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Gore Creek Restoration

Yampa Ranger District, Routt National Forest

Routt and Grand Counties, Colorado

6th Principal Meridian
Township 2 North Range 82 West Sections 17-20, 23, 26-34
Township 2 North Range 83 West Sections 22-27, 32-36
Township 1 North Range 82 West Sections 3-10, 15-22, 26-35
Township 1 North Range 83 West Sections 1-5, 8-17, 21-28, 33-36

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Gore Creek Restoration
Environmental Impact Statement
Routt and Grand Counties Colorado

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Abstract: The Medicine Bow-Routt National Forests and Thunder Basin National Grassland propose restoration projects to address resource concerns created during previous timber harvest activities that occurred outside of previously analyzed National Environmental Policy Act (NEPA) boundaries, as well as improving overall watershed condition through the decommissioning of approximately 7 miles of road and rehabilitating two dispersed campsites that are depositing sediment directly into Gore Creek. Three alternatives are being considered. Under the No Action alternative, current conditions would continue, no restoration projects would be done to improve resource concerns. Roads and dispersed campsites would continue to negatively affect watershed condition. Under the Proposed Action, restoration activities would occur to improve resource concerns associated with temporary roads, landings, burn piles, skid trails and areas that were harvested on steep slopes. Approximately 7 miles of road would be decommissioned, which would remove a culvert from one perennial water crossing, and two dispersed campsites would be rehabilitated. Both the No Action and Proposed Action alternatives would allow approximately 240 acres of timber harvest in previously analyzed sales using the existing road infrastructure. Alternative 3 is the same as the Proposed Action except that it allows for up to 5 miles of temporary road, of which 0.5 miles could be designed temporary road or specified road, to be built to access timber sales that were previously analyzed, increasing timber harvest to approximately 600 acres, in order to facilitate timber production and improve forest revegetation.

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SUMMARY

The Mountain Pine Beetle began killing a large number of lodgepole pine trees in the early 2000's which led to multiple vegetation management assessments, including the Rock Creek Environmental Impact Statement (EIS), Red Dirt Environmental Assessment (EA) and Roadside Hazard Tree Removal EA being completed in the Gore and Red Dirt Geographic Areas.

During implementation of the commercial timber sales, areas outside the analysis area under the Rock Creek EIS, hereinafter referred to as 'areas outside NEPA boundaries' were harvested. Upon discovery, timber sale activity was suspended until all timber sale unit boundaries could be brought into compliance with the Rock Creek EIS, however approximately 550 acres of harvest had been completed outside of the areas analyzed in previous NEPA decisions. Due to resource concerns identified by an interdisciplinary team in areas harvested outside the NEPA boundaries it was determined that restoration was needed on landings, slash piles, temporary roads, skid trails, and steep slopes throughout the analysis area.

During implementation of the Rock Creek timber sales, the miles of temporary road built within the analysis area exceeded the amount that was analyzed in the NEPA document. Despite this overage, additional temporary roads are necessary to complete the sales analyzed in the 2006 Rock Creek EIS (USDA 2006). It has been determined that approximately 5 miles of temporary road would be necessary to complete salvage harvest in Forest Products Management Areas (5.13) throughout the Rock Creek analysis area. The timber harvest prescriptions analyzed in this document for other management areas are not applicable now that the Mountain Pine Beetle epidemic has killed the majority of the lodgepole pine throughout this region.

Watershed impacts were noted in previous NEPA documents, which stated that road closure, decommissioning, relocation, reconstruction, and/or repair could be done to improve the watershed condition. More specific road decommissioning and reconstruction projects have been identified under this proposal on National Forest System Roads (NFSR) 185, 241, 242, and 246. In addition to the road projects, two dispersed campsites that are directly depositing sediment into Gore Creek have been identified for decommissioning. This would also improve watershed health.

Three courses of action are under consideration.

1. Under the No Action alternative, current management plans would continue to guide management of the project area. There would be no restoration done and any resource damage that occurred outside of previously analyzed NEPA boundaries would be left in its current state. Timber sales analyzed under the Rock Creek EIS, that have not already been harvested, would be sold in small sales using the current road system allowing for the harvest of approximately 240 acres of timber, and no temporary road building would occur. NFSRs 185, 241, 242, and 246 would not be decommissioned, and the two dispersed campsites would remain in their current condition and would continue to affect

watershed health. Road maintenance issues would continue to be addressed on the existing road system as funding allows.

2. The Proposed Action would improve resource concerns through obliterating temporary roads, rehabilitating landings, burning and rehabilitating piles, rehabilitating skid trails, and providing erosion control in areas that were harvested on steep slopes. The type of rehabilitation done would be dependent on many different factors, such as topography, soils, impacts to groundwater and surface water, and archeological impacts. These treatments would include full re-contouring of temporary roads, ripping, seeding, mulching, slash, and other erosion control as needed.

   Watershed improvement projects would be completed on approximately 8 miles of road. This would also include the removal of culverts and stream restoration at perennial stream crossings, and rehabilitation of two dispersed campsites that are depositing sediment directly into Gore Creek.

   Timber sales analyzed under the Rock Creek EIS, approximately 240 acres, that have not already been harvested, would be sold in small sales using the current road system as described above, and no temporary road building would occur.

   This is the agency preferred alternative.

3. Under Alternative 3, watershed improvement projects and rehabilitation treatments on areas that have resource concerns would move forward as described in the Proposed Action alternative.

   Timber sales analyzed under the Rock Creek EIS, that have not already been harvested, would be sold and up to 5 miles of new temporary road construction could occur. Of this, 0.5 miles could be built as specified or designed temporary road. Approximately 3.5 miles of temporary road have been preliminarily located to access an additional 360 acres above that in the No Action and Proposed Action alternatives (240 acres), for a total harvest of approximately 600 acres. The additional 1.5 miles of temporary road would be used to access the stands identified, if necessary.

The area affected by the proposal includes predominately mature lodgepole pine stands, areas that have been harvested where resource concerns have been found, and the current road system.

The purpose of the Proposed Action is to minimize the environmental impacts which occurred outside of previously analyzed project boundaries created during implementation of previous NEPA decisions, reduce current impacts associated with roads in the analysis area, and to complete salvage operations in some of the stands analyzed under the Rock Creek EIS.

There is a need to:

- Address temporary roads and skid trails that were created outside of NEPA boundaries, concerns on steep slopes created during timber sale activities, and all landings and burn piles within the analysis area.
- Analyze effects of additional temporary roads needed to complete a portion of the Rock Creek sales in order to remove dead lodgepole pine and expedite the regeneration process.
- Improve watershed health through relocation or decommissioning of roads and dispersed campsites that are causing adverse impacts to stream networks.

After the analysis process is completed, a decision will be made that includes the following:

- The selected alternative. Based upon the effects of the alternatives, the responsible official will decide whether or not to implement in full or in part any alternative or if the No Action alternative should be taken.
- Rationale for the decision; and
- Design Criteria, mitigation and monitoring requirements necessary for project implementation.

The Notice of Intent was posted in the Federal Register on April 11, 2012 asking the public for input on the proposal within 30 days. Two major issues were raised. First, people are concerned with building more temporary road in an area that has already had a large amount of timber harvest, which built more temporary road than was previously analyzed. The second issue is that the decommissioning of roads will decrease access to the area for the public, specifically aging hunters.

Conclusions by resource specialists through their analysis include but are not limited to:

Design Criteria developed by resource specialists have been incorporated into the action alternatives to reduce detrimental effects to resources while still maintaining the effectiveness of the actions. By including the Design Criteria, the Proposed Action can be implemented with no potential adverse effects to resources.

Region 2 sensitive plant species and species of local concern would not be directly affected under the No Action alternative; however, noxious weed species may increase posing an indirect threat to these species. Under the Proposed Action colonization by native species is expected to increase, having a beneficial effect on these species. Alternative 3 increases the probability of impacting individual plants but would not result in a loss of viability.

More destructive, less manageable wildfires are more likely under the No Action and Proposed Action alternatives than under Alternative 3.

Fish and amphibian habitat and populations would remain stable under all alternatives; however, the action alternatives would improve stream habitat in the long-term, although there may be short-term impacts during implementation.

Archeological resources would be affected to some extent by all of the alternatives. The No Action alternative would result in deterioration of at least one significant archeological site due to increased erosion. Under both action alternatives ground

scarification and pile burning may affect cultural sites, while revegetation would improve in these areas resulting in an overall benefit to these sites. There has been a determination of "no adverse effect" if eligible sites and sites that are unevaluated are avoided.

Water quality, infiltration, hillslope hydrology, soil health, and overall stream health would improve under the Proposed Action. Under the No Action alternative the implementation of the proposed restoration actions including road treatments would not occur and the potential for detrimental watershed effects would remain high. The combination of high ECA (Equivalent Clearcut Acres) values and road densities in four subwatersheds suggest that significant watershed effects are likely in these areas, and would continue under the No Action alternative. The effects of Alternative 3 are greater than the Proposed Action alternative, but less than the No Action alternative and are dependent upon where the temporary roads are built. This could result in an improvement in condition of 11 watersheds or a decline in watershed health in up to six watersheds.

The Circle Park, Farnham and Gore Creek bike loops (approximately 5 miles) would be removed from the current Gore Pass mountain bike trail system, since they are located on current Forest Service roads that are proposed for decommissioning, resulting in the current loop systems to be out and back routes in both action alternatives.

Terrestrial wildlife assessments determined that both the No Action alternative and Alternative 3 "May adversely impact individuals, but not likely to result in a loss of viability on the planning area, nor cause a trend toward federal listing" for the American marten, pygmy shrew and Northern goshawk. The Proposed Action was determined to have a "beneficial impact" on these three species. In addition, for the Canada lynx a "no effect" determination was made for both the No Action and Proposed Action alternatives, while Alternative 3 had a "may affect, but not likely to adversely affect" determination. The management indicator species (Northern goshawk and golden-crowned kinglet) populations would remain stable in all alternatives. Overall, restoration projects associated with the Proposed Action would be beneficial to wildlife, but the impacts from more temporary roads and associated timber harvest would result in greater habitat loss in Alternative 3.

The predicted effects of the Proposed Action by specialists on the interdisciplinary team support the premise that this action is needed to improve resource concerns in areas harvested outside previously analyzed NEPA boundaries. Leaving these areas in their current condition would not meet water and soils Forest Plan Standards and Guidelines, specifically water and aquatic Standards 2 and 3, and soils Standard 4.

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CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

Document Structure

The Forest Service has prepared this environmental impact statement (EIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This EIS discloses the direct, indirect, and cumulative environmental impacts that would result from the Proposed Action and other alternatives. The document is organized into four chapters:

Chapter 1. Purpose of and Need for Action: The chapter includes information on the history of the project proposal, the purpose of and need for the project, and the agency's proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

Chapter 2. Alternatives, including the Proposed Action: This chapter provides a more detailed description of the agency's Proposed Action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes design criteria and mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.

Chapter 3. Affected Environment and Environmental Consequences: This chapter describes the environmental effects of implementing the Proposed Action and other alternatives. This analysis is organized by resource area.

Chapter 4. Consultation and Coordination: This chapter provides a list of preparers and agencies consulted during the development of the environmental impact statement.

Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at Yampa Ranger District, 300 Roselawn, Yampa, CO 80483.

Background

The Mountain Pine Beetle began killing a large number of lodgepole pine in the early 2000s. As the Mountain Pine Beetle began to move through the Gore and Red Dirt Geographic Areas, a number of management actions took place. The Forest Roadside Hazard Tree Removal EA was completed to assist with removal of hazardous trees along the road system, and the Rock Creek Integrated Management Project EIS (Rock Creek) was completed for large scale preventative harvesting and salvage efforts. This was followed by the Red Dirt Integrated Management Project EA (Red Dirt), which covered a small section of the eastern portion of the project area. Approximately 129 acres of timber harvest analyzed in Red Dirt are within the Gore Creek Restoration Analysis Area. From 2005 through today, roads have been cleared of hazard trees, trees under and adjacent to the powerlines have been cut by Western Power Authority, and a large amount of timber has been removed through commercial timber sales.

The Rock Creek Record of Decision was signed in April 2006. This decision authorized silvicultural actions, primarily commercial timber harvest, and associated road construction on approximately 13,500 acres of NFS lands. Silvicultural actions were to occur within ¼ mile of existing roads and would not occur on slopes greater than 40 percent or within inventoried roadless areas. In order to complete these sales it was estimated that 25 miles of road would need to be constructed, which included 15 miles of specified road and 10 miles of temporary road.

As of March 2013 six timber sales, amounting to approximately 4,175 acres, have been cut under the Rock Creek decision. During implementation of these sales approximately 25 miles of temporary road and 7 miles of specified road were built. Up to 5 miles of additional temporary road may be built to facilitate timber production and improve forest revegetation, especially in Management Area 5.13 (Forest Products). If a specified road is needed up to 0.5 miles of the 5 miles of temporary road analyzed could be used for specified or designed temporary road. The effects of adding these temporary roads will be analyzed in Alternative 3. Effects associated with the timber harvest have already been analyzed in the Rock Creek EIS (USDA 2006a).

During implementation of the commercial timber sales areas outside of NEPA boundaries were harvested. Upon discovery, implementation of timber sales was suspended and timber sale unit boundaries were brought into compliance with the NEPA decision, however approximately 550 acres of harvest had been completed outside of the areas analyzed in previous NEPA decisions. Further analysis is needed to rehabilitate temporary roads, and skid trails that were placed outside of NEPA boundaries and all landings and burn piles. There are over 350 landings associated with these sales, with one to two slash piles at each of the landings, as well as within timber units.

Road closure, decommissioning, relocation, reconstruction, and repair were identified as general projects under the 2006 Rock Creek EIS decision. More specific projects have been identified under this proposal on National Forest System Roads (NFSR) 185, 241, 242, and 246.

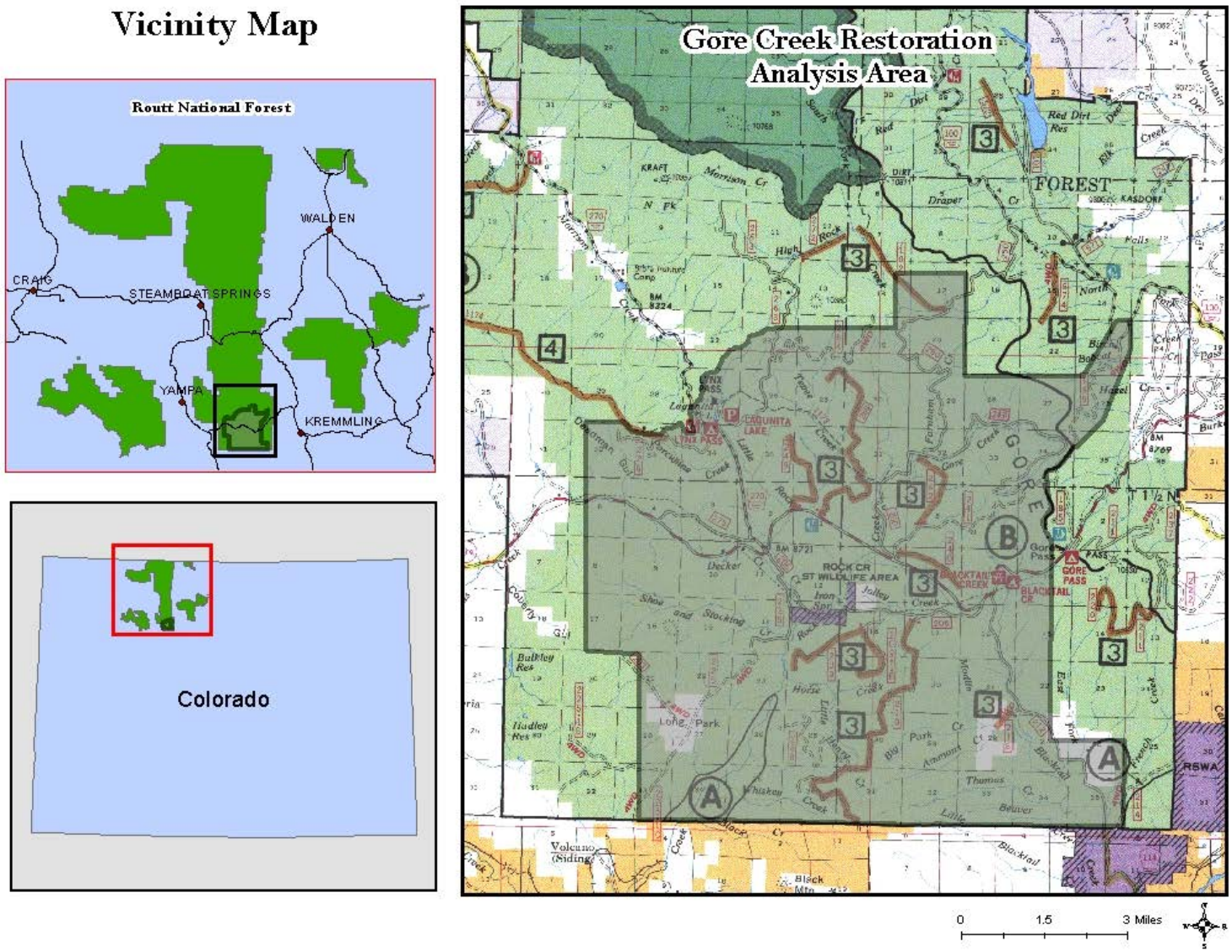

Figure 1. Vicinity Map

Analysis Area

The analysis area is located in Routt and Grand Counties in Colorado. The legal description is T. 2N, R. 82W, Sec. 17-20, 23, 26-34; T. 2N, R. 83W, Sec. 22-27, 32-36, T. 1N, R. 82W, Sec. 3-10, 15-22, 26-35, and T. 1N, R. 83W, Sec. 1-5, 8-17, 21-28, 33-36. The analysis area encompasses 45,673 acres within the Red Dirt and Gore Geographic Areas, including 44,145 acres of NFS lands (97%) and 1,528 acres (3%) of non-NFS lands (Figure 1).

Table 1. Management Areas within the Analysis Area (rounded to nearest acre)

MA	Description	Acres
1.5	National River System Wild Rivers Designated and Eligible	1,283
4.3	Dispersed Recreation	1,487
5.11	General Forest and Rangelands - Forest Vegetation Emphasis	461
5.12	General Forest and Rangelands – Range Vegetation Emphasis	7,830
5.13	Forest Products	27,791
5.41	Deer and Elk Winter Range	848

Purpose and Need for Action

The purpose of the Proposed Action is to minimize the environmental impacts created outside of previously analyzed NEPA decisions, reduce current impacts associated with roads in the analysis area, and to complete salvage operations in some of the sales analyzed under the Rock Creek EIS in order to improve stand condition and facilitate forest regeneration.

There is a need to:

- Address temporary roads and skid trails that were created outside of NEPA boundaries, concerns on steep slopes created during timber sale activities, and all landings and burn piles within the analysis area.
- Analyze effects of additional temporary and specified roads needed to complete a portion of the Rock Creek sales in order to remove dead lodgepole pine and expedite the regeneration process.
- Improve watershed health through relocation and decommissioning of roads and dispersed campsites that are causing adverse impacts to stream networks.

Forest Plan Direction

This action responds to the goals and objectives outlined in the Routt National Forest Land and Resource Management Plan, 1997 Revision (Routt Forest Plan), and helps move the project area towards the desired conditions described in the plan (USDA

1997). Examples of Standard and Guidelines that apply to the Proposed Action include but are not limited to:

Forest-wide Standards and Guidelines

Soils

Standards

4. Reclaim roads and other disturbed sites when use ends, as needed, to prevent resource damage (Routt Forest Plan page 1-6).
5. Manage land treatments to limit the sum of severely burned or detrimentally compacted, eroded, and displaced land to no more than 15 percent of any land unit (Routt Forest Plan page 1-6).

Water and Aquatic

Standards

2. Manage land treatments to conserve site moisture and to protect long-term stream health from damage by increased runoff (Routt Forest Plan page 1-6)
3. Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful increased runoff (Routt Forest Plan page 1-6).
4. In the water influence zone next to perennial and intermittent streams, lakes, and wetlands, allow only those land treatments that maintain or improve long-term stream health and riparian ecosystem condition (Routt Forest Plan page 1-6)

Recreation-Dispersed Recreation

Standards

3. Only allow camping outside a 100-foot zone surrounding lakes and streams, unless otherwise designated (Routt Forest Plan page 1-18).

Infrastructure-Travelways

Guidelines

2. Obliterate, revegetate and slope to drain those system travelways which are no longer needed to achieve management objectives or where resource damage cannot be mitigated (Routt Forest Plan page 1-23).

Biological Diversity

Standards

3. Use genetically local (at the sub-section level), native plant species for revegetation efforts where technically and economically feasible. Use weed-free seed mixtures. While native perennials are becoming established, non-native annuals or sterile perennial species may be used to prevent soil erosion. (Routt Forest Plan page 1-8).

Threatened, Endangered, Sensitive Species, and Wildlife

Standards

7. Where newly discovered threatened, endangered, proposed, or sensitive species habitat is identified, conduct an analysis to determine if any adjustments in the Forest Plan are needed. (Routt Forest Plan page 1-14).

8. Manage activities to avoid disturbance to sensitive species which would result in a trend toward Federal listing or a loss of population viability. The protection will vary depending on the species, potential for disturbance, topography, location of important habitat components, and other pertinent factors. Give special attention during breeding, young rearing, and other times which are critical to survival of both flora and fauna (Routt Forest Plan page 1-14).
9. Avoid disturbing threatened, endangered, and proposed species (both flora and fauna) during breeding, young rearing, or at other times critical to survival by closing areas to activities. Exceptions may occur when individuals are adapted to human activity, or the activities are not considered a threat (Routt Forest Plan page 1-14).

Undesirable Species

Standards

2. Use only certified noxious weed free hay, seed, straw or other materials for feed or revegetation projects on the Forest (Routt Forest Plan page 1-16).

Geographic Area Desired Condition

Gore Geographic Area Desired Condition

- Lodgepole pine will continue to be the dominant cover type. In areas allocated to management area prescriptions 5.11, 5.12, or 5.13, a variety of tree sizes and seral stages will be present. High-quality developed and dispersed motorized recreation opportunities will be emphasized. A low motorized travelway density will provide access for timber management, grazing, and developed and dispersed recreation (Routt Forest Plan page 3-75 and 3-76).

Red Dirt Geographic Area Desired Condition

- Lodgepole pine and spruce/fir will continue to be the dominant cover types. In areas allocated to management area prescriptions 5.11, 5.12, or 5.13, a variety of tree sizes and seral stages will be present. Dispersed motorized and non-motorized recreation opportunities will be available. A low to medium motorized travelway density will provide access primarily for all-season dispersed recreation and for timber and grazing uses (Routt Forest Plan page 3-89 and 3-90).

Management Area Direction

Management Area 5.11= General Forest and Rangelands - Forest Vegetation Emphasis

Desired Condition

- Vegetation composition and structure will exist in a range of successional stages to meet wildlife, range, and timber objectives. Forest insects and disease will be present but locally restricted (Routt Forest Plan pages 2-39 and 2-40).

Management Area 5.13= Forest Products

Desired Condition

- Vegetation composition and structure will be managed for a mosaic of tree groups with different ages and heights while providing for a sustained yield of

forest products. Forest insects and disease will be present but locally restricted (Routt Forest Plan page 2-44).

Vegetation

Standards

1. Use a full range of biologically appropriate silvicultural practices to emphasize the production of sawtimber (Routt Forest Plan page 2-45).

Proposed Action

The Forest Service's Proposed Action includes: rehabilitating areas with resource concerns, watershed improvement projects, and harvesting a portion of the timber analyzed under the Rock Creek EIS. Rehabilitation could include obliterating temporary roads, rehabilitating landings, burning or removing and rehabilitating slash piles, rehabilitating skid trails, and providing erosion control in areas that were harvested on steep slopes. The type of rehabilitation will be dependent on many different factors, such as topography, soils, impacts to groundwater and surface water, and archeological impacts. These treatments may include full re-contouring of temporary roads, ripping, seeding, mulching, scattering slash, and other erosion control as needed.

Watershed improvement projects would occur on approximately 8 miles of road and two dispersed campsites. This would include approximately 7 miles of road decommissioning, removal of culverts and channel restoration on perennial stream crossings, and closure and rehabilitation of two dispersed campsites that are currently affecting watershed health.

Timber sales that were analyzed under the Rock Creek EIS for salvage treatment could move forward with approximately 240 acres of harvest projected to occur using the existing road network.

Decision Framework

Given the purpose and need, the deciding official reviews the Proposed Action, the other alternatives, and the environmental consequences in order to make the following decisions:

- Based upon the effects of the alternatives, the responsible official will decide whether or not to implement in full or in part any alternative or if the no action alternative should be taken.
- Rationale for the decision; and
- Design Criteria, mitigation and monitoring requirements necessary for project implementation.

Public Involvement

Comments on the proposed action, potential concerns, and opportunities for managing the Gore Creek Restoration project area were solicited from members of the public, other public agencies, tribal governments, adjacent property owners, interest groups,

and Forest Service specialists. Various methods were used to request comments, including:

- The Notice of Intent (NOI) was published in the Federal Register on April 11, 2012.
- A scoping period was provided for 30 days, ending on June 6, 2012.
- On July 9, 2013, a notice that the Draft EIS was available for review and comment was sent to 36 interested parties who responded to the scoping letter or otherwise expressed interest in the Gore Creek Restoration project.
- On July 14, 2013, a legal notice of opportunity to comment on the Draft EIS was posted in the newspaper of Record, the Steamboat Pilot & Today. A Notice of Availability was posted in the Federal Register on July 19, 2013.

Issues

The Forest Service generally separates environmental issues into two groups:

Key issues are defined as those directly or indirectly caused by implementing the Proposed Action.

Non-key issues are identified using the following criteria:

- Outside the scope of the Proposed Action.
- Already decided by law, regulation, Forest Plan, or other higher level decision.
- Irrelevant to the decision to be made.
- Conjectural and not supported by scientific or factual evidence.

The Council on Environmental Quality NEPA regulations explain this delineation in Sec. 1501.7, "…identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)… ." A list of non-key issues and reasons regarding their categorization as non-key may be found at Yampa Ranger District, 300 Roselawn, Yampa, Colorado in the project record.

The Forest Service received eight letters responding to the informal scoping mailed to government agencies, tribes, and other interested parties. From these comments and internal discussion 18 issues/concerns were documented of which two were categorized as key issues, and used to formulate the alternatives. Indicators were developed for each issue category. Indicators are measurable ways of displaying how the issues could be affected by project implementation.

Issue 1: Temporary Road

There is a concern over the amount of temporary road already built and the cumulative effects of past and present harvesting and ground disturbance on other resources, including soils and watershed health. There is also a concern that building more temporary road will increase these impacts.

Indicators:

- Miles of temporary road proposed
- Miles of temporary road that will be reclaimed.

Issue 2: Motorized Access

There is a concern that the road density in the area is larger than necessary, and that many roads provide access to the same general areas. There is also a concern that many of the roads are in poor condition, due to lack of maintenance, increasing sedimentation to the stream network and impacting watershed health. However, there is also a desire by the public for motorized access into the area.

Indicators:

- Miles of road being decommissioned
- Road density
- Cost of road maintenance

Opportunities

As part of the internal and public scoping process another watershed restoration project within the Analysis Area was identified. This project involves road relocation of approximately 0.5 miles of NFSR 225.1, which was previously analyzed in the Travel Management in the NFSR 225 Analysis Area EA to improve watershed health. This relocation could occur under any of the alternatives, but would be facilitated under Alternative 3, due to the proposed temporary road building. Under Alternative 3, entrance into the timber unit would utilize the location previously analyzed. The new construction would be kept open which would allow for decommissioning of the existing segment of concern on NFSR 225.1. The decommissioned segment would be rehabilitated to reduce the connected disturbed area, and to restore riparian areas, soil productivity, and hillslope hydrology.

CHAPTER 2. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

Introduction

This chapter describes and compares the alternatives considered for the Gore Creek Restoration Project. It includes a description of each alternative considered. This section also presents the alternatives in comparative form, defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public. Some of the information used to compare the alternatives is based upon the design of the alternative (i.e., building of new temporary roads) and some of the information is based upon the environmental, social and economic effects of implementing each alternative (i.e., the amount of timber that could be harvested).

Alternatives Considered in Detail

The Forest Service developed three alternatives; Alternative 1 - No Action, Alternative 2 - Proposed Action, and Alternative 3 in response to issues raised by the public and through internal discussion. Alternative 2 is the agency preferred alternative.

Alternative 1

No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. No restoration would occur and any resource damage that occurred outside of previously analyzed NEPA boundaries would be left in its current state. Timber sales within the Rock Creek EIS, that have not already been harvested, could be sold in small sales using the current road system with approximately 240 acres of timber harvested. Prescriptions for these timber sales were determined in the Rock Creek EIS, and would most likely include salvage logging. Using only the current road system would decrease the volume of the sales, but directly address resource concerns of building more temporary road.

No temporary road building within the Rock Creek analysis area would occur; therefore, relocation of a segment of NFSR 225 affecting watershed health would not be facilitated. NFSRs 185, 241, 242, and 246 would not be decommissioned; culverts on perennial stream crossings would not be removed and would continue to affect stream and wetland function; and the two dispersed campsites along Gore Creek would remain in their current condition and would continue to affect watershed health. Road maintenance issues would continue to be addressed on the existing road system as funding allows. This alternative represents the current condition and is the baseline for comparison with the other alternatives.

Alternative 2

The Proposed Action

Under the Proposed Action, the Yampa Ranger District of the Medicine Bow-Routt National Forests would rehabilitate areas that have resource concerns in the Gore Creek analysis area. This includes obliterating temporary roads, rehabilitating landings, burning or removing and rehabilitating piles, rehabilitating skid trails, and providing erosion control in areas that were harvested on steep slopes. The type of rehabilitation done will be dependent on many different factors, such as topography, soils, impacts to groundwater and surface water, and archeological impacts. These treatments could include full re-contouring of temporary roads, ripping, seeding, mulching, slash, and other erosion control as needed.

Watershed improvement projects would be completed on approximately 8 miles of road. This would include decommissioning 7 miles of system road and road restoration on 1 mile of system road. Culverts would be removed on perennial streams and two dispersed campsites that are inputting sediment directly into Gore Creek would be decommissioned. Figure 2 and Table 2 identify where these activities are proposed.

Approximately 5 miles of the roads proposed for decommissioning are also a part of the Gore Pass bike trail system. This would result in these trails being closed and changed from loops to out and back trails.

Timber sales would be completed as described in the No Action alternative, using the existing road system.

Table 2. Description of proposed watershed improvement projects.

Road Number	Proposed Action	Miles	Reason
NFSR 241.1	Decommission from intersection with NFSR 250.1 to the campsite overlooking Blacktail Creek	1.8	Road parallels Blacktail Creek and is also experiencing severe erosion in many locations adding sediment to the creek.
NFSR 241.1	Improve road from campsite overlooking Blacktail Creek	1.1	Road is rutted and drainage is no longer functional.
NFSR 242.1	Decommission from the intersection with NFSR 241.1 to the stream crossing in T1N, R82W, NENW sec. 5	1.0	This road runs adjacent to a perennial stream that has several wet springy areas in the middle of the road.
NFSR 246.1	Decommission entire road segment	1.1	This road intersects with the portion of NFSR 241.1 proposed for decommissioning and is a dead-end road

Road Number	Proposed Action	Miles	Reason
NFSR 185.1	Decommission the portion of the road that is incised, leaving dispersed campsites at both the north and south ends	2.9	This road has poor drainage and is incised delivering sediment directly into both Birch Creek and a tributary to Bobcat Creek.
Non-system road off of NFSR 241.1	Effectively decommission to reduce motorized use, reduce erosion, and promote revegetation.	0.2	This is an old temporary road that was not effectively closed following use. There is extensive surface erosion due in part to ATV trespass, and in part due to lack of drainage features.

General Guidelines for Rehabilitation and Decommissioning

- Scarification would be done to a depth of 4 to 6 inches. The ripper teeth should be lifted every 150 feet on slopes less than 15 percent, every 100 feet on slopes 15 to 30 percent, and every 50 feet on slopes greater than 30 percent to prevent concentration of water and development of rills and gullies.
- Seeding would be done using an approved seed mixture.
- Water bars would be implemented using an appropriate spacing for slope and soil type.
- Slash would include both fine and coarse woody debris.
- Chips and mulch would not exceed more than 3 inches in depth and would not cover more than 40 percent of the treatment area. When mastication or chipping is used distribution would be a discontinuous, patch mosaic and avoid contact with residual trees. If desired coverage or depth are exceeded that site would be evaluated to determine if redistribution or disposal is required.
- Ground cover would be 65 percent over the affected area.

Temporary Road and Excavated Skid Trail Decommissioning

Temporary roads and excavated skid trails that were built outside of previously analyzed NEPA decisions would be decommissioned using the methods described below. Roads and skid trails that were built within the Rock Creek project area will be decommissioned under that decision. Approximately 3 miles of temporary road and excavated skid trails would be decommissioned with this decision.

- Road obliteration on existing and proposed temporary roads and excavated skid trails could be done by restoring and re-contouring to a hydrologically self-maintaining and natural state roads and skid trails that have a 3-foot or greater cut slope, and other areas as deemed necessary by Forest Service personnel. When re-contouring is done the equipment would be required to remain on the existing roadway or skid trail to minimize disturbance outside of this area.

Scattering slash is also recommended in re-contoured areas to prevent erosion, add organic material, and improve water retention.

- When re-contouring is not necessary, such as on flat areas of ground, then obliteration could be done by adding water bars, scarification, scattering of slash, and seeding where necessary.
- If culverts have been installed on temporary roads they would be removed and the streambanks would be reshaped to reflect the original cross-sectional area and streambank angle of the upstream and downstream sections of the stream. Stabilization of newly constructed streambanks using slash, logs, or rocks may also be required as specified by Forest Service personnel.

Skid Trail Rehabilitation

Skid trails built outside of previously analyzed NEPA decisions would be rehabilitated using a variety of methods depending on site specific conditions. Skid trails that were built within previously analyzed areas would be decommissioned under those decisions.

- This may include scarification, seeding, adding water bars and scattering slash to prevent erosion and reduce compaction. Scattering slash may be done in lieu of ripping and constructing water bars on spur or lightly used skid trails. However, both water bars and slash may be necessary in some locations depending on the slope and soil type.
- Heavily used skid trails identified by the Forest Service would require scarification to reduce compaction.
- Additions of masticated wood, fine slash, wood chips, or straw mulch may be necessary to promote vegetation establishment and prevent the disturbed soil materials from re-compacting or sealing. Chipping or mastication of slash left near the skid trail may be used for this purpose.
- Scattering of organic materials, such as slash, prior to ripping would be done in some areas so that mixing of organics and soil could promote revegetation.

Landing Rehabilitation

Landings within the analysis area would be rehabilitated using a variety of methods depending on site specific conditions. There are over 300 landings within this analysis area.

- In many instances this would include scarification, seeding, and scattering slash or burn pile debris. Water bars may also be necessary in some locations.
- Recontouring of landings may be necessary in areas that have been cut to create a level surface. Disturbance would not be allowed outside of the existing disturbed area. This would be followed by seeding and scattering of slash.
- Additions of masticated wood, fine slash, wood chips, straw mulch, and/or soil improvement amendments such as bio-char may be used on some landings to promote vegetation establishment and prevent the disturbed soil materials from re-compacting or sealing. Scattering of organic materials would occur prior to ripping to mix the organics and soil and help promote revegetation.

Burn Pile Rehabilitation

Burn piles would be rehabilitated, after burning or removal, using a variety of methods depending on site specific conditions. If methods such as chipping or hauling are used to eliminate the slash piles less intensive rehabilitation may be necessary as soil would not be affected by intense heating. There are over 1,500 burn piles within the analysis area. Some piles may be left unburned to provide for wildlife habitat or due to access or economic issues.

- Burn piles that are greater than 30 feet in diameter would be rehabilitated by scarification, preferably by an excavator or track-hoe, as these types of equipment do not cause as much compaction as a dozer and also provide greater scarification than hand treatment. However, hand scarification may be necessary on some piles depending on access. These areas would then be seeded, and any unburned slash that is available would be scattered to increase ground cover to 50 to 60 percent. It is preferable to remove the piles that are larger than 60 feet in diameter.
- Piles less than 30 feet in diameter may be mechanically treated or hand scarified and possibly seeded. In areas of hand scarification the scattering of slash would likely be less than on mechanically treated piles. Some slash would be thrown back on these areas when possible.

Rehabilitation on Steep Slopes

A variety of methods for rehabilitating steep slopes will be used depending on site specific conditions.

- Areas of bare or displaced soil greater than 100 square feet shall be covered with slash. Coverage shall be 30 to 50 percent.
- Other rehabilitation may include seeding, adding water bars, scattering slash, and mulching with chips or straw mulch. Work by hand in these areas would be preferable to avoid equipment operating on these steep slopes.

Watershed Improvement Projects

Road decommissioning would occur on NFSRs 185, 241, 242, 246, and an unauthorized road off of NFSR 241.

- Road decommissioning would include re-contouring areas with cut slopes greater than 3 feet. Scattering slash could be included in re-contoured areas to prevent erosion, add organic material, and improve water retention.
- When re-contouring is not necessary, such as on flat areas of ground, then road decommissioning would be done by adding water bars, scarification, scattering of slash, and seeding where necessary.

Masticated wood, fine slash, wood chips, or straw mulch may also be spread on areas of high compaction to try and improve water retention and increase revegetation.

All culverts would be removed. Those on perennial stream crossings would be rehabilitated to improve wetland function and stream health.

- Streambanks would be reshaped to mimic the cross-sectional area and streambank angle of the upstream and downstream sections of the stream.
- Stabilization of the newly constructed streambanks may be done using slash, logs, or rock, and willows may be planted to improve revegetation and stabilize streambanks.
- A grade control structure may be built upstream of the culvert removal to prevent headcutting through sediment accumulated upstream of the road-stream crossing.

Road improvement would occur on approximately 1 mile of NFSR 241 at the northern end of the decommissioning project toward NFSR 243 (see Figure 2). This would be done by adding drainage and reducing gullying along this section of road.

Two dispersed campsites along NFSR 243 that are directly inputting sediment into Gore Creek would be permanently closed and rehabilitated. These will be closed by ripping, removing fire rings, falling trees into the site, and possibly placing boulders along the road to reduce access to these locations. If approved, the Yampa Ranger District would likely begin implementation in 2014.

Alternative 3

Under Alternative 3 watershed improvement projects and rehabilitation treatments on areas that have resource concerns would move forward as described in the Proposed Action alternative. This includes obliterating temporary roads, rehabilitating landings, burning and rehabilitating slash piles, rehabilitating skid trails, and providing erosion control in areas that were harvested on steep slopes.

In addition, timber sales analyzed under the Rock Creek EIS, that have not already been harvested, would be treated and up to 5 miles of new temporary road construction could occur within the Gore Creek analysis area. Up to 0.5 miles of the proposed temporary road could be designed temporary road or specified road, if necessary.

The amount of temporary road construction analyzed under the Rock Creek EIS has already been exceeded with past and current timber sales. This new temporary road construction is above that which was authorized under the Rock Creek decision and would allow for greater completion of sales within timber harvest emphasis areas. Prescriptions for timber sales were determined in the Rock Creek EIS, and would include salvage logging. Allowing for 5 miles of temporary road to access timber sale units would increase the amount of dead material removed and allow for the use of silvicultural practices to emphasize the production of sawtimber, especially in Management Area 5.13 (Forest Products). Approximately 360 acres of additional harvest above that described in the No Action and Proposed Action alternatives (240 acres) have been identified using the proposed temporary road. This would allow for the harvest of approximately 600 acres under Alternative 3.

A portion of the proposed temporary or specified road construction will be left open to facilitate the relocation of NFSR 225, as previously analyzed.

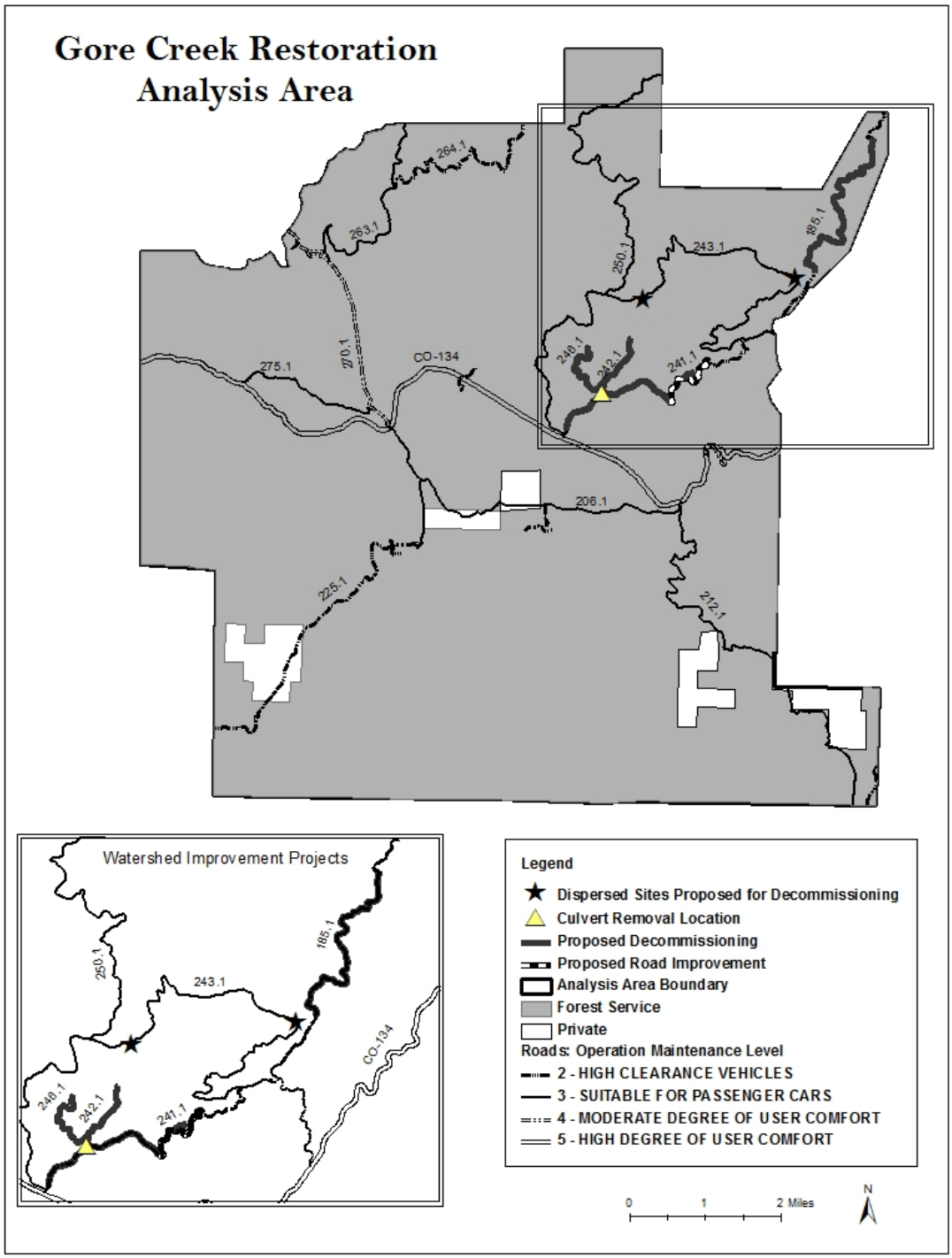

Figure 2. Proposed Watershed Improvement Map

Design Criteria Common to All Alternatives

The ID team identified Design Criteria to reduce or prevent undesirable effects resulting from management activities. Design Criteria expand upon best management practices, watershed conservation practices, Forest Plan Standards and Guidelines, and other environmental protection measures to ensure the project meets all required laws and regulations. The following site specific Design Criteria were developed for restoration activities and road building under this project and are common to all action alternatives. Actions that are yet to occur under the Rock Creek EIS, such as timber harvest, will follow the Rock Creek Design Criteria.

Botany/Fisheries/Wildlife

1. If specific impacts from the alternatives to threatened, endangered, and Region 2 sensitive species (TES) or their habitats are identified, management may be adjusted as necessary to reduce those impacts through working with the biologists or botanists. Timing restrictions may also need to be applied. The TES species of interest include goshawks, raptors, pygmy shrews, amphibians, and rare plants.

Botany

2. To avoid introduction of non-native species, clean all equipment, both Forest Service and private, before entering the project area. Equipment should be inspected prior to coming onto the Forest when it has been in areas of known noxious weed infestations or any unknown areas.
3. Units not previously surveyed for R2 Sensitive and SOLC plant occurrences will be surveyed prior to sale.
4. Any seed used in the project area will be tested for noxious and non-native seed according to the Guidelines for Revegetation for the Medicine Bow-Routt National Forests and Thunder Basin National Grasslands.

Heritage

5. Archaeological sites that were damaged during the implementation of the timber sale and pile burning will be manually rehabilitated to prevent additional resource damage and erosion under supervision of the District Archaeologist and in consultation with the Colorado State Historic Preservation Office.

Hydrology

6. All USGS blue-line streams, wetlands, riparian areas, and specific crenulations identified during project layout will be designated as protected stream courses and considered streamside management zones unless determined otherwise by a hydrologist or soil scientist. Heavy equipment will not be allowed to operate in protected stream courses or streamside management zones except to do restoration work.
7. Avoid operating mechanical equipment on sustained slopes steeper than 35 percent except to do rehabilitation work. A hydrologist or designated Forest Service representative will be present when equipment is operating.

8. Avoid soil disturbing actions during periods of heavy rain or wet soils. Do not operate equipment when it results in rutting of soils.
9. Winter operations can occur with a minimum of 1 foot of packed snow or 2 inches of frozen soil.
10. Keep mechanical equipment 100 feet from developed spring sources.
11. Locate vehicle service and fuel areas, chemical storage and use areas, and waste dumps on gentle upland sites. Mix, load, and clean on gentle upland sites. Dispose of chemicals and containers in State-certified disposal areas.
12. Do not use berms/tank traps for permanent road closure adjacent to high-use arterial and collector roads. Use different sizes of rocks and boulders buried at least 1/3 in the ground for barriers instead of berms/tank traps in the immediate foreground of arterial and collector roads.

Lands

13. Piles that are within the powerline right-of-way will not be burned and will be removed when feasible.
14. Designate areas listed below as protected improvements on the Analysis Area Map to prevent damage through proposed activities. Require avoidance and/or restoration to full function of these protected improvements.
    a. Irrigation Ditches
    b. Fences
    c. Special Use Roads
    d. Powerline right-of-ways and access routes
    e. Water improvements and all associated structures
    f. Snotel and Weather Station Sites
15. Allow access to permittees on roads and other access routes shown on the Analysis Area Map.

Soils

16. Landings and adjoining burned pile surface soil materials will be examined (by a soil scientist or other trained forest personnel) for depth and degree of compaction and burning. Scarification should be done to the approximate depth of compaction and burning.

Design Criteria for Alternative 3

Heritage

1. All proposed temporary road corridors that have not been adequately surveyed for cultural resources will be identified during sale preparation and approximate locations will be provided to the archeologist for review, which will be completed prior to sale implementation.

Hydrology

2. New temporary or specified road construction:
    a. Outslope roads with rolling dips and/or waterbars to maintain hillslope hydrology to the extent possible and ensure adequate road drainage for all conditions.

b. Armor rolling dips as needed to prevent rutting damage.
c. Space cross drains based on slope and soil type as outlined in the Watershed Conservation Practices Handbook (FSH 2509.25) or by the Forest Soil Scientist.
d. Temporary road widths should not exceed 12 feet unless needed to meet curve radius or intersection needs.
e. Temporary road grades should not exceed 8 percent.
f. Any cut and/or fill required for temporary road construction or skid trails should not exceed two feet in height
g. Temporary roads will not cross perennial or intermittent stream courses, wetlands, or riparian areas.
h. Temporary roads will be located at least 200 feet from intermittent and perennial streams, riparian areas, and wetlands, unless approved by qualified Forest Service personnel.
i. Recontour all temporary roads unless a Forest Service representative determines it is not necessary.
j. The 1.5 miles of temporary road that has not been located will not be built within the Small C, Little Henry/Horse Creek, or Little Rock/Decker Creek subwatersheds to avoid adverse impacts to watershed health.

3. Within units, streamside management zones (SMZs) will be designated wherever wet depressional areas, springs, or other riparian and wetland habitats exist. SMZs will also be designated and marked where timber harvest units are located closer than 100 feet to streams, or within 50 feet of riparian areas. No heavy equipment will be allowed to operate within these SMZs, but timber may be removed by equipment reaching into the SMZ and cutting trees for removal.
   a. SMZs will be marked either with red tracer paint or “Streamside Management Zone” (orange with black lettering) flagging. GPS will be used to spatially locate all streamside management zones for inclusion on the sale area map. The appropriate specialist (hydrologist, soil scientist, botanist, etc) will work with the timber layout crew to identify streamside management zones during sale preparation.
   b. SMZs or Resource Protection zones may also be identified outside of, but adjacent to, designated harvest units where heavy equipment should not be operated. Example areas include wetlands, riparian areas, erodible soils etc.

Wildlife

4. To minimize the reduction of lynx habitat in the analysis area, avoid building temporary roads in areas of advanced regeneration. Advanced regeneration can be defined as lateral cover greater than 35 percent and available to snowshoe hares in winter (≥5 ft. in height) as described in the Southern Rockies Lynx Amendment.

Monitoring

Heritage

1. Monitoring of rehabilitation efforts and site stability will continue on an annual basis for three years until such time that the site is determined stable. If monitoring indicates site is not trending toward stabilization, then additional or alternative rehabilitation will be implemented under the direction of a professional archaeologist and consultation with the Colorado State Historic Preservation Officer.

Alternatives Considered but Eliminated from Detailed Study

The team considered a different watershed improvement and travel management proposal. This involved converting a portion of NFSR 243 to a level 1 road, improving NFSR 185 to a level 3 road, and building a short section of road to link NFSR 185 and NFSR 243 to remove the parallel roads in this area. While this alternative would maintain access into the same areas as NFSR 243 it was not considered in detail for the following reasons.

- NFSR 185 is in worse condition than NFSR 243 and causes more watershed impacts.
- NFSR 243 has been completely cleared of hazard trees through removal of dead lodgepole pine along this road, and closing it after putting in this investment is not economically preferable.
- NFSR 243 has more dispersed camping opportunities for hunters and other public and NFSR 185 can be left open to a few of the most popular dispersed campsites without impacting watershed health.

The team also considered analyzing the treatment of all remaining Rock Creek sales and implementing harvesting in management areas 5.11, 4.2, and 4.3. It was found that the only remaining harvest method available after the insect and disease infestation is the salvage method, and these management areas did not allow salvage in their range of allowed treatments analyzed in the Rock Creek EIS.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively between alternatives.

Table 3. Comparison of alternatives

Purpose & Need	Alternative 1: No Action	Alternative 2: Proposed Action	Alternative 3
Reduce the resource impacts associated with timber harvest occurring outside previously analyzed NEPA**.**	With no restoration proposed the No Action alternative would not address this need.	With restoration of sites with resource concerns outside of NEPA, the Proposed Action would address this need.	With restoration of sites with resource concerns outside of NEPA, Alternative 3 would address this need.
Reduce the effects of temporary road construction needed to finish the Rock Creek timber sales.	With no new temporary road building the No Action alternative would address this need.	With no new temporary road building the Proposed Action would address this need.	With up to 5 miles of new temporary road construction, which could include 0.5 miles of specified road Alternative 3 least addresses this need.
Improve watershed health through road decommissioning and other projects.	With no watershed improvements proposed, the No Action alternative would not address this need.	With approximately 7 miles of road decommissioning and 1 mile of road improvement, and closing two dispersed campsites within the riparian corridor the Proposed Action addresses this need.	With approximately 7 miles of road decommissioning and 1 mile of road improvement, and closing two dispersed campsites within the riparian corridor, Alternative 3 addresses this need
Remove beetle killed and dying lodgepole pine and promote regeneration of timber to expedite the establishment of the next forest.	With approximately 240 acres of timber harvest available in the Rock Creek area this alternative partially addresses this need.	With approximately 240 acres of timber harvest available in the Rock Creek area this alternative partially addresses this need.	With approximately 600 acres of timber harvest available in the Rock Creek area proposed, Alternative 3 best addresses this need.

Table 4. Comparison of alternatives - key issues

Issue Indicators	Alternative 1: No Action	Alternative 2: Proposed Action	Alternative 3
Issue 1: Temporary Road			
- Miles of temporary road proposed to be built	0	0	5
- Miles of temporary road proposed for reclamation	0	3.2	3.2

Issue Indicators	Alternative 1: No Action	Alternative 2: Proposed Action	Alternative 3
Issue 2: Motorized Access			
- Miles of road proposed for decommissioning	0	7	7
- System road density (mi/mi^2)	2.25	2.16	2.16
- Approximate cost of road maintenance on NFSR 185 and 241 per year.[1]	$3,525 to $19,388	0	0

[1] These are level 3 roads proposed for road decommissioning. Costs vary from $750 to $4,125 per mile depending on local conditions. Range of costs is shown, but most maintenance costs would be at the lower end of the scale. Level 1 roads (NFSR 242 and 246) are not on a formal schedule. Maintenance of these roads is on an as needed basis.

Table 5. Comparison of alternatives - summary of effects on resources.

Resource and Unit of Measure	Alternative 1: No Action	Alternative 2: Proposed Action	Alternative 3
Botanical Resources			
Threatened, Endangered and Sensitive Plant Species	No Effect	Beneficial Effect	May effect, not likely to adversely effect
Noxious Weed Invasion	Increase in weed populations	Lowest potential for noxious weed spread	Highest potential for noxious weed spread
Fisheries			
Sensitive Amphibian Species	No Impact	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.	May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.
Sensitive Fish Species	No Impact	No Impact	No Impact
Threatened and Endangered Species	No Effect	No Effect	May effect, not likely to adversely effect
Management Indicator Species	No Effect	Beneficial Effect	Beneficial Effect
Heritage Resources			
Cultural Resource Concerns	Violation of National Historic Preservation Act	No adverse effect	No adverse effect
Recreation			
Miles of Bike Trails Decommissioned	0	4.7	4.7
Soil Resources			

Resource and Unit of Measure	Alternative 1: No Action	Alternative 2: Proposed Action	Alternative 3
Approximate Number of Burn Piles to Rehabilitate	0	>1600	>1600
Miles of Temporary Road Rehabilitation	*0*	3	3
Transportation			
Miles of Road Maintenance	67	62	62
Miles of Road Reconstruction	*0*	1	1
Miles of Temporary Road Construction	*0*	0	5
Miles of Road Decommissioning	0	7	7
Timber Management/Silviculture			
Acres of Harvest	240	240	600
Watershed and Aquatic Resources			
Number of Watersheds Degraded from Existing Condition when Considering Reasonably Forseeable Future Actions	8	2	1 to 6
Number of Watersheds Improved from Existing Condition	0	11	6 to 11
Percentage of Watersheds with ECA over 25%	12%	12%	29%
Wildlife			
Threatened and Endangered Species	No Effect	No Effect	May effect, not likely to adversely effect

Resource and Unit of Measure	Alternative 1: No Action	Alternative 2: Proposed Action	Alternative 3
Sensitive Species	May Impact	Beneficial Impact	May Impact
Management Indicator Species: Golden crowned kinglet	Display stability in population trend with potential for localized changes in habitat related to the mountain pine or spruce bark beetle epidemic.	Display stability in population trend with potential for localized changes in habitat related to the mountain pine or spruce bark beetle epidemic.	Display stability in population trend with potential for localized changes in habitat related to the mountain pine or spruce bark beetle epidemic.
Management Indicator Species: Northern goshawk	Display stability in population trend over the short-term with potential for mid- to long-term (30-100 years) declines due to changes in habitat until the lodgepole pine community regenerates to mature forest conditions.	Display stability in population trend over the short-term with potential for mid- to long-term (30-100 years) declines due to changes in habitat until the lodgepole pine community regenerates to mature forest conditions.	Display stability in population trend over the short-term with potential for mid- to long-term (30-100 years) declines due to changes in habitat until the lodgepole pine community regenerates to mature forest conditions.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter summarizes the physical, biological, social, and economic environments of the project area and the effects of implementing each alternative on that environment. It also presents the scientific and analytical basis for the comparison of alternatives presented.

Additional documentation, including more detailed analyses of project area resources, may be found in the project administration record located at the Yampa District Office in Yampa, Colorado, or on-line at http://fs.usda.gov/goto/mbr/projects.

Botany

Affected Environment

The area is predominately a lodgepole pine forest type interspersed with openings of forb meadows and aspen stands. Willow stands and grass and sedge meadows are found along stream corridors. The majority of the lodgepole pine trees that are greater than 9 inches in diameter at breast height have has been killed by the Mountain Pine Beetle epidemic that occurred in this area.

Within the analysis area, there are approximately 2,270 harvest-related disturbance areas, which account for approximately 155 acres of significant resource damage. These areas include slash piles, landings, and temporary and specified roads. All vegetation at these sites has been removed and the soil has been severely compacted and may be hydrophobic as a result of pile burning. In addition, dispersed campsites immediately adjacent to streams have compacted soils, degraded riparian condition, increased sedimentation, and can affect water quality.

It is estimated that more than 100 acres are infested with noxious weeds within the analysis area. There are 13 known invasive species at 56 sites within the analysis area. See the Noxious Weed section for more information.

In recent years, rare plant surveys have been conducted by the Forest Service in and near proposed treatment units in accordance with the National Resource Information Systems (NRIS) plants protocol (2005c).

Two federally threatened, endangered, or proposed (TEP) plant species are known in Grand County: Osterhout milkvetch (*Astragalus osterhouttii*) and Penland beardtongue (*Penstemon penlandii*). No TEP plant species are known in Routt County (US 2012). Both plants are found outside the Routt National Forest boundary, no habitat for either plant is available on the Forest, and none were observed during field reconnaissance for this project. Therefore, both Osterhout milkvetch and Penland beardtongue are excluded from this analysis.

Twenty-six Region 2 sensitive plant species have potential habitat within the project area, none of which were found during field surveys. However, the presence of *Botrychium lineare* cannot reasonably be determined during surveys and is likely to

occur within or near the analysis area, have potential habitat in or near the analysis area, or be affected (i.e., directly, indirectly, or cumulatively) by the implementation of an action alternative.

Based on the pre-field review and field surveys, 72 species of local concern (SoLC) had potential habitat in the project area. Of these, only 3 species, including one proposed SoLC species, were found in the project area. These included Mill Creek agoseris (*Agoseris lackshewitzii*), clustered lady's slipper (*Cypripedium fasiculatum*), and white-veined wintergreen (*Pyrola picta*). Presence of *Botrychium* sp. cannot reasonably be determined during surveys. Although one *Botrychium* plant was found during surveys, all *Botrychium* SoLCs will be carried forward in the analysis (R2 FSM 2672.43). All other species not found during field surveys were dropped from further analysis.

Environmental Consequences

ALTERNATIVE 1 - No Action: Under the No Action alternative, no creation or improvement of potential habitat would be implemented and no rehabilitation of disturbed areas would occur; therefore, non-native and invasive plant species would be the most likely to successfully colonize these areas. Once established, they are likely to spread, causing a negative impact to the sensitive species and species of local concern found in the project area. For the No Action alternative a determination of "No impact" was made for all species because under this alternative no management actions would occur and natural processes would continue.

ALTERNATIVE 2 - Proposed Action: Proposed rehabilitation activities include a variety of soil disturbing actions, such as scarification and ripping, that could potentially dislodge or destroy individual plants, and mulching could bury individual plants. Rehabilitation of areas with resource concerns is expected to increase colonization by native species and reduce potential infestation by non-native invasive species.

Habitat modifications may cause shifts in hydrologic, solar, and soil characteristics of rare plant habitats, and may also impact pollinators or soil mycorrhizae associated with rare plant species. Some species, such as moonworts, rely on light disturbance. Disturbance and land management activities may create and maintain suitable habitat for these species or may negatively impact existing populations depending on the disturbance timing, intensity, and frequency (Beatty et al. 2003, Williston 2001, Muller 2000, Zika et al. 1995).

It is anticipated that rehabilitation of temporary roads, skid trails and landings could, over one to two decades produce potential habitat for *Botrychium* species. These species typically occur in previously disturbed habitat. It is not currently known which other species may benefit from long-term habitat creation.

Seeding of disturbed sites poses concerns as to whether the seeding will succeed or fail and whether the restored populations will be "the same" as the original populations. Native seed could include commercial, off-the-shelf (COTS) and or local genetic materials. COTS materials are typically cultivars and/or have genetic materials from other geographic areas. Use of COTS can have a substantial effect on population genetics, reducing the fitness of the existing population. Local genetic materials are

typically collected from multiple parents at multiple locations within a defined seed-transfer zone. Use of local genetic material has a lower risk of inbreeding and outbreeding depression (Johnson et al. 2010), and is preferred if available.

For the Proposed Action a determination of "Beneficial impact" was made for all species because under this alternative areas of previous disturbance would be rehabilitated and potentially create new habitat for the species.

ALTERNATIVE 3: This alternative allows for the construction of up to 5 miles of temporary road, which increases the disturbed area. This increases the probability of physical damage to rare plant individuals, populations, or habitat. Although these areas would be rehabilitated, it is unlikely that these areas would be fully restored to their pre-disturbance condition within 10 to 15 years.

For Alternative 3 a determination of "May adversely impact individuals, but not likely to result in a loss of viability on the planning unit, nor cause a trend to federal listing or a loss of species viability rangewide" was made for all species because individuals or populations may experience detrimental direct or indirect effects including, but not limited to, trampling, crushing, incineration, loss of habitat, loss of mycorrhizae, and displacement by invasive species.

Table 6 summarizes the effects for each of the species analyzed. These determinations assume the project adheres to all Design Criteria.

Cumulative Effects: Past and present grazing, fire, invasive species control, road and trail development, timber harvest, water diversions, and wildlife movement have all affected the existing condition in the project area. Future timber sales, restoration actions, wildfire, road and trail development, and grazing may also contribute to cumulative effects for botanical resources.

Table 6. Summary of Determinations

Species	Common name	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3
R2 Sensitive Species				
Botrychium lineare	Narrowleaf moonwort	NI	BI	MAII
Species of Local Concern				
Agoseris lackschewitzii	Mill Creek agoseris	NI	BI	MAII
Botrychium echo	Reflected moonwort	NI	BI	MAII
B. hesperium	western moonwort	NI	BI	MAII
B. lanceolatum var. *lanceolatum*	lance-leaved moonwort	NI	BI	MAII
B. lunaria	common moonwort	NI	BI	MAII
B. minganense	Mingan moonwort	NI	BI	MAII
B. mulifidum	Leathery grapefern	NI	BI	MAII
B. pallidum	pale moonwort	NI	BI	MAII
B. pinnatum	northern moonwort	NI	BI	MAII
B. simplex	little grapefern	NI	BI	MAII
Cypripedium fasiculatum	Clustered lady slipper	NI	BI	MAII
Pyrola picta	White-veined wintergreen	NI	BI	MAII

BI = Beneficial Impact; **NI** = No Impact; **MAII** = May adversely impact individuals, but not likely to result in a loss of viability on the planning unit, nor cause a trend to ferderal listing or a loss of species viability.

Vegetation management actions increase ground disturbance which may negatively impact individual plants or whole populations of terrestrial species. Ground disturbance also creates habitat for invasive species. Invasive species presence can be additive to other disturbances and can change mycorrhizal communities (With 2002) that are essential to many native species. It is also possible that ground disturbance may create or improve habitat for some species (such as *Botrychium*) increasing the populations.

Grazing by domestic livestock and wildlife leads to biomass removal and trampling, which causes changes in species composition, compaction of soils, changes in fuel loading and fire regime, downcutting of riparian areas and drying of adjacent meadows, and noxious weed invasion. As both wild and domestic animals graze the palatable forage unpalatable species are likely to increase. This effectively reduces diversity of desirable native plant species.

Water development or diversion may affect individuals or populations of analyzed species by altering the hydrologic regime of occupied or potential habitat. Loss of individuals or populations could occur through site inundation or desiccation that results from water diversions and developments, whether at the watershed scale, or at the scale of a culvert placement.

The effects of fire may benefit *Botrychium* habitat by reducing litter accumulation and competition from other plants. However, high-severity fires that create high ground temperatures could sterilize the soil and eliminate mycorrhizal fungal species that are necessary for *Botrychium* survival.

Conversely, restoration actions such as road decommissioning, road relocation, road improvements, burn pile rehabilitation, closure of dispersed recreation sites, and spraying of noxious weeds can help to improve conditions and be beneficial to native species.

The actions and effects described above can be both additive and interactive to each other and to the direct and indirect effects described above. The cumulative effects are not expected to contribute to an increase in any current or predicted downward trend in population numbers or density or to current or predicted downward trends in habitat capability that would reduce the existing distribution of the analyzed species.

Fire/Fuels

Affected Environment

The affected environment has mid-elevation lodgepole pine stands, with areas of Englemann spruce and sub-alpine fir primarily in drainages and hillslopes with a more northerly aspect. The Mountain Pine Beetle epidemic has caused a landscape scale disturbance, which has led to the death or decay of the majority of the lodgepole pine stands. As the dead stands decay and fall, fuel loading will continue to increase and may create an environment that is more susceptible to high intensity fires with longer duration events on a landscape scale.

Areas that have been harvested throughout the analysis area exhibit fuels conditions that are conducive to safe and effective fire management in the event of a wildfire. Fire behavior within the treated areas will generally be low intensity and of short duration over the next decade. This will generally prevent fires that ignite within the treated areas from spreading in size and duration. Treatment will also provide a fuel continuity break when wildfires enter treated areas, causing a decrease in fire behavior, and allowing for safer and more effective management of an incident.

Regeneration of the harvested sites, once dominated by primarily dead material provides natural fuel breaks through ground shading from new canopy cover and increased relative humidity that will dampen fire behavior. Species composition may also be altered post-treatment from a more fire receptive species, such as spruce and fir, to a fire resistant species, such as aspen. The combination of these effects will aid future fire management efforts within the treated areas. Fire managers will have more flexibility in tactics when a fire occurs and will provide a safer environment for first responders as well as the public.

The condition of the affected area can be evaluated using a recognized fire regime and its current condition found in the Interagency Fire Regime Condition Class Guidebook (Barrett et al. 2010). A fire regime is a general classification of the role fire would play across a landscape. Fire Regime Condition Class is a rating of the fire regime based on a relative measure describing the degree of departure from natural or historic conditions. This departure results in changes to one or more of the following components: vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances, such as insect and disease mortality, drought, and grazing. There are three levels of Fire Regime Condition Class with 1 being within the natural range of variability and 3 being the highest departure from the natural regime.

The analysis area is in fire regime IV which has a 35 to 200 year frequency and generally mixed severity fires. Fire regime IV also includes low severity fires, which would include lodgepole pine stands with a mixed spruce and fir component. The Fire Regime Condition Class for the analysis area is 1, within the natural range of variability (Barrett et al. 2010).

Environmental Consequences

ALTERNATIVE 1 - No Action: Under the No Action alternative, there would be no direct effects to the fuels conditions within the project area. Harvest that has already occurred has provided a positive effect to the fuels profile by removing large material and piling residual debris. Piles located within the Rock Creek treatment units will be burned or possibly removed for biomass utilization. Piles outside of the Rock Creek units would be left unburned, however the number of piles in these areas is limited and does not contribute to any negative impact to the fuels profiles and will not increase the hazard if left unburned.

If remaining harvest areas from the Rock Creek EIS are sold in smaller sales using only existing infrastructure, there may be a longer period before all identified areas are harvested, and some areas may not be harvested at all. This will mean that some areas will retain or increase their current fuel loading, which may increase the potential for more destructive and less manageable fires until harvest in these areas occurs. It is not fully known to what extent the beetle epidemic will affect the probability of intense fire events. “The probabilities of such fires are uncertain, and more research is needed to learn in what ways and how long the fuels and fire environment are altered by the beetles. Nevertheless, protection of communities and other values at risk continues to be imperative” (Kaufmann, 2008).

ALTERNATIVE 2 - Proposed Action: The piles that are located outside the original Rock Creek sales would be burned and proposed timber sales within the Rock Creek analysis area would be harvested using existing infrastructure. Sales will be sold in smaller sales similar to the No Action alternative; therefore the associated effects to increased fuel loading would be the same as described in the No Action Alternative.

ALTERNATIVE 3: Under this alternative, allowing for 5 miles of temporary road would increase the amount of harvest that could be done from approximately 240 acres to approximately 600 acres. This would have a positive effect on fire severity and behavior by providing larger treated areas, leading to low intensity and short duration fires as well as providing for fuel breaks. Regeneration in larger areas would also aid future fire management efforts by creating more diversity in species and fuel composition within the treated areas.

Cumulative Effects: There have been no large wildfires or prescribed fires within the analysis area over the last 50 years. The greatest impact to the fire regime has been through the Mountain Pine Beetle epidemic and large scale timber harvests. The Mountain Pine Beetle epidemic left the majority of the lodgepole pine stands dead and in varying degrees of decay, increasing available fuel, which could lead to higher intensity fires of a longer duration. Past timber harvest has also affected fire behavior. The resulting effect of these large timber harvests over the long-term is two parts. First, the immediate removal of existing fuel accumulations decreases the potential for large scale fires over the next decade. Then after ten years, the emerging stands of healthy young trees with some areas of new species composition would provide for a geographic area that has a mix of fuel composition and arrangement. Future timber harvests in the geographic area would bolster this mosaic of age class and species composition. Managing wildfire in an area of varying fuels availability is usually an easier fire to manage for agency and public needs.

Fisheries

Affected Environment

The streams in the analysis area have the capability to provide habitat for Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus* (CRCT), Hirsch et al. 2006). Currently cutthroat trout only exist in Deadman Gulch within the project area. The Deadman Gulch population is consistent with the greenback lineage (*Oncorhynchus clarkii stomias*) which is federally threatened under the Endangered Species Act.

The primary fish species within the project area are non-native brook trout (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), and long-nosed sucker (*Catastomus catastomus*). Brook trout occur in all streams while brown trout occupy lower and middle Rock Creek and the lower portions of its tributaries. Density estimates ranged from low to high but were within the range of what would be expected. Multiple age classes were present suggesting that there are no chronic impacts affecting recruitment.

The tiger salamander (*Ambystoma tigrinum*) is the most common amphibian species recorded in the project area while western chorus frogs (*Pseudacris triseriata*) have

been heard at multiple locations. Neither of the species are threatened, endangered or Region 2 sensitive species. The project area contains minimal suitable habitat for the northern leopard frog (*Lithobates pipeans*) although one known population exists at Bulkley Reservoir, which is approximately 2 miles from the western border of the Analysis Area. Boreal toads (*Anaxyrus boreas boreas*) are not known to occur within the project area. There are two breeding sites approximately two miles north of the project area suggesting that adult toads may be present. Northern leopard frog and boreal toad are Region 2 sensitive species.

Management Indicator Species (MIS)

The National Forest Management Act directs National Forests to identify Management Indicator Species (MIS). MIS are chosen as species representative of certain habitat conditions important to a variety of other species. MIS are generally presumed to be sensitive to habitat changes. By monitoring and assessing populations of MIS managers can determine if management actions are affecting species populations. Table 7 outlines Routt National Forest aquatic MIS, their presence in the analysis area, and anticipated effects due to implementation of an action alternative.

Sensitive Species

Species for Region 2 are listed on the Regional Forester's sensitive species list and are composed of plants, birds, mammals, amphibians, fish and invertebrates (Holifield 2011). The species have been reviewed and all have been considered. Of the sensitive aquatic species, three are likely to occur within or near the analysis area, have potential habitat in or near the analysis area, or be affected by the implementation of an action alternative. The three species carried forward are Boreal toad, Northern leopard frog, and Colorado River cutthroat trout.

Boreal Toad (*Anaxyrus boreas boreas*) and Northern Leopard Frog (*Lithobates pipiens*)

National Wetland Inventory maps indicate that amphibian habitat within the analysis area is mostly associated with beaver ponds, streams in low gradient valleys, and two reservoirs.

Surveys for boreal toads and leopard frogs have been ongoing throughout the entire project area. No boreal toads have been identified in the project area. The only occurrence of Northern leopard frogs was a 2012 sighting at Bulkley Reservoir. Boreal toads, as well as Northern leopard frogs, are cryptic species and it is recognized that a one-time survey does not necessarily mean that they are not present in the project area.

While boreal toads have not been observed within the analysis area, there are two breeding sites located two miles from the analysis area boundary suggesting that toads may be present.

Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*)

Colorado River cutthroat trout (CRCT) are thought to have historically inhabited most streams within the Gore Creek Restoration project area. No conservation populations of

CRCT currently occupy streams within the analysis area. While suitable habitat exists, there are currently no plans to expand the range of Colorado River cutthroat trout into streams within the project area.

Threatened and Endangered Species

The bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), and razorback sucker (*Xyrauchen texanus*) are endangered aquatic species that persist downstream in larger rivers and could potentially be affected by the Gore Creek Restoration project. The Fish and Wildlife Service believes that one of the major causes for the decline of these species is the effect of impoundments and water depletions. There are no water depletions associated with this project and the project would not have any net effect on habitats in the mainstem Yampa River. Therefore, there would be no direct, indirect, or cumulative effects associated with the Proposed Action to the endangered downstream fish populations or habitat.

Environmental Consequences

MIS species

The Gore Creek Restoration project activities specified in the action alternatives are appropriate as a means to rehabilitate disturbed ground, improve watershed conditions, and construct temporary roads. There will be no influence on forest-wide CRCT populations as they are not present within the project area. The No Action alternative would not change the existing condition and aquatic habitats would remain stable. Implementation of the action alternatives would benefit fish habitat and brook trout and are not anticipated to affect population trends within the planning unit or Forest-wide (Table 7). Forest Plan Standards, Guidelines, Watershed Conservation Practices, and project Design Criteria have been established to reduce impacts to aquatic species. The conditions of aquatic habitat are expected to improve under the action alternatives although to a lesser extent with Alternative 3.

Table 7. Summary of effects for aquatic MIS species

Common Name of MIS	Management Issue	Species Present in Analysis Area?	Habitat Present in Analysis Area?	Summary of Anticipated Effects From Implementation of an 'Action Alternative' to MIS
Colorado River cutthroat trout	Aquatic habitat fragmentation & sedimentation of riparian areas & aquatic habitats	No	Yes	The implementation of the Proposed Action alternative is anticipated to have no impact to suitable habitat or influence forest-wide population trends. Alternative 3 may impact suitable habitat for this population but would not influence forest-wide population trends.

Common Name of MIS	Management Issue	Species Present in Analysis Area?	Habitat Present in Analysis Area?	Summary of Anticipated Effects From Implementation of an 'Action Alternative' to MIS
Brook trout	Aquatic habitat fragmentation & sedimentation of riparian areas & aquatic habitats	Yes	Yes	The action alternatives have Design Criteria incorporated that are likely to eliminate any impacts to trout habitat and particularly the potential for increased sedimentation in riparian areas, aquatic habitat fragmentation, and loss of stream shading. Therefore, the implementation of an action alternative is anticipated to have no impact on suitable habitat or influence forest-wide population trends.

Sensitive Species

ALTERNATIVE 1 - No Action: The natural effects from the Mountain Pine Beetle epidemic would continue, which may result in water yield increases, destabilizing some streams and affecting aquatic habitat. Existing sediment sources from past road and harvest activities would remain chronic and continue to contribute sediment to the stream system which would affect stream health. Coupled with the effects of increased water yields from the dying trees, some stream channels, and thus aquatic habitat may experience degradation. Overall, aquatic habitat conditions for fish and amphibians would remain stable or increase under this alternative.

ALTERNATIVE 2 - Proposed Action: Rehabilitation treatments and watershed improvement activities would improve amphibian and fish habitat conditions affected by past harvest and road construction activities. With proper implementation of Design Criteria, aquatic organisms and their habitat may experience minor short term impacts, but in the long term would improve conditions relative to the No Action alternative.

ALTERNATIVE 3: The effects and benefits of rehabilitation treatments and watershed improvements would be the same as described in the Proposed Action.

The proposed temporary road construction may result in an increase in sediment reaching the stream channels, likely occurring at stream crossings. It is not expected that additional sedimentation would result in measurable, negative effects to fish or amphibian habitat. No substantial effects to aquatic resources due to road construction are expected if best management practices, Standards, Guidelines, and Design Criteria are followed.

Although road construction activities are not considered a factor in the decline of amphibian species, crushing of juveniles and adults may occur. Negative impacts from the proposed activities would most likely occur in the spring when amphibians are migrating from over wintering habitat to breeding habitat and after the breeding season when they are dispersing. This period is usually from the middle of May through the first part of September.

The Deadman Gulch watershed contains a population of lineage GB cutthroat trout, which is considered a federally threatened species by the U.S. Fish and Wildlife Service. New temporary road construction could occur within this watershed. Alternative 3 is more consistent with Forest Plan direction for aquatic resources than the No Action alternative but less consistent than the Proposed Action alternative. The overall result would still be improved conditions for aquatic organisms.

Threatened and Endangered Species

There would be no effect to the Colorado pikeminnow, bonytail chub, humpback chub or razorback sucker from the Proposed Action. The rationale for this determination is because the endangered fish or their habitat are not present on the Medicine Bow - Routt National Forests or Thunder Basin National Grassland and no water depletions are associated with this project.

Table 8. Determination summary for aquatic sensitive species by alternative

Common Name	Scientific Name	Status	Determination of Effects		
			Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3
Boreal Toad	*Anaxyrus boreas boreas*	Sensitive	NI[2]	MAII[3]	MAII
Northern Leopard Frog	*Lithobates pipiens*	Sensitive	NI	MAII	MAII
Colorado River cutthroat trout	*Oncorhyncus clarkii plueriticus*	Sensitive	NI	NI	NI

Management actions proposed in Alternative 3 may result in short-term risks to greenback cutthroat trout related to potential sediment deliveries into the channel. Impacts will be mitigated through project design criteria, some of which are specific to keeping actions away from streams and riparian areas, so that risks are minimal, insignificant, and discountable. Therefore, the No Action and Proposed Action alternatives would result in a "no effect" determination, whereas temporary road construction proposed in Alternative 3 would result in a "may affect, but not likely to adversely affect" (NLAA) determination for greenback cutthroat trout.

Cumulative Effects: Past and present vegetation management, road construction, livestock grazing, and recreation have all affected the existing condition in the project area. Vegetation management and road construction activities likely increased water yields and increased sedimentation to the stream system. Livestock grazing has affected riparian health and stream stability and increased sedimentation in certain stream reaches. Dispersed campsites immediately adjacent to streams have compacted soils, degraded riparian condition, increased sedimentation and can affect water quality.

Conversely, watershed restoration actions have helped to improve conditions. These have included road decommissioning, road relocation, road improvements, burn pile rehabilitation, closure of dispersed recreations sites near streams, and the replacement of undersized culverts with bottomless arch structures.

Reasonably foreseeable actions or events that may affect aquatic habitat include water yield increases and increased risk of large-scale high intensity wildfire resulting from the bark beetle epidemic. Wildfires could significantly affect watershed health, function and aquatic habitat. On one hand, wildfires can cause direct mortality to aquatic organisms,

[2] NI = No Impact
[3] MAII = May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing.

loss of downed wood at micro-climate refugia, and reduced water quality through increased sediment and excess nutrient loading (Packauskas 2005). Conversely, wildfires can improve the shrub component in the understory (Loeffler 2001) and accelerate revegetation.

The cumulative effects of the Proposed Action on aquatic organisms would be positive. Ground disturbance related to further vegetation management activities and road construction may have direct and indirect negative effects on individuals. Conversely, this alternative reduces the potential for a stand replacing fire.

With proper implementation of Design Criteria, aquatic organisms and their habitat may experience minor short term impacts, but in the long term the Proposed Action would maintain or improve conditions relative to the No Action alternative.

Heritage

Affected Environment

To evaluate past and potential impacts on cultural resources, data was collected during the 2011 and 2012 field seasons to determine the effects of past timber harvest, the potential effects to unidentified cultural resources during proposed restoration activities, as well as where timber harvest activities occurred outside of NEPA. Of the total area that is eligible for restoration activities, 597 acres (68 percent) were examined to determine if ground visibility was adequate for surveying for cultural resources, and if cultural resources were present in those areas that allowed for surveying. Only 3 percent of the survey is considered adequate due to the lack of ground surface visibility throughout the majority of the survey area. If cultural resources were identified, then efforts were made to determine if these sites were affected by timber harvest activities. Surveys were also conducted along all roads and at the dispersed campsites where decommissioning is proposed, as well as at the culvert removal. Finally, previously identified eligible sites within the project area were revisited to determine the current condition based on implemented timber activities.

Data collected indicated that ground disturbance from timber sale activities has affected some cultural resources in the analysis area. Piling and burning of slash affected cultural resources through destruction of stone artifacts. Stone artifacts can be affected by fire causing breakage and other alterations (Ryan et al. 2012). The effect of heat from fire is not limited to artifacts laying on the surface; heat can affect subsurface artifacts as well.

Landing locations surveyed had total disturbance with no evidence of cultural material. Any archeological site that may have been present in these locations would have been destroyed when the landings were built.

Proposed restoration areas were assessed for the potential to survey for cultural resources. The ability to see the ground surface is integral to the identification of many archaeological sites, unless there are large objects resting above vegetation. In order to determine the potential effects that the proposed restoration activities might have, ground surface visibility was assessed. This was found to be highly variable between and within proposed restoration areas. The cultural resource survey conducted for this

project is only considered adequate for the implementation of the campground and road decommissioning, as well as proposed culvert removal. Restoration of burn piles, rehabilitation of landings and roads, and for the preponderance of harvested areas cannot be assessed for the presence of cultural resources because ground surface visibility prevents the identification of cultural resources.

During the surveys 14 newly identified cultural resources were located and the boundary of one cultural resource was expanded.

All cultural resources are evaluated for eligibility to the National Register of Historic Places (NRHP) according to the criteria described in 36 CFR 800.

All significant cultural resources must:

(a) Be associated with events that have made a significant contribution to the broad patterns of our past, or

(b) Be associated with the lives of persons significant in our past, or

(c) Embody the distinctive characteristics of a type, period or method of construction, represent the work of a master, present high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction, or

(d) Yield or be likely to yield information important in prehistory or history.

For the purposes of this analysis, cultural resources are considered significant if they are determined to be eligible for the NRHP or if their eligibility has not been determined.

Environmental Consequences

ALTERNATIVE 1 - No Action: The No Action alternative would result in further deterioration of at least one significant archeological site due to increased erosion, which could increase the potential for collection and vandalism at the site. By not mitigating the effects of harvest activities through restoration of disturbances, the No Action alternative would be in violation of the National Historic Preservation Act, as amended.

ALTERNATIVE 2 - Proposed Action: Several activities within the Proposed Action have the potential to impact cultural resources within the project area. Restoration activities have the potential to affect two sites considered eligible for inclusion into the NRHP as a contributing element to a National Historic District. Primary impacts to cultural resources from ground scarification may include the displacement, alteration and destruction of surface artifacts and cultural features, as well as disturbance to site stability. It is possible that additional, otherwise unidentified, cultural resources have the potential to be effected by proposed project implementation.

Areas and activities proposed for road decommissioning, culvert removal, closing dispersed campsites, and decommissioning of skid trails and temporary roads would have no effect to archaeological sites. These areas were surveyed for cultural resources and none were identified. The reduction of roads on the Forest is beneficial to archaeological sites. Eliminating routes into the Forest that can be used for

unauthorized recreation activities reduces the potential for damage or vandalism to archaeological sites.

Any archeological sites that were present in landing locations have already been affected and rehabilitation of these sites would decrease erosion which could reduce sedimentation at other sites.

It is unknown whether burn piles outside of NEPA polygons are located on archeological sites. These sites were not previously surveyed because they are outside of previously analyzed NEPA polygons and burn piles are now impacting the ability to survey the area. If burn piles are located on archeological sites then burning and scarification would have a detrimental effect. Mechanical scarification of the pile would not only damage the cultural material present in the pile, but also the site surrounding the pile. Because it is impossible to determine if cultural resources would be affected by burning piles that were placed outside of surveyed units, it is also impossible to determine if the rehabilitation of the burn piles would affect cultural resources without surveying each pile post burn and before rehabilitation. However, the seeding associated with the rehabilitation would protect sites, if present, from further erosion caused by lack of vegetation.

Restoration on steep slopes should have little effect on cultural resources. Archaeological sites indicative of prehistoric or historic occupation have a low probability of being located on the types of slopes proposed for restoration. Re-vegetating areas of disturbance would have an overall beneficial effect on archeological sites. If there are unidentified sites adjacent to disturbance areas then eliminating disturbances will also reduce the secondary effects from erosion.

Although proposed activities would have the potential to cause adverse effects to cultural resources, the determination for the Proposed Action is “no adverse effect” if eligible and unevaluated sites are avoided and stipulations outlined in the consultation letter and NHPA compliance report (Roth and Paschal 2012) are followed. Mitigating the effects of harvest activities through restoration of disturbances is in compliance with the National Historic Preservation Act, as amended.

ALTERNATIVE 3: Impacts from restoration activities would be the same as described in the Proposed Action. The addition of up to 5 miles of new temporary road could also affect cultural resources through increased ground disturbance; however, these sites would be surveyed prior to building the temporary roads, which would reduce impacts to cultural resources. Alternative 3 is in compliance with the National Historic Preservation Act, as amended.

Cumulative Effects: Cultural resources are non-renewable. In surveyed areas, recording and archiving basic information about each site for future reference serves to partially mitigate potential cumulative effects to cultural resources. During this project the total loss of archaeological information cannot be determined, since a majority of the area was not adequately surveyed for cultural resources. For those sites that have been identified and determined to be “not eligible” for inclusion to the NRHP, the detrimental effect of this loss is low. Although attempts were made to fully document these sites in

a way that collects all information relevant to broader understanding of that site's relationship to the cultural landscape, it is possible that the limited ground surface visibility obscured additional cultural material. Caution should be used in these areas during implementation of restoration activities for the presence of cultural material.

For those sites that are determined to be "eligible" or are "unevaluated" to the NRHP, as long as they are protected from the effects of the proposed project, as determined through consultation with the State Historic Preservation Officer, the overall cumulative effects to cultural resources is low. Over time, the accumulated loss of individual cultural resources has the potential to limit our ability to understand broad patterns of human history as well as local historical events.

Hydrology

Affected Environment

The Gore Creek Restoration project is located primarily in the Toponas Creek (140100011004), Headwaters Rock Creek (140100011001), Outlet of Rock Creek (140100011006), Pass Creek (140100010707), and Blacktail Creek (140100010902) sixth level watersheds. All of these watersheds are in the upper Colorado River basin. National Hydrography Dataset seventh level watersheds and Hydrologic Unit Code (HUC) numbers are used in this analysis to better identify specific areas of concern and evaluate the environmental effects. In order to better address cumulative effects, complete watersheds including areas outside of the project analysis area, but within the proclaimed Forest boundary were used. Watersheds were not analyzed beyond the Forest boundary due to a lack of data regarding past and present management actions, and watershed condition. Seventh level subwatersheds are a subset of sixth level watersheds; Table 9 shows the relationship between sixth and seventh level watersheds. Figure 3 shows the location of the seventh level subwatersheds within the Analysis Area.

Table 9. Correlation between sixth and seventh level watersheds in the analysis area

6th Level Watershed Name	6th Level Hydrologic Unit Code	7th Level Watersheds within a 6th Level Watershed
Pass Creek	140100010707	Devil
Blacktail Creek	140100010902	Upper Blacktail Creek East Fork Blacktail Creek French Creek Little Blacktail/Thomas Creeks
Outlet of Rock Creek	140100011006	Long Park Basin Little Henry/Horse Creeks Whiskey Creek Lower Rock Creek/Crater Shoe and Stocking Creek
Headwaters Rock Creek	140100011001	High Rock Creek

6th Level Watershed Name	6th Level Hydrologic Unit Code	7th Level Watersheds within a 6th Level Watershed
		Teepee Creek Farnham Creek Little Rock/Decker Creeks Iron Springs/Rock Creeks Small Composite
Toponas Creek	140100011004	Dead Man Gulch

Minimum state water quality standards have been established by the Colorado Department of Public Health and Environment (CDPHE) in accordance with a streams designated beneficial uses. None of the streams in the analysis area are listed as impaired on the Colorado 303(d) list or Monitoring and Evaluation list (CDPHE 2012).

All of the streams and watersheds in the analysis area are considered source water areas for community water supplies; see CDPHE 2008 for a description of different sourcewater areas. In a 2009 Memorandum between the Forest Service and State of Colorado (CDPHE 2009), the Forest Service agreed to recognize state designated sourcewater areas as analogous to municipal watersheds as defined in FSM 2542. This recognition directs the Forest Service to protect water quality while allowing for multiple uses.

There are approximately 3,500 acres of riparian or wetland areas in the analysis area, and approximately another 100 miles of riparian communities that are too small to be mapped as riparian polygons based on the Routt National Forest riparian inventory (Routt 1993).

The Headwaters Rock Creek, Outlet Rock Creek, Pass Creek, and Blacktail Creek watersheds would be considered to be in Condition Class II (FSM 2521.1) based on the 2011 National Watershed Condition Framework assessment process (Potyondy and Geier 2010). Class II watersheds exhibit moderate geomorphic, hydrologic, and biotic integrity relative to their natural potential condition. Portions of the watershed may exhibit an unstable drainage network. Physical, chemical, and biologic conditions suggest that soil, aquatic, and riparian systems are at risk in being able to support beneficial uses (FSM 2521.1). This rating is due largely to the effects of past timber harvest and associated road construction, and water developments and diversions. The Toponas Creek watershed would be considered Condition Class I. Class I watersheds exhibit high geomorphic, hydrologic, and biotic integrity relative to their natural potential condition (FSM 2521.1). Table 10 shows the stream health rating as defined in the Rock Creek EIS versus what was seen in the field in 2011.

Past and present timber harvest, road construction, livestock grazing, and recreation have affected the existing condition in the analysis area. Past timber harvest and road construction has increased water yields, extended the channel network, and increased sedimentation to the stream system through connected disturbed areas. Past timber

operations have also affected soil productivity including infiltration and surface erosion potential.

Livestock grazing has affected riparian health and stream stability in certain stream reaches as outlined in the original Rock Creek EIS. Dispersed campsites immediately adjacent to streams have compacted soils, degraded riparian condition, increased sedimentation, and can affect water quality. Motorized recreation off designated roads has increased the connected disturbed area and increased stream sedimentation.

The hydrologic regime, particularly water yield, has been affected by past and current timber harvest. Timber harvest reduces evapotranspiration and interception losses that increase water yield which can potentially affect stream health and stream stability. Multiple research studies (FST 2509.25, Troendle et al. 2001) have found that water yield increases are often not detectable until approximately 25 percent of the basal area has been removed. This suggests that water yield increases where less than 25 percent of the basal area is removed are within the range that streams naturally evolved.

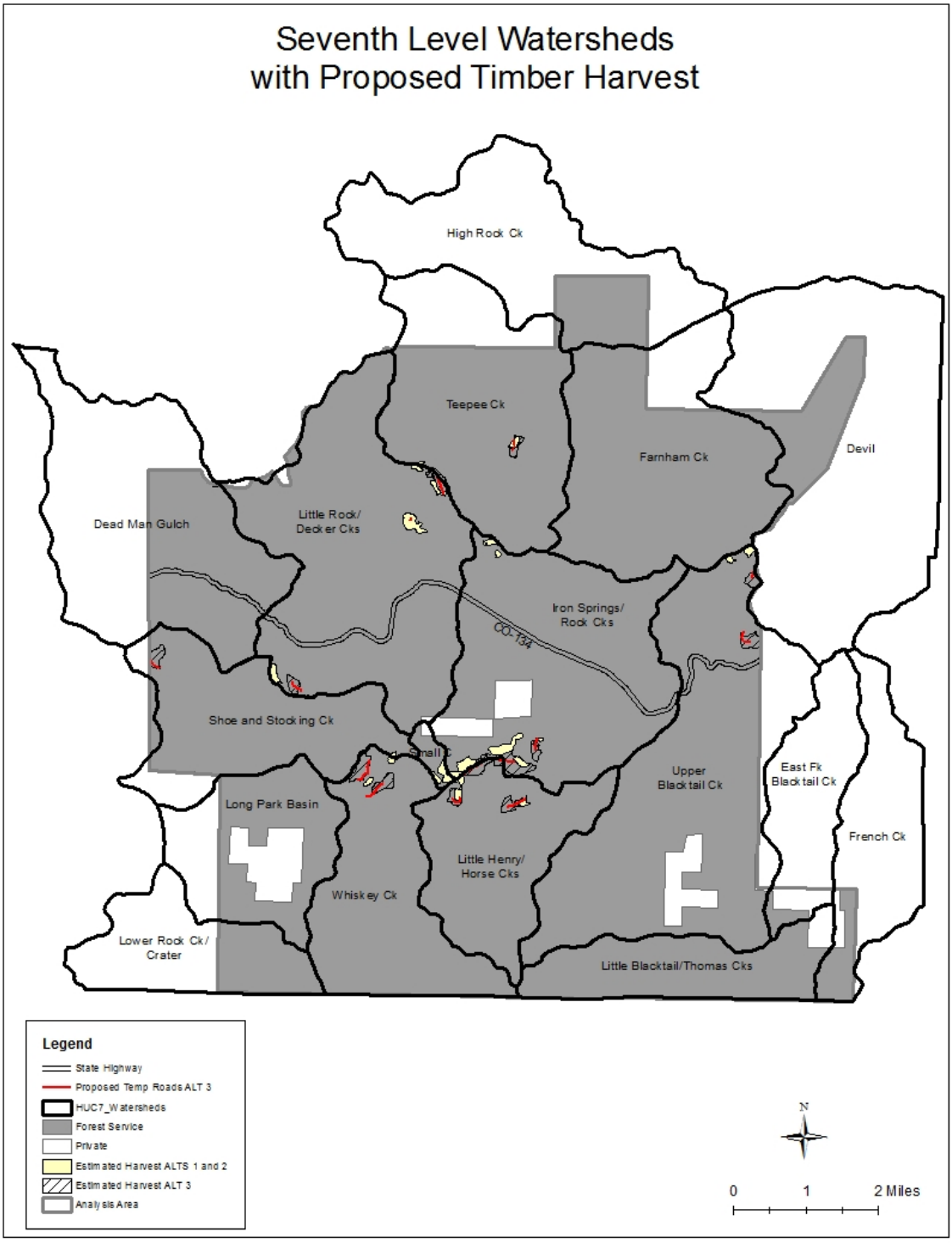

Figure 3. Map of Seventh Level Watersheds and Proposed Timber Harvest Units within the Analysis Area

Table 10. Stream health ratings from Rock Creek EIS and 2011 field season

Stream	Seventh level watershed	Stream health rating: Rock Creek EIS	Bank stability rating: Rock Creek EIS (good, fair, poor)	2011 Updated ratings
Blacktail Cr	Blacktail Cr	Adequate	Good	Stream health: At risk
Little Rock Cr upper	Little Rock Cr	Diminished	Poor-fair	--
Little Rock Cr lower	Little Rock Cr	Diminished to Adequate	Poor-fair	Stream health: At risk Bank stability: Fair
Rock Cr	Rock Cr. Canyon	Adequate	Fair	Stream health: At risk
Gore Cr	Gore/Farnham	Adequate	Fair	Stream health: At risk
Farnham Cr	Gore/Farnham	Adequate	Poor	Stream health: At risk
High Rock Cr	High Rock Cr	Robust	Fair	--
Shoe and Stocking Cr	Shoe and Stocking	Adequate to Robust	Good	--
Horse Cr	Horse Cr	Adequate	Poor-Fair	Stream health: At risk
Teepee Cr	Upper Rock Cr	Adequate	Good	Stream health: At risk
Decker Creek	Little Rock Cr	Diminished	Poor	--
Deadman Gulch	Deadman Gulch	Robust	Good	--

Stream	Seventh level watershed	Stream health rating: Rock Creek EIS	Bank stability rating: Rock Creek EIS (good, fair, poor)	2011 Updated ratings
West Fork Toponas Cr	West Toponas	Diminished to Adequate	Fair	Stream health: At risk

Beetle epidemics also increase water yield to a lesser degree than timber harvest. Recent data from the Fraser Experimental Forest suggests that beetle epidemics result in less water yield increase than timber harvest due to interception from the standing tree boles, and release of the understory which continues to use some of the available water.

The concept of equivalent clearcut area (ECA) is used to represent the acres or percent of basal area reduction within a watershed. Basal area reduction includes mechanical removal through timber harvest, or mortality through natural processes such as beetle epidemics or fire. ECA represents the area of a watershed considered to be hydrologically equivalent to a clearcut with no regeneration; for example, one acre of clearcut with no regeneration equals one ECA acre. Depending on the channel type and inherent channel stability, 20 to 30 percent of the basal area of a watershed can be affected without affecting channel stability (USDA 1974).

Table 11 summarizes the existing condition of each subwatershed with respect to past timber harvest, roads, and other basal area loss. It includes the existing ECA which incorporates acres harvested as part of implementation of the Rock Creek EIS as well as roadside hazard and other post-2008 vegetation management projects. None of the ECA values include water yield increases from beetle mortality since data suggests that water yield increases from beetle mortality alone tend to be less than timber harvest due to the understory still utilizing some of the available water, and interception by the standing tree boles. Values that are approaching or exceed thresholds indicating likely adverse watershed effects are highlighted. Existing road densities and indices of road impacts to the stream network are also included.

Table 11. Summary of past timber harvest (ECA values) and the existing condition relative to roads by seventh level subwatershed.

HUC 7 Name Gore Restoration Analysis[4]	Drainage Area (acres)	Existing ECA percent (pre-Rock Cr EIS + recent Rock Cr EIS harvest)	Existing Road Density	Existing percent road within 300 feet of stream
Dead Man Gulch	5641	11.7	1.8	20.7

[4] There are minor name changes between the original Rock Cr EIS and this analysis due to changes in GIS database. However watershed boundaries and acreages remain the same.

HUC 7 Name Gore Restoration Analysis[4]	Drainage Area (acres)	Existing ECA percent (pre-Rock Cr EIS + recent Rock Cr EIS harvest)	Existing Road Density	Existing percent road within 300 feet of stream
Devil[5]	7750	11.8	1.7	**26.0**
East Fk Blacktail Cr	2071	8.6	1.2	17.2
Farnham Cr	5198	17.2	**3.1**	**29.1**
French Cr	2534	4.3	1.2	**25.4**
High Rock Cr	4679	4.2	1.4	16.0
Iron Springs/Rock Crs	5482	**22.8**	**3.3**	**28.5**
Little Blacktail/Thomas Crs	2172	3.1	0.3	**31.5**
Little Henry/Horse Crs	2894	**74.0**	**3.7**	13.3
Little Rock/Decker Crs	6486	**23.1**	**3.6**	22.7
Long Park Basin	2773	11.0	0.9	**31.1**
Lower Rock Cr/Crater	2235	2.2	0.6	0.0
Shoe and Stocking Cr	3303	17.8	1.2	16.8
Small C	167	3.3	**4.2**	9.5
Teepee Cr	4759	**27.3**	**3.6**	14.3
Upper Blacktail Cr	7291	20.1	2.0	16.4
Whiskey Cr	3346	13.5	1.2	6.2

As can be seen from the above table, past timber harvest impacts have been greatest in the Little Henry/Horse Creek subwatershed where an ECA value of 74 percent far exceeds the range of natural variability with regard to water yield. The Teepee Creek subwatershed has an ECA value over 25 percent, while the Iron Springs/Rock Creek and Little Rock/Decker Creek subwatersheds are approaching 25 percent, and within the 20-30 percent range where channel stability may be affected (USDA 1974).

[5] This watershed was not included in the Original Rock Creek analysis

Past timber harvest has resulted in the construction of roads and skid trails, which increase the connected disturbed area, decrease infiltration and increase surface erosion, and affect the hillslope hydrology and movement of water through the watershed. Roads are a source and a conduit for sediment, delivering sediment directly to the stream system through connected disturbed areas[6]. Roads convert subsurface flow to surface flow and reduce infiltration. This increases surface erosion and expands the channel network.

Road density calculations are frequently used as a method to evaluate the potential effect of the road system on watershed function and hillslope hydrology. The 2010 Forest Service Watershed Condition Classification Guide identifies a threshold of 2.4 miles/mile^2 where "the density and distribution of roads and linear features in the watershed indicates that there is a higher probability that the hydrologic regime (timing, magnitude, duration, and spatial distribution of runoff flows) is substantially altered" (Potyondy and Geier 2010). In addition to road densities, proximity of roads to streams was assessed to determine the probability that the existing road system is hydrologically connected to the stream network. The 2010 Watershed Condition Framework (Potyondy and Geier 2010) indicates that watersheds with more than 25 percent of the road and trail length located within 300 feet of streams and water bodies are likely to be in Poor condition or have impaired watershed function. Watersheds with 10 to 25 percent of the road/trail length within 300 feet of streams and waterbodies are considered to be in Fair condition or Functioning at Risk. Table 11 shows existing road densities as well as percent of roads within 300 feet of streams as an indicator of potential hydrologic connection of roads to streams.

As can be seen in Table 11, six subwatersheds exceed the 2.4 mile/mile^2 threshold under all alternatives. Four of these are the same subwatersheds that exceeded the 25 percent ECA threshold with implementation of the proposed future timber harvest. The combination of high ECA values and road densities in these subwatersheds suggest that cumulative watershed effects are impacting watershed function.

Best Management Practices (BMPs) were described as a part of the Rock Creek EIS. It was found that during implementation of the timber sales BMPs were effective approximately 85 to 90 percent of the time. In areas where BMPs were not effective, there were visible signs of surface erosion indicating overland surface flow which also suggests a reduction in infiltration properties, impacts to riparian areas and wetlands, and increased connected disturbed areas.

The greatest concern areas occur where landings, skid trails, temporary roads, and burned slash piles have not been adequately rehabilitated. Landings and burnpiles associated with past timber harvest have the potential to permanently affect watershed

[6] Connected disturbed areas are defined as "high runoff areas like roads and other disturbed sites that have a continuous surface flow path into a stream or lake…connected disturbed areas are the main source of damage in all regions" (FSH 2509.25).

function through compaction and loss of infiltration on landings, and loss of soil productivity and revegetative potential on burn piles.

Environmental Consequences

ALTERNATIVE 1 - No Action: Under this alternative the existing condition would remain the same. Identified concern areas in need of rehabilitation would not be addressed and would continue to degrade watershed health. The existing roads would be managed in their current state, and would continue to affect the hillslope hydrology, act as connected disturbed areas, and degrade water quality. Road densities would remain the same as summarized in Table 11 and there would be no reduction in road segments adjacent to streams and water bodies.

There would be no potential for additional direct effects to community water supplies from ground disturbing activities. There would be no direct or indirect effects to riparian areas, wetlands, or floodplains. Destabilization of channels due to increased water yields may have indirect effects on riparian areas.

Table 12 summarizes projected ECA values by subwatershed for each alternative, including reasonably foreseeable timber harvest authorized in the original Rock Creek EIS. The projected future harvest under the Rock Creek EIS is highly dependent on new road construction (temporary or specified) which is not currently authorized (see letter to the file). As a result, projected future timber harvest is similar for the No Action and Proposed Action alternatives since no additional road construction would occur under either alternative. Projected future harvest increases in Alternative 3 as a result of additional road construction facilitating additional timber harvest.

Table 12[7]. Existing and projected ECA values by subwatershed for each alternative.

HUC 7 Name Gore Restoration Analysis	Existing ECA % (no future timber harvest included)	Projected % ECA Alternatives 1 and 2	Proposed ECA % Alternative 3
Dead Man Gulch	11.7	11.7	11.8
Devil	11.8	11.8	11.8
East Fk Blacktail Cr	8.6	8.6	8.6
Farnham Cr	17.2	17.2	17.2
French Cr	4.3	4.3	4.3
High Rock Cr	4.2	4.2	4.2
Iron Springs/Rock Crs	***22.8***	***24.4***	**27.3**
Little Blacktail/Thomas Crs	3.1	3.1	3.1
Little Henry/Horse Crs	**74.0**	**74.8**	**78.1**
Little Rock/Decker Crs	***23.1***	***24.0***	**25.6**
Long Park Basin	11.0	11.0	11.0
Lower Rock Cr/Crater	2.2	2.2	2.2

[7] Values approaching an ECA of 25 percent are in italics, and that exceed 25 percent are highlighted.

Shoe and Stocking Cr	17.8	17.9	18.9
Small C	3.3	19.6	**35.9**
Teepee Cr	**27.3**	**27.6**	**28.3**
Upper Blacktail Cr	20.1	20.3	21.2
Whiskey Cr	13.5	13.8	16.2

As can be seen from Table 12, there are minimal increases in ECA values from projected future timber harvest except in the Small C subwatershed which is starting to approach the 25 percent threshold where water yields are considered to become significant. ECA values in the Little Henry/Horse Creek subwatershed would increase slightly, which further increases the likelihood of significant cumulative watershed effects. Without implementation of the proposed restoration actions including road treatments, the potential for these cumulative watershed effects to be significant remains very high. The Iron Springs/Rock Cr, Little Rock/Decker Cr, and Teepee Cr are all at risk of exceeding the Tolerance limit for water yield.

As can be seen from Table 13, six subwatersheds exceed the road density threshold of 2.4 mile/mile^2, and there would be no reduction in road density under this alternative. Four of these (Iron Spring/Rock Cr, Little Henry/Horse Cr, Little Rock/Decker Cr, and Teepee Cr) are the same subwatersheds that approach or exceed the 25 percent ECA threshold with implementation of the proposed future timber harvest. The combination of high ECA values and road densities in these subwatersheds suggest that significant cumulative watershed effects are likely, and would continue under this alternative.

Table 13[8]. Road densities and percent of road system within 300 feet of streams and waterbodies for each alternative.

HUC7_NAME	Alt. 1: existing road density (mi/mi^2)	Alt 2: road density (mi/mi^2)	Alt 3: road density (mi/mi^2)	Alt 3: road density with additional 1.5 miles temp road construction (mi/mi^2)	Alt 1: existing % road within 300 ft of stream	Alt 2: % road within 300 ft of stream	Alt 3: % road within 300 ft of stream
Dead Man Gulch	1.8	1.6	1.6	1.8	20.7	20.7	20.7
Devil	1.7	1.4	1.4	NA[9]	**26.0**	***21.9***	***21.9***
East Fk Blacktail Cr	1.2	1.2	1.2	NA	17.2	17.2	17.2
Farnham Cr	**3.1**	**3.0**	**3.0**	**NA**	**29.1**	**28.9**	**28.9**

[8] Values that would be considered Poor condition or Impaired Watershed function are highlighted. Values that would show a substantial improvement compared to the existing condition are in italics.

[9] NA indicates that no temporary road would be built in these watersheds to access timber harvest associated with Alternative 3.

HUC7_NAME	Alt. 1: existing road density (mi/mi^2)	Alt 2: road density (mi/mi^2)	Alt 3: road density (mi/mi^2)	Alt 3: road density with additional 1.5 miles temp road construction (mi/mi^2)	Alt 1: existing % road within 300 ft of stream	Alt 2: % road within 300 ft of stream	Alt 3: % road within 300 ft of stream
French Cr	1.2	1.2	1.2	NA	**25.4**	**25.4**	**25.4**
High Rock Cr	1.4	1.4	1.4	NA	16.0	15.7	15.7
Iron Springs/Rock Crs	**3.3**	***2.7***	***2.7***	**2.9**	**28.5**	***22.0***	***22.0***
Little Blacktail/Thomas Crs	0.3	0.2	0.2	NA	**31.5**	**31.5**	**31.5**
Little Henry/Horse Crs	**3.7**	***2.8***	***3.0***	**3.0**	13.3	11.8	11.8
Little Rock/Decker Crs	**3.6**	***3.1***	**3.2**	**3.2**	22.7	22.7	22.7
Long Park Basin	0.9	0.9	0.9	NA	**31.1**	**31.1**	**31.1**
Lower Rock Cr/Crater	0.6	0.6	0.6	NA	0	0	0
Shoe and Stocking Cr	1.2	0.9	0.9	1.2	16.8	15.9	15.9
Small C	**4.2**	**4.2**	**4.2**	**4.2**	9.5	9.5	9.5
Teepee Cr	**3.6**	**3.2**	**3.2**	**3.4**	14.3	14.3	14.3
Upper Blacktail Cr	2.0	***1.2***	***1.3***	1.4	16.4	16.1	16.1
Whiskey Cr	1.2	1.2	1.3	1.6	6.2	6.2	***2.6***[10]

Under the No Action alternative the effects of past management activities including timber management and road construction coupled with proposed management activities would result in a degraded watershed condition in eight subwatersheds (Table 14), and would not be consistent with the 1997 Routt Forest Plan (USDA 1997) direction, particularly Water and Aquatic Standards 2 and 3, and Soils Standard 4 (Routt Forest Plan page 1-6).

Table 14[11]. Relative change in overall watershed effects for all alternatives compared to the existing condition.

[10] Alternative 3 would facilitate the relocation of NFSR 225.

HUC 7 Name Gore Restoration Analysis	Alternative 1 No Action			Alternative 2 Proposed Action			Alternative 3			Alt 3: with addt'l 1.5 miles temp road const.[12]
Subwatershed	ECA	RDs	**Overall**	ECA	RDs	**Overall**	ECA	RDs	**Overall**	**Overall**
Dead Man Gulch	n	n	**n**	n	+	**+**	-	+	**+**	-
Devil	n	n	**n**	n	+	**+**	n	+	**+**	NA
East Fk Blacktail Cr	n	n	**n**	n	n	**n**	n	n	**n**	NA
Farnham Cr	n	n	**n**	n	+	**+**	n	+	**+**	NA
French Cr	n	n	**n**	n	n	**n**	n	n	**n**	NA
High Rock Cr	n	n	**n**	n	+	**+**	n	n	**n**	NA
Iron Springs/Rock Crs	-	n	**-**	-	+	**+**	-	+	**+**	-
Little Blacktail/ Thomas Crs	n	n	**n**	n	+	**+**	n	+	**+**	NA
Little Henry/Horse Crs	-	n	**-**	-	+	**+**	-	+	**+**	+ (DC)[13]
Little Rock/Decker Crs	-	n	**-**	-	+	**+**	-	+	**+**	+ (DC)

[11] (+) indicates positive change, (-) indicates negative change, (n) indicates no change. In watersheds with a (-) change for ECA, but (+) change for roads professional judgment was used to determine the relative change in overall watershed condition. NA is used in the last column since there would be no temporary road building in these watersheds.

[12] Each watershed with harvest units was assumed to have the 1.5 miles of temporary road within it, since it is unknown where this would be located.

[13] DC indicates that the design criteria prohibit building temporary road above that already accounted for in Alternative 3.

HUC 7 Name Gore Restoration Analysis	**Alternative 1 No Action**			**Alternative 2 Proposed Action**			**Alternative 3**			**Alt 3: with addt'l 1.5 miles temp road const.**[12]
Subwatershed	ECA	RDs	**Overall**	ECA	RDs	**Overall**	ECA	RDs	**Overall**	**Overall**
Long Park Basin	n	n	**n**	n	n	**n**	n	n	**n**	NA
Lower Rock Cr/Crater	n	n	**n**	n	n	**n**	n	n	**n**	NA
Shoe and Stocking Cr	-	n	**-**	-	+	**+**	-	+	**+**	-
Small C	-	n	**-**	-	n	**-**	-	n	**-**	- (DC)
Teepee Cr	-	n	**-**	-	+	**+**	-	+	**+**	-
Upper Blacktail Cr	-	n	**-**	-	+	**+**	-	+	**+**	+
Whiskey Cr	-	n	-	-	n	**-**	-	+	**+**[14]	-

ALTERNATIVE 2 - Proposed Action: Under this alternative, watershed health and water quality would be expected to improve relative to the existing condition in eleven subwatersheds (Table 14). Rehabilitation measures to address skid trails, landings, burn piles, and steep slopes, as well as the watershed improvement projects would help to improve infiltation, hillslope hydrology, stream health, and water quality.

Road densities would decrease in ten of the seventh level subwatersheds (Table 13) which would improve watershed function; five of these (Farnham Creek, Iron Springs/Rock Creeks, Little Henry/Horse Cr, Little Rock/Decker Cr, and Teepee Cr) are subwatersheds identified as being at increased risk of adverse impacts due to high road densities. There would be no additional road construction, so no potential for increased road densities or new roads to act as connected disturbed areas.

The percent of roads within 300 feet of streams would substantially improve in two subwatersheds, moving their rating from poor/impaired to fair/functioning at risk (Table 13). Stream health and function would improve with removal of the culvert on NFSR 241 in the Iron Spring/Rock Creek watershed. The comprehensive road treatments are

[14] This rating is due to the facilitation of relocation of NFSR 225.1 under this alternative.

consistent with the desired condition of progressing toward zero connected disturbed area, and the Standard "Limit roads and other disturbed sites to the minimum feasible number, width, and total length consistent with the purpose of the specific operations, local topography, and climate."

The future road management plans would help to restore the hillslope hydrology and reduce the extended channel network which would help to maintain dispersed subsurface flows that are critical to maintaining late summer low flow conditions, and not increasing peak spring flows. This would also help to reduce the connected disturbed area and sedimentation to the stream system. From this standpoint this alternative is consistent with the Forest Plan Standard "Manage land treatments to conserve site moisture and to protect long-term stream health from damage by increased runoff." Greater consistency with this standard would move the analysis area toward the Desired Condition, and help to improve stream health.

This alternative would improve water quality through a reduction in sediment which would be a benefit to community water supplies. There would be a benefit to floodplains and the riparian and wetland resources from the road decommissioning treatments, and closure of the two dispersed campsites that are within riparian areas immediately adjacent to Gore Creek in the Farnham Creek subwatershed.

This alternative would do the most to reduce the adverse watershed effects. The long-term road management plans would help to reduce the effects of past road construction and ground disturbance on watershed function. This would also reduce the effects of dispersed recreation by decommissioning some unauthorized travel routes that did not incorporate design criteria to minimize the effects to water resources and hydrologic function.

Impacts from the timber harvest authorized under the Rock Creek EIS would be moderated by reduced impacts from roads; this is particularly true in the Iron Spring/Rock Cr, Little Henry/Horse Cr, Little Rock/Decker Cr, and Teepee Cr subwatersheds. This alternative would result in an improved condition in 11 subwatersheds. The two subwatersheds with a projected degraded condition are Small C and Whiskey Cr due to future timber harvest authorized under the Rock Creek EIS.

Design criteria in the original Rock Creek EIS provide stream buffers and other measures to protect water quality, wetlands, riparian areas, and floodplains. Through careful unit layout, road location, and implementation of Design Criteria, these resources are not expected to be impacted by this alternative. All of the proposed actions are consistent with Forest Plan Standards, including water and aquatic Standards 2, 3, 4 and 7, and soils Standards 3 and 4 (Routt Forest Plan pages 1-6 and 1-7). With proper implementation of Design Criteria, there would be no additional irreversible or irretrievable effects

ALTERNATIVE 3 - Effects under this alternative would be similar to the Proposed Action alternative with implementation of the rehabilitation measures and watershed improvement projects. However, the construction of an additional 5 miles of temporary road and associated increase in timber harvest would offset some of the benefits of the

road treatments. Depending on how this alternative is implemented, it would either result in an expected improvement in watershed condition in eleven subwatersheds, with only one subwatershed being degraded, or only six subwatersheds being improved and potentially six subwatersheds degraded (Table 14). The difference depends on where the 1.5 miles of temporary road that has not been generally located are built. While it is highly unlikely that all six subwatersheds would be degraded, it is unknown at this time which subwatersheds would be affected.

Rehabilitation of existing disturbed areas will help to restore soil productivity and infiltration, and reduce surface erosion, but existing disturbed areas are not expected to completely recover to pre-disturbance conditions within the next planning period, approximately 10 to 15 years.

With the construction of 3.5 miles of temporary road that has been generally located, road densities would still decrease in ten subwatersheds, although not to as great a degree as the Proposed Action (Table 13). However there is potential for road density to increase in the Whiskey Cr subwatershed if the additional 1.5 miles were to be built there (Table 11).

There would be a benefit to riparian areas and wetlands as some of the roads proposed for decommissioning are immediately adjacent to or within riparian areas and wetlands. There would be a substantial reduction in the percent of roads within 300 feet of streams in three subwatersheds. The timber clearing and the new temporary road construction in the Whiskey Creek subwatershed would help to facilitate relocation of NFSR 225.1 away from streams and riparian areas to decrease the connected disturbed area.

There would be a slight benefit to community water supplies since road segments that are acting as connected disturbed areas would be rehabilitated to reduce sediment input which would improve water quality. Project specific design criteria ensure that new temporary roads would be located to minimize the potential for new connected disturbed areas. Depending on the sideslope and the need for roadcuts, new temporary roads would still have the potential to intercept subsurface flows and affect overall hillslope hydrology which would have a greater affect than the Proposed Action alternative.

Effects of Alternative 3 would be greater than the Proposed Action, but less than the No Action alternative. The effects of road building and increased timber harvest could be reduced from the existing condition in up to eleven subwatersheds, or could increase in up to five subwatersheds, depending on how this alternative is implemented. While restoration of landings, skid trails, temporary roads and burnpiles outside of appoved NEPA polygons would improve watershed health, the net increase in total disturbance from timber harvest coupled with temporary road construction would offset this benefit from a cumulative watershed effects perspective. Design criteria have been included to prohibit building the additional 1.5 miles of temporary road within the Small C, Little Henry/Horse Creek, or Little Rock/Decker Creek subwatersheds, to decrease the potential for adverse cumulative effects

This alternative is generally consistent with Routt Forest Plan Standards, including Water and Aquatic Standards 2, 3, 4, 7, although to a lesser degree than the Proposed Action. With proper implementation of project specific Design Criteria, irreversible or irretrievable effects from this additional road construction should be limited, but effects may still occur due to the overall extent of ground disturbing activities.

Cumulative Effects: Hydrologically, past actions which contribute to cumulative effects include past timber harvesting and road construction. Other management activities contributing to cumulative effects include livestock grazing and recreation.

Future management activities that could contribute to cumulative effects include additional road construction, timber harvest, and fuels management. With any ground disturbing activity, there is the potential for increased erosion and delivery of sediment to the stream system. Contract specifications have been developed to minimize future cumulative effects from additional timber management to the extent feasible. These contract specifications as well as Design Criteria from the Watershed Conservation Practices Handbook (FSH 2509.25) outlined in Appendix B would be incorporated into any future management activities to prevent additional adverse watershed cumulative effects. When applicable measures are implemented and effective, adverse effects to watershed health from management activities would be minimized. However, as the levels of activity increase, the risk that conservation practices would not be implemented or would not be cumulatively effective increases.

Beetle mortality may result in a loss of some of the trees providing shade in the steep headwater streams, but this is not expected to significantly affect stream temperatures as the steep gradients route water through the system quickly. Design Criteria in the original Rock Creek EIS provide stream buffers and other measures to protect water quality. The Routt National Forest riparian inventory (Routt 1993) and field reconnaissance were used to identify wetland and riparian areas. Through careful unit layout, road location, and implementation of Design Criteria, wetlands are not expected to be impacted by any of the action alternatives.

There is always the potential for future wildfires which, depending on the intensity and extent, could affect water resources. Effects occur through increased overland flow and associated surface erosion which could increase sedimentation to the stream network, destabilize stream beds and banks, and degrade water quality through both ash deposition and increased sedimentation. These effects would be similar in all alternatives.

Noxious Weeds

Affected Environment

It is estimated that more than 100 acres are infested with noxious weeds within the analysis area. There are 13 invasive species and 56 sites within the analysis area, which are summarized in Table 15. Approximately 32 percent of these sites occur in the Little Rock/Decker Creek and the Teepee Creek 7th level watersheds. Although hoary cress has not yet been documented in the analysis area, it is encroaching and expected to

establish detectable populations within the foreseeable future. The majority of the noxious weed acres within the analysis area are composed of Canada thistle. Due to the sheer number of acres that the plant covers it has not been chemically treated except in certain areas such as campgrounds and timber sales. The Yampa Ranger District has been experimenting with biological control of the plant for the past 3 years. Initial results have been inconclusive; however, this would be the preferred treatment method for Canada thistle once a viable biological control is verified.

Noxious weeds can be expected to occur in higher densities along roadways, in areas disturbed by timber harvests, campgrounds, recreation trails, trailheads, livestock corridors, and ditches; however, they are also known to invade otherwise healthy, undisturbed plant communities.

Table 15. List of noxious weed species known within the analysis area

Common name	Botanical name	Colo. Noxious Weed List[15]	# of Sites
Knapweed	*Centaurea* spp.	A	2
Hoary Cress	*Cardaria draba*	B	E
Canada thistle	*Cirsium arvense*	B	>100
Yellow toadflax	*Linaria* spp.	B	17
Musk thistle	*Carduus nutans*	B	13
Scentless chamomile	*Matricaria perforata*	B	7
Mullein	*Verbascum*	B	6
Oxeye daisy	*Chrysanthemum leucanthemum*	B	5
Bull thistle	*Cirsium vulgare*	B	1
Houndstongue	*Cynoglossum officinale*	B	1
Scotch thistle	*Onopordum* spp.	B	1
Cheatgrass	*Bromus tectorum*	C	2
Field bindweed	*Convolvulus arvensis*	C	1

[15] List A plants are designated for elimination on all County, State, Federal and Private lands. List B includes plants whose continued spread should be stopped. List C plants are selected for recommended control methods.

Environmental Consequences

ALTERNATIVE 1 - No Action: Continued disturbance on system roads would likely increase existing infestations of noxious weeds. Skid trails, temporary roads, landings, and burn piles would not by rehabilitated leaving disturbed land open for infestation. Motor vehicle use of roads and trails would lead to an increase in the number of weed populations and weed acreage. Most of this increase would be roadside weed populations, which would not be offset by road decommissioning.

ALTERNATIVE 2 - Proposed Action: The decommissioning of roads reduces the potential for the dispersal of seed by motorized vehicles; however, earth disturbance associated with certain decommissioning methods can create habitat for noxious weeds to get established. The decommissioning of roads without revegetation reduces the movement of seed but does little to reduce the available habitat or prevent establishment once seed enters the area. The early treatment and revegetation of these roads, skid trails, landings and burn piles can reduce the risk of noxious weed establishment by stabilizing the site and providing competition. This alternative would have the lowest potential of spreading noxious weeds.

ALTERNATIVE 3: The likelihood and potential extent of weed spread would be higher than in the No Action and Proposed Action alternatives. As in the other alternatives this increase would be in roadside weed populations. However, some of this potential weed spread would be offset by the proposed road decommissioning. Most of the potential would come from an increased number of roadside weed populations due to the construction of temporary roads. An increase in wind-dispersed species, such as Canada thistle, could also lead to new weed infestations in susceptible undisturbed habitats away from roads. Infestations in these areas would degrade native plant communities and have a greater ecological impact than the roadside weed populations.

Cumulative Effects: Development of a transportation system provides corridors for the introduction and spread of noxious weeds. Adjacent landowners also contribute to the development of the transportation system and noxious weed spread. These past actions influence the present composition and distribution of these species in the analysis area. Other ongoing and reasonably foreseeable actions include timber sales, mineral development, and road construction and maintenance, all of which would contribute to the spread of noxious weeds in the analysis area. Invasive plant treatments are an ongoing and reasonably foreseeable action that is beneficial in reducing noxious weeds in the analysis area. These treatments would minimize impacts from noxious weed spread.

Range

Affected Environment

Domestic livestock grazing is a historical use in the Gore and Red Dirt Geographic Areas. Grazing is managed under the grazing permit system. Permits specify permittee responsibilities for the maintenance of range improvements and salting necessary for the management of livestock while on the Forest. Improvements include fences, water

developments, ponds, and corrals. Access to these improvements is critical for proper management of the allotment. Access by grazing permittees varies from motorized to non-motorized use. Periodic motorized access is needed. Access that is exclusive to the permittee should be authorized in the grazing permit, allotment management plan, or annual operating instructions. Numerous trails exist to facilitate proper distribution of livestock within allotments. These trails are maintained by the grazing permittee and are considered range features; therefore, they are not included as features in the transportation system.

The Forest supports numerous viable livestock operations. Nearly 100 percent of the analysis area contains active allotments. Many roads and trails that are used by the public are also used to facilitate management of livestock and forage resources. Some roads and trails that cross allotments can lead to conflicts between livestock and recreation users. The presence of people in close proximity can disturb livestock, and livestock can make roads and trails rough for recreation.

The analysis area contains six allotments which are as follows:

- Blacktail Cattle & Horse (C&H) – July 1 to September 15 for 480 cow/calf pairs
- Coberly-Maudlin C&H – June 25 to September 24 for 644 yearling cattle
- French Creek C&H – July 1 to September 15 for 140 cow/calf pairs
- Horse Creek C&H – July 1 to September 25 for 110 cow/calf pairs
- Long Park C&H – July 1 to September 30 for 238 cow/calf pairs
- Red Dirt C&H – July 1 to September 27 for 250 cow/calf pairs

Environmental Consequences

ALTERNATIVE 1 - No Action: This alternative would not affect livestock management.

ALTERNATIVE 2 - Proposed Action: This alternative would decommission approximately 7 miles of temporary roads. Once a road or trail is decommissioned, motorized access by grazing permittees, as well as the general public, is prohibited. The roads that are proposed for decommissioning would have minimal impact on livestock permittee operations due to the high density of roads in the analysis area. The closure of system and non-system roads, when combined with livestock herding, should allow for more even distribution of livestock and utilization throughout the six allotments. Livestock would also be expected to have higher weight gains due to lack of disturbance.

ALTERNATIVE 3: This alternative also proposes decommissioning approximately 7 miles of temporary roads; however, it also increases the amount of new temporary road to be built. The new temporary road will be decommissioned after use and will not affect livestock grazing; therefore, impacts to livestock grazing would be essentially the same as the Proposed Action.

Cumulative Effects: The more miles of roads and trails that exist on an allotment, the easier the access is for livestock management, yet the higher the potential for conflict with recreational users. The conflict between recreation and livestock management may even become more pronounced as an increasing number of recreation users visit the

Forest. Conflicts with other users or loss of accessibility due to road decommissioning usually result in increased labor cost in managing livestock. Other conflicts may occur when timber production, oil and natural gas production, or mining creates roads in the allotment areas.

Recreation

Affected Environment

Within the analysis area there are two campgrounds and the Lagunita day-use recreation Area. The Blacktail Creek campground has 12 sites, and the Lynx Campground has 11 sites. The typical season of use for these sites is from late May until early November, generally based on weather. Occupancy levels are very low at the campgrounds during the week, moderate on weekends and high on holidays. The Lagunita recreation area is used by anglers as well as mountain bikers accessing the Gore Pass bike loops.

The Lynx Pass guard station is an administrative site providing summer seasonal employee housing, a horse pasture, and storage. Most of the lodgepole pine around this site was killed during the beetle epidemic and has been cleared.

Dispersed recreation is the main recreation component of the analysis area. There are approximately 150 inventoried dispersed campsites within the analysis area. The majority of the use occurs during the big game hunting seasons. Many of these sites are user created and do not meet the Forest Plan Standard of a 100 foot buffer from water (Routt Forest Plan page 1-18), which leads to a potential negative impact on water quality.

There are multiple system trails throughout the analysis area, which accommodate hiking, horseback riding, cycling, snowmobiling, and off highway vehicle (OHV) use. Many of these routes are used year-round.

The Gore Pass bike trails are unique in that they are located on routes that consist of open and closed Forest Service roads with some system trail connectors. There are a total of 61 miles of bike trails within this loop system. Some of these trails are heavily used, while others receive little to no use. National Forest Service roads (NFSRs) and trails (NFST) that make up the bike trails are listed below and shown on Figure 4.

- Circle Park Loop: NFSRs 242, 250, and 241
- Gore Creek Loop: NFSRs 241, 243 and 250
- Farnham Loop: NFSRs 250, 100, 185 and 241
- Shoe and Stocking Loop: NFSRs 270, 206, 202, 275 and NFST 1001
- Teepee Creek Loop: NFSR 263 and NFST 1173
- Rock Creek Loop: NFSRs 263, 272, 268 and NFST 1000

All level 2 and above NFSRs in the analysis area are open to OHV use with the exception of NFSR 270. In addition, the Morrison Divide Trail, NFST 1174, is open to OHVs.

Resource managers have noticed a dramatic rise in unauthorized OHV use on closed roads, as well as in increase in new unauthorized OHV trails.

There are multiple pullouts on State Highway 134 for snowmobile parking. These parking areas allow for access throughout the analysis area. The season of use for snowmobiles is generally from December through March, and is dependent on the amount and quality of snow. Use is primarily on open and closed NFSRs, with 270, 225, 250, 243, and 185 receiving the greatest use.

Two commercial outfitter/guide operations are permitted within the analysis area. Trailwind Tours is permitted to guide mountain biking on the Gore Pass mountain bike trails and the Morrison Divide trail. Steamboat Adventure Tours is permitted for winter day use snowmobile tours. Use of both outfitter operations has been minimal use over the past 5 years.

The lower portion of Rock Creek is identified as an eligible Wild River due to its outstandingly remarkable values for its geologic, cultural, scenic, and fishery resources. The primary recreational use is fishing.

Environmental Consequences

ALTERNATIVE 1 - No Action: There will be no effect to developed recreation sites, the Lynx Pass guard station, or Wild River eligibility. Identified dispersed campsites in close proximity to water would continue to threaten water quality. Illegal OHV use would continue on existing closed roads. The Forest would continue to maintain relatively unused trails.

The remaining salvage harvest associated with the Rock Creek EIS would result in timing limitations to those recreating due to closures on open roads associated with the logging operations. Tree removal would increase potential for unauthorized motorized access on skid trails leading to other open accessible country.

ALTERNATIVE 2 - Proposed Action: Effects from timber harvest would be the same as those described in the No Action alternative. The restoration of the two dispersed campsites and loss of existing Forest access due to road closures and decommissioning would impact recreationists. The road decommissioning projects would primarily affect hunters' access to the areas. Some hunters will view these closures as a loss of access while others will see it as more area for elk security and better hunting. Displaced dispersed campers will utilize other sites or create new ones.

The Circle Park, Farnham and Gore Creek bike loops share some of the roads set to be decommissioned. Approximately 5 miles of bike trails will be taken off of the current trail system resulting in the some of the current loop trails becoming out and back trails (Figure 4). Due to the very limited use of these trails and the numerous cycling opportunities in the area, very few users will be impacted. If public need is demonstrated in the future, these sections, through analysis, could be converted to single-track trails.

There is the potential for continued illegal OHV use on closed roads if they are not effectively closed or decommissioned.

Snowmobiling and skiing opportunities may incur short term negative affects if roads normally covered in snow are plowed for tree harvesting. Since the slash heights will be low on roads to be closed, it will likely have no effect on over the snow use.

There would be no effects to developed recreation sites, the Lynx Pass guard station, or Wild River eligibility.

ALTERNATIVE 3: Effects to recreationists would be similar to the Proposed Action. The additional miles of temporary road and increase in associated timber harvest would have little effect on visitor experience in a landscape that has historically had a timber management emphasis.

The building of new temporary roads for timber harvest would result in fewer timing limitations to those recreating due to closures associated with the logging operations as loading and decking operations could occur off of open roads and be done on the temporary roads. Tree removal would increase potential for unauthorized motorized access on skid trails and temporary roads leading to other open accessible country.

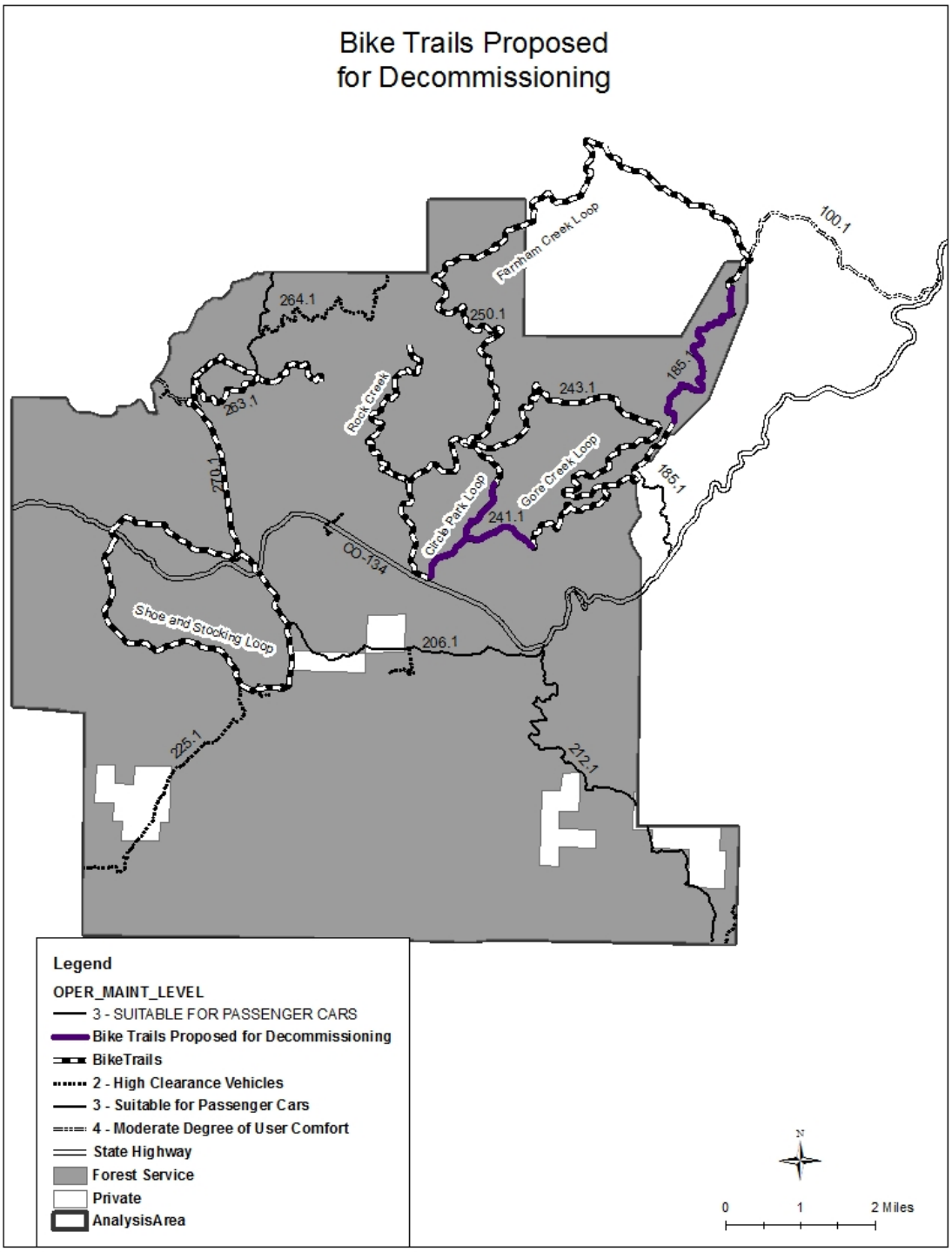

Figure 4. Map of Gore Pass Bike Trails within the Analysis Area

Cumulative Effects: Along with recent road closures in the area, recreationists will have reduced camping opportunities and vehicle access within the geographic area. However, with the current road densities and abundance of campsites, the overall recreation experience will be relatively unchanged.

Soils

Affected Environment

The analysis area is dominated by igneous crystalline rocks of the Pre-Cambrian granites (Xg) with less extensive exposure of Tertiary and Mesozoic sedimentary and volcanic rocks. Glacial till of the Pre-Bull Lake age is preserved on some areas of Green Ridge and in some areas north of Gore Pass. Alluvium and wetland organics are present in the riparian zones and includes some fen-like conditions in a few areas.

Timber harvest areas are largely in the Xg igneous parent material. Soils formed from Pre-Cambrian parent materials are shallow on convex ridges and in upper slope positions and become deep to very deep on lower slopes. These soils are coarse textured, very to extremely gravelly loamy sands and sandy loams. Soil limitations are low inherent fertility and shallow depth to bedrock on convex ridges and upper south facing slopes. Past timber harvest, site preparation activities, and the harvest infrastructure of temporary roads, landings, burned piles, and skid trails has detrimentally impacted the soil with site preparation impacting the largest area.

Soil management concerns related to vegetation management are landscape stability, erosion hazard, compaction hazard, and reforestation potential. Landscape stability, for example mass movement potential, is low throughout this area and is not a concern. Erosion potential ratings for past and proposed harvest activities are moderate[16] on slopes less than 20 percent and severe[17] on steeper slopes. Shallow soils, which are the dominant condition in the harvest units, are more sensitive to soil erosion than deeper soils because of very low available water capacity and very low native fertility. The compaction potential hazard rating for coarse textured soils affected by disturbance and mechanical equipment is generally moderate, indicating that some compaction is likely.

Soil quality has been greatly reduced in treatment areas as a result of past timber harvest and site preparation, through scarification. There are areas of severe erosion and gullying on steep slopes, low vegetative cover, and loss of litter cover. Site preparation has created large areas of impaired or unsatisfactory soils. A rating of unsatisfactory indicates that a loss of soil quality has occurred and soil condition has been detrimentally impacted (FSH 2509.18-92-1). Detrimental soil impacts result in the inability of soil to maintain resource values, sustain outputs, and recover from impacts.

[16] Some erosion is likely; occasional maintenance may be needed; simple erosion control measures needed.

[17] Significant erosion can be expected; roads require frequent maintenance; costly erosion measures are needed (USDA Forest Service 2003).

Environmental Consequences

ALTERNATIVE 1 - No Action: No management action would occur and soils that have been detrimentally impacted would remain in that condition. This alternative would not address the need for mitigation to soil damage throughout the analysis area. Allowing timber to be sold in small sales utilizing the existing infrastructure will have additional impacts on soil health, including detrimental displacement, compaction, erosion, and burning as a result of landings, skid trails, and slash piles. The amount of soil disturbance associated with these actions is dependent on multiple factors including slope, soil type, and when the timber is harvested, with greater impacts in the summer versus the winter.

ALTERNATIVE 2 - Proposed Action: Restoration would occur on temporary roads, landings, piles, and skid trails and would improve soil condition in these areas. Erosion control would be done on steep slopes, although a large amount of erosion has already occurred in some areas. Watershed improvement projects would have positive impacts to soil health by reducing soil erosion and improving areas impacted by roads and dispersed campsites with better vegetative cover. However, the rapid drying of the soil surface makes re-vegetation difficult to achieve and may require soil amendments to promote faster re-vegetation. The impacts from timber sales would be the same as those described in the No Action alternative. This alternative would likely result in a net gain of soil health in the analysis area through restoration activities.

ALTERNATIVE 3: Detrimental displacement, compaction, and erosion caused by road construction cannot be fully mitigated; therefore, the 5 miles of temporary road construction, which could include up to 0.5 miles of specified or designed temporary road, would result in a long-term loss of soil productivity in these areas. Impacts from timber harvest would be increased, since more timber would be harvested and a greater area would be impacted. The number of landings, burn piles, and skid trails would be higher and the impacts associated with these actions would be greater, which would offset the gain in soil health associated with the restoration activities.

Cumulative Effects: The main actions impacting soil health in the analysis area are past and future timber harvest. Past timber harvest throughout the area has created large areas with detrimental soil impacts. Soil productivity within the past harvest sites has been impaired through detrimental displacement, disturbance, compaction, and burning. The loss of soil organic material contributions over the long-term due to the removal of live biomass, especially in clearcut areas, may lead to decreases in soil moisture, holding capacity, nutrient availability, and microbial activity. Other activities impacting soils in the area include livestock grazing and fire. Livestock grazing occurs throughout the analysis area, however impacts to soils is minimal. The Mountain Pine Beetle epidemic has increased the risk of a stand replacing fire. If this was to happen the likely result would be an increase in soil erosion on slopes greater than 15 percent, until effective ground cover was established over the area.

Timber

Affected Environment

The Gore Creek Restoration analysis area includes 33,078 acres of forested land. Forest vegetation cover types in the analysis area consist of lodgepole pine dominated forest (85%), interspersed with Engelmann spruce and subalpine fir (4%), quaking aspen (10%), and Douglas fir and mixed conifer (1%). The elevation of the proposed project ranges from approximately 8,300 feet to a maximum of approximately 10,300 feet.

Within the analysis area 461 acres are within Management Area (MA) 5.11, Forest Vegetation Emphasis, and 27,791 acres are within Management Area 5.13, Forest Products. MA 5.11 requires the Forest to provide wildlife habitat, forest products, livestock forage, and recreation, while MA 5.13 requires production of commercial wood products. In order to accomplish these objectives certain silvicultural standards are required such as regeneration surveys and planting, if necessary, after harvest (Forest Plan page 1-11). There is also a requirement that forested areas are managed so that insect infestation outbreaks remain locally restricted (Forest Plan page 2-41).

The Rock Creek Record of Decision (ROD) authorized approximately 13,500 acres of timber harvest. To date approximately 4,140 acres have been harvested or are currently under contract. There are approximately 9,360 acres yet to be harvested from the Rock Creek ROD, the majority of which is unlikely to be harvested because mortality of lodgepole pine trees, due to the bark beetle epidemic, exceeded the levels that allowed non-salvage prescriptions to be implemented. Many of the areas that are remaining for harvest were not analyzed for salvage harvest or contain steep slopes, therefore harvest in these areas would not be practicable.

ALTERNATIVE 1 - No Action: This alternative would allow for timber sales analyzed under the Rock Creek EIS to move forward with no additional temporary roads being built. Timber sales currently under contract include: Big Rock, Blacktail, Porcupine, Twisted Antler, and Two Elks. These five timber sales would be completed using existing NEPA in the Rock Creek EIS. Future sales within the Rock Creek analysis area may move forward using existing infrastructure. Assuming an average skid distance of 600 feet and discarding areas with sustained slopes over 35 percent, there is approximately 240 acres that have been identified as accessible using existing roads. Figure 5 shows the location of these units. Field verification of stands during layout may result in more or less acres being included in future timber sales. During implementation of the future sales, log trucks and loaders would utilize existing open roads. It may be necessary to close these roads during logging operations in order to protect public safety and provide for traffic control.

ALTERNATIVE 2 - Proposed Action: The Proposed Action would allow for the same amount of timber harvest to occur and have the same effects as described in the No Action alternative.

ALTERNATIVE 3: Alternative 3 would allow for the construction of up to 5 miles of additional temporary roads, of which 0.5 miles could be specified or designed

temporary road, to complete timber sales analyzed under the Rock Creek EIS. Using approximately 3.5 miles of this temporary road approximately 360 acres of additional harvest could occur above that which could be done under the No Action and Proposed Action alternatives (see Figure 5). The additional 1.5 miles of temporary road would be used to access the units identified if needed. From a timber perspective, this would be the preferred alternative since it would allow for improved regeneration over a greater area. With the addition of temporary roads loading and decking could be done off of the current road system eliminating the need for road closures.

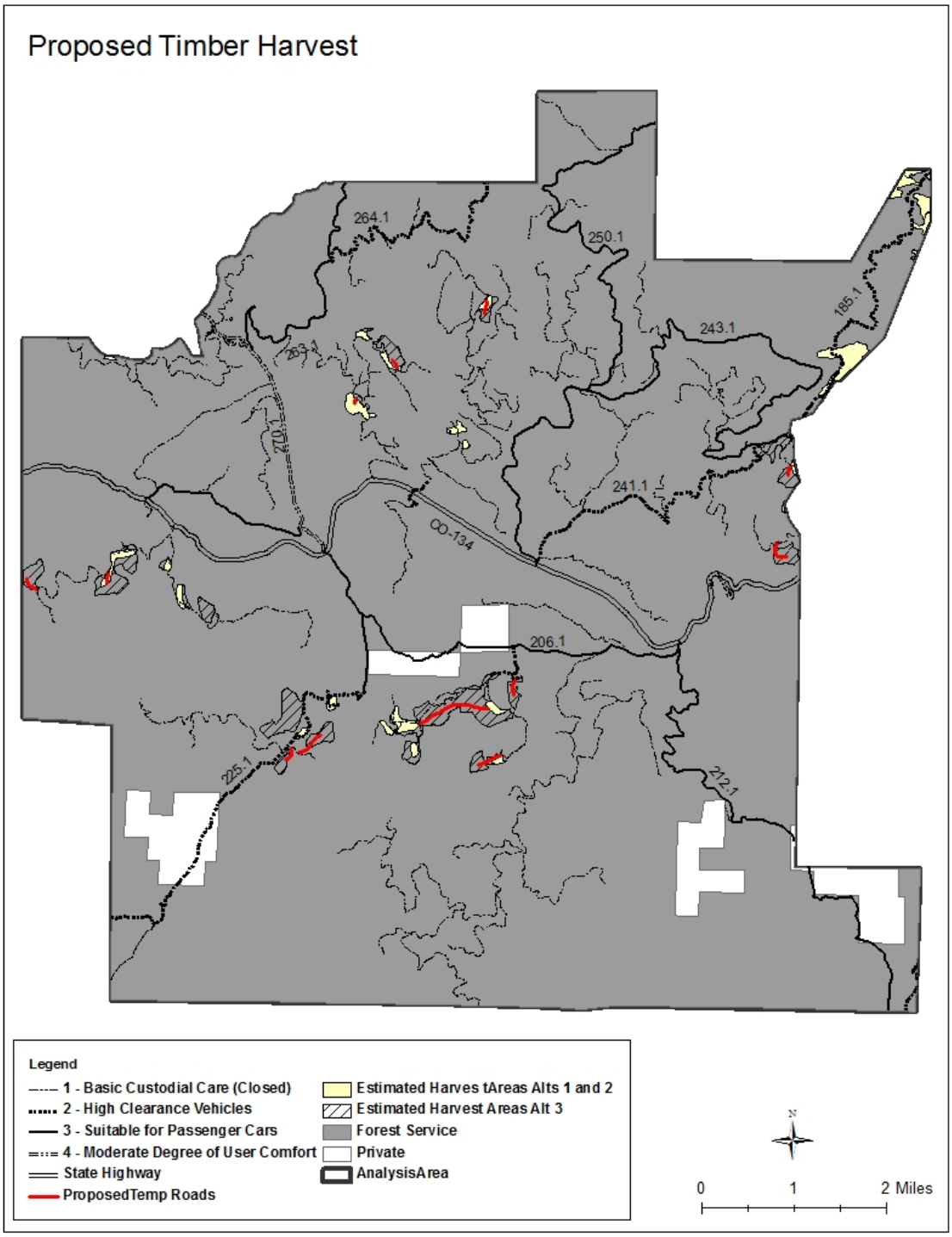

Figure 5. Map of Proposed Timber Harvest Units

Cumulative Effects: A large amount of past and current timber harvest has occurred within the analysis area (Table 16). These timber sales have removed dead and dying lodgepole pine and improved timber regeneration. Many of these sales were in response to the Mountain Pine Beetle epidemic, which has affected nearly all of the analysis area to some degree. Due to the rapid progression of this epidemic it was not possible to stop the spread of the Mountain Pine Beetle. Salvage of dead and dying trees was completed to improve regeneration and reduce fuels, but also to remove hazard trees along roads and in developed recreation areas. The majority of future harvest would be in Management Areas 5.11 and 5.13 to meet Forest Plan guidance for these areas and improve timber production and forest regeneration.

Table 16. Past timber harvest within the analysis area.

Sale	*Acres*	*Treatment Types*[18]
Roadside Hazard Tier 2	63	DxD, ITM
Roadside Hazard Tier 3	37	DxSpp
Roadside Hazard Tier 4	51	DxSpp, DxDAM, ITM
Long Park	524	CC, ITM, OR
Mini Gore	67	OR
Deadman	188	OR
High Rock	29	Sanitation Cut
Toponas Creek	221	ITM
Twisted Antler	497	CC, DxLP8"LTM
Sleeping Lion	163	CC, ITM, OR, LTM
Porcupine	537	CC, DxLP8"LTM, ITM
Big Rock	459	DxLP8"LTM
Blacktail	2050	DxLP8"LTM
Two Elks	436	CC, DxLP12", LTM
WAPA powerline	406	CC

Travel Management

Affected Environment

Roads are designed to handle different modes of travel. Passenger car roads require a higher degree of user comfort; these are defined as maintenance level 3, 4, and 5 roads.

[18] DxD: Designation by description, ITM: individual tree marking: DxSpp: Designation by species plus stump diameter, DxDAM:, Designation by damage class, CC: Clearcut, OR: Overstory Removal, DxLP8"LTM: Designation by species (LP) + stump diameteter (8”) with leave tree marking, LTM: Leave tree marking.

Road surfaces for these roads range from asphalt to aggregate to native surfaces. Level 2 roads are high-clearance roads, typically not suitable for low-clearance passenger style vehicles. These are typically low-standard, low volume roads that demand lower speeds. Project roads include all roads managed for intermittent use. They are normally closed to full-size vehicles, in a vegetated state, and considered to be at a maintenance level 1. An estimated 2 miles of unclassified road were identified in the roads analysis as being roads constructed with previous timber sales that were never added to the transportation system. Table 17 shows the miles of road within the analysis area by maintenance level.

Primary access for the area is provided by Colorado State Highway 134. Routt County Road 270 is an aggregate surface road that provides access to the area for many residents along Morrison Creek and in the Stagecoach area. National Forest System roads which are outside the planning area but are used to access portions of the planning area include: NFSRs 100, 207, 211, 285 and 574.

Table 17. Summary of miles of road in the analysis area by alternative

Road System Classification	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3
System, Maintenance Level 5	11	11	11
System, Maintenance Level 4	4	4	4
System, Maintenance Level 3	34	34	34
System, Maintenance Level 2	18	13.3	13.3
System, Maintenance Level 1 (Administrative Use Only)	94	91.9	91.9
Decommission	0	7	7
New Temporary Road Construction	0	0	5

Roads require various levels of maintenance and investment to stay functional. These levels are broken into those elements that are performed on an annual or continual basis, and those that are referred to as deferred maintenance. Annual or continual maintenance includes surface grading, ditch cleaning, culvert cleaning, dust abatement, gravel replacement, and roadside clearing. Annual maintenance costs for local roads can range from $750 per mile for maintenance of dips and outlet ditches, which are the minimum requirements for level 2 roads, to $4,125 per mile for light reconditioning of a local road. Annual maintenance costs for arterial and collector roads can range from $2,100 per mile for road surface grading and ditch cleaning, to $4,125 per mile for light reconditioning. Maintenance costs are higher because these roads tend to be wider, require a higher standard of maintenance, and may have aggregate surfacing.

Elements of deferred maintenance are improvements to mitigate the impacts of a road or to keep a road at its current operating level. This work is often required to repair roads that have deteriorated or where events such as landslides, flooding, or heavy spring runoff has affected the road condition. Light reconstruction work includes reconditioning of the roadbed, moderate roadside clearing and brushing, reconstruction or installation of dips, replacement or installation of smaller diameter culverts, and replacement or installation of signs. Moderate reconstruction includes light reconstruction work plus installation of medium sized culverts, moderate roadside clearing and brushing, turnout construction, spot surfacing with gravel, and re-enforcing dips with gravel. Heavy reconstruction includes all of the above plus heavy roadside clearing and brushing, adding dips and culverts, adding larger diameter culverts, plating over rocky sections, realignments, and adding fabric and gravel material to soft sections. This is beyond the usual maintenance work done annually. Deferred maintenance costs for local roads can range from $4,125 per mile for light reconstruction, to $9,625 per mile for moderate reconstruction, and up to $16,500 per mile for heavy reconstruction work. Deferred maintenance costs for arterial and collector roads can range from $4,825 per mile for light reconstruction, up to $12,375 per mile for moderate reconstruction, and $20,625 per mile for heavy reconstruction. Again, the costs are higher because these roads generally contain more drainage features, require more safety features due to higher volumes of traffic, and are of a higher standard.

Other costs include gates, cattleguards, signs, aggregate surfacing, culverts, pit development, and mobilization. Depending on the amount of work, these costs can add up quickly, from $3,125 for a gate to $82,500 per mile for aggregate surfacing. Moderate to heavy reconstruction work many times requires a contract to accomplish the work. Additional contract costs include contract preparation, inspection, and administration.

When a system road is no longer necessary, it needs to be either converted to some other use such as a trail or allowed to be returned to the surrounding natural condition. This is called decommissioning, and can be defined as those activities that result in the stabilization and restoration of unneeded roads or trails to a more natural state. The road or trail is put back into production and permanently removed from the transportation system. The activities include blocking the entrance, scattering debris on the roadbed such as logs, rocks, branches, and stumps, revegetating, water barring, removing fills and culverts, reestablishing drainage-ways, pulling back shoulders, and full recontouring of the cut and fill slopes for full obliteration.

Each road that is designated to be decommissioned, whether it is a system or non-system road, needs to have some level of treatment so that it can return to a natural state. The costs for treatment methods described above range from $250 for blocking the entrance, to $10,000 per mile for full obliteration. These methods, if effective, are a onetime cost. Once returned to a natural state, the impacts of the road no longer exist and no further maintenance expenditures are required.

Environmental Consequences

ALTERNATIVE 1 - No Action: Roads would continue to be used by the public and for administrative use as they are presently. Maintenance needs would continue to accumulate and outweigh current maintenance budgets. The No Action alternative would not alleviate resource problems, such as erosion, watershed conditions and resource damage, caused by the current road system. It is likely that additional user created roads would be established increasing the current road network. This alternative has the lowest short-term cost because there are no roads to decommission, and no rehabilitation would occur; however, it also has the greatest miles of road requiring maintenance, which would increase the costs over the long-term. Other indirect costs may come from, but are not limited to, increased law enforcement presence, continued degradation of resources, and reduced visitor experience.

ALTERNATIVE 2 - Proposed Action: Implementation of road closures and obliteration of system and non-system roads would decrease road densities, decreasing erosion, benefitting wildlife, and allowing for a more effective transportation system. Use of gates, barriers and road rehabilitation are proven effective measures for road closures.

Motorized activities would be restricted to system open roads. Newly created routes would be closed as soon as possible after discovery. Non-motorized uses would be allowed on closed roads as long as no resource damage was occurring. Reducing the miles of road would make the transportation network easier to maintain and would reduce the overall costs associated with road maintenance. Keeping users on properly built and maintained roads would make motorized recreation safer in the analysis area.

In addition to road decommissioning, skid trails, landings, burn piles and steep slopes would all be rehabilitated using a variety of methods. The costs for treatment methods such as reseeding, scarification by heavy equipment, recontouring, etc. vary greatly from $50 for basic hand seeding to $500 for scarification by heavy equipment, per pile or landing. The cost associated with skid trail rehabilitation depends greatly on how much, if any, rehabilitation is necessary. The costs for treatment methods such as reseeding, scarfication and full obliteration vary greatly from $50 for basic hand seeding to $2,500 for full obliteration per mile. Each burn pile, skid trail, and landing will be assessed individually as to what rehabilitation method will be appropriate by the resource specialist. A total cost of the rehabilitation work for the burn piles, skid trails and landings cannot be determined at this time due to the site specific variability of the proposed work.

This alternative would have a higher cost associated with decommissioning and rehabilitation than the No Action alternative; however, it also decreases the amount of road maintenance required over the long-term. The Proposed Action fully complies with the current Forest Plan and fully meets the intent of the travel rule by decommissioning non-system routes.

ALTERNATIVE 3: Effects from this alternative would be similar to those in the Proposed Action. The proposed 5 miles of new temporary road construction would be closed and rehabilitated after use; however, up to 0.5 miles of this could be specified road, which

could be left open. This could slightly increase road densities above that in the Proposed Action. The costs associated with this construction and rehabilitation would be included in the timber sale contracts. With the building of more temporary road there is an increased likelihood of illegal use on these routes, which may add to the resource damage that has already occurred in the area. Alternative 3 also fully complies with the current Forest Plan and meets the intent of the travel rule by decommissioning non-system routes.

Cumulative Effects: A route identified for decommissioning is a route no longer needed for access. Returning the route to a natural state helps to prevent illegal use, reduce further resource damage, and mitigate unnecessary wildlife fragmentation. However, it does take funding to accomplish this. One of the factors in deciding the method for decommissioning will need to be the amount of available funding.

Over time and as funding permits, the travel management plan will be implemented on the ground. The Forest will continue to evaluate the road systems in an effort to provide a safe, economically sustainable, and environmentally sound transportation system that provides the user with a quality experience. The Forest will also continue to evaluate roads designated for motorized mixed use as traffic increases on these roads due to the emphasis on motorized recreation on certain roads and in certain areas.

The transportation system will continue to evolve in an effort to meet future access needs for commodities and access to recreational opportunities across the Forest. On the commodity side, oil and gas production, mining, and timber harvesting may use the existing road system and could expand the current system. When new roads are developed, the Forest Service will decide the best location, whether they should provide temporary or permanent access, and the best way for the roads to serve not only the individual commodity need, but the overall access needs of the entire area.

As local communities continue to grow and as tourism continues to increase, more people may come to the area to visit and recreate, increasing the demand on the transportation system. This increased demand will lead to increased maintenance needs.

Decommissioning roads within the analysis area will decrease redundancy in the road system while maintaining access throughout the area and ultimately improve watershed health. Over the short-term, costs will be greater due to road decommissioning and rehabilitation of skid trails, burn piles, and landings. Over the long-term the costs associated with road maintenance would decrease.

Wildlife

Affected Environment

A variety of habitats are found within the analysis area and these habitats provide for a high diversity of terrestrial wildlife. A large number of bird and mammal species inhabit the analysis area year round and many more migrate to the area seasonally to breed and raise young. Extensive timber harvest has occurred throughout the analysis area,

which has changed the character of the area for wildlife. A brief summary of the animals that occur in the Gore Creek Restoration analysis area is below.

Management Indicator Species (MIS)

The MIS analysis prepared for this project indicates that implementation of an action alternative may impact habitat for two Routt National Forest terrestrial MIS, the golden-crowned kinglet and the Northern goshawk. The action alternatives are anticipated to have no impact to the other two Routt National Forest terrestrial MIS, Wilson's warbler and vesper sparrow.

Golden-crowned kinglet *(Regulus satrapa)*

The preferred habitat of the golden-crowned kinglet is spruce-fir forests. The mountain pine and spruce beetle populations are impacting spruce trees at low levels and some changes to stand structure and canopy closure in spruce-fir communities is expected at a small scale.

Available population and habitat information suggests golden-crowned kinglets on the Routt National Forest have a population trend that is currently stable. Skorkowsky (2003b) demonstrated potentially higher densities of golden-crowned kinglets on the Routt National Forest relative to the state as a whole. In addition, the golden-crowned kinglet is well distributed on the Forest and throughout all mature-forest areas in Colorado.

Golden-crowned kinglets are expected to remain fairly common on the Routt National Forest, though anticipated declines in mature spruce-fir associated with natural beetle infestations may contribute to some localized decline. However, decline is expected to remain within the natural range of variation because bark beetles have evolved with this disturbance in the spruce-fir ecosystem. Maintenance of intact, mature spruce-fir forests should ensure that golden-crowned kinglets remain characteristic residents on the Routt National Forest.

Northern goshawk (*Accipiter gentiles*)

There are numerous goshawk nest sites and observations on the Routt National Forest. To date, more than 50 goshawk breeding areas (nesting territories) have been located across the Routt National Forest with nine located in the Gore Geographic Area. Goshawks are considered relatively common and well distributed across the Routt National Forest.

Goshawk populations on the Forest have shown an upward trend due to the late seral forest conditions. The distributions of goshawks will likely change as the forest is converted to an early successional stage. The changes to stand characteristics that are advantageous for goshawk nesting may occur slowly from 3 to 5 years and potentially up to 20 years following the bark beetle epidemic as dead lodgepole pine trees fall over and the nest stands deteriorate. Some decline in the goshawk population may occur on the Routt National Forest due to the lack of mature forest conditions, suitable nest locations and lowered reproduction. The goshawk population will likely return to stable

in 80 to 200 years as the lodgepole pine community returns to late seral or mature forest conditions (Skorkowsky 2009).

Sensitive Species

Of the sensitive species, three terrestrial wildlife species are likely to occur within or near the analysis area, have potential habitat in or near the analysis area, or may be affected (i.e., directly, indirectly or cumulatively) by the implementation of an action alternative. The species have been reviewed and all have been considered. Species may have been eliminated from detailed analysis because they fall into one of the three following categories:

1. Suitable habitat and/or elevation range does not exist for these species in the project area.
2. The type or intensity of the activity under the alternatives is expected to have no impact/effect on these species or their habitat.
3. The associated conservation design or mitigations eliminate any potential for impact to the species.

The Region 2 sensitive species that had no apparent reason to be excluded were carried forward and will be further analyzed in the remainder of the document. The species that were carried forward are the American marten, Pygmy shrew, and Northern goshawk.

American marten (*Martes americana*)

The preferred habitat of pine marten is old-growth spruce-fir forests, but they will also occupy lodgepole pine, Douglas fir, and occasionally cottonwood and riparian areas. The mountain pine and spruce beetle are impacting spruce trees at a low level and lodgepole pine at an epidemic level. Therefore, changes in stand structure in these forest types are expected.

Pine marten occur throughout the Rocky Mountains of Colorado, with 22 documented sightings in the Gore Geographic Area. A pilot study within the Gore Creek analysis area determined that marten occupancy of the area is at 76 percent. Marten were frequently documented throughout the Gore Creek analysis area, and are often seen when completing field work.

Loss of primary habitat and possibly, loss of connectivity in patches of late successional forest reduces habitat suitability for marten. Martens are affected by timber management through loss of overhead cover, inadequate retention of downed wood, and conversion of very dry sites that changes prey communities (Ruggiero et al. 1994).

Pygmy shrew *(Microsorex hoyi)*

The pygmy shrew ranges from Alaska, across Canada and into the northern United States, with a scattered population in the Rocky Mountains. The preferred habitat of the pygmy shrew is damp spruce-fir and lodgepole pine forests, sphagnum bogs, wet meadows, and other wet areas at high elevations (USDA 1997).

Population status, trends, and distribution are unknown; however, a field survey was done on the Hahns Peak/Bears Ears Ranger District near Rabbit Ears Pass and Buffalo Pass during the summer of 2012. Pygmy shrews were found at four of the nine sites surveyed. This verifies that pygmy shrews are found on the Routt National Forest in appropriate habitats.

Northern goshawk (*Accipiter gentiles*)

The Northern goshawk was discussed in the MIS section of this document.

Threatened and Endangered Species

The Fish and Wildlife Service Colorado Field Office provides a list of Threatened, Endangered, Candidate and Proposed Species by county. The Gore Creek Restoration Project occurs in Grand and Routt County. This report will address only the Canada lynx because the lynx has the potential to occur or potential to be impacted by the implementation of the Alternatives. The Greater sage-grouse, North American wolverine, and Yellow-billed cuckoo were excluded due to lack of suitable habitat within the analysis area.

Canada lynx *(Lynx canadensis)*

The historic range of Canada lynx extends from Alaska across most of Canada and south into parts of the western United States, the Great Lakes states, and New England. Many of the lynx habitats in the southern Rocky Mountains occur as islands of coniferous forest surrounded by shrub-steppe habitats.

Primary habitat for lynx consists of early successional forests where snowshoe hares are plentiful as well as late successional conifer stands. An important characteristic of both these habitat types is dense branching of conifer species where tree crowns touch the ground, and the persistence of the canopy above winter snow levels. Conifer stands provide greater concealment from predators, lighter snowpacks, and warmer temperatures during winter than hardwood stands.

Between 1999 and 2006 218 lynx were reintroduced into southwestern Colorado. Tracking of these animals indicates that lynx have travelled through and potentially may occupy portions of the Routt National Forest for a certain period of time.

Environmental Consequences

Management Indicator Species (MIS)

Under the No Action alternative no direct effects to the golden-crowned kinglet and Northern goshawk populations or habitat are anticipated; however, there is potential for negative long-term indirect effects to their habitat. The Proposed Action may temporarily lower the quality of habitat for a limited number of pairs of golden-crowned kinglets while work is occurring. Short-term effects to Northern goshawks may also occur; however, the restoration activities are expected to improve habitat over the long-term. Alternative 3 is likely to have greater negative effects to habitat for both species because more timber will be harvested through the addition of up to 5 miles of

temporary road, although these impacts are not substantial enough to cause changes to the population trend. Table 18 indicates the likely impacts to MIS species by alternative.

Table 18. Impacts to terrestrial MIS species by alternative

Common Name	Alternative 1 No Action	Alternative 2 Propose Action	Alternative 3
Golden-crowned kinglet	Display stability in population trend with potential for localized changes in habitat related to the mountain pine or spruce bark beetle epidemic.	Display stability in population trend with potential for localized changes in habitat related to the mountain pine or spruce bark beetle epidemic.	Display stability in population trend with potential for localized changes in habitat related to the mountain pine or spruce bark beetle epidemic.
Northern Goshawk	Display stability in population trend over the short-term with potential for mid- to long-term (30-100 years) declines due to changes in habitat until the lodgepole pine community regenerates to mature forest conditions.	Display stability in population trend over the short-term with potential for mid- to long-term (30-100 years) declines due to changes in habitat until the lodgepole pine community regenerates to mature forest conditions.	Display stability in population trend over the short-term with potential for mid- to long-term (30-100 years) declines due to changes in habitat until the lodgepole pine community regenerates to mature forest conditions.

Sensitive Species

ALTERNATIVE 1 – No Action

American marten – Under the No Action alternative there would be negative indirect effects on American marten over the mid- and long-term since resource damage would not be rehabilitated and restored to native habitat. If the resource damage is left without rehabilitation the quality of the landscape would be affected with a subsequent reduction in quality habitat. However, this loss of habitat is not likely to affect overall marten populations on the Forest. The No Action alternative is a net positive for marten and their habitat since the remaining timber sales would be smaller in scale than planned under the Rock Creek EIS, which would impact less habitat and reduce loss of habitat connectivity.

Pygmy shrew – Landing and burn pile locations may be used for denning and foraging by pygmy shrew; therefore, leaving these locations in their current condition may provide some benefit. Many of the roads that are proposed for decommissioning are within riparian areas, which make up 80 to 90 percent of pygmy shrews' habitat. These

roads will continue to degrade riparian condition and may cause habitat disturbances and trampling of individuals.

Northern goshawk – With no implementation of any restoration projects there will be very limited impact to goshawks.

ALTERNATIVE 2 – Proposed Action

American marten – Short-term impacts are expected from the implementation of the restoration projects; however, the disturbance to individuals would be minimal as marten are primarily inactive during the day time. Over the mid- to long-term marten habitat would be improved by the proposed projects. Overall, the improvement in marten habitat would outweigh the minimal short-term impacts to marten. Impacts from timber harvest would be the same as those described in the No Action alternative.

Pygmy shrew – The Proposed Action has the potential to affect pygmy shrew and their habitat through disturbance to individuals during implementation of the restoration, watershed improvement, and road decommissioning projects. If temporary roads, landings, or burn piles are located near suitable pygmy shrew habitat these actions could have short-term impacts on pygmy shrews through site disturbance and potential trampling of individuals from hand and mechanical treatments.

Though short-term impacts are expected under the Proposed Action the watershed improvement projects, including the decommissioning of 7 miles of road, removal of culverts, and closing of dispersed campsites, would improve overall habitat quality for the pygmy shrew over the long-term. These actions would restore and improve stream and wetland function, resulting in beneficial impacts to pygmy shrew and their habitat. Overall, the improvement of pygmy shrew habitat is expected to outweigh the short-term impacts associated with project implementation and have a beneficial effect on pygmy shrew.

Northern goshawk – Goshawk habitat occurs throughout the analysis area. Minor short-term impacts to habitat may occur with the implementation of the restoration and road decommissioning projects. However, in the mid- to long-term these projects would have a positive impact on goshawk habitat. Reduction in motorized and public use associated with the road decommissioning would restore habitat connectivity and improve goshawk habitat for breeding, nesting, hunting and fledging young. Overall, the restoration will have a net positive effect on the Northern goshawk and their habitat over the mid- and long-term.

ALTERNATIVE 3

American marten – The impacts from the restoration activities would be the same as described in the Proposed Action. The impacts from the additional 5 miles of authorized temporary road and increased timber harvest include further resource damage, disturbance to individuals, and direct habitat loss.

Pygmy shrew – The construction of temporary roads and increased timber harvest may cause negative impacts to pygmy shrews. The increase in temporary roads raises the likelihood of mechanical equipment trampling individuals. This alternative would

increase habitat loss for this species, and have greater impacts than both the No Action and Proposed Action alternatives.

Northern goshawk –This alternative would have additional negative impacts to Northern goshawk due to the temporary road construction and associated increase in timber harvest, which can hinder connectivity and function of a landscape for goshawk. The restoration and road decommissioning projects may not offset the negative impacts associated with the increase in salvage logging. This alternative may cause short- and mid-term negative effects associated with the loss of foraging habitat and decrease in habitat connectivity.

Cumulative Effects

The cumulative effects need to be placed in the context of changes that have occurred across northern Colorado and southern Wyoming with the Mountain Pine Beetle epidemic. The salvage of beetle killed lodgepole pine has collectively simplified forest structure on thousands of timbered acres across the Medicine Bow-Routt National Forests and adjacent National Forests.

American marten – The bark beetle epidemic has created negative cumulative effects due to the loss of connected and functional habitats when considering the extent of vegetation that has been cleared within the analysis area. These projects when combined with the existing road infrastructure, domestic livestock grazing, and to a lesser extent permitted and public recreational activities, may create barriers to movement that are necessary for marten to meet their life history needs (breeding, denning, foraging, and rearing young). Cumulatively, these vegetation management projects could change distribution and abundance of pine marten.

Pygmy shrew - The spread of bark beetle outbreaks and eventual accumulation of downed trees next to riparian areas would be considered a positive impact, increasing the amount of coarse woody debris for denning and foraging. This would be a particular benefit during winter when pygmy shrews rely on the increased coarse woody debris for improved survival in subnivean (under the snow) environments. This improved habitat will last for decades after the beetle outbreak ends as coarse woody debris continues to accumulate on the forest floor. Overall, Forest-wide habitat quality is expected to increase through time. The pygmy shrew population across the Forest is expected to follow the changes in coarse woody debris through time.

Even though the pine beetle epidemic is anticipated to be a cumulative beneficial effect for pygmy shrews, there are negative cumulative effects when considering the extent of vegetation being cleared across the Yampa Ranger District. These projects when combined with the existing road infrastructure, domestic livestock grazing, water depletions, water developments, snow compaction from winter sports, roads, and permitted and public recreational activities, may inhibit pygmy shrews from meeting their life history needs (breeding, denning, foraging, and rearing young).

Northern goshawk – The beetle epidemic has dramatically altered the lodgepole pine cover type from a late seral to a somewhat early successional community. Though stand structure is changing standing dead trees will provide nesting and foraging habitat

for the goshawk in the interim. Goshawk populations will continue to shift as the forest changes to an early successional forest and as vegetation treatments are implemented.

Negative cumulative effects may occur due to the loss of connected and functional habitats when considering the extent of vegetation being cleared across the Yampa Ranger District. These projects when combined with the existing road infrastructure, domestic livestock grazing, and permitted and public recreational activities may hinder goshawks from meeting their life history needs (breeding, nesting, foraging, and fledging). The bark beetle epidemic when combined with vegetation treatments and the associated road network could cumulatively change distribution and abundance of Northern goshawks.

Threatened Species

Canada lynx – The Southern Rockies Lynx Amendment (SRLA) amended Forest Plans in Colorado and the Medicine Bow National Forest in Wyoming (USDA 2008). The SRLA provides Standards and Guidelines for various management activities such as, vegetation management, recreation, forest roads and trails, highways, and oil and gas leasing to establish management direction that conserves and promotes the recovery of lynx, and reduces or eliminates potential adverse effects from land management activities.

ALTERNATIVE 1 – No Action: The No Action alternative would not cause any temporary disruption to lynx through temporary road construction, road decommissioning, or restoration activities. The Mountain Pine Beetles have created the existing condition of lynx habitat that is considered "Currently Unsuitable" in the lodgepole pine cover type (stands with greater than 70 percent mortality). By avoiding temporary road construction and consequently implementing timber sales piecemeal through existing roads, those stands with greater than 70 percent mortality from the pine beetle epidemic may take longer to regenerate. Though stands may regenerate more quickly after harvest, it is anticipated that the bark beetle epidemic may provide improved habitat conditions for lynx by leaving abundant coarse woody debris, a high density of young trees, as well as a high density of snowshoe hares, all of which are important for lynx denning. Over the long-term, stands may recover more slowly without harvest treatments specified in the Rock Creek EIS, but may provide improved conditions overall. Because of the relatively large home range that this species occupies and the remaining late successional habitat available in this geographic area for this species, the habitat impacts associated with not completing restoration activities will not eliminate lynx use of the analysis area.

ALTERNATIVE 2 – Proposed Action: The management actions associated with the Proposed Action will create short-term impacts to Canada lynx habitat. Over the long-term, habitat components will recover and provide for lynx habitat. Because of the relatively large home range that this species occupies and the remaining late successional habitat available in this geographic area for this species, the habitat impacts associated with the Proposed Action will not eliminate lynx use of the analysis area and will not be a significant difference from the No Action alternative. Any short-term direct effects from mechanical disturbance during implementation of restoration

activities will be offset by the habitat that is improved in the restoration and road decommissioning projects over the mid- and long-term.

ALTERNATIVE 3: Increases in temporary roads and associated timber harvest can hinder connectivity, and function of a landscape for a large carnivore such as a lynx. All temporary roads would be decommissioned after implementation of the project, which would reduce the impacts to lynx and their movements across the landscape over the long-term. However, during the interim, localized effects of road construction and salvage would create negative, indirect effects for lynx by altering habitat and landscape connectivity.

Cumulative Effects – The bark beetle epidemic has had the biggest effect on lynx habitat due to the increased harvest and changes in stand structure. There has been a fair amount of historic logging as well as recent timber harvest related to the bark beetle epidemic. Multiple timber projects have occurred on National Forest, private and state lands clearing lodgepole pine that has been affected by the bark beetle. This harvest affects lynx habitat and landscape connectivity.

Salvage harvest eliminates habitat over the intermediate-term because a high proportion of existing vegetation is completely removed. The temporary lack of trees and other plants does not support preferred prey, including red squirrels and snowshoe hares, even at low abundances, nor does it provide the cover needed by lynx for hunting. Thus, all regeneration harvest areas represent a temporary but complete habitat loss for lynx over the short-term if beetle activity hasn't already changed the stand substantially. If beetle activity occurred several years ago, then these changes are already occurring and salvage would not change the stand's characteristics over the short-term. Much of the harvest is occurring, or has occurred, in areas that are considered "Currently Unsuitable" lynx habitat and would not substantively affect the condition of lynx habitat, nor are they likely to influence Canada lynx.

Table 19. Determination summary for terrestrial threatened and sensitive species by alternative

Common Name	Status	Alternative 1	Alternative 2	Alternative 3
American marten	Sensitive	*May Impact	Beneficial Impact	*May Impact
Pygmy shrew	Sensitive	*May Impact	Beneficial Impact	*May Impact
Northern goshawk	Sensitive	*May Impact	Beneficial Impact	*May Impact
Canada lynx	Threatened	No Effect	No Effect	May Affect, but Not Likely to Adversely Affect

* May adversely impact individuals, but not likely to result in a loss of viability in the planning area, nor cause a trend toward federal listing.

Elk, Mule Deer, and Pronghorn

The Proposed Action has the potential to affect elk and mule deer summer range and pronghorn overall range. There is also elk winter range, and migration corridors for elk, mule deer, and pronghorn within the analysis area.

Burn piles, landings and campsites undergoing rehabilitation occur in habitat used by all three species considered. However, the large number of burn piles and landings means that rehabilitation would occur at a slow pace, over several years, if not decades. Thus, the effects would be spread out over time. In addition, the burn piles and landings currently exist as unsuitable habitat for these species. While rehabilitation efforts may result in a short-term disruption to individual animals, overall population numbers would not be significantly affected. Over the long-term, a significant amount of habitat would be returned to suitable for these species. Thus, the overall effect of these activities would be positive.

Similarly, the addition of temporary roads would have a short-term localized negative effect on these species, but no significant mid- to long-term effects are anticipated. The decommissioning of NFSRs 185, 241, 242, and 246 would result in long term benefits to these species, due to increased habitat availability and reduced disturbance to wildlife related to motorized use.

Forest Plan Consistency

All activities, as embodied in the Proposed Action are consistent with Management Area direction and applicable Forest-wide resource Standards. Guidelines are advisable courses of action which should be followed to achieve forest goals but are optional. Deviations from Guidelines must be analyzed during project level analysis and documented in the project decision document but do not require a Forest Plan amendment.

The No Action alternative is not consistent with Forest Plan Standards and Guidelines for water, soils and heritage resources. This alternative is not consistent with water and aquatic Standards 2 and 3 and soils Standard 4 and is in violation of the National Historic Preservation Act, as amended. Both action alternatives are consistent with Forest Plan standards and guidelines. With proper implementation of Design Criteria, there would be no additional irreversible or irretrievable effects.

The No Action and Proposed Action alternatives are less consistent with Forest Plan direction for Management Areas 5.11 and 5.13 compared to Alternative 3. Forest Plan direction states that within these Management Areas forest products should be emphasized. Increased timber harvest under Alternative 3 would allow for better timber management as more acres of dead lodgepole pine could be cut in response to the Mountain Pine Beetle epidemic.

Short-term Uses and Long-term Productivity

NEPA requires consideration of “the relationship between short-term uses of man’s environment and the maintenance and enhancement of long-term productivity” (40 CFR 1502.16). As declared by Congress, this includes using all practicable means and

measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101).

The proposed activities would improve resource concerns throughout the analysis area. Overall condition of the area would be improved through lowered road density and improved soil productivity and stream health.

Unavoidable Adverse Effects

The application of the Forest Plan Standards and Guidelines and the listed Design Criteria should limit the extent and duration of any adverse environmental effects due to this project. However, it is impossible to avoid all potential impacts completely. Refer to the discussion of environmental consequences for each resource in the EIS for the disclosure of all environmental effects. Specific adverse effects from the Proposed Action include: a potential increase in noxious weeds, more destructive, less manageable wildfires, and detrimental effects to archeological resources. Specific adverse effects from Alternative 3 include: possible degraded watershed condition, increased impacts from new temporary road construction, decreased soil productivity, potential increase in noxious weeds, and detrimental effects to cultural resources.

Irreversible and Irretrievable Commitments of Resources

Irreversible commitments of resources are those that cannot be regained, such as the extinction of a species or the removal of mined ore. Irretrievable commitments are those that are lost for a period of time such as the temporary loss of timber productivity in forested areas that are kept clear for use as a powerline right-of-way or road.

There are no identifiable commitments of resources for this Proposed Action that are irretrievable or irreversible, as determined by the interdisciplinary team.

Cumulative Effects

See preceding environmental consequences discussions for cumulative effects under each resource area. In summary, the Mountain Pine Beetle epidemic, past and present vegetation management, road construction, livestock grazing, and recreation have all affected the existing condition in the project area. The Mountain Pine Beetle has killed lodgepole pine throughout the entire Forest. Vegetation management and road construction activities have increased ground disturbance and affected soil and watershed health; however these vegetation treatments have decreased the risk of a high intensity wildfire and improved forest revegetation. Livestock grazing and dispersed campsites immediately adjacent to streams have compacted soil, affected native plant species, degraded riparian condition, and increased sedimentation in certain stream reaches.

Conversely, watershed restoration actions have helped to improve watershed and soil conditions. These have included road decommissioning, road relocation, road

improvements, burn pile rehabilitation, and closure of dispersed recreations sites near streams.

Reasonably foreseeable actions or events that may affect resources in the analysis area include an increased risk of large-scale high intensity wildfire resulting from the bark beetle epidemic and future timber harvest and associated road construction which may affect watershed health, soil productivity, fire intensity, wildlife habitat and botanical and heritage resources.

Other Required Disclosures

NEPA at 40 CFR 1502.25(a) directs "to the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with …other environmental review laws and executive orders."

The Proposed Action complies with other laws and regulations such as the Clean Water Act, Endangered Species Act, and the National Historic Preservation Act. There will be no adverse effects on any threatened or endangered species or on cultural resources. Best management practices will be applied to meet state water quality standards and section 404 of the Clean Water Act, therefore a separate 404 permit is not required.

All new construction activities would be for silvicultural purposes only, and therefore a section 402 permit for stormwater discharge is not required. New construction activities consist of road construction, landings etc. needed to support timber harvest. Any activities associated with road decommissioning would not change the alignment of the road, and would restore timber productivity, and therefore would not constitute construction activities.

The No Action alternative would result in further deterioration of at least one significant archeological site due to increased erosion, which could increase the potential for collection and vandalism at the site as well. By not mitigating the effects of harvest activities through restoration of disturbances, the No Action alternative would be in violation of the National Historic Preservation Act, as amended.

The USDA has entered into consultation with the US Fish and Wildlife Service and the Colorado State Historic Preservation Office regarding this project. Implementation of the project will be based on concurrence with these agencies.

CHAPTER 4. CONSULTATION AND COORDINATION

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The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

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Appendix A – Response to Comments and Comment Letters

Gore Creek Restoration Final EIS

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	Colorado Parks and Wildlife (CPW)
CPW1 - Over 350 landings have been created with 1-2 slash piles associated at the landing sites. Some of these areas have been burned but a lot of them are just large piles of debris that may need to be eliminated or possibly used as wildlife habitat for small mammals.	Slash piles within landings will be removed by contract for biomass utilization when feasible. Remaining piles will be burned in accordance with agency, forest and state policies and specifications. A few small slash piles will be left for utilization as small mammal habitat. As part of the proposed action, 'Some piles may be left unburned to provide for wildlife habitat or due to access or economic issues' (FEIS page 14).
CPW2 - Gore Pass has been identified as critical elk habitat. CPW mapping shows portions of the Gore Pass area as winter range, severe winter range, winter concentration area, summer range summer concentration and production area. CPW personnel are particularly concerned with elk production areas in the project area and believe these areas should be treated differently in the project area. Gore pass also is classified as summer and priority moose habitat which need to be addressed, depending on projects to be completed. This area is also listed as mule deer summer range and winter range.	Big game species were analyzed in the wildlife specialist report. While short-term activity in the area may cause temporary avoidance, we do not anticipate these short-term impacts to cause declines that reduce the populations of elk, deer, moose, or pronghorn below the management goals. Nor do we anticipate that mid- or long-term effects will remain since timber management related to the salvage of beetle-killed lodgepole pine has been on-going since authorization of the Rock Creek EIS. In some regard, the salvage of beetle-killed lodgepole pine will create open habitats and an increased production of grasses and forbs that are important for big game during calving and rearing of young. As roads are decommissioned it will improve hiding cover for nearly all of the big game species.
CPW3 - In addition the entire Rock Creek area serves as an important migration corridor for elk, deer and pronghorn. The project area already has an extensive network of roads, many of which receive heavy recreational use. Additional road construction and extensive clear cutting of heavy timber will likely impact elk and deer use in the area. The timber on	Big game species were analyzed in the wildlife specialist report. This included an analysis using Colorado Parks and Wildlife (CPW) spatial layers for migration corridors. Some of the temporary roads and proposed road decommissioning projects are in the migration corridors. All existing temporary roads will be decommissioned which will improve habitat effectiveness and connectivity. In addition, the watershed projects to decommission several system roads will improve habitat connectivity and connectivity, particularly for elk and mule deer that have migration corridors where system road decommissioning is proposed.

Comment	Agency Response
Gore Pass provides necessary cover and security. Maintaining movement corridors and security zones within the project in the form of timbered areas would help insure continued deer, elk, and pronghorn migration through the area.	While short-term activity in the vegetation treatment areas may cause temporary avoidance, we do not anticipate these short-term impacts to cause declines that reduce the populations of elk, deer, moose, or pronghorn below the CPW management goals. Nor do we anticipate that mid- or long-term effects will remain since timber management related to the salvage of beetle-killed lodgepole pine has been on-going since authorization of the Rock Creek EIS. In some regard, the salvage of beetle-killed lodgepole pine will create open habitats and an increased production of grasses and forbs that are important for big game during calving and rearing of young. As roads are decommissioned it will improve hiding cover for nearly all of the big game species.
CPW4 - Several known northern goshawk nests are located within the project area and need to have protective measures ensuring their continued use. CPW understands that the forest is being converted to an early seral stage and numbers of these birds may decline. Areas near nests should be avoided during harvest activities.	During project design, all 'known' goshawk nest areas have been protected from vegetation treatment with three 30 acre reserve stands. This is a design criteria that has been incorporated as treatments have been implemented under the Rock Creek EIS. Also included in the Rock Creek EIS is a timing restriction that states "Prohibit all logging-related operations or activities within ¼-mile of an active goshawk nest (or center of an active nest stand) between March 15 and September 15". Lastly, a 'discovery' clause was included in the Rock Creek EIS as well as the Gore Creek Restoration EIS that states, "Pursuant to TS contract standard provision B[T]6.25 (Protection of Threatened, Endangered and Sensitive Species), upon discovery of a new goshawk nest location or other TES wildlife species nesting/breeding (or other essential) site, suspend any active logging or other contract operations underway in the immediate vicinity until a wildlife biologist assesses the situation and determines appropriate action(s) to take for protection of habitat or individual animals".
CPW5 - The CPW believes it is important to protect valuable habitat for amphibians and fish species. Neither the USFS nor the CPW is likely aware of all of the occurrences of amphibians in the project area. The CPW would recommend additional protection of riparian and wetland areas that provide potential habitat for amphibians. Increased water flows and sedimentation from	The USFS agrees that it is difficult to document the occurrence of amphibians. Therefore, amphibians may be present in wetlands and riparian areas where they were not observed during surveys. Design criteria were developed for proposed timber harvest units and road construction that would protect amphibians. These include provisions to: • Further protect habitats and organisms if amphibians are found before or during project implementation (Design Criteria - Botany/Fisheries/Wildlife #1, FEIS Page 17)). • Identification of streamside management zones that include all stream courses,

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silvicultural activities will likely impact fishery habitat.	riparian areas, and wetlands (Hydrology #6; Alternative 3 Hydrology #2 and #3). These criteria eliminate all road construction within 200 feet of all stream courses, riparian areas, and wetlands. Similarly, there will be no timber harvest within 100 feet of streams or within wetlands and riparian areas. • Other design criteria in this document (Hydrology, Soils) will help minimize increases in sedimentation. These criteria should eliminate all direct impacts to amphibian habitat and individuals during all life stages for tiger salamander and northern leopard frogs. They will also eliminate direct impacts for western chorus frog and boreal toads with the exception of adult life stages where they move into terrestrial habitats during portions of the year. Indirect impacts to amphibian habitat would primarily be due to increased sediment from silvicultural activities. These impacts should be minimal given the design criteria and silvicultural Best Management Practices.
CPW6 - As mentioned above, additional road construction and the associated habitat fragmentation and increase in human access into previously secure areas may impact wildlife habitat. CPW recommends improved closure mechanisms such as signage, boulders, scarification, gates and/or law enforcement for some of these roads. For temporary roads, the CPW recommends complete vegetation reclamation and completely eliminating the roadbed by restoring natural contours and slopes.	The USFS concurs with the need for effective road closure and road rehabilitation. The action alternatives and design criteria include recontouring, scarification, revegetation and effective closure mechanisms for all roads identified for closure/decommissioning. As analyzed in the wildlife reports, the limiting factor for many wildlife species during this bark beetle epidemic is the loss of primary habitat that includes late successional forest in the lodgepole pine cover types, but also changes have been occurring in the Englemann spruce-subalpine fir communities where beetles are also impacting spruce. The loss or lack of connectivity among patches of late successional forest may reduce habitat suitability for wildlife species that prefer late successional cover types such as marten, goshawk, and lynx. The vegetation treatments can further fragment, however it was recognized that implementing the watershed or road decommissioning projects would be a positive and beneficial impacts to the species by improving habitat connectivity. Lastly, it is important to note that six timber sales thus far have been implemented for a total of 4,140 acres out of the 13,500 acres covered by the Rock Creek EIS with potential to treat another 240 acres. Therefore, there would be far less habitat impacted or further loss of habitat connectivity for wildlife species across the analysis area than originally planned under Rock Creek EIS leaving 9,120 acres left untreated.
CPW7 - Gore Pass is a very popular big game hunting area. Hunting is beneficial for recreation, helps CPW achieve harvest	The US Forest Service policy is to implement projects that meet Multiple Use objectives. The ID team agrees that big game hunting is beneficial economically. However, timber harvest is also beneficial to the local economy. Refer to page 16 of the Gore Creek

Comment	Agency Response
management objectives, and provides economic benefit to the local communities. CPW recommends ceasing timber activity one week prior to the start of the big game seasons. Having winter harvest would also be beneficial to the wildlife and habitat as less animals will be in the project area at that time. We also recommend no harvest activity through the duration of the big game seasons or spring time calving and fawning.	Restoration DEIS that states "Actions that are yet to occur under the Rock Creek EIS, such as timber harvest, will follow the Rock Creek Design Criteria." The Recreation Design Criteria in the Rock Creek EIS states "Cease major operations one day prior to and on weekends during each big game rifle hunt" (Rock Creek FEIS pg. 25). This design criteria is addressed in each Timber Sale contract with Provision C(T)6.312# Sale Operation Restrictions. Typically calving and fawning occurs during the spring run-off and although harvest activity may occur, it is typically prohibited during this time due to wet conditions. Normal operating season is June 15-October 15.
CPW8 - The letter also states that decommission road projects will occur on several USFS roads, including 185, 241, and 246. These roads are important to allow hunter access and should remain open. FSR 185 is the only road allowing access to Hazel and Bobcat Creeks. These roads allow for dispersed camping which is important for the hunting public, its primary use, as several other dispersed camping areas have already been closed, Long Park Area, and a majority of the USFS campgrounds have also been shut down, except Black Tail Creek Campground. FSR Road 242 is a good candidate for decommissioning as it has been under a closure for quite some time.	The portion of NFSR 185 identified for closure has limited/no dispersed camping opportunities. This section of road is incised due to excessive past erosion making installation of additional drainage features to control erosion near impossible. The cost of upgrading the road to meet basic resource protection standards would severely strain an already limited road maintenance budget and could result in reduced maintenance on higher traffic roads, which would likely lead to more resource damage. NFSR 242 and 246 are currently closed to public motorized use, so no public motorized access opportunities would be lost on these roads. The portion of NFSR 241 identified for closure runs immediately adjacent to a perennial stream and is causing extensive resource damage and sedimentation. Due to the close proximity of the stream, mitigation in place is not possible, and would be cost prohibitive. No or very limited dispersed camping opportunities are available along the portion of NFSR 241 identified for closure; portions of this road with dispersed camping opportunities will remain open. Please see the map in Appendix B, Page B-2 for specific road segments to be closed.
CPW9 - Certain roads along creeks also allow for opportunity for the fishing public. Aging fishing publics appreciate the opportunity to have easy access to fish for brown and brook	The roads proposed for decommissioning are NFSR 241.1 and 246.1 and portions of NFSR 185.1 and 242.1. None of the road segments on NFSR 185.1, 242.1, or 246.1 cross or are adjacent to streams that contain fish. Therefore, decommissioning these road segments will have no impact to recreational fisheries.

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trout in the area. Decommissioning the above roads may have a negative impact on their ability to access fisheries in this portion of the forest.	NFSR 241.1 follows an unnamed tributary of Rock Creek that likely contains a small population of brook trout. This stream receives little fishing pressure given its small size and close proximity to Rock Creek and other more productive fisheries. Decommissioning NFSR 241.1 should have a very small impact on recreational fishing access in the area.
CPW10 - Increased ground disturbance through road construction or silvicultural activities has the potential to introduce and/or increase noxious weeds. Cleaning equipment prior to entering the sites will help prevent the spread of noxious weeks. Any occurrence of noxious weeds should be monitored and treated.	Botany Design Criteria number 2 (FEIS Page 17) states, "To avoid introduction of non-native species, clean all equipment, both Forest Service and private, before entering the project area. Equipment should be inspected prior to coming onto the Forest when it has been in areas of known noxious weed infestations or any unknown areas,". Inspection is covered by Timber Sale contract provision B(T)6.35 Equipment Cleaning and is done with all harvest equipment entering the Forest. During implementation and up to 5 years post-harvest, District personnel monitor for, and treat areas that have been identified with noxious weed infestations.
CPW11 - The Gore Pass area provides habitat for many wildlife species not mentioned above. Species include turkey, black bear, mountain lion, dusky grouse, snowshoe hare, and leopard frog as well as many species of songbirds and small mammals. Silvicultural activities may impact habitat for these species.	The USFS agrees that the Gore Pass area is important for many wildlife species including black bear, mountain lion, dusky grouse, snowshoe hare, and leopard frogs as well as song birds and small mammals. The Forest Service is required to analyze impacts for Threatened, Endangered, and Sensitive species for each of the alternatives including the no action alternative. The Forest Service is also required to analyze changes to population trend for Management Indicator Species. Lastly, the Forest Service will also analyze other wildlife species that may have been identified as a concern during public scoping. For example, pronghorn antelope, moose, mule deer, and elk were analyzed in the wildlife specialist report because they were identified early in the NEPA process as being a concern in the Gore Creek Restoration EIS public process. Not all wildlife species can be analyzed for in the environmental documents, unless brought forward early in the public process.
CPW12 - Finally, lynx which are listed as a state endangered species and a federally threatened species, have been documented on a few rare occasions in Routt/Grand Counties utilizing habitats similar to those habitats found in the Gore Pass area. Local CPW staff has not confirmed any lynx sightings	A thorough review of impacts to Canada lynx was completed in the Biological Assessment. The Biological Assessment was also submitted to the US Fish and Wildlife Service for review and concurrence on the determinations.

Comment	Agency Response
specifically within the project area and currently, CPW staff feels that it is unlikely lynx can be found currently utilizing the property. Nevertheless, the project area contains suitable habitat for lynx.	
Department of Energy (WAPA)	
WAPA1 - The NFS road segments proposed to be decommissioned may impact Western if those road segments provide the only access or the preferred access to the transmission line structures. Prior to decommissioning any road segments, please continue to coordinate with Western to ensure one or more structures do not become inaccessible with the road closures and/or decommissioning.	The roads proposed for decommissioning are portions of NFSR 241 and NFSR 185 and the 246 and 242. All transmission line routes in that area will still be accessible from NFSR 185 and 243. Design criteria were developed for the proposed road decommissioning that would protect permit holders' access. Design Criteria Common to All Alternatives #13-#15 protects all power line right-of-ways and access routes. These criteria should eliminate all direct impacts to Western for their access. The Forest Service will continue to work with Western to ensure access to the power lines.
WAPA2 - I would like to suggest a couple of options for keeping FS Rd 241 open for Western's maintenance and operation activities associated with the t-line. Decommission the road as planned, but allow permittees, like Western, to continue to use the road by installing a locking mechanism on the gate that will take both a USFS lock and Western lock. Don't decommission the road, but allow it to become a two-track by ceasing to maintain it in its current condition. Don't decommission the road, but allow Western to improve it as needed with routine maintenance including grading, replacing water diversions, and removing vegetation if	The proposed decommissioning of the portion of the NFSR 241 is watershed improvement project and follows Forest-wide Water and Aquatic Standards and Guidelines. This section of road parallels Blacktail Creek and is experiencing severe erosion in many locations adding sediment to the creek, which cannot be mitigated in place due to the proximity of the road to the stream and riparian areas. This project would also add appropriate drainage to a section of the 241, further improving the watershed. Although decommissioning the road does not allow for future motorized use by the USFS or any permit holders, all transmission line routes will be accessible from NFSR 185 and 243. See Appendix B, Pages B-1 and B-2 for an improved map of roads to be closed. Design Criteria Common to All Alternatives #13-#15 protects transmission line right-of-ways and access routes. The Forest Service will continue to work with Western to ensure access to the power lines.

Comment	Agency Response
needed – this option keeps the road open to public users as well. Please provide an indication of the USFS preference concerning FS Rd 241 that still allows Western to use it for ingress/egress to its t-line.	
Randy Carmickle	
Carmickle1 - My first concern is option 3 adding 5 additional miles of road to Gore Creek. I would oppose the additional roads and believe it would be a negative impact to the area's environment verses the benefit to be gained.	Please refer to chapter 3 of the FEIS, Affected Environment and Environmental Consequences, which discusses the impacts related to the construction of 5 additional miles of road.
Carmickle2 - I would support the closure road 242 & 246 however, these roads are already closed and more reasonable and cost effective measures could be taken to mitigate the rare occasion of illegal OHV use such as decommissioning a small portion of the roads beyond the watershed rehabilitation and placing more effective use signage to deter the seldom illegal abuse.	The USFS concurs with the need for effective road closures. The action alternatives and design criteria include effective closure mechanisms for all roads identified for closure/decommissioning.
Carmickle3 - Road 241 would have benefits and draw backs. This road saw a road grader in June of this year and should not be improved beyond its current status from 243 to the Black Tail overlook.	The portion of NFSR 241 between NFSR 243 and the Blacktail overlook will not be improved beyond its current status, but rather additional drainage features would be installed to reduce surface erosion and protect resources. The operational level of the road would remain the same.
Carmickle4 - The B.T. overlook should be dispersed by rocking off the entrance to	This site meets forest plan standards and provides recreation opportunities.

Comment	Agency Response
prevent motorized vehicles and trailers from gaining access to the edge of the drainage which cause's a great deal of unnecessary human disturbance to the crucial wildlife habitat below.	
Carmickle5 - Road 185 provides access to hundreds of acres. If this road is decommissioned for the entire distance from the proposed dispersed campsites it would cut off access to quality forest land, especially for aging users. I would oppose the closure of road 185 and would like to see it remain open access.	Please refer to chapter 3 of the FEIS, Affected Environment and Environmental Consequences, which discusses the impacts related to the decommissioning of FSR 185. The decommissioning of FSR 185 will only occur on approximately 2.9 miles of 6.18 total miles of the road. This leaves approximately 3.28 miles of road that will remain open on FSR 185. USFS agrees that some users may be affected by this road decommissioning, however the USFS disagrees that access would be "cut off" since there are other means of accessing the area such as foot or horseback travel. The portion of NFSR 185 proposed for closure is in very poor condition, is passable only to very high clearance vehicles, and has limited/no dispersed camping opportunities. This section of road is incised due to excessive past erosion making installation of additional drainage features to control erosion near impossible. The cost of upgrading the road to meet basic resource protection standards would severely strain an already limited road maintenance budget, and result in reduced maintenance on higher traffic roads, which would likely result in more resource damage.
Carmickle6 - Any closure of a current road in the Gore Creek area in my opinion should be a short distance from the ends of the road systems and around the watersheds mitigated, leaving the remaining hard pack roads to provide trail access for foot, horseback and bike access.	Though not maintained, visitors will still be able to access the area by foot and horse. In order to meet decommissioning objectives, bike access will not be available.
Carmickle7 - Trail 1172 I would like to see left open as a continuous loop and feel the partial decommissioning would serve little benefit	There will be no effects to the Tepee Creek Trail # 1173.

Comment	Agency Response
since the trail see's little use anyway.	
Rocky Smith Et Al (Smith)	
Smith1 - Additional roads must not be constructed, as would occur under alternative 3. The analysis area is already very well roaded. Roads are the primary cause of the existing watershed problems, the very issue the project is designed to address. Thus building more roads would directly contradict the project purpose and need.	Please refer to the Purpose and Need for Action on page 4 of the FEIS. Building more roads in the Gore Creek Area will not contradict the Purpose and Need for Action since a primary need is to "Analyze effects of additional temporary roads and specified roads needed to complete a portion of the Rock Creek sales in order to remove dead lodgepole pine and expedite the regeneration process." Alternative 3 outlines multiple roads and sites that are to be decommissioned. The overall mileage of roads to be decommissioned (~7 miles) will be greater than what could be built (~5 miles). This net decrease of roads will address the purpose "to reduce current impacts associated with roads in the analysis area." Please also refer to the comment response EPA 4.
Smith2 - The additional cutting and road construction proposed under alternative 3 (360 acres and 5 miles, respectively – DEIS at 14) would increase the equivalent clearcut area in five watersheds, pushing three of them over the 25 percent threshold (at which damage is considered likely), and increase it in two watersheds where it is already over 25 percent. DEIS at 44. Overall, under alternative 3, the construction of an additional 5 miles of temporary road and associated increase in timber harvest would offset some of the benefits of the road treatments.	As stated in the FEIS (Page 54), the construction of an additional 5 miles of temporary road and associated increase in timber harvest would offset some of the benefits of the road treatments. The FEIS analyzes the effects of additional timber harvest and road construction for each sub-watershed, and summarizes the overall positive or negative impact for each alternative, including alternative 3, in Table 14 (Page 52).
Smith3 - Therefore, we recommend full obliteration of all roads to be decommissioned	USFS agrees with the decommissioning techniques described in the comment. However, each road will be evaluated by USFS personal on a case by case basis to determine what

Comment	Agency Response
in the Gore Creek Project. This means, at a minimum: fully ripping the surface and reestablishing native vegetation; removal of all culverts; placing of large, difficult to move barriers at the entrance and at all intersections with non-decommissioned roads; and regular law enforcement patrols for a few years to ensure no motor vehicle use occurs on the decommissioned roads. Also preferable is the restoration of cuts and fills and removal of water bars, to the extent this can be done without significant adverse impacts to water quality sand soils.	type of decommissioning will be needed. Dependent upon the type of road and its location, each road may have a different combination of decommissioning methods. Regardless of road type, each of the roads to be decommissioned will be done to the fullest extent that is needed for rehabilitation. Please refer to Chapter 2, Alternatives, Including the Proposed Action (FEIS pages 12-15) which outlines the specific decommissioning methods for each road type and site.
Smith4 - But the DEIS does not address roadless impact, nor does it propose to rehabilitate the damage. The map of the project area distributed with the scoping notice, dated April 20, 2012, shows the project area extending into sections 1, 11, and 12, T 2N, R 83W, and sections 6 and 7, T 2N, R 82W. However, the map of the project area in the DEIS shows a smaller project area, that does not include the above-described area. DEIS Figure 1, p. 3. Why was this change made? Will rehabilitation of the illegally cut area within the RA be addressed separately? If it will not be addressed at all, the agency needs to explain why. We believe that repair of roadless impacts should be a high priority.	When it was discovered that timber was harvested and temporary roads were built outside of NEPA authorized areas and in Inventoried Roadless, an interdisciplinary team was formed (March, 2011) to assess the damage and determine how it would be addressed. The team visited the roadless incursion and determined that no further NEPA was necessary to address the small section of road and the harvest, as there would be no ground disturbance for rehabilitation. Measures were taken to rehabilitate the damage by moving some slash onto the road by hand, but most of the road had already re-vegetated and was recovering. Any needs for reforestation will be addressed with the adjacent sale unit as reforestation surveys are completed, and if minimum stocking is not met, the areas will be planted.
US Environmental Protection Agency Region 8 (EPA)	

Comment	Agency Response
EPA1 - Based on conversations between our staffs, we understand that maps such as wetland and riparian areas in the analysis area will be included in the project file. In order to better understand existing aquatic resource conditions, particularly for those resources near proposed project activity areas, we recommend including these maps in the Final EIS.	Maps have been added in Appendix B.
EPA2 - In addition, p. 55 of the Draft EIS briefly mentions the lower portion of Rock Creek as an eligible Wild River in the National Wild and Scenic River (WSR) System and the expectation that Alternative 2 would not affect that eligibility. In support of this conclusion, we recommend providing a brief summary of the WSR program eligibility criteria and a map depicting the eligible segment with the proposed activities under both Alternatives 2 and 3. We also recommend that the Final EIS include a determination on whether the road construction proposed under Alternative 3 would adversely impact the WSR eligibility of this segment of Rock Creek.	The values for lower Rock Creek Wild River eligibility include cultural, scenic, geologic and fisheries. There are no proposed actions within this management area. We have included effects to the Wild River eligibility in Alternative 3. The Routt NF Land and Resource Management Plan lists the outstandingly remarkable values that make lower Rock Creek an eligible Wild River (Routt National Forest Plan EIS Appendix E, page 7).
EPA3 - …we recommend expanding the prohibition area for construction of 1.5 miles of temporary road to include the Iron Springs/Rock Creek and Teepee Creek subwatersheds given that existing road	The recommendation of expanding the prohibition area for additional new road construction to include Iron Springs/Rock Creek and Teepee Creek is valid. However since the decision is to implement Alternative 2, no additional road construction will occur in any sub-watershed, including the two sub-watersheds mentioned above.

Comment	Agency Response
densities in these areas exceed threshold values indicative of potential adverse effects on watershed function and hillslope hydrology. If this revision is not feasible, then we recommend the Final EIS explain why these areas were not included in the prohibition on new temporary road construction.	
EPA4 - To ensure that project activities do not adversely impact aquatic resources, we recommend expanding the list for both action alternatives to include the following: • Monitor effectiveness of road closures and adjust closure methods, if necessary. • Monitor revegetation efforts for 5 years to ensure success. We recommend including the following additional design criteria in Alternative 3: • Avoid road construction on slopes greater than 20%. • Avoid road construction in areas with sensitive soils.	Monitoring of roads closures is addressed in the Rock Creek EIS. "Visual inspection to assure that road closures remain effective," (Rock Creek FEIS pg. 25) and will still apply to treatments covered under Gore Creek Restoration. The 5 miles of road construction proposed in Alternative 3 is to meet a possible need for further timber harvest. The majority, 4.5 of the proposed 5 miles, will be temporary road that will be obliterated using techniques deemed to be most suitable by Forest personnel (including hydrology, soils and engineering) using Best Management Principles. The remaining 0.5 miles may require engineering specifications that will allow for culvert placement or switchback design if needed. The ID team feels that the hydrology design criteria (Gore Creek Restoration FEIS pp. 18-19) addresses these concerns: New temporary or specified road construction: a. Outslope roads with rolling dips and/or waterbars to maintain hillslope hydrology to the extent possible and ensure adequate road drainage for all conditions. b. Armor rolling dips as needed to prevent rutting damage. c. Space cross drains based on slope and soil type as outlined in the Watershed Conservation Practices Handbook (FSH 2509.25) or by the Forest Soil Scientist. d. Temporary road widths should not exceed 12 feet unless needed to meet curve radius or intersection needs. e. Temporary road grades should not exceed 8 percent. f. Any cut and/or fill required for temporary road construction or skid trails should not exceed two feet in height g. Temporary roads will not cross perennial or intermittent stream courses, wetlands, or riparian areas.

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	h. Temporary roads will be located at least 200 feet from intermittent and perennial streams, riparian areas, and wetlands, unless approved by qualified Forest Service personnel. i. Recontour all temporary roads unless a Forest Service representative determines it is not necessary. Road construction restrictions based on percent grade (i.e. 20%) cannot be found in neither the Colorado State Forest Service Best Management Practices, nor in Colorado Forest Road Field Handbook.
EPA5 - The Proposed Action discussion notes that there are over 1,500 bum piles within the analysis area. Based on discussions between our staffs, we understand that the burning of these piles was analyzed under the 2006 Rock Creek EIS and that only the rehabilitation of these piles is addressed under the Gore Creek Restoration Project Draft EIS. We recommend clarifying this intent in the Final EIS since the Alternatives discussion indicates that the Proposed Action includes "burning or removing and rehabilitating piles."	Further analysis of pile burning was not needed due to the limited number of “new” piles associated with the Gore Creek Restoration EIS. The number of piles that were created outside the Rock Creek EIS analysis area was < 5. The original analysis addresses the remainder of existing piles in the new analysis area and any future piles created from proposed timber harvest activity, which was originally analyzed under the Rock Creek EIS.
EPA6 - If the Proposed Action will include the burning of piles that have not been previously analyzed, then we recommend the Final EIS include disclosure of potential short-term air quality impacts associated with the burning of these piles.	Additional piles identified in this process will not alter the short-term air quality impacts associated with the piles originally identified in the Rock Creek EIS. All pile burning implementation is conducted under the State of Colorado Air Pollution Control Division and *Regulation Number 9 - Open Burning, Prescribed Fire, and Permitting* (adopted 12/15/11, effective 01/30/12) requirements. Ignitions are only allowed under identified smoke dispersal conditions and a daily/ annual cap is defined in the permit obtained for the project area. This permit is volume-based, so although more piles may be burned, the daily and annual numbers of piles will remain the same under the permit. The overall number of additional piles is <5 compared to the original Rock Creek EIS and may actually be far less if all proposed timber sales in the original analysis are not implemented under Gore Creek Restoration EIS.

Comment	Agency Response
EPA7 - It would be helpful if the Final EIS included a discussion of the Burn Plan process, the potential for Routt National Forest to develop such a plan for pile burns, and clarification on whether pile burns would be subject to the same process utilized for prescribed fire treatments as described in the Interagency Prescribed Fire Planning and Implementation Procedures Guide (July 2008).	The USDA Forest Service is a signatory agency to the Interagency Prescribed Fire Planning and Implementation Procedures Guide (July 2008). The Forest Service utilizes this guide for the development of all Prescribed Fire Plans to provide consistency in the planning and implementation process. Any intentional ignition whether it is a broadcast burn or pile burning is considered "prescribed" fire and is subject to the planning process contained within the above mentioned guide.
EPA8 - We recognize that the USFS is in the process of consulting with the U.S Fish and Wildlife Service (USFWS) regarding potential project impacts on protected species and the USFS's related determinations. The results of this consultation and the USFWS's recommendations will be valuable additions to the Final EIS.	The findings of USFWL consultation for protected species are addressed in the Record of Decision and pertinent sections are included in Chapter 3 of the FEIS. All correspondence and the final BA/BE's are in the project record. Please contact our office if you would like copies of this information.

COLORADO PARKS & WILDLIFE

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August 28, 2013

United States Department of Agriculture, Forest Service
Yampa Ranger District
Attn: Jack Lewis
PO Box 7
Yampa, CO 80483

RECEIVED
AUG 30 2013
Yampa Ranger District

RE: Gore Creek Restoration Project

Jack,

After receiving a letter requesting comments on another Gore Restoration Project dated July 9, 2013, Colorado Parks and Wildlife (CPW) would like to present the following comments regarding the Gore Creek Restoration Project. Please refer to previous letters from Colorado Division of Wildlife (now CPW) for Gore Creek Restoration Project (May 30, 2012) the Rock Creek EA, Red Dirt EA as well as Long Park Travel Management and Black Tail Timber Sale comments.

According to the letter received by CPW staff this project is being proposed to deal with approximately 550 acres of harvest which occurred outside of areas analyzed in the previous NEPA decision. In addition, watershed impacts were noted in the previous NEPA documents, which stated that road closure, decommissioning, relocation, reconstruction, and/or repair could be done to improve the watershed condition. More specific road decommissioning and reconstruction projects have been identified under this proposal on National Forest System Roads (NFSR) 185, 241, 242, and 246. It is also noted that approximately 5 miles of temporary roads would be necessary to complete salvage harvest operations in the area as a result of mountain pine beetle infestation.

CPW does not have a particular alternative that meets the concerns staff has regarding wildlife and public access for hunting and fishing. We would like to note the following.

- Over 350 landings have been created with 1-2 slash piles associated at the landing sites. Some of these areas have been burned but a lot of them are just large piles of debris that may need to be eliminated or possibly used as wildlife habitat for small mammals.
- Gore Pass has been identified as critical elk habitat. CPW mapping shows portions of the Gore Pass area as winter range, severe winter range, winter concentration area, summer range summer concentration and production area. CPW personnel are particularly concerned with elk production areas in the project area and believe these areas should be treated differently in the project area. Gore pass also is classified as summer and priority moose habitat which need to be addressed, depending on

STATE OF COLORADO
John W. Hickenlooper, Governor • Mike King, Executive Director, Department of Natural Resources
Steven M. Yamashita, Acting Director, Colorado Parks and Wildlife
Parks and Wildlife Commission: Robert W. Bray • Chris Castilian • Jeanne Horne
Bill Kane, Vice-Chair • Gaspar Perricone • James Pribyl • John Singletary, Chair
Mark Smith, Secretary • James Vigil • Dean Wingfield • Michelle Zimmerman
Ex Officio Members: Mike King and John Salazar

projects to be completed. This area is also listed as mule deer summer range and winter range.

- In addition the entire Rock Creek area serves as an important migration corridor for elk, deer and pronghorn. The project area already has an extensive network of roads, many of which receive heavy recreational use. Additional road construction and extensive clear cutting of heavy timber will likely impact elk and deer use in the area. The timber on Gore Pass provides necessary cover and security. Maintaining movement corridors and security zones within the project in the form of timbered areas would help insure continued deer, elk, and pronghorn migration through the area.
- Mountain Pine Beetle has resulted in the loss of most mature lodgepole pine in the area. CPW supports the removal of some of this timber for forest health as well as fire mitigation.
- Several known northern goshawk nests are located within the project area and need to have protective measures ensuring their continued use. CPW understands that the forest is being converted to an early seral stage and numbers of these birds may decline. Areas near nests should be avoided during harvest activities.
- The CPW believes it is important to protect valuable habitat for amphibians and fish species. Neither the USFS nor the CPW is likely aware of all of the occurrences of amphibians in the project area. The CPW would recommend additional protection of riparian and wetland areas that provide potential habitat for amphibians. Increased water flows and sedimentation from silvicultural activities will likely impact fishery habitat.
- As mentioned above, additional road construction and the associated habitat fragmentation and increase in human access into previously secure areas may impact wildlife habitat. CPW recommends improved closure mechanisms such as signage, boulders, scarification, gates and/or law enforcement for some of these roads. For temporary roads, the CPW recommends complete vegetation reclamation and completely eliminating the roadbed by restoring natural contours and slopes.
- Gore Pass is a very popular big game hunting area. Hunting is beneficial for recreation, helps CPW achieve harvest management objectives, and provides economic benefit to the local communities. CPW recommends ceasing timber activity one week prior to the start of the big game seasons. Having winter harvest would also be beneficial to the wildlife and habitat as less animals will be in the project area at that time. We also recommend no harvest activity through the duration of the big game seasons or spring time calving and fawning.
- The letter also states that decommission road projects will occur on several USFS roads, including 185, 241, and 246. These roads are important to allow hunter access and should remain open. FSR 185 is the only road allowing access to Hazel and Bobcat Creeks. These roads allow for dispersed camping which is important for the hunting public, its primary use, as several other dispersed camping areas have already been closed, Long Park Area, and a majority of the USFS campgrounds have also

been shut down, except Black Tail Creek Campground. FSR Road 242 is a good candidate for decommissioning as it has been under a closure for quite some time.

- Certain roads along creeks also allow for opportunity for the fishing public. Aging fishing publics appreciate the opportunity to have easy access to fish for brown and brook trout in the area. Decommissioning the above roads may have a negative impact on their ability to access fisheries in this portion of the forest.
- Increased ground disturbance through road construction or silvicultural activities has the potential to introduce and/or increase noxious weeds. Cleaning equipment prior to entering the sites will help prevent the spread of noxious weeks. Any occurrence of noxious weeds should be monitored and treated.
- The Gore Pass area provides habitat for many wildlife species not mentioned above. Species include turkey, black bear, mountain lion, dusky grouse, snowshoe hare, and leopard frog as well as many species of songbirds and small mammals. Silvicultural activities may impact habitat for these species.
- Finally, lynx which are listed as a state endangered species and a federally threatened species, have been documented on a few rare occasions in Routt/Grand Counties utilizing habitats similar to those habitats found in the Gore Pass area. Local CPW staff has not confirmed any lynx sightings specifically within the project area and currently, CPW staff feels that it is unlikely lynx can be found currently utilizing the property. Nevertheless, the project area contains suitable habitat for lynx.

The comments above detail some of the concerns brought forward by local CPW personnel. Thank you for the opportunity to comment. If you have further questions, please contact District Wildlife Managers Gene Abram (970-724-3372) and/or Libbie Miller (970-736-8359).

Sincerely,

Lyle H. Sidener

Lyle H. Sidener
Area Wildlife Manager

Cc: Ron Velarde-CPW Regional Manager
James Haskins-CPW Area Wildlife Manager
Gene Abram-CPW District Wildlife Manager
Libbie Miller-CPW District Wildlife Manager

Department of Energy
Western Area Power Administration
Rocky Mountain Customer Service Region
P.O. Box 3700
Loveland, CO 80539-3003

AUG 20 2013

Jack H. Lewis, District Ranger
USDA Forest Service
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Yampa, CO 80483

RECEIVED
AUG 26 2013
Yampa Ranger District

RE: Gore Creek Restoration Project Draft Environmental Impact Statement

Dear Mr. Lewis:

Western Area Power Administration (Western) is in receipt of your recent letter concerning the subject project and Draft Environmental Impact Statement (DEIS). Western owns and/or maintains the Gore Pass-Hayden 138-kV and Hayden-Gore Pass 230-kV transmission lines and associated access within the project area. These facilities are shown on the enclosed map.

Previous timber cutting activities to ensure the safety and reliability of Western's powerlines have occurred on the National Forest System lands currently being analyzed. These activities have included downing trees and selectively treating debris, but leaving much of the downed material where it fell per the direction of your predecessor. These vegetation management activities have been underway for a number of years with most of the work each year being conducted to remove new growth danger trees inside the authorized rights-of-ways or felling dead and dying hazard trees immediately adjacent to the rights-of-ways.

Western uses an integrated vegetation management approach including a wide range of tools and techniques to maintain its transmission line and access road rights-of-ways. Our overall objective is to manage for the exclusion of non-compatible vegetation while recruiting and retaining compatible native plant species appropriately sized at mature growth for their respective locations relative to the terrain and features of the transmission line. This approach ensures public safety, provides safe working conditions for Western's line crews and ensures the operational reliability and security of the transmission line facilities. Western is also concerned with the management of live and dead fuel loads which can accumulate on or adjacent to its facilities. Western has enjoyed a good working relationship with the Yampa Ranger District and has appreciated your support in our working towards these general goals whenever feasible. The proposed actions appear to continue to help Western meet its objectives of ensuring powerline safety, security and reliability.

The Design Criteria for Lands under all alternatives proposed in the DEIS is supported by Western particularly those criteria indicating that (1) slash piles within the powerline rights-of-

ways will not be burned, but will be removed when feasible; (2) powerline and access rights-of-ways will be designated as protected improvements within the analysis area and avoidance and/or restoration to full function of these improvements will be required; and (3) Western, as a permittee, will be allowed access to road and other access routes shown on the Analysis Area Map included in the DEIS. Another solution to the management of slash piles supported by Western would be to biomass salvage, chip or masticate the debris where feasible.

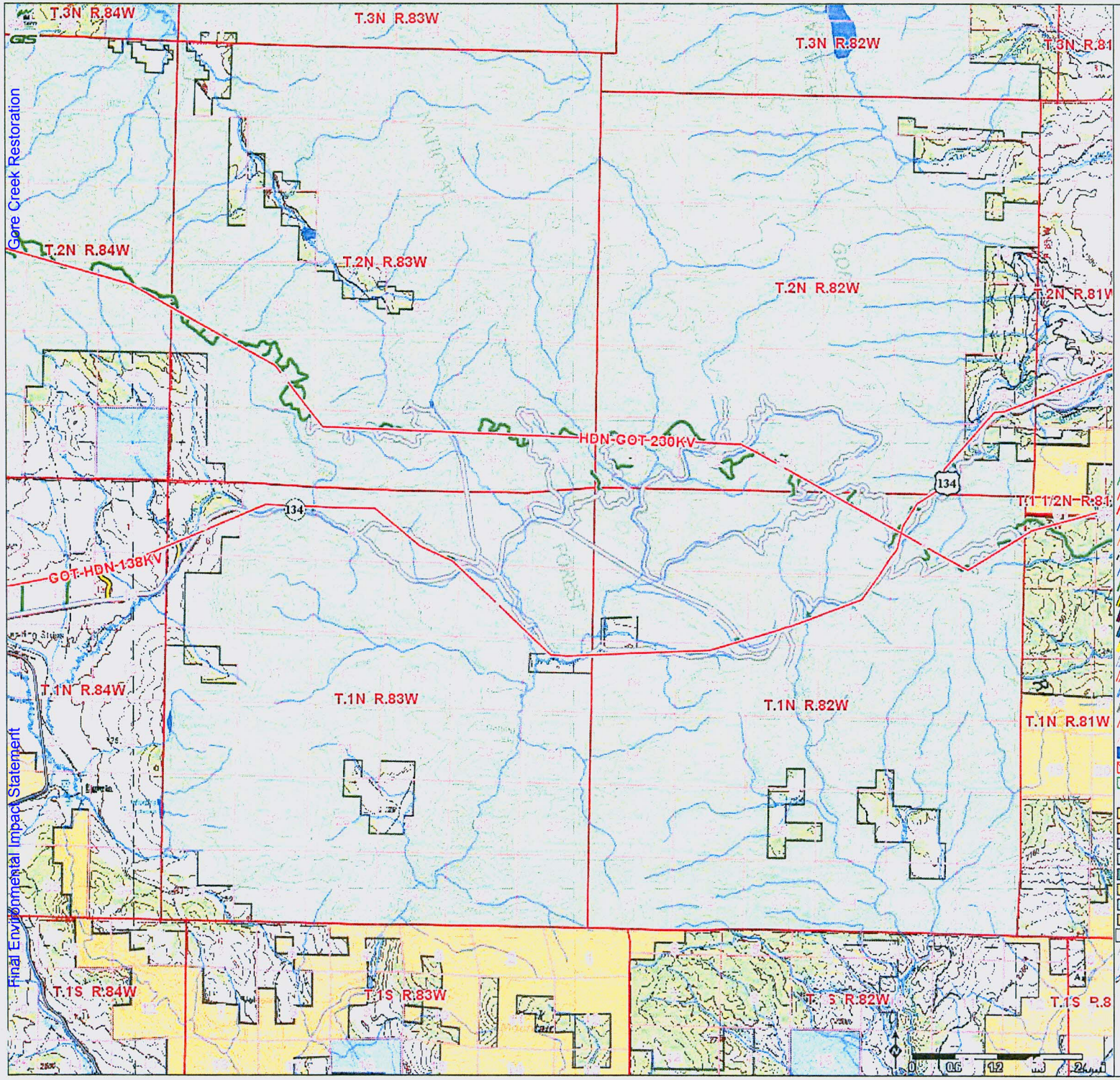
General access for Western's facilities is along National Forest System (NFS) roads that are suitable for passenger vehicles. Access roads to the transmission line structures are unimproved two-tracks in most cases, requiring the use of high clearance vehicles. Western will continue to maintain these spur roads to a minimal standard sufficient enough to allow crews to access the transmission line structures. The NFS road segments proposed to be decommissioned may impact Western if those road segments provide the only access or the preferred access to the transmission line structures. Prior to decommissioning any road segments, please continue to coordinate with Western to ensure one or more structures do not become inaccessible with the road closures and/or decommissioning.

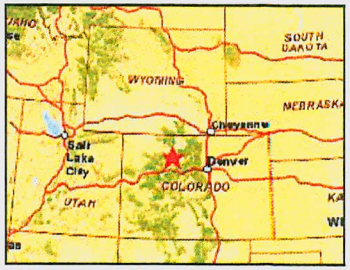
Thank you for the opportunity to comment on this proposed project. Questions or requests for additional information can be directed to Ms. Susan Starcevich of my office at (720) 962-7275 or starcevi@wapa.gov. Coordination or assistance working adjacent to or beneath Western's owned and/or operated transmission lines or access rights-of-ways should be directed to Ron Turley, Special Projects Manager, at (970) 240-6232 or turley@wapa.gov, or Will Schnyer, Western Colorado Maintenance Manager, at (970) 240-6363 or SCHNYER@WAPA.GOV.

Sincerely,

Steven W. Webber
Lands Team Lead

Enclosure





Rocky Mountain Region

Western Area Power Administration
An agency of the U.S. Department of Energy

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Map Parameters

UTM ZONE 13, NAD83
Scale 1:88,874
7/25/2013 9:29 A.M.

- Proposed or Re-route T-Line
- Complete T-Line
- Complete T-Line DC
- Incomplete T-Line
- Distribution Line
- Underground T-Line
- STREAMS
- Access Road
- Documented Access Road
- ROW Maintenance Road
- Proposed New Access Road
- Non Western Documented Access Road
- Public Road
- Abandon Road
- INTERSTATE HIGHWAY
- MAJOR HIGHWAY (US/STATE)
- Township & Range
- Sections
- LAKES AND RIVERS
- Facility / Substation / Switchyard
- Proposed Facilities
- --- Federal Lands (Unofficial) ---
- BLM
- BIA
- NPS
- USFS
- USFWS
- BOR
- STATE
- DOD
- PRIVATE / OTHER
- States
- Counties
- USGS 100K Topo-Quads

Lewis, Jack -FS

From: Starcevich, Susan <Starcevi@WAPA.GOV>
Sent: Monday, August 19, 2013 9:42 AM
To: Lewis, Jack -FS
Subject: Access along FS Road 241

Good morning, Mr. Lewis. I understand that you and Ron Turley have had a conversation about the Gore Creek Restoration Project being proposed by the Yampa Ranger District. Western has prepared a response to the proposed treatment and Draft EIS which you should receive later this week. One of the issues identified by Ron and also the Western Colorado maintenance folks is the loss of access along the subject road if it is decommissioned. In a separate e-mail from Ron, he indicated that it looked like the lock-out location is the western most spur off of FS Rd 250. He did not think the spur road had a number, but said it accesses the three structures immediately east of Rock Creek.

Will Schnyer, the WCMO Division Maintenance Manager in Montrose, asked the Craig line crew foreman to provide feedback regarding the FS wanting to close and reclaim FS Rd 241 between Hwy 134 and Western's t-line ROW. Will added that Western's lock had been removed at the gate near structure 203 and asked the folks in Craig to let me know if they disagree with the closure of FS Rd 241.

Ron sent me an e-mail to say that you had said Western could check out a key for the day or you would have one of your folks open the gate and then call us. Ron was not sure what hardware would be needed to install two locks.

Billy Weber, the Craig maintenance crew foreman provided the following comments about this road and the lock out affecting our access to structure numbers 200, 201 and 203. *By the looks of the map, road 241 looks fairly vital and would hate to give it up. Regardless if we use it a bunch or not it looks like rough country and a different option on ins and outs is always a good thing to have. The lock being cut out shouldn't happen and we will need our lock put on ASAP. Thanks. Billy.* Based on Billy's e-mail, it sounds like Western can live with a gate as long as there is a Western lock on it.

I would like to suggest a couple of options for keeping FS Rd 241 open for Western's maintenance and operation activities associated with the t-line. Decommission the road as planned, but allow permittees, like Western, to continue to use the road by installing a locking mechanism on the gate that will take both a USFS lock and Western lock. Don't decommission the road, but allow it to become a two-track by ceasing to maintain it in its current condition. Don't decommission the road, but allow Western to improve it as needed with routine maintenance including grading, replacing water diversions, and removing vegetation if needed – this option keeps the road open to public users as well. Please provide an indication of the USFS preference concerning FS Rd 241 that still allows Western to use it for ingress/egress to its t-line.

Thank you.

Susan Starcevich
Realty/Federal Lands Liaison
Headquarters - Western Area Power Administration
12155 W. Alameda Parkway
Lakewood, CO 80228
720.962.7275

Courage doesn't always roar. Sometimes courage is the little voice at the end of the day that says I'll try again tomorrow. - Mary Anne Radmacher

My name is Randy Carmickle;

I am submitting input regarding the Gore Creek Restoration proposed project. I frequent the area for recreation hiking, hunting and biking and have for nearly 40 years since I was a child.

My first concern is option 3 adding 5 additional miles of road to Gore Creek. I would oppose the additional roads and believe it would be a negative impact to the area's environment verses the benefit to be gained.

Regarding the decommissioning of the proposed roads, I would support the closure road 242 & 246 however, these roads are already closed and more reasonable and cost effective measures could be taken to mitigate the rare occasion of illegal OHV use such as decommissioning a small portion of the roads beyond the watershed rehabilitation and placing more effective use signage to deter the seldom illegal abuse.

Road 241 would have benefits and draw backs. This road saw a road grader in June of this year and should not be improved beyond its current status from 243 to the Black Tail overlook. The B.T. overlook should be dispersed by rocking off the entrance to prevent motorized vehicles and trailers from gaining access to the edge of the drainage which cause's a great deal of unnecessary human disturbance to the crucial wildlife habitat below. A developed camp ground already exists on Hwy 134 for the Black Tail drainage.

Road 185 provides access to hundreds of acres. If this road is decommissioned for the entire distance from the proposed dispersed campsites it would cut off access to quality forest land, especially for aging users. I would oppose the closure of road 185 and would like to see it remain open access. This road has seen little change since the 80's.

Any closure of a current road in the Gore Creek area in my opinion should be a short distance from the ends of the road systems and around the watersheds mitigated, leaving the remaining hard pack roads to provide trail access for foot, horseback and bike access.

Trail 1172 I would like to see left open as a continuous loop and feel the partial decommissioning would serve little benefit since the trail see's little use anyway.

If only one of the three outlined options can be pursued without modifications then would lean to support option 1 for no action to be taken.

I would appreciate your consideration to the input provided.

Regards,

Randy Carmickle

Jack Lewis
Yampa Ranger District
P. O. Box 7
Yampa, CO 80483

Via e-mail: comments-rocky-mountain-medicine-bow-yampa@fs.fed.us

August 21, 2013

Dear Jack,

The following are the comments of Rocky Smith, Rocky Mountain Chapter of Sierra Club, Rocky Mountain Recreation Initiative, Great Old Broads For Wilderness, Ecoflight, Rocky Mountain Wild, Conservation Colorado, John Spezia, and John Randolph on the proposed Gore Creek Restoration Project, as described in the Draft Environmental Impact Statement (DEIS).

We commend the Forest Service for undertaking a restoration project in the Gore Pass area, an area that has been heavily roaded and logged for decades, resulting in watershed integrity problems. It is especially good for the agency to repair some of the damage done by logging that occurred outside of previously authorized areas, as described at DEIS p. 2.

In general, we SUPPORT THE PROPOSED ACTION, alternative 2 (but see "Restore Roadless Area" section below). This alternative appropriately focuses on rehabilitation of areas that were logged or where roads were constructed in locations not authorized under the Rock Creek project or other projects. Seven miles of road would be decommissioned (DEIS at 10), repairing watershed problems and reducing road redundancy and long-term road maintenance costs (id. at 65).

Additional roads must not be constructed, as would occur under alternative 3. The analysis area is already very well roaded. Roads are the primary cause of the existing watershed problems, the very issue the project is designed to address. Thus building more roads would directly contradict the project purpose and need. See DEIS at 4. Also see additional detail in our scoping comments, dated June 1, 2012.

The additional cutting and road construction proposed under alternative 3 (360 acres and 5 miles, respectively – DEIS at 14) would increase the equivalent clearcut area in five watersheds, pushing three of them over the 25 percent threshold (at which damage is considered likely), and increase it in two watersheds where it is already over 25 percent. DEIS at 44. Overall, under alternative 3,

> the construction of an additional 5 miles of temporary road and associated increase in timber harvest would offset some of the benefits of the road treatments.

DEIS at 49.

FULLY DECOMMISSION ROADS BY OBLITERATING THEM. Per Forest Service directives, "decommissioning" a road can mean anything from blocking the entrance to full obliteration of the road surface and prism:

> Decommissioning includes applying various treatments, which may include one or more of the following:
>
> a. Reestablishing former drainage patterns, stabilizing slopes, and restoring vegetation;
>
> b. Blocking the entrance to a road; installing water bars;
>
> c. Removing culverts, reestablishing drainage-ways, removing unstable fills, pulling back road shoulders, and scattering slash on the roadbed;
>
> d. Completely eliminating the roadbed by restoring natural contours and slopes; or
>
> Other methods designed to meet the specific conditions associated with the unneeded roads.

FSM 7703.2 (2); emphasis added.

A road for which the entrance is blocked is not "decommissioned", as the road still exists. It can often be used by less than full sized motor vehicles like motorcycles and all-terrain vehicles. Any barriers can usually be removed or circumvented by a group of determined motor vehicle use advocates, as has happened numerous times in the western U. S. in recent years.

Therefore, we recommend full obliteration of all roads to be decommissioned in the Gore Creek Project. This means, at a minimum: fully ripping the surface and reestablishing native vegetation; removal of all culverts; placing of large, difficult to move barriers at the entrance and at all intersections with non-decommissioned roads; and regular law enforcement patrols for a few years to ensure no motor vehicle use occurs on the decommissioned roads. Also preferable is the restoration of cuts and fills and removal of water bars, to the extent this can be done without significant adverse impacts to water quality sand soils.

RESTORE ROADLESS AREA. It is our understanding that a small part of the acreage cut that was not authorized is in the Bushy Creek Roadless Area (RA). Phil Cruz, personal

communication, March 25, 2011. But the DEIS does not address roadless impact, nor does it propose to rehabilitate the damage.

The map of the project area distributed with the scoping notice, dated April 20, 2012, shows the project area extending into sections 1, 11, and 12, T 2N, R 83W, and sections 6 and 7, T 2N, R 82W. However, the map of the project area in the DEIS shows a smaller project area, that does not include the above-described area. DEIS Figure 1, p. 3.

Why was this change made? Will rehabilitation of the illegally cut area within the RA be addressed separately? If it will not be addressed at all, the agency needs to explain why. We believe that repair of roadless impacts should be a high priority.

As we stated in our scoping comments of June 1, 2012, rehabilitation of roadless acreage affected by the unauthorized activity should be to a high standard. The goal should be to restore roadless area characteristics[1] to the greatest extent possible. At a minimum, all roads, skid trails, and landings should be obliterated. However, the use of heavy equipment should be minimized, as this use would cause additional impacts to soils and natural appearance.

CONCLUSION. Alternative 2, the proposed action, is an appropriate response to the impacts from past operations in the project area. Alternative 3 would cause additional impacts to soils and watershed in areas already suffering detrimental impacts to these resources. It must not be implemented. New roads must not be built.

Repair of the impacts to the Bushy Creek Roadless Area caused by illegal logging and associated operations should be made part of alternative 2. Alternatively, the Forest Service should state how and when these impacts will be addressed separately.

Sincerely,

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2rockwsmith@gmail.com

Alan Apt, Wilderness Chair
Rocky Mountain Chapter of Sierra Club
PO Box 620

[1] See Colorado Roadless Rule at 36 CFR 294.41 for a description of roadless characteristics.

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5

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AUG 27 2013

RECEIVED
AUG 29 2013
Yampa Ranger District

Ref: 8EPR-N

Mr. Jack H. Lewis, District Ranger
Yampa Ranger District
Routt National Forest
P.O. Box 7
Yampa, CO 80483

RE: Gore Creek Restoration Project Draft Environmental Impact Statement, CEQ #20130208

Dear Mr. Lewis:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4321, *et seq.*, and Section 309 of the Clean Air Act, 42 U.S.C. Section 7609, the U.S. Environmental Protection Agency Region 8 (EPA) has reviewed the July 2013 Draft Environmental Impact Statement (EIS) for the Gore Creek Restoration Project. This Draft EIS was prepared by the Yampa Ranger District of the U.S. Department of Agriculture Forest Service (USFS) Routt National Forest to analyze potential environmental impacts associated with proposed rehabilitation projects, the decommissioning of roads, and the addition of temporary roads to facilitate completion of timber sales previously analyzed.

Background

The Gore Creek Restoration Project is located in northwestern Colorado between the towns of Yampa and Kremmling in Routt and Grand Counties. The analysis area encompasses 45,673 acres, including 44,145 acres of USFS lands and 1,528 acres of non-USFS lands.

During implementation of timber sales analyzed under the Medicine Bow-Routt National Forest's 2006 Rock Creek EIS, it was discovered that approximately 550 acres of harvest had been completed outside of the Rock Creek analysis area. Timber sale activity was suspended and resource concerns and restoration needs were identified. The Gore Creek Restoration Project is intended to minimize the environmental impacts which occurred outside of previously analyzed project boundaries and to reduce current impacts associated with roads in the analysis area with the intention of improving the overall watershed condition. In addition, the project would complete salvage operations in some of the areas where activity was suspended.

The alternatives analyzed in the Draft EIS are briefly summarized, as follows:

- Alternative 1 (No Action) – Current management plans would continue and no restoration would occur. Approximately 240 acres of timber sales that were previously analyzed but have not already been harvested would be sold in small sales using the current road system (no temporary road building would occur);

- Alternative 2 (Proposed Action) – Resource concerns would be addressed by obliterating temporary roads; rehabilitating landings, burn piles, and skid trails; and providing erosion control in areas that were harvested on steep slopes. Watershed improvement projects, including removal of culverts, stream restoration at perennial stream crossings, and rehabilitation of two dispersed campsites that are depositing sediment directly into Gore Creek, would be completed on approximately 8 miles. Approximately 240 acres of timber sales that were previously analyzed but have not already been harvested would be sold in small sales using the current road system (no temporary road building would occur);

- Alternative 3 – Rehabilitation treatments and watershed improvement projects would be the same as described under Alternative 2. Approximately 600 acres of timber sales that were previously analyzed but have not already been harvested would be sold and up to 5 miles of new temporary road construction could occur.

A Preferred Alternative has not been identified in the Draft EIS. Given the existing conditions of aquatic resources in the analysis area, the EPA is particularly interested in the USFS's approach to ensuring protection of these valuable resources.

Aquatic Resources

The EPA considers protection of aquatic resources to be among the most important issues to be addressed in any NEPA analysis that includes new road construction given the potential to adversely impact aquatic resources, including surface and ground waters, wetlands, streams, riparian areas, and their supporting hydrology. The Draft EIS provides good disclosure of existing aquatic conditions in the project area, including existing stream health ratings that indicate declining trends in most watersheds since the 2006 Rock Creek EIS and numerous existing adverse impacts due to past timber harvest, existing road density, and existing percentage of roads within 300 feet of streams. The Draft EIS also notes that soil quality has been severely impacted in the planning area with erosion potential ratings for past and proposed harvest activities considered severe on slopes 20% and greater.

Existing Conditions: Based on conversations between our staffs, we understand that maps such as wetland and riparian areas in the analysis area will be included in the project file. In order to better understand existing aquatic resource conditions, particularly for those resources near proposed project activity areas, we recommend including these maps in the Final EIS. In addition, p. 55 of the Draft EIS briefly mentions the lower portion of Rock Creek as an eligible Wild River in the National Wild and Scenic River (WSR) System and the expectation that Alternative 2 would not affect that eligibility. In support of this conclusion, we recommend providing a brief summary of the WSR program eligibility criteria and a map depicting the eligible segment with the proposed activities under both Alternatives 2

and 3. We also recommend that the Final EIS include a determination on whether the road construction proposed under Alternative 3 would adversely impact the WSR eligibility of this segment of Rock Creek.

Design Criteria and Monitoring Plan: Alternative 3 includes up to 5 miles of new temporary road construction. According to the Draft EIS, this road construction would offset the improvements to watersheds gained through the proposed restoration activities. While we support the proposed design criteria for Alternative 3, we recommend expanding the prohibition area for construction of 1.5 miles of temporary road to include the Iron Springs/Rock Creek and Teepee Creek subwatersheds given that existing road densities in these areas exceed threshold values indicative of potential adverse effects on watershed function and hillslope hydrology. If this revision is not feasible, then we recommend the Final EIS explain why these areas were not included in the prohibition on new temporary road construction.

We support the project design criteria to protect aquatic resources, including special requirements for streams, lakes, wetlands, riparian areas, ground water-dependent ecosystems (e.g., fens and springs) and soils. To ensure that project activities do not adversely impact aquatic resources, we recommend expanding the list for both action alternatives to include the following:

- Monitor effectiveness of road closures and adjust closure methods, if necessary.
- Monitor revegetation efforts for 5 years to ensure success.

We recommend including the following additional design criteria in Alternative 3:

- Avoid road construction on slopes greater than 20%.
- Avoid road construction in areas with sensitive soils.

Other Issues

Clarification of Potential Air Quality Impacts: The Proposed Action discussion notes that there are over 1,500 burn piles within the analysis area. Based on discussions between our staffs, we understand that the burning of these piles was analyzed under the 2006 Rock Creek EIS and that only the rehabilitation of these piles is addressed under the Gore Creek Restoration Project Draft EIS. We recommend clarifying this intent in the Final EIS since the Alternatives discussion indicates that the Proposed Action includes "*burning* or removing and rehabilitating piles."

If the Proposed Action will include the burning of piles that have not been previously analyzed, then we recommend the Final EIS include disclosure of potential short-term air quality impacts associated with the burning of these piles. For a good example discussion of air quality impacts associated with burn piles, please refer to the Black Hills National Forest's Calumet Project Final EIS, Fire and Fuels Section, p. 159. This document provides an estimate of $PM_{2.5}$ emissions for an average size burn pile. We understand from discussions with other Forests that pile burning can be covered by a forest-wide programmatic Burn Plan. It would be helpful if the Final EIS included a discussion of the Burn Plan process, the potential for Routt National Forest to develop such a plan for pile burns, and clarification on whether pile burns would be subject to the same process utilized for prescribed fire treatments as described in the Interagency Prescribed Fire Planning and Implementation Procedures Guide (July 2008).

Documentation of U.S. Fish and Wildlife Service Consultation: The bonytail chub, Colorado

pikeminnow, humpback chub, and razorback sucker are Endangered Species Act (ESA)-listed endangered fish that exist downstream of the Gore Creek Restoration Project analysis area and are currently being recovered under the Upper Colorado River Endangered Fish Recovery Program through a partnership of State, Federal and non-governmental organizations. The USFS has determined there would be "no effect" to these fish populations or habitat due to no water depletions associated with the project. In addition, the Canada lynx, an ESA-listed threatened species, occupies the analysis area. The USFS determinations for this species are as follows: Alternative 2 - "no effect" and Alternative 3 - "may affect but not likely to adversely affect." We recognize that the USFS is in the process of consulting with the U.S Fish and Wildlife Service (USFWS) regarding potential project impacts on protected species and the USFS's related determinations. The results of this consultation and the USFWS's recommendations will be valuable additions to the Final EIS.

The EPA's Rating

Consistent with Section 309 of the CAA, it is EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project. Because a Preferred Alternative was not identified in the Draft EIS, we are rating the Draft EIS based on Alternatives 2 and 3 (we do not rate the No Action alternative).

Based on the procedures the EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action, the EPA is rating Alternative 2 of this Draft EIS as Lack of Objections (LO). The "LO" rating indicates that the EPA has not identified any potential environmental impacts requiring substantive changes to the proposal. The EPA is rating Alternative 3 of this Draft EIS as Environmental Concerns – Insufficient Information (EC-2). The "EC" rating indicates that the EPA review has identified environmental impacts that need to be avoided in order to fully protect the environment. The "2" rating indicates that the EPA has identified additional information, data, analyses, or discussion that we recommend for inclusion in the Final EIS. A full description of the EPA's rating system is enclosed.

We appreciate the opportunity to review this Draft EIS. If we may provide further explanation of our comments, please contact me at 303-312-6925, or your staff may contact Amy Platt at 303-312-6449.

Sincerely,

for Suzanne J. Bohan
Director, NEPA Compliance and Review Program
Office of Ecosystems Protection and Remediation

Enclosure

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements

Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new, reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

HISTORY Colorado

RECEIVED
AUG 07 2013
Yampa Ranger District

August 1, 2013

Jack Lewis
Medicine Bow – Routt National Forest
Thunder Basin National Grassland
Yampa Ranger District
PO Box 7
Yampa, Colorado 80483

Re: Gore Creek Restoration Project Draft Environmental Impact Statement (CHS #64373)

Dear Mr. Lewis:

Thank you for your correspondence dated July 11, 2013 (received by our office on July 15, 2013) regarding the subject project.

The proposed restoration project constitutes a federal undertaking with the potential to affect historic properties, as defined by 36 CFR 800.16(l)(1). As a result, we recommend that you coordinate your National Environmental Policy Act (NEPA) studies with the cultural resource studies required under Section 106 of the National Historic Preservation Act of 1966, as amended and its implementing regulations 36 CFR Part 800.

According to 36 CFR 800.8, Federal agencies are "encouraged to coordinate compliance with Section 106 and the procedures in this part with any steps taken to meet the requirements of the National Environmental Policy Act." Also, Section 110 of the National Historic Preservation Act states that Federal agencies should "coordinate with the earliest phases of any environmental review carried out under the National Environmental Policy Act." The findings from the Section 106 studies can inform the NEPA studies, such as including mitigation measures identified under Section 106 into the NEPA decision document. Once we receive the Section 106 documentation, we will be able to fully complete our reviews under both Section 106 and NEPA.

We thank you for the opportunity to comment. If we may be of further assistance, please contact Mark Tobias, Section 106 Compliance Manager, at (303) 866-4674 or mark.tobias@state.co.us.

Sincerely,

for Edward C. Nichols
State Historic Preservation Officer
ECN/MAT

History Colorado, 1200 Broadway, Denver, CO 80203 HistoryColorado.org

SOUTHERN UTE INDIAN TRIBE

Southern Ute Cultural & Preservation Department
P O. Box 737, Mail Stop #73, Ignacio Co 81137
970-563-0100: Fax. 970-563-1098

Mr. Jack H. Lewis
District Ranger
Yampa Ranger District
300 Roselawn Ave., PO Box 7
Durango, CO 81301

July 29, 2013

Re: Gore Creek Restoration Project Draft Environmental Impact Statement

Dear Mr. Lewis,

I have reviewed your letter, file code 1950/2360, regarding proposing restoration projects to address resource concerns created during previous timber harvest activities that occurred outside of previously analyzed National Environmental Policy Act (NEPA) boundaries. The Southern Ute Indian Tribe offers the following response as indicated by the box that is checked.

- ☐ **NO INTEREST**: I have determined that there is not a likelihood of eligible properties of religious and cultural significant to the Southern Ute Indian Tribe.
- ☐ **NO EFFECT**: I have determined that there are no properties of religious and cultural significance to the Southern Ute Indian Tribe that are listed on the National Register within the area of potential effect or that the proposed project will have no effect on any such properties that may be present.
- ☑ **NO ADVERSE EFFECT**: I have identified properties of cultural and religious significance within the area of effect that I believe are eligible for listing in the National Register, for which there would be no adverse effect as a result of the proposed ~~tower construction~~ project.
- ☐ **ADVERSE EFFECT:** I have identified properties of cultural and religious significance within the Area of Potential Effect (APE) that are eligible for listing in the National Register. I believe the proposed communication tower construction project would cause an adverse effect on these properties.
- ☐ **REQUEST FOR ADDITIONAL INFORMATION:** The Southern Ute Indian Tribe requests additional information on the planned site for its impact on properties of religious & cultural importance to the Tribe as follows:

_____.

Please contact me at 970-563-0100, ext. 2257, if you have any questions or concerns.

Sincerely,

Alden Naranjo
NAGPRA Coordinator

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Denver Federal Center, Building 67, Room 118
Post Office Box 25007 (D-108)
Denver, Colorado 80225-0007

August 26, 2013

9043.1
ER 13/506

Jack Lewis, Yampa District Ranger
300 Roselawn
Yampa, CO 80483

Dear Mr. Lewis:

The U.S. Department of the Interior has reviewed the Draft Environmental Impact Statement for the Gore Creek Restoration Project, Yampa Ranger District, Medicine Bow-Routt National Forests, CO, and has no comments on the document.

Sincerely,

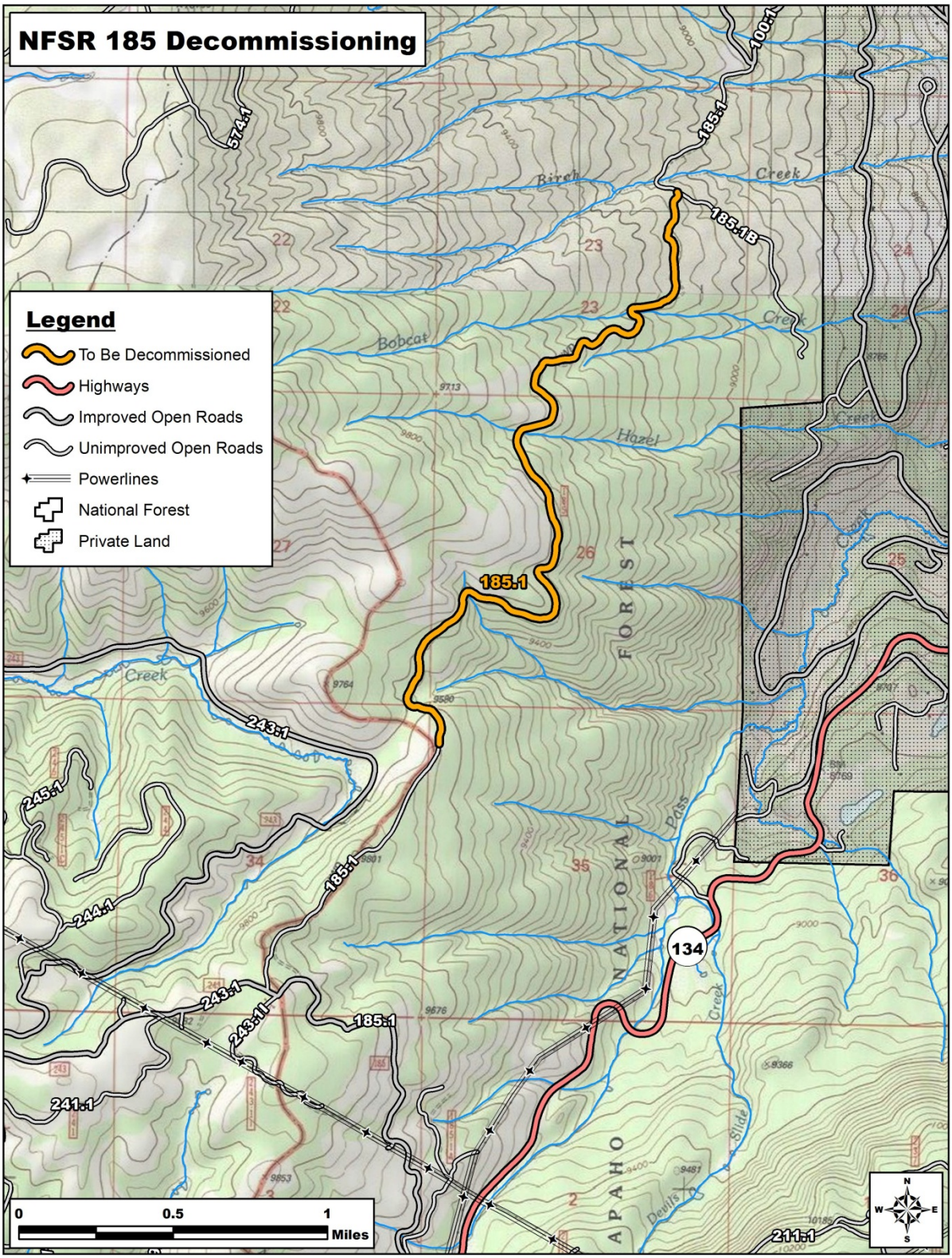
Robert F. Stewart
Regional Environmental Officer

cc: Jamie Krezelok

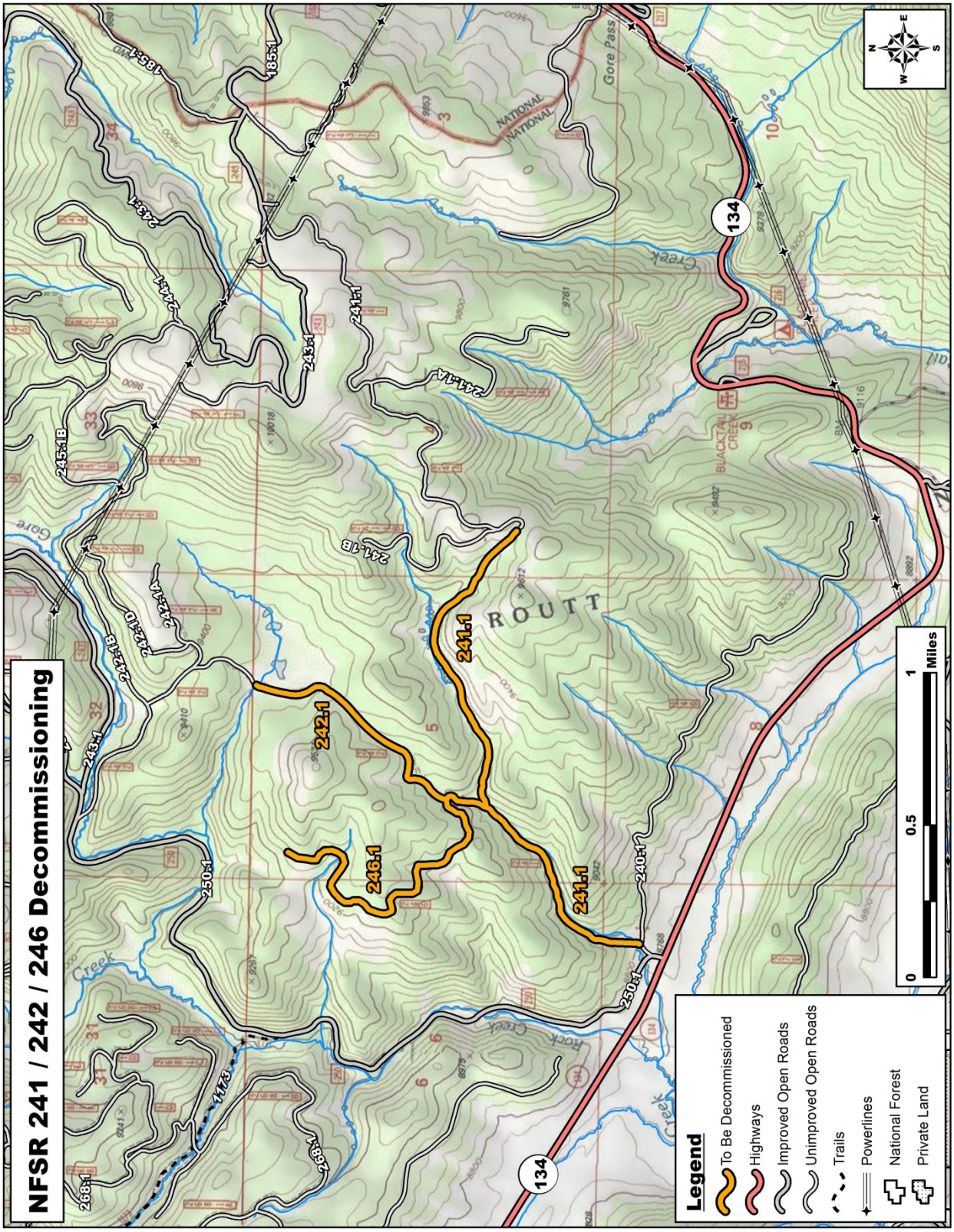
Appendix B – Additional Maps

Gore Creek Restoration Final EIS

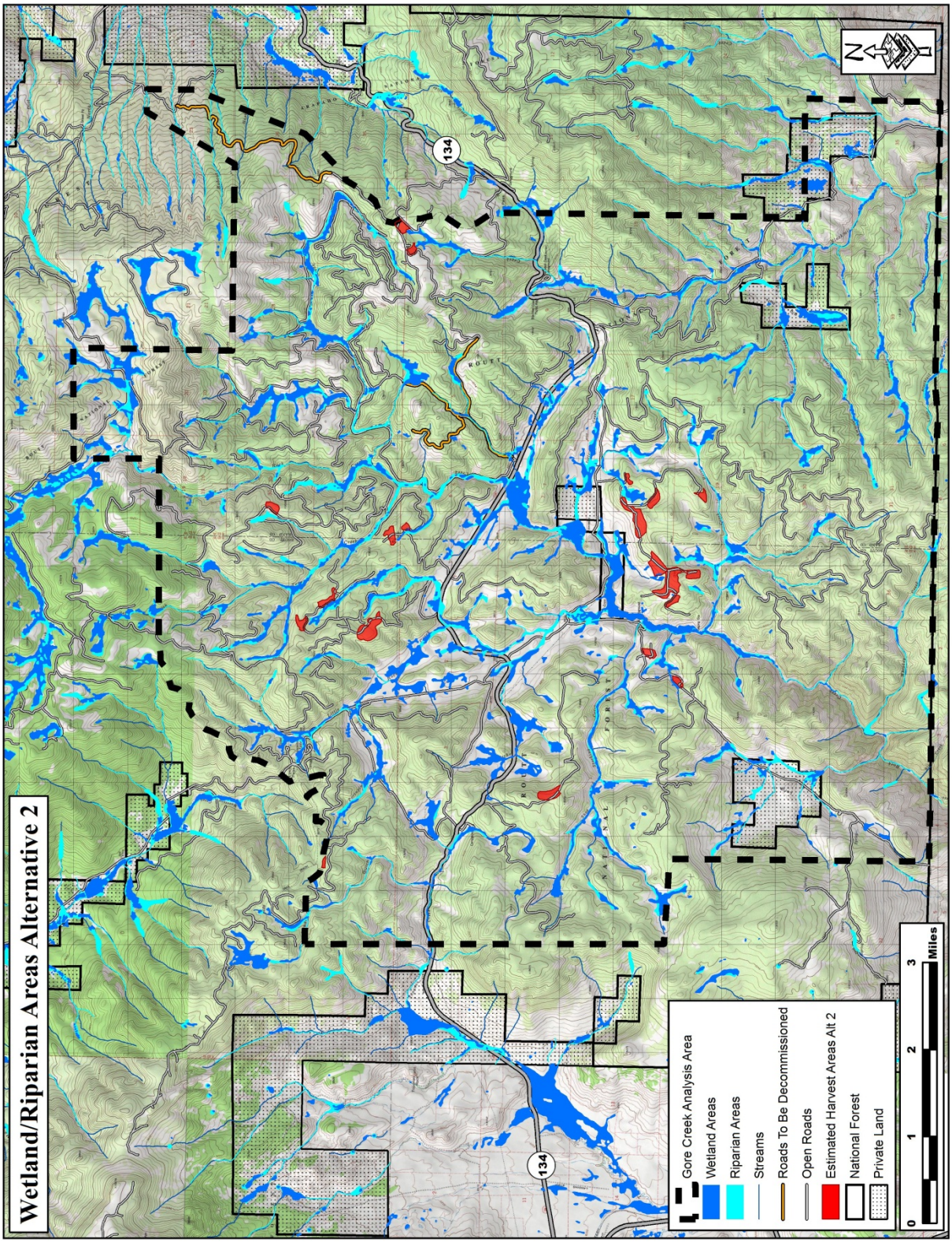
Map A – Portions of NFSR 185 to be decommissioned	B-1
Map B – Showing portions of NFSR's 241, 242, and 246 to be decommissioned	B-2
Map C – Map showing Wetland and Riparian Areas for Alternative 2	B-3
Map D – Map showing Wetland and Riparian Areas for Alternative 3	B-4



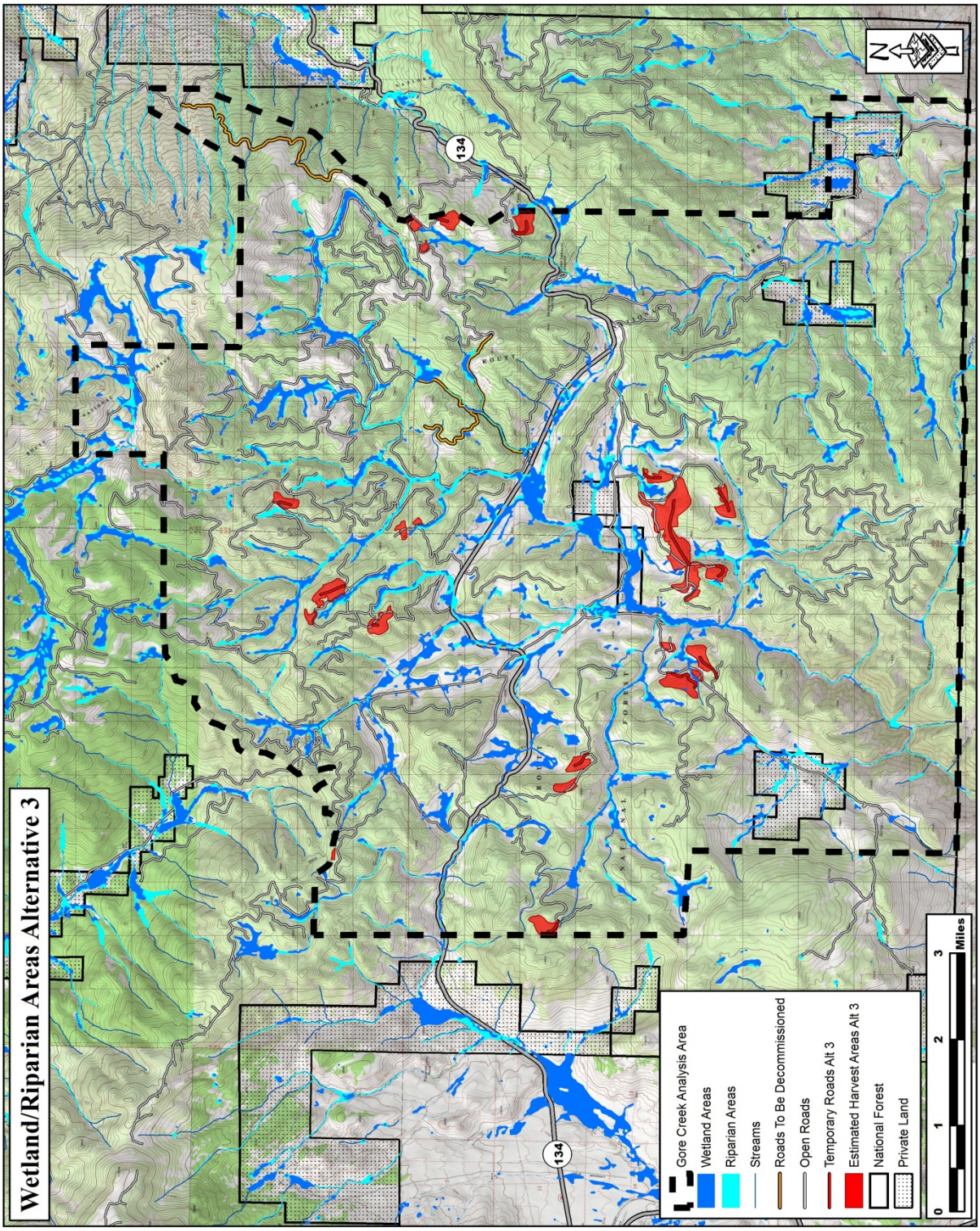
A - Map showing portions of NFSR 185 to be decommissioned.



B - Map showing portions of NFSR's 241, 242, and 246 to be decommissioned.



C - Map showing Wetland and Riparian Areas for Alternative 2



D - Map showing Wetland and Riparian Areas for Alternative 3

Excerpts from field notes showing conditions on NFSR 185.

Looking uphill along NFSR 185.1 at beginning of recommended outslope/recontour area. Cutbanks, bare soil, erosion gullies. Recommend outslope/recontour area, build erosion control structures, import gravel/fill, and reseed & slash to reduce major problem area with respect to current and potential future erosion. Photo taken 8/26/2013

Looking uphill at erosion gully with logs partially buried in NFSR 185.1 & rocky section of road. Road is the topographic low point so difficult to divert water to reduce future erosion. Will need to import fill to outslope/recontour. Photo taken 9/3/2013