertically stable – **Gully is very entrenched.**
	X		17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition) **– There is algal growth in standing water, some erosion is evident on banks.**

Remarks

General Description: Wetland occurs along a small ephemeral drainage flowing through The Gunsight terrain feature west of Gunsight Pass. Drainage is incised with one small area that appears to hold water due to clayey soils and a small spring. Spring occurs just above the property line between BLM and private property. Where lower reaches extend onto private property, drainage turns into a *Salix* dominated community and further down into a stand of *Populus angustifolia*. Disturbances include weedy species invasion, bank erosion, and wildlife use. Downstream property is used for livestock grazing and aid in the introduction of weedy species. Site supports five different species of butterfly, one of which is very abundant along the unvegetated areas of hydric soils.

Plants: Site supports multiple wetland species in the small area of hydric soils. *Glyceria* sp. is dominant in this area at 75% cover. Other species present at low cover, 1-2%, include, *Urtica gracilis*, *Veronica americana*, *Carex microptera*, *Juncus balticus*, and *Epilobium* sp. Shrubby species present include *Salix lasiandra* and *Lonicera involucrata*. Weedy species include *Cirsium arvense* and *Poa pratensis*. Surrounding uplands are dominated by xeric *Artemisia tridentata* short shrublands to the north and *Pseudotsuga menziesii* along the southern slopes. Draw above wetland dominated by *Populus tremuloides* and *Pseudotsuga menziesii*.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Glyceria sp.	OBL	OBL
Urtica gracilis	FACU, FACW	FAC

Veronica americana	OBL	OBL
Juncus balticus	FACW, OBL	FACW

Soils: Top 11cm, 10YR 3/2 sandy clay, water at surface, 11cm+, 10YR 3/2, gravelly clay, with 35-40% gravel component

pH = 8.2 conductivity = 120 micromhos a@ 25 degrees Celsius

CNHP Wetland Plant Association Classification: N/A
Rosgen Stream Classification: G Type

Summary Determination

Functional Rating:

Proper Functioning Condition_____
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *_____X_____

Non-Functional _____

Unknown _____

***Trend for Functional At Risk:**
Upward _____ Downward _____
Not Apparent _____X_____

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes_____X_____ No _____

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment ____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) _____ Natural bank erosion, adjacent land use_____

Capability Wetland is functioning at its capability given the current economic, social, and political constraints and realistic goals for the site.

Potential Site is functioning below its potential natural community due to weedy species invasion, erosion, lack of bank stabilizing vegetation, and adjacent land use.

Hay Gulch TIA# 161
Functioning At Risk—Trend Not Apparent

Standard Checklist

Grand County
Quadrangle: Gunsight Pass — Quadrangle Code: 4010623
Township: 2N Range: 80W — Section: 9
UTMs N4445628 E383399 lower spring — Elevation 7737 ft
N4445591 E383590 upper spring
Date: June 14, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
	X		5) Upland watershed is not contributing to riparian-wetland degradation – Livestock grazing within gulch, along adjacent banks, and uplands has apparent impacts on condition of wetland.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
	X		10) Riparian-wetland plants exhibit high vigor – Early summer the plants exhibited very low vigor due to grazing pressures, later in the season, plants were identifiable and much more

			vigorous.
	X		11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows – Some areas are heavily eroded from livestock use with little to no vegetation.
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description and Condition: Wetland area occurs along a small draw fed by two springs of which the lower is capped and regulated. Wetland is transected by maintained, county road 25. Area near road exhibits severe impacts from maintenance and vehicular use. Unidentifiable graminoids, found throughout mesic areas, trails and erosion along banks, and layer of effluent indicate heavy grazing during the early summer season. Later in the season, the area recovered and graminoids were able to reproduce and therefore be identified.

Plants: Bottom is dominated by obligate wetland species which abruptly change to obligate upland *Artemisia tridentata* shrublands above floodplain. Gulch is dominated mesic graminoids throughout. The two dominant species are *Carex simulata* 70% and *Carex utriculata* 20% which form a very dense thicket throughout saturated and inundated areas. Other wetland species present at less than 5% cover include *Eleocharis palustris, Carex nebrascensis, Juncus balticus, Glyceria grandis, Lemna minor, Veronica americana* and *Epilobium ciliatum.*

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Carex simulata	FACW, OBL	FACW+
Carex utriculata	OBL	NI
Eleocharis palustris	OBL	OBL
Juncus balticus	FACW, OBL	FACW
Veronica Americana	OBL	OBL
Epilobium ciliatum	FACU, OBL	FAC

Soils: Soils consist of a histic epipedon of 25cm of organic dominated soil over clay, surrounding uplands consist of clay dominated soils.

pH = 7.25 conductivity = .45mS @ 13.7 degrees Celsius

CNHP Wetland Plant Association Classification: Carex simulata Herbaceous Vegetation (G4/S3)—globally secure plant community, no element occurrence rank
Rosgen Stream Classification: E Type
Summary Determination
Functional Rating:

Proper Functioning Condition
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk * X

Non-Functional

Unknown

*Trend for Functional At Risk: Upward ____Downward____Not Apparent ___X_

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes No X
If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership
Other (specify e.g., grazing, irrigation, agriculture activities) Intensive grazing early season heavily impacted vegetation and bank stabilization.

Capability Area is functioning at its capability given the current economical and political constraints and realistic goals for the area.

Potential Wetland area is not functioning at its potential natural community due to three limiting factors, controlled hydrology, intense livestock grazing early season, and impacts from road transecting the wetland.

Little Wolford Mountain TIA # 162
Nonfunctional

Standard Checklist

Grand County
Quadrangle: Gunsight Pass — Quadrangle Code: 4010623
Township 2N Range 80W — Section 16
UTM: 13T N4443737 E384229 — Elevation: 8335 ft
13T N4443677 E384320
Date: June 13, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
		X	1) Floodplain above blankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
		X	3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
		X	4) Riparian-wetland area is widening or has achieved potential extent
		X	5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
		X	6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
		X	7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
		X	8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
		X	9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
		X	10) Riparian-wetland plants exhibit high vigor
		X	11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
		X	13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
		X	15) Lateral stream movement is associated with natural sinuosity
		X	16) System is vertically stable
		X	17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Sites occur along the northwestern side of Little Wolford Mountain. Small, unmaintained road accesses the area. Salt licks and watering troughs for livestock are present along lower reaches of the road near county road 25. Non-native species are common along roadsides.

Plants: Area dominated by *Artemisia tridentata* and *Symphoricarpos rotundifolius* shrublands with large patches of *Populus tremuloides*. Many of the seedling/sapling *Populus tremuloides* in the area are dead or dying from unexplained causes. Small draw, drainage supports some *Pseudotsuga menziesii*. Lower site along road appears to be old watering area for cattle. There is an old barrel, campsite, and fire ring and there appears to have been some dirt work to catch water in the area. No wetland species are present.

Soils: No wetland soils evident.

pH/conductivity: no water

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Non-Functional X

Cow Gulch TIA #163
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Junction Butte/Kremmling Quadrangle Code: 4010613/4010614
Township: 2N Range: 80W Section: 29
UTM: 13S N4440022 E382742 Elevation: 7725 ft
Date: June 14, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
	X		4) Riparian-wetland area is widening or has achieved potential extent – There are some facultative upland species encroaching along edges of draw.
X			5) Upland watershed is not contributing to riparian-wetland degradation – Upland watershed is in good condition.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows

		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Wetland inhabits a small draw leading to Cow Gulch. Hydrology is dependant on groundwater from very small, perennial seep and likely ephimeral flows and some snow melt. There is a small rivulet of running water feeding the occurrence creating a narrow habitat of wetland soils and species with very little floodplain. Surrounding uplands are dominated by xeric *Artemisia tridentata* shrublands. Disturbances include flooding during spring and ephimeral events, wildlife use, and natural erosion. Livestock use is not evident, but is evident lower down the Cow Gulch drainage. The site likely sees use during the fall hunting seasons. County road above occurrence does not seem to impact the site.

Plants: Area includes many small seeps which fed into Cow Gulch. Gulch is dominated by *Populus angustifolia* and Salix species with an understory of mesic graminoids. Surveyed draw is dominated by a *Carex pellita* (75-85%) herbaceous association. Other species present inlcude *Carex utriculata* (1-5%), *Juncus balticus* (5-10%), and *Veronica americana* (1-5%) which occur along the small rivulet through the middle of the occurrence indicating a perennial water source. Some upland species occurring along edges include *Artemisia tridentata, Juniperus scopulorum,* and *Ribes inerme.*

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Carex pellita	OBL	OBL
Carex utriculata	OBL	NI

Juncus balticus	FACW, OBL	FACW
Veronica americana	OBL	OBL
Ribes enerme	FAC, FACW-	FAC+
Juniperus scopulorum	UPL	UPL

Soils: Top 6 inches, around root zone, is very dark black, .5cm undecomposed organic material, .5cm-8.5 cm, 1% oxidized root channels, 10YR 3/2, 9cm-15cm, 10YR 3/1, clay, 15+cm 10YR 2/1, clay with very small amount of sand and larger particles.

pH = 8.05 conductivity = .2 micromhos @ 18 degrees Celsius
CNHP Wetland Plant Association Classification: Carex pellita Herbaceous Vegetation (G3S3)- C Rank
Rosgen Stream Classification: G Type

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes No

If yes, what are those factors?
____Dewatering____Mining activities ____Watershed condition
____Dredging activities ____Road encroachment ____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Wetland is functioning at its capability given the current political, social, and economic constraints and realistic goals for the area.

Potential Wetland is function just below its Potential Natural Community due to alteration of hydrology along upstream seeps and springs.

Photo 11. Wooly sedge herbaceous vegetation at Cow Gulch.

Horse Gulch Springs TIA # 163A
Nonfunctional

Standard Checklist

Grand County
Quadrangle: Junction Butte — Quadrangle Code: 4010613
Township 1N Range 80W — Section 3
UTM: 13S N4437830 E386339 — Elevation: 7720 ft
Date: June 1, 2005
ID Team Observers: JJones, DCulver

Yes	No	N/A	HYDROLOGY
		X	1) Floodplain above blankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
		X	3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
		X	4) Riparian-wetland area is widening or has achieved potential extent
		X	5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
		X	6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
		X	7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
		X	8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
		X	9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
		X	10) Riparian-wetland plants exhibit high vigor
		X	11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
		X	13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
		X	15) Lateral stream movement is associated with natural sinuosity
		X	16) System is vertically stable
		X	17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Site occurs at the southern end of a small butte on the east side of County Road 22, just north of Kremmling. Site is xeric throughout. There appears to have been some dirt work in the area to aid in water catchment.

Plants: Site dominated by xeric *Artemisia tridentata* shrublands. There are no wetland species present in the area.

Soils: No wetland soils evident.

pH/conductivity: no water

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Non-Functional	X

Horse Gulch Springs TIA # 163B
Nonfunctional

Standard Checklist

Grand County
Quadrangle: Junction Butte — Quadrangle Code: 4010613
Township 1N, 1½N, 2N Range 80W — Section 3, 34
UTM: 13T N4438289 E385539 — Elevation: 7635ft
Date: June 2, 2005
ID Team Observers: DCulver, JJones

Yes	No	N/A	HYDROLOGY
	X		1) Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
	X		2) Fluctuation of water levels is not excessive
	X		3) Riparian-wetland area is enlarging or has achieved potential extent
	X		4) Upland watershed not contributing to riparian-wetland degradation
X			5) Water quality is sufficient to support riparian-wetland plants
	X		6) Natural surface or subsurface flow patterns are not altered by disturbance i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities)
	X		7) Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway)

Yes	No	N/A	VEGETATION
	X		8) Diverse age-class distribution (recruitment for maintenance/recovery)
X			9) Diverse composition of vegetation (for maintenance/ recovery)
	X		10) Species present indicate maintenance of riparian-wetland soil moisture characteristics
	X		11) Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events, snowmelt)
	X		12) Riparian-wetland plants exhibit high vigor

	X		13) Adequate vegetative cover is present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows
X			14) Frost or abnormal hydrologic heaving is not present
		X	15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics)

Yes	No	N/A	EROSION/DEPOSITION
X			16) Accumulation of chemicals affecting plant productivity/composition is not apparent
	X		17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
X			18) Underlying geologic structure/soil material/permafrost is capable of restricting water percolation
X			19) Riparian-wetland is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
		X	20) Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) are adequate to dissipate wind and wave event energies

Remarks

General Description: Site occurs along small, incised tributary of Horse Gulch. Spring is capped and piped to a lower trough. Area has been dammed to retain water, but there is no standing water at present. Area is currently used by livestock and wildlife and is heavily impacted by exotic species invasion.

Plants: Heavily browsed *Salix* sp. is present throughout the bottom around the capped spring (could not identify due to the early season, looked like *Salix exigua* which is an obligate wetland species). *Juncus balticus* is also present indicating seasonal or perennial hydrology. Exotic species are very common and dominate the mesic area around the capped spring. Exotics include *Thlaspi arvense*, *Cynoglossum officinale*, and *Psathyrostachys juncea***.**

Soils: Soils are moist in some areas, but do not appear to be saturated or inundated in frequent events. Soils have very high clay content which may aid in the retention of water.

ph = no water present conductivity = no water present

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: Type G

Summary Determination

Functional Rating:

Non-Functional	X

Horse Gulch Springs TIA # 163D
Nonfunctional

Standard Checklist

Grand County
Quadrangle: Junction Butte — Quadrangle Code: 4010613
Township 2N Range 80W — Section 28
UTM: 13S N4440405 E383861 — Elevation: 7980ft
Date: June 1, 2005
ID Team Observers: JJones, DCulver

Yes	No	N/A	HYDROLOGY
		X	1) Floodplain above blankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
		X	3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
		X	4) Riparian-wetland area is widening or has achieved potential extent
		X	5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
		X	6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
		X	7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
		X	8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
		X	9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
		X	10) Riparian-wetland plants exhibit high vigor
		X	11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
		X	13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
		X	15) Lateral stream movement is associated with natural sinuosity
		X	16) System is vertically stable
		X	17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Site occurs along a small, incised, ephemeral tributary of Cow Gulch. Disturbances include erosion along steep banks and browsing of cottonwood saplings by mule deer and elk.

Plants: Drainage is dominated by a narrow strip of *Populus angustifolia* in a canopy layer with many, heavily browsed saplings in the understory. Other understory species include *Ribes cereum*, *Symphoricarpos rotundifolius*, *Artemisia tridentata*, *Carex praegracilis*, and *Heuchera* sp. Surrounding uplands are dominated by *Artemisia tridentata* short shrublands.

Soils: No wetland soils evident. Hydrology is dependent on ephemeral flows. There is no evidence of standing water or saturation during the growing season.

pH/conductivity: no water

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: Type G

Summary Determination

Functional Rating:

Non-Functional	X

Slide Creek TIA # 164
Proper Functioning Condition

Lentic Standard Checklist

Grand County
Quadrangle: Corral Peaks — Quadrangle Code: 4010622
Township: 2N Range: 79W — Section: 15
UTM: 13S N4443695 E394260 — Elevation: 8625 ft
Date: August 31, 2005
ID Team Observers: PBelcher, JJones

Yes	No	N/A	HYDROLOGY
X			1) Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
X			2) Fluctuation of water levels is not excessive
X			3) Riparian-wetland area is enlarging or has achieved potential extent
X			4) Upland watershed not contributing to riparian-wetland degradation
X			5) Water quality is sufficient to support riparian-wetland plants
	X		6) Natural surface or subsurface flow patterns are not altered by disturbance i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities) – Lower end of obstructed by man-made dam, mesic area created impacted by livestock use.
X			7) Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway)

Yes	No	N/A	VEGETATION
X			8) Diverse age-class distribution (recruitment for maintenance/recovery)
X			9) Diverse composition of vegetation (for maintenance/ recovery)
X			10) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			11) Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events, snowmelt)
X			12) Riparian-wetland plants exhibit high vigor

X			13) Adequate vegetative cover is present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows
X			14) Frost or abnormal hydrologic heaving is not present
X			15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics)

Yes	No	N/A	EROSION/DEPOSITION
X			16) Accumulation of chemicals affecting plant productivity/composition is not apparent
X			17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
X			18) Underlying geologic structure/soil material/permafrost is capable of restricting water percolation
X			19) Riparian-wetland is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
X			20) Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) are adequate to dissipate wind and wave event energies

Remarks

General Description: Wetland area consists of a small, dammed drainage along Slide Creek, a first order tributary of Troublesome Creek. The pond created appears to be deep and was likely present before the dam was built to increase water retention of the site. Vegetation around edges of the pond is variable with only the western end exhibiting wetland species and soil characteristics. Other banks exhibit little to no mesic vegetation with little transition from open water to upland *Pinus contorta/Abies lasiocarpa* forests with large patches of *Populus tremuloides*. Wetland appears to be an important water source for wildlife, water foul, and the local livestock herd.

Plants: The surface of the ponds supports a dense layer of Lemna minor, which appears to encourage duck use of the pond. Along the western end of the pond tall shrubs include *Salix montiocla* (3%) and *Salix bebbiana* (5%). Short shrubs found in the wetland area include *Lonicera involucrata, Acer glabrum,* and *Ribes inerme* and occur in low cover. Mesic graminoids present include *Luzula parviflora, Carex microptera, Carex disperma,* and *Glyceria striata,* all occur with less than 5% cover. Mesic forbs present include *Urtica gracilis, Geum macrophyllum, Actea rubra, Equisetum arvense, Epilobium*

angustifolia, Heraclem sphondylium, Pyrola rotundifolia, Osmorhiza depauperata, and *Cardamine cordifolia* which also occur at less than 5% cover.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Lemna minor	OBL	OBL
Salix bebbiana	FAC, FACW+	FACW+
Salix montiocla	FAC, OBL	OBL
Lonicera involucrata	UPL, FAC	FAC
Acer glabrum	FACU, FAC	FAC
Carex microptera	FAC, FACW	FAC
Carex disperma	FACW, OBL	FACW
Glyceria striata	OBL	OBL
Urtica gracilis	FACU, FACW	FAC

Soils: Soils consist of a deep layer, 38cm, of silt loam, 2.5YR 3/1 with high organic content, over B horizon of sandy clay loam, 5Y 2.5/1.

pH = 7.25 Conductivity = .25mS @ 15 degrees Celsius

CNHP Wetland Plant Association Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment ____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Wetland area is functioning at its capability given the current political, social, and economic constraints and the realistic goals for the site.

Potential The wetland area is functioning near its potential. The limiting factors for this area include obstruction of flows, livestock grazing, and non-native species invasion.

First Creek TIA #165A
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Corral Peaks — Quadrangle Code: 4010622
Township 2N Range 78W — Section 18, 19
UTM: 13S N4443029 E400395 — Elevation: 9200-9680 ft
Date: June 19, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
X	X		5) Upland watershed is not contributing to riparian-wetland degradation – Adjacent road is stable, but may contribute sediment to the drainage.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Wetland inhabits about .85 mile of First Creek. First Creek is a small, first order tributary of Corral Creek. The stream is perennial supporting many facultative wetland species. Stream banks are well-vegetated and stable throughout with good amounts of course materials. Disturbances include an adjacent road, past logging, and game trails.
Drainage exhibits use by wildlife including trails and browsing on vegetation. County road 216 runs adjacent to the drainage for most of its length increasing human use in the area and possibly adding sediment to the system. Watershed has been logged within the past fifty years.

Plants: Drainage dominated by a tall shrub layer of *Salix drummondiana* 15-25% and *Alnus incana* 25-35%. Some areas support encroaching *Populus tremuloides* and *Abies lasiocarpa.* Herbaceous understory is dominated by mesic forbs including *Heracleum maximum, Cardamine cordifolia, Hydrophyllum fendleri, Urtica gracilis, Aconitum columbinanun,* and *Saxifraga odontoloma,* which are all common throughout at 1-5% cover, but none dominate. Mesic short shrubs present at 1-5% cover include *Ribes montigenum* and *Lonicera involucrata*.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Alnus incana	FACU, FACW	FACW+
Salix drummondiana	FACW, OBL	FACW+
Abies lasiocarpa	UPL, FAC	FACU
Hydrophyllum fendleri	FAC, FACW	FAC
Saxifraga odontoloma	UPL, FACW+	FACW+
Lonicera involucrata	UPL, FAC	FAC

Soils: Soils are moist along edges and inundated along stream and banks, top 2cm, undecomposed plant matter, 2-25cm, 5YR 2.5/1, sandy clay with small sandy component, over cobble.

pH = 8.8 conductivity = 150 micromhos, at 9 degrees Celsius

CNHP Wetland Plant Association Classification: *Alnus incana - Salix drummondiana* Shrubland – B – G3S3
Rosgen Stream Classification: A Type

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities_X_ Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Logging

Capability Area is functioning at its capability given the current economic, political, and social constraints and realistic goals for the area.
Potential Area is functioning near its potential natural community with the main anthropogenic disturbance being the adjacent road and recreational use of the area.

Photo 12. Alder with Drummond willow riparian shrubland at First Creek.

Cabin Seep TIA # 165B
Proper Functioning Condition

Lentic Standard Checklist

Grand County
Quadrangle: Corral Peaks — Quadrangle Code: 4010622
Township: 2N Range: 78W — Section: 17, 20
UTM: 13T N4442783 E401479
N4442787 E401443 — Elevation 9645ft
Date: 6/19/2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
X			2) Fluctuation of water levels is not excessive
X			3) Riparian-wetland area is enlarging or has achieved potential extent
X			4) Upland watershed not contributing to riparian-wetland degradation
X			5) Water quality is sufficient to support riparian-wetland plants
X			6) Natural surface or subsurface flow patterns are not altered by disturbance i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities)
		X	7) Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway) – There are no flows present

Yes	No	N/A	VEGETATION
X			8) Diverse age-class distribution (recruitment for maintenance/recovery)
X			9) Diverse composition of vegetation (for maintenance/ recovery)
X			10) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			11) Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events, snowmelt)
X			12) Riparian-wetland plants exhibit high vigor

X			13) Adequate vegetative cover is present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows
X			14) Frost or abnormal hydrologic heaving is not present
X			15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics)

Yes	No	N/A	EROSION/DEPOSITION
X			16) Accumulation of chemicals affecting plant productivity/composition is not apparent
X			17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
X			18) Underlying geologic structure/soil material/permafrost is capable of restricting water percolation
		X	19) Riparian-wetland is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
		X	20) Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) are adequate to dissipate wind and wave event energies

Remarks

General description: Wetland occurs as a small, step-in-slope seep along the south eastern side of Grouse Mountain. Hydrology is dependent on a small perennial seep which collects along two small benches. Surrounding uplands are dominated by mature *Pinus contorta* and *Populus tremuloides* mixed forest. There are very few disturbances in the area. *Pinus contorta* show signs of impact from current beetle infestation in area. Just downhill of the seep, there is a maintained county road and small cabin. Area may see traffic during fall hunting season. Seep is used as a water source and possibly as a wallow by wildlife.

Plants: Areas of hydric soils surrounding seeps are dominated by a tall shrub layer of *Alnus incana* ssp. *tenuifolia*. Alder are robust and multi-stemmed and many herbaceous associates are obligate wetland species indicating consistent, perennial hydrology. The understory is dominated by mesic forbs including *Aconitum columbianum*, *Heracleum sphondylium*, and *Galium trifidum*, present at 5-10% cover. *Urtica gracilis, Epilobium hornmannii, Mertensia ciliata, Senecio triangularis, Cardamine cordifolia,*

Hydrophyllum fendleri, and *Valerian* sp., are all present at 1-5% cover. *Draba albertina, Saxifraga odontoloma, Mimulus guttatus,* and *Osmorhiza depauperata* are present in trace cover. *Calamagrostis* and *Luzula parviflora* are both present in low cover.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Alnus incana ssp. tenuifolia	FACU, FACW	FACW
Aconitum columbianum	FACW	FACW
Heracleum sphondylium	FACU-, OBL	FAC
Galium trifidum	FACW, OBL	OBL
Luzula parviflora	FACU, FAC	FAC

Soils: Soils consist of a layer of .5cm, O horizon of orgnanic material, .5-15cm, 10YR 2/1 (actually darker), silty clay, 15+cm, 10YR 2/2, silty clay

pH = 8.0 Conductivity = 190 micromhos @ 24 degrees Celsius

CNHP Wetland Plant Association Classification: *Alnus incana/*Mesic Forb Shrubland – G3S3—C Rank
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment ____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Site is functioning at its capability given the current political, social, and economical constraints and realistic goals for the area.

Potential Wetland area is functioning at its potential with all wetland functions acting to create the potential natural community

Photo 13. Alder with mesic forb shrubland at Cabin Creek Seep.

Black Mountain Reservoir TIA # 166
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Corral Peaks — Quadrangle Code: 4010622
Township: 2N Range: 79W — Section: 13
UTM: 13S N4444382 E399022 — Elevation 8800-9550 ft
Date: June 29, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
X			5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Wetland area inhabits a small drainage fed by multiple springs. Drainage is a tributary of Corral Creek and Black Mountain Reservoir, west of Black Mountain. Drainage is a narrow, ephemeral stream which likely experiences some spring flooding. Surrounding uplands are dominated by mixed coniferous forests dominated by *Pinus contorta* with patches of *Populus tremuloides*. Disturbances include logging and road construction and maintenance. There is no evidence of current grazing in the area, but seasonal, light grazing is evident and may increase the invasion of exotic species along slopes adjacent to the drainage. Drainage does not appear to be heavily impacted by livestock use. Natural disturbances include seasonal flooding and wildlife use.

Plants: Vegetation along this section of Buckhorn Creek is dominated by a tall shrub layer of *Alnus incana* (10-15%) and *Salix drummondiana* (45%). Other tall shrubs present include *Salix monticola* and *Salix lasiandra*. Mesic forbs dominate the herbaceous layer with *Mertensia ciliata, Senecio triangularis, Geum macrophyllum, Cardamine cordifolia, Delphinium barbeyi, Heracleum sphondylium, Saxifraga odontoloma,* and *Aconitum columbianum* are common with 1-10% cover. Many of the forbs are obligate wetland species indicating a perennial water source. Some non-natives present are *Bromus inermis* which only occurs along side slopes and *Poa pratensis* which may indicate impacts of past grazing.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Alnus incana ssp. tenuifolia	FACU, FACW	FACW
Salix drummondiana	FACW, OBL	FACW+
Mertensia ciliata	FACW, OBL	OBL
Delphinium barbeyi	FAC, FAC+	FAC

Cardamine cordifolia	FACW, OBL	FACW+
Poa pratensis	UPL, OBL	FACU

Soils: Soils sampled along small floodplain, 1.5 meters from stream, top 10cm, sand, 10YR 3/2, 10-20cm, sandy loam, 10YR 2/1, over gravel, stream bed consists of fine sandy deposits over fine-medium gravel.

pH = 8.1 conductivity = 105 micromhos, @ 8 degrees Celsius
CNHP Wetland Plant Association Classification: *Alnus incana - Salix drummondiana* shrubland – B – G3S3
Rosgen Stream Classification: Type A

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent
Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment ____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Wetland area is functioning at its capability with very little disturbance from political, social, or economical constraints.

Potential Area is functioning at its potential. Hydrology is restricted only at the drainages upper reaches at a small culvert and road crossing. Otherwise, the only evident current disturbances are natural from seasonal flooding and wildlife use.

Photo 14. Thinlead alder with Drummond willow riparian shrubland at Black Mountain Reservoir.

Kinney Creek TIA# 168
Functioning At Risk—Downward Trend

Standard Checklist

Grand County
Quadrangle: Hot Sulphur Springs — Quadrangle Code: 4010611
Township 2N Range 78W — Section 25
UTMs 13T N 4440800 E 407907 — Elevation: 8220 ft
Date: July 12, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
	X		2) Where beaver dams are present they are active and stable – Beaver have abandoned some areas and relocated in others and have intensely altered hydrology.
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
	X		4) Riparian-wetland area is widening or has achieved potential extent – Riparian area is actually decreasing due to hydrologic changes, many upland species are present on the floodplain.
	X		5) Upland watershed is not contributing to riparian-wetland degradation – Intense livestock grazing is negatively impacting the system.
Yes	**No**	**N/A**	**VEGETATION**
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
	X		8) Species present indicate maintenance of riparian-wetland soil moisture characteristics – Many upland species are present on the floodplain.
	X		9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events – Some areas are well-vegetated, some areas where dams have been abandoned support little to no shoreline vegetation.

X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Kinney Creek is a second order tributary of the Colorado River. The area is undergoing changing hydrology due to renewed beaver activity. Banks and vegetation have been heavily impacted by livestock use. Many Salix species occur along drying zone with facultative upland species. Beaver activity may help to reclaim some of the upland species dominated areas of the floodplain. Upland watershed is composed of stable *Artemisia tridentata* shrublands with some *Pseudotsuga menziesii* and *Pinus edulis* on higher slopes. Drainage has been altered due land uses including livestock grazing, destruction (channeling) of wetland on private segment, and close road proximity. Wetland supports many exotic species and upland species along the floodplain.

Plants: Wetland dominated by tall shrub layer of *Salix monticola* (25-35%) with codominant *Salix geyeriana* (15-20%). Understory species include a shrub layer of *Ribes inerme* (10-15%), *Distegia involucrata* (5-10%), *Alnus incana* (5-10%, regeneration). Herbaceous species include *Carex utriculata, Poa pratensis, Geranium richardsonii*, *Achillea lanulosa* (5-10%), and *Osmorhiza depauperata* occurring at about 1-5% cover. Multiple weedy species included in the stand include *Cirsium arvense, Taraxacum officionales,* and *Trifolium repens* which are common throughout along upper reaches of the floodplain and drying areas.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Salix monticola	FAC, OBL	OBL
Salix geyeriana	FACW+, OBL	OBL
Ribes inerme	FAC, FACW-	FAC+
Geranium richardsonii	FACU, FACW	FACU
Achillea lanulosa	UPL, FACU	FACU
Cirsium arvense	FACU-, FAC	FACU
Taraxacum officionales	UPL, FACW	FACU+
Trifolium repens	FACU-, FAC	FACU

Soils: Soils are saturated, to inundated along stream banks and moist in other areas of community.Top 3 cm mucky peat, 4-23cm 10YR 4/3 sand of fine particle size, 5% mottled, 24-32cm 10YR 3/2 clay loam, 32+ 10YR 2/1 with 10% pockets of fibric organic matter, water at 23cm

pH = 8.8 conductivity = 190 micromhos temperature = 17 degrees Celsius

CNHP Wetland Plant Association Classification: *Salix monticola*/ mesic forb Shrubland – C - (G4S3)
Rosgen Stream Classification: E Type

Summary Determination

Functional Rating:

Proper Functioning Condition
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk * X

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward X Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?

Yes X No X

If yes, what are those factors?

____Dewatering____Mining activities_X_ Watershed condition ____Dredging activities____Road encroachment_X_ Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Livestock use is the main threat to this system more intense management of livestock on BLM property would greatly improve riparian areas. Property ownership and channeling of stream along private property are also degrading the system.

Capability The riparian area is functioning at its capability within the social and economical constraints.

Potential Riparian area along Kinney Creek is not functioning at its potential due to limiting factors including hydrologic alterations from beaver activity, property ownership downstream where there is concentrated grazing and the stream has been channeled, intense grazing on BLM owned property, and road encroachment. All of these factors are contributing to the degradation of the system including non-native species invasion, bank erosion, upland species encroachment, and loss of many riparian functions that are necessary to achieve ultimate wetland values.

Photo 15. Mountain willow with mesic forb riparian shrubland at Kinney Creek.

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Ute Bill Reservoir TIA # 172
Proper Functioning Condition

Lentic Standard Checklist

Grand County
Quadrangle: Parshall — Quadrangle Code: 4010612
Township: 2N Range: 78W — Section: 33
UTM: 13S N4439187 E403966 — Elevation: 8623 ft
Date: August 11, 2005
ID Team Observers: PBelcher, JJones

Yes	No	N/A	HYDROLOGY
X			1) Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
X			2) Fluctuation of water levels is not excessive
X			3) Riparian-wetland area is enlarging or has achieved potential extent
	X		4) Upland watershed not contributing to riparian-wetland degradation – Adjacent road evidence of livestock use, banks are steep and not heavily used.
X			5) Water quality is sufficient to support riparian-wetland plants
	X		6) Natural surface or subsurface flow patterns are not altered by disturbance i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities) – Flows are obstructed by the presence of dam.
	X		7) Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway) – There is no structure present for the accommodation of flows through or around the dam.
Yes	**No**	**N/A**	**VEGETATION**
X			8) Diverse age-class distribution (recruitment for maintenance/recovery)
X			9) Diverse composition of vegetation (for maintenance/ recovery)
X			10) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			11) Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events,

			snowmelt)
X			12) Riparian-wetland plants exhibit high vigor
X			13) Adequate vegetative cover is present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows
X			14) Frost or abnormal hydrologic heaving is not present
		X	15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics)

Yes	No	N/A	EROSION/DEPOSITION
X			16) Accumulation of chemicals affecting plant productivity/composition is not apparent
X			17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
X			18) Underlying geologic structure/soil material/permafrost is capable of restricting water percolation
X			19) Riparian-wetland is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
X			20) Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) are adequate to dissipate wind and wave event energies

Remarks

General Description: Wetland area is the result of dam construction and subsequent hydrologic alteration of small, spring-fed tributary of Ute Bill Creek. Uphill mesic area of natural spring is dominated by *Alnus incana*/Mesic forb community which may reflect the historic community of this drainage. Presently, wetlands surrounding Ute Bill Reservoir are dominated by a variety of mesic shrubs and herbaceous species. Surrounding uplands are dominated by *Artemisia tridentata* shrublands and *Pinus contorta* forests, with patches of *Populus tremuloides*.

Plants: Shrubs present include *Alnus incana* (2%), *Salix monticola* (1-5%), *Salix lasiandra* (5%), and *Lonicera involucrata* (<1%). Canopy species present include *Populus tremuloides* (1%) and *Populus angustifolia* (1%). Mesic graminoids present along banks are *Carex utriculata* (5-10%), *Eleocharis palustris* (1%), and *Juncus balticus* (1-5%). Other species present include *Typha latifolia* (1-5%), *Epilobium ciliatum* (1%), and *Batrachium* sp. (5-10%, present as emergent in shallow areas). Non-native present at

1-5% cover include *Poa pratensis, Bromus inermis, Phleum pratensis* and *Breea arvense* which are likely a result of anthropogenic disturbances.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Salix monticola	FAC, OBL	OBL
Lonicera involucrate	UPL, FAC	FAC
Populus angustifolia	FAC, FACW	FAC
Eloecharis palustris	OBL	OBL
Juncus balticus	FACW, OBL	FACW
Typha latifolia	OBL	OBL
Batrachium sp.	OBL	OBL
Cirsium arvense	FACU-, FAC	FACU

Soils: Soil structure was difficult to discern due to manipulation of soils in construction of reservoir. Soils at the northwestern end of the reservoir consist of an upper layer of sandy clay 10YR 4/2, with 10-15% mottling, over sandy clay with 5-10% chart #1 gleying 4/10Y.

CNHP Wetland Plant Association Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent
Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes No X

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment ____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Factors contributing to degradation of wetland area within BLM's control are non-native species invasion and grazing pressures.

Capability Area is functioning at its capability given the constraints of road encroachment, grazing, and hydrologic alterations.

Potential Historically, this area was part of the riparian corridor fed by a small spring-fed tributary of Ute Bill Creek. In order to achieve a potential natural community for this area flows would need to be unobstructed and past streamside vegetation reestablished.

Photo 16. Ute Bill Reservoir.

Sulphur Butte Tanks TIA # 173
Functioning At Risk—Downward Trend

Standard Checklist

Grand County
Quadrangle: Parshall — Quadrangle Code: 4010612
Township: 1N Range: 78W — Section: 4
UTM: 13S N4436857 E403088 — Elevation: 8310 ft
Date: September 3, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
	X		4) Riparian-wetland area is widening or has achieved potential extent – Former wetland area is now very dry with a dominant upland species understory.
	X		5) Upland watershed is not contributing to riparian-wetland degradation – Livestock grazing has impacted wetland by compacting soils and introducing exotic species.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X	X		9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events – Edges of pond are revegetating, still show impacts of livestock use.
X			10) Riparian-wetland plants exhibit high vigor
	X		11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows – Banks exhibit loss of vegetation from

			livestock use.
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
		X	13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
	X		14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General Description: Wetland is part of a complex of springs which drain into the Colorado River above Byers Canyon. Perennial hydrology is only evident in one area of what appears to have been a larger wetland. The wetland area is a small depression, pond which collects water, creating a microhabitat for hydric soils and wetland vegetation. Larger wetland above the pond still supports wetland shrubs, but few wetland herbaceous species and predominantly upland species. Surrounding uplands are dominated by xeric *Artemisia tridentata* shrublands with patches of *Populus tremuloides*. Disturbances in the area include new road construction and dewatering. Just below road, spring on private property is active and developed.

Plants: Pond area is dominated by *Carex utriculata* (95%) with trace amounts of *Aster lanceolatus, Deschampsia caespitosa, Epilobium* sp., *Poa pratensis*, and *Juncus balticus*. Area above pond is supports a consistent, but sparse cover of tall shrubs dominated by *Salix geyeriana* (25%) with a few *Salix moticola* mixing. The most common herbaceous species in this area are *Juncus balticus (*15-25%) and *Deschampsia caespitosa* (25%). Herbaceous species occurring at 1-5% cover in the drying area above the pond include *Achillea millefolium, Gentiana affinis, Elymus trachycaulus,* and *Galium* sp. Short shrubs found in drying area include *Pentphylloides floribunda* (10-15%), *Artemisia tridentata* (1-5%), and *Ribes inerme* (<1%). Exotic species present include *Poa pratensis* (10-15%), *Cirsium arvense* (1-5%), and *Phleum pratense* (10-15%) which are all common throughout the area.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Carex utriculata	OBL	NI
Aster lanceolatus	OBL	OBL
Achillea millefolium	UPL, FACU	FACU
Gentiana affinis	FACU	FACU
Elymus trachycaulus	FACU, FAC	FACU
Salix geyeriana	FACW+, OBL	OBL
Juncus balticus	FACW, OBL	FACW
Dasiphora floribunda	FAC-, FACW	FACW

Soils: Soils sampled along pond area, top 1-12cm, silty clay loam, 10YR 2/2, B horizon, 13-42cm, silty clay, 10YR 3/2 with 95% mottled Mn and gleying from gley chart #1, 5/10B.
pH = no water present conductivity = no water present

CNHP Wetland Plant Association Classification: *Carex utriculata* Herbaceous Vegetation – G5S4
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk * X

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward X Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?

Yes X No

If yes, what are those factors?

____Dewatering____Mining activities____Watershed condition ____Dredging activities__X_Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities)

Capability Wetland is functioning at its capability given the current political, social, and economic constraints, and realistic goals for the area.

Potential Wetland is functioning below its potential natural community due to altered hydrology, weedy species invasion, and anthropogenic disturbances in the area.

Sulphur Butte Springs TIA # 173A
Nonfunctional

Standard Checklist

Grand County
Quadrangle: Parshall — Quadrangle Code: 4010612
Township 1N Range 78W — Section 9
UTM: 13S N4435529 E402564 — Elevation: 8360 ft
Date: July 11, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
		X	1) Floodplain above blankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
		X	3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
		X	4) Riparian-wetland area is widening or has achieved potential extent
		X	5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
		X	6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
		X	7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
		X	8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
		X	9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
		X	10) Riparian-wetland plants exhibit high vigor
		X	11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows
		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
		X	13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
		X	15) Lateral stream movement is associated with natural sinuosity
		X	16) System is vertically stable
		X	17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Spring is capped and piped to a trough. There is new road construction directly below the spring cutting it off from lower pond. Site was assessed from road due to access. Spring is developed and water is collected in an adjoining trough. There is new road construction directly below the spring cutting it off from lower pond. Site was assessed from road due to access.

Plants: : Spring supports a small area of apparently mesic vegetation suggesting spill over from the developed spring or a seasonally high water table. Due to assessment from road the species composition cannot be confirmed, but is likely a combination of *Carex* sp. and *Juncus* sp.

Soils: Soils are likely moist throughout the year or at least seasonally saturated in a small area around the spring indicated by vegetation composition which is varied from surrounding upland species composition.

pH/conductivity: no water

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Non-Functional X

Due to development, a very small, constricted area of wetland vegetation and road construction that has isolated the spring above and below, the site cannot be considered functional. It appears to have been functional before development as a water source for small draw and lower pond and could be restored if undeveloped and diverted below road to lower reaches (pers. comm.. P. Gunther, BLM).

Rock Creek Springs TIA # 175A
Functioning At Risk—Trend Not Apparent

Lentic Standard Checklist

Grand County
Quadrangle: Parshall — Quadrangle Code: 4010612
Township 2N Range 79W — Section 28
UTM: 13T N4441210 E394422 — Elevation: 8748 ft
Date: June 26, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
	X		2) Fluctuation of water levels is not excessive – **Area surveyed in early summer, may be dry by late in the season**
	X		3) Riparian-wetland area is enlarging or has achieved potential extent – **Pond is very small and may be filling due to bank erosion**
	X		4) Upland watershed not contributing to riparian-wetland degradation **– Surrounding uplands weedy with little vegetation**
X			5) Water quality is sufficient to support riparian-wetland plants
X			6) Natural surface or subsurface flow patterns are not altered by disturbance i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities)
		X	7) Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway)

Yes	No	N/A	VEGETATION
X			8) Diverse age-class distribution (recruitment for maintenance/recovery)
X			9) Diverse composition of vegetation (for maintenance/ recovery)
X			10) Species present indicate maintenance of riparian-wetland soil moisture characteristics
	X		11) Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow

			events, or overland flows (e.g., storm events, snowmelt) – **There is little shoreline vegetation**
X			12) Riparian-wetland plants exhibit high vigor
	X		13) Adequate vegetative cover is present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows – **Pond is too small for wave events and some areas are bare soil**
X			14) Frost or abnormal hydrologic heaving is not present
	X		15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics) – **Surrounding upland support little vegetation**

Yes	No	N/A	EROSION/DEPOSITION
X			16) Accumulation of chemicals affecting plant productivity/composition is not apparent
X			17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
X			18) Underlying geologic structure/soil material/permafrost is capable of restricting water percolation
	X		19) Riparian-wetland is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition) – **Pond is very small and is likely filling**
		X	20) Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) are adequate to dissipate wind and wave event energies

Remarks

General Description: Wetland occurs as a small depression pond west of Rock Creek. The pond is approximately 20 square meters and is surrounded by steep slopes with very little vegetation and high erosion. Slopes appear to be revegetating with *Salix* sp., graminoids, and *Populus tremuloides*. There is a moderate sized grove of *Populus tremuloides* to the north west of the pond on a bench. Area may have been altered by heavy equipment. The pond was constructed to hold snowmelt in a drift area for livestock water or may have been created naturally by slumping action of uphill slopes. The main disturbances at the site include seasonal livestock grazing, which is not currently apparent, and erosion due to steep slopes that have areas of little vegetation.

Pond supports approximately 80-100 *Pseudacris triseriata* tadpoles and one small mammal, likely, *Ondatra zibethicus*. There was no lodge observed in the pond.

Plants: Vegetation surrounding the pond consists of a small patch of *Salix exigua, Salix lasiandra*, and *Populus angustifolia* which occur as short shrubs/saplings. *Eleocharis* sp. is common in shallow areas and along inundated edges of the pond. Other species present include *Glyceria* sp., *Agrostis* sp., and *Poa pratensis*.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Populus angustifolia	FAC, FACW	FAC
Salix exigua	FACW, OBL	OBL
Eleocharis sp.	OBL	OBL
Poa pratensis	FACU, FAC-	FACU

Soils: Soils sampled at water edge, top 1cm, undecomposed organic matter, A horizon, 13cm, 2.5Y 4/3, clay, B horizon, sand with evidence of Fe reduction, 75% reddish mottling

ph = 7.6 conductivity = 110 micromhos @23 degrees Celsius

CNHP Wetland Plant Association Classification: N/A
CDOW Riparian Mapping Classification: N/A
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition

(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk * X

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward
Not Apparent X

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No

If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Past grazing, natural erosion

Capability Wetland is functioning at its capability given the current social, political, and economics constraints and realistic goals for the site.

Potential Wetland is functioning below its potential natural community due to past grazing, erosion, lack of back stabilizing vegetation, and possible dirt work in the area.

Photo 17. Rock Creek Spring.

Barger Gulch TIA # 176
Proper Functioning Condition

Standard Checklist

Grand County
Quadrangle: Junction Butte — Quadrangle Code: 4010613
Township: 1N Range: 79/80W — Section: 19, 24, 25, 30
UTM: 13S N4431942 E389276 (center of gulch) — Elevation: 7545 ft
Date: July 1, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
X	X		5) Upland watershed is not contributing to riparian-wetland degradation - Both private and BLM properties exhibit some degradation including altered vegetation (weedy species) and erosion along the drainage due to grazing pressures. Surrounding uplands on BLM property appear to be in good condition.

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high stream flow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate vegetative cover is present to protect banks and dissipate energy during high flows

		X	12) Plant communities are an adequate source of coarse and/or large woody material for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
X			14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable – Some bank erosion, appears to be natural.
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Remarks

General description: Wetland occurs as a small, highly sinuous, perennial stream contained within the narrow confines of Barger Gulch. Soils are highly erodible materials which have created a deep gulch over time. Surrounding uplands are dominated by *Artemisia tridentata* shrublands. Watershed adjacent to surveyed area is in good condition, while upstream watershed and drainage are much more impacted by livestock use with a very abrupt difference visible at property line.

Plants: Gulch is dominated primarily by mesic graminoids, *Carex utriculata* (40%), occurs along the stream channel in inundated areas, *Juncus balticus* (25%), *Carex simulata* (10%), and *Carex pellita* (2%) are found along the floodplain. Other graminoids include *Glyceria elata, Juncus longistylis, Catabrosa aquatica, Deschampsia caespitosa* are also present along the floodplain all at 1-5% cover. Shrub species present include *Salix drummondiana*, Salix monticola, Salix geyeriana (5-10%), and *Pentaphylloides floribunda* which occur along the floodplain scattered throughout the wetland at low cover. *Salix* have been heavily browsed in the past and are regenerating. Mesic forbs present include *Epilobium ciliatum, Cirsium scariosum, Veronica americana,* and *Sisyrinchium* sp. all present at 1-5% cover. *Poa pratensis* is common along edges of wetland and *Cirsium arvense* is scattered along edges, not common in any area.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Carex utriculata	OBL	NI
Juncus balticus	FACW, OBL	FACW
Carex simulata	FACW, OBL	FACW+
Salix geyeriana	FACW+, OBL	OBL
Poa pratensis	UPL, OBL	FACU

Soils: Along channel, 1cm of fine silt layer on top of 3-10cm (A horizon) of gravelly fine to medium textured gravel/sand, over 10+cm of sandy clay (B horizon) 7.5YR 4/2, floodplain varies from channel with an A horizon of 10-15cm of sand, 7.5YR ¾ over sandy clay 7.5YR 4/2.

pH = 7.6 conductivity = 570 micromhos @ 6 degrees Celsius

CNHP Wetland Plant Classification: *Carex utriculata* Herbaceous Vegetation (G5/S4)
Rosgen Stream Classification: F type

Summary Determination

Functional Rating:

Proper Functioning Condition X
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk *

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No

If yes, what are those factors?
____Dewatering____Mining activities_X_ Watershed condition ____Dredging activities____Road encroachment____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Grazing upstream on private property may be negatively impacting surveyed area by contributing effluent and sediment to the system due to degradation of streambanks and vegetation.

Capability Site is functioning at its capability given the current political, social, and economical constraints and realistic goals for the area.
Potential Site is functioning near its potential and is in excellent condition despite condition of upstream watershed.

Photo 18. Beaked sedge riparian plant community at Barger Gulch.

Gaylord Reservoir TIA #183
Functioning At Risk

Lentic Standard Checklist

Grand County
Quadrangle: Bottle Pass — Quadrangle Code: 3910588
Township: 1S Range: 76W — Section: 7
UTM: 13S N4425394 E419945 — Elevation 8836 ft
Date: August 23, 2005
ID Team Observers: JJones

Yes	No	N/A	HYDROLOGY
X			1) Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
X			2) Fluctuation of water levels is not excessive
X			3) Riparian-wetland area is enlarging or has achieved potential extent
	X		4) Upland watershed not contributing to riparian-wetland degradation – Road runs along two sides of reservoir and outlet is obstructed by dam.
X			5) Water quality is sufficient to support riparian-wetland plants
	X		6) Natural surface or subsurface flow patterns are not altered by disturbance i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities) – Reservoir resultant from damming of small tributary for recreational purposes.
X			7) Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway)

Yes	No	N/A	VEGETATION
X			8) Diverse age-class distribution (recruitment for maintenance/recovery)
X			9) Diverse composition of vegetation (for maintenance/ recovery)
X			10) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			11) Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events, snowmelt)

X			12) Riparian-wetland plants exhibit high vigor
X	X		13) Adequate vegetative cover is present to protect shorelines/soil surface and dissipate energy during high wind and wave events or overland flows – 65% of banks are vegetated, 45% devoid of vegetation due to fishing trails.
X			14) Frost or abnormal hydrologic heaving is not present
	X		15) Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics) – Adjacent uplands have been developed and have little or no vegetation for over 40% of area surrounding reservoir.

Yes	No	N/A	EROSION/DEPOSITION
X			16) Accumulation of chemicals affecting plant productivity/composition is not apparent
X			17) Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
		X	18) Underlying geologic structure/soil material/permafrost is capable of restricting water percolation
X			19) Riparian-wetland is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)
		X	20) Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) are adequate to dissipate wind and wave event energies – Wetland is dependant on vegetation to dissipate energies.

Remarks

General Description: Gaylord Reservoir is an intentional lentic system produced from the damming of a southern tributary of Pole Creek for recreational purposes. Reservoir is currently used by the YMCA for water activities including fishing and canoeing. Surrounding uplands are dominated by *Artemisia tridentata* shrublands and mixed coniferous forests with islands of *Populus tremuloides*. Drainage appears to have been inhabited by an *Alnus incana* mixed *Salix* community before flows were obstructed. The main disturbances at the site are the proximity of adjacent road, foot travel along banks, and non-native species invasion. Hydrologic alteration, aside from the dam, is most prominent where the road crosses the upper drainage which feeds into the reservoir, this area has many dead and dying branches of *Salix* and *Alnus*. Road also contributes to

altered vegetation by introducing non-native species and increasing general disturbance in the area. Upstream watershed appears to be intact. Reservoir has likely been stocked with non-native salmonid such as rainbow trout (*Oncorhynchus mykiss*).

Plants: Wetland/riparian shoreline characteristics are maintained by dam obstruction and are dominated by the mesic graminoids *Carex utriculata* and (90% of shoreline vegetation), *Eleocharis palustris* 2%. *Batrachium* sp. (15%) is present as an emergent in shallow areas of the lake. Other common species include *Geum macrophyllum, Carex praegracilis, Epilobium ciliatum, Glyceria striata, Juncus tracyi*. Some shrubs, *Salix drummondiana, Salix planifolia,* and *Salix monticola* are revegetating along southeastern shore. Just uphill of shoreline many non-natives are present including *Bromus inermis* and *Trifolium repens*.

Species	National Indicator Status	Region 8 Wetland Indicator Status (Western Colorado)
Carex utriculata	OBL	NI
Eleocharis palustris	OBL	OBL
Batrachium sp.	OBL	OBL
Juncus traceyi	FACW, OBL	FACW+
Salix monticola	FAC, OBL	OBL

Soils: Soils observed along lake edge consist of 8cm of silty clay loam, 7.5YR 3/1 with a small gravel component, over 11cm of silty clay 10YR 4/4 with moderate sized rocks.

pH = 8.38 Conductivity = .13mS @ 18.8 degrees Celsius

CNHP Wetland Plant Association Classification: *Carex utriculata* Herbaceous Vegetation (G5S4)
Rosgen Stream Classification: N/A

Summary Determination

Functional Rating:

Proper Functioning Condition
(adequate veg., landform, or debris is present to dissipate energies, filter sediment, improve groundwater recharge, develop root masses to stabilize shoreline, restrict percolation, provide wildlife and fish habitat, support biodiversity)

Functional-At Risk * X

Non-Functional

Unknown

*Trend for Functional At Risk:
Upward Downward Not Apparent X

Are factors contributing to unacceptable conditions outside BLM's control or management?
Yes X No
If yes, what are those factors?
____Dewatering____Mining activities____Watershed condition ____Dredging activities_X__Road encroachment ____Land ownership

Other (specify e.g., grazing, irrigation, agriculture activities) Dam is maintained by private ownership.

Capability Wetland area is functioning at its capability given the constraints of recreational use, dam, and access road. The goal for this area within these constraints would be to control non-native species, concentrate use to designated areas to allow vegetation to reestablish, and to concentrated parking to a localized area.

Potential There is likely no way for this site to achieve potential. Historically, this area was part of the riparian corridor of a tributary of Pole Creek. In order to achieve a potential natural community for this area flows would need to be unobstructed and past streamside vegetation reestablished.

Photo 19. Gaylord Reservoir.

APPENDIX B

POTENTIAL CONSERVATION AREAS

SITES OF BIODIVERSITY SIGNIFICANCE

Each Potential Conservation Area (PCA) is described in a standard PCA profile report that reflects data fields in CNHP's Biodiversity Tracking and Conservation System (BIOTICS). The contents of the profile report are outlined and explained below:

PCA Profile Explanation Biodiversity Rank: B#
The overall significance of the PCA in terms of rarity of the Natural Heritage resources and the quality (condition, abundance, etc.) of the occurrences. Please see *Natural Heritage Ranking System* section for more details.

Protection Urgency Rank: P#
A summary of major land ownership issues that may affect the long-term viability of the PCA and the element(s).

Management Urgency Rank: M#
A summary of major management issues that may affect the long-term viability of the PCA and the element(s).

USGS 7.5-minute Quadrangle name(s): A list of USGS 7.5 minute quadrangles which contain the boundary of the PCA; all quadrangles are from Colorado unless otherwise noted.

Size: Expressed in acres.

***Elevation:** Expressed in feet.

General Description: A brief narrative of the topography, hydrology, vegetation, and current use of the potential conservation area.

***Key Environmental Factors:** A description of key environmental factors that are known to have an influence on the PCA, such as seasonal flooding, wind, geology, soil type, etc.

***Climate Description:** Where climate has a significant influence on the elements within a PCA, a brief description of climate, weather patterns, seasonal and annual variations, temperature and precipitation patterns is included.

***Land Use History:** General comments concerning past land uses within the PCA which may affect the elements occurring within the boundary.

***Cultural Features:** Where pertinent, a brief description is given of any historic, cultural, or archeological features found within the PCA.

Biodiversity Significance Rank Comments: A synopsis of the rare species and significant plant communities that occur within the proposed conservation area. A table within the area profile lists each element occurrence found in the PCA, global and state ranks of these elements, the occurrence ranks and federal and state agency special designations. See Appendix C explanations of ranks and legal designations.

Boundary Justification: Justification for the location of the proposed PCA boundary delineated in this report, which includes all known occurrences of natural heritage resources and, in some cases, adjacent lands required for their protection.

***Protection Urgency Rank Comments:** Brief comments to justify the rating assigned to the PCA.

General Protection Comments: Discussion of major land ownership issues that may affect the long-term viability of the PCA and the element(s).

***Management Urgency Rank Comments:** Brief comments to justify the rating assigned to the PCA.

***Land Use Comments**: Brief comments describing the current and/or past land use as it affects those elements contained in the PCA.

***Natural Hazard Comments**: If any potential natural hazards such as cliffs, caves, poisonous plants, etc. are prominent within the PCA and relevant to a land manager or steward, comments are included along with any precautions that may need to be taken.

***Exotic Species Comments**: A description of potentially damaging exotic (i.e., alien) flora and/or fauna within the PCA, including information on location, abundance, and their potential effect on the viability of the targeted elements within the PCA.

***Offsite Considerations:** Where offsite land uses or other activities (e.g., farming, logging, grazing, dumping, watershed diversion, etc.) may have a significant influence on the elements within a PCA, a brief description of these is included.

***Information Needs:** A brief summary of any information that may still be needed in order to effectively manage the PCA and the elements within it.

*Optional fields, may or may not be included in Potential Conservation Area descriptions.

Upper Troublesome Creek

Biodiversity Rank - B2: Very High Biodiversity Significance

Protection Urgency Rank - P3: Definable Threat/Opportunity but not within 5 Years

Management Urgency Rank - M3: Needed within 5 Years to Maintain Quality

U.S.G.S. 7.5-minute quadrangles: Gunsight Pass, Hyannis Peak

Size: 2,087 acres (845 ha) **Elevation:** 7,880 - 9,200 ft. (2,402 - 2,804 m)

General Description: Site encompasses the upper reaches of Troublesome Creek, a second order tributary of the Colorado River. Geology along the majority of the drainage is composed of igneous rocks of the Tertiary Age, with lower reaches of the stream being part of the Troublesome Formation. Soils are xeric and clayey along the Troublesome Formation and uplands are dominated by big sagebrush (Artemisia tridentata) shrubland communities. Higher elevation and upper reaches of the drainage are dominated by lodgepole pine (Pinus contorta) forest communities with mixed subalpine fir (Abies lasiocarpa) and Engelmann spruce (Picea engelmannii) at the highest reaches. Riparian areas are variable throughout and include quaking aspen (Populus tremuloides) and narrowleaf cottonwood (Populus angustifolia) woodlands, willow (Salix) and thinleaf alder (Alnus incana) dominated tall shrublands, and meadows of mesic graminoids.

Key Environmental Factors: Key environmental factors include snow melt, gentle slopes and solar exposure, seasonal flooding, groundwater discharge, and clay soils. Snow pack is likely not important at lower reaches of drainage due to gentle topography where snow is melted by solar exposure throughout the winter, but is more important at upper reaches where snow pack is retained until later in the season.

Climate Description: Area likely follows typical Colorado weather patterns being generally xeric throughout the year with wetter spring seasons and later summer "monsoons".

Land Use History: Ownership varies from public to private with large areas of the upper reaches being part of a BLM Wilderness Study Area. BLM property is located within a grazing allotment. A majority of the private property has been irrigated and either cultivated for hay production or used for livestock grazing.

Biodiversity Significance Rank Comments (B2): This site is drawn for a good (B-ranked) occurrence of a globally imperiled to globally vulnerable (G2G3/S2) community, Drummond's willow (Salix drummondiana) / water sedge (Carex aquatilis), and a good (B-ranked) occurrence of a globally imperiled (G2?/S2)

community, American mannagrass (Glyceria grandis). The site also supports four good (B-ranked) occurrences of globally vulnerable (G3/S3) communities: Drummond's willow / bluejoint reedgrass (Calamagrostis canadensis), thinleaf alder (Alnus incana) - Drummond's willow (Salix drummondiana), thinleaf alder / mesic forbs, and narrowleaf cottonwood (Populus angustifolia) / thinleaf alder. In addition, it supports a fair (C-ranked) occurrence of the globally vulnerable (G3/S3) community, thinleaf alder / mixed willow (Salix monticola, lucida, ligulifolia).

Natural Heritage element occurrences at the Upper Troublesome Creek PCA.

Major Group	State Scientific Name	State Common Name	Global Rank	State Rank	Federal Status	State Status	Fed Sens	EO Rank	Last Obs Date
Natural Communities	Glyceria grandis Herbaceous Vegetation	American Mannagrass	G2?	S2				B	2005-07-19
Natural Communities	Salix drummondiana / Carex aquatilis Shrubland	Drummond Willow / Aquatic Sedge	G2G3	S2				B	2005-07-03
Natural Communities	Alnus incana - Salix (monticola, lucida, ligulifolia) Shrubland	Thinleaf Alder - Mixed Willow Species	G3	S3				C	2005-09-28
Natural Communities	Alnus incana - Salix drummondiana Shrubland	Montane Riparian Shrubland	G3	S3				B	2005-07-18
Natural Communities	Alnus incana / Mesic Forbs Shrubland	Thinleaf Alder / Mesic Forb Riparian Shrubland	G3	S3				B	2005-07-19
Natural Communities	Populus angustifolia / Alnus incana Woodland	Montane Riparian Forest	G3	S3				B	2005-08-31
Natural Communities	Salix drummondiana / Calamagrostis canadensis Shrubland	Lower Montane Willow Carrs	G3	S3				B	2005-07-18

** The records above are sorted in the following order 1) Major Group 2) Global Rank and 3) Scientific name.

Boundary Justification: Boundaries incorporate a large area of the upper reaches of Troublesome Creek and some of its tributaries that contain a number of high quality communities. Boundaries were drawn to encompass those hydrologic functions necessary to the maintenance of these elements including spring flooding, groundwater recharge, sediment movement, and surface water levels. The

boundaries do not encompass all hydrologic and ecologic processes that maintain site elements. Upstream activities, such as improper livestock grazing, water diversion, and development may be deleterious to the elements.

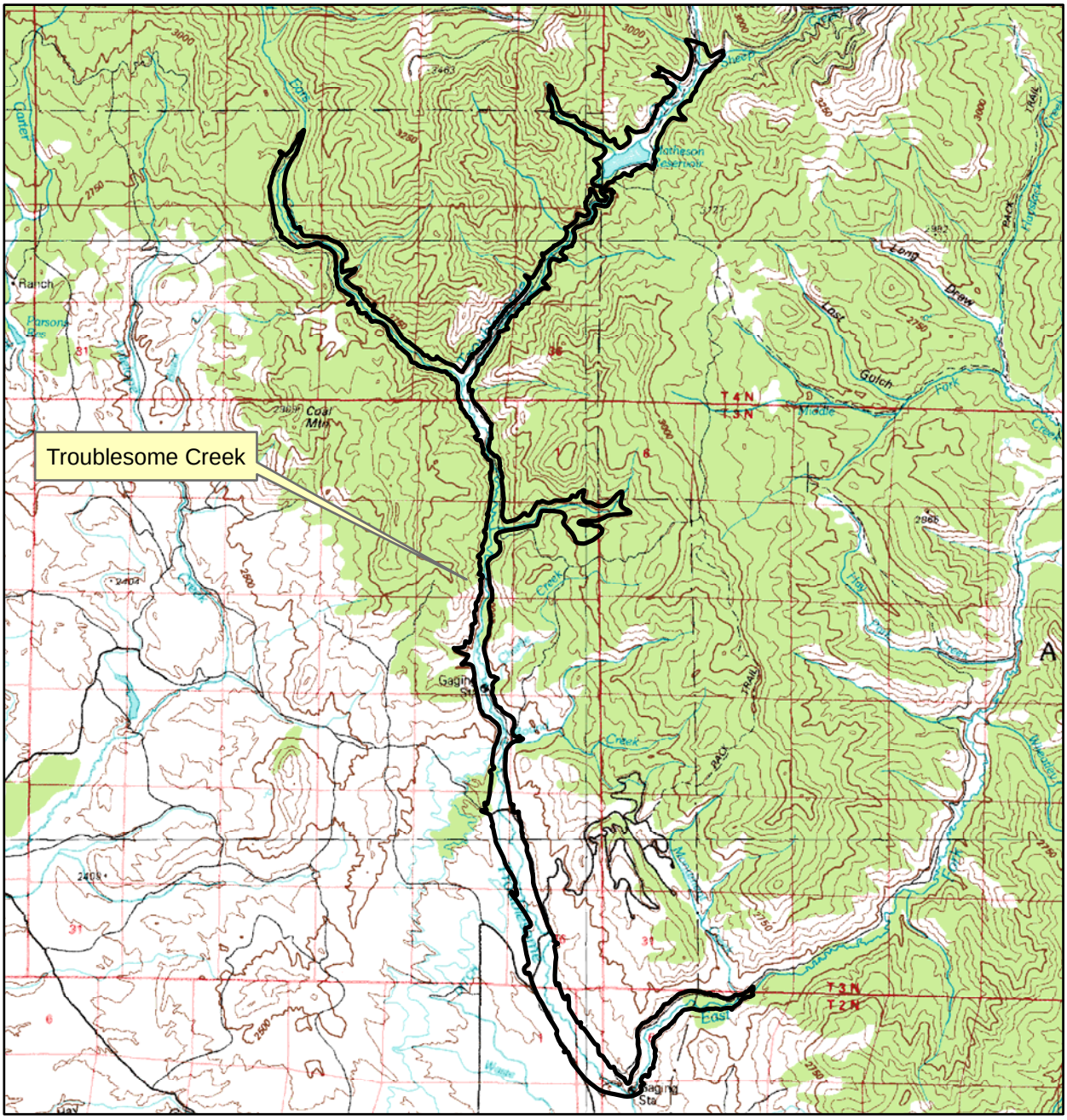
Protection Urgency Rank Comments (P3): Portions of the PCA are owned by BLM and designated as a Wilderness Study Area.

Management Urgency Rank Comments (M3): There are no urgent threats, although lower reaches of Troublesome Creek have been impacted by agriculture and livestock grazing. If current management is altered and livestock, agriculture, or dewatering of the drainage is increased, management practices may need to be modified to account for the changes including livestock movement and timed water release.

Land Use Comments: Upper reaches are designated specifically for research. Non-motorized use is allowed. Downstream areas are used for livestock grazing and agriculture.

Exotic Species Comments: Exotic species are prevalent in some areas where livestock grazing is intense or was in the past. Impacted riparian areas tend to support common exotics such as Kentucky bluegrass (Poa pratensis), smooth brome (Bromus inermis), and Canada thistle (Cirsium arvense), which all indicate disturbance from grazing. Other species such as meadow foxtail (Alopecurus pratensis) and meadow barley (Hordeum brachyantherum) are found within some wetland areas.

Off-Site Considerations: Off-site disturbances to Upper Troublesome Creek include water diversion, agriculture, and livestock grazing.



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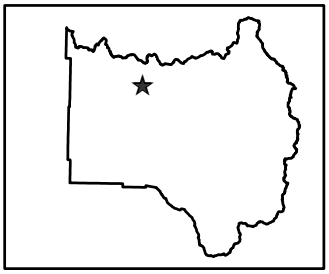
Legend

PCA Boundary

Steamboat Springs, 40106-A1

30 x 60 Minute Digital Raster Graphic produced by the U.S. Geological Survey

Location in Grand County



Map 1. Upper Troublesome Creek Potential Conservation Area, B2: Very High Biodiversity Significance

Behler Creek

Biodiversity Rank - B3: High Biodiversity Significance

Protection Urgency Rank - P4: No Threat or Special Opportunity

Management Urgency Rank - M4: Not Needed Now; No Current Threats; May Need in Future

U.S.G.S. 7.5-minute quadrangles: Strawberry Lake

Size: 125 acres (51 ha) **Elevation:** 9,145 - 9,200 ft. (2,787 - 2,804 m)

General Description: Community inhabits a series of drying, successional beaver ponds along Behler Creek, a second order tributary of the Fraser River. Hydrology above the stand is free-flowing and appears to be dependent on a small perennial creek, snow melt, and some groundwater. Community consists of variable willow (Salix sp.) cover of multiple species along a varied hydrologic gradient of ponds and drier dams with a consistent graminoid layer also varied along hydrologic gradients. Salix species are mixed throughout, with strapleaf willow (Salix ligulifolia), Booth's willow (Salix boothii), and mountain willow (Salix monticola) being dominant. Diamondleaf willow (Salix planifolia) is also present in high cover. The herbaceous layer is dominated by graminoid species with bluejoint reedgrass (Calamagrostis canadensis) occurring along drier areas and beaked sedge (Carex utriculata) dominating areas that are saturated year round. Disturbances include browsing, past beaver activity, and adjacent road. Surrounding uplands are dominated by lodegpole pine (Pinus contorta) forest ecosystems. General geology consists of igneous rocks of the Cambrian Age, specifically granite of 1,400 MYA. Soils consist of rich loams of silty clays.

Key Environmental Factors: Key environmental factors include soils, beaver activity, perennial hydrology, and spring flooding.

Climate Description: Climate likely follows patterns typical of this region of Colorado being generally xeric throughout the year with wet spring seasons and late summer "monsoons".

Land Use History: There is an old homestead in the Behler Creek drainage above the site. Area may have been farmed historically.

Biodiversity Significance Rank Comments (B3): This site is drawn for a good (B-ranked) occurrence of the globally vulnerable (G3/S3) mountain willow (Salix monticola) / bluejoint reedgrass (Calamagrostis canadensis) plant community.

Natural Heritage element occurrences at the Behler Creek PCA.

Major Group	State Scientific Name	State Common Name	Global Rank	State Rank	Federal Status	State Status	Fed Sens	EO Rank	Last Obs Date
Natural Communities	Salix monticola / Calamagrostis canadensis Shrubland	Montane Willow Carr	G3	S3				B	2005-08-19

** The records above are sorted in the following order 1) Major Group 2) Global Rank and 3) Scientific name.

Boundary Justification: Boundaries include portions of upper Behler Creek along a series of old beaver dams. Boundaries are drawn to encompass those ecological processes necessary to maintain site hydrology including perennial surface flow, groundwater discharge, and seasonal flooding as well as beaver dams which slow water and provide longer periods of soils saturation. Boundaries do not include all ecological processes influencing the site. Potential threats include activities upstream and along adjacent slopes such as improper grazing, water diversion, and development may negatively impact site hydrology and biota.

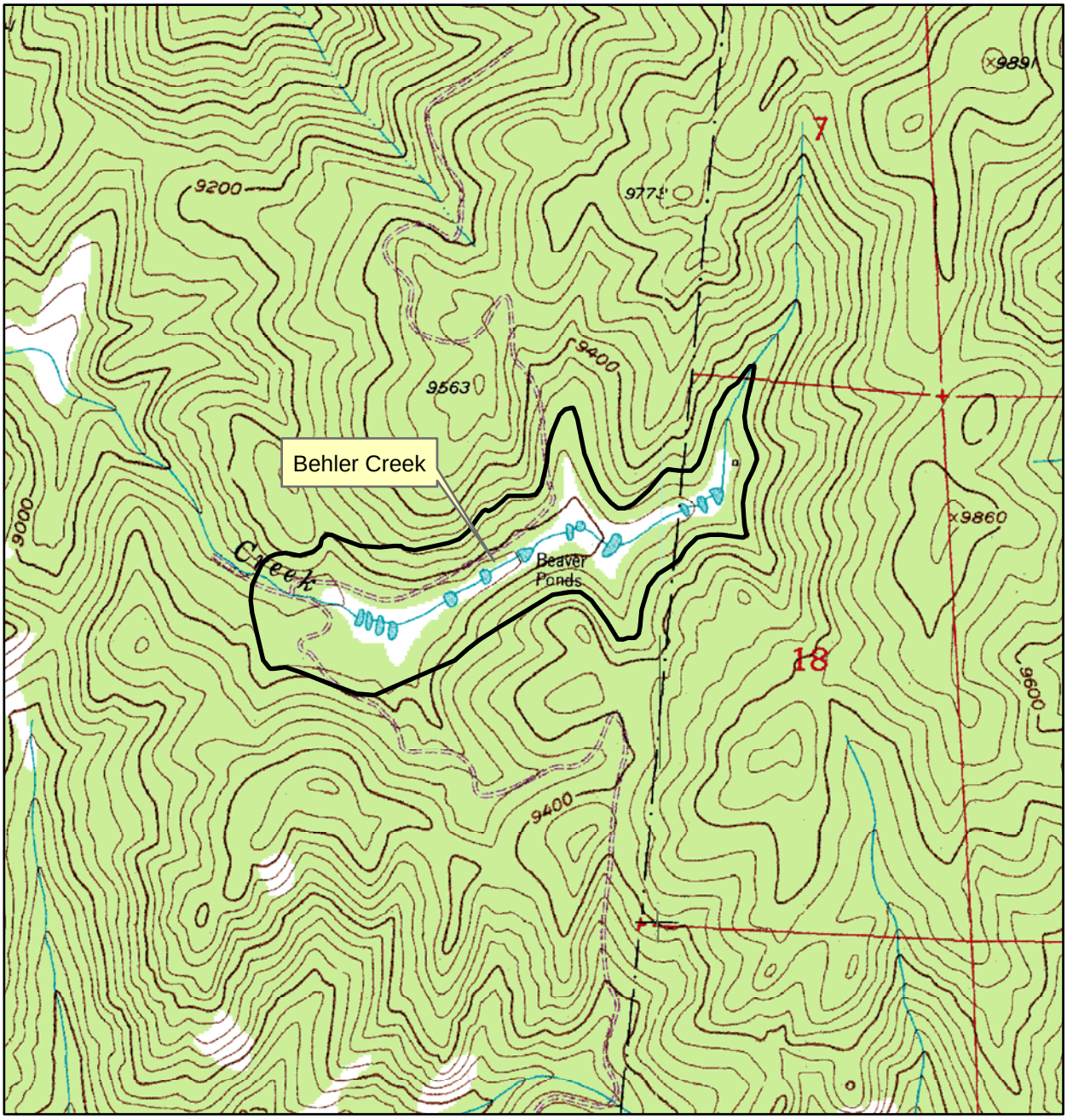
Protection Urgency Rank Comments (P4): PCA is located on BLM lands. Currently, there is no definable threat.

Management Urgency Rank Comments (M4): Management may be needed in the future if usage is increased or if exotics from adjacent road encroach on the wetland.

Land Use Comments: Main use of the site and surrounding lands is general public land use including recreation such as camping, hiking, hunting, and OHV use. There is evidence of past logging.

Exotic Species Comments: There are no exotics present in the drainage or along beaver ponds. Exotics such as smooth brome (Bromus inermis) and Kentucky bluegrass (Poa pratensis) are likely present along the adjacent road.

Off-Site Considerations: There is evidence of past logging of lodgepole pine forests within the drainage and in adjacent drainages.



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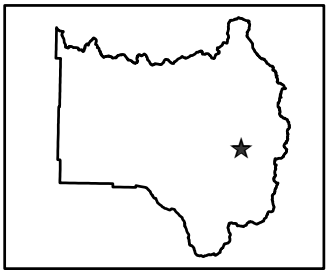
Legend

PCA Boundary

Strawberry Lake, 40105-A7

7.5 Minute Digital Raster Graphic produced by the U.S. Geological Survey

Location in Grand County



Map 2. Behler Creek Potential Conservation Area, B3: High Biodiversity Significance

Black Mountain Reservoir

Biodiversity Rank - B3: High Biodiversity Significance

Protection Urgency Rank - P3: Definable Threat/Opportunity but not within 5 Years

Management Urgency Rank - M4: Not Needed Now; No Current Threats; May Need in Future

U.S.G.S. 7.5-minute quadrangles: Corral Peaks

Size: 103 acres (42 ha) **Elevation:** 8,800 - 9,550 ft. (2,682 - 2,911 m)

General Description: Community inhabits small, ephemeral tributary of Black Mountain Reservoir. Drainage is a type G stream along this section and is also fed by three small springs observed along its northern slopes and origin above road. Stand is variable in some sections, but is predominantly dominated by a tall shrub layer of thinleaf alder (Alnus incana) and Drummond's willow (Salix drummondiana). Other willow species present include mountain willow (Salix monticola) and greenleaf willow (Salix lucida ssp. caudata). Tall shrubs and associated mesic species are confined to the small drainage and its springs. The understory is dominated by mesic forb species including tall fringed bluebells (Mertensia ciliata), arrowleaf ragwort (Senecio triangularis), common cowparsnip (Heracleum maximum), and subalpine larkspur (Delphinium barbeyi). Uplands are dominated by lodgepole pine (Pinus contorta) and subalpine fir (Abies lasiocarpa) forests with some quaking aspen (Populus tremuloides) and a few small meadow openings. Some adjacent upslopes support invasive species such as smooth brome (Bromus inermis) from grazing activities. Soils along the drainage are very sandy throughout with cobbles along the main stream. General geology consists of sedimentary rocks of the Tertiary Age, specifically of the Coalmont Formation. Stream is stable, well-vegetated, sinuous, and supports lots of coarse material for stream dissipation.

Key Environmental Factors: Key environmental factors include perennial surface flows, seasonal flooding, elevated groundwater levels along side slopes, narrow, moderately steep slopes, and rocky soils.

Climate Description: Climate likely follows the typical weather patterns of Colorado being generally xeric year round, with wet spring seasons and late summer "monsoons".

Land Use History: The area has been logged and burned within the past fifty years.

Cultural Features: There is evidence of past homesteading.

Biodiversity Significance Rank Comments (B3): This site is drawn for a good

(B-ranked) occurrence of a globally vulnerable (G3/S3) plant community of thinleaf alder - Drummond's willow (Alnus incana - Salix drummondiana) montane riparian shrubland.

Natural Heritage element occurrences at the Black Mountain Reservoir PCA.

Major Group	State Scientific Name	State Common Name	Global Rank	State Rank	Federal Status	State Status	Fed Sens	EO Rank	Last Obs Date
Natural Communities	Alnus incana - Salix drummondiana Shrubland	Montane Riparian Shrubland	G3	S3				B	2005-06-28

** The records above are sorted in the following order 1) Major Group 2) Global Rank and 3) Scientific name.

Boundary Justification: Boundaries are drawn to encompass approximately 1 mile of this unnamed eastern tributary of upper Corral Creek and include all ecological processes supporting the riparian system such as surface flows, groundwater discharges, and seasonal flooding, as well as areas of adjacent uplands contributing sediment and nutrients to the stream. However, boundaries do not include all ecological processes important to the hydrology of the site and activities such as improper grazing, development, and water diversions along adjacent slopes and upstream of the site could be detrimental to the hydrology and species composition of the drainage.

Protection Urgency Rank Comments (P3): Site is protected generally by the BLM as public land and has no specific protection strategies in place. Protection may be needed within five years to protect the site from recreational uses, weedy species invasion, impacts from grazing, and upstream road maintenance. As well, strategies may need to be implemented if logging is renewed or if other usage is changed in surrounding uplands.

Management Urgency Rank Comments (M4): There are no urgent management needs at present. Management may need to be increased or altered if disturbances such as logging, livestock grazing, development, or water diversions are introduced or increased.

Land Use Comments: Land has been used in the past for logging and grazing. The only uses at present are recreation and hunting.

Natural Hazard Comments: Flooding may cause a potential hazard during spring and ephemeral high flows.

Exotic Species Comments: Smooth brome is present along adjacent upslopes and may be a result of past grazing practices or other disturbances. Kentucky bluegrass (Poa pratensis) occurs in low cover along mesic areas.

Off-Site Considerations: Off-site considerations include logging of adjacent forests, grazing, and water diversion.

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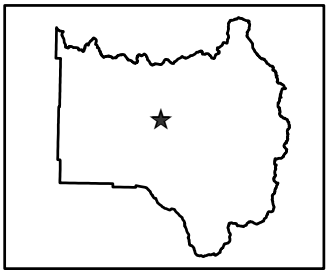
Legend

PCA Boundary

Corral Peaks, 40106-B2

7.5 Minute Digital Raster Graphic produced by the U.S. Geological Survey

Location in Grand County



Map 3. Black Mountain Reservoir Potential Conservation Area, B3: High Biodiversity Significance

First Creek

Biodiversity Rank - B3: High Biodiversity Significance

Protection Urgency Rank - P4: No Threat or Special Opportunity

Management Urgency Rank - M4: Not Needed Now; No Current Threats; May Need in Future

U.S.G.S. 7.5-minute quadrangles: Corral Peaks, Parshall

Size: 214 acres (87 ha) **Elevation:** 9,200 - 9,725 ft. (2,804 - 2,964 m)

General Description: Communities inhabit about 0.85 mile of First Creek and two small, perennial seeps along an eastern drainage. First Creek is a small, first order tributary of Corral Creek and seeps feed into the Smith Creek drainage. Hydrology originates along the southern slopes of Grouse Mountain. The First Creek area is dominated by a tall shrub layer of thinleaf alder (Alnus incana) and Drummond's willow (Salix drummondiana). Willow and alder are large, healthy, and consistent throughout. There are some encroaching canopy species including subalpine fir (Abies lasiocarpa), Engelmann spruce (Picea engelmannii), and quaking aspen (Populus tremuloides). The understory layer is dominated by mesic forbs including brook saxifrage (Saxifraga odontoloma), common cowparsnip (Heracleum maximum), Columbian monkshood (Aconitum columbianum), and tall fringed bluebells (Mertensia ciliata). Stream banks are well-vegetated and stable throughout with good amounts of coarse materials. Soils are composed of sandy clays. Smith Creek seeps are dominated by a tall shrub layer of thinleaf alder (Alnus incana). Alder are very robust and mature with many large diameter stems and new lateral stems indicating the water source has been consistent for many years. Species composition throughout suggests a perennial water source with the majority of the species being facultative wetland species. The understory is dominated by mesic forbs including Columbian monkshood (Aconitum columbianum), common cowparsnip (Heracleum maximum), threepetal bedstraw (Galium trifidum), and brook saxifrage (Saxifraga odontoloma), and heartleaf bittercress (Cardamine cordifolia). Graminoids present include bluejoint reedgrass (Calamagrostis canadensis) and smallflowered woodrush (Luzula parviflora). Saturated soils in seep areas are silty clays up to 40+ cm. The lodgepole pine in surrounding uplands show signs of beetle infestation and may need to be removed or thinned in the future. Disturbances include game use for bathing and watering, road proximity, and signs of past logging. The areas likely see heavy use during the fall hunting season. Geology consists of sedimentary rocks of the Tertiary Age, specifically Arkosic sandstone, conglomerate, and shale of the Coalmont Formation.

Key Environmental Factors: Key environmental factors driving the species composition include moderate slope, spring flooding, and perennial surface hydrology.

Climate Description: Climate likely follows typical weather patterns of this region of Colorado being generally xeric throughout the year, with wet spring seasons and late summer "monsoons".

Land Use History: The area was homesteaded in the past and cabins are still present. Evidence of past logging exists in adjacent lodgepole pine (Pinus contorta) forests.

Biodiversity Significance Rank Comments (B3): This site is drawn for a good (B-ranked) occurrence of the globally vulnerable (G3/S3) community, thinleaf alder - Drummond's willow (Alnus incana - Salix drummondiana) montane riparian shrubland, and a fair (C-ranked) occurrence of the globally vulnerable (G3/S3) community, thinleaf alder (Alnus incana) / mesic forb shrubland.

Natural Heritage element occurrences at the First Creek PCA.

Major Group	State Scientific Name	State Common Name	Global Rank	State Rank	Federal Status	State Status	Fed Sens	EO Rank	Last Obs Date
Natural Communities	Alnus incana - Salix drummondiana Shrubland	Montane Riparian Shrubland	G3	S3				B	2005-06-19
Natural Communities	Alnus incana / Mesic Forbs Shrubland	Thinleaf Alder / Mesic Forb Riparian Shrubland	G3	S3				C	2005-06-19

** The records above are sorted in the following order 1) Major Group 2) Global Rank and 3) Scientific name.

Boundary Justification: Boundaries are drawn to encompass approximately one mile of the First Creek tributary of Corral Creek and springs in adjacent Smith Creek drainage. Boundaries include all ecological processes important to the maintenance of site hydrology and biota including surface flows, spring flooding, and groundwater discharge. However, boundaries do not include all ecological processes influencing the site and activities such as improper grazing, road maintenance, development, and water diversion may have a negative impact.

Protection Urgency Rank Comments (P4): Site is owned by BLM. Potential threats include; road encroachment, recreational use, and logging.

Management Urgency Rank Comments (M4): Management needs are not immediate, but may be needed in the future if non-native species become more prevalent, recreational use is increased, or if logging is reinstated.

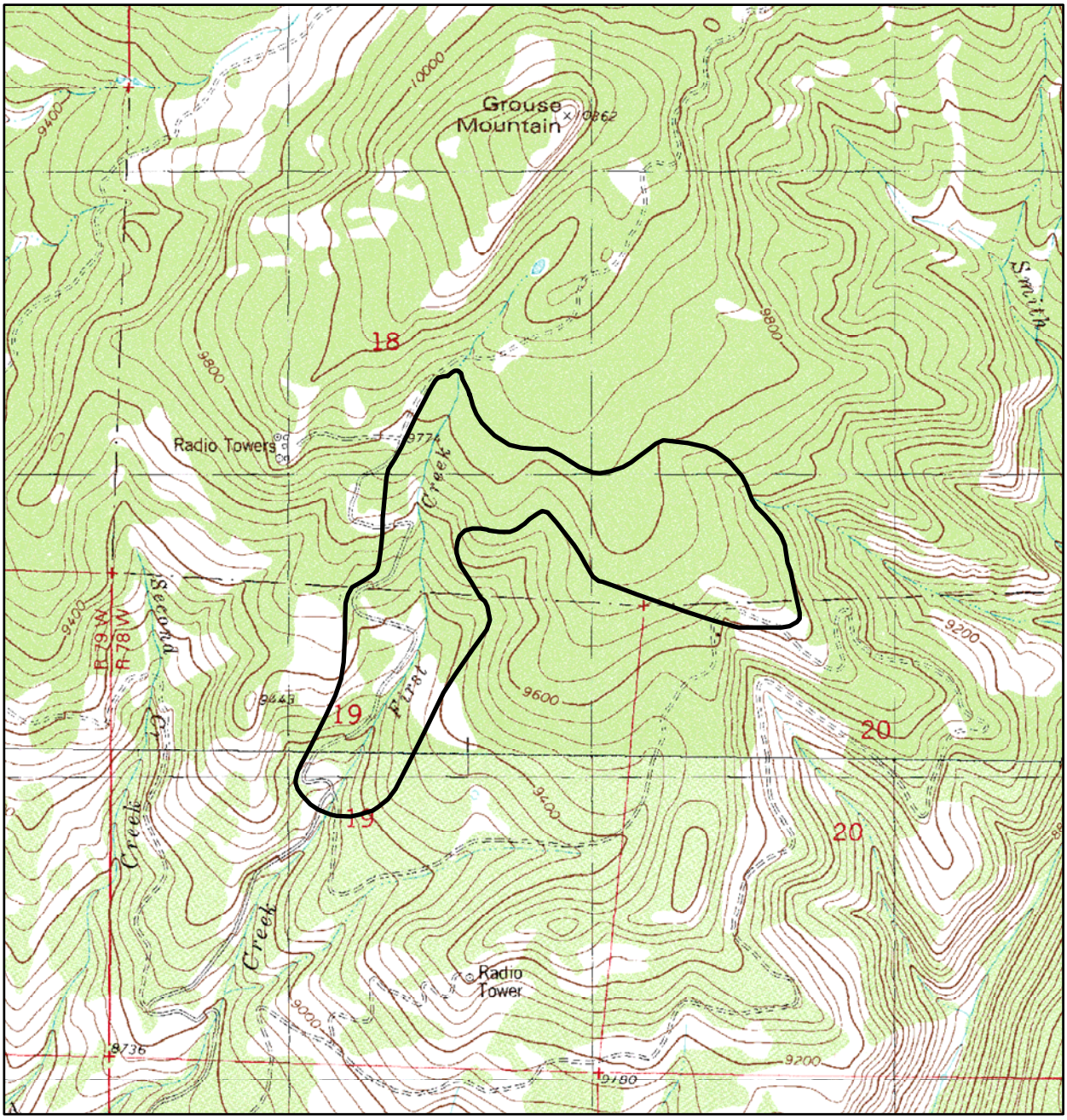
Land Use Comments: Predominant land uses include recreational activities such as limited hiking, camping, biking, hunting, grazing, and OHV use. As well, the area

has been used for logging in the past.

Natural Hazard Comments: Portions of the lower road are clay soils and may be dangerous when wet. There is the possibility of a flooding hazard during spring run-off.

Exotic Species Comments: There were no exotic species observed, but there is potential for the adjacent road to act as a conduit for exotics along the drainage.

Off-Site Considerations: Off-site considerations include logging, OHV use, and road maintenance.



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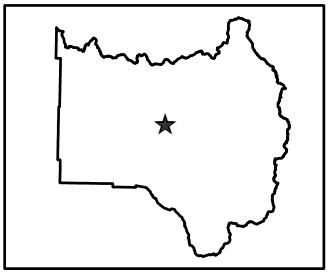
Legend

PCA Boundary

Parshall, 40106-A2
Corral Peaks, 40106-B2

7.5 Minute Digital Raster Graphic produced by the U.S. Geological Survey

Location in Grand County



Map 4. First Creek Potential Conservation Area, B3: High Biodiversity Significance

Cow Gulch

Biodiversity Rank - B4: Moderate Biodiversity Significance

Protection Urgency Rank - P3: Definable Threat/Opportunity but not within 5 Years

Management Urgency Rank - M4: Not Needed Now; No Current Threats; May Need in Future

U.S.G.S. 7.5-minute quadrangles: Junction Butte, Kremmling

Size: 11 acres (4 ha) **Elevation:** 7,660 - 7,670 ft. (2,335 - 2,338 m)

General Description: Community inhabits a very small draw, a tributary of Cow Gulch. Hydrology is groundwater fed from a very small seep about 150 meters north of the occurrence. There is a small rivulet of running water feeding the occurrence. Draw is dominated by the graminoid woolly sedge (Carex pellita). Other species include beaked sedge (Carex utriculata), Baltic rush (Juncus balticus), and American speedwell (Veronica americana), obligate and facultative wetland species, which occur along the small rivulet through the middle of the occurrence indicating a perennial water source. Some upland species occurring along edges include big sagebrush (Artemisia tridentata), Rocky Mountain juniper (Juniperus scopulorum), and whitestem gooseberry (Ribes inerme). Immediate uplands are dominated by xeric big sagebrush (Artemisia tridentata) shrublands with very clayey soils. Transition from mesic draw bottom to xeric uplands is very distinct and sharp, with some mixing of upland species along edges, but no mixing of mesic species into uplands. Surrounding landscape exhibits some use by livestock, but there is no evidence of use in the draw, possibly due to steep slopes. Deer sign is evident throughout the area. Occurrence is very small and likely to be negatively impacted from any hydrologic changes or disturbances. Soils are sandy clays and general geology is sandstones and siltstones of the Troublesome Formation.

Key Environmental Factors: Key environmental factors include groundwater recharge and discharge, ephemeral flows, clay soils, solar exposure, and dry climate.

Climate Description: Climate likely follows general Colorado weather patterns being xeric throughout the year, with wet spring seasons, and late summer "monsoons".

Biodiversity Significance Rank Comments (B4): This site is drawn for a fair (C-ranked) occurrence of a globally vulnerable (G3/S3) woolly sedge (Carex pellita) herbaceous vegetation plant community.

Natural Heritage element occurrences at the Cow Gulch PCA.

Major Group	State Scientific Name	State Common Name	Global Rank	State Rank	Federal Status	State Status	Fed Sens	EO Rank	Last Obs Date
Natural Communities	Carex pellita Herbaceous Vegetation	Montane Wet Meadows	G3	S3				C	2005-06-14

** The records above are sorted in the following order 1) Major Group 2) Global Rank and 3) Scientific name.

Boundary Justification: Boundaries are drawn to encompass small draw and uplands that buffer the draw. Boundaries do not include all ecological processes important to site hydrology and biota. Activities such as improper grazing, road maintenance, or development may negatively impact the site.

Protection Urgency Rank Comments (P3): There is no definable threat at present, but there is the possibility of threats including improper grazing practices and non-native species invasion.

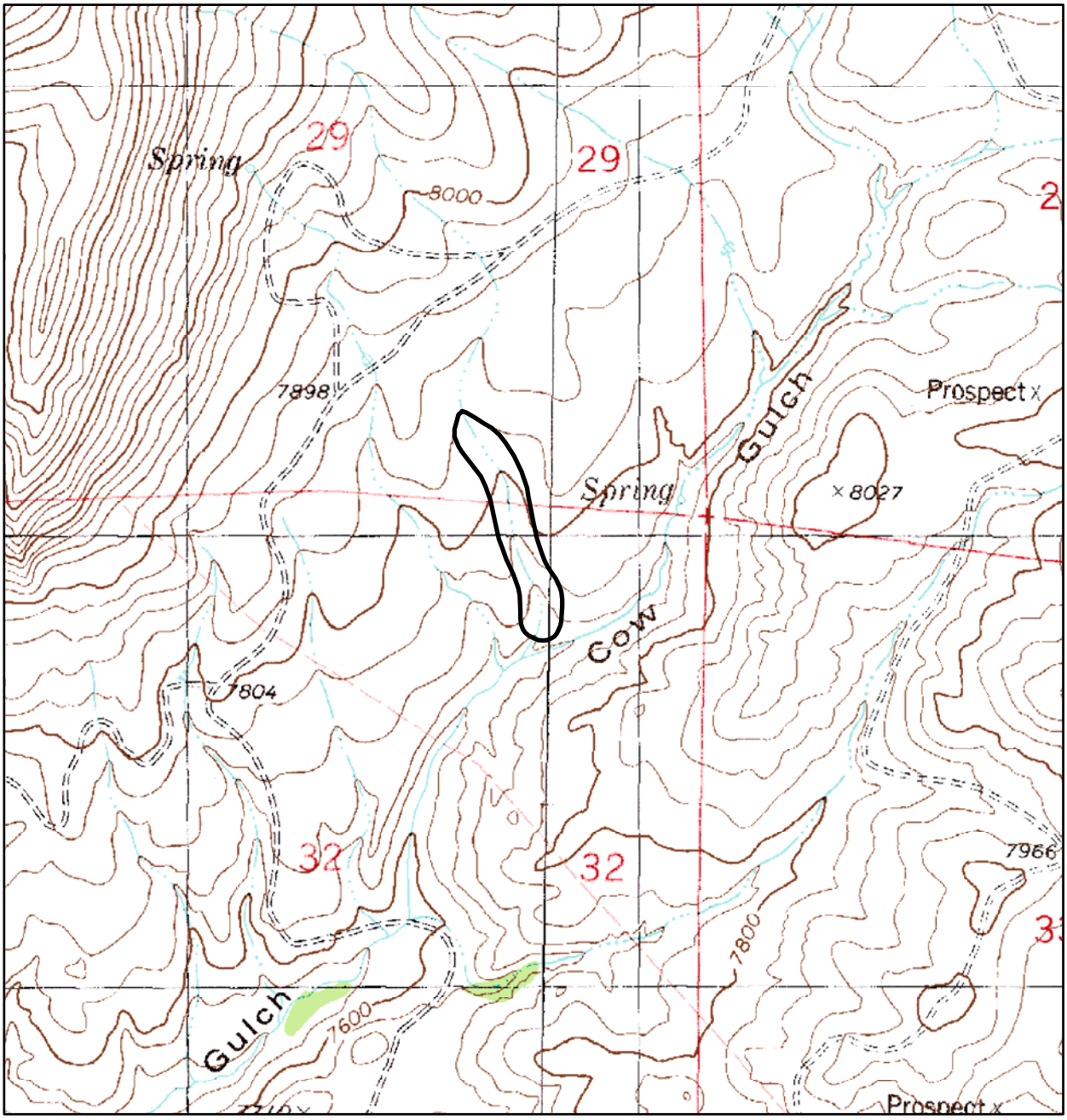
Management Urgency Rank Comments (M4): There are no current threats. Management may be needed if grazing, road development, land use, or hydrologic alterations are made in the area.

Land Use Comments: Area has been under a grazing management plan to improve riparian health since the 1980s. In 2005, a Travel Management Plan was implemented for the Wolford Area that focuses on limiting roads in Cow Gulch. Currently, predominant land use of this area is for livestock grazing, hunting, and recreation.

Natural Hazard Comments: Travel becomes very difficult along roads in wet weather due to clay soils.

Exotic Species Comments: Kentucky bluegrass (Poa pratensis) occurs along drying edges in the draw, but does not dominate.

Off-Site Considerations: County Road 224 crosses the upper reaches of the area above the spring origin. There are developed springs in the area for livestock, but this one and adjacent springs are not developed.



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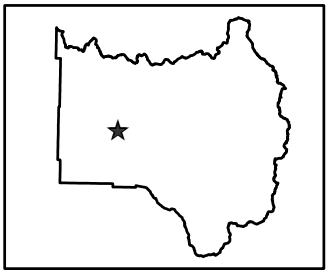
Legend

PCA Boundary

Junction Butte, 40106-A3
Kremmling, 40106-A4

7.5 Minute Digital Raster Graphic produced by the U.S. Geological Survey

Location in Grand County



Map 5. Cow Gulch Potential Conservation Area, B4: Moderate Biodiversity Significance

Lower Corral Creek

Biodiversity Rank - B4: Moderate Biodiversity Significance

Protection Urgency Rank - P3: Definable Threat/Opportunity but not within 5 Years

Management Urgency Rank - M3: Needed within 5 Years to Maintain Quality

U.S.G.S. 7.5-minute quadrangles: Parshall

Size: 39 acres (16 ha) **Elevation:** 7,800 - 7,900 ft. (2,377 - 2,408 m)

General Description: The community inhabits Corral Creek, a narrow second order tributary of the Colorado River, and occurs in a type A section of river where the canyon walls are steep on both sides. Along this section, vegetation is dominated by thinleaf alder (Alnus incana) in the tall shrub layer and red-osier dogwood (Cornus sericea) in the short shrub layer. Thinleaf alder is present in associations both up and downstream of the occurrence, but red-osier dogwood is confined to the narrow, more shaded sections of the river. A consistent tall shrub and short shrub layer of other species are present throughout including Drummond's willow (Salix drummondiana), Bebb's willow (Salix bebbiana), mountain willow (Salix monticola), whitestem gooseberry (Ribes inerme), and twinberry honeysuckle (Lonicera involucrata). The herbaceous layer is dominated by forb species such as cutleaf coneflower (Rudbeckia laciniata var. ampla), red raspberry (Rubus idaeus), and western water hemlock (Cicuta douglasii). There is an adjacent road along the stream side which is mowed and possibly treated with chemicals for vegetation encroachment. However, there are surprisingly few weedy species within the community. Water is both dammed and diverted upstream causing low flows, algal growth and some silt and sediment build-up in the stream. Soils along the creek banks are sands over cobble. General geology consists of igneous rocks of the Precambrian Age. Beaver activity is present above and below the community, but not within and may impact site hydrology. Uplands are dominated by stable Artemisia shrublands. Uplands are fragmented by a few roads, but are mainly continuous farmlands outside of adjacent BLM lands.

Key Environmental Factors: Key environmental factor include spring flooding, drainage shape and slope, and perennial surface flows.

Climate Description: Climate likely follows patterns typical of this region of Colorado, being generally xeric throughout the year, with wet spring seasons and late summer "monsoons".

Biodiversity Significance Rank Comments (B4): This site is drawn for a fair (C-ranked) occurrence of the globally vulnerable to globally apparently secure (G3G4/S3) plant community, thinleaf alder (Alnus incana) / red-osier dogwood

(Cornus sericea) riparian shrubland.

Natural Heritage element occurrences at the Lower Corral Creek PCA.

Major Group	State Scientific Name	State Common Name	Global Rank	State Rank	Federal Status	State Status	Fed Sens	EO Rank	Last Obs Date
Natural Communities	Alnus incana / Cornus sericea Shrubland	Thinleaf Alder - Red - osier Dogwood Riparian Shrubland	G3G4	S3				C	2005-09-04

** The records above are sorted in the following order 1) Major Group 2) Global Rank and 3) Scientific name.

Boundary Justification: Boundaries encompass approximately 0.6 mile of Lower Corral Creek near its confluence with the Colorado River, include a buffered upland area and encompass those ecological processes necessary to maintain site hydrology including spring flooding, and perennial surface flows. However, boundaries do not include all ecological processes influencing the site and activities upstream and along adjacent slopes such as improper grazing, beaver activity, water diversion, road maintenance, and development may impact site hydrology and biota.

Protection Urgency Rank Comments (P3): No special strategies are in place. Area is threatened by encroaching road, possible exotic species invasion, and water diversions upstream.

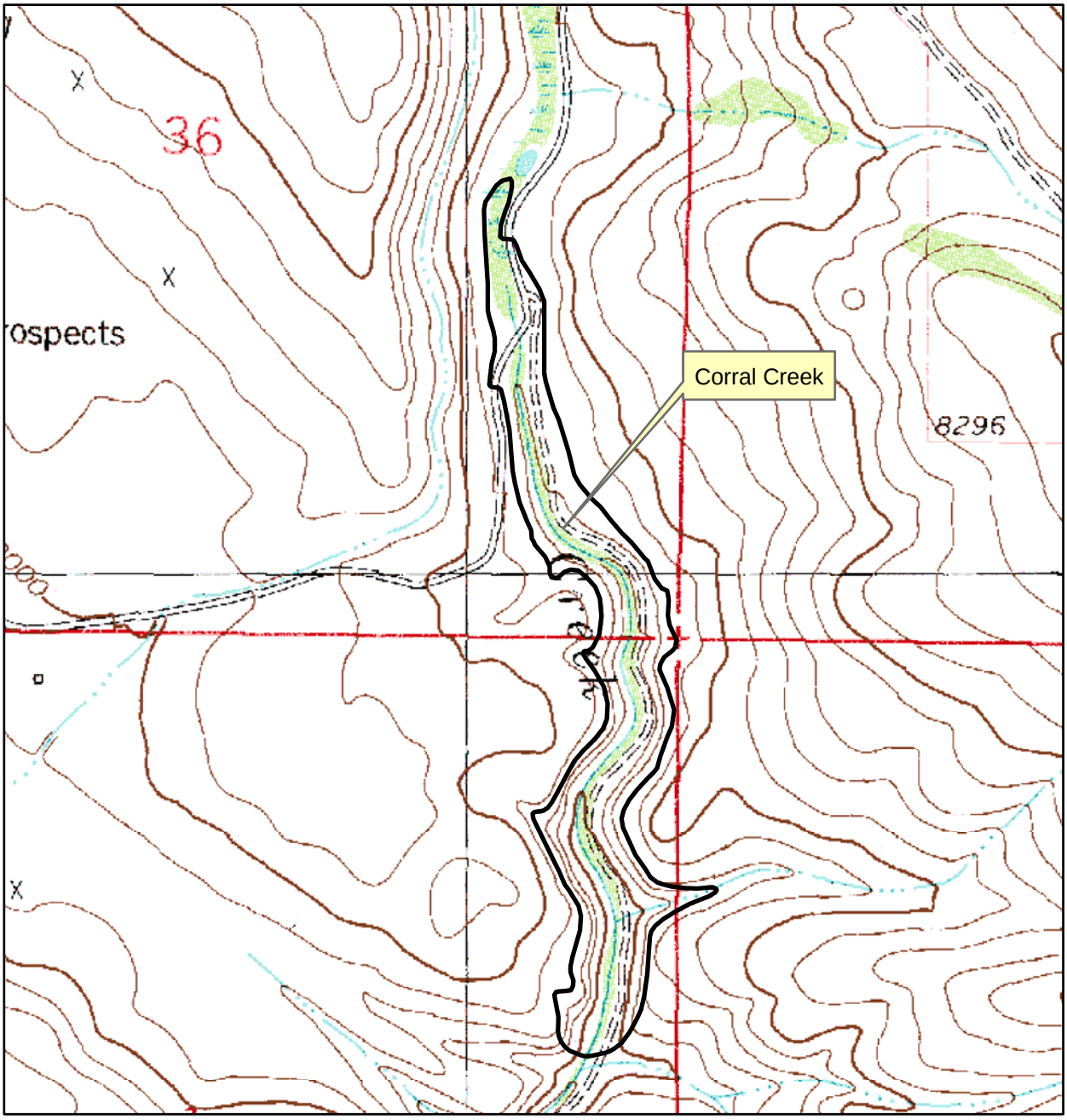
Management Urgency Rank Comments (M3): Management may be needed within five years or quality may be degraded.

Land Use Comments: Predominant land use of immediate adjacent areas include road access to private property and access to adjacent BLM lands for recreational activities. Predominant use of surrounding uplands is for livestock grazing.

Natural Hazard Comments: Spring flooding may cause hazardous conditions along road due to narrow, confined shape of the drainage.

Exotic Species Comments: Canada thistle (Cirsium arvense) and orchardgrass (Dactylis glomerata) are both present with more cover along drying edges near road.

Off-Site Considerations: Off-site considerations include road maintenance, water diversions, and livestock grazing along adjacent uplands.



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Map Date: 02/13/2006

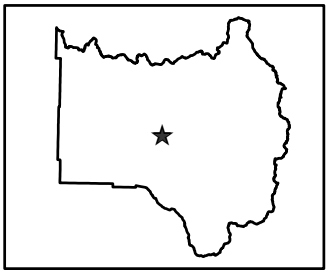
Legend

PCA Boundary

Parshall, 40106-A2

7.5 Minute Digital Raster Graphic produced by the U.S. Geological Survey

Location in Grand County



Map 6. Lower Corral Creek Potential Conservation Area, B4: Moderate Biodiversity Significance

Road End Seep at Strawberry Creek

Biodiversity Rank - B4: Moderate Biodiversity Significance

Protection Urgency Rank - P3: Definable Threat/Opportunity but not within 5 Years

Management Urgency Rank - M4: Not Needed Now; No Current Threats; May Need in Future

U.S.G.S. 7.5-minute quadrangles: Strawberry Lake

Size: 45 acres (18 ha) **Elevation:** 9,200 - 9,550 ft. (2,804 - 2,911 m)

General Description: Community occurs along small, perennial seep drainage. Seep has intermittent running water, but soils are saturated throughout. Soils consist of sandy loams with high organic content over medium to coarse grain sands. General geology consists of igneous rocks of the Precambrian Age, specifically, granitic rocks of 1,700 MYA. The stream created below the seep/wash is a first order, type G drainage, being moderately sloped and narrow. Drainage is dominated by a tall shrub layer of thinleaf alder (Alnus incana). The understory is dominated by mesic forbs including common cowparsnip (Heracleum maximum), arrowleaf ragwort (Senecio triangularis), and tall fringed bluebells (Mertensia ciliata). Graminoids present include bluejoint reedgrass (Calamagrostis canadensis), smallflowered woodrush (Luzula parviflora), and fringed brome (Bromus ciliatus). All mesic species are confined to depressions and mesic soils around the seep. Surrounding landscape is dominated by mature lodgepole pine (Pinus contorta) forests with some recent logging activity evident. Community may extend past surveyed boundaries and along adjacent perennial stream. Other disturbances include a road that does not seem to be heavily used. There are multiple game trails, indicating that this area is an important water source for wildlife.

Key Environmental Factors: Key environmental factors influencing the hydrology and biota of the site include perennial groundwater hydrology, ephemeral flows, percent slope, and porous soils.

Climate Description: Climate likely follows patterns typical of this region of Colorado, being generally xeric throughout the year, with wet spring seasons and late summer "monsoons".

Biodiversity Significance Rank Comments (B4): This site is drawn for a fair (C-ranked) occurrence of the globally vulnerable (G3/S3) plant community, thinleaf alder (Alnus incana) / mesic forbs shrubland.

Natural Heritage element occurrences at the Road End Seep at Strawberry Creek PCA.

Major Group	State Scientific Name	State Common Name	Global Rank	State Rank	Federal Status	State Status	Fed Sens	EO Rank	Last Obs Date
Natural Communities	Alnus incana / Mesic Forbs Shrubland	Thinleaf Alder / Mesic Forb Riparian Shrubland	G3	S3				C	2005-08-19

** The records above are sorted in the following order 1) Major Group 2) Global Rank and 3) Scientific name.

Boundary Justification: Boundaries include areas of small seep south of Strawberry Creek. Boundaries are drawn to encompass those ecological processes necessary to maintain site hydrology including perennial groundwater flows and ephemeral surface flows. Boundaries do not include all ecological processes influencing the site. Activities upstream and along adjacent slopes such as improper grazing, water diversion, logging, and development may negatively impact site hydrology and biota.

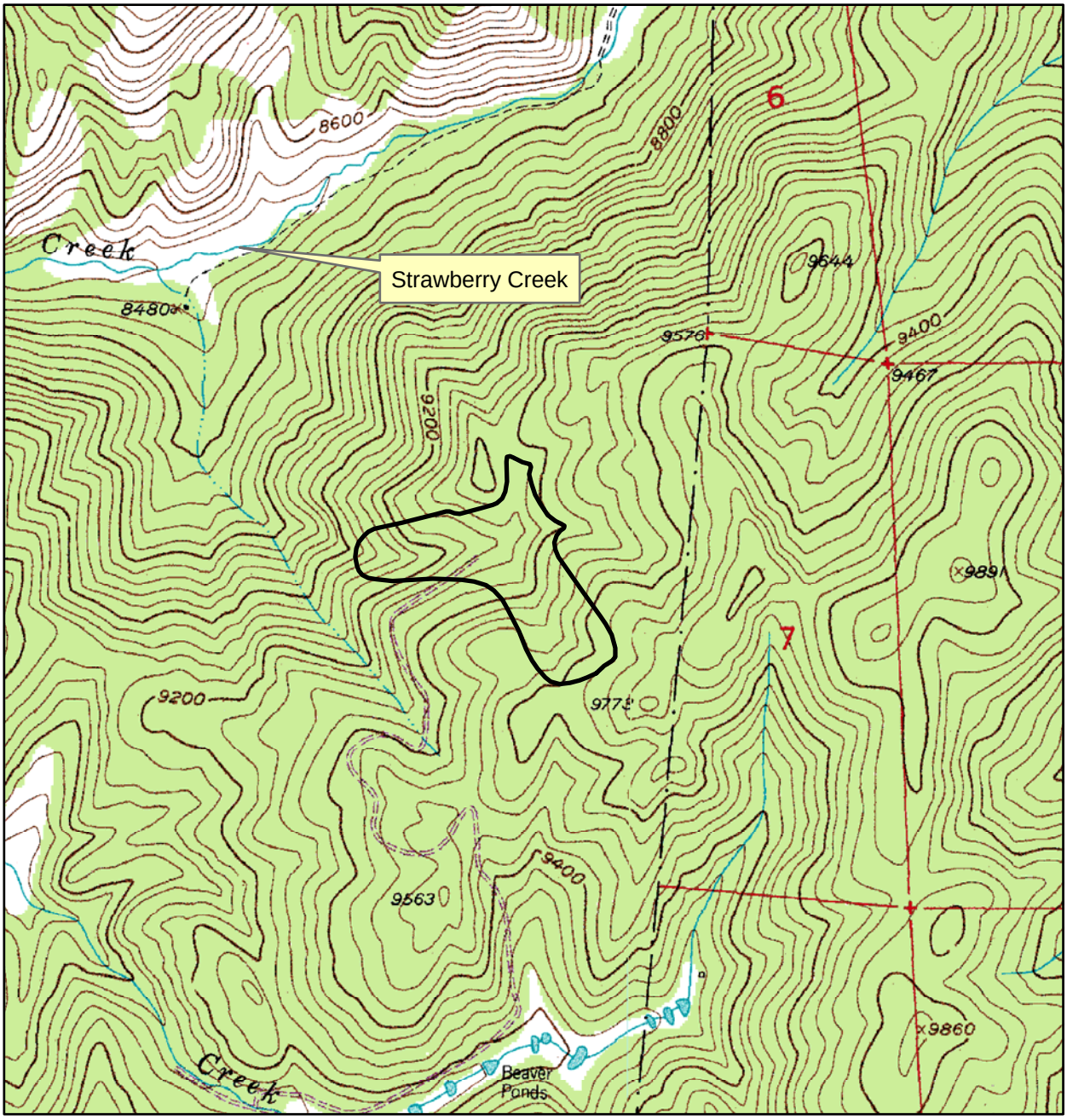
Protection Urgency Rank Comments (P3): The area appears to be recovering from past logging activities located adjacent the wetland.

Management Urgency Rank Comments (M4): Current management appears to be adequate for the persistence of the plant community.

Land Use Comments: Site immediately adjacent to the spring has been logged in the past 10 years. Road is used primarily for recreational uses including hunting access, OHV use, and camping and hiking.

Exotic Species Comments: Kentucky bluegrass (Poa pratensis) is present throughout the area, but in low cover.

Off-Site Considerations: The main off-site considerations include adjacent logging and recreational use.



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Map Date: 02/13/2006

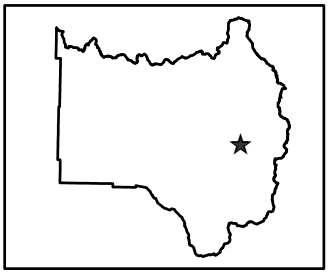
Legend

PCA Boundary

Strawberry Lake, 40105-A7

7.5 Minute Digital Raster Graphic produced by the U.S. Geological Survey

Location in Grand County



Map 7. Road End Seep at Strawberry Creek Potential Conservation Area, B4: Moderate Biodiversity Significance

Sulphur Spring

Biodiversity Rank - B4: Moderate Biodiversity Significance

Protection Urgency Rank - P4: No Threat or Special Opportunity

Management Urgency Rank - M3: Needed within 5 Years to Maintain Quality

U.S.G.S. 7.5-minute quadrangles: Junction Butte

Size: 313 acres (127 ha) **Elevation:** 7,380 - 7,760 ft. (2,249 - 2,365 m)

General Description: The community inhabits large, open salt flats and continues down Sulphur Gulch drainage for 2.25 miles near its former confluence with the Colorado River. The lowest reach of the drainage is now diverted and dispersed at its junction with Hwy 40. Site hydrology is dependent on multiple warm, mineral springs, just below Rd 2757. There are high salt accumulations present from sedimentary substrates carried to the surface by the spring. Site has a very strong sulfur smell and is considered saline due to its pH of 8.5 and conductivity of 3000 micromhos. General geology consists of sedimentary rocks of the Cretaceous and Jurassic Ages, specifically of the Dakota and Morrison Formations. Species composition is distinctly separated along the soil moisture gradient. Common threesquare (Schoenoplectus pungens) and seaside arrowgrass (Triglochin maritimum) are the dominant species along the areas of perennial hydrology. Common spikerush (Eleocharis palustris) is common in some areas, but throughout it only occurs at about 10% cover. Inland saltgrass (Distichlis spicata) occurs on seasonally inundated flats as large patches. Nuttall's alkaligrass (Puccinellia airoides) dominates many edges of inundated areas. Greasewood (Sarcobatus vermiculatus) and saltlover (Halogeton glomeratus), a listed noxious weed, are common in the uplands which are interspersed between mesic rivulets. Surrounding uplands are dominated by Wyoming big sagebrush (Artemisia tridentata ssp. wyomingensis) / xeric graminoid communities and pockets of threetip sagebrush (Artemisia tripartita). Site is impacted by wildlife and past livestock use as a mineral source, with some areas showing evidence of pogging from use during the wet season. Road just above the site does not seem to heavily impact the area. Site is very unique due to its warm, perennial, mineral spring hydrology. Biota is also unique for the area which is mainly dominated by Wyoming big sagebrush and mountain big sagebrush (Artemisia tridentata ssp. vaseyana) on clay substrate.

Key Environmental Factors: Key environmental factors influencing the biota of the site include perennial hydrology source, salt accumulations, and slope degree and shape.

Climate Description: Climate likely follows patterns typical of this region of Colorado being generally xeric throughout most of the year with wet spring seasons and late summer "monsoons".

Biodiversity Significance Rank Comments (B4): This site is drawn for an excellent (A-ranked) occurrence of the globally vulnerable to apparently secure (G3G4/S3) common threesquare (Schoenoplectus pungens) herbaceous vegetation plant community. This community type is probably more common than the global rank implies (most likely a G4 instead of a G3G4).

Natural Heritage element occurrences at the Sulphur Spring PCA.

Major Group	State Scientific Name	State Common Name	Global Rank	State Rank	Federal Status	State Status	Fed Sens	EO Rank	Last Obs Date
Natural Communities	Schoenoplectus pungens Herbaceous Vegetation	Bulrush	G3G4	S3				A	2005-06-22

** The records above are sorted in the following order 1) Major Group 2) Global Rank and 3) Scientific name.

Boundary Justification: Boundaries include mineral spring and large open flat of mesic soils below the spring extending down a small drainage to its junction with Hwy 40 near the Colorado River. Boundaries are drawn to encompass buffered uplands and those ecological processes necessary to maintain site hydrology including groundwater discharge and perennial surface flows of the lower reaches of the site. Boundaries do not include all ecological processes influencing the site. Activities upstream and along adjacent slopes such as improper grazing, water diversion, and development may negatively impact hydrology and biota.

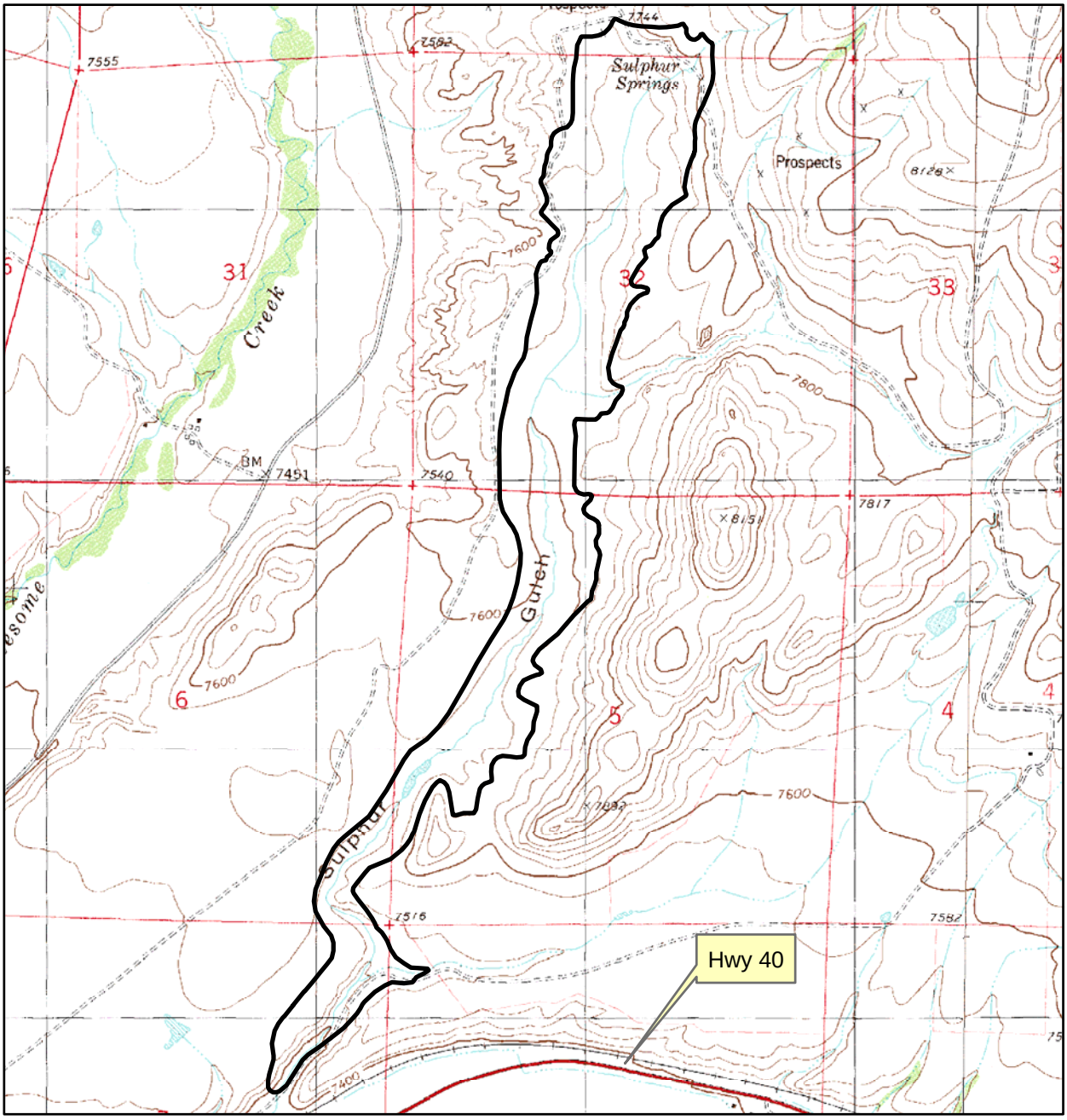
Protection Urgency Rank Comments (P4): There is no need for immediate action. The site occurs on BLM land and is protected generally for public land use.

Management Urgency Rank Comments (M3): New management actions could include monitoring of noxious weeds and grazing impacts from wildlife and livestock.

Land Use Comments: Actual wetland area is not heavily used except by livestock and wildlife as a mineral source. Surrounding uplands are used by the public for recreational purposes including hunting and OHV use.

Exotic Species Comments: Site harbors dense cover of saltlover (Halogeton glomeratus) along dry areas within the wetland.

Off-Site Considerations: Off-site considerations include OHV use, road maintenance, and other recreational uses.



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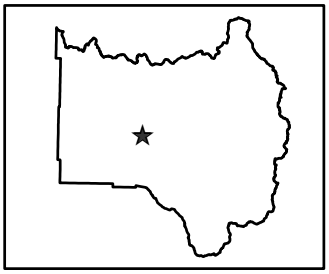
Legend

PCA Boundary

Junction Butte, 40106-A3

7.5 Minute Digital Raster Graphic produced by the U.S. Geological Survey

Location in Grand County



Map 8. Sulphur Spring Potential Conservation Area, B4: Moderate Biodiversity Significance