

**Glenwood Springs and
Kremmling Field Offices
RMP Revision
Evaluation of Proposed
Areas of Critical Environmental
Concern**



**Glenwood Springs and Kremmling Field Offices RMP Revision
Areas of Critical Environmental Concern
Report on the Application of the Relevance and Importance Criteria**

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Prepared by:

**United States Department of the Interior
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Glenwood Springs & Kremmling Field Offices**

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I. Executive Summary

As part of the Glenwood Springs and Kremmling Resource Management Plan (RMP) revisions, the BLM Interdisciplinary (ID) Team analyzed whether proposed Areas of Critical Environmental Concern (ACEC) meet the relevance and importance criteria. The Glenwood Springs Field Office (GSFO) analyzed 90 proposed ACECs (existing, internally and externally proposed) and found that 17 met the relevance and importance criteria (total proposed acres = 68,781 acres):

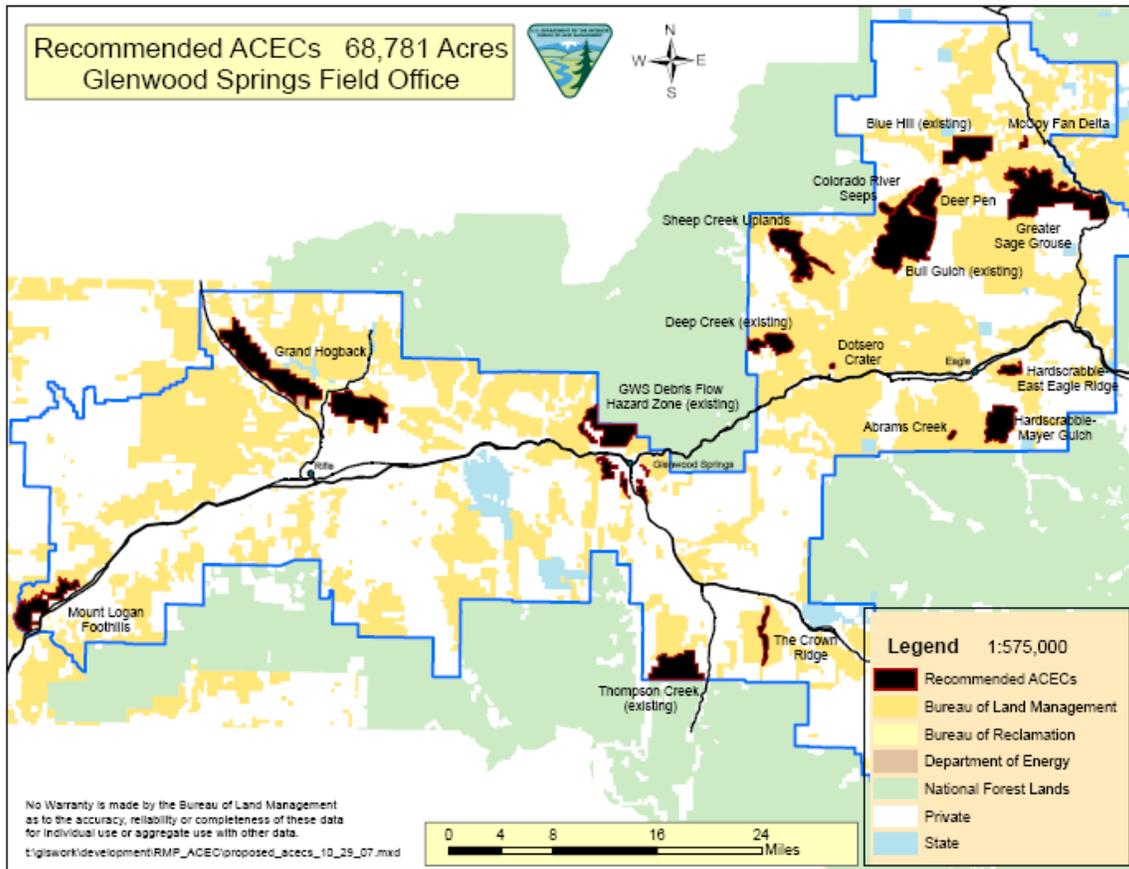
- Blue Hill ACEC (existing)
- Bull Gulch ACEC (existing)
- Deep Creek ACEC (existing)
- Glenwood Springs Debris Flow Hazard Zone ACEC (existing)/Mitchell Creek
- Lower Colorado River ACEC (existing)
- Thompson Creek ACEC (existing)/BLM adjacent to USFS Assignment Ridge
- Dotsero Crater (BLM proposed)
- McCoy Fan Delta (BLM proposed)
- Grand Hogback (BLM proposed)
- Mount Logan Foothills Potential Conservation Area (PCA) (external nomination)
- The Crown Ridge PCA (external nomination)
- Sheep Creek Uplands PCA (external nomination)
- Hardscrabble-Mayer Gulch/East Eagle Ridge PCA (external nomination)
- Abrams Creek PCA (external nomination)
- Deer Pen PCA (external nomination)
- Colorado River Seeps PCA (external nomination)
- Greater Sage Grouse Habitat Area (external nomination)

The Kremmling Field Office (KFO) analyzed 171 proposed ACECs and found that eight met the relevance and importance criteria (total proposed acres = 8,713 acres):

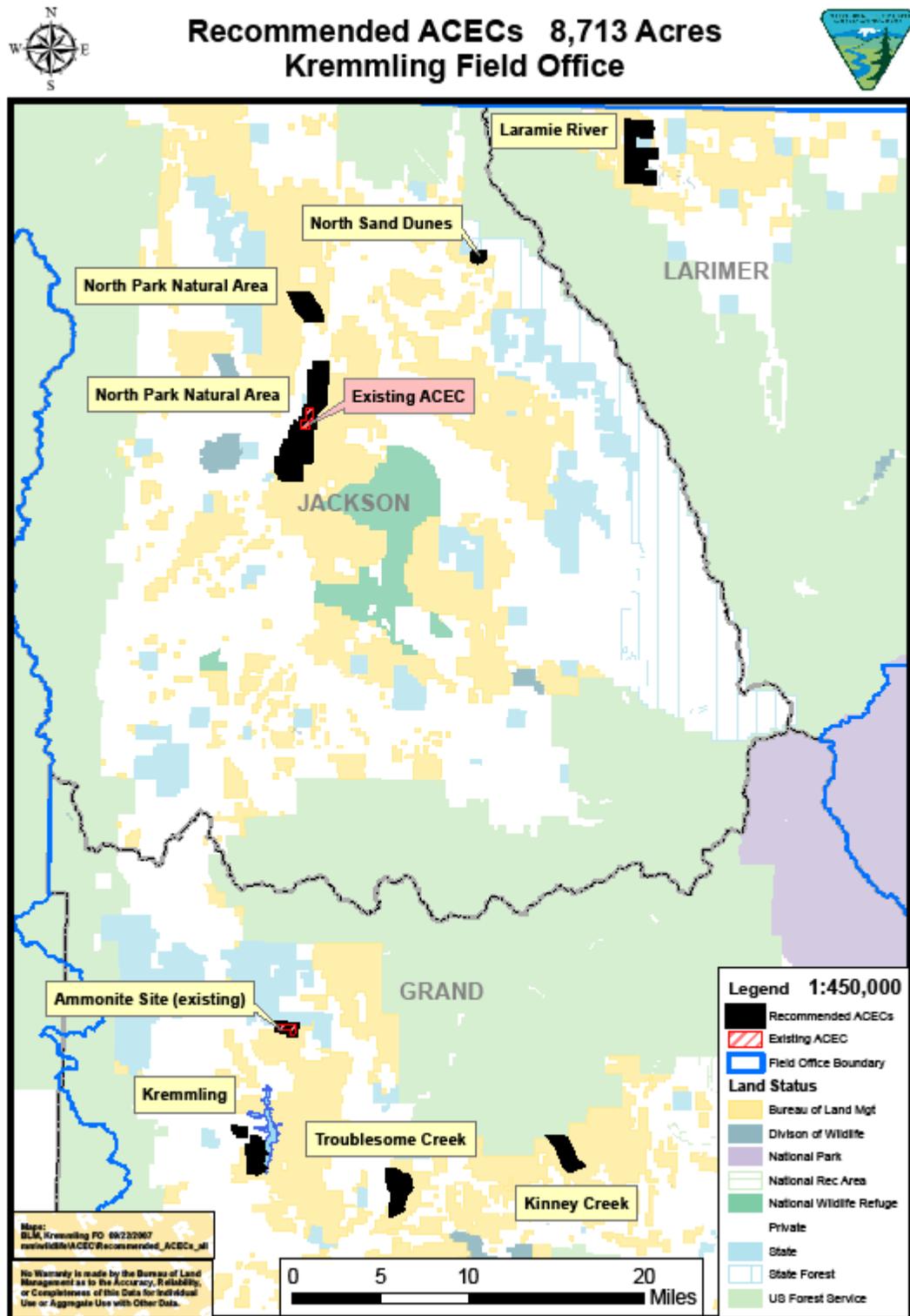
- North Park Natural Area (existing)
- Kremmling Cretaceous Natural Area (existing)
- Kremmling Potential Conservation Area (PCA) (external nomination)
- Laramie River PCA (external nomination)
- North Park Natural Area PCA (external nomination)
- North Sand Dunes PCA (external nomination)
- Troublesome Creek PCA (external nomination)
- Kinney Creek (external nomination)

These areas will be identified as potential ACECs and will be fully considered for designation and management in the RMP (BLM Manual 1613.2.21). For the areas found not to meet the relevance and importance criteria, “the management prescriptions which are eventually established in the plan for such areas shall reflect consideration of the identified values.”

Map 1 – Glenwood Springs Proposed ACECs



Map 2 – Kremmling Proposed ACECs



II. Introduction

As part of the process for developing the Glenwood Springs and Kremmling Resource Management Plan (RMP) revisions, the Bureau of Land Management (BLM) Field Office Interdisciplinary (ID) teams reviewed all BLM-administered public lands in the planning areas to determine whether any areas should be considered for designation as Areas of Critical Environmental Concern (ACECs).

The Federal Land Policy and Management Act (FLPMA) requires that priority shall be given to the designation and protection of ACEC's. ACECs are defined in the FLPMA Sec. 103[43 U.S.C 1702] (a) and in 43 C.F.R. 1601.0-5(a) as "areas within the public lands where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards."

The following analysis and the resultant findings for ACEC relevance and importance criteria has been performed pursuant to FLPMA Sec. 202[43 U.S.C. 1712](c)(3), 43 C.F.R. 1610-7-2 and BLM 1613 Manual.

III. Requirements for ACEC Designation

To be eligible for designation as an ACEC, an area must meet the relevance and importance criteria described in 43 Code of Federal Regulations (CFR) 1610.7-2 and BLM Manual 1613, *Areas of Critical Environmental Concern, and need special management*. The determinations in this report deal strictly with the relevance and importance criteria, and not special management attention.

Special management attention refers to "*management prescriptions developed during preparation of an RMP or amendment expressly to protect the important and relevant values of an area from the potential effects of actions permitted by the RMP, including proposed actions deemed to be in conformance with the terms, conditions, and decisions of the RMP.*" Thus, these are management measures that would not be necessary and prescribed if the relevant and important values were not present. A management prescription is considered to be special if it is unique to the area involved and includes terms and conditions specifically to protect the values occurring within the area.

BLM Manual 1613 includes the following guidance on incorporating management prescriptions for potential ACECs into appropriate alternatives:

"During the formulation of alternatives, management prescriptions for potential ACEC's are fully developed. Management prescriptions will generally vary across the plan alternatives. If there is no controversy or issues raised regarding the management of a potential ACEC, it may not be necessary to develop a range of management alternatives. In other words, management prescriptions may not vary significantly across alternatives. A potential ACEC (or portion thereof) must be shown as recommended for designation in any or all alternatives in the Draft

RMP in which special management attention is prescribed to protect the resource or to minimize hazard to human life and safety. Because special management attention must be prescribed in at least one plan alternative, each potential ACEC will appear as a recommended ACEC in at least one plan alternative. Designation is based on whether or not a potential ACEC requires special management attention in the selected plan alternative (i.e. preferred alternative).

Relevance and importance are defined as follows:

Relevance: There shall be present a significant historic, cultural, or scenic value, a fish or wildlife resource or other natural system or process, or natural hazard.

Importance: The above described value, resource, system, process, or hazard shall have substantial significance and value, which generally requires qualities of more than local significance and special worth, consequence, meaning, distinctiveness, or cause for concern. A natural hazard can be important if it is a significant threat to life or property.

Relevance

An area meets the relevance criterion if it contains one or more of the following:

1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archeological resources and religious or cultural resources important to Native Americans).
2. A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).
3. A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).
4. Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action might meet the relevance criteria if it is determined through the resource management planning process to have become part of a natural process.

Importance

An area meets the importance criterion if it meets one or more of the following:

1. Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
3. Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of the Federal Land Policy and Management Act (FLPMA).

4. Has qualities that warrant highlighting to satisfy public or management concerns about safety and public welfare.
5. Poses a significant threat to human life and safety or to property.

IV. Evaluation Process

In compiling a list of areas to be analyzed in this report, the BLM ID teams followed the guidance set forth in BLM Manual 1613 and considered:

1. Existing ACECs
2. Areas recommended for ACEC consideration (external and internal nominations)
3. Areas identified through inventory and monitoring
4. Adjacent designations of other Federal and State agencies.

ACECs may be nominated by BLM staff, other agencies, or members of the public at any time. During the RMP revision scoping process, the BLM specifically solicited nominations from the public and other agencies. A fact sheet on special designations was distributed at the scoping meetings and made available on the RMP website:

<http://www.blm.gov/rmp/co/kfo-gsfo/>. Specifically, the fact sheet stated:

“BLM wants your ideas on ACECs

What areas do you think should be identified and proposed as an ACEC and what areas should be re-evaluated to determine if ACEC designation is still necessary to protect the relevant and important values?”

As part of the formal outreach process, the BLM received nominations from the Colorado Natural Heritage Program (CNHP) and the Center for Native Ecosystems (CNE). The BLM staff also reviewed information from BLM inventories, the Colorado Division of Wildlife species of concern data, and other reports (such as the Geological Advisory Group (GAG) report) to ensure that all potentially relevant and important values within the planning areas were considered.

In evaluating the large number of biological proposals, the BLM determined an area met the relevance criteria for fish and wildlife or natural processes or systems if it contained any special status species (listed, candidate, or BLM sensitive species) or if not a special status species, it contained species or plant communities that were either ranked G1, G2, S1, or S2 by CNHP (see Appendix 2 for definitions).

The maps included in Appendix 3 are for those areas that were found to meet the relevance and importance criteria. The maps indicate the “analysis unit” for the identified values, and not necessarily the proposed ACEC size. The boundaries of some of the proposed external nominations were modified to accurately represent where the values exist. The size and management prescriptions for each ACEC may vary by alternative to reflect a balance between the goals and objectives of the alternative and values being protected (BLM Manual 1613.2.22.B.1&2).

The following tables summarize the proposed ACECs evaluated, the values assessed, and whether the criteria were met (including supporting information).

A. Glenwood Springs Relevant and Important Criteria Determinations

Table 1 – Glenwood Springs ACEC Determinations [Note: the shaded columns met the relevance and importance criteria and are being carried forward for analysis.]

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
The BLM Glenwood Springs Field Office (GSFO) existing and internally proposed ACEC					
Blue Hill (existing)	Cultural and Natural Hazards	Criteria 1 & 4	Criteria 1 & 2	Yes	<p>Meets the relevance criteria for significant historic and cultural values and natural hazards. Meets the importance criteria for more than locally significant qualities and qualities that make the area fragile, sensitive, rare, irreplaceable, unique, and vulnerable to adverse change.</p> <p>This area is northwest of Burns and west of McCoy and is designated as a sensitive area for cultural and Native American resources with the potential to yield information important to the understanding of prehistory and history. In addition, the area is classified as a critical watershed because of the severe erosion hazard of area soils and the negative impact they could have on cultural resources and water quality (3,722 acres).</p>
Bull Gulch (existing)	Scenic, Botanical	Criteria 1	Criteria 1 & 2	Yes	<p>Meets the relevance criteria for scenic values. Portions of the Bull Gulch area were classified as Visual Resource Management Class I and II in the Glenwood Springs 1984 RMP (revised 1988) for its scenic qualities and to maintain the natural landscape adjacent to the Colorado River. The area's outstanding scenic qualities (Scenic Quality A) were tied to the unique and diverse topography, the unique geologic forms, and the sharp contrasting colors.</p> <p>The site also meets the relevance criteria for botanical</p>

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					<p>values. The southeastern portion of the area supports several sub-occurrences of the BLM Sensitive plant, Harrington's penstemon (<i>Penstemon harringtonii</i>).</p> <p>Meets the importance criteria because the scenic qualities are more than locally significant and the qualities of the area are fragile, sensitive, rare, irreplaceable, unique, and vulnerable to adverse change (10,437 acres).</p>
Deep Creek (existing)	Scenic, Geologic (caves)	Criteria 1	Criteria 1 & 2	Yes	<p>The site meets the relevance criteria for scenic values. The Deep Creek area was classified as Visual Resource Management Class I in the Glenwood Springs 1984 RMP (revised 1988). The study area contains many outstanding land forms within the canyon, vegetation and water features which gives it high scenic values. The canyon displays high relief with its 2,000 to 3,000 ft. depth and narrow bottom bordered by prominent cliffs. Several prominent geologic faults and unusual erosional formations are found along the canyon. A variety of vegetation types are found within the study area adding to its scenic values. The landscape maintains a high degree of naturalness.</p> <p>In addition to scenic values, the area also meets the relevance criteria for its geologic values specific to the high concentration of cave and karst resources within the canyon.</p> <p>Meets the importance criteria for more than locally significant qualities and qualities that make the area fragile, sensitive, rare, irreplaceable, unique, and vulnerable to adverse change (2,406 acres).</p>
Glenwood Springs Debris Flow Hazard Zone (Existing)	Natural Hazard	Criteria 2,3, 4	Criteria 1,2,4, 5	Yes	<p>The site meets the relevance criteria for natural hazards. Meets the importance criteria for having qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare and for posing a</p>

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					<p>significant threat to human life and safety or to property.</p> <p>Several areas within the Glenwood Springs vicinity are characterized by steep slopes, sparse vegetative cover, and unstable geologic conditions; making these areas prone to mass wasting processes. Debris flows, slump, and rock fall pose potential threats to lives as well as residential and commercial property in the area.</p> <p>In addition to the Debris Flow Hazard Zone, this ACEC meets the relevance criteria for wildlife resources (BLM 1613.1.11.A(2) & (3)), as Mitchell Creek contains a genetically pure population of native, wild, naturally reproducing Colorado River cutthroat trout, that have been identified as a Core Conservation Population in the <i>Conservation Agreement and Strategy for Colorado River Cutthroat Trout, in the States of Colorado, Utah, and Wyoming</i> (June 2006). In addition, the watershed in which these fish live supports vital ecosystem processes and maintains crucial habitats important for the long-term survival of this fish species</p> <p>This area satisfies the importance criteria (BLM 1613.1.11.B (1) & (2)) since this stream is a regionally important producer of genetically pure and naturally reproducing Colorado River cutthroat trout. Conservation populations are important in the overall conservation of the species and are given the highest priority for management and protection. Given the genetic purity of these fish, the population is unique and irreplaceable (5,934 acres).</p>

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
Lower Colorado River (existing)	Riparian and Wildlife Habitat	Criteria 2,3	Criteria 2	Yes	<p>The Lower Colorado River Cooperative Management Area meets the relevance criteria for its important riparian and wildlife habitat values. The main species of concern include the bald eagle, great blue heron, waterfowl, other resident species and the presence of two endangered fish species, the Colorado pikeminnow and razorback sucker.</p> <p>The area meets the importance criteria due to the riparian's fragile and sensitive resources that are vulnerable to adverse change. However, very little of the acreage along the Lower Colorado River is in public land (130 acres).</p>
Thompson Creek (existing)	Scenic, Geologic, Historic & Ecological	Criteria 1 & 3	Criteria 1 & 2	Yes	<p>The area meets the relevance criteria for its scenic, geologic, historic (cultural) and ecologic values and a natural process or system.</p> <p>This scenic area was designated as VRM Class I in the Glenwood Springs 1984 RMP (revised 1988). The area was rated as a Class A (high quality) due to its outstanding scenic qualities tied to the unique topography and geologic forms (fins), and the sharp contrasting colors adjacent to Thompson Creek.</p> <p>The geologic values were based on the unique geologic features along the North Fork of Thompson Creek. Approximately 12 formations from the Cretaceous, Jurassic, and Triassic Periods of the Mesozoic Era and the Permian and</p>

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					<p>Pennsylvania Periods of the Paleozoic Era are exposed that represent a number of depositional events that occurred in the geologic past. These formations were tilted nearly vertical during Tertiary Period regional uplift responsible for the creation of the Grand Hogback monocline. Down-cutting of the North Fork of Thompson Creek has exposed these formations in cross-section, while erosion of weaker layers in between more resistant layers has resulted in unique sedimentary rock fins. The more prominent fins occur in the Cretaceous Dakota sandstone and the Permian-Pennsylvania Maroon formation.</p> <p>Historic values within Thompson Creek are from the remains of the abandoned Aspen and Western Railway, which operated between 1887 and 1889. Evidence includes stone and wood bridge abutments, remains of grading crew's quarters, and the old railroad bed.</p> <p>The area's intact natural ecological state was also recognized as important for environmental education and primitive types of recreation.</p> <p>Thompson Creek meets the importance criteria for more than locally significant qualities and for qualities that make the area fragile, sensitive, rare, irreplaceable, unique, and vulnerable to adverse change (4,270 acres).</p>
Dotsero Crater (Proposed)	Geologic (volcanic crater)	Criteria 3	Criteria 1 & 2	Yes	The site meets the relevance criteria for a natural process or system. Meets the importance criteria for more than locally significant qualities and qualities that make the area fragile, sensitive, rare, irreplaceable, unique, and vulnerable to

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					adverse change. Dotsero Crater represents the youngest known volcanic event in Colorado estimated to be from approximately 4,150 to 4,700 years old. The distinct crater is approximately 800 feet deep and 1/3 mile across with an associated lava flow that extends almost one mile to the south crossing I-70 (97 acres).
McCoy Fan Deltas (Proposed)	Geologic (marine deposits)	Criteria 3	Criteria 1 & 2	Yes	The area meets the relevance criteria for a natural process or system. Meets the importance criteria for more than locally significant qualities and qualities that make the area fragile, sensitive, rare, irreplaceable, unique, and vulnerable to adverse change. The McCoy Fan Deltas consist of exposures of the Minturn Formation that are indicative of fluvial and deltaic processes that occurred in a small restricted interior basin during the Pennsylvanian Period of the Paleozoic Era. These fluvial and marine deposits represent alluvial fan, delta, and marine depositional events that occurred along the western margin of the Ancestral Front Range. Marine deposits in the area have yielded abundant fossils that include invertebrates, vertebrates, and plant species. The McCoy fan deltas are among the best exposed deltaic deposits in the Rocky Mountains and allow for study and observations to be made of the paleontological resources present and the sedimentary processes that occurred in the geologic past (223 acres).
Grand Hogback (Proposed)	Scenic, Geologic & Cultural	Criteria 1 & 3	Criteria 1 & 2	Yes	Meets the relevance criteria for historic and cultural values, and a natural process or system. Meets the importance criteria for more than locally significant qualities and qualities that make the area fragile, sensitive, rare, irreplaceable, unique, and vulnerable to adverse change. This area located north of the Town of Silt and the City of Rifle represents the largest uninterrupted portions of BLM land on the Grand Hogback. The Grand Hogback is an

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					<p>extensive monocline characterized by steeply dipping rocks that range from Cretaceous to Pennsylvanian in age. In many areas these formations have been exposed by erosional and fluvial processes that have resulted in steeply dipping fins, flatirons, and ridges. The Grand Hogback represents the western extension of the Laramide Orogeny and is one of the longest geologic structures in Colorado forming an S-shaped feature that spans approximately 80 miles from the Town of Meeker in the north to the Town of Redstone in the south.</p> <p>This area also contains one of the largest Ute habitation (wickiup) sites in the state. It is composed of the remnants of at least 80 structural features. This site meets National Register of historic places Criteria "C" in that it embodies the distinctive characteristics of a type, period, or method of construction, and represents a significant and distinguishable entity whose components may lack individual distinction. The site also meets National Register Criteria "D" in that it has yielded and should continue to yield significant information on the prehistory and history of the area. Accordingly, the site is considered eligible for listing on the National Register of Historic Places.</p> <p>The hogback also contains an historic mine in the upper reaches of Estes Gulch. There are several remnants of mining activity including a flume and tailings piles that contribute to the historic value of the area (13,990 acres).</p>
<p>The Colorado Natural Heritage Program nominated seven areas for ACEC designation: Rare Plants of the Wasatch (Mt Logan Foothills), Deep Creek, Seven Hermits (Mayer Gulch/East Eagle Ridge), Sheep Creek Uplands, The Crown (The Crown Ridge), Hardscrabble (Abrams Creek), and Flatiron Mesa. These areas each have some biological communities or species which are rare or of exemplary quality and are recommended as Potential Conservation Areas (PCAs) in CNHP's database. Each of the seven areas is evaluated below.</p> <p>[Note: see Appendix 2 for definitions of Natural Heritage Imperilment Ranks (i.e. G/S1), CNHP Element Occurrence Ranks and their Definitions (i.e. A or B), and Natural Heritage Program Biological Diversity Ranks and their Definitions (i.e. B1).]</p>					

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
<p>Mount Logan Foothills PCA</p> <p>* renamed from Rare Plants of the Wasatch because of boundary changes</p>	<p>Plants – Uinta Basin hookless cactus (T), DeBeque phacelia (C), Rocky Mountain thistle (BLMS)</p>	<p>Criteria 3</p>	<p>Criteria 1 & 2</p>	<p>Yes</p>	<p>The Mount Logan Foothills proposed ACEC is an area northeast of the town of DeBeque where several listed, candidate and sensitive plants are concentrated. The proposed ACEC includes lands within the GJFO and private land as well as public lands within the GSFO. Only public lands within the GSFO will be evaluated for relevance and importance and considered for ACEC designation.</p> <p>The GSFO portion of this proposed ACEC meets the relevance and importance criteria for natural processes or systems because it supports all of the known occurrences of the threatened Uinta Basin hookless cactus (<i>Sclerocactus glaucus</i>) aka Colorado hookless cactus within the GSFO and most of the GSFO occurrences of the federal candidate DeBeque phacelia (<i>Phacelia submutica</i>) and BLM sensitive Adobe thistle (<i>Cirsium perplexans</i>).</p> <p>The GSFO portion of this PCA is 8,828 acres; however, that includes private lands and some areas where no relevant and important values are present (8,828 acres recommended; BLM proposes 3,907 acres for analysis).</p>
<p>Deep Creek expansion PCA</p> <p>*renamed from Deep Creek PCA because the portion that falls within the existing Deep Creek ACEC is analyzed above. Only the portion that extends beyond the</p>	<p>Plants – Harrington’s penstemon (BLMS), Wildlife – Bald eagle, peregrine falcon</p>	<p>Criteria 2 & 3</p>	<p>No</p>	<p>No</p>	<p>The Deep Creek ACEC nominated by CNHP includes the existing BLM ACEC as well as additional BLM lands adjacent to the ACEC and across the Colorado River and adjoining USFS and private lands. For the purpose of this analysis, only the BLM lands lying outside of the existing ACEC will be evaluated for relevance and importance.</p> <p>Meets the relevance criteria for wildlife resources and natural processes or systems. There is a bald eagle roost along the Colorado River and a peregrine falcon eyrie in the cliffs east of the Colorado River. However, these sites do not meet the</p>

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
existing ACEC boundary is analyzed herein.					<p>importance criteria because they are not more than locally significant and not particularly rare or vulnerable to adverse change.</p> <p>BLM lands within this proposed ACEC expansion area support at least 4 excellent quality (A-rank) locations of the BLM Sensitive Harrington’s penstemon. The ACEC meets the relevance criteria for this species. The area does not meet the importance criteria because the number of plants in these occurrences is relatively small and do not represent a substantial portion of the total population, therefore, the area is not considered particularly important for the long-term protection and management of this species.</p>
<p>The Crown Ridge PCA</p> <p>* renamed from The Crown because this name represents a much larger area</p>	Plants – Harrington’s penstemon (BLMS)	Criteria 3	Criteria 2	Yes – with modified boundaries	<p>This area includes public and private lands from just south of the Roaring Fork River, including the Crown, Prince Creek and West Sopris Creek.</p> <p>The area meets the relevance criteria for natural processes or systems because it supports the BLM Sensitive plant, Harrington’s penstemon. The biodiversity significance of this PCA is very high (B2). The Crown supports excellent quality (A-rank) occurrences of Harrington’s penstemon. The site also contains high quality sagebrush and mixed mountain shrub habitats.</p> <p>Meets the importance criteria for more than locally significant qualities because the penstemon sites are of excellent quality and are vulnerable to adverse change.</p> <p>Although, CNHP delineated the PCA/ACEC boundary to include all the ecological processes that might support the Harrington’s penstemon, the rare plant is actually only known</p>

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					from six relatively small sites within this polygon. BLM modified the boundary to include only the highest quality habitat and largest sites (16,386 acres recommended; BLM proposes 998 acres for analysis).
Sheep Creek Uplands PCA	Plants – Harrington’s penstemon (BLMS)	Criteria 3	Criteria 1 & 2	Yes – with modified boundaries	<p>The Sheep Creek Uplands proposed ACEC straddles the East and West Forks of Sheep Creek. The area meets the relevance criteria because it supports the BLM Sensitive plant, Harrington’s beardtongue.</p> <p>The Sheep Creek Uplands meets the importance criteria because it contains one of the largest known concentrations of excellent quality (A-rank) locations of this species. The biodiversity significance of this site is very high (B2). The Sheep Creek Uplands and the Hardscrabble/Seven Hermits sites are considered core populations of Harrington’s penstemon and are considered essential for the long-term protection and management of the species. The site also contains high quality sagebrush and mixed mountain shrub habitats (6,697 acres recommended; BLM proposes 4,473 acres for analysis).</p>
<p>Hardscrabble-Mayer Gulch/East Eagle Ridge PCA</p> <p>* renamed from Seven Hermits because this name relates to a feature outside the proposed boundary</p>	Plants – Harrington’s penstemon (BLMS), natural processes (sagebrush ecosystem)	Criteria 3	Criteria 2	Yes - with modified boundaries	<p>The Seven Hermits ACEC nomination includes most of the BLM land and some private land southeast of the town of Gypsum and south of the town of Eagle, including the Kaibab area. This site meets the relevance and importance criteria because it contains one of the highest known concentrations of excellent quality (A-rank) Harrington’s penstemon occurrences. (>72 sites) This site is considered a core population of the penstemon.</p> <p>BLM modified the boundaries to include only those suboccurrences with the greatest density of plants and most of the higher quality habitat. This resulted in two smaller parcels which are renamed the Hardscrabble - Mayer</p>

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					Gulch/East Eagle Ridge proposed ACEC (30,988 acres recommended; BLM proposes two parcels totaling 4,714 acres for analysis).
Flatiron Mesa	Plants – Harrington’s penstemon (BLMS)	Criteria 3	No	No	Flatiron Mesa is located southwest of the town of Rifle and east of Beaver Creek. The proposed ACEC encompasses BLM and private lands, however, only the public land portion will be evaluated for ACEC designation. The area meets the relevance criteria because it contains occurrences of Harrington’s penstemon. The area has excellent (A-rank) and good (B-rank) quality occurrences of Harrington’s penstemon scattered throughout the sagebrush/mixed mountain shrub communities. This PCA is one of the higher quality sites that support Harrington’s penstemon, but the population here is scattered in small pockets amidst large blocks of unsuitable habitat, so it is not one of the largest occurrences of this species. As a result, the area does not meet the importance criteria because it is not of substantial significance or value when compared to other sites with Harrington’s penstemon.
Abrams Creek PCA *renamed from Hardscrabble because that name implies a much larger geographic area	Fish – CRCT (BLMS),	Criteria 2	Criteria 1,2	Yes	This proposed ACEC meets the relevance criteria for wildlife resources (BLM 1613.1.11.A(2) & (3)), as Abrams Creek contains a genetically pure population of native, wild, naturally reproducing Colorado River cutthroat trout, that have been identified as a Core Conservation Population in the <i>Conservation Agreement and Strategy for Colorado River Cutthroat Trout, in the States of Colorado, Utah, and Wyoming</i> (June 2006). In addition, the watershed in which these fish live supports vital ecosystem processes and maintains crucial habitats important for the long-term survival of this fish species Abrams Creek also satisfies the importance criteria (BLM 1613.1.11.B (1) & (2)) since this stream is a regionally

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					important producer of genetically pure and naturally reproducing Colorado River cutthroat trout. Core Conservation populations are important in the overall conservation of the species and are given the highest priority for management and protection. Given the genetic purity of these fish, the population is unique and irreplaceable (186 acres recommended and proposed for analysis).
<p>The Center for Native Ecosystems nominated a total of 81 different sites and special status species' habitats as potential ACECs. Included on their list were all 66 of the Potential Conservation Areas (PCAs) identified by CNHP for the GSFO. The GSFO Interdisciplinary Team analyzed each site individually. Of these 66 sites, 14 of them were dropped from further consideration because they had no special status species or significant plant communities associated with them and therefore, did not meet any of the relevance or importance criteria. These PCAs were: Castle Peak, Fourmile Ck, East Rifle Ck, Basalt Mountain, Coal Ridge, Middle Rifle Ck, Sweetwater Ck Uplands, Divide Ck, East Divide Ck, Cattle Ck at Coulter Ck, Burning Mountain, Blue Hill, Norman Ck, and Crystal River at Potato Bill Ck.</p> <p>Twelve sites were eliminated from further consideration because there was no BLM-administered land within the PCA or the value(s) in question were not located on BLM lands. These eleven were: East Elk Ck, No Name Ck, Beaver Ck at Battlement Mesa, Woody Ck at Horsehoe Draw, Mount Callahan, Christine SWA, Ranch at Roaring Fork, Maroon/Castle Ck, Roaring Fork at Old Snowmass, El Jebel, McCoy North, Yarmony Ck.</p> <p>An additional six sites were eliminated from further consideration because they were located within the Roan Plateau Planning Area and were already analyzed in the Roan Plateau RMP. These were Anvil Points, Upper Cow Ck, East Fork Parachute Ck, Northwater Ck, Trapper Ck, Anvil Points Rim.</p> <p>The Lower Colorado River and Middle Thompson Creek PCAs are existing ACECs. These sites were analyzed above.</p> <p>Seven of the PCA sites were also recommended by CNHP and one site, Rifle Hogback, was recommended internally. These are analyzed above.</p> <p>The remaining 24 PCAs appear to meet the relevance and importance criteria because the sites contain known occurrences or suitable habitat for federally listed or BLM Sensitive plants or animals or a significant plant community. The values in these 24 PCAs are analyzed below:</p>					
Bear Creek at Glenwood Canyon PCA	Plant Community – Aspen/Rocky Mountain maple (G2/S2)	Criteria 3	No	No	This area satisfies the relevance criteria because it contains a plant community (<i>Populus tremuloides/Acer glabrum</i> G2/S2) that is rare both globally and within Colorado. The area does not meet the importance criteria because the community is not an exemplary occurrence (it is a C-ranked occurrence), it is not of special consequence or distinctiveness when compared to other plant communities of the same type, and the majority of the site is in private surface ownership.

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
Deer Pen PCA * renamed from Black Mountain & Blue Hill because Blue Hill is an existing ACEC north of this area	Plants – Harrington’s penstemon (BLMS)	Criteria 3	Criteria 2	Yes – with modified boundaries	This area satisfies the relevance and importance criteria because it contains numerous (at least 12) B-ranked occurrences of the BLM Sensitive, Harrington’s penstemon. The site is more than locally significant because it contains one of the larger and more intact populations of Harrington’s penstemon. The area that was proposed includes some private land and areas of unsuitable habitat such as pinyon-juniper woodlands. BLM recommends a smaller area that contains most of the larger plant populations and the better quality habitat (12,916 acres recommended; BLM proposes 2,805 acres for analysis).
Butler Creek PCA	Fish – CRCT (BLMS)	No	No	No	While Butler Creek does contain a population of Colorado River cutthroat trout, this population is not comprised of genetically pure fish but is instead contains hybridized fish. These fish provide no conservation value to the subsistence of the species and do not meet either the relevance or importance criteria. Butler Creek will not be considered further for designation as an ACEC for Colorado River cutthroat trout.
Cabin Creek PCA	Plants – Harrington’s penstemon (BLMS). Wildlife – Greater sage grouse (BLMS)	Criteria 2 & 3	No	No	The site meets the relevance criteria for a natural process or system and for wildlife resources. The site supports several small B-ranked occurrences of Harrington’s penstemon. However, over half of the site is on private land and much of the remainder of the site is pinyon-juniper habitat which is unsuitable for Harrington’s penstemon. The site does not meet the importance criteria for Harrington’s penstemon because it contains only a few plants and represents a very small percentage of the total population. The site is not unique or of special consequence compared to other Harrington’s penstemon sites. The site is not considered by BLM or CNHP as being essential for the long-

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					<p>term protection and management of the species.</p> <p>The proposed site provides habitat for greater sage grouse, which are a BLM sensitive species. The site does not meet the importance criteria because it is not unique when compared to other sage grouse habitat located within the GSFO. In addition, over half of the site is on private land and much of the remainder of the PCA is pinyon-juniper habitat which is unsuitable for greater sage grouse.</p>
Cerise Gulch PCA	Plants- Harrington's penstemon (BLMS)	Criteria 3	No	No	This site, as defined by CNHP, includes a large acreage of National Forest lands which support four significant plant communities. None of these communities occur on BLM land. The BLM portion of this site supports a few small occurrences of Harrington's penstemon. The site meets the relevance criteria because of the presence of Harrington's penstemon; however the site does not meet the importance criteria. The site is not particularly unique or exemplary compared to other sites that support Harrington's penstemon and is not considered essential for the protection and maintenance of this species.
Colorado River-Radium to Red Dirt Ck PCA	Plant Communities – Silver buffaloberry (G3G4/S1), Rocky mountain juniper/red-osier dogwood (G4/S2), River birch/mesic forbs (G4/S2)	Criteria 3	No	No	This segment of the river supports several significant riparian plant communities recommended by the Colorado Natural Heritage Program as a potential conservation area (B3 for high biodiversity significance). This segment of the river contains two unique occurrences of silver buffaloberry (<i>Shepherdia argentea</i>) which CNHP considers critically imperiled or rare within the state (G3G4/S1) and two occurrences of a (G4/S2) Rocky Mountain juniper/red-osier dogwood community (<i>Juniperus scopulorum/Cornus sericea</i>) which is imperiled within the state. There is also a community of the state vulnerable (G4/S2) river birch/mesic grasses/forbs (<i>Betula occidentalis/mesic forbs</i>).

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					This PCA does not meet the importance criteria, because the values associated with the PCA are not more than locally significant. Although these plant communities are rare within the state, they are relatively common globally.
Colorado River Seeps PCA	Plant Communities – River birch/mesic grasses (G3/S2), Basin big sagebrush/Basin wildrye (G2/S1)	Criteria 3	Criteria 2	Yes	This PCA meets the relevance criteria because it contains two significant plant communities: <i>Betula occidentalis</i> /Mesic grass (G3/S2) and <i>Artemisia tridentata</i> / <i>Leymus cinereus</i> (G2/S1). The PCA meets the importance criteria because the relevant values are in exemplary condition and are rare within the state and relatively rare globally. Both communities were given an “A” rank by CNHP which means they were in excellent condition. The PCA is ranked B2 for very high biodiversity. CNHP indicated that “This may be one of the most pristine low elevation riparian areas in Eagle County” (464 acres recommended; and proposed for analysis (almost all on public land)).
Crater PCA	Plants – Harrington’s penstemon (BLMS)	Criteria 3	No	No	This area is almost entirely on private land north of the town of McCoy. There is one known occurrence of Harrington’s penstemon on the BLM parcel. The values on private land are unknown. This site does not meet the importance criteria because it does not have special worth or consequence compared to other Harrington’s penstemon sites.
Dry Lake at Greenhorn PCA	Plants – Harrington’s penstemon (BLMS)	Criteria 3	No	No	This site meets the relevance criteria because it is a large site which supports several locations of A ranked (very high quality) and C ranked Harrington’s penstemon occurrences. The site does not meet the importance criteria because the area is not of special consequence or distinctiveness compared to other sites which support Harrington’s penstemon. Much of the area consists of pinyon-juniper woodlands which are not suitable Harrington’s penstemon

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					habitat. The site is not considered by BLM or CNHP as essential for the long-term protection and management of Harrington's penstemon.
Horse Mountain, Eagle County (Lady Belle Mine) PCA	Wildlife – Townsend's big-eared bat (Pale lump-nosed bat) (BLMS), Plants – Harrington's penstemon (BLMS)	Criteria 2 & 3	No	No	This area meets the relevance criteria because it supports a BLM sensitive bat species. However, the area does not meet the importance criteria because it is not unique compared to other habitat within the range of the species. This area meets the relevance criteria because it contains an occurrence of a BLM sensitive plant, Harrington's penstemon. The area does not meet the importance criteria because the occurrence is a D-ranked occurrence which is of poor quality. The occurrence is also small in size and is not of special worth or distinctiveness compared to other sites where Harrington's penstemon is found.
Light Hill PCA	Plants – Harrington's penstemon (BLMS)	Criteria 3	No	No	This site meets the relevance criteria because it contains several (at least 3) occurrences of Harrington's penstemon. However, it does not meet the importance criteria because these occurrences are small, the amount of suitable habitat is also small, and the site is not unique or of special consequence relative to other sites where Harrington's penstemon occurs.
Main Elk Creek West PCA	Wildlife – Townsend's big-eared bat (BLMS)	Criteria 2	No	No	This site meets the relevance criteria for Townsend's big eared bat because this is a BLM sensitive species. However, the site does not meet the importance criteria because the area is not unique compared to other habitat within the range of the species.
Milk Creek PCA	Plant Community – Rocky Mountain juniper/Mountain mahogany (G2/S2), Plants – Harrington's	Criteria 3	No	No	This area meets the relevance criteria because it supports a significant plant community, <i>Juniperus scopulorum/Cercocarpus montanus</i> (G2/S2) and some Harrington's penstemon along Bocco Mountain. However, both the significant plant community and the Harrington's

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
	penstemon (BLMS)				penstemon are C-ranked occurrences (low-quality). The site does not meet the importance criteria because it does not have qualities that make it of special worth or consequence.
Mitchell Creek PCA * This area is completely contained within the GWS Debris Flow Hazard Zone ACEC which is being carried forward for analysis	Fish – CRCT (BLMS)	Criteria 2 & 3	Criteria 1 & 2	Yes	This area meets the relevance criteria for wildlife resources (BLM 1613.1.11.A (2) & (3)), as Mitchell Creek contains a genetically pure population of native, wild, naturally reproducing Colorado River cutthroat trout, that have been identified as a Core Conservation Population in the <i>Conservation Agreement and Strategy for Colorado River Cutthroat Trout, in the States of Colorado, Utah, and Wyoming</i> (June 2006). In addition, the watershed in which these fish live supports vital ecosystem processes and maintains crucial habitats important for the long-term survival of this fish species Mitchell Creek also satisfies the importance criteria (BLM 1613.1.11.B (1) & (2)) since this stream is a regionally important producer of genetically pure and naturally reproducing Colorado River cutthroat trout. Core Conservation populations are important in the overall conservation of the species and are given the highest priority for management and protection. Given the genetic purity of these fish, the population is unique and irreplaceable. The occupied portion of this stream is already included in the existing Glenwood Springs Debris Flow Hazard Zone ACEC which is being recommended for retention as an ACEC. The existing ACEC boundary should encompass the fishery resource (No additional acres proposed).
Mount Logan Road PCA	Plants – Parachute penstemon (C)	Criteria 3	No	No	The Mount Logan Road site is less than 200 acres. The site is ranked B1 for outstanding biodiversity, because it contains a suboccurrence of the federal candidate plant, Parachute penstemon, (<i>Penstemon debilis</i>). However, the site contains

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					only one very small C-ranked occurrence of this species. The occurrence is on a roadcut and is not a natural growth habitat for <i>Penstemon debilis</i> and may not be sustainable in the long-term. This site does not meet the importance criteria.
Parachute Creek PCA	Plants – Roan Cliffs blazing star (BLMS)	Criteria 3	No	No	This area meets the relevance criteria because it contains some known occurrences of the BLM Sensitive plant, Roan Cliffs blazing star, (<i>Mentzelia rhizomata</i>). However, the majority of this area is in private land ownership and the biological elements are mostly on private land. Half of this PCA falls within the Roan Plateau Planning Area which was analyzed previously. There are small acreages of BLM land (surface or subsurface) which may potentially contain <i>M. rhizomata</i> . These areas are not of sufficient size, quality or condition to be considered more than locally significant and therefore, do not meet the importance criteria.
Red Dirt Creek PCA	Fish – CRCT (BLMS)	None	No	No	While Red Dirt Creek does contain a conservation population of Colorado River cutthroat trout, this population is not genetically pure and is slightly hybridized. Streams containing these conservation populations are identified in the <i>Conservation Agreement and Strategy for Colorado River Cutthroat Trout, in the States of Colorado, Utah, and Wyoming</i> (June 2006). Conservation populations do not meet the relevance and importance criteria as they are not more than locally important. Red Dirt Creek contains no special attributes that set it apart from other conservation populations and Red Dirt Creek will not be considered further for designation as an ACEC for Colorado River cutthroat trout.
Red Hill at Gypsum PCA	Plants – Harrington’s penstemon (BLMS)	Criteria 3	No	No	This area satisfies the relevance criteria because it contains numerous B-ranked occurrences of the BLM Sensitive plant, <i>Penstemon harringtonii</i> . The area does not meet the importance criteria because the population of <i>P. harringtonii</i> is only thinly scattered throughout and therefore, does not

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					have special significance or value when compared to other Harrington's penstemon sites. The site is not considered by BLM or CNHP as being essential for the long-term protection and management of the species.
Rifle Falls State Park PCA	Wildlife – Bats (BLMS)	Criteria 2	No	No	This site meets the relevance criteria because it provides habitat for Townsend's big eared bat, a BLM sensitive species. However, the site does not meet the importance criteria because the area is not unique compared to other habitat within the range of the species. In addition, this site is almost entirely on private land.
Skinner Ridge PCA (aka Circle Dot Gulch)	Wildlife – Greater sage grouse (BLMS)	Criteria 2	No	No	The site meets the relevance criteria because it supports greater sage grouse, a BLM sensitive species. The site does not meet the importance criteria because it is not unique when compared to other sage grouse habitat located within the GSFO. In addition, the PCA only contains 200 acres of BLM surface and mineral estate.
Smith Gulch (at Carbondale) PCA	Plants – Harrington's penstemon (BLMS)	Criteria 3	No	No	The site meets the relevance criteria because it supports several small B-ranked and one C-ranked and D-ranked suboccurrences of Harrington's penstemon. However, most of the site is pinyon/juniper or oakbrush/mountain shrub habitat which is not suitable for Harrington's penstemon. The site has small openings of sagebrush in a larger P/J and oakbrush matrix. Additionally, a third of the site is on private land. The site does not meet the importance criteria because the size and condition of the Harrington's penstemon occurrences are not of special worth or consequence compared to other Harrington's penstemon sites. The site is not considered by BLM or CNHP as being essential for the long-term protection and management of the species.
Stifel Creek PCA	Plants – Harrington's penstemon (BLMS)	Criteria 3	No	No	This site meets the relevance criteria because it does contain a BLM Sensitive plant, but does not meet the importance

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					criteria because the PCA, as mapped by CNHP, shows only one C-ranked occurrence of the BLM Sensitive plant, <i>Penstemon harringtonii</i> . The PCA itself is only ranked B4, which is moderate significance. Half of the PCA is on private land.
West Elk Creek PCA	Plant Community – Narrowleaf cottonwood/River birch (G3/S2)	Criteria 3	No	No	This area meets the relevance criteria because it supports a relatively rare plant community, <i>Populus angustifolia/Betula occidentalis</i> (G3/S2). The plant community is primarily on private land; there may be less than a couple hundred linear feet on BLM. This PCA is ranked B4 which is only moderate significance. This site is not considered of special worth or consequence. Therefore, this PCA does not meet the importance criteria.
Williams Hill PCA	Plants – Harrington’s penstemon (BLMS)	Criteria 3	No	No	This PCA satisfies the relevance criteria because it contains the BLM Sensitive plant, Harrington’s penstemon, but does not meet the importance criteria because the PCA, as mapped by CNHP, contains only one B-ranked occurrence of Harrington’s penstemon and nearly half of the PCA is on private land. This site is not exemplary or of special worth or consequence relative to other sites that contain Harrington’s penstemon populations.
The other 15 nominations from CNE are analyzed below:					
Eagle Valley Evaporite	Geologic – gypsum deposits	No	No	No	Excellent exposures of the Eagle Valley Evaporite occur between the Towns of Dotsero and Gypsum north of Interstate 70. This area has also been referred to as the “Gypsum Cliffs” and it contains folded strata from the Pennsylvania Minturn Formation that resulted from the upward plastic flow of underlying gypsum deposits. The area is not considered relevant or important because exposures of the Eagle Valley Evaporite and associated folding are not uncommon and can be viewed in the Roaring Fork Valley, in

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					the Eagle Valley, and north of Dotsero along County Road 301 that parallels the Colorado River.
Occupied boreal toad habitat plus 300 ft buffers	Wildlife	None	None	No	There is no occupied boreal toad habitat on BLM lands within the Glenwood Springs Field Office.
Identified lynx habitat (as specified in CNE's letter)	Wildlife	Criteria 2	None	No	Canada lynx habitat within the GSFO meets the relevance criteria because lynx are a federally listed species. However, habitat within the GSFO does not meet the importance criteria because it is marginal and scattered when compared to habitats on the White River National Forest.
Greater Sagegrouse (Greater sage-grouse production and brood-rearing habitat, including all leks plus 5.5 km buffers)	Wildlife	Criteria 2	Criteria 2	Yes, with modified boundaries	<p>Greater sage grouse habitat meets the relevance criteria because sage grouse are a BLM sensitive species. Sage grouse habitat within the GSFO also meets the importance criteria because it supports a very small population of sage grouse that has qualities that make it fragile, sensitive and vulnerable to adverse change. The North Eagle/South Routt population of sage grouse has declined drastically in the past decades. Within the GSFO, only 2 active leks remain on BLM managed lands. Greater sage grouse within the GSFO may require special management in conjunction with existing protections.</p> <p>CNE's nomination included over 100,000 acres of BLM, USFS, State Land Board and private land. The boundary for the greater sage grouse ACEC was modified to include approximately 10,700 acres of BLM managed habitat.</p>
Roan Cliffs blazingstar habitat with 300 ft Buffers	Plant	N/A	N/A	No	Within the GSFO, all of the known Roan Cliffs blazing star habitat on BLM-surface lands is within the Roan Plateau Planning Area which was already analyzed for ACEC designation in the Roan Plateau RMP Amendment.

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
Parachute penstemon habitat plus potential recovery areas, plus appropriate buffers to protect against upslope disturbance (300 ft minimum)	Plant	Criteria 3	No	No	Most of the occupied or potential Parachute penstemon habitat on BLM land is part of the Roan Plateau Planning Area which was analyzed for ACEC designation in the Roan Plateau RMP; the remaining BLM-owned Parachute penstemon habitat is part of the Mount Logan Road proposed ACEC which was analyzed above.
DeBeque phacelia habitat as defined by soil type	Plant	Criteria 3	Criteria 1 & 2	No*	Most of the occupied or potential DeBeque phacelia habitat on BLM land is part of the Roan Plateau Planning Area which was analyzed for ACEC designation in the Roan Plateau RMP. *The remaining BLM-owned, occupied habitat for DeBeque phacelia is included in the Mount Logan Foothills site which will be considered for ACEC designation
DeBeque milkvetch habitat plus 300 ft buffers	Plant	N/A	N/A	No	All known, occupied DeBeque milkvetch habitat within the GSFO lies within the Roan Plateau Planning Area which was already analyzed for ACEC designation. These areas will not be considered again in this RMP revision.
Utah fescue habitat plus 300 ft buffers	Plant	No	No	No	Utah fescue was formerly a BLM Sensitive plant but was dropped from the State Director's list because additional surveys found the species to be more abundant than originally thought and the species is currently considered to be biologically secure. This species does not meet the relevance criteria.
Wetherill's milkvetch habitat plus 300 ft buffers	Plant	No	No	No	Wetherill's milkvetch was formerly a BLM Sensitive plant but was dropped from the State Director's list because additional surveys found the species to be more abundant than originally thought and the species is currently considered to be biologically secure. This species does not meet the relevance criteria.
Sun-loving meadowrue habitat plus 300 ft	Plant	No	No	No	Sun-loving meadowrue is ranked G3/S3 by CNHP and is not currently a special status species. Within the GSFO, known

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
buffers					populations on BLM lands lie within the Roan Plateau Planning Area. This planning area will not be considered in this RMP revision.
<i>Sclerocactus glaucus</i> habitat plus 300 ft buffers *Included in the Mount Logan Foothills site	Plant	Criteria 3	Criteria 1 & 2	No*	Uinta Basin hookless cactus (<i>Sclerocactus glaucus</i>) habitat, also known as Colorado hookless cactus, meets the relevance criteria because the cactus is listed as a threatened plant species. Not all individual sites meet the importance criteria because not all are substantially significant. Some habitat is very degraded or supports very small numbers of cacti. *However, some sites with high population densities and/or good condition habitat will be considered for ACEC designation as part of the Mount Logan Foothills site.
BLM lands adjacent to USFS' Battlement Mesa Research Natural Area	Natural Systems	Criteria 3	No	No	The USFS' Lower Battlement Mesa 13,600 acre RNA provides a very good representation of pinyon-juniper woodlands, and Gambel oak and greasewood shrublands, which are all uncommon ecological types on the Forest. It also includes several rare plants species, including DeBeque phacelia. The adjoining BLM land does not meet the relevance and importance criteria because it is not in good ecological condition, with the possible exception of lower Bull Gulch in the Wallace Creek watershed. This area has some good Gambel oak stands, but is not unique or exemplary compared to other Gambel oak shrublands in the GSFO. The only special status plant known to occur on BLM within one mile of the Forest is the Rocky Mountain thistle (BLMS). This species is adapted to disturbed or barren areas and is not particularly fragile or vulnerable to adverse change. The site is not of more than local significance.
BLM lands adjacent to USFS' Assignment Creek Research Natural Area	Scenic, Geologic, Historic, Ecological	Criteria 1 & 3	Criteria 1 & 2	No*	The USFS' Assignment Creek proposed 4,000 acre RNA provides excellent representation for pinyon-juniper woodlands, Gambel oak shrublands, and a cottonwood riparian forest which are uncommon ecological types on the

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
* Included in the Thompson Creek ACEC which is being carried forward for analysis					Forest. These vegetation types also occur on the adjoining BLM lands, however, they do not meet the importance criteria because they are not unique or exemplary when compared to other plant communities of the same type. The BLM lands do contain high value scenic qualities, unique geologic fins and remnants of an old railroad that meet the relevance & importance criteria. *The BLM lands are currently designated as the Thompson Creek ACEC, and this ACEC is proposed for retention. No additional acres are proposed.

A. Kremmling Relevant and Important Criteria Determinations

Table 2 – Kremmling ACEC Determinations [Note: the shaded columns met the relevance and importance criteria and are being carried forward for analysis.]

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
The BLM Kremmling Field Office (KFO) existing and internally proposed ACEC					
North Park Natural Area (existing)	Plant - North Park Phacelia GIS1	Criteria 2	Criteria 1 & 2	Yes	This area meets the relevance criteria because it contains habitat for the endangered plant North Park Phacelia. It meets the importance criteria because it has a significant amount of the population which gives the area special worth (300 acres, merged with larger proposed North Park Natural Area ACEC below).
Kremmling Cretaceous Natural Area (existing)	Fossils-Late Cretaceous Paleontological site; Wildlife – Greater sage-grouse (BLMS)	Criteria 3	Criteria 1 & 2	Yes	Meets the relevance criteria for a natural process or system, and has significant cultural and scenic values. Meets the importance criteria as a World Class Paleontological Research and publicly interpreted visitation location. The Kremmling Cretaceous Ammonite Locality contains a unique and rich fossil assemblage of Giant Ammonites and other extinct species of marine fauna. On-going research by the University of South Florida has recently identified eighteen new species of extinct shell fish from this locality. The complex and complete geologic stratigraphy also allows the University to compare rapid evolutionary change evidenced in the fossils, with a rapidly changing environment, and to address environmental reconstruction issues. Geochemical data recovered from the fossils and from modern corals off the coast of Florida is also studied to help compare modern environmental change known as the “green house” effect with evidence from 72 million years ago to help answer questions regarding how much of the change can be attributed to natural cycles, and how much can be

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
					<p>attributed to man's exploitation of the natural resources, especially carbon fuels. The stratigraphy has also been used by the Scripps Institute to help date dinosaur fossils in Mongolia. A museum exhibit at the Denver Museum of History and Natural Science in 1997-1998 featured the Kremmling Giant Ammonites. The site has been featured in various professional American and European journals, avocational publications, geology books and the Washington Post. Visitors have come from many states and countries to visit this unique fossil location (160 acres).</p> <p>In addition, this area contains important core habitat for Greater sage-grouse, a BLM designated sensitive species.</p>
<p>The Colorado Natural Heritage Program (CNHP) nominated ten areas for ACEC designation. These areas each have some biological communities or species which are rare or of exemplary quality and are recommended as Potential Conservation Areas (PCAs) in CNHP's database. Each of the ten areas is evaluated below.</p> <p>[Note: see Appendix 2 for definitions of Natural Heritage Imperilment Ranks (i.e. G/S1), CNHP Element Occurrence Ranks and their Definitions (i.e. A or B), and Natural Heritage Program Biological Diversity Ranks and their Definitions (i.e. B1).]</p>					
Case Reservoir Bluffs PCA (B2 – Very High Biodiversity Significance)	Plant - North Park Phacelia G1S1	Criteria 2	None	No	The site meets the relevance criteria because it supports several small occurrences of North Park Phacelia. The area does not meet the importance criteria because it is not an exemplary occurrence (it is a C-ranked occurrence), it is not of substantial significance when compared to other North Park Phacelia sites, and it represents a very small percentage of the total population.
Chalk Bluffs PCA (B3 – High Biodiversity Significance)	Plant – Dropleaf wild buckwheat G3S2 and Oregon bitterroot G5S2	Criteria 2	None	No	The site meets the relevance criteria because it supports two state rare (S2) plant species ranked as excellent (A-ranked) and good (B-ranked) occurrences. The site does not meet the importance criteria because it is not more than locally significant, it does not have qualities which give it substantial value, and neither species is BLM sensitive.

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
Kremmling PCA (B1 – Outstanding Biodiversity Significance)	Plant - Osterhout milkvetch G1S1; Wildlife – Greater sage-grouse (BLMS)	Criteria 2	Criteria 1 & 2	Yes, modified boundary	This area meets the relevance criteria because it contains habitat for the endangered plant Osterhout milkvetch. It meets the importance criteria because it has a significant amount of the population which gives the area special worth. In addition, this area contains important core habitat for Greater sage-grouse, a BLM designated sensitive species (1,548 acres recommended; BLM proposes 636 acres for analysis).
Laramie River PCA (B1)* <i>*Renamed from “Laramie River Valley Shale Outcrops” because it includes acres outside the proposed boundary</i>	Plant – North Park Phacelia G1S1 Dropleaf wild buckwheat G3S2, Larchleaf beardtongue G4T3Q/S2 Ward’s goldenweed G3S1	Criteria 2	Criteria 1 & 2	Yes, modified boundary	This area meets the relevance criteria because it contains habitat for the endangered plant North Park Phacelia. It meets the importance criteria because it has several rare species that gives the area special worth. In addition, this area supports the only population of North Park Phacelia found outside of Jackson County (1,783 acres proposed for analysis (includes acres in the Lower Laramie River PCA)).
Lawson Butte PCA (B3)	Plant-- Nuttalls desert parsley G3/S1	None	None	No	The site meets the relevance criteria because it supports one B-ranked occurrences of Nuttall’s desert-parsley . The area does not meet the importance criteria because it is not of substantial significance or value when compared to other sites with Nuttall’s desert-parsley. In addition, this area has few acres and represents a small percentage of the total population and habitat.
North Park Natural Area PCA (B1)	Plant - North Park Phacelia (<i>Phacelia formosula</i>) G1S1 and other rare plant species Wildlife – Greater sage-grouse (BLMS)	Criteria 2	Criteria 1 & 2	Yes, modified boundary	This area meets the relevance criteria because it contains habitat for the endangered plant North Park Phacelia. It meets the importance criteria because it has a significant amount of the population which gives the area special worth. In addition, this area contains several Greater sage-grouse leks and important core habitat for this species (8,440 acres recommended; BLM propose 4,443 acres for analysis, includes existing 300 acre North Park Phacelia ACEC).

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
North Sand Dunes PCA (B1)	Plant - Boat-shaped bugseed (<i>Corispermum navicula</i>) G1?S1	Criteria 2	Criteria 1 & 2	Yes, modified boundary	This area meets the relevance criteria because it contains habitat for the rare plant Boat-shaped bugseed. It meets the importance criteria because it has a significant amount of the population which gives the area special worth and is currently the only area where this plant is found (380 acres recommended; BLM proposes 91 acres for analysis).
Rock Creek PCA (B1)	Plant - Osterhout milkvetch G1S1, Nuttall's desert-parsley G3S1, and other rare plant species	None	None	No	The site meets the relevance criteria because it supports several small A-ranked occurrences of Osterhout milkvetch and Nuttall's desert-parsley . The area does not meet the importance criteria because it is not of substantial significance or value when compared to other sites with Osterhout milkvetch and Nuttall's desert-parsley. In addition, this area has few plants and represents a very small percentage of the total population.
Troublesome Creek PCA (B1)	Plant – Penland's beardtongue G1S1, Osterhout milkvetch G1S1, and Nuttalls desert parsley G3/S1 Wildlife – Greater sage-grouse (BLMS)	Criteria 2	Criteria 1 & 2	Yes, modified boundary	This area meets the relevance criteria because it contains habitat for two endangered plants. It meets the importance criteria because it has three rare species that gives the area special worth and is the only area where Penland beardtongue occurs. In addition, this area contains important brood-rearing and winter habitat for Greater sage-grouse, a BLM designated sensitive species (1,243 acres recommended; BLM proposes 974 acres for analysis).
Upper Troublesome Creek PCA (B2)	Plant communities- -Drummond's willow / water sedge (G2G3/S2), American mannagrass	Criteria 2	None	No	The site meets the relevance criteria because it supports several state rare plant communities ranked as a good (B-ranked) occurrences. The area does not meet the importance criteria because it is not of substantial significance or value and not more than locally significant.

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
	community (G5/S2), and other G3/S3 communities.				
<p>The Center for Native Ecosystems (CNE) nominated numerous potential ACECs. Included on their list were all 159 of the Potential Conservation Areas (PCAs) identified by CNHP for the KFO. Of these, only 35 are within BLM lands. The KFO Interdisciplinary Team analyzed each site individually. Of these 35 sites, 5 were eliminated from further consideration because the value(s) in question were not located on BLM lands and 10 were dropped from further consideration because they did not meet any of the relevance or importance criteria.</p> <p>Ten of the PCAs were also recommended by CNHP. These are analyzed above. The remaining 10 PCAs appear to meet the relevance and/or importance definition and criteria because the sites contain known occurrences or suitable habitat for federally listed or BLM Sensitive plants or animals or a significant plant community. The values in these 10 PCAs and the need for special management attention are analyzed below:</p>					
Chimney Rock PCA (B3)	Plant/wildlife— Larch leaf beardtongue G4T3Q/S2, Greater sandhill Crane G5S2 (not recorded on BLM)	Criteria 2	None	No	The site meets the relevance criteria because it supports an A-ranked (excellent) occurrence of a globally vulnerable (G4T2Q/S2) subspecies of larch-leaf beardtongue (<i>Penstemon laricifolius ssp. exilifolius</i>). However, it does not meet the importance criteria because the PCA, as mapped by CNHP, contains only one occurrence of larch-leaf beardtongue and most of the PCA and species occurrences are on private and USFS lands. The occurrence on BLM is not exemplary or of special worth or consequence relative to other larch-leaf beardtongue populations or habitat. In addition the larch-leaf beardtongue is not BLM sensitive.
Colorado River Radium to Red Dirt Creek PCA (B3)	Plant Community Multiple species including Harrington's Beardtongue G3S3, Many-stem Stickleaf G3S3, Riparian Shrubland G4S2,	Criteria 2 & 3	None	No	The site meets the relevance criteria because it supports one small AB-ranked occurrences of Harrington's beardtongue and two occurrences of a B-ranked G4S2 plant community. The site does not meet the importance criteria because it is only locally significant and does not have qualities which give it special worth compared to other Harrington's beardtongue and Riparian Shrubland sites. The site is not particularly unique and is not considered essential for the long-term protection and maintenance of this species/community.
Horse Gulch PCA	Plant—	Criteria 2	None	No	The site meets the relevance criteria because it supports a

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
(B1)	Osterhout milkvetch G1S1				small A-ranked population of the endangered species Osterhout milkvetch. However, it does not meet the importance criteria because it is not unique or have substantial significance compared to other areas where the population occurs. This area has few plants and represents a small percentage of the total population.
Little Hohnholz Lake PCA (B3)	Pale blue-eyed grass (G2G3/S2S3) alkaline spring wetlands (GUS2), Larchleaf beardtongue G4T3Q/S2, Dropleaf wild buckwheat G3S2.	Criteria 2 & 3	None	No	The site meets the relevance criteria because it supports the BLM sensitive species Pale blue-eyed grass, several state rare plants, and one plant community. However both the Pale blue-eyed grass and plant community are C-ranked occurrences and do not meet the importance criteria. In addition the Larchleaf beardtongue and Dropleaf wild buckwheat are not BLM sensitive and neither occurrence is exemplary or of substantial significance relative to other populations or habitat.
Lower Laramie River Valley PCA (B3) <i>**This area has been combined with the Laramie River PCA.</i>	Plant-- Larchleaf beardtongue G4T3Q/S2,	Criteria 2	Criteria 1 & 2	Yes, modified boundary	The site meets the relevance criteria because it supports an A-ranked (excellent) occurrence of a globally vulnerable (G4T2Q/S2) subspecies of larch-leaf beardtongue. It meets the importance criteria because the occurrence on BLM is exemplary and significant due to a high concentration of individuals that represent a considerable percentage of the total population (15,562 acres recommended; BLM proposes 800 acres for analysis).
Miller Gulch PCA (B3)	Mixed Mountain shrubland (G2G3/S2S3), little green sedge (G5/S1). Harrington beardtongue (G3/S3)	Criteria 2 & 3	None	No	The site meets the relevance criteria because it supports the BLM sensitive species little green sedge and Harrington beardtongue as well as one G2G3/S2S3 plant community. However, the Harrington beardtongue are small, C-ranked occurrences and do not meet the importance criteria. In addition the little green sedge and Mixed Mountain shrubland (both B-ranked) are small areas and not exemplary or of substantial significance to meet the importance criteria.
Sheephorn Creek at	Harrington	Criteria 2	None	No	The site meets the relevance criteria because it supports

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
Radium PCA (B3)	beardtongue (G3/S3)				several small AB-ranked occurrences of Harrington's beardtongue. The site does not meet the importance criteria because it is not more than locally significant and does not have qualities which give it special worth compared to other Harrington's beardtongue sites. The site is not particularly unique and is not considered essential for the long-term protection and maintenance of this species.
West Slope of Junction Butte PCA (B3)	plant community-- Utah serviceberry / bluebunch wheatgrass shrubland G2G3/S2S3	Criteria 3	None	No	The site meets the relevance criteria because it supports a globally and state vulnerable (G2G3/S2S3) plant community ranked as a good (B-ranked) occurrence. The area does not meet the importance criteria because it is not of substantial significance when compared to other plant communities of the same type.
Willow Creek Pass PCA (B3)	Plant communities-- - <i>Artemisia cana</i> ssp. <i>viscidula</i> / <i>Festuca thurberi</i> (G2G3/S2S3) and three G3 riparian plant communities.	Criteria 3	None	No	The site meets the relevance criteria because it supports a globally and state vulnerable (G2G3/S2S3) plant community ranked as a good (B-ranked) occurrence. The area does not meet the importance criteria because it is not substantially significant when compared to other plant communities of the same type, and the majority of the site and values are on USFS lands.
Yarmony Creek PCA (B3)	Montane Riparian Forest G2G3/S2	Criteria 3	None	No	This area satisfies the relevance criteria because it contains a globally rare (G2G3/S2) plant community. The area does not meet the importance criteria because the community is not an exemplary occurrence (it is a C-ranked occurrence), it is not substantially significant when compared to other plant communities of the same type, and the majority of the site is in private surface ownership.
Colorado River cutthroat trout conservation populations, including	Fish	Criteria 2, 3	Criteria 1 & 2	Yes	This ACEC meets the relevance criteria for wildlife resources (BLM 1613.1.11.A(2) & (3)), as Kinney Creek contains a genetically pure population of native, wild, naturally reproducing Colorado River cutthroat trout, that

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
the Kinney Creek population					<p>have been identified as a Core Conservation Population in the <i>Conservation Agreement and Strategy for Colorado River Cutthroat Trout, in the States of Colorado, Utah, and Wyoming</i> (June 2006). In addition, the watershed in which these fish live supports vital ecosystem processes and maintains crucial habitats important for the long-term survival of this fish species.</p> <p>Kinney Creek also satisfies the importance criteria (BLM 1613.1.11.B (1) & (2)) since this stream is a regionally important producer of genetically pure and naturally reproducing Colorado River cutthroat trout. Core Conservation populations are important in the overall conservation of the species and are given the highest priority for management and protection. Given the genetic purity of these fish, the population is unique and irreplaceable.</p> <p>The other Colorado River cutthroat trout Core Conservation population in the KFO is Antelope Creek. However, data collected from 2006 and 2007 indicates there are no cutthroat trout on BLM or directly upstream, therefore Antelope Creek will not be proposed as an ACEC (588 acres proposed for analysis (no acres or boundary included in the proposal)).</p>
Identified lynx habitat, including Forest Service mapped habitat on BLM lands in the following Lynx Analysis Units: Fraser and Williams Fork	Wildlife	Criteria 2	None	No	These sites meet the relevance criteria because they contain habitat for the threatened species Canada Lynx. However, these areas do not meet the importance criteria because BLM habitat within these LAUs is marginal and not unique compared to other habitat containing the species. In addition, very few acres within these LAUs are BLM.
Greater sage-grouse production and brood-	Wildlife	Criteria 2	None	No	These areas meet the relevance criteria because they contain habitat for the BLM sensitive species Greater sage-grouse.

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
rearing habitat, including all leks plus 5.5 km buffers					However they do not meet the importance criteria because these areas are not unique or more than locally significant compared to other habitat within the range of the species. In addition several recommended ACECs contain important habitat for Greater sage-grouse (North Park Natural Area, Kremmling, Troublesome, and the Cretaceous Natural Area)
Osterhout milkvetch habitat plus 300 ft. buffers	Plant	Criteria 2	None	No	These areas meet the relevance criteria because they contain habitat for the endangered plant Osterhout milkvetch. However, they do not meet the importance criteria because not all sites are substantially significant. Some habitat with high population densities will be proposed for ACEC designation (see Troublesome Creek PCA and Kremmling PCA)
Penland beardtongue habitat plus 300 ft. buffers	Plant	N/A	N/A	No	This area encompasses the Troublesome Creek PCA which is already being carried forward for analysis.
North Park Phacelia habitat plus 300 ft. buffers	Plant	Criteria 2	None	No	These areas meet the relevance criteria because they contain habitat for the endangered plant North Park Phacelia. However, they do not meet the importance criteria because not all sites are substantially significant. Some habitat with high population densities will be proposed for ACEC designation (see the North Park Natural Area PCA and the Laramie River Valley Shale Outcrops PCA)
Larch-leaf beardtongue (Penstemon laricifolius ssp. exilifolius) habitat plus 300 ft. buffers	Plant	Criteria 2	None	No	These areas meet the relevance criteria because they contain habitat for the state rare species Larch-leaf beardtongue. However, they do not meet the importance criteria because not all sites are significant or have special worth. Some habitat with high population densities will be proposed for ACEC designation (see the Lower Laramie River Valley PCA).
Crescent bugseed (Corispermum	Plant	Criteria 2	None	No	These areas meet the relevance criteria because they contain habitat for the G1S1 species Crescent bugseed. However,

Existing or Proposed ACECs	Values Assessed	Relevance Criteria (Resources)	Importance Criteria	Carried forward for Analysis	Comments
navicula) habitat plus 300 ft. buffers (plus additional buffering from ORV use if necessary)					they do not meet the importance criteria because not all sites are significant or have special worth. Some habitat with high population densities will be proposed for ACEC designation (see the North Sand Dunes PCA which is being carried forward for analysis).
CNHP North Platte NCA	Plant—NP Phacelia	Criteria 2	None	No	This area meets the relevance criteria because it contains habitat for the endangered plant North Park Phacelia. However, it does not meet the importance criteria because not all sites are substantially significant. Some habitat with high population densities will be proposed for ACEC designation (see the North Park Natural Area PCA and the Laramie River Valley Shale Outcrops PCA)

V. List of Preparers

Name	Title	Field Office
Kay Hopkins	Outdoor Recreation Planner	Glenwood Springs Field Office (GSFO)
Carla DeYoung	Ecologist	GSFO
Desa Ausmus	Wildlife Biologist	GSFO
Tom Fresques	Fisheries Biologist	GSFO - Zone
Jeffrey O'Connell	Hydrologist	Glenwood Springs Energy Office
Cheryl Harrison	Archeologist	GSFO
Joe Stout	Planning and Environmental Coordinator	Kremmling Field Office (KFO)
Megan McGuire	Wildlife Biologist	KFO
Charles Cesar	Wildlife Biologist	KFO
Frank Rupp	Archeologist	KFO
John Morrone	Geologist	Colorado State Office (CSO)

Appendix 1 – References

- CRCT Conservation Team. 2006. Conservation agreement for Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) in the States of Colorado, Utah, and Wyoming. Colorado Division of Wildlife, Fort Collins. 10p.
- CRCT Coordination Team. 2006. Conservation strategy for Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*) in the States of Colorado, Utah, and Wyoming. Colorado Division of Wildlife, Fort Collins. 24p.
- Chronic, Halka and Felicie Williams. 2002. Roadside Geology of Colorado. 400 pages.
- Taylor, Andrew M. 1999. Guide to the Geology of Colorado. 222 pages.
- US DOI Bureau of Land Management. 1989. Faults, Fossils, and Canyons: *Significant Geologic Features on Public Lands in Colorado*. BLM Colorado State Office Geologic Advisory Group. Cultural Resource Series No. 25. Edited by David W. Kuntz, Harley J. Armstrong, and Frederic J. Athearn. 63 pages.
- Walker, T.R. and J.C. Harms. 1991. The Minturn Formation near McCoy, Colorado. In: Sutter, L.J., ed., Guidebook for field study of Pennsylvanian coarse-grained delta deposits in the vicinity of Manitou Springs and McCoy, Colorado, Rocky Mountain Section, SEPM field conference guidebook, p. 37-59.

Appendix 2 - Natural Heritage Program Definitions

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#? 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#T#: Trinomial rank (T) is used for subspecies or varieties. These taxa are ranked on the same criteria as G1-G5.

S?: Unranked. Some evidence that species may be imperiled, but awaiting formal rarity ranking.

[Note: Where two numbers appear in a state or global rank (for example, S2S3), the actual rank of the element is uncertain, but falls within the stated range.]

CNHP Element Occurrence Ranks and their Definitions:

A Excellent viability.

B Good viability

C Fair viability.

D Poor viability.

Natural Heritage Program Biological Diversity Ranks and their Definitions:

B1 Outstanding Significance (indispensable):

only known occurrence of an element

A-ranked occurrence of a G1 element (or at least C-ranked if best available occurrence)

Concentration of A- or B-ranked occurrences of G1 or G2 elements (four or more)

B2 Very High Significance:

B- or C-ranked occurrence of a G1 element

A- or B-ranked occurrence of a G2 element

One of the most outstanding (for example, among the five best) occurrences rangewide (at least A- or B-ranked) of a G3 element.

Concentration of A- or B-ranked G3 elements (four or more)

Concentration of C-ranked G2 elements (four or more)

B3 High Significance:

C-ranked occurrence of a G2 element

A- or B-ranked occurrence of a G3 element

D-ranked occurrence of a G1 element (if best available occurrence)

Up to five of the best occurrences of a G4 or G5 community (at least A- or B-ranked) in an ecoregion (requires consultation with other experts)

B4 Moderate Significance:

Other A- or B-ranked occurrences of a G4 or G5 community

C-ranked occurrence of a G3 element

A- or B-ranked occurrence of a G4 or G5 S1 species (or at least C-ranked if it is the only state, provincial, national, or ecoregional occurrence)

Concentration of A- or B-ranked occurrences of G4 or G5 N1-N2, S1-S2 elements (four or more)

D-ranked occurrence of a G2 element

At least C-ranked occurrence of a disjunct G4 or G5 element

Concentration of excellent or good occurrences (A- or B-ranked) of G4 S1 or G5 S1 elements (four or more)

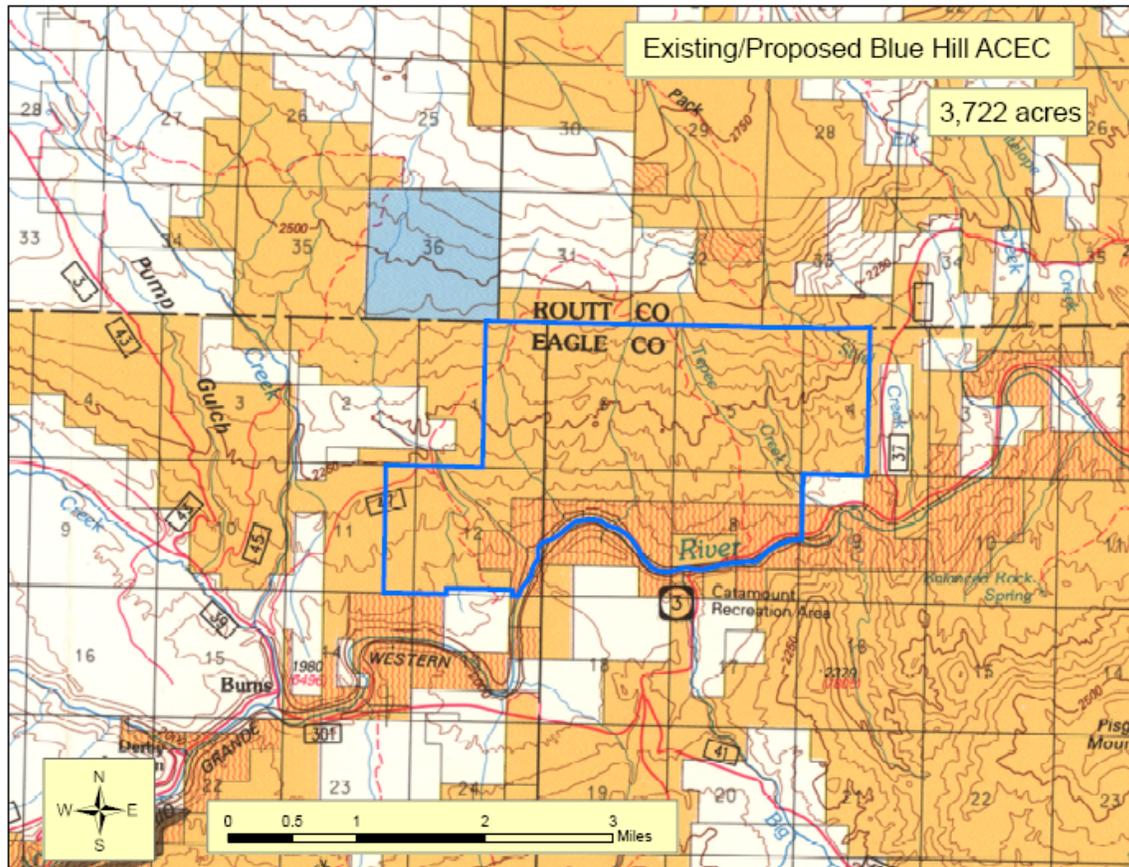
B5

General or State-wide Biological Diversity Significance: good or marginal occurrence of common community types and globally secure S1 or S2 species.

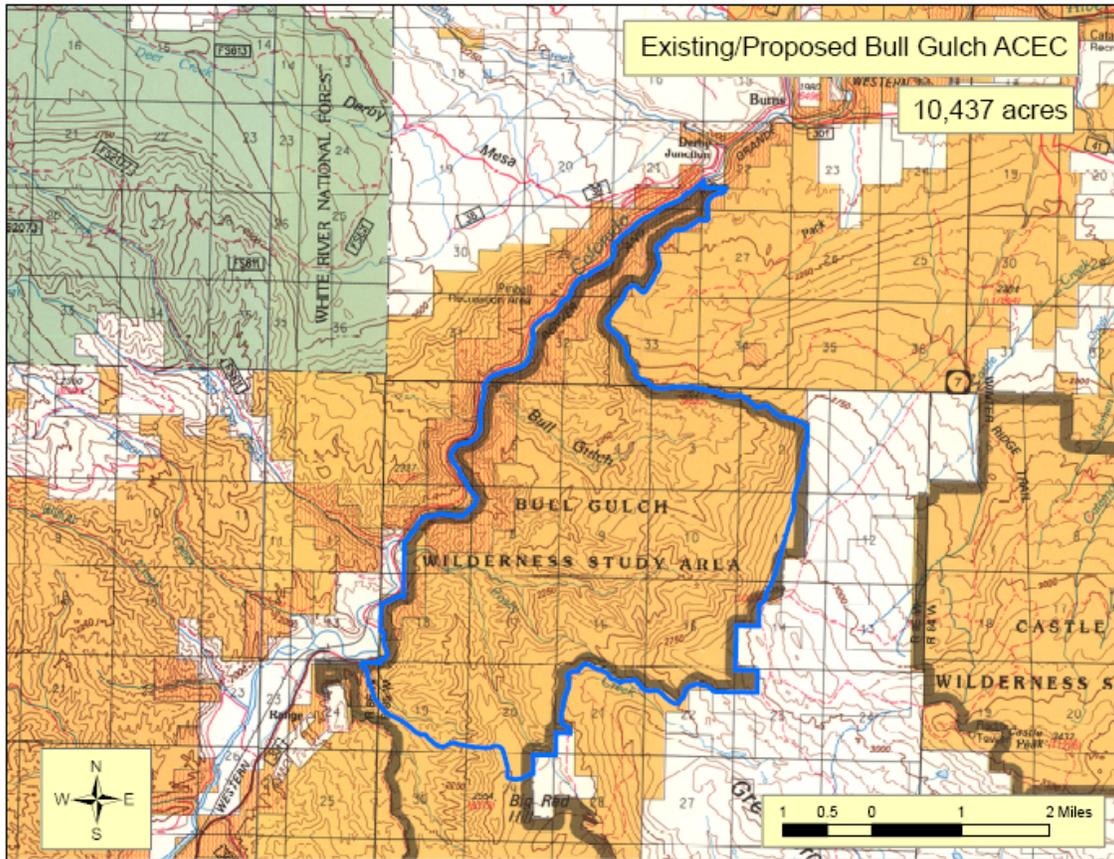
Appendix 3 – ACEC maps

Glenwood Springs Field Office Maps:

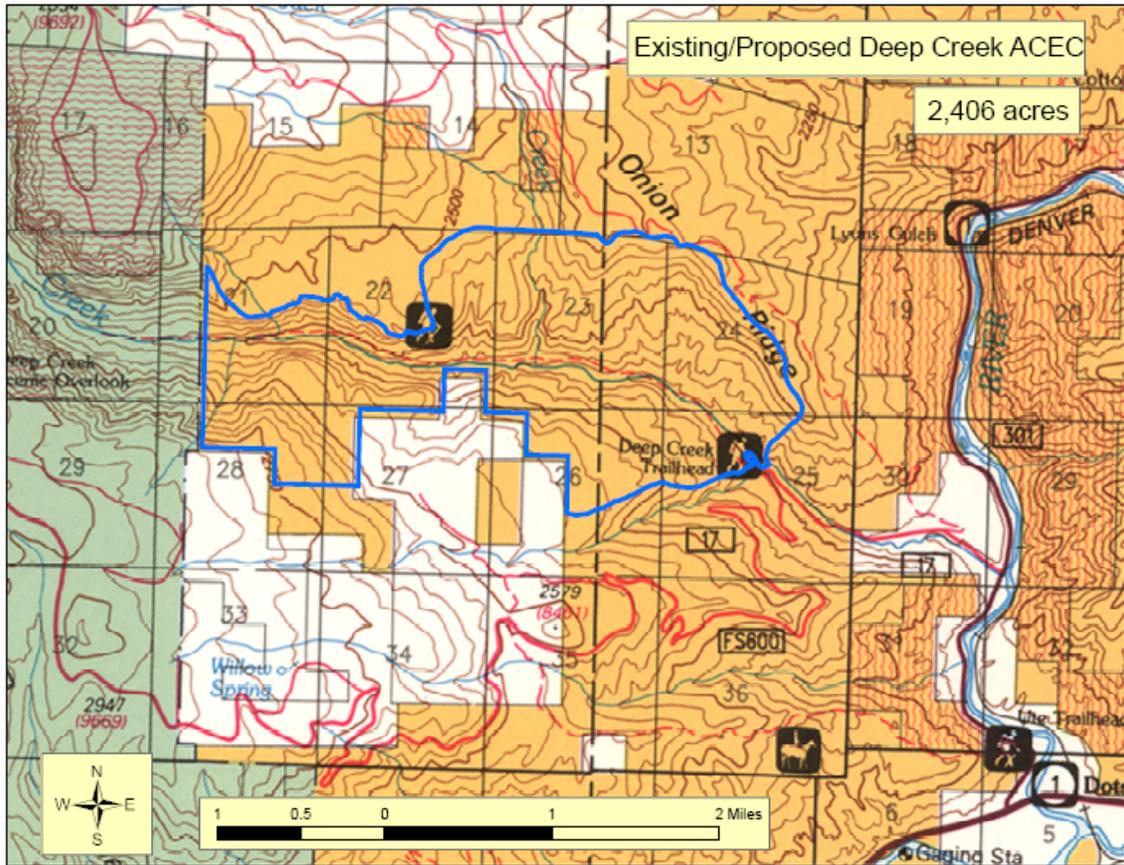
Blue Hill ACEC



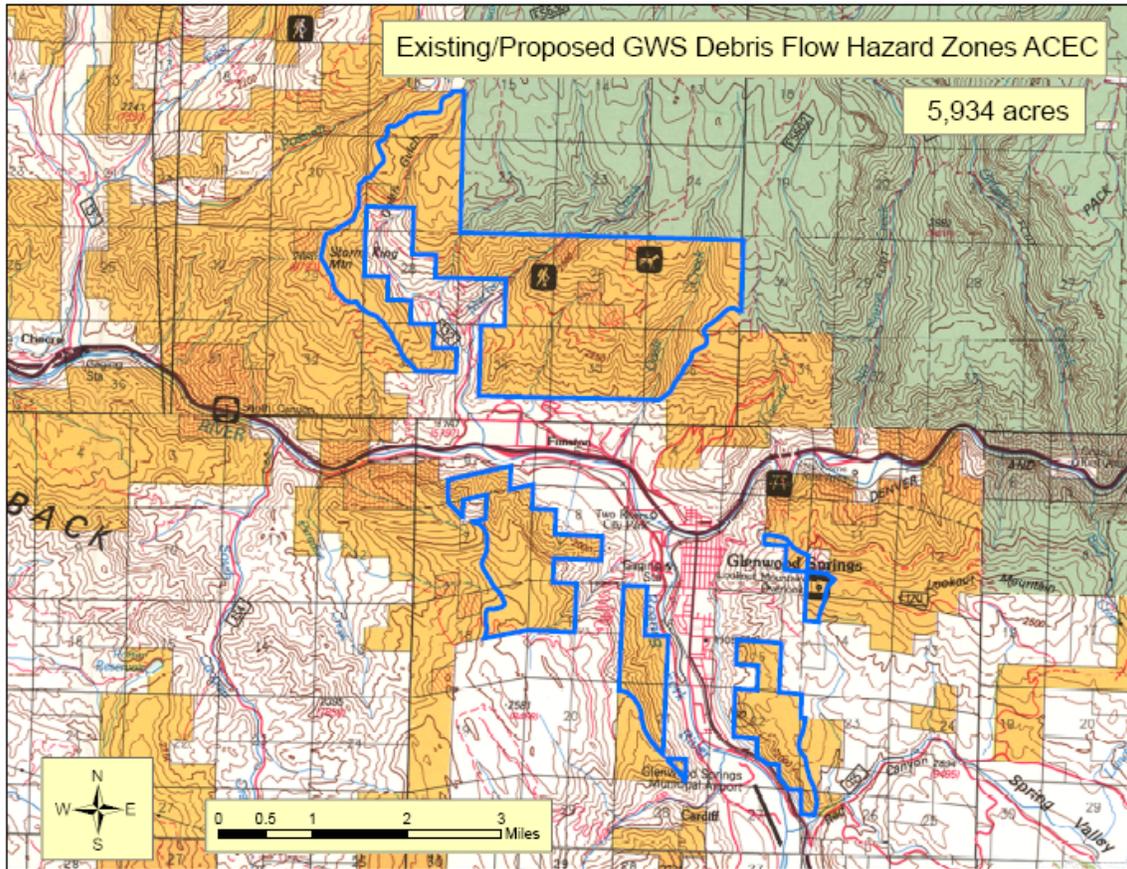
Bull Gulch



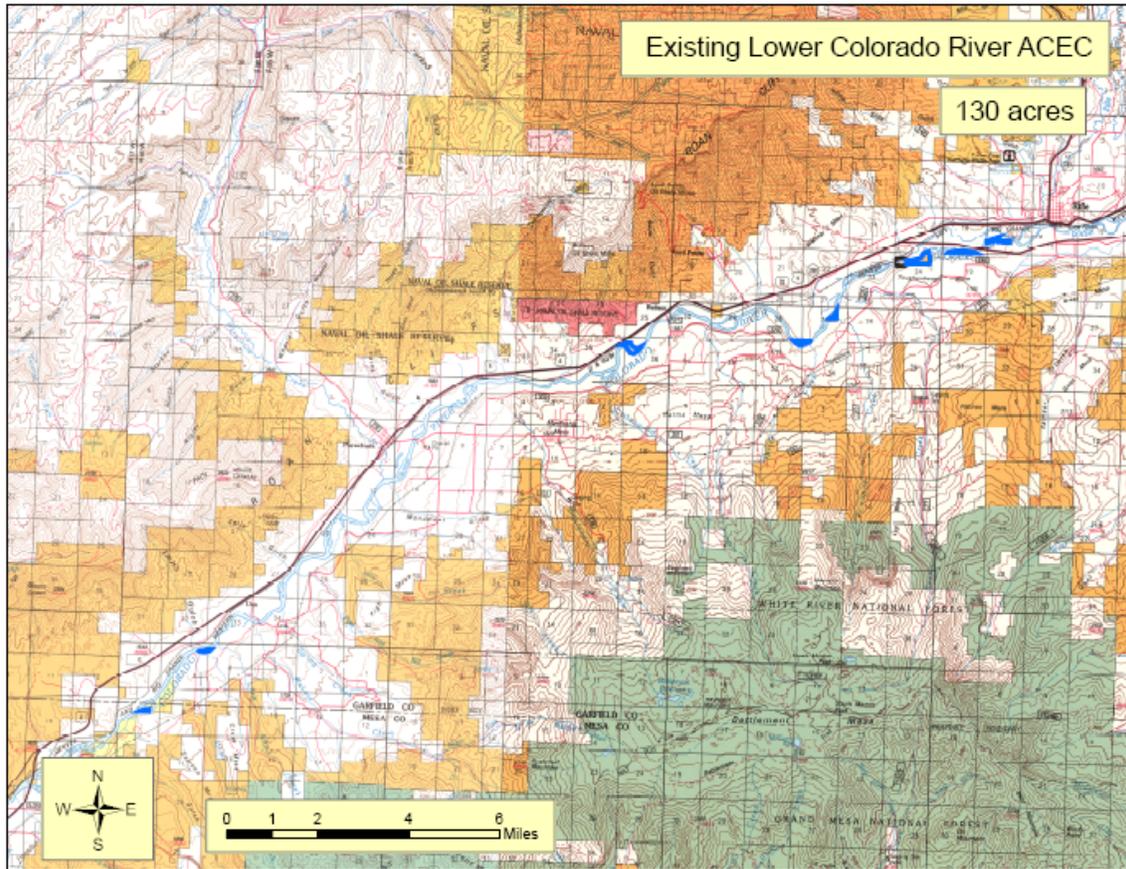
Deep Creek



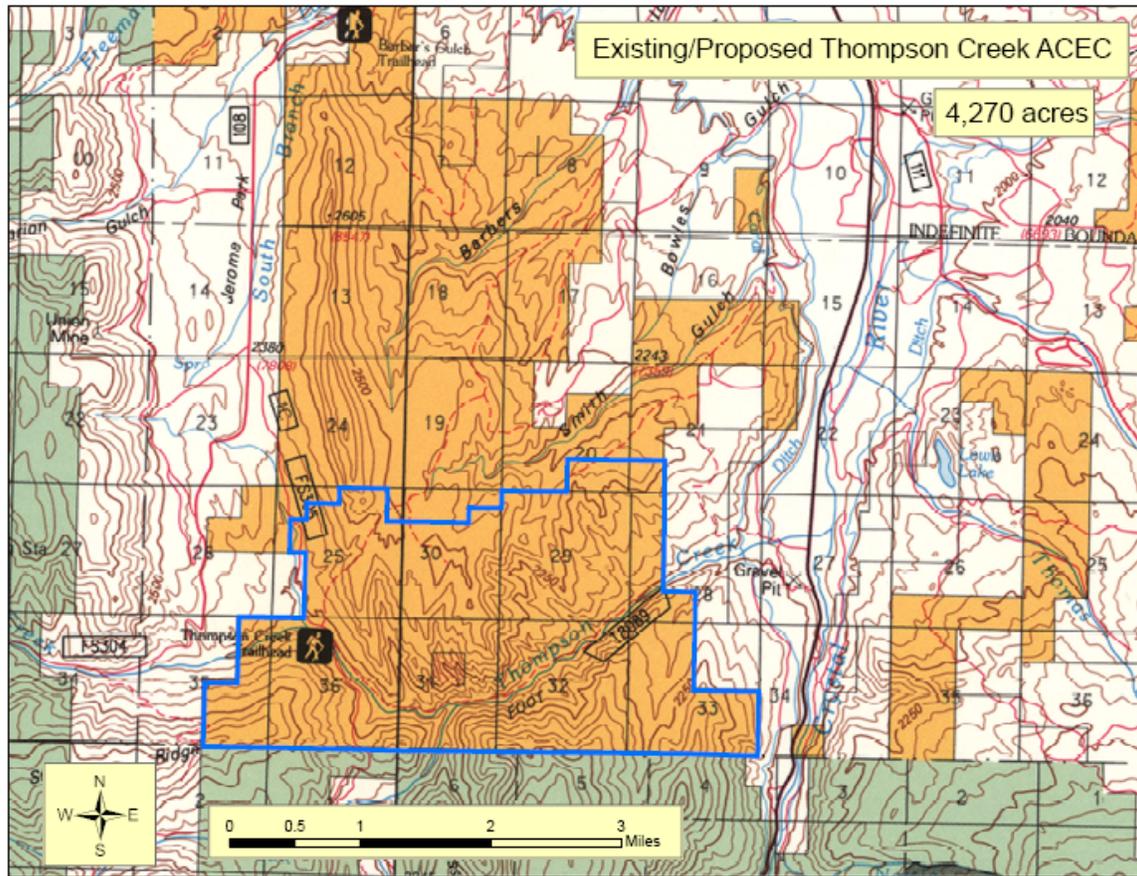
Glenwood Springs Debris Flow Hazard ACEC/Mitchell Creek



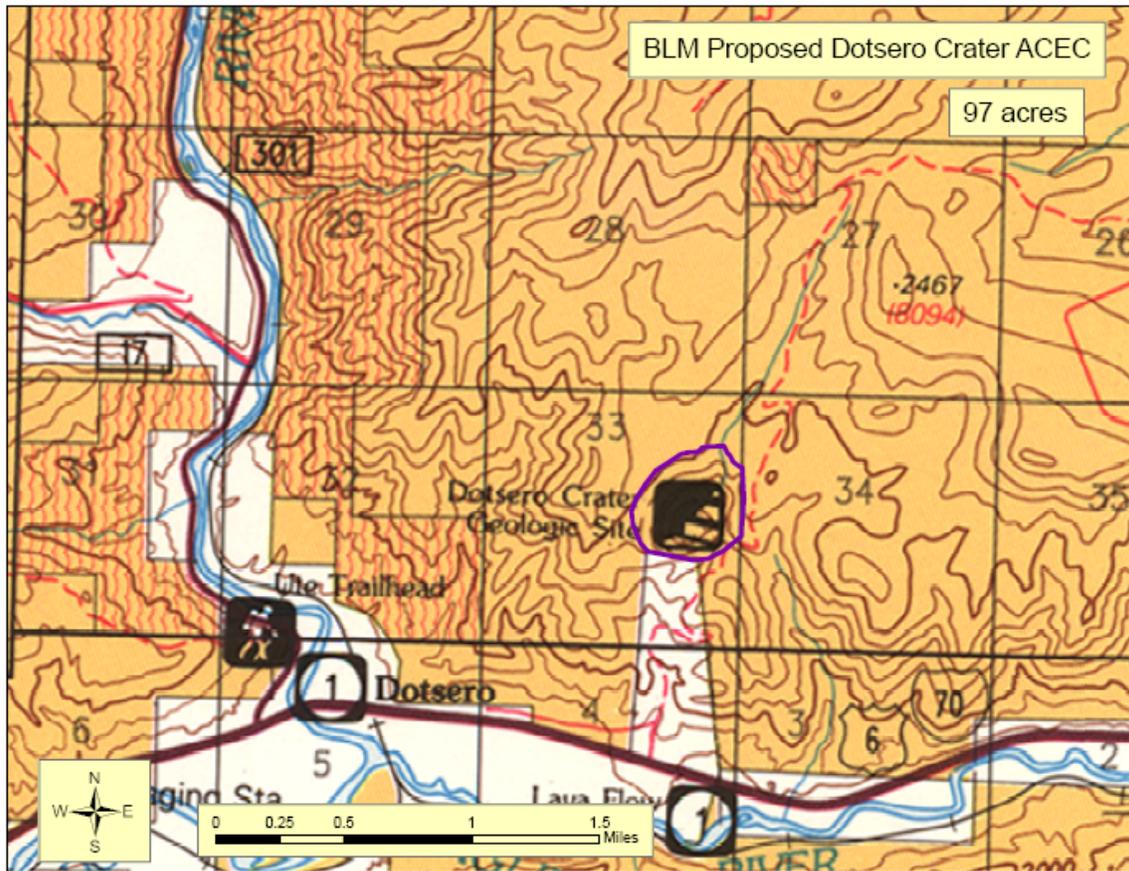
Lower Colorado River



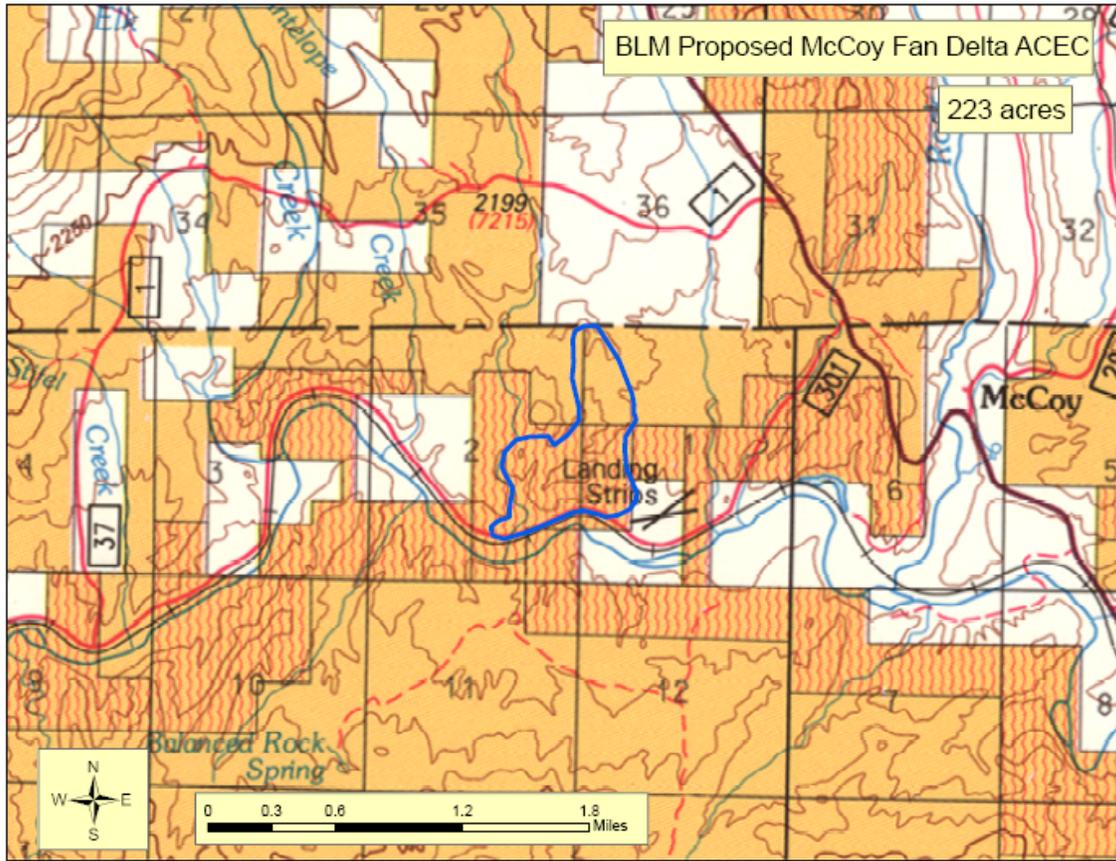
Thompson Creek



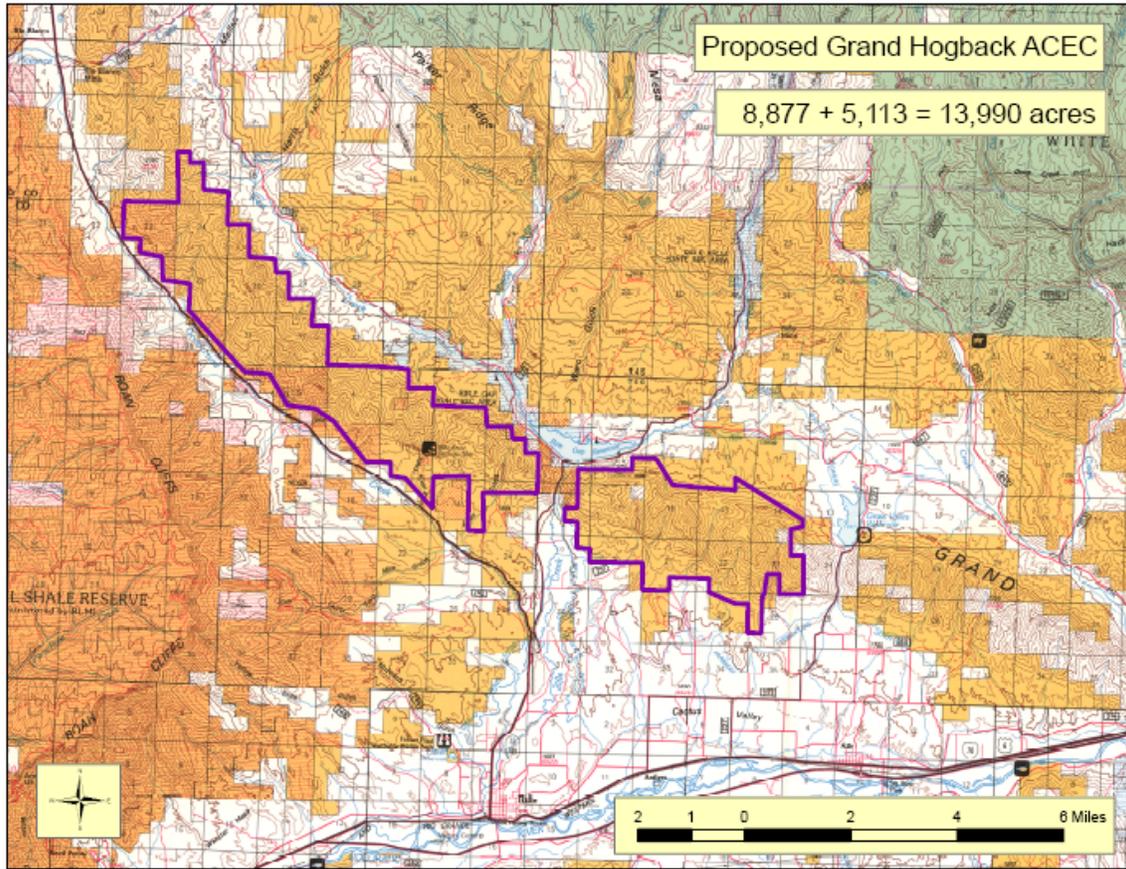
Dotsero Crater



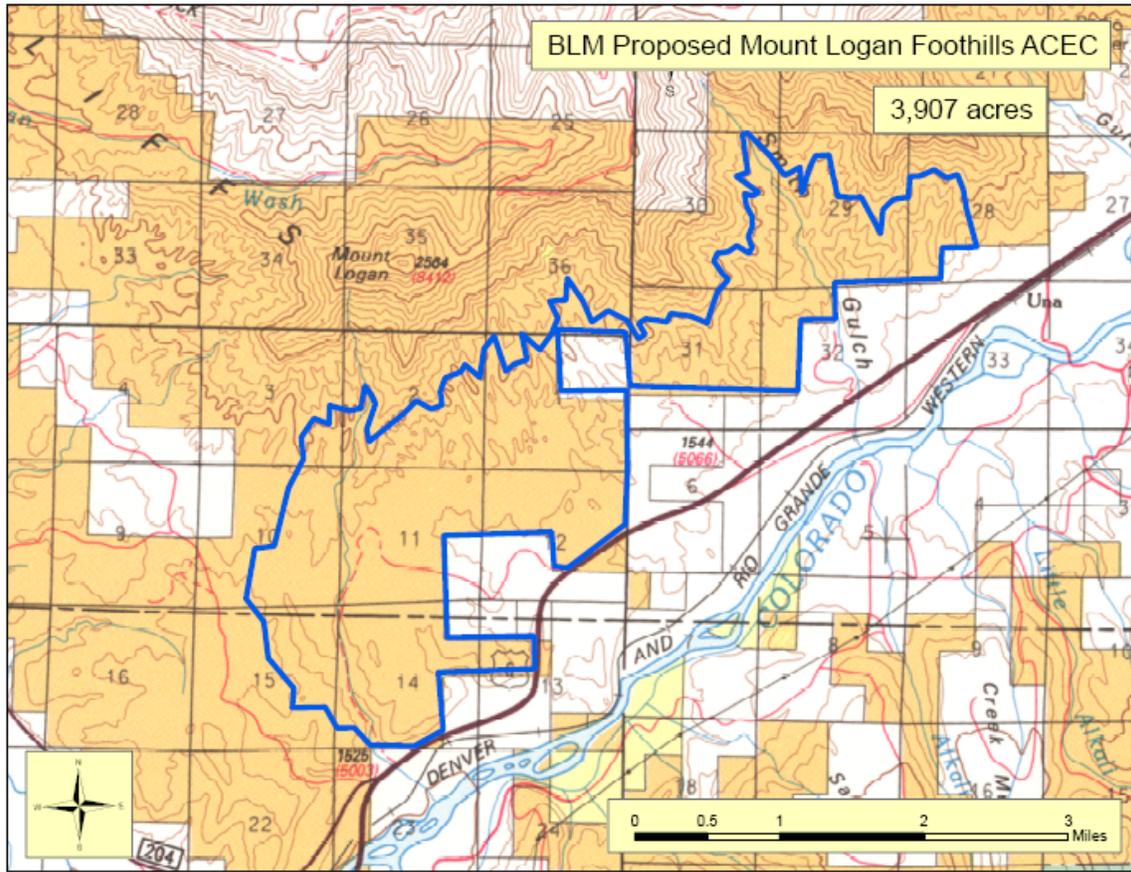
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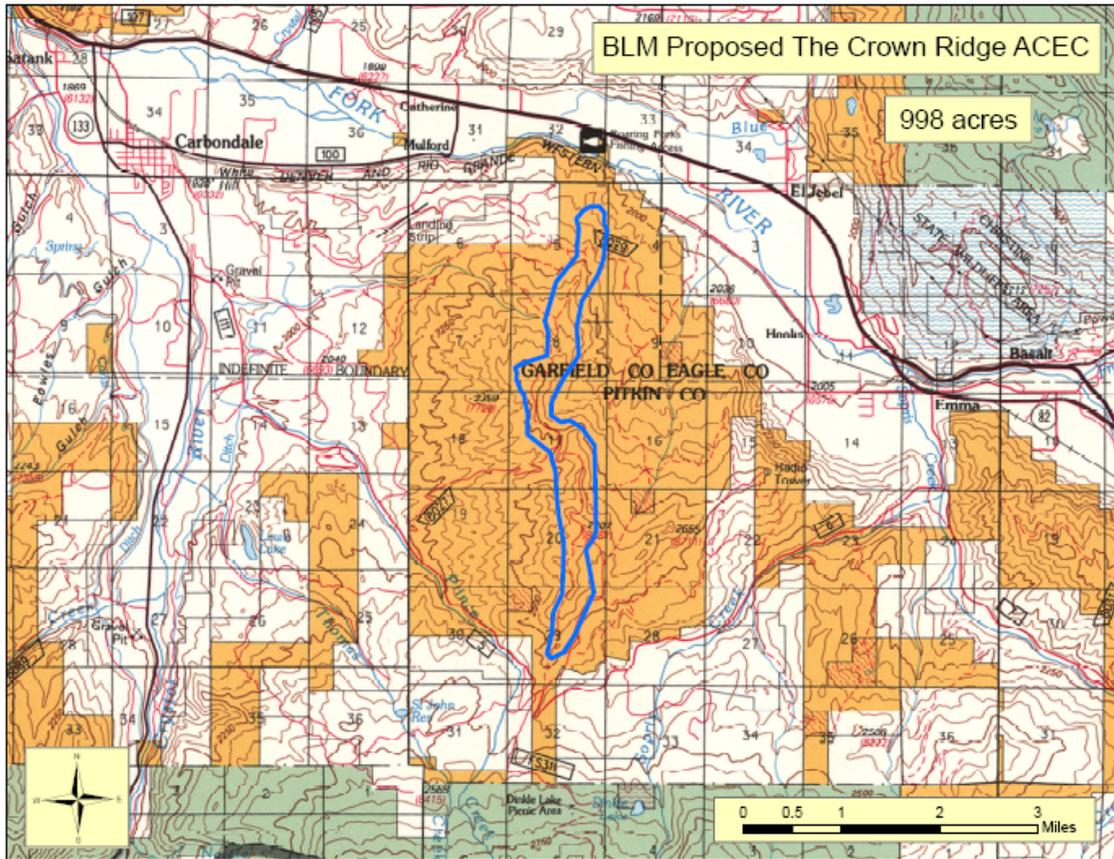
Grand Hogback



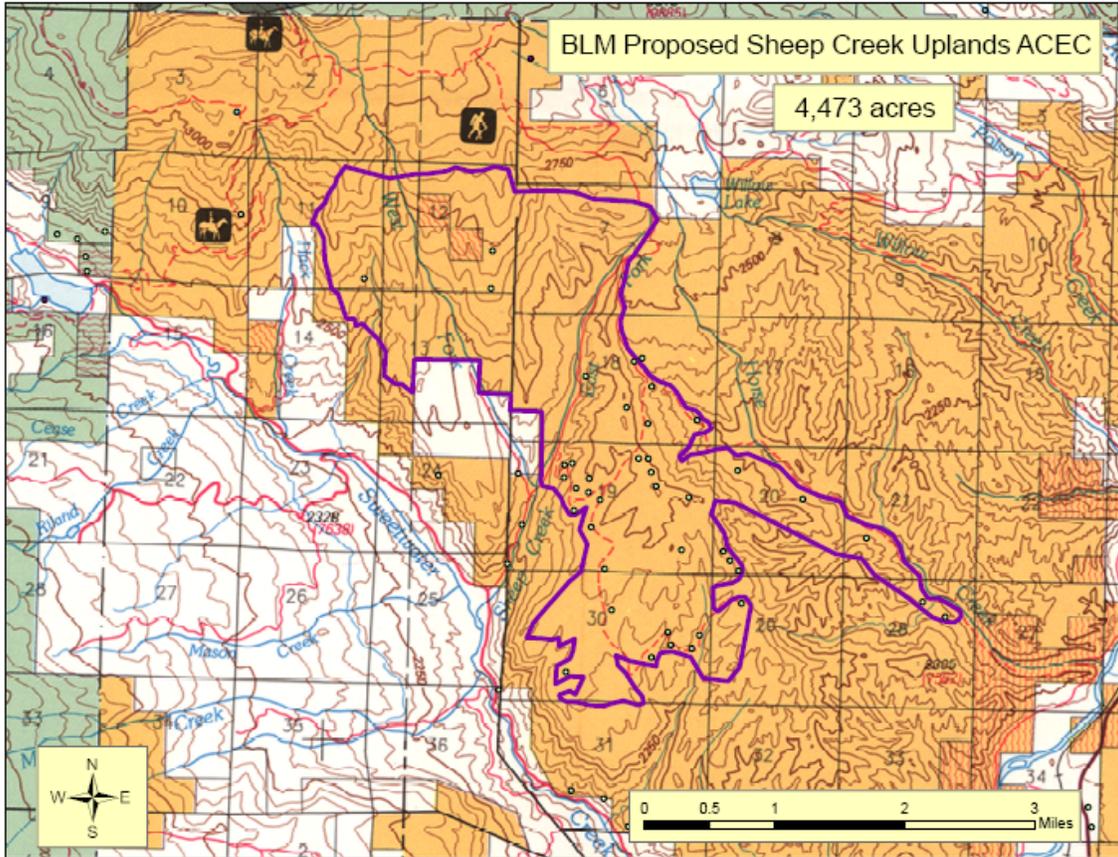
Mount Logan Foothills PCA



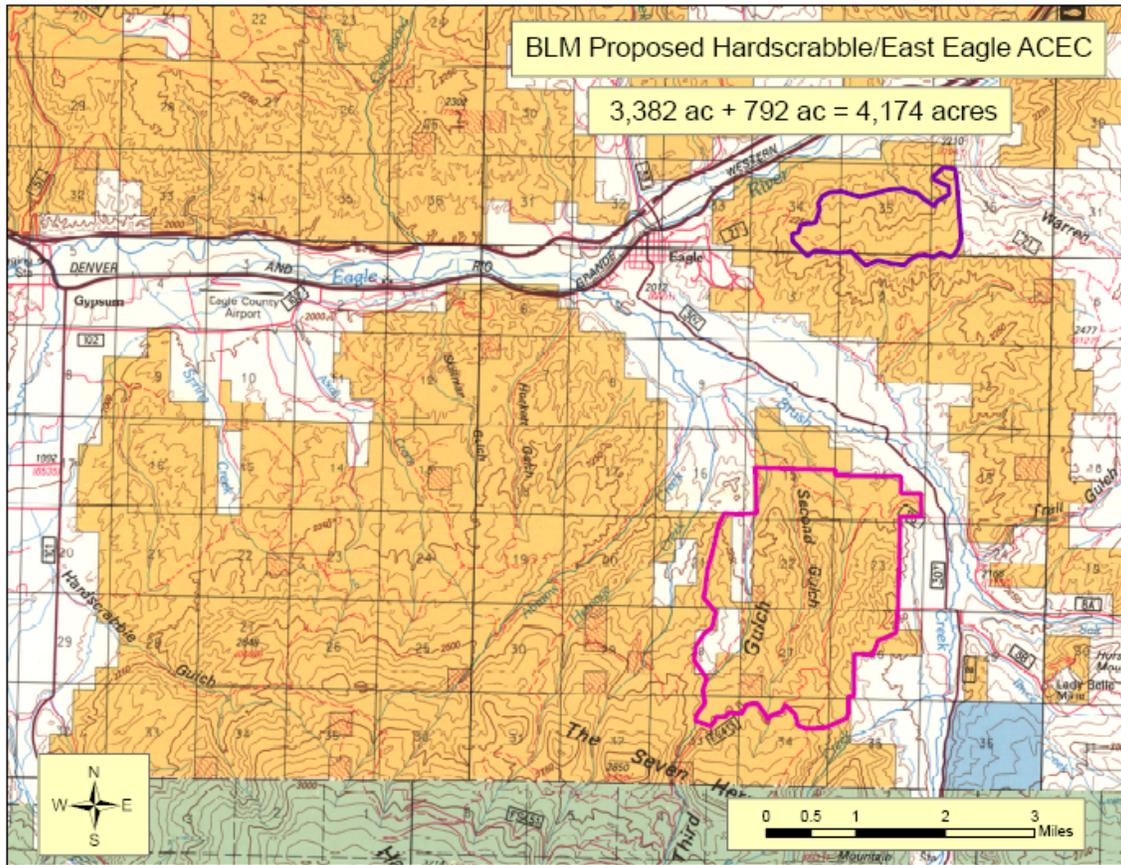
The Crown Ridge PCA



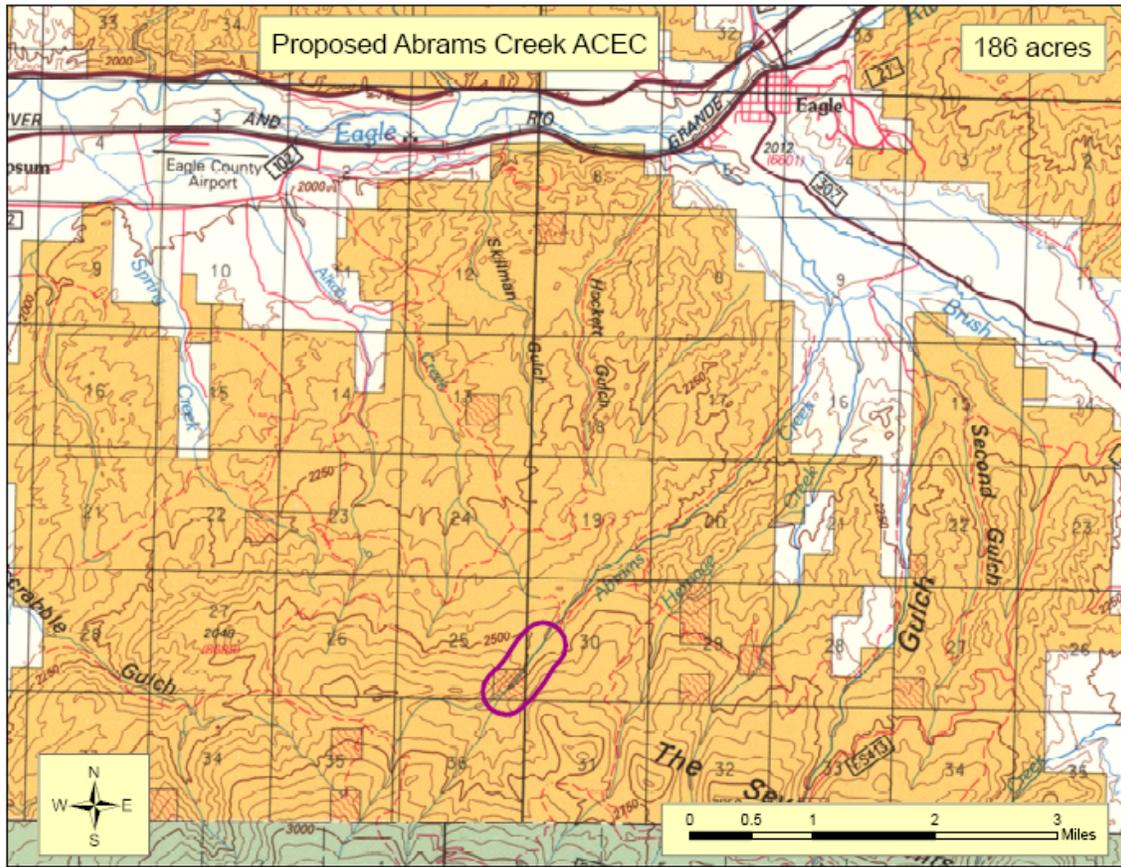
Sheep Creek Uplands PCA



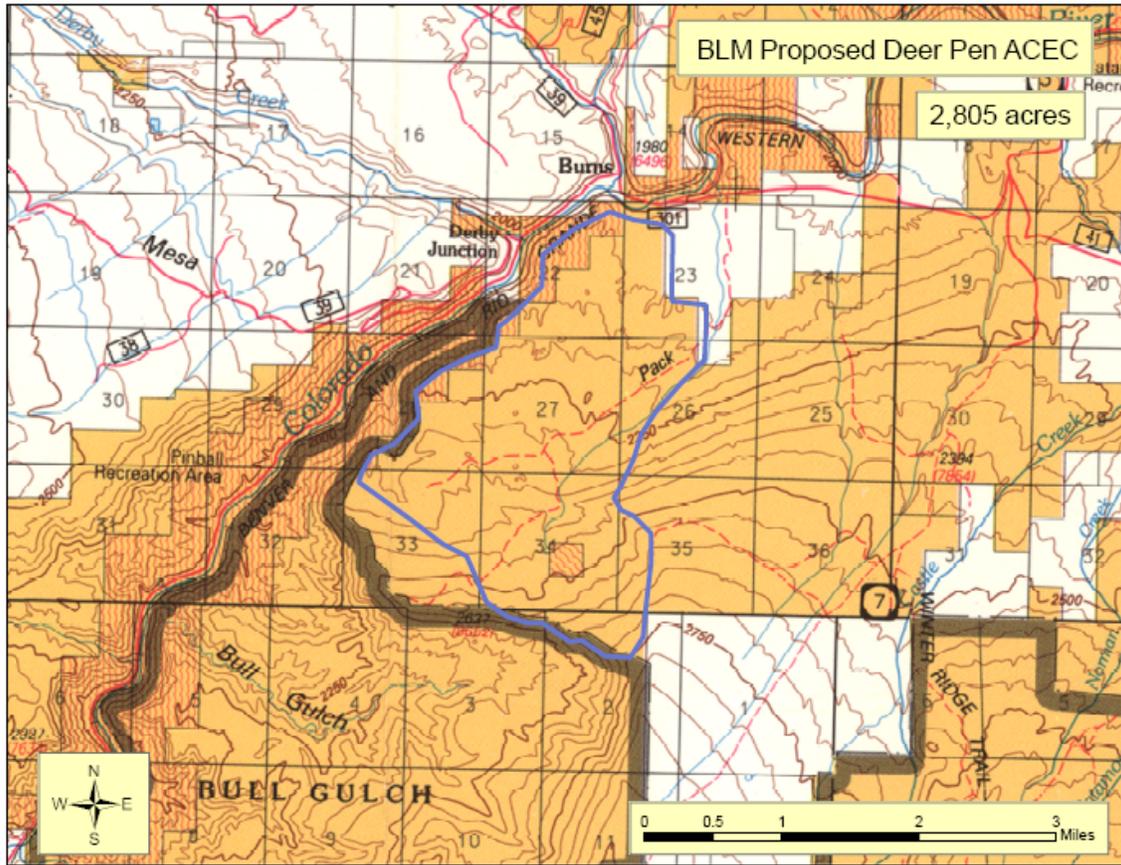
Hardscrabble-Mayer Gulch/East Eagle Ridge PCA



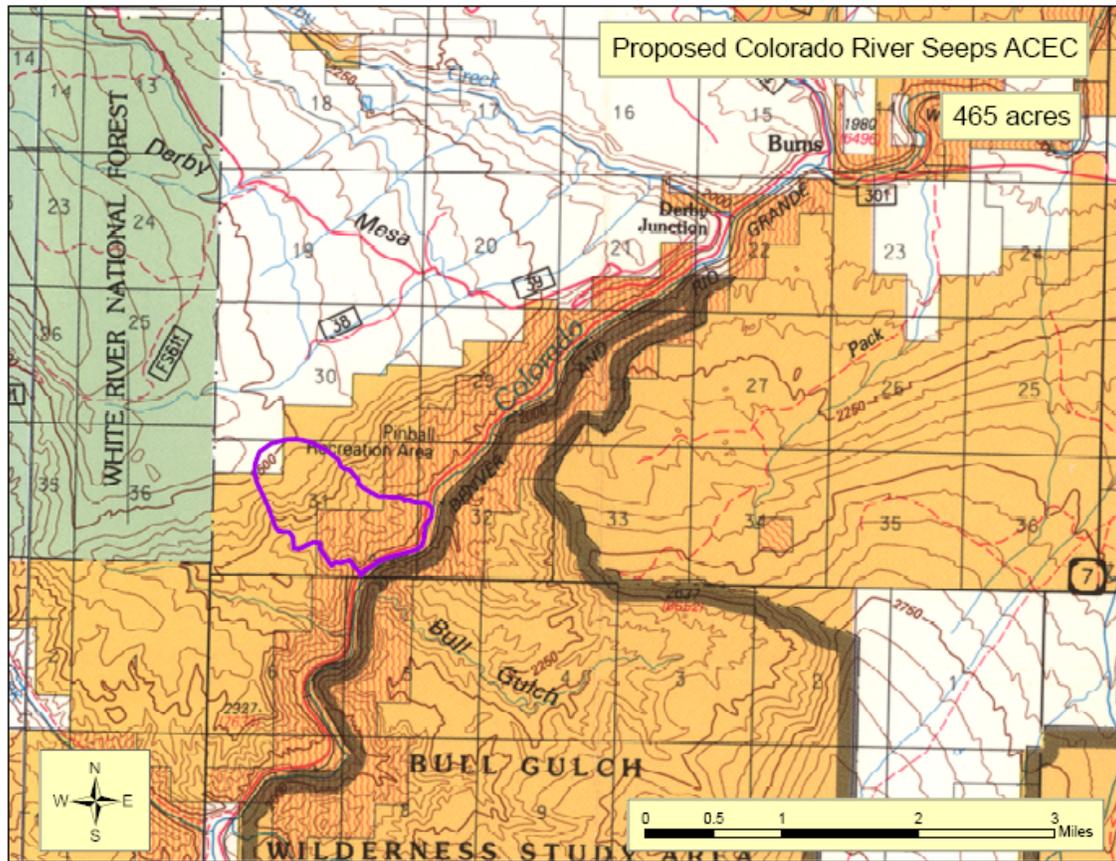
Abrams Creek PCA



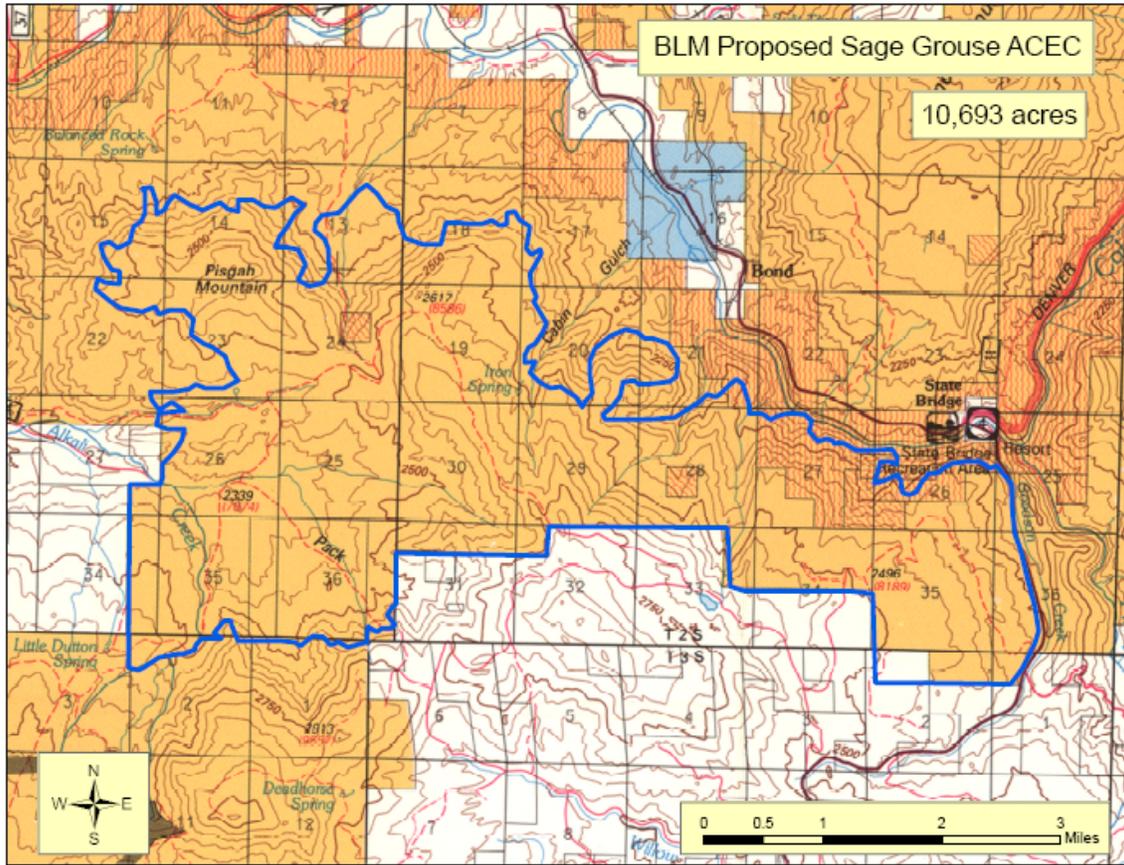
Deer Pen PCA



Colorado River Seeps PCA



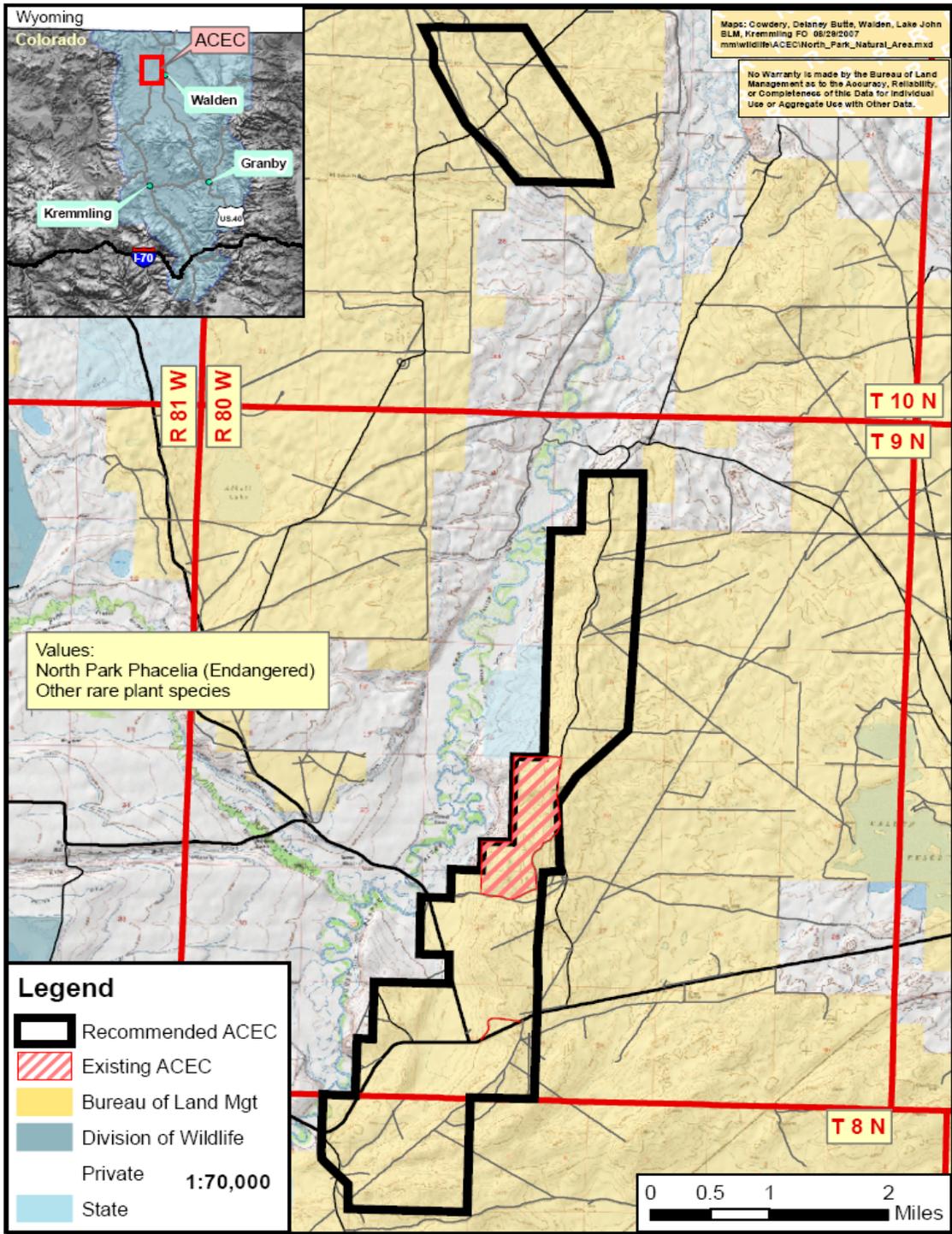
Greater Sage Grouse Habitat Area



Kremmling Field Office Maps:

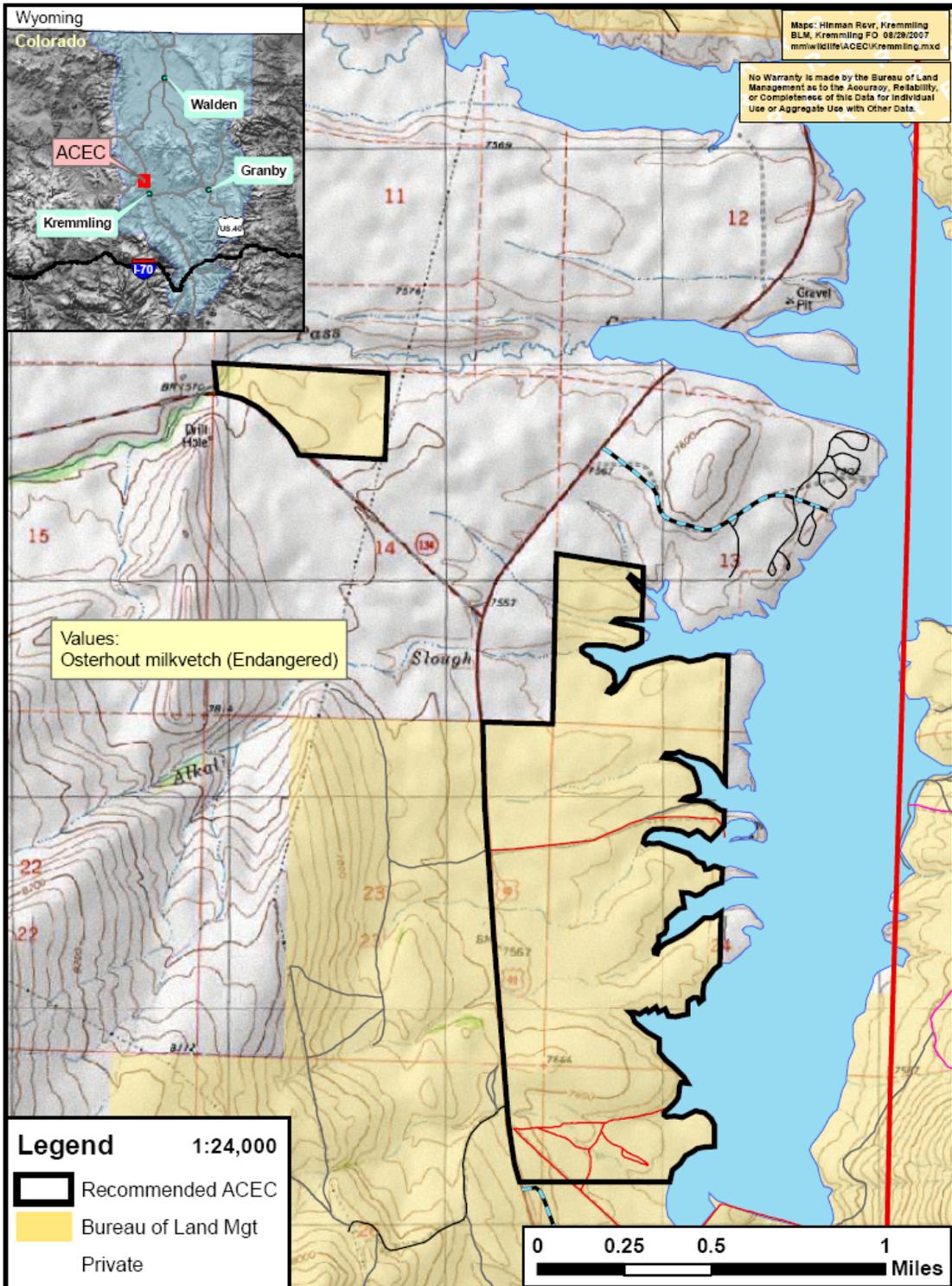


**North Park Natural Area
Recommended ACEC 4,443 Acres**



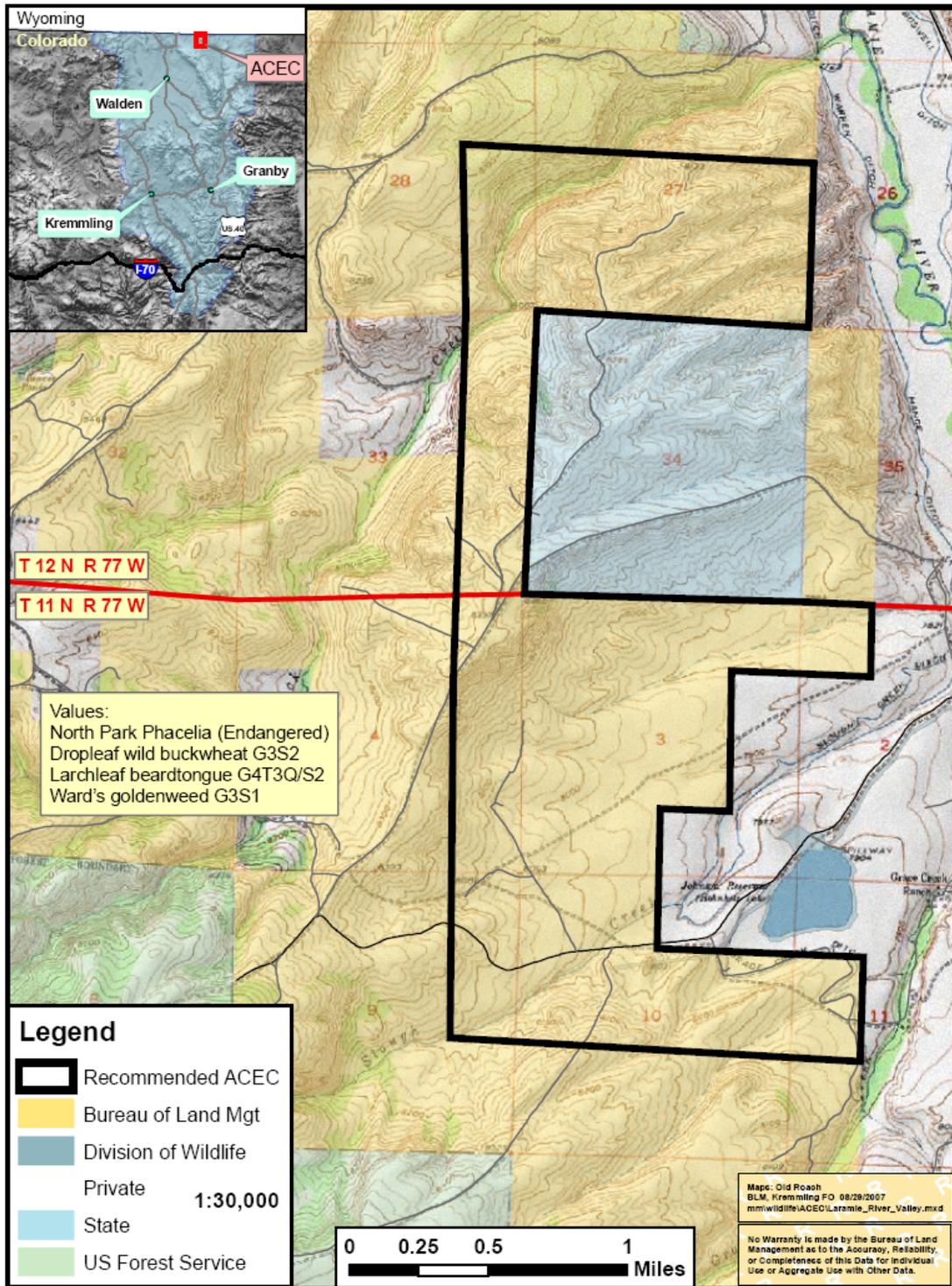


Kremmling PCA Recommended ACEC 636 Acres



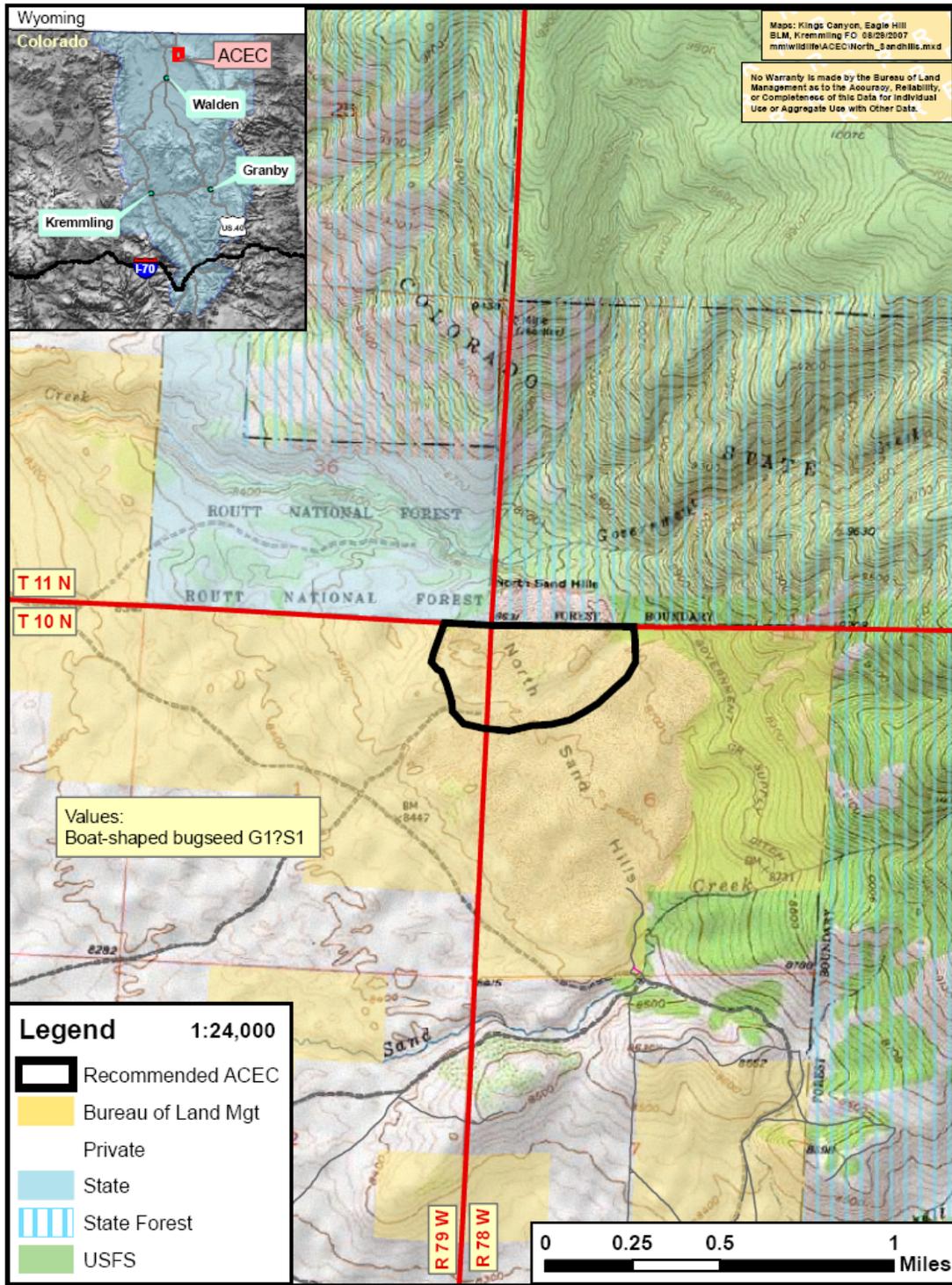


Laramie River Valley Shale Outcrops Recommended ACEC 1,783 Acres



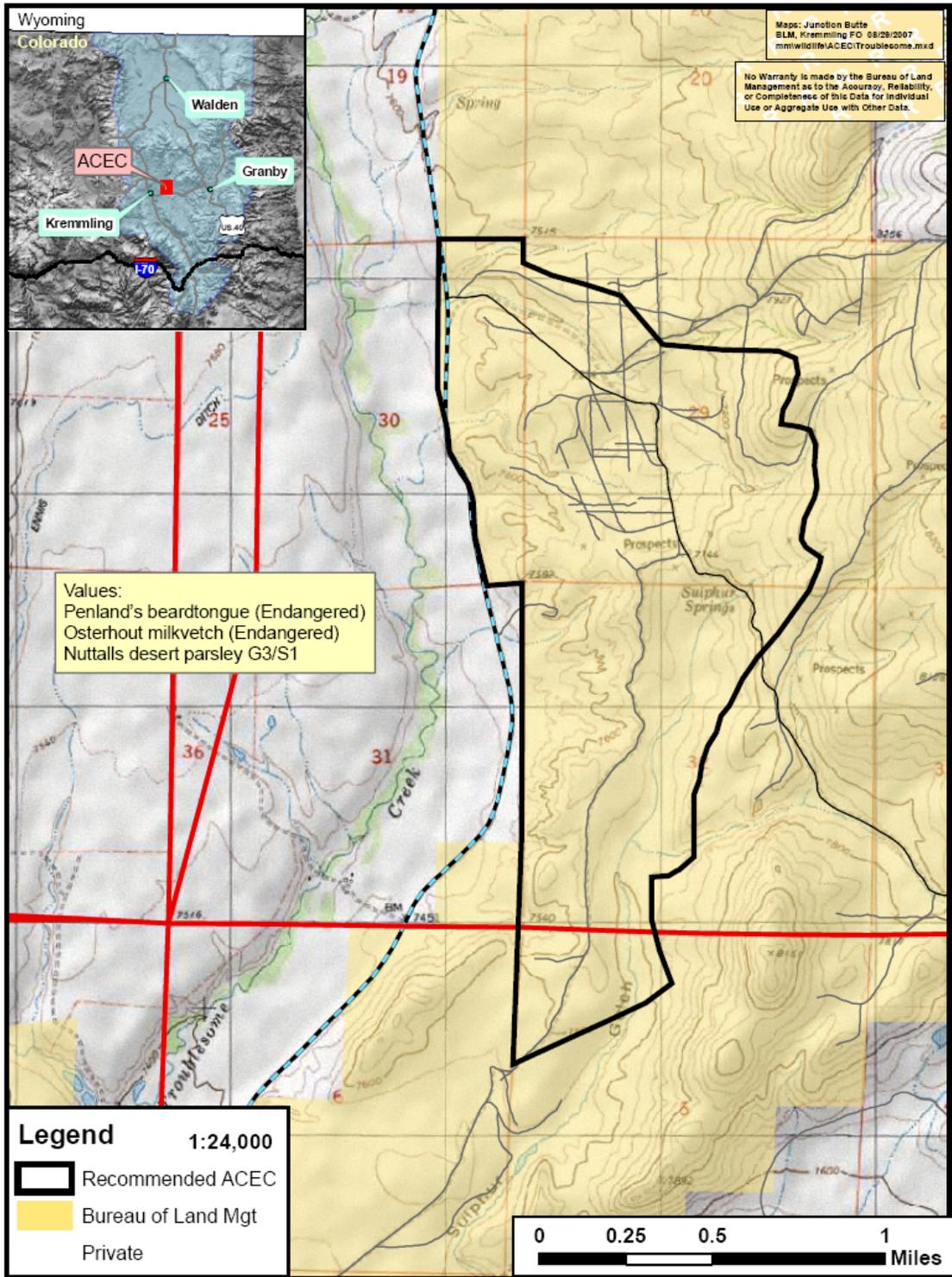


North Sand Dunes Recommended ACEC 92 Acres





Troublesome Creek Recommended ACEC 974 Acres





Kinney Creek Recommended ACEC 588 Acres

