

**United States Department of the Interior
Bureau of Land Management**

**Environmental Assessment
for the Mack Ridge Trails**

McInnis Canyons National Conservation Area

2815 H Road
Grand Junction, Colorado 81506

DOI-BLM-CO-N034-2015-0001-EA

August 2016



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CHAPTER 1 – INTRODUCTION

1.1 IDENTIFYING INFORMATION

BACKGROUND: This EA has been prepared by the Bureau of Land Management (BLM) BLM to analyze the proposed construction of 6.4 miles of new singletrack trails and closing and restoring 0.75 mile of two track trails in the Mack Ridge Recreation Management Zone (RMZ) of McInnis Canyons National Conservation Area (MCNCA). This RMZ designation was established through a planning process that developed the MCNCA (formerly Colorado Canyons) Resource Management Plan (RMP) which was completed in September 2004. The RMP identified singletrack trail opportunities as primary recreation objectives for the Mack Ridge RMZ, which includes the Kokopelli Trail and a stacked loop trail system, currently comprised of approximately 50 miles of trails used primarily for mountain biking. Hikers, trail runners, and equestrians also use the trail system. Several of the conceptual trail alignments proposed in the RMP for this RMZ have yet to be implemented.

The Colorado Plateau Mountain Bike Trail Association (COPMOBA) has been actively involved in the planning, construction, monitoring and maintenance of trails in the Kokopelli/Mack Ridge trail system. One of COPMOBA's objectives is to provide new mountain bike trail riding opportunities. COPMOBA members have worked with the BLM to design the trail alignments initially proposed in the MCNCA RMP, and described in the Proposed Action in this document. COPMOBA has also partnered with the City of Fruita and several Fruita businesses to provide funding necessary for plant and cultural surveys required for NEPA analysis of this proposal. These entities also plan to provide funding and volunteer labor for construction of the proposed trails.

CASEFILE/PROJECT NUMBER: DOI-BLM-CO-N034-2016-0001-EA

PROJECT NAME: Mack Ridge Trails

PLANNING UNIT: McInnis Canyons National Conservation Area

1.2 PROJECT LOCATION AND LEGAL DESCRIPTION

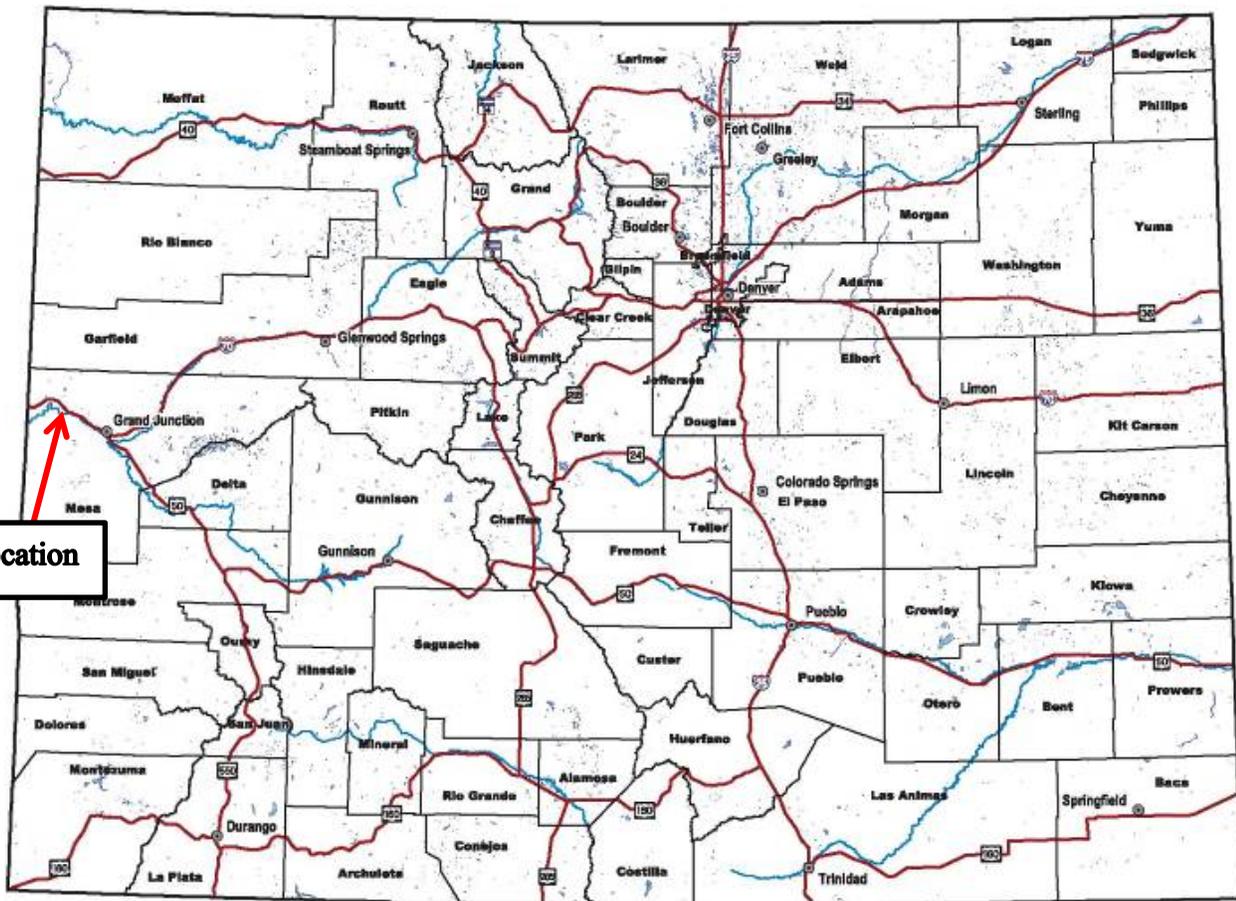
The proposed trails are within the Kokopelli Trail system along Mack Ridge which lies between Interstate 70 and the Colorado River approximately six miles northwest of Fruita, Colorado. See Figure 1 and Figure 2 below.

LEGAL DESCRIPTION:

Mesa County, Colorado

Ute PM, T. 1 N., R. 3 W. sections 5, 6, 7, 8, and 9, and 6th PM, T. 10 S., R. 103 W, sections 3, 10, 15, and 16; USGS Mack and Ruby Canyon quad maps.

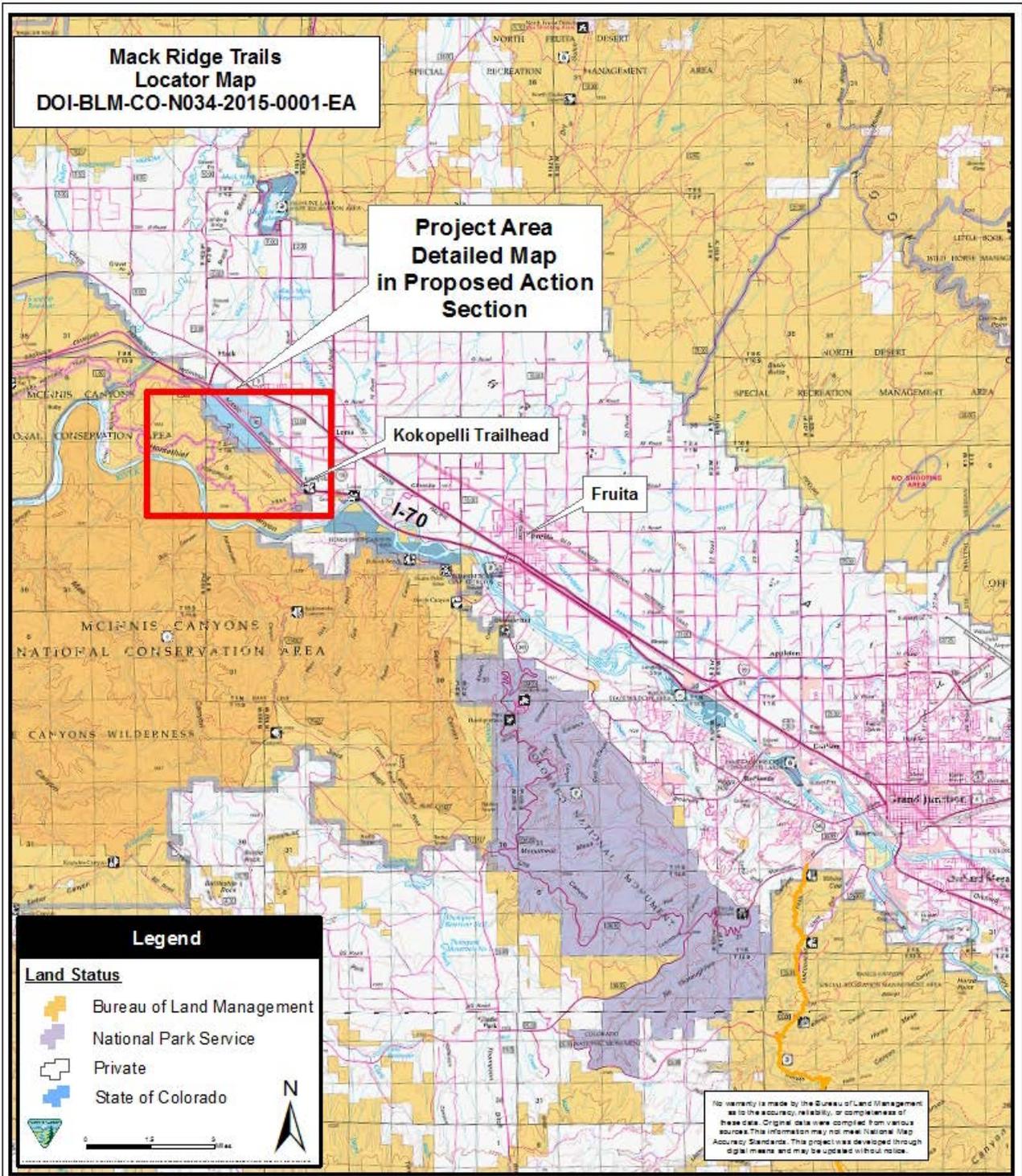
Figure 1: General Project Location



1.3 PURPOSE AND NEED

The purpose of the proposed project is to provide additional trails, and reroute unsustainable sections of existing trails in the Mack Ridge RMZ. The need for this project is to address public demand for additional recreation opportunities that were identified in the Colorado Canyons National Conservation Area Resource Management Plan, and subsequently in trail development requests from recreation user groups, primarily the Colorado Plateau Mountain Bike Trail Association (COPMOBA). The need for the project is established by the BLM's responsibility under FLPMA to respond to requests for construction of recreational trails across BLM-managed lands. The proposed action is consistent with and supports the objectives of the Colorado Canyons National Conservation Area Resource Management Plan.

Figure 2: Locator Map



1.4 PUBLIC PARTICIPATION

1.4.1 Public Scoping: The primary mechanism used by the BLM to invite public involvement in the public scoping process was posting this project on the BLM e-Planning for late FY15 projects. No comments were received for this project. These proposed additions and changes to the trail system were discussed at multiple COPMOBA meetings throughout 2015. While some members expressed differences of opinion about specific locations/alignments for the trails, and the character/objectives of the proposed trails, COPMOBA members generally agreed to proceed with this proposal.

1.4.2 Internal Scoping: Maps of the area and a description of the proposed action were distributed to the Grand Junction Field Office (GJFO) Interdisciplinary Team (IDT) and discussed at IDT meetings. In 2014 and 2015 COPMOBA members worked with BLM recreation planners and park rangers to plan the route alignment for Route 2. In August 2015, BLM archaeologists, ecologists, and recreation staff visited the area with COPMOBA and hiked the proposed alignments of proposed routes 1 and 5. No formal resource surveys were conducted, but BLM staff identified areas where potential resource or trail alignment concerns could exist. Survey requirements were identified and shared with COPMOBA representatives. Documentation of which resources would be impacted based on internal scoping and site visits is included in Table 3.1.

1.4.3 Issues Identified: Public scoping and internal scoping did not identify any issues outside the scope of standard NEPA analysis.

1.5 DECISION TO BE MADE

The BLM will decide whether to approve the proposed Mack Ridge Trails project based on the analysis contained in this Environmental Assessment (EA). This EA analyzes the construction of three new singletrack trail segments, and reroutes of two existing trail segments within the Mack Ridge RMZ. The BLM may choose to: a) approve the project as proposed, b) approve the project with modifications/mitigation, c) approve an alternative to the proposed action, or d) not approve the project at this time.

Figure 3: Proposed New Trails, Reroutes and Closures

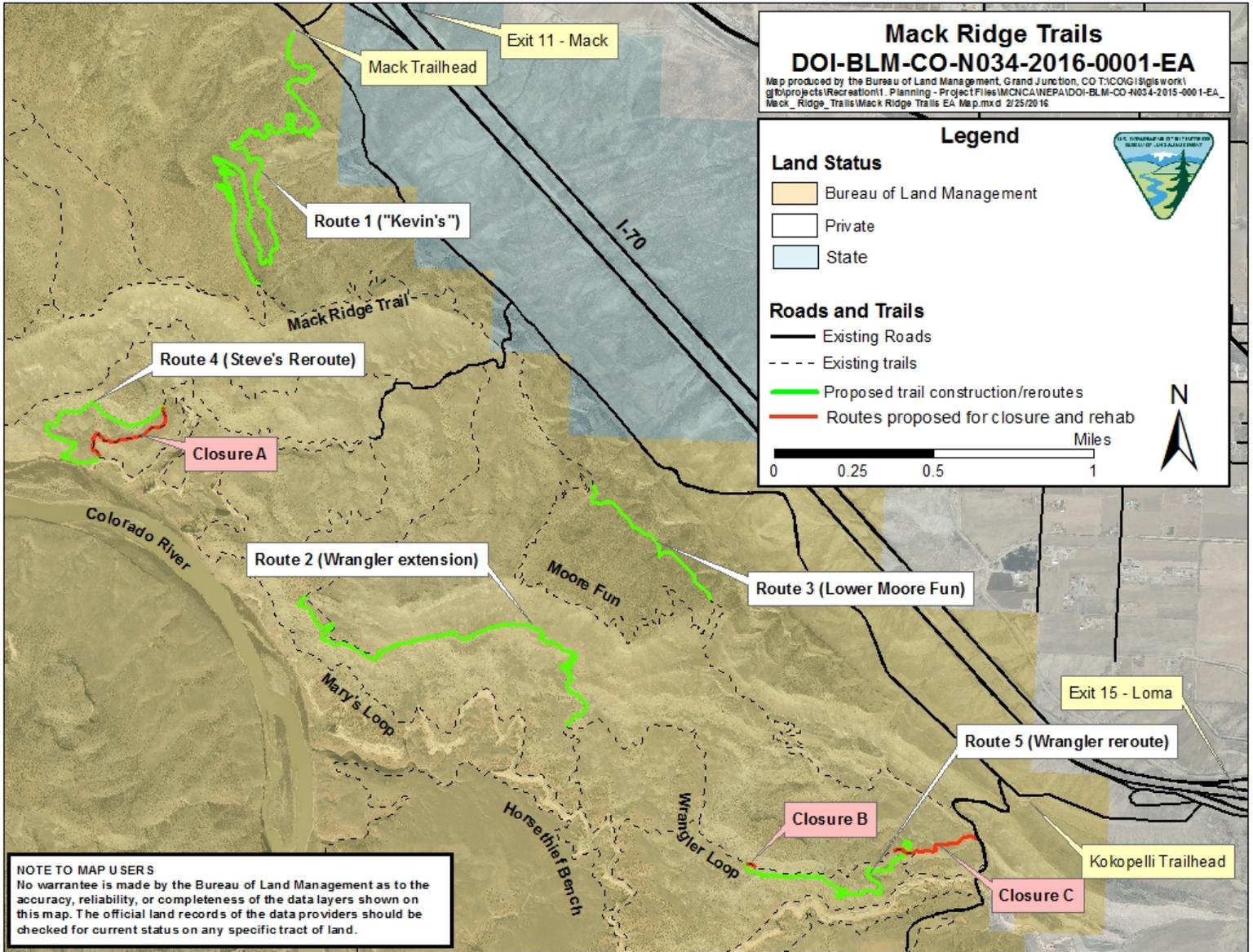


Table1: Summary of Proposed Trail Construction and Closures

Route #	Proposed Action	Construction Miles	Restoration Miles
1	Construction	2.7	
2	Construction	1.7	
3	Construction	0.6	
4	Construction/Reroute	0.5	
5	Construction/Reroute	0.9	
A	Closure/Restoration		0.3
B	Closure/Restoration		0.05
C	Closure/Restoration		0.4
Totals		6.4	0.75

CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The purpose of this chapter is to provide information on the Proposed Action and Alternatives.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 ALTERNATIVE A – No Action Alternative

In the No Action Alternative, the new trails, trail reroutes, and trail closure and rehabilitation would not occur, and recreationists would continue to use the existing trail system.

2.2.2 ALTERNATIVE B – Proposed Action

The BLM McInnis Canyons National Conservation Area has proposed the construction of three new singletrack trail segments (routes 1, 2, and 3 in Figure 3), and reroutes of two existing trail segments (routes 4 and 5 in Figure 3) within the Mack Ridge RMZ. These five trail segments would result in a total of 6.4 miles of new trail construction (see Figure 3 and Table 1 below). Once routes 4 and 5 are re-routed, three segments (0.75 miles total) of existing two-track routes will be closed and rehabilitated/naturalized (see closures A, B, and C in Figure 3).

These trails would be constructed using a combination of hand tools (pick mattocks, McCleods, shovels, rakes) and motorized trail-building equipment (walk-behind trail machine, mini-excavator). Tread width would vary from 18 inches to 24 inches, and the short-term corridor disturbance (during construction) would be up to 48 inches. All trails would be designed and constructed using best management practices described in the GJFO Trail Design Criteria (BLM 2004) and International Mountain Bicycling Association's (IMBA) "Trail Solutions" (IMBA 2004.) These BMPs include curvilinear design principles that utilize the contours of the natural topography, as well as frequent tread grade reversals. Tread grades would generally be less than 15 percent, and would adhere to the "Half Rule" (tread grade does not exceed one-half of the cross-slope grade.) Tread grades may be steeper where durable surfaces, like large rocks, can be incorporated into the trail design. These trail design features, in combination with properly constructed tread profiles (blended backslope, outsloped tread, and cleared/rounded critical edge), create tread surfaces that shed water and minimize erosion from the tread surface. In most cases, overburden cleared during trail construction would be widely broadcast both above and below the constructed tread surface. Excess soil or overburden would not be deposited in drainages. Plants, rocks, and soil cleared from the corridor during construction of the new routes could be moved or stockpiled for use in restoration of the routes proposed for closure and restoration.

Restoration of closed routes would utilize heavy equipment, including a small bulldozer and a mini-excavator to scarify and re-contour those trail segments. Following the initial equipment work, hand crews would use McCleods, rakes, and shovels to refine the dirt work, place wattles, spread straw, spread seeds, and plant native vegetation as directed by the BLM ecologist. The intent of these actions would be to reduce erosion, reestablish natural functions at those sites, reduce visual impacts from those routes, and discourage continued use of those routes by recreationists.

Planned construction methods call for routes 1, 3 and 4 to be completed exclusively by hand. Routes 2 and 5 would be completed all or in part by machine. This would depend on what the trail construction contractor deemed the most appropriate construction method. All three closures would likely be completed by machine. Closures A and C would likely be completed using a small trail dozer and a mini-excavator. Closure B would likely be completed using a smaller singletrack trail building machine.

Staging for vehicles transporting the equipment (truck and trailer) would be on hardened surfaces off of designated routes open to full-size vehicles. Machines would follow trails to work sites, then would stage in-place on the trail at the end of work days. Initial staging for Closure A and Route 2 would be off of the designated route leading from the saddle between the Mack Ridge and Moore Fun trails. Each of those work areas are accessed by designated routes that are former two-track roads. Initial staging for Route 5 and Closures B and C would be from the Rustler's Loop access road.

The proposed construction timeframe for these trails would start in the fall of 2016, within the constraints of any timing limitations for resource protection identified in the analyses in this document.

2.3 PLAN CONFORMANCE REVIEW

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

Name of Plan: Colorado Canyons (McInnis Canyons) National Conservation Area Resource Management Plan

Date Approved: September 2004

Decision Number/Page: Figure 2-3/Page 2-19-2-21

Decision Language: New trail proposals include the following (Refer to Figure 2-3 for the following trail proposals):

- ***(I)*** Trail A will be designated utilizing dirt roads and approximately ½-mile of new construction (single track).
- ***(I)*** Trail F will be constructed connecting the Mack Ridge Trail to the Mack Ridge Trailhead.
- ***(I)*** A number of roads, or segments of roads, will be closed and restored. This includes the road providing the same access as trail segment G, as well as the end of the road on Steve's Loop providing the same access as segment C.

Decision Number/Page: Figure 2-15/Page 2-47

Decision Language: “By the year 2010, manage this zone to provide opportunities for visitors to engage in World Class Single –Track Day-Use Mountain Biking recreation...”

2.4 STANDARDS FOR PUBLIC LAND HEALTH

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

Standard 1: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat’s potential.

Standard 4: Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Standard 5: The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Because standards exist for each of these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in Chapter 3 of this document.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This section provides a description of the human and natural environmental resources that could be affected by the Proposed Action and presents comparative analyses of the direct, indirect and cumulative effects on the affected environment stemming from the implementation of the actions under the Proposed Action and other alternatives analyzed.

This EA draws upon information compiled in the Colorado Canyons NCA RMP (BLM 2004).

3.1.1 Elements Not Affected

The following elements, identified as not being present or not affected are not brought forward for additional analysis in this EA:

Air and Climate – Air quality in the project area is typical of undeveloped regions in the western United States. No designated Class I airsheds are located within Mesa County. The primary sources of air pollutants in the region are fugitive dust from the desert surrounding the planning area, unpaved roads and streets, seasonal sanding for winter travel, and emissions from motor vehicles. Seasonal wildfires throughout the western U. S. may also contribute to air pollutants and regional haze.

Air quality in the project area is considered to be good, with levels of ozone (O₃) and particulate matter less than 10 µm in diameter (PM₁₀), and particulate matter less than 2.5 µm in diameter (PM_{2.5}) well below the thresholds established by the EPA (EPA 2016; CDPHE 2016). The closest air monitoring stations to the project area are in Rifle, about 29 miles to the north; and Palisade, about 13 miles to the southwest. The Palisade monitoring station only reports O₃ levels, while the Rifle station reports both O₃ and PM_{2.5} levels. The project area is outside of any non-attainment areas, and there is no air quality plan that applies.

Colorado Department of Public Health and Environment sets standards for the impacts to air quality from construction activities' impact to air quality. Most fugitive dust and total suspended particles (TSP) from construction activities are greater in size than PM₁₀ and PM_{2.5}, but may still have an impact on the environment, including soiling and nuisances that interfere with the enjoyment of the environment (CDPHE 2016). The EPA General Conformity regulations require that an analysis (as well as a possible formal conformity determination) be performed for federally sponsored or funded actions in nonattainment areas and in designated maintenance areas when the total direct and indirect net air pollutant emissions (or their precursors) exceed specified levels. The Clean Air Act conformity regulations do not apply because the GJFO is not within a non-attainment or a maintenance area.

Geological/Mineral Resources – No unique geological features or mineral resources would be impacted by the proposed project.

Visual Resources – Combining the single-track nature of the trails along with the higher speeds on Interstate 70, it is likely that the casual viewer would not see the new trails.

Transportation and Access – Access to and across public lands would continue to be available in the project area.

Special Designations – There are no wild and scenic rivers or ACECs in the project area. The project is inside the McInnis Canyons National Conservation Area. The designation legislation identified recreation as one of the purposes of the NCA. The impacts associated with recreation are discussed in the recreation section below.

Wilderness and Wilderness Characteristics – There are no wilderness areas, wilderness study areas or areas determined to be lands with wilderness characteristics in the project area.

Riparian Areas – Trails are not sufficiently close to riparian areas to significantly impact them. Some amount of erosion caused by trails is expected and may slightly increase sediment in riparian areas. However impacts are expected to be insignificant.

Wild Horse and Burros – There are no wild horses or burros in the project area

Land Tenure, ROW, Other Uses – There are no ROWs in the project area. A portion of the project area occurs on public lands that were acquired through exchange/purchase.

Fire/Fuels – The proposed action will not impact Fire management and there are no present or planned Fuels projects in the proposed project area.

Prime or Unique Farm Lands – There are no prime or unique farmlands in the project area.

3.1.2 Past, Present, Reasonably Foreseeable Actions

NEPA requires federal agencies to consider the cumulative effects of proposals under their review. Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations 40 CFR §1508.7 as “...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency...or person undertakes such other actions.” The CEQ states that the “cumulative effects analyses should be conducted on the scale of human communities, landscapes, watersheds, or airsheds” using the concept of “project impact zone” or more simply put, the area that might be affected by the proposed action. The area that may be affected by this project includes the 5th code watershed that contains the project area. To assess past, present and reasonably foreseeable actions that may occur within the affected area a review of GJFO NEPA log and our field office GIS data was completed. The following list includes all past, present and reasonably foreseeable actions known to the BLM that may occur within the affected area:

Past Actions:

- Construction and maintenance of approximately 40 miles of singletrack trails in the Kokopelli/Mack Ridge Trail System – 1989-2016
- Closure of approximately 10 miles of motorized vehicle routes – 2004
- Managing livestock grazing throughout the area – long-term
- Issue and manage special recreation permits for mountain bicycle tours and training programs, and running races – long-term

Present Actions:

- Maintenance of approximately 50 miles of mountain bike routes in the Kokopelli/Mack Ridge Trail System – ongoing
- Managing livestock grazing throughout the area – ongoing
- Issue and manage special recreation permits for mountain bicycle tours and training programs, and running races – long-term

Reasonably Foreseeable Actions

- Construction and maintenance of additional singletrack trails that help achieve recreation management objectives in the Mack Ridge RMZ – 2018 and beyond
- Changes to livestock grazing management to better facilitate achievement of recreation management objectives for the Mack Ridge RMZ – 2017 and beyond

Table 3.1– Potentially Impacted Resources

Resources	Not Present On Location	No Impact	Potentially Impacted	Mitigation Necessary?	BLM Evaluator Initial & Date	Comments
PHYSICAL RESOURCES						
Air and Climate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	KEH 8/11/15	
Water (surface & subsurface, floodplains)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	KEH7/7/ 16	
Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	KEH7/7/ 16	
Geological/Mineral Resources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	DSG 7/17/15	
BIOLOGICAL RESOURCES						
Special Status Plants	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	NGH 7.14.2015	Site visit needed may need slight re-routes
Special Status Wildlife	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	NGH 7.14.2015	Site visit needed may need slight re-routes
Migratory Birds	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		Trail work should not be completed between May 15 and July 15 to avoid species identified by the Migratory Bird Treaty Act.
Other Important Wildlife Habitat	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	NGH 7.14.2015	See special status section
Vegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	SC 7/14/15	Vegetation would be impacted during construction but with erosion control, weed treatments if needed, seeding efforts, and trail maintenance, plant communities would be able to maintain or improve depending on timing and amounts of precip.
Invasive, Non-native Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	NGH 7.14.2015	Trails are a source of invasive species, however user education and BLM monitoring for new invasive species will help mitigate
Wetlands/Riparian Zones	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	NGH 7.14.2015	Not present on site
HERITAGE RESOURCES AND HUMAN ENV.						
Cultural or Historical	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	ALR 7/1/16	
Paleontological	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	DSG 7/17/15	Completed preconstruction surveys on 6/25 and

Table 3.1– Potentially Impacted Resources

Resources	Not Present On Location	No Impact	Potentially Impacted	Mitigation Necessary?	BLM Evaluator Initial & Date	Comments
						7/1/15.
Tribal& American Indian Religious Concerns	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	ALR 7/1/16	
Visual Resources	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	AW 6/30/16	
Social/Economic	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>		Primarily small indirect/cumulative impacts.
Transportation and Access	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	AW 6/30/16	
Wastes, Hazardous or Solid	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	AEK 7/21/15	Include proper fuel management in project design
Recreation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input checked="" type="checkbox"/>	AW 6/30/16	
Special Designations (ACEC, SMAs, WSR)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	AW 6/30/16	
Wilderness & Wilderness Characteristics	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	AW 6/30/16	
Range Management	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	SC 6/15/16	Communication and Coordination would need to occur with RMS and permittees to reduce possible conflicts
Wild Horse and Burros	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		
Land Tenure, ROW, Other Uses	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>		There are no ROWs in the project area. A portion of the project area occurs on public lands that were acquired through exchange/purchase.
Fire/Fuels	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Y <input type="checkbox"/> N <input type="checkbox"/>	JP 8/18/15	

3.2 PHYSICAL RESOURCES

3.2.1 Soils (includes a finding on Standard 1)

Current Conditions:

Soils within the Mack Ridge Trail System have been described by the Natural Resources Conservation Service (NRCS) and the information is contained in the SSURGO database. It can

be accessed through Web Soil Survey. These allotments are all within the Mesa County Area (CO680) soil survey (NRCS, 2016).

Soils for route 1 have parachanner silty clay loam, gravelly sandy clay loam, and unweathered bedrock surface soil textures. The road and trail erosion hazard ratings are moderate to severe. A rating "moderate" indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed. A rating of "severe" indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed. Route 1 has a poor to moderate suitability for roads and trails. The soils are described as "well suited," "moderately suited," or "poorly suited" to this use. "Well suited" indicates that the soil has features that are favorable for the specified kind of roads and has no limitations. Good performance can be expected, and little or no maintenance is needed. "Moderately suited" indicates that the soil has features that are moderately favorable for the specified kind of roads. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. "Poorly suited" indicates that the soil has one or more properties that are unfavorable for the specified kind of roads. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration.

Soils for route 2, 3, 4, and 5 have sandy loam and unweathered bedrock surface soil textures. The road and trail erosion hazard rating ranges from moderate to severe and has a poor to moderate suitability for roads and trails.

Soils for the proposed closures or reroutes have sandy loam textures. The road and trail erosion hazard rating ranges from moderate to severe and has a poor to moderate suitability for roads and trails.

Slopes encountered in the area span a large range which is typical of trail construction. The upper range of slopes is 65% and the lower end of the range is 5%. Soils at the higher end of the range will primarily be shallow or consist of bedrock. Bedrock can be expected near the upper portions of the ridges or near changes in geologic formations. Deeper soils can be expected near the bottom one third of the slopes and on top of open top ridges. Regardless of the soils encountered, the sandy textures of these soils make them prone to particle detachment and soil erosion.

Finding on Public Land Health Standard 1 for Upland Soils:

A land health assessment was conducted in 2001. Public Land Health Standard 1 states that upland soils should exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes. The existing soils in the project area are meeting LHS 1. There are no signs of erosion above what is appropriate for the soil types present in the area, and signs of active erosion are localized.

Alternative A – No Action:

Under the no action alternative, direct effects of trail construction would not occur. The indirect effects of this option would be continued soil erosion from the use of trails located in the sandy loam soils. These routes have sections that travel over more area with sandy soils than bedrock surfaces. This creates greater potential for particle detachment and soil erosion. The areas that

are more prone to erosion are the areas that have a road and trail hazard rating of severe. These areas are comprised of the sandy soils on steeper slopes.

Finding on Public Land Health Standard 5 for Upland Soils:

The no action alternative would have a low potential to cause wide spread changes to LHS 1. Localized erosion may occur due to erosion from the trails, but this erosion should not cause widespread changes in soil function.

Cumulative Effects:

Cumulative effects include increased watershed sediment production rates and sediment delivery to water ways. Roads, trails, grazing and recreation all have the potential to disturb soils, remove beneficial vegetation and create effective conduits for the delivery of that sediment. The no action alternative adds to the overall watershed sediment production rate.

Alternative B – Proposed Action:

Direct and Indirect Effects: The proposed action would create new surface disturbance on sandy soils which have a high potential for erosion, but the proposed trails have much larger segments that travel across bedrock which decreases the potential for sedimentation and erosion. Trails that are built on or across bedrock or shallow soils have less potential for effects to soils.

Surface disturbance associated with trail construction would directly impact soils through removal of soil stabilizing agents and crossing drainages causing increased erosion and soil loss from and adjacent to the route. As is typical with any new surface disturbance, some level of increased erosion from disturbed areas would persist although the severity of those impacts would be minimized through design features, BMPs, and maintenance. Indirect effects include general erosion of the trail surface, widening of stream channels at crossings, and an increase in disturbed area in the watershed. The direct effects are expected to only last for the duration of the construction period. Indirect effects are expected until the disturbed area revegetates and throughout the life of the trail.

Public Land Health Standard 5 for Upland Soils:

Erosion and soil loss can be minimized to the extent that Public Land Health Standard 1 continues to be met within the project area. Rills could develop on cut banks and areas disturbed by the new construction. The amount of sediment production is not expected to be much greater than the typical rates naturally found in the watershed. The sediment that is produced should only be carried as far as the next gradient change at which time it should be deposited.

Cumulative Effects:

This project could increase cumulative effects. The addition of over five miles of new trails increases the total trail miles in the project area by 10%. New trails, trail realignments, and trail closures have been designed to minimize and decrease impacts due to location and through the use of more efficient trail design. New trail construction design will minimize effects and effects should decrease over time as the area revegetates. Impacts from the proposed trails to be closed will decrease erosion with lack of use and should recover over time. Natural recovery of the trail may take decades.

3.2.2 Water (surface and groundwater, floodplains) (includes a finding on Standard 5)

Current Conditions:

This project is located in the Lower Colorado River Basin. The proposed trail realignment is located in an area that is drained by ephemeral and intermittent drainages. Waters draining to the west, south-west and directly into the Colorado River are identified by the Colorado Department of Public Health and Environment (CDPHE) as COLCLC03_A. Streams draining to the north, north-east into Red Wash are identified as COLCLC13b_A. All of these stream segments are protected for beneficial uses that include Warm Water 2, Potential Primary Contact Recreation, Agriculture, Water Supply and Aquatic Life.

Water quality data have not been collected in the associated ephemeral and intermittent drainages. CDPHE has determined that COLCLC03_A is currently meeting water quality standards. COLCLC03b_A is not meeting standards due to exceedances of selenium. These determinations were made by assessing receiving water data. Processes identified that are causing COLCLC03b_A waters to not meet standards are typically due to irrigation and therefore, this project should not contribute to the problem.

Finding on Public Land Health Standard 5 for Water Quality:

Public Land Health Standard 5 requires that the water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands would achieve or exceed the Water Quality Standards established by the State of Colorado. Currently, COLCLC03_A waters are meeting water quality standards and COLCLC03b_A water have selenium standard exceedances.

Alternative A – No Action:

Under the no action alternative, direct effects of trail construction would not occur. The indirect effects of this option would be continued soil erosion from the use of trails located in the sandy loam soils. These trails would continue to have potential for storm water concentrations and accelerated erosion. These indirect effects would be constrained by topography and may only cause localized water quality problems.

Finding on Public Land Health Standard 5 for Water Quality:

Public Land Health Standard 5 requires that the water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands would achieve or exceed the Water Quality Standards established by the State of Colorado. The no action alternative should not cause exceedances of water quality standards due to the localized nature of the indirect effects.

Cumulative Effects:

With the current length of roads, trails, recreation use, and grazing in this area, the cumulative effects of the no action alternative should continue at the current level. If the trails are not built the area will continue to have the same amount of erosion from the current activities in the area and the trails that are proposed for rehabilitation will continue to contribute to erosion for decades.

Alternative B – Proposed Action:

Direct and Indirect Effects: The Proposed Action would result in construction of approximately 6.5 miles of new trail and reclamation 1.3 miles of trail. Direct effects to water quality would include short term increases in surface runoff due to vegetation removal. These effects will last until the disturbed areas revegetate. This should be minimal due to the sandy nature of the soils.

Indirect effects include increase potential for storm water flow concentration on new and existing trails. Trails create areas less impervious and tend to cause concentrated flow. Trail design and drainage features should minimize impacts by decreasing the length at which the water can concentrate. Effects should be limited to the areas adjacent to the trails, but overtime if left unchecked could lead to larger gully type erosion.

Finding on Public Land Health Standard 5 for Water Quality:

With the implementation of BMPs, erosion and soil loss can be minimized to the extent that Public Land Health Standard 5 continues to be met.

Cumulative Effects: Water quality in this area is primarily driven by the naturally occurring high erosion rates and through the delivery of pollutants during intense storm runoff events in the water ways. This alternative will increase the length of trail miles by 10%. A 10% increase in disturbed area may be hard to measure directly, but over time it can be expected to increase erosion and sedimentation in the watershed. These changes are not expected to extend beyond the watershed due to the small increase in sediment. With the increased length of trails, stream crossings will increase which will increase the amount of stream channel alterations over time.

3.3 BIOLOGICAL RESOURCES

3.3.1 Invasive, Non-native Species

Current Conditions:

Existing routes on Mack Ridge in year 2000 were inventoried for noxious weeds by BLM crews. A few small patches of Russian knapweed were identified and subsequently treated by BLM crews. A biological survey by Olsson Associates identified areas of widespread cheatgrass, annual wheatgrass, halogeton, bulbous bluegrass, and redstem filaree; all Colorado List C species, with the exception of annual wheatgrass which is considered a nuisance species. The Olsson survey did not locate any List A or B species.

Alternative A – No Action:

Direct and Indirect Effects: Users of these trail systems by whatever mode of transportation are potential vectors of weed seed. By not adding trails to the system, one might expect a lower chance of weed spread either by future users, or by the construction of the trails.

Cumulative Effects:

Weeds are opportunistic plants that thrive along transportation systems and disturbed areas. Theoretically, the more the disturbance the greater the chance of weed spread.

Alternative B – Proposed Action:

Direct and Indirect Effects: Even though users of these trails are potential vectors, there has not been a noticeable increase in noxious weeds on Mack Ridge with the expansion of these trails. Users and the BLM staff who patrol these trails are observant of any “plants out of place”...a common definition of a weed. The main trailheads are under a regular treatment regime by BLM weed crews. The proposed action should not have a major impact from a weed management standpoint.

Cumulative Effects:

Developed recreation facilities (trails, roads, parking lots, etc.) are easier to manage from a weed management standpoint since they are confined to a set area. These facilities, under a regular weed management program, can be acceptable from a weed standpoint indefinitely.

3.3.2 Threatened, Endangered and Sensitive Species (includes a finding on Standard 4)

Current Conditions:

The Mack ridge area potentially provides habitat for a number of BLM Colorado sensitive plant species including *Amsonia jonesii*, *Lygodesmia doloresensis*, *Astragalus debequeaeus*, *Astragalus musiniensis*, *Cryptantha osterhoutii* and animal species including midget faded rattlesnakes, white tailed prairie dogs, kit fox and potentially burrowing owls and other raptors.

Surveys were completed by Olsson Associates within the proposed disturbance area including a 50ft buffer in April and May of 2015. Plant species included in the survey were:

- Colorado hookless cactus (*Sclerocactus glaucus*) Federally Threatened
- Jones' bluestar (*Amsonia jonesii*) BLM Sensitive
- Grand Junction milkvetch (*Astragalus linifolius*) BLM Sensitive
- Ferron's milkvetch (*Astragalus musiniensis*) BLM Sensitive
- Naturita milkvetch (*Astragalus naturitensis*) BLM Sensitive
- Grand Junction suncup (*Camissonia eastwoodiae*) BLM Sensitive
- Osterhout's cryptantha (*Oreocarya osterhoutii*) BLM Sensitive
- Grand buckwheat (*Eriogonum contortum*) BLM Sensitive
- Tufted fraseria (*Frasera paniculatum*) BLM Sensitive
- Canyonlands biscuitroot (*Lomatium latilobum*) BLM Sensitive
- Dolores River skeletonplant (*Lygodesmia doloresensis*) BLM Sensitive
- Aromatic Indian breadroot (*Pediomelum aromaticum*) BLM Sensitive
- Strigose Easter-daisy (*Townsendia strigose*) BLM Sensitive

Additionally, surveys for burrowing owls were completed by Olsson Associates in June of 2015 according to recommended protocols. No owls or sign of owls were found.

Finding on Public Land Health Standard 4 for Special Status Species:

Most of the area is currently meeting land health standards. The area surrounding the Wrangler's loop extension and Steve's route re-route and closure are in areas 'meeting with problems'. Potential reasons are proximity to I-70, abundant recreation, and a less diverse shrub community than expected.

Alternative A – No Action:

There would be minimal direct effects to Threatened, Endangered and Sensitive plant and animal species. Direct impacts are expected to remain insignificant under this alternative, since species are not found in this area and no new trails would be built.

There would be minimal indirect effects to Threatened, Endangered and Sensitive plant and animal species. Indirect impacts are expected to remain insignificant under this alternative, since species are not found in this area and no new trails would be built. Disturbance to the area could potentially degrade potential habitat through the introduction of weed species, however these impacts would be mitigated through weed control.

Finding on Public Land Health Standard 4 for Special Status Species:

The No Action Alternative is not expected to substantially change the ability of the action area ability to meet Land Health Standard 4. Some areas that are currently ‘meeting with problems’ and may continue to experience pressure from recreation use. Efforts to keep users on existing trails and weed species treatments should mitigate these effects.

Cumulative Effects:

The cumulative effects of the No Action Alternative are continued use of existing trails which will have potential for introduction of weeds which can degrade habitat. Efforts to keep users on existing trails and weed monitoring and treatment should help to mitigate these effects. Climate change may also cause novel responses to disturbance, monitoring should help identify issues early so that management can respond if needed.

Alternative B – Proposed Action:

There would be minimal direct effects to Threatened, Endangered and Sensitive plant and animal species. Direct impacts are expected to remain insignificant under this alternative, since species are not found in this area.

There would be minimal indirect effects to Threatened, Endangered and Sensitive plant and animal species. Indirect impacts are expected to remain insignificant under this alternative, since species are not found in this area. New trails could potentially lead to the degradation and fragmentation of potential habitat, however efforts to keep users on trails and weed treatments should mitigate these effects and effects are not expected to be significantly greater than under the No Action alternative.

Finding on Public Land Health Standard 4 for Special Status Species:

The Proposed Alternative is not expected to substantially change the ability of the action area ability to meet Land Health Standard 4. Some areas that are currently ‘meeting with problems’ and may continue to experience pressure from recreation use. Efforts to keep users on existing trails and weed species treatments should mitigate these effects.

Cumulative Effects:

The cumulative effects of the Proposed Alternative are continued use of existing and new trails which will have potential for introduction of weeds which can degrade habitat. Efforts to keep users on existing trails and weed monitoring and treatment should help to mitigate these effects. Additionally, proposed reclamation should be carefully planned and monitored since restoration

in these systems can be difficult, to ensure success. Climate change may also cause novel responses to disturbance, monitoring should help identify issues early so that management can respond if needed.

3.3.3 Vegetation (includes a finding on Standard 3)

Current conditions:

Vegetation in the project areas is comprised of juniper and desert shrub types with grass understories of needle and thread, Indian ricegrass, galleta, sand dropseed, salina wildrye and scattered patches of cheatgrass.

Finding on Public Land Health Standard 3 for Plant Communities:

Under the three categories for Land Health Standards, (Meeting, Meeting with Problems, or Not Meeting) areas of the proposed projects were assessed in 2003 as meeting Land Health Standard 3 for plant communities except the western portion of route 2 (Wrangler Extension), closure A and Route 4 (Steve's Reroute). These areas were assessed as meeting with problems due to loss of shadscale plants and infestations of cheatgrass, rabbit brush and snakeweed replacing other shrubs. None of the proposed project areas were assessed as Not Meeting.

Alternative A – No Action:

Conditions would remain the same as current conditions as the new trails would not be built and closures A, B and C would not be rehabbed.

Finding on Public Land Health Standard 3 for Plant Communities:

The areas meeting Standard 3 would likely continue meeting and the areas meeting with problems would continue to meet with problems unless precipitation timing and amounts are such to allow these plant communities opportunity to improve.

Cumulative Effects: Cumulative effects would remain low with maintenance of the existing trails and continued weed monitoring.

Alternative B – Proposed Action:

An approximate 24 inch path of vegetation would be removed during construction of the trails and up to 48 inches of the trails disturbed. Vegetation outside the 24 inch path should recover once construction is completed as the trails are designed to minimize soil erosion and continued weed monitoring.

Finding on Public Land Health Standard 3 for Plant and Animal Communities:

Seeding efforts in the rehab areas, continued weed monitoring and trail maintenance would allow Land Health for plant communities to maintain or improve depending on timing and amounts of precipitation.

Cumulative Effects: With maintenance of the trails, weed monitoring and seeding the rehab areas, cumulative effects to plant communities would remain low.

3.3.4 Wildlife (includes fish, aquatic and terrestrial) (includes a finding on Standard 3)

Current Conditions:

Wildlife in the area include migratory birds, mule deer, bighorn sheep and other species that expected in mixed salt desert shrub systems.

Finding on Public Land Health Standard 3 for Plant and Animal Communities:

Most of the area was found to meet land health standards, with some areas meeting with problems due to proximity to I70, recreation pressure and less than expected shrub diversity.

Alternative A – No Action:

The Direct effects of the No Action alternative on wildlife would be the potential for recreationists to disturb or harass wildlife. However, these effects are expected to be minimal and insignificant in addition to the disturbance caused by the proximity to a major highway.

There would be minimal indirect effects to wildlife. Indirect impacts are expected to remain insignificant above existing conditions under this alternative. Trails and trail use can potentially lead to the degradation and fragmentation of potential habitat, however efforts to keep users on trails and weed treatments should mitigate these effects and effects are not expected to be significantly greater than current conditions.

Finding on Public Land Health Standard 3 for Plant and Animal Communities:

The No Action Alternative is not expected to substantially change the ability of the action area ability to meet Land Health Standard 3. Some areas that are currently ‘meeting with problems’ and may continue to experience pressure from recreation use. Efforts to keep users on existing trails and weed species treatments should mitigate these effects.

Cumulative Effects:

The cumulative effects of the No Action Alternative are continued use of existing trails which will have potential for introduction of weeds which can degrade habitat. Efforts to keep users on existing trails and weed monitoring and treatment should help to mitigate these effects. Climate change may also cause novel responses to disturbance, monitoring should help identify issues early so that management can respond if needed.

Alternative B – Proposed Action:

The Direct effects of the Proposed Action alternative on wildlife would be the potential for recreationists to disturb or harass wildlife on existing and new trails. However, these effects are expected to be minimal and insignificant in addition to the disturbance caused by the proximity to a major highway.

There would be minimal indirect effects to wildlife. Indirect impacts are expected to remain insignificant above existing conditions under this alternative. Trails and trail use can potentially lead to the degradation and fragmentation of potential habitat, however efforts to keep users on trails and weed treatments should mitigate these effects and effects are not expected to be

significantly greater than current conditions. Additionally, reclamation of trails will partially mitigate habitat fragmentation.

Finding on Public Land Health Standard 3 for Plant and Animal Communities:

The Proposed Alternative is not expected to substantially change the ability of the action area ability to meet Land Health Standard 3. Some areas that are currently ‘meeting with problems’ and may continue to experience pressure from recreation use. Efforts to keep users on existing trails and weed species treatments should mitigate these effects.

Cumulative Effects:

The cumulative effects of the Proposed Alternative are continued use of existing trails and construction and use of new trails which will have potential for introduction of weeds which can degrade and fragment habitat. Efforts to keep users on existing trails and weed monitoring and treatment should help to mitigate these effects. Climate change may also cause novel responses to disturbance, monitoring should help identify issues early so that management can respond if needed.

3.4 HERITAGE RESOURCES AND HUMAN ENVIRONMENT

3.4.1 Cultural Resources

Current Conditions:

A records search of the general project area, and a Class III inventory of the Area of Potential Effect (APE), as defined in the National Historic Preservation Act (NHPA), was completed by several different Colorado BLM permitted cultural resource contracting firms and the GJFO Archaeologists (GJFO CRIR 1097-03 (O’Neil 1997), 15407-06 (McDonald 2008), 1015-12 (Heinritz 2016) and 15416-02 (McDonald 2016)). Conditions of the existing cultural environment are incorporated by these references but the following table briefly summarizes cultural resources in the APE:

Route or Closure Name	OAHP Document Number	Resources Present?	Eligibility of Resources
Route 1 (“Kevin’s”)	ME.LM.R920	5ME21602-5ME21608	All recommended to be not eligible to the NRHP.
Route 2 (Wrangler Extension)	ME.LM.R920	5ME21609-5ME21613.1 and 5ME21052.1	All recommended to be not eligible to the NRHP.
Route 3 (Lower Moore Fun)	ME.LM.R620	None	N/A
Route 4 (Steve’s Reroute)	ME.LM.R920	None	N/A
Route 5 (Wrangler	ME.LM.R915	5ME21052 and	Both recommended to

Reroute)		5ME21054	be not eligible to the NRHP.
Closure A	ME.LM.R151	None	N/A
Closure B	ME.LM.R915	5ME21052	Recommended to be not eligible to the NRHP.
Closure C	ME.LM.R620	5ME21052	Recommended to be not eligible to the NRHP.

The cultural resources found in the APE included historic roads and isolated historic and prehistoric items such as flakes, choppers, a tobacco tin, and cans. The project inventory and evaluation is in compliance with the NHPA, the Colorado State Protocol Agreement, and other federal law, regulation, policy, and guidelines regarding cultural resources.

Alternative A – No Action:

The Direct effects of the No Action alternative on cultural resources would be the potential for natural forces, recreationists, and others to disturb cultural resources in or near to the current trail system through erosion of soils on site locations, loss of integrity due to physical or other disturbances, loss of setting, incremental disturbance from use or access, the removal of artifacts, vandalism, or trampling. However, these effects are expected to be minimal and generally contained within a quarter mile of trails and roads in the Mack Ridge trail system.

There would be minimal indirect effects to cultural resources. Indirect impacts are expected to remain insignificant above existing conditions under this alternative. Trails and trail use can potentially lead to the degradation of cultural resources or their settings located within proximity of the trail systems, however efforts to keep users on trails and education about protecting our collective heritage should mitigate these effects and effects are not expected to be significantly greater than current conditions.

Cumulative Effects:

The cumulative effects of the No Action Alternative are continued use of existing trails which will have potential for sites within proximity of the trails to be impacted in the ways described in the direct and indirect effect above. Efforts to keep users on existing trails and education about irreplaceable cultural resources should help to mitigate these effects.

Alternative B – Proposed Action:

The Direct effects of Alternative B on cultural resources would be the potential for natural forces, recreationists, and others to disturb cultural resources in or near to the current trail system through erosion of soils on site locations, loss of integrity due to physical or other disturbances, loss of setting, incremental disturbance from use or access, the removal of artifacts, vandalism, or trampling. Direct impacts would relate to the cultural resources present in the constructed trail corridor while indirect impacts would generally be limited to within a quarter mile of trails and roads in the Mack Ridge trail system. There are no historic properties (cultural resources that are eligible or potentially eligible to the National Register of Historic Places) present within the proposed action project area.

Cumulative Effects: The cumulative effects of the Alternative B are continued use of existing trails and the construction of new trails which will have the potential for sites within proximity of the trails to be impacted in the ways described in the direct and indirect effect above. Efforts to keep users on existing trails and education about irreplaceable cultural resources should help to mitigate these effects.

Protective/Mitigation Measures:

The following Standard Stipulations would protect any cultural resources in the project area in the unlikely event of inadvertent discovery:

All persons in the area who are associated with this project shall be informed that any person who, without a permit, injures, destroys, excavates, appropriates or removes any historic or prehistoric ruin, artifact, object of antiquity, Native American remains, Native American cultural item, or archaeological resources on public lands is subject to arrest and penalty of law (16 USC 433, 16 USC 470, 18 USC 641, 18 USC 1170, and 18 USC 1361). Strict adherence to the confidentiality of information concerning the nature and location of archeological resources would be required of the proponent and all of their subcontractors (Archaeological Resource Protection Act, 16 U.S.C. 470hh)

Inadvertent Discovery: The National Historic Preservation Act (NHPA) [16 USC 470s., 36 CFR 800.13], as amended, requires that if newly discovered historic or archaeological materials or other cultural resources are identified during the Proposed Action implementation, work in that area must stop and the BLM Authorized Officer (AO) must be notified immediately. Within five working days the AO will determine the actions that will likely have to be completed before the site can be used (assuming in place preservation is not necessary).

The Native American Graves Protection and Repatriation Act (NAGPRA) [25 USC 3001 et seq., 43 CFR 10.4] requires that if inadvertent discovery of Native American Human Remains or Objects of Cultural Patrimony occurs, any activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice be made to the BLM Authorized Officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)).

The operator may relocate activities to avoid the expense of mitigation and delays associated with this process, as long as the new area has been appropriately inventoried and has no resource concerns, and the exposed materials are recorded and stabilized. Otherwise, the operator shall be responsible for mitigation costs. The BLM authorized officer will provide technical and procedural guidelines for relocation and/or to conduct mitigation. Upon verification from the BLM authorized officer that the required mitigation has been completed, the operator will be allowed to resume construction.

Antiquities, historic ruins, prehistoric ruins, and other cultural or paleontological objects of scientific interest that are outside the authorization boundaries but potentially affected, either directly or indirectly, by the proposed action shall also be included in this evaluation or mitigation. Impacts that occur to such resources as a result of the authorized activities shall be mitigated at the operator's cost, including the cost of consultation with Native American groups

3.4.2 Paleontological Resources

Current Conditions:

There are geologic units in the project area that have a high potential to yield vertebrate fossil resources. The BLM classifies these using the Potential Fossil Yield Classification (PFYC) system. The geologic units with the highest potential to contain these resources are rated as Class 4-5, and there are sections of the trail alignments that impact Class 4-5 formations. There are no known vertebrate paleontological sites that would be impacted by the proposed trail alignments.

Alternative A – No Action:

The trails would not be built, so there would be no direct or indirect impacts to paleontological resources.

Cumulative Effects:

The project would not occur, so there would be no cumulative effects to paleontological resources.

Alternative B – Proposed Action:

Trail construction activities could directly impact fossil resources by physically damaging them, or indirectly impact other fossil resources in the project area by increasing recreation in the area. Increased recreation could lead to theft of fossils.

Cumulative Effects:

While no vertebrate fossil resources were found during the pre-construction surveys, it's possible that new sites could be found during trail construction. If new sites are found, there would be more known about this areas paleontological resources.

Protective/Mitigation Measures:

Pre-construction paleontological surveys were completed in the Class 4-5 geologic units by the GJFO geologist on 6/25/15 and 7/1/15, and no vertebrate paleontological resources were found. No construction monitors will be required since no resources were identified.

3.4.3 Tribal and Native American Religious Concerns

Current Conditions:

American Indian religious concerns are legislatively considered under several acts and Executive Orders, namely the American Indian Religious Freedom Act of 1978 (PL 95-341), the Native American Graves Environmental Assessment Protection and Repatriation Act of 1990 (PL 101-601), and Executive Order 13007 (1996; Indian Sacred Sites). In summary, these require, in concert with other provisions such as those found in the NHPA and ARPA, that the federal government carefully and proactively take into consideration traditional and religious Native

American culture and life and ensure, to the degree possible, that access to sacred sites, the treatment of human remains, the possession of sacred items, the conduct of traditional religious practices, and the preservation of important cultural properties are considered and not unduly infringed upon. In some cases, these concerns are directly related to “historic properties” and “archaeological resources”. In some cases elements of the landscape without archaeological or other human material remains may be involved. Identification of these concerns is normally completed during the land use planning efforts, reference to existing studies, or via direct consultation.

Alternative A – No Action:

There is no known evidence that suggests the project area holds special significance for Native Americans, or is actively used to maintain any traditional practices. No additional trails would be built under this alternative.

Cumulative Effects: In previous consultation, some tribes have expressed concern with landscape fragmentation from trails and roads. Trails systems like the existing Mack Ridge trails would contribute to landscape fragmentation.

Alternative B – Proposed Action:

The Ute have a generalized concept of spiritual significance that is not easily transferred to Western models or definitions. As such the BLM recognizes that the Ute have identified sites that are of concern because of their association with Ute occupation of the area as part of their traditional lands. No traditional cultural properties, unique natural resources, or properties of a type previously identified as being of interest to local tribes, were identified during the cultural resources inventory of the project area. No additional Native American Indian consultation was conducted for the proposed project. The project would not alter or limit any access if there were traditional uses that are not known to the agency.

Cumulative Effects: In previous consultation, some tribes have expressed concern with landscape fragmentation from trails and roads. Trails systems like the existing Mack Ridge trails and newly constructed trails would contribute to overall landscape fragmentation. The project would not alter or limit any access if there were traditional uses that are not known to the agency.

3.4.4 Social, Economic, Environmental Justice

Current Conditions:

The project area is located in Mesa County, Colorado, approximately three miles west of the town of Loma and seven miles northwest of the City of Fruita. Fruita is the largest city near the project area, and the regional economic center where social services and resources are available. Table 3.4.4 gives the populations of Mesa County and the town of Fruita. Colorado is included in the population and discussion of the socioeconomic environment to provide context and comparison.

Table 3.4.4 Population and Population Change 2000 to 2014.

Location	Population 2000	Population 2010	Population 2014	Population % Change 2000-2010	Population % Change 2010-2014
Colorado	4,301,261	4,887,061	5,197,580	13.6%	6.35%
Mesa County	116,255	142,284	147,509	22.4%	3.67%
Fruita	6,478	12,646	12,702	95.2%	0.44%

Source: USCB 2014

Between 2000 and 2014, Colorado and Mesa County have experienced population growth commensurate with their economic growth. The City of Fruita has experienced substantial growth over the same time period, nearly doubling the population. Mesa County and Colorado are expected to continue to grow over the coming years, and the City of Fruita is expected to grow as well. The workforce in Mesa County is characterized by management and business occupations (31 percent); sales and office occupations (21 percent); and natural resources, construction, and maintenance occupations (13 percent). The workforce for the town of Fruita is predominately sales and office occupations (21 percent), service occupations (18 percent), management, business, science and arts occupations (36 percent), production, transportation and material moving occupations (15 percent), and natural resources, construction and maintenance occupations (10 percent) (USCB 2014).

The major industries in the Fruita area are related to education, health care, and social assistance (24 percent), followed by professional, scientific and management, and administrative and waste management (13 percent), retail (12 percent), transportation and warehousing and utilities (9 percent), agriculture, fishing and hunting, and mining (8 percent), arts, entertainment, recreation, accommodation and food (8 percent), finance and insurance, and real estate/rental/leasing (7 percent), public administration (5 percent), other services except administration (4 percent), construction (4 percent), manufacturing (3 percent), wholesale trade (2 percent), and information (1 percent). Median household income (MHI) in 2014 was about \$48,600 per year in Mesa County and \$54,875 in Fruita. The state MHI is about \$59,500 and the national MHI is \$53,500. Unemployment is 9.2 percent in Mesa County and 9.6 percent in Fruita (USCB 2014).

Within the Fruita area, there are small proportions of the population that are minority race, with a more substantial proportion (21.3 percent) that is Hispanic or Latino. The minority communities would not constitute Executive Order 12898 populations as their Hispanic or Latino and non-White populations do not exceed 50 percent of the total population and are not meaningfully greater than Colorado's non-White (21.8 percent) and Hispanic or Latino populations (20.9 percent). Non-White minority populations in the Fruita community are comparable to Colorado's and the Mesa County's non-White minority populations.

The City of Fruita's economic development plan is relies heavily upon tourism associated with mountain biking. The City of Fruita has applied for a grant that would fund the construction of a bicycle trail that would connect the City of Fruita to the Kokopelli trail system. Fruita has been working diligently through partnerships and grants on increasing the mountain biking recreation opportunities near their community.

Trail construction ranges from \$5,000 per mile for machine building to \$25,000 per mile for hand crews. Trail construction costs can be substantially reduced through the use of volunteers and partnerships with local recreation organizations. Construction time for the proposed trails would range from 3 weeks (machine built) to a few months for hand crews. Construction could be completed via local contractors, volunteers, or out of area contractors. Approximately twenty thousand dollars has already been identified from various organizations as contributions towards trail construction.

Alternative A – No Action:

Under the No Action Alternative the proposed trail construction and reclamation would not take place. Recreational users that visit the area would not have the additional opportunities that these trails would provide. The change in visitors to the trail system would likely continue to grow over time. The draw of tourists to the trail system and nearby communities would likely remain similar to current conditions if the trails are not constructed.

The project is located in a remote area that is not immediately adjacent to any homes or minority populations. The No Action Alternative would have no direct impacts on low income or minority populations. Changes in service industry jobs related to the slight increase in trail infrastructure are expected to be negligible.

Cumulative Effects:

Cumulative effects associated with this alternative would be minimal. The number of users visiting the area isn't expected to decrease if this project isn't approved. Some additive cumulative impacts maybe forgone if this project isn't approved, especially if the user experience on the trails starts to decline because of increased crowding on the trails. The proposed trails would also provide a more diverse user experience with increased beginner trails, which could draw different types of visitors to the area. This opportunity could be reduced if these trails are not approved.

Alternative B – Proposed Action:

The Proposed Action would allow for an increase in recreation infrastructure at the Kokopelli trail system, which supports the economic development plan of nearby cities such as Fruita. The trails would be constructed by volunteers, local contractors, or out of the area contractors. It is unlikely that the project would result in changes to the local population or population demographics. The project is short-term and would not require a new work force to move to the area.

Construction costs for the proposed trails could range from 35,000 dollars to 175,000 dollars depending on the method of construction utilized. Financial benefits to the local community from construction spending are not anticipated to be substantial because most of the funding is coming from local sources and are staying within the same market. Contributions towards the construction funding for this project has come from local businesses (\$7,000), local government (\$10,000), and federal (\$2,500) contributions. Construction spending could be reduced but using volunteers for constructing portions of or all of the trails but this would likely delay completion of the project.

The project could enhance the experience of tourists and local recreationists. As a standalone project it would not likely draw additional tourists or new residents to the area.

Cumulative Effects:

The proposed project in combination with other pending projects could enhance the local economy by enhancing the mountain biking opportunities and experiences in the larger Fruita area. There are numerous pending projects such as the Fruita to Kokopelli Riverfront Trail Expansion and the 18 Road mountain bike area event facilities that may cumulatively add to the local economy. Existing mountain biking trails draw tourists from the Colorado Front Range and from across the world to recreate in this area. Each additional enhancement to mountain biking infrastructure and opportunities will likely cumulatively increase visitors to the area and influx of outside spending.

3.4.5 Wastes, Hazardous or Solid

Current Conditions:

Hazardous and solid wastes are not a part of the natural environment but could be introduced to the environment as a result of implementation of the proposed action.

Alternative A – No Action:

Direct and Indirect Effects: no effects

Cumulative Effects: none

Alternative B – Proposed Action:

Direct and Indirect Effects: The use of motorized equipment could result in the release of fuel or hydraulic fluids. Care should be taken when refueling this equipment and any spills of petroleum hydrocarbons should be reported and cleaned up promptly.

Cumulative Effects:

Cumulative effects would be expected to be minor since the negative effects from the spillage of fuels and hydraulic fluid are uncommon and can be cleaned up or otherwise remediated with little or no long-term impact.

Protective/Mitigation Measures:

Proper fuel management BMP's should be employed. Those BMPs include the following:

- 1) Fueling and maintenance activities should not take place within 100 feet of any live water (stream, pond, lake, etc.) or any drainage (perennial or ephemeral.) All product containers (oil and hydraulic fluid cans, etc.) should be removed from the site and disposed of properly.
- 2) Soils contaminated by fuel spills should be removed and disposed of properly.
- 3) Any fuel spills should be reported to the BLM Authorized Officer.

3.5 LAND RESOURCES

3.5.1 Recreation

Current Conditions:

The project area is managed as part of the Mack Ridge Recreation Management Zone inside the McInnis Canyons National Conservation Area. The Mack Ridge area is valued for its high quality, internationally-known singletrack mountain biking opportunities. The BLM estimates approximately 64,000 annual visits to the area. Though the trails are open to horseback riding and pedestrian activities (hiking and running), the vast majority (over 90%) of visitors use the area for mountain biking. There are three trailheads in the area. The main trailhead (Kokopelli) includes a parking area, cabana, and vault toilets. The Mack Ridge and Rustlers trailheads only include parking areas. There are approximately 40 miles of trails in the area.

There are two running events that occur on the trail system with approximately 500 participants. Additionally, there are five commercial mountain bike tour operations that use the trail system. These operators reported 82 user days in 2015.

Management of the area is guided by the 2004 Colorado Canyons NCA Resource Management Plan (RMP) that calls for managing the area for singletrack day-use mountain biking. The results of participation in mountain biking includes: enjoying frequent and strenuous exercise, testing endurance, developing skills and enjoying scenic canyon country views.

The RMP also identified the construction of new trails that would link existing trails together and provide additional opportunities for visitors.

Alternative A – No Action:

Direct and Indirect Effects: Under the No Action Alternative, the new trails would not be constructed. There would be no new opportunities, so any benefits to visitors or local communities that would result from the new trails would not be realized. As demand for mountain biking opportunities grows along with local and regional population growth, visitors could experience crowding on the existing trail system. Over time, the negative user interactions associated with crowding could result in displacement of current users.

Cumulative Effects: Combined with the marketing by local communities of mountain biking opportunities in the Mack Ridge area and the anticipated local and regional population growth the Cumulative Effects of not building new trails would be similar to those described above in the Direct and Indirect Effects.

Alternative B – Proposed Action:

Direct and Indirect Effects: Under the Proposed Action Alternative, 6.4 miles of new trails would be added to the Mack Ridge trail system. These new trails would be designed to link the Mack Ridge Trailhead directly into the singletrack trail system, replace two-track trails with single-track trails, and provide less technical connections to create more intermediate level loops. The result would be expanded singletrack riding opportunities. Additionally, trails designed to

accommodate intermediate-level riders would offer opportunities to a wider range of riders. These results are aligned well with the recreation objectives for the area.

Additionally, the new trails would reduce the future possibility crowding discussed above. New trails would spread visitors out across the trail system and result in less crowding.

Cumulative Effects: Combined with the marketing by local communities of mountain biking opportunities in the Mack Ridge area and the anticipated local and regional population growth the Cumulative Effects of constructing new trails would reduce the possibility of crowding discussed above, increase the likelihood of visitors achieving desired outcomes, and could enhance local economies. As noted in the Direct and Indirect Effects, new trails would enhance riding opportunities and widen the range of riders. The BLM expects these results to extend over the long term (10 – 15 years). Local communities, particularly the City of Fruita, actively market mountain biking to potential destination visitors, businesses that are looking to relocate, and residents. The addition of new singletrack trail riding experiences could result in these marketing efforts generating more economic activity.

3.5.2 Range Management

Current Conditions:

Routes 1, 4 and closure-rehab A would be in the Crow Bottom Allotment. Season of use for cattle grazing in the Crow Bottom Allotment is 02/02 to 04/01 with 81 cattle amounting to 160 AUMs (an AUM is the amount of forage to sustain 1 cattle for one month). Under the grazing permit, the permittee has the option of having cattle on the allotment until April 15 as long as the AUMs aren't exceeded and rangeland conditions are stable.

Routes 2, 3, 5 and closures-rehab B & C would be in the Maluy Allotment. The current grazing permit authorizes 60 cattle graze on the allotment from 12/28 to 03/15 amounting to 137 AUMs.

Alternative A – No Action:

Under the No Action Alternative the current trails would remain in place and no rehab for trail closures would occur. Conflicts between cattle and recreationists have been minimal mainly due to the seasons of use when recreation activities are less and cattle using areas away from the main recreation activities.

Cumulative Effects:

The main cumulative effects would be both cattle and recreationists using the trails. The trails have been, are and will be maintained keeping cumulative effects low and with maintenance are expected to remain low in the future.

Alternative B – Proposed Action:

Increasing the number of trails increases the chance for conflicts but with only four additional trails and closing three, the chances for conflicts are still low. If the construction of the trails and closures are done in the summer or fall as planned, there would be no livestock due to their use

being in the winter and spring. Seedings in the rehab areas would need to be monitored to keep the cattle off until they are established.

Cumulative Effects:

Effects would be the same as the No Action Alternative with maintenance of the trails keeping effects low.

CHAPTER 4 - CONSULTATION AND COORDINATION

4.1 LIST OF PREPARERS AND PARTICIPANTS

INTERDISCIPLINARY REVIEW

NAME	TITLE	AREA OF RESPONSIBILITY
Alissa Leavitt-Reynolds	Archaeologist	Cultural Resources, Native American Religious Concerns
Andy Windsor	Outdoor Recreation Planner	Access, Transportation, Recreation, VRM, Wilderness, ACECs
Scott Clarke	Range Management Specialist	Range
Bob Price	Range Management Specialist	Forestry
Jim Dollerschell	Range Management Specialist	Wild Horse & Burro Act
David Scott Gerwe	Geologist	Geology, Paleontology
Alan Kraus	Hazardous Materials Specialist	Hazardous Materials
Robin Lacy	Realty Specialist	Land Tenure/Status, Realty Authorizations
Nikki Grant-Hoffman	Ecologist Science Coordinator	Land Health Assessment, Range Ecology, Special Status Plant Species, Riparian and Wetland, T&E Species, Migratory Bird Treaty Act, Terrestrial & Aquatic Wildlife
Christina Stark	Assistant Field Manager Resources/Planning & Environmental Coordinator	Environmental Justice, Prime & Unique Farmlands, Socioeconomics, Environmental Coordinator
Kevin Hyatt	Hydrologist	Soils, Air Quality, Water Quality, Hydrology, Water Rights
Mark Taber	Range Management Specialist	Weed Coordinator, Invasive, Non-Native Species
Lathan Johnson	Fire Ecologist Natural Resource Specialist	Fire Ecology, Fuels Management
Janet Doll	Realty Specialist	Lands and Realty

4.2 TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED

City of Fruita, Colorado

Colorado Plateau Mountain Bike Trail Association (COPMOBA)

Grand Valley Trails Alliance (GVTA)

CHAPTER 5 - REFERENCES

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