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Horsethief Mesa Travel Management Plan

Draft Environmental Assessment

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1.0 INTRODUCTION

The Bureau of Land Management (BLM) Taos Field Office (TAFO) proposes to approve a Travel Management Plan (TMP) for Horsethief Mesa, an area of 2,060 acres within the Taos Plateau Travel Management Area (TMA), and designate a transportation network of motorized and non-motorized routes. The TMP has been prepared considering extensive public and agency input. The intent of the plan is to establish a comprehensive travel network, meeting both current and future access needs to the public lands in this area while minimizing effects on sensitive resources. The plan identifies a system of roads, primitive roads, and trails, and the terms for their use and maintenance. Additionally, it identifies public access and outlines the proposed facilities that would be developed for recreational use. The travel network identified in the proposed TMP is comprised of both motorized and non-motorized routes.

The term motorized vehicle, for the purposes of this Environmental Assessment (EA), is synonymous with off-highway vehicle (OHV). Examples of this type of vehicle include all-terrain vehicles (ATV), Utility Type Vehicle (UTV), Sport Utility Vehicle (SUV), motorcycle, and snowmobiles.

OHV is synonymous with Off-Road Vehicle (ORV). ORV is defined in 43 CFR 8340.0-5 (a): Off-road vehicle means any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: 1) Any non-amphibious registered motorboat; 2) Any military, fire, emergency, or law enforcement vehicle while being used for emergency purposes; 3) Any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; 4) Vehicles in official use; and 5) Any combat or combat support vehicle when used in times of national defense emergencies. OHVs generally include dirt motorcycles, dune buggies, jeeps, 4-wheel drive vehicles, SUVs, over-the-snow vehicles, UTVs and ATVs.

For the purposes of this EA and TMP, the term “route” will be used to refer to roads, primitive roads, primitive routes, trails, temporary routes, and transportation linear disturbances which are defined in the BLM Travel and Transportation Handbook (BLM 2012a) and Appendix A Acronyms, Glossary, References.

This EA provides analysis of a no action alternative and four action alternatives considered during the travel management planning process, in compliance with the National Environmental Policy Act (NEPA), and other Federal and State goals, policies, laws and regulations, including but not limited to:

- Travel and Transportation Handbook (BLM 2012a);
- Travel and Transportation Manual (BLM 2016a);
- Land Use Planning Handbook (BLM 2005);
- National Mountain Bicycling Strategic Action Plan (BLM 2002);

- National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands (BLM 2001); and
- Executive Orders 11644/11989; and
- Secretary's Order 3376 Increasing Recreational Opportunities through the use of Electric Bikes (SO 3376).

1.1 Background

Federal agencies are directed to manage travel uses on public lands through Executive Orders (EO) 11644 and 11989, which have been incorporated into the Code of Federal Regulations (CFR) under 43 CFR 8342.1. These EOs and Secretarial Orders 3362, 3356, 3347, and 3376 are included in Appendix E. The Taos Resource Management Plan (RMP) (BLM 2012b) provides management guidance for the Taos Plateau TMA. The TMA includes 2,060.5 acres of BLM-administered land located within Horsethief Mesa, which lies within Río Grande del Norte National Monument north of Arroyo Hondo, New Mexico. These land use planning decisions must be considered in any travel management planning decisions. Lands within Horsethief Mesa are administered by BLM, while adjacent land includes U.S. Forest Service (USFS) and private landowners. BLM is working with USFS to improve public access to the area on adjacent Carson National Forest-managed land from New Mexico (NM) Highway (Hwy) 522.

1.2 Purpose and Need

The purpose of this action is to provide a comprehensive network of routes to accommodate a variety of users and types of vehicles within Horsethief Mesa. The purpose is also to provide formal public access to Horsethief Mesa along with adequate parking. Over the past two decades, Horsethief Mesa has become increasingly popular for recreation. As a result, some illegal trails and motorized routes have been created over the years by various users, which impact resource conditions. The availability and popularity of OHVs, mountain bikes, and electric bicycles (e-bikes) has created an increased demand for public land use and access, which could further adversely affect resource conditions if opportunities are not planned. In addition, there is a desire for new trails targeting specific outcomes such as risk and challenge by mountain bikers that would accommodate a variety of trail users. A TMP is needed to meet public demands for access and recreation in a systematic manner that provides for the protection of the objects and values for which the Rio Grande del Norte National Monument was established.

Another purpose of this plan is to provide public access and parking. The public currently accesses the area through private land near the southern Horsethief Mesa area boundary and undeveloped USFS land on the northeastern planning area boundary from NM Hwy 522. The unfettered and unauthorized access to the Horsethief Mesa area has resulted in private property owners installing signs to direct users away from private roads and adding small dirt speed bumps to control the speed of motorized vehicles. Many visitors that use the area for non-motorized activities currently park on private land and on the NM Hwy 522 shoulder near a County transfer station. Frequently, vehicles get locked in behind the gate to the transfer station

after hours. Four-wheel drive or high clearance vehicles drive across private land or USFS-administered land to hunt, recreate, and collect firewood. There are also concerns regarding the lack of adequate parking. Authorized access and adequate, developed and maintained parking are needed to accommodate the current levels of use.

The plan will designate each route as OHV open, limited, or closed in a manner that will minimize impacts to resources. Route designations are defined in Section 2.1.2 of this EA. It will address unauthorized route proliferation with rehabilitation, enforcement and public education. In addition, the plan will determine route maintenance levels. The BLM would close and rehabilitate illegal and social routes, as well as routes that are redundant or causing resource damage after the TMP is signed.

1.3 Plan Conformance

The BLM currently manages Horsethief Mesa under the 2012 Taos RMP, which provides long-term goals specific to the TAFO's resources and uses. The alternatives presented in this EA are consistent with the goals and objectives of the Taos RMP for the Taos Plateau, including travel and transportation goals. The following applicable travel and transportation goals and objectives for the TAFO and the Taos Plateau TMA, which includes the Horsethief Mesa area, are presented in Section 2.2.8 of the RMP, Transportation and Access. Note that the RMP goal terminology includes reference to trails and roads, while this EA uses the term "routes" as defined in Section 1.0.

Goals for Transportation and Access

- Provide reasonable access to public lands for multiple uses in a manner consistent with the goals and objectives of all resources and other opportunities.
- Work collaboratively with the public, including tribal, State and local governments, special interest groups, and individuals to develop an appropriate transportation system on public lands, including motorized and non-motorized recreational trails.

Objectives for Transportation and Access

- Use criteria to guide the designation of routes in areas limited to designated roads, or use of roads in areas limited to existing roads, which will consider:
    1. The desired future condition for access (if different from the planning unit as a whole).
    2. Whether or not the road provides access to an important destination, to private, State, or other Federal lands, or is critical for particular activities.
    3. Road and trail density to support goals related to conservation of scenic quality or sensitive habitat management; or to accommodate certain uses. For sensitive habitat, limit roads and trails to an average of 0.5 mile of road per square mile. In areas identified for motorized recreation use, a high density might exceed 2 miles of road per square mile.

4. Reclamation of redundant roads or roads that no longer serve their intended purpose to achieve road density objectives and reduce habitat fragmentation, while maintaining road network connectivity.
5. Conditions to be identified in the road inventory process that will require mitigation, such as routes that are alongside or within riparian areas or routes in areas with cultural or paleontological resources. Mitigation might include rerouting, redesign of routes (e.g., riparian area crossings to minimize downstream sedimentation), or fencing of resources.
6. Maintenance standards to determine where work is needed to reduce damage to the land, such as installing culverts where flood damage recurs or filling in low-lying areas to eliminate the need for users to create new routes to avoid the area.

- Monitor use to determine if the road network requires modification to improve access or protect resources.

To follow are goals and objectives from the Taos RMP (2012) for recreation that are pertinent to this plan and that are also relevant to travel management planning:

Goals:

- Provide a diversity of settings where visitors may have the opportunity to realize their personal expectations or goals while engaging in a variety of activities in the outdoors.
- Provide high quality recreation opportunities and experiences.
- Manage for appropriate levels of use, facilities, management and services, and administrative controls in each recreation area. Balance public demand, protection of resources, setting objectives, and fiscal responsibility.

Management Prescriptions for the Taos Plateau Extensive Recreation Management Area (ERMA), which includes Horsethief Mesa:

- Contain and define parking if needed to prevent disturbance to and protect resources in areas such as Las Mestenas (also so known as Horsethief Mesa).
- Maintain Horsethief Trail.

The BLM currently manages this area to provide an open setting with minimal to no facilities. ERMAs offer a variety of dispersed recreation activities through custodial recreation management to resolve use conflicts and provide for visitor safety and resource protection.

The action alternatives are consistent with the Presidential Proclamation (Proclamation 8946) designating Rio Grande del Norte National Monument (signed March 25, 2013) and BLM Manual 6220, which provides guidance on managing components of the BLM's National Landscape Conservation System. The Proclamation affords protections for four Monument objects: geology, ecological diversity, wildlife habitat, and cultural resources. Each object is considered in this EA, though some are summarily dismissed from detailed analysis with a

rationale. In addition, historical uses, including fuelwood harvesting can continue under the Monument designation.

1.4 Identification of Issues

Extensive public input was gathered and documented to develop the EA and TMP. Route designations and alternatives were evaluated during the public involvement process. This process and other public participation efforts are described in Chapter 4 of this EA.

1.4.1 Relevant Issues

Table 1-1 presents key resource/resource use issues identified for Horsethief Mesa that were carried forward for analysis. Resource/resource use issues and effects are analyzed in Chapters 3 and 4 of this EA, respectively.

Table 1-1 Key Issues Associated with the Action Alternatives

Resource/Resource Use	Issue Statement
Cultural resources[1]	How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact cultural resources and their management? How would reasonable and potentially increased public access and recreation impact cultural resources?
Recreation	How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact various recreation opportunities, experiences, and public land access?
Soil resources	How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact soil resources, including biological soil crusts?
Transportation and access	How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact public motorized and non-motorized access, and adjoining private property access?
Vegetation communities, special status plant species, and invasive, non-native plant species[1]	How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact vegetation communities, BLM special status plant species (SSPS), and the distribution and spread of invasive, non-native plant species?
Visual resources	How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact visual resources?
Wildlife resources[1]	How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact wildlife, including raptors and other migratory bird species, big game and small game species, and special status wildlife species?

[1] Resources relevant to the stewardship of established Monument Objects, including geological, ecological, and cultural resources occurring within the Rio Grande Del Norte National Monument.

1.4.2 Resources and Resource Uses Dismissed from Detailed Analysis

A list of resources that are outside the scope of the TMP or addressed through administrative or policy action is provided in **Error! Reference source not found.**2. Some resources were considered but not analyzed because of inconsistencies with existing laws, higher-level

management direction, or because they were beyond the scope of the purpose and goals of this EA.

Table 1-2 Resources and Resource Uses not Analyzed in Detail in this EA

Resource/Resource Use	Rationale for Dismissing
Air and atmospheric values	Air and atmospheric values would not be affected by the alternatives to a degree that detailed analysis is required. Construction emissions would be temporary, and limited to the proposed trailhead areas while construction activities occur.
Areas of Critical Environmental Concern (ACEC)[1]	ACECs would not be affected by implementation of the TMP or construction of the proposed trailhead parking area to a degree that detailed analysis is required. Horsethief Mesa remains part of the Taos Plateau ACEC, a designation applied to the area prior to the establishment of the National Monument. The designation provides management protection to certain relevant and important values, which includes wildlife values, special status species, scenic quality, and other values. These values are considered and, as appropriate, analyzed under their respective issue statements. (See Table 1-2.)
Fish, aquatic, and special status aquatic species[1]	There would be no impact to aquatic species or special status aquatic species from implementation of the TMP and proposed trailhead parking area.
Forestry and woodland products (fuelwood)	Forestry and woodland products (fuelwood) gathering would not be affected by implementation of the TMP and proposed trailhead parking area to a degree that detailed analysis is required. Fuelwood gathering is incorporated into discussion of impacts to Recreation.
Geology[1]	No geologic resources would be impacted by implementation of the TMP and proposed trailhead parking area.
Land tenure and withdrawals	Land acquisition and withdrawal may occur within Horsethief Mesa; however, these activities would not be affected by implementation of the TMP and proposed trailhead parking areas to a degree that detailed analysis is required.
Lands with wilderness characteristics	No lands within Horsethief Mesa have been determined to contain wilderness characteristics. An inventory conducted in preparation for the Taos ROD and RMP found the area did not meet the criteria for having wilderness characteristics.
Livestock grazing	Livestock grazing is not currently permitted within Horsethief Mesa.
Mineral resources (leasable, locatable, and saleable)[1]	No mineral resources or leases would be affected by implementation of the TMP and proposed trailhead parking area. Implementation of this TMP would recognize all valid existing rights.
National Historic or Scenic Trails	No known National Historic or Scenic Trails exist within Horsethief Mesa.
Paleontological resources	Paleontological resources would not be affected by implementation of the TMP and proposed trailhead parking area to a degree that detailed analysis is required. The TAFO paleontology coordinator and the BLM regional paleontologist assessed the Horsethief Mesa area and determined that the mapped geological units are classified as Potential Fossil Yield Classes (PFYC) 2 or 3 and demonstrated no evidence of fossils.
Scenic Byways	No Scenic Byways exist within Horsethief Mesa.
Social and economic conditions	Measurable changes to local social or economic conditions in Horsethief Mesa due to implementation of the TMP and proposed trailhead parking area would not be expected.

Resource/Resource Use	Rationale for Dismissing
Surface water resources, wetlands and floodplains	No structures would be built within surface water, wetlands, or floodplains, and implementation of the TMP and proposed trailhead parking area would not alter these areas to a degree that detailed analysis is required.
Threatened and endangered plant species	There are no federally listed threatened or endangered plant species documented in the Horsethief Mesa area. BLM Sensitive plant species are discussed in Section 3.5 of this EA.
Threatened and endangered wildlife species: Canada lynx (*Lynx rufus*) Mexican spotted owl (*Strix occidentalis lucida*) New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) Southwestern willow flycatcher (*Empidonax traillii extimus*) Western yellow-billed cuckoo (*Coccyzus americanus*)	A total of five federally listed wildlife species/subspecies with potential to occur in Horsethief Mesa were identified from the USFWS Information, Planning, and Consultation System (IPaC) system report for the area (USFWS 2020a). Analysis of these species and their habitats indicates that suitable habitat for them, especially breeding habitat, is not present in Horsethief Mesa. No designated critical habitat exists in Horsethief Mesa. These species do not have potential to occur in the area and implementation of the TMP and proposed trailhead parking area would have no effect on them.
Water quality (ground)	There would be no impact to ground water hydrology from implementation of the TMP and proposed trailhead parking area. The establishment of a designated travel network would not impact ground water quality because implementation of the TMP would only result in surface disturbances.
Wild and Scenic Rivers (WSR)[1]	WSRs would not be affected by implementation of the TMP and proposed trailhead parking area to a degree that detailed analysis is required. Minimal development such as single-track trails are consistent with Wild segments, and no new roads within the WSR corridor are proposed. Rio Grande outstandingly remarkable values would not be compromised beyond the potential impacts disclosed in this EA, and the free-flowing character of the river would not change. (See provisions of the Wild and Scenic Rivers Act and BLM Manual 6400).
Wilderness	No Wilderness areas exist within Horsethief Mesa.
Wilderness Study Areas	No Wilderness Study Areas exist within Horsethief Mesa.
Wildland fire management	Wildland fire management is not expected to be impacted by route designations or implementation of the TMP and proposed trailhead parking area. Emergency fire suppression activities are an authorized use.

[1] Resources relevant to the stewardship of established Rio Grande Del Norte Monument Objects including geological, ecological, and cultural resources occurring within the Rio Grande Del Norte National Monument.

2.0 ALTERNATIVES

Horsethief Mesa is an area within the Taos Plateau TMA. It is located approximately 2 miles north of Arroyo Hondo, New Mexico, just west of NM Highway 522 and Carson National Forest. The rim of the Rio Grande gorge defines the western extent of the Horsethief area. Routes within the Taos Plateau TMA travel network were evaluated in 2017 and were inclusive of Horsethief Mesa routes. In response to public comment and the 2020 e-bike regulation, the BLM decided to review Horsethief Mesa routes with additional scrutiny. The route evaluation for Horsethief Mesa reconsidered past alternatives and modified them as described in this EA (Sections 2.1 through 2.6). The TAFO proposes to approve a TMP for Horsethief Mesa and designate a transportation network of motorized and non-motorized routes in the area. Five

management alternatives were considered in the development of this analysis, including a No Action alternative and four action alternatives.

The action alternatives were developed with careful consideration of administrative actions, goals and objectives from the Taos RMP (BLM 2012b), NEPA interdisciplinary team (ID Team) input, and public comment during the route evaluation process and scoping process. Relevant guidance and management goals for Horsethief Mesa were integrated into the action alternatives. While each action alternative would result in varying route networks and designations, they all follow the prescriptions outlined in the Taos RMP (BLM 2012b) and the proposed TMP. The TMP is presented in its entirety in Appendix B of this EA and on the BLM's ePlanning website.

The route inventory and evaluation processes are described in the TMP. Each route requires adherence to 43 CFR 8342.1, which stipulates criteria for route designation. These criteria are outlined in the TMP. During the route evaluation process, each existing route segment on BLM-administered land was considered for designation as open, limited, or closed based on 43 CFR 8342.1 and the evaluation criteria for Horsethief Mesa (Appendix C). In addition, new routes were proposed during the route evaluation, and scoping processes.

2.1 Elements Common to All Action Alternatives

Elements of the TMP (Appendix B), including the sign plan, monitoring, enforcement, and adaptive management programs, and implementation of priority actions would be implemented under all action alternatives. Furthermore, access and trailhead parking would be considered in each action alternative. Camping would be allowed within trailheads. Shooting firearms would not be allowed near developed sites, such as trailhead parking areas, per federal regulations. Tables included throughout this EA are sourced from BLM 2020 GIS route data, unless otherwise noted. Any discrepancies in total rows are due to rounding of numbers to one decimal point.

2.1.1 Public Parking and Access

Legal public parking and access are integral to the purpose and need discussed in Section 1.2. BLM has planned and designed two trailhead options (Figures 2.1-1 and 2.1-2). Access to both trailhead options would require supplementary coordination with USFS through separate environmental planning effort, and would involve a road use agreement instrument on existing routes through the Carson National Forest. Public access to either trailhead option would require improvement of existing USFS routes not fully addressed in this EA. New connector routes that would be proposed to connect either trailhead option to the Horsethief Mesa route network may require additional analysis under NEPA.

- Trailhead option 1 (Figure 2.1-1) would be located on an existing route within Horsethief Mesa. It would support smooth flow of traffic and access to the Horsethief Mesa area and to the Carson National Forest. This trailhead option would encompass approximately 1.6 acres. Trailhead option 1 would require additional widening of access routes to support

public access, and would require more surveys than option 2 to determine potential resource values ahead of construction.

- Trailhead option 2 (Figure 2.1-2) would be located within the footprint of an existing disturbed area. It would encompass approximately 2.3 acres and would be located closer to the County transfer station and private property. This option would have a shorter access path than option 1, however would be located closer to the County transfer station and to private property. Trailhead option 2 would connect to existing USFS routes through agency coordination and a separate USFS environmental planning effort.

In addition to trailhead options, the BLM is considering seasonal parking locations outside of Horsethief Mesa, off of NM Highway 522 on USFS land (Figure 3.6-2). Seasonal parking location 1 would encompass approximately 0.029 acres, and seasonal parking location 2 would encompass approximately 0.023 acres. These seasonal parking locations would require additional coordination with USFS and road use agreement instrument for both the parking area and for route access through the Carson National Forest for access into Horsethief Mesa. While these seasonal parking locations are considered in this EA, impacts from construction and implementation of these seasonal parking areas may be determined through separate USFS environmental planning effort.

2.1.2 Route Designation Categories

BLM made designation decisions for routes within Horsethief Mesa for four action alternatives (Alternatives B, C, D, and E) under the categories listed below through the route evaluation process. Limited designation can apply to one or a combination of the specific management actions described below.

OHV Open:

- Routes designated OHV open would permit all types of motorized vehicle use at all times. They are subject to the operating regulations and vehicle standards set forth in 43 CFR 8341 and 8342, and may require additional management actions from BLM, such as routine maintenance and improvement. This category of routes would also allow all modes of non-motorized transportation and non-mechanized transportation, such as hiking and horseback riding.

Limited Route Categories:

- Limited Non-Motorized and E-Bike Class 1. This category of routes would allow all modes of non-motorized travel, Class 1 e-bikes, and travel by non-mechanized means, such as hiking and horseback riding.
- Limited Hiking. This category of routes would allow pedestrian, foot-travel only.
- Limited to Administrative and Authorized Users. This category of routes would allow motorized use by BLM, permittees, private property owners, and other uses as approved

by the Authorized Officer. Non-mechanized transportation, such as hiking and horseback riding, are allowed on any route within Horsethief Mesa unless otherwise specified.

Closed Route Categories

- Closed/Decommissioned. This category of routes would not allow use of OHVs or non-motorized transportation. Routes designated for closure would no longer be considered a part of the route network within Horsethief Mesa. Route closures are discussed in more detail in Section 2.1.4 of this EA.
- Closed/Decommissioned (To Be Rerouted). This category of routes would be closed due to a variety of reasons, such as resource impact or route redundancy. These routes would be replaced by a proposed new reroute.

2.1.3 Minor Realignments

Each of the action alternatives could include minor route adjustments to avoid sensitive areas if impacts are identified in the future. Minor realignments of the route network would be considered maintenance actions under the TMP, consistent with the BLM NEPA Handbook (BLM 2008a).

2.1.4 Route Closures

The TAFO strategy for restoring closed/decommissioned or unauthorized travel routes would be accomplished as time and funding permit. Communication of route closures and methods for restoration of closed routes are discussed in more detail in the TMP. Generally, these methods include:

- Signs may be installed throughout the Horsethief Mesa area to mark routes or closures and to provide direction to visitors, and to post other regulations;
- Physical barriers or obstructions, such as gates, fencing, or scattered rocks, may be installed to discourage use of a route;
- Camouflaging may be employed to disguise the route on the landscape. Techniques include screening with natural features and dead and downed vegetation; and
- Passive restoration may be implemented and could incorporate natural features to close the route to motorized and mechanized uses.

Per 43 CFR 8341.2 (a), if it is determined that OHVs are causing, or would cause, considerable adverse effects to resources along a route, the affected area would be immediately closed to the type(s) of OHVs causing the adverse effects until the effects are eliminated and measures are implemented to prevent recurrence. These temporary closures would not prevent designation of the route in accordance with 43 CFR 8342. These areas would not be opened to the type(s) of OHVs for which they were closed unless the Authorized Officer determines that the adverse effects have been eliminated and measures have been implemented to prevent recurrence.

2.1.5 Authorizations

Travel management route designations would not affect valid existing rights for permitted uses, including ROWs, County or State roads, fuelwood permits or current easements. Routes designated as limited to authorized and administrative use only are also subject to seasonal closures, vehicle size class restrictions, and ongoing monitoring. Per section 2.2.8 of the RMP, emergency access will be allowed in all areas. Authorized administrative access would include vehicular access for rescue purposes, law enforcement, or firefighting; to provide reasonable access for permitted activities; for the exercise of valid existing rights (e.g., powerline infrastructure access); for restoration work required after a fire; or to remove unneeded structures such as fences (BLM 2012b).

Under each of the action alternatives, the BLM would continue to consider granting ROWs. Upon granting new ROWs, associated roads or vehicular access routes would automatically be incorporated into the TMP on a case-by-case basis. New ROWs would require additional analysis under NEPA.

The BLM would collaborate with USFS to secure legal access to Horsethief Mesa through Carson National Forest through separate environmental planning effort. BLM and USFS would prepare a road use agreement instrument for the access road as part of that collaboration.

2.1.6 Electric Bikes (E-Bikes)

Secretarial Order (S.O.) 3376 was released on August 29, 2019. The Order instructed all Department of the Interior (DOI) agencies to develop a proposed rule to revise 43 CFR 8340.0-5. A final rule was adopted on December 2, 2020. Where certain criteria are met and an authorized officer has expressly determined, this rule instructs BLM to exempt e-bikes from the definition of OHVs or motorized vehicles and to classify them as regular bicycles. The TAFO will implement the final rule to remain consistent with current rulemaking. S.O. 3376 and the final rule do not supersede existing laws and regulations; implementation is to be consistent with governing laws and regulations.

This regulation allows e-bike use on routes designated as open to motorized use, all routes designated as limited to non-motorized use, and in areas designated as limited to mechanized use. However, changes in the specific designations must go through additional analysis under NEPA.

The BLM classifies e-bikes as follows:

- Class 1 e-bikes are equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 20 mph.

- Class 2 e-bikes are equipped with a motor that may be used exclusively to propel the bicycle, and that ceases to provide assistance when the bicycle reaches the speed of 20 mph.
- Class 3 e-bikes are equipped with a motor that provides assistance only when the rider is pedaling, and that ceases to provide assistance when the bicycle reaches the speed of 28 mph.

This analysis considers Class 1 e-bikes on traditionally human powered single-track trails as well as allowing Class 2 and 3 e-bikes on the remainder of routes in the unit. Use of e-bikes would be prohibited on routes limited to non-mechanized use. Restrictions to cross-country travel continue to apply to e-bike use.

2.1.7 Cultural Resources

The BLM has consulted with the State Historic Preservation Office (SHPO) on a phased cultural resources inventory strategy to fulfill the process required by Section 106 of the National Historic Preservation Act (NHPA). The nature and extent of this consultation is defined in the 2014 State Protocol Agreement between the New Mexico BLM and the New Mexico State Historic Preservation Officer (SHPO), which was developed in close consultation with the SHPO and other consulting parties.

A cultural sensitivity model was developed during the 2017 Route Evaluation process and may be useful in identifying additional survey work in consultation with the SHPO. Fourteen miles of existing routes have been inventoried for cultural resources to date. Prior to implementation of new routes or the designation of existing routes as open or limited, the areas of potential effect (APEs) will be subject to Section 106 of the National Historic Preservation Act of 1966 (NHPA; 54 U.S.C. §306108) and its implementing regulations (36 CFR 800). The alignments of proposed new routes are subject to change, depending on the outcome of additional surveys and consultation for impacts to sensitive resources. Construction and implementation of new routes would be completed as a part of another decision-making process.

2.1.8 Seasonal and Spatial Wildlife Restrictions

Seasonal and spatial restrictions to protect wildlife species, special status species, and important habitats would occur under each of the action alternatives. These restrictions would apply to construction, maintenance, and surface disturbing activities in Horsethief Mesa. Table 2.1-1 presents these restrictions and the locations where they would apply. Important big game habitats are present throughout the Horsethief Mesa area. However, specific restrictions to protect these habitats within Horsethief Mesa have not been established.

Table 2.1-1 Seasonal and Spatial Restrictions Under the Action Alternatives[1]

Species	Habitat	Seasonal/Spatial Restriction	Location
Migratory birds	All communities	Restriction or limitation is dependent on outcome of future field surveys.	Throughout Horsethief Mesa

Species	Habitat	Seasonal/Spatial Restriction	Location
Ripley's milkvetch	Sagebrush, pinyon-juniper woodland, and Gambel oak thickets in ponderosa pine forests; 7,000-8,250 feet in elevation	No new routes within an appropriate buffer of actively growing plants, as determined by the TAFO.	Areas with actively growing plants
Spellenberg's springparsley	Basalt boulders that cover much of the Taos Plateau and form caprock along canyons rims, soils derived from metamorphic rock or in sandy draws, and open piñon-juniper woodland or Douglas fir-ponderosa pine forest at elevations of 6,200-8,800 ft.	No new routes within an appropriate buffer of actively growing plants, as determined by the TAFO.	Areas with actively growing plants
Clipped wild buckwheat	Sandy or gypseous limestone ridges and edges of mesas, such as the Rio Grande Gorge, in piñon-juniper woodlands at elevations of 6,820-7,540 ft.	No new routes within an appropriate buffer of actively growing plants, as determined by the TAFO.	Areas with actively growing plants
Gunnison's prairie dog	Grassland	No new routes within potential prairie dog habitat	Throughout Horsethief Mesa

[1] Scientific names are provided in Chapter 3.

2.1.9 Future Improvements

All action alternatives emphasize multiple-use management by protecting sensitive resources while continuing to provide recreation and travel opportunities, including continued access for valid existing ROWs. The TMP provides specifications for associated maps and signage, including portal/entry signage. The TMP considers routes that provide access to public lands and areas that provide recreational opportunities (e.g., hunting, fishing, camping) and allow for future funded improvements (e.g., staging areas, non-motorized trails). Access and parking design will consider uses to avoid conflicts and provide adequate parking.

Alternative E (discussed in more detail in Section 2.6) proposes 15.8 miles of new routes that were submitted by public recreation groups and presented by Enchanted Circles Trails Association (ECTA) during the public meeting and comment period prior to preparation of this EA, and an additional 0.3 miles of routes that would be associated with trailhead option 2. These routes are considered in this EA and are included in the analyses. Future design and construction of these routes may require additional analysis. Formal access from NM Hwy 522 would be needed to address safety issues and parking on the highway shoulder. A defined trailhead could be located west of NM Hwy 522, but set back off of the highway ROW, on BLM land adjacent to the County transfer station. A concrete vault toilet may be included if necessary. These actions may require additional analysis in a subsequent BLM planning process. Easements may also be pursued with private property owners, as well as in cooperation with the USFS for access to Horsethief Mesa.

2.1.9.1 Design Features

The following basic trail construction guidelines should be used to avoid soil loss, erosion, and damage to the trail tread surface:

- Overall trail grade should be less than half the side slope to keep water from running down the trail. Average grade or running slope should be 10 percent or less.
- Avoid maximum grades over 15-20 percent for more than 10 feet in length.
- Incorporate grade reversals on climbs to keep water off the trail.
- Use a 3-5 percent cross slope on tread surface.

Best Management Practices for management of fuelwood resources include the following:

Prescriptions for Tree Retention and Removal for Horsethief Mesa Trail Construction
PRESCRIPTION for Tree Retention, at Horsethief Mesa:

- Trails should avoid construction within 24" of tree limbs, in order to allow tree growing room, over time and to plan for good visibility & safety for trail users.
- Trails should retain trees altogether, unless visibly declining in health, but especially those trees over 16" dbh/drc.
- There should be no need for limbing of trees in initial trail construction. If trees are present on a trail and cannot be avoided where a trail needs to be constructed, the trees should be removed entirely (Limbing allows for ease of pest infestation).
- Larger diameter trees (Piñon/Juniper) will be given leave preference over smaller diameter trees of the same species.
- No standing dead trees over 16" will be cut, in order to boost snag recruitment.
- No deciduous (non-coniferous), non-invasive trees will be removed.

PRESCRIPTION for Tree Removal, where needed, at Horsethief Mesa:

- All stumps will be cut flush, within three inches of the ground. The only exception to this is if cutting the stump that close to the ground will damage the chainsaw; then cut stump as low and flat as possible.
- All thinned trees will be limbed and the heavy fuels (greater than 3 inches in diameter) will be bucked up to a maximum of six foot sections, may be removed from the recreational area and will be made available for public fuelwood permit & harvest.

INSPECTION AND MEASUREMENT

- Inspections will be conducted by BLM Taos Forester to ensure stump height requirement is met and that heavy fuels have been removed from the site.

2.2 Alternative Comparison

Tables 2.2-1 and 2.2-2 provide an overview and comparison of route designations across alternatives. Alternatives are presented separately in the following sections.

Table 2.2-1 Open and Limited Route Designations by Alternative (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
OHV Open	29.0	0.0	7.0	11.1	7.0
Limited Non-Motorized and E-Bike Class 1	0.0	11.6	12.5	12.5	11.6
Limited Hiking	0.0	0.0	0.2	0.2	0.2
Limited to Administrative and Authorized Users	0.0	1.7	1.1	1.8	1.1
Proposed New (OHV Open)	0.0	0.0	0.0	0.0	0.3
Proposed New (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	13.8
Proposed New Reroute (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	2.0
Total	**29.0**	**13.3**	**20.7**	**25.6**	**35.9**

Table 2.2-2 Closed Routes by Alternative (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Closed/Decommissioned	0.0	15.7	8.3	3.4	8.0
Closed/Decommissioned (To Be Rerouted)	0.0	0.0	0.0	0.0	1.5
Total	**0.0**	**15.7**	**8.3**	**3.4**	**9.6**

2.3 Alternative A – No Action

The No Action Alternative represents the existing route inventory. Alternative A would maintain existing conditions and management of the inventoried network and continue the current balance of use and resource development. It serves as the baseline of the existing, unmanaged environment where impacts from motorized and non-motorized travel are unchecked and often unacceptable. Some routes are duplicate, not well-suited to the topography, and have caused major erosion.

Alternative A generally maintains existing access and use patterns and offers minimal restrictions on use type. This is the least restrictive alternative. No new routes, improvements, or closures would occur under this alternative. All of the approximately 29.0 miles evaluated as a part of this alternative would remain open to all modes of travel. No trailheads would be developed to address a lack of formal access, safety and highway traffic issues, or inadequate parking availability. During the route evaluation process, six routes totaling approximately 1.7 miles were identified as existing on the ground without having been captured in the initial route inventory. These routes have been incorporated into Alternative A and would be managed consistent with others evaluated under this alternative. **Error! Reference source not found.** presents an overview of Alternative A. Existing route mileages for Alternative A are shown in **Error! Reference source not found.**1.

2.4 Alternative B (Resource Protection)

Alternative B would provide the greatest extent of resource protection, allowing only non-motorized route use. This alternative would protect sensitive vegetation and wildlife habitats, minimize fragmentation, and would maximize protection of known cultural sites. There would be no public OHV use allowed on any routes under this alternative. No new routes are proposed under Alternative B, however a trailhead parking area would be developed (option 1 or option 2) to provide public access to Horsethief Mesa. Figure 2.4-1 presents an overview of Alternative B. Tables 2.4-1 and 2.4-2 present the mileage of each type of route designation under Alternative B.

Alternative B would decrease route density by closing 15.7 miles of routes. Additionally, 1.7 miles of routes would be limited to administrative and authorized users. Public non-motorized access to Horsethief Mesa would be allowed on 11.6 miles of routes, which is comprised of a single-track loop trail the Taos RMP identified would be maintained for recreation. No new routes or reroutes would be considered under this alternative.

Class 1 e-bikes would be allowed on 11.6 miles of specifically designated routes. Due to potential for impacts such as change in tread surface and soil displacement, erosion, or increased exposure to wildlife that may be associated with motorized and similar modes of travel, Class 2 and 3 e-bikes would be allowed only on routes open to motorized use (IMBA 2016; Marion 2006; Nielsen et al. 2019).

Table 2.4-1 Open and Limited Route Designations under Alternative B

Designation	Miles	Percent of Total
OHV Open	0.0	0
Limited Non-Motorized and E-Bike Class 1	11.6	87
Limited Hiking	0.0	0
Limited to Administrative and Authorized Users	1.7	12
Total	**13.3**	**100**

Table 2.4-2 Closed Routes by Alternative (Miles)

Designation	Miles	Percent of Total
Closed/Decommissioned	15.7	100
Closed/Decommissioned (To Be Rerouted)	0.0	0
Total	**15.7**	**100**

2.5 Alternative C – Balanced

Alternative C proposes a route system that maintains recreation and access balanced with resource protection, restoration, and enhancement. Alternative C would reduce route redundancy and habitat fragmentation, as well as offer additional protection of sensitive resources. Opportunities for public recreation would be improved by providing a more efficient route network and additional user information. Figure 2.5-1 presents an overview of Alternative C. Tables 2.5-1 and 2.5-2 present the mileage of each type of route designation under Alternative C.

Alternative C would decrease route density through the closure of 8.3 miles of routes. Alternative C would designate 7.0 miles of routes as open to all modes of travel and would limit 1.1 miles to administrative and authorized users. Non-mechanized uses, such as hiking and horseback riding would be allowed anywhere on the Horsethief Mesa route network, except for 0.1 miles of routes limited to hiking only to provide access to climbing in the southern extent of the Horsethief Mesa area. Non-motorized uses, such as mountain biking, would be allowed on all routes designated as open, as well as all routes that allow e-bike use. There are no proposed new routes under Alternative C, however a trailhead parking area would be developed (option 1 or option 2) to provide public access to Horsethief Mesa.

Class 1 e-bikes would be allowed on 12.5 miles of specifically designated routes. Due to potential for impacts such as change in tread surface and soil displacement, erosion, or increased exposure to wildlife that may be associated with motorized and similar modes of travel, Class 2 and 3 e-bikes would be allowed only on routes open to motorized use (IMBA 2016; Marion 2006; Nielsen et al. 2019).

Table 2.5-1 Open and Limited Route Designations under Alternative C

Designation	Miles	Percent of Total
OHV Open	7.0	34
Limited Non-Motorized and E-Bike Class 1	12.5	60
Limited Hiking	0.2	1
Limited to Administrative and Authorized Users	1.1	5
Total	**20.7**	**100**

Table 2.5-2 Closed Routes under Alternative C

Designation	Miles	Percent of Total
Closed/Decommissioned	8.3	100
Closed/Decommissioned (To Be Rerouted)	0.0	0
Total	**8.3**	**100**

2.6 Alternative D – Access

Alternative D proposes a route network that emphasizes access and use of resources and services. This alternative maximizes motorized opportunities and public access to the existing transportation system and provides minimal restrictions on type of route use. Figure 2.6-1 presents an overview of Alternative E. Tables 2.6-1 and 2.6-2 present the mileage of each type of route designation under Alternative D.

Alternative D would allow access for all modes of transportation on 11.1 miles of routes. Approximately 1.8 miles of routes would be limited to administrative and authorized users, and 3.4 miles of routes would be closed. Non-mechanized uses, such as hiking and horseback riding, would be allowed anywhere on the Horsethief Mesa route network. Non-motorized uses, such as mountain biking, would be allowed on all routes designated as open, as well as all routes that

allow e-bike use. No new routes are proposed under Alternative D however a trailhead parking area would be developed (option 1 or option 2) to provide public access to Horsethief Mesa.

Under Alternative D, Class 1 e-bikes would be allowed on 12.5 miles of specifically designated routes. Due to potential for impacts such as change in tread surface and soil displacement, erosion, or increased exposure to wildlife that may be associated with motorized and similar modes of travel, Class 2 and 3 e-bikes would be allowed only on routes open to motorized use (IMBA 2016; Marion 2006; Nielsen et al. 2019).

Table 2.6-1 Open and Limited Route Designations under Alternative D

Designation	Miles	Percent of Total
OHV Open	11.1	44
Limited Non-Motorized and E-Bike Class 1	12.5	49
Limited Hiking	0.2	1
Limited to Administrative and Authorized Users	1.8	7
Total	**25.6**	**100**

Table 2.6-2 Closed Routes under Alternative D

Designation	Miles	Percent of Total
Closed/Decommissioned	3.4	100
Closed/Decommissioned (To Be Rerouted)	0.0	0
Total	**3.4**	**100**

2.7 Alternative E – Expanded Route Network

In October 2019, the Taos Mountain Bike Association and ECTA proposed an Inventory and Conceptual Trails Plan (2019) that merged the existing Horsethief Mesa route network with new proposed recreational routes. In cooperation with other local user groups, this proposal made recommendations for route designations based on the collaborative BLM and International Mountain Bicycling Association (IMBA) document, Guidelines for a Quality Trail Experience (IMBA 2016). Figure 2.7-1 presents an overview of Alternative E. Tables 2.7-1 and 2.7-2 present the route designation mileages under Alternative E.

The BLM is evaluating the routes proposed in the Inventory and Conceptual Trails Plan (2019) as Alternative E. Alternative E would expand the existing route network based on citizen trail proposals. This alternative would incorporate the route designation decisions from Alternative C and would designate proposed routes using the same management framework. Some of the routes identified in the Inventory and Conceptual Trails Plan (2019) were not carried forward for analysis under Alternative E, as discussed in Section 2.8 of this EA.

Alternative E would propose 13.8 miles of new routes limited to non-motorized uses and e-bike Class 1. An additional 2.0 miles of reroutes that are not included in Alternative C would address current impacts to sensitive resources, including big game winter range, raptors, and cultural resources. These reroutes would improve route network sustainability and traffic flow. The original routes would be closed and decommissioned. Out of the 9.6 total miles of routes that

would be closed in this alternative, approximately 1.5 miles would be closed as part of rerouting. Under this alternative, a trailhead parking area would also be developed (option 1 or option 2) to provide public access to Horsethief Mesa. Approximately 0.2 miles of proposed new routes would be constructed to access trailhead option 2 and would be open to OHV use.

Under Alternative E, Class 1 e-bikes would be allowed on specifically designated routes. Due to potential for impacts such as change in tread surface and soil displacement, erosion, or increased exposure to wildlife that may be associated with motorized and similar modes of travel, Class 2 and 3 e-bikes would be allowed only on routes open to motorized use (IMBA 2016; Marion 2006; Nielsen et al. 2019).

Table 2.7-1 Open and Limited Route Designations under Alternative E

Designation	Miles	Percent of Total
OHV Open	7.0	19
Limited Non-Motorized and E-Bike Class 1	11.6	32
Limited Hiking	0.2	<1
Limited to Administrative and Authorized Users	1.1	3
Proposed New (OHV Open)	0.3	1
Proposed New (Limited Non-Motorized and E-Bike Class 1)	13.8	38
Proposed New Reroute (Limited Non-Motorized and E-Bike Class 1)	2.0	6
Total	**35.9**	**100**

Table 2.7-2 Closed Routes under Alternative E

Designation	Miles	Percent of Total
Closed/Decommissioned	8.0	84
Closed/Decommissioned (To Be Rerouted)	1.5	16
Total	**9.6**	**100**

2.8 Alternatives Considered but Dismissed

Numerous route designation strategies were considered as possible alternatives for the establishment of a route network within Horsethief Mesa. The four action alternatives were developed through this process, but other alternative variations on route designations were also considered and eliminated. Through the route evaluation process, the BLM dismissed approximately 6.3 miles of proposed new routes from further consideration due to their proximity to the rim of the gorge, redundancy with other routes, or because of their potential impact on resources and route density within Horsethief Mesa. Existing route density within Horsethief Mesa is approximately 9.1 miles of route per square mile (mi/mi^2). Under Alternative E the route density would increase to approximately 11.2 mi/mi^2. The 6.3 miles of proposed routes not carried forward for consideration in this EA would have accounted for an additional 2.0 mi/mi^2 within Horsethief Mesa. Some of these proposed routes would have been adjacent to important raptor and bighorn sheep habitat along the rim and escarpment of the gorge, and were

dismissed in order to minimize impact to wildlife. The 6.3 miles of additional proposed routes are shown in Figure 2.8-1, however are not carried forward for analysis in this EA.

2.8.1 R.S. 2477

A TMP is not intended to provide evidence, bearing on, or address the validity of any Revised Statute (R.S.) 2477 assertions. R.S. 2477 rights are determined through a process that is entirely independent of the BLM's travel management planning process. Consequently, this TMP did not take into consideration R.S. 2477 evidence. The BLM bases travel management planning on purpose and need related to resource uses and associated access to public lands and waters given consideration to the relevant resources. At such time as a decision is made on R.S. 2477 assertions, the BLM will adjust its travel routes accordingly.

The BLM will continue to consider granting ROWs for or including vehicular use. These ROWs would be processed and evaluated under NEPA and be subject to any requirements stemming from said evaluation. Upon granting of ROWs including roads or vehicular ways, these would automatically be incorporated into this TMP on a case-by-case basis.

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This chapter includes a description of the affected environment of Horsethief Mesa and provides analysis of impacts (environmental consequences) that would result from implementation of the No Action and Action Alternatives (Chapter 2). An environmental impact or consequence is a modification or change to the existing environment resulting from an action. Impacts can be direct, indirect, short-term, long-term, or permanent. Definitions of these impact classifications are included in the glossary under "Impacts (Common Terms)." Affected environment issues are stated as questions for each resource and resource use. Unless otherwise specified, the analysis area is defined as area within the Horsethief Mesa boundaries (Figure 2.3-1).

In many cases, impacts are analyzed qualitatively; quantitative impacts are evaluated when possible. The evaluation focuses on direct and indirect effects (impacts) on specific resources and resource uses where they occur, and cumulative impacts when applicable. Data for the existing route network was collected by seasonal employees for the TAFO. Additional Geographic Information System (GIS) databases were used for mapping, describing relevant resources, and calculating mileages and acreages.

Cumulative Impacts

Cumulative effects are direct and indirect incremental effects from implementation of the proposed changes and projects under each of the alternatives, when added to other past, present, and reasonably foreseeable future actions (RFFAs; 40 CFR Part 1508.7). Past activities are effects that are still present on the landscape. Future activities are those RFFAs that may add to cumulative and social effects on the environment.

Cumulative impacts usually occur when a relationship exists between a proposed action (the action alternatives in this EA) and other actions that have, or are expected to occur in a similar

location, time period, or involve similar actions. The geographic boundary of the cumulative impact analysis area (CIAA) encompasses the TAFO. The TAFO boundary was used to identify past, present, and RFFAs that may have a cumulative impact when considered with the TMP. RFFAs for the Horsethief Mesa area include:

- Ongoing permitted dead and down fuelwood gathering.
- Hazardous fuelwood reduction in the next 10 to 15 years.
- Integrated weed management.
- Development and incorporation of the Rio Grande Trail connectors to the John Dunn Bridge at the southern portion of Horsethief Mesa and at the Carson National Forest boundary at the northern portion of Horsethief Mesa as described in the 2018 Rio Grande Trail programmatic EA.
- Future permitted recreational events.

3.1 Resource Issue 1 - Cultural Resources

Issue: How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact cultural resources and their management? How would reasonable and potentially increased public access and recreation impact cultural resources?

3.1.1 Affected Environment

Cultural resources are defined as specific locations over 50 years in age of human activity, occupation, or traditional use identifiable through field inventory, historical documentation, or oral evidence. Cultural resources include archaeological, historic, and architectural sites and structures, artifacts, as well as places with traditional cultural or religious importance within a social or cultural group. Relevant laws, ordinances, policies, regulations and agreements other than NEPA include the Antiquities Act of 1906 (16 USC §§ 431–433); National Historic Preservation Act (NHPA) of 1966, as amended (54 U.S.C. §§ 300101-307108); Archaeological Resources Protection Act of 1979 (16 USC §§ 470aa–470mm); and the Native American Graves Protection and Repatriation Act of 1990 (25 USC §§ 3001–3013

Relevant direction for considering the effects of the proposed travel network on cultural resources is provided by Sections 106 and 110 of NHPA, Executive Order 13287, and the Protocol Agreement between BLM New Mexico and the State Historic Preservation Office (BLM 2012). BLM Manuals 8100–8170 and the Taos RMP (BLM 2012) provide further guidance and policy direction on the identification, evaluation, management, and protection of cultural resources, as well as tribal consultation. Any new roads or other ground disturbing activities proposed within Horsethief Mesa are subject to cultural resources inventory and evaluation under Section 106 of the NHPA.

The NHPA, along with other legislation, requires Federal agencies to consider the effects of an undertaking on historic properties and established the National Register of Historic Places

(NRHP). The implementing regulations (36 CFR 800) of the NHPA define historic properties as "…any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places." Historic properties also include properties of traditional religious or cultural importance to Native Americans.

The Horsethief Mesa area has been subject to seven previous inventories, including a recent inventory of roads within Horsethief Mesa by BLM contractors (Lewandowski et al. 2020). Collectively, these inventories have covered less than ten percent of the Horsethief Mesa area acreage. These investigations have recorded 26 archaeological sites (10 historic, 11 prehistoric, 5 multicomponent – prehistoric/historic) and 52 isolated finds. These inventories indicate a very high site and isolate density in the Horsethief Mesa area, suggesting heavy seasonal occupation during the prehistoric and historic periods. Recorded site types include prehistoric artifact scatters, artifact scatters with features, and petroglyphs. Historic sites include artifact scatters, artifact scatters with features, telephone and transmission lines, and roads. The ages of most of the prehistoric sites are unknown. Prehistoric sites with datable artifacts and features were likely in use during the Archaic and Developmental through the Classic Periods and into the Late Prehistoric Period. The historic sites appear to be confined to the Territorial and American periods.

Of the 26 recorded sites in the Horsethief Mesa area, 8 have been determined eligible for listing in the NRHP and 16 have been determined not eligible. Two petroglyph sites are considered unevaluated for listing in the NRHP due to the antiquity of their recording but are considered potentially eligible.

3.1.2 Environmental Impacts

The 2014 State Protocol Agreement between the BLM and the New Mexico SHPO for implementing the NHPA outlines the Section 106 compliance process for Federal undertakings such as the development of Travel Management Plans.

Public access to cultural resources can present a range of potential impacts, including direct disturbance, such as artifacts and/or features being driven over contributing to erosion and the destruction of sites in road cuts, parking areas, and vehicle pull-off/turnaround areas; artifact collection and looting by visitors; inadvertent damage to sites resulting from off-road driving; and visual, audible, and atmospheric effects that may diminish the integrity of setting or feeling. Higher levels of vehicular traffic tend to pose greater risks to cultural resources. Potential impacts to known cultural sites were considered for each route during the route evaluation when BLM developed recommendations for designating routes as open, limited, or closed to OHV use. Individual route reports included in the Administrative Record for this EA indicate whether the presence of cultural resources directly contributed to a certain designation.

To assess impacts to cultural resources, Tables 3.1-1 and 3.1-2 present the miles of designated routes for the alternatives that intersect or lie within 100 feet of previously recorded cultural resources. The route evaluation prioritized routes that intersect or lead to sensitive cultural sites

within a 300-foot buffer. The 100-foot buffer used for the environmental analysis provides a basis for comparison of alternatives.

Routes limited or closed by the action alternatives would be signed, and closed routes may be barricaded and passively restored. This would give BLM the ability to better manage and enforce route closures. Although route limitations and closures lower the potential for damage to cultural sites, the risks to cultural resources caused by vehicular traffic and illegal collecting would remain under all alternatives to differing degrees.

Prior to implementation of new routes or the designation of existing routes as open or limited, the area of potential effect would be subject to Section 106 of the NHPA of 1966 (NHPA; 54 U.S.C. §306108) and its implementing regulations (36 CFR 800). NRHP-eligible sites (historic properties) discovered along routes during future surveys after designation of an official route network, may warrant additional closures or other measures to avoid adverse effects to historic properties.

Development of either trailhead option 1 or option 2 would impact cultural resources within Horsethief Mesa similarly across all action alternatives. Trailhead option 1 would be located within an existing clearing on the landscape and trailhead option 2 would be located within a previously disturbed area. Best management practices that concentrate users within the footprint of the trailheads, such as fencing or vehicle barriers, would decrease potential for off-site travel and may help to protect cultural resources, both known and undiscovered. Potential impacts from construction of the trailhead options would be temporary and limited to the trailhead area. Best management practices would be employed during construction to reduce construction-related impacts. Development of trailhead options would be subject to additional cultural surveys, consultation with the SHPO, and construction could require site-specific analysis under NEPA.

No known cultural sites are within 100 feet of trailhead option 1. However, two sites that have been recommended eligible for protection under the NRHP are within approximately 100 meters of the proposed trailhead location (Lewandowski et al. 2020). These are field recommendations and the SHPO has not yet made a determination on site eligibility. This trailhead option would require additional widening and maintenance of access routes to support public use. Trailhead option 2 would be within 100 feet of one known cultural site, though the site has been determined ineligible for protection under the NRHP. This trailhead option would necessitate the construction of a new route to support public use. Additional surveys would be completed prior to construction of either trailhead option, which would contribute to a decision by BLM as to which option would be implemented.

3.1.2.1 Impacts of Alternative A (No Action)

A total of 0.9 mile of open routes currently exists under Alternative A that cross within the 100-foot buffer for cultural resources, the most of all alternatives. Under Alternative A, all routes would remain as they currently exist without regard to possible conflicts with cultural resources. This alternative would have no benefit to cultural resources because no routes would be closed or

limited to protect cultural resources, and user-proliferated routes would remain accessible. Monitoring and enforcement of routes is limited under current management. Cultural sites would continue to be impacted at current or increasing levels by the ongoing use of existing routes (i.e., through erosion of motorized routes) located on or in proximity to known cultural sites, as well as those yet to be identified.

3.1.2.2 Impacts of Alternative B (Resource Protection)

Under Alternative B, 0.5 mile of limited designated routes would cross within the 100-foot buffer for cultural sites, none of which would allow motorized use (Tables 3.1-1 and 3.1-2). Increased monitoring and enforcement of the route network would contribute protection of the cultural sites located along these miles of open routes. Mitigation measures would be incorporated as needed to ensure the protection of the cultural sites along these open routes. Access to known and undiscovered cultural sites would be minimal under this alternative, largely due to the amount of route closures and types of use that would be permitted in Horsethief Mesa.

3.1.2.3 Impacts of Alternative C (Balanced)

Alternative C would balance resource use and resource protection. Under Alternative C, 0.8 mile of open or limited routes would cross within the 100-foot buffer for cultural sites (Tables 3.1-1 and 3.1-2). Increased monitoring and enforcement of the route network would contribute to protection of the cultural sites located along these miles of open routes. Mitigation measures would be incorporated as needed to ensure the protection of the cultural sites along open routes.

3.1.2.4 Impacts of Alternative D (Access)

Under Alternative D, 0.9 mile of open and limited designated routes would cross within the 100-foot buffer for cultural sites (Tables 3.1-1 and 3.1-2). Increased monitoring and enforcement of the route network would contribute to protection of the cultural sites located along these miles of open routes. Mitigation measures would be incorporated as needed to ensure the protection of the cultural sites along these open routes. Compared to other action alternatives, this alternative would provide the most motorized access to areas where undiscovered cultural sites may exist.

3.1.2.5 Impacts of Alternative E (Expanded Route Network)

A total of 0.2 mile of new routes are proposed that would cross within the 100-foot buffer for cultural resources. Construction of new routes would be subject to the compliance measures described above on a case-by-case basis. Re-routes to avoid cultural sites would be considered on some of the routes that cross in closer proximity to cultural sites. With the proposed 16.1 miles of new routes, which includes the 0.3 miles of routes associated with trailhead option 2, this alternative would increase access to areas where undiscovered cultural resources may exist. Additional site-specific survey and analysis would be required before construction of new routes could occur. Increased monitoring and enforcement of the route network would contribute to protection of the cultural sites located along existing and proposed routes.

Table 3.1-1 Routes within 100 Feet of a Known Cultural Site by Alternative (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
OHV Open	0.9	0.0	0.2	0.2	0.2
Limited Non-Motorized and E-Bike Class 1	0.0	0.5	0.6	0.6	0.6
Limited Hiking	0.0	0.0	0.0	0.0	0.0
Limited to Administrative and Authorized Users	0.0	0.0	0.0	0.1	0.0
Proposed New (OHV Open)	0.0	0.0	0.0	0.0	0.0
Proposed New (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	0.2
Proposed New Reroute (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	0.0
Total[1]	**0.9**	**0.5**	**0.8**	**0.9**	**1.0**

Source: Lewandowski et al. 2020

Table 3.1-2 Closed Routes within 100 Feet of a Known Cultural Site by Alternative (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Closed/Decommissioned	0.0	0.4	0.1	<0.1	0.1
Closed/Decommissioned (To Be Rerouted)	0.0	0.0	0.0	0.0	0.0
Total[1]	**0.0**	**0.4**	**0.0**	**<0.1**	**0.1**

Source: Lewandowski et al. 2020

3.1.2.6 Cumulative Impacts

Past, present, and RFFAs would be monitored to assess impacts to cultural resources. The primary impacts to cultural resources have traditionally been due to route proliferation. Implementing the TMP is intended to reduce route proliferation and close routes that are redundant or that are dead-end and serve no purpose. All RFFAs would require inventories of cultural resources and any anticipated impacts would be reviewed at that time. Implementation of the TMP may contribute very little to cumulative impacts and may have beneficial effects to cultural resources. The addition of the future seasonal parking areas outside of Horsethief Mesa, identified in Section 2.1.1 of this EA, would increase public access to the area and to routes near cultural resources.

3.2 Resource Issue 2 – Recreation

Issue: How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact various recreation opportunities, experiences, and public land access?

3.2.1 Affected Environment

Horsethief Mesa, situated south of the Carson National Forest and north of private lands, is routinely used by visitors from the surrounding communities as well as the neighboring

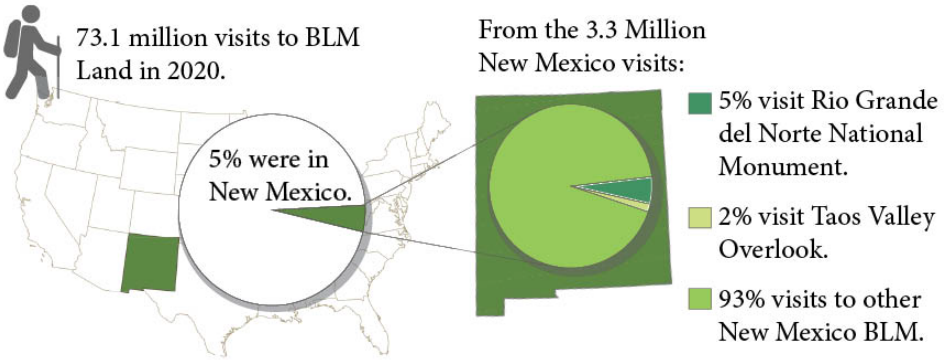
landowners. It is also bounded by NM Highway 522 to the east and the Rio Grande Gorge to the west. Although the area is currently undeveloped with no facilities, recreation is a key component of multiple use management within Horsethief Mesa. Federal lands in Horsethief Mesa provide a broad spectrum of outdoor opportunities that give visitors a range of recreational choices.

Motorized routes are used to access the area for camping, hunting, wood gathering, target shooting, hiking, dog walking, running, mountain biking, e-biking, and horseback riding, as well as to access larger contiguous areas of the Carson National Forest adjacent to and north of the planning unit. The Horsethief Trail is a 12-mile loop that is open year-round and provides opportunity for non-motorized activities such as mountain biking, hiking and horseback riding. This trail delivers intermediate mountain biking opportunities to the public.

Local organizations, such as the Taos Mountain Bike Association and ECTA, have expressed interest in developing additional trail opportunities that yield targeted experience outcomes such as challenge and risk. Many seek out trails that are located using natural features such as topographic contour and slope, rocks, ridges, drop offs and anchor points to create obstacles, interest and variety in difficulty level. A corresponding objective of proper design and location is to avoid soil loss and damage to trail tread; see Design Features for trails in Section 2.1.9 of this EA. Another quality of trail planning and design that enhances the recreation experience is the incorporation of stacked loops which provide users a variety of experiences as well as choices in the length of a trip.

BLM-administered land across the U.S. saw approximately 73.1 million visits in 2020, of which New Mexico had more than 3.3 million visits. Total estimated visits within the Rio Grande del Norte National Monument in 2020 was 179,939. Visitation in the same year for Taos Valley Overlook located within the Monument was 50,000 (Figure 3.2-1).

Figure 3.2-1 Visits to BLM-Administered Land in 2020



Although the BLM marketing of the Horsethief Mesa area has been minimal due to the low number of facilities, many user groups locally use the area and know of it through word of mouth. Local businesses provide information about the Horsethief Trail and various online trail

applications as well as people using social media platforms post photos, maps and information about the single-track trail.

Horsethief Mesa currently receives routine daily use in spring, summer and fall. There are no traffic counters installed to date. However, by observation of staff and local users it is known that Horsethief Mesa has become popular and may be sought out by visitors once they have decided to travel to Taos. Visitors from Colorado, Utah, Arizona, California, Canada, Texas, Oklahoma and other parts of New Mexico have been observed in the area.

In the next ten years, population across the U.S. is projected to increase by almost 7 percent (USCB 2020a). While the population of New Mexico as a whole increased from 2010 to 2018, both the City of Taos and Taos County are estimated to have decreased in population during that same period (USCB 2020b, UNM 2020b).

The Outdoor Industry Association tracks and produces reports that discuss outdoor recreation statistics across the country. The 2019 Outdoor Participation Report demonstrates a trend towards increased participation in recreation and number of annual outdoor outings per individual across the U.S., especially in youth and young adult demographics (OIA 2019). Trail-related activities such as road, mountain, and BMX biking; running, trail running, and hiking are among the most popular for recreation participants (OIA 2019). In New Mexico specifically, it is estimated that 65 percent of residents participate in outdoor recreation annually, and that they are "more likely to participate in camping and off-roading than the average American" (OIA 2017).

3.2.1.1 E-bikes

Riding e-bikes is gaining in popularity among a variety of types of users, including adaptive bicycle users, seniors, and youth. E-bikes demonstrate an advancement in technology that has the potential to increase access to recreation opportunities and areas for a variety of users. They may provide a new experience for some users who would otherwise not have the opportunity to participate. While e-bikes can be found in urban settings, development of e-mountain bikes has enabled some people to access more routes with dirt, rock, or gravel surfaces.

Although e-bikes have been observed on the TAFO trails, their use appears to be minimal in the area. Likewise, very limited comments were received about e-bikes in public scoping. However, a desire was expressed for access on single-track trails. In addition, no social conflicts have been expressed or observed between users of e-bikes and other activities in the area.

Three classes of e-bikes are currently recognized:

- Class 1: E-bikes that are equipped with a motor that only provides assistance when the rider is pedaling and ceases to provide assistance when the speed of the bicycle reaches 20 miles per hour (mph).
- Class 2: E-bikes that have a motor that in addition to pedal assistance, can propel the bicycle without pedaling. This propulsion and pedal assistance ceases to provide assistance when the speed of the bicycle reaches 20 mph.

- Class 3: E-bikes that have a motor that only provides assistance when the rider is pedaling and ceases to provide assistance when the speed of the bicycle reaches 28 mph.

3.2.2 Environmental Consequences

The public lands administered by the BLM provide opportunities for many of the recreation activities in Horsethief Mesa. Upon implementation of the TMP, all current recreation activities would still be allowed throughout Horsethief Mesa, with the exception for Alternative B which would not provide for any routes open to OHV use. As population increases and outdoor recreation becomes more popular and accessible in a variety of modes, recreation use would likely increase. As outdoor recreation use increases on public lands, the resulting demand for developed recreation opportunities and experiences is expected to increase accordingly. However, the BLM aims to provide a diversity of natural resource based settings for the public to realize a variety of experiences and outcome benefits. Horsethief Mesa would still be a mostly undeveloped dispersed area located with distance away from urban and rural areas.

Recreation opportunities may increase for non-motorized users. Mountain bike users have proposed new single-track trails to be designed for specific experience outcomes that BLM may add to the existing route network. These routes designated as limited to non-motorized and e-bike class 1 use would have a beneficial impact for those seeking a quiet and physically challenging experience. All single-track users may benefit from additional trail miles, loop options, and trip length options.

Legal public access to Horsethief Mesa via option 1 or option 2 proposed new trailhead parking areas in the action alternatives may support a diversity of recreation and public uses in the area and resolve the lack of access and parking on the highway shoulder and private property. With improved access and trails, Horsethief Mesa could become a more popular destination, such as the Taos Valley Overlook, which is a non-motorized BLM managed trail system located a few miles south of Taos. However, use levels may potentially be spread between the two trail systems. It is likely that local users could take frequent, shorter trips to the area whereas visitors from outside the area would potentially spend more time and put in more miles of recreation activity.

Tables 2.2-1 and 2.2-2 present miles of route types by alternative. All public lands would continue to be available for non-motorized activities such as horseback riding, hiking, and on-foot activities.

3.2.2.1 Impacts of Alternative A (No Action)

Under Alternative A, all existing routes would remain without change in use or designation. Public access to the area would continue to be limited with unresolved parking issues along the highway and on private property. OHV use would not be limited. Though the 12-mile Horsethief Trial would continue to be maintained, without designation of existing routes throughout the area, management would be continued to be minimal with limited signs and no user maps, as well as a lack of enforcement capability. This would likely lead to increased route

proliferation. Therefore, this alternative would not improve the overall recreation setting or individual experience in Horsethief Mesa.

3.2.2.2 Impacts of Alternative B (Resource Protection)

Alternative B would close approximately 15.7 miles of routes, the most of any of the alternatives. Motorized recreation and public use via OHVs would essentially be excluded from the area because no routes would be designated as open to OHV use. Human-powered travel by Class I e-bike, by foot, on horseback, or by traditional mountain bike would be limited to 13.3 miles of routes within Horsethief Mesa.

3.2.2.3 Impacts of Alternative C (Balanced)

Alternative C would designate approximately 7.0 miles of routes as open to all modes of travel. With 12.5 miles designated as limited to non-motorized and e-bike class 1 uses, Alternative C would benefit recreation uses by providing more opportunity for multiple modes of travel in Horsethief Mesa.

Alternative C would provide a balanced system of routes for the long-term sustainable management of recreation and other resources. Open routes would be distributed throughout Horsethief Mesa to provide a complete network, including loops for motorized and mechanized recreation. The 8.3 miles of routes proposed as closed under Alternative C primarily consist of redundant routes, lack connectivity, or adversely impact soil erosion or special status species. No additional single-track trail opportunities would be provided, as requested by mountain biking groups. However, public access to Horsethief Mesa would improve with the identification and development of a trailhead parking area.

3.2.2.4 Impacts of Alternative D (Access)

Approximately 11.1 miles of routes would remain open to OHV use and 12.5 miles would be limited to non-motorized and e-bike class 1 uses under Alternative D. Routes designated as closed under this alternative do not add to the recreation experience and primarily consist of redundant routes, short dead-end routes, routes with impacts to cultural sites or sensitive soils, or create fragmentation. Open routes would be distributed throughout Horsethief Mesa to provide a complete network of access throughout the area. Public access and parking in Horsethief Mesa would improve with the identification and development of a trailhead area. No additional single-track trail opportunities would be provided as requested by mountain biking groups.

3.2.2.5 Impacts of Alternative E (Expanded Route Network)

Alternative E proposes adding 15.8 miles of new non-motorized and e-bike class 1 routes, which if added would result in a beneficial impact to hikers, equestrian users, and mountain bike users. Public access to Horsethief Mesa would improve with the identification and development of a trailhead parking area. Alternative E would have the greatest benefit to recreation of all alternatives, largely due to the increase in miles of single-track trail, designed for a variety of trail difficulty levels and providing additional loop options and trip lengths.

3.2.2.6 Cumulative Impacts

Past, present, and RFFAs may result in minor contrasts to the existing landscape characteristics. It is expected that implementation of the TMP would enhance recreation experiences by improving signage, providing new access and parking, and improving route designations to decrease user conflict. In 2018, the BLM approved a connection between Horsethief Mesa and the John Dunn Bridge via the Rio Grande Trail. This connection would increase public access and use within Horsethief Mesa and would improve opportunities for non-motorized activities such as hiking, mountain biking and horseback riding. The addition of the future seasonal parking areas outside of Horsethief Mesa, identified in Section 2.1.1 of this EA, would also increase public access and recreation opportunities within the area.

3.3 Resource Issue 3 – Soil Resources

Issue: How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact soil resources, including biological soil crusts?

3.3.1 Affected Environment

Horsethief Mesa is located within the Southwestern Plateaus, Mesas, and Foothills major land resource area 36 (MLRA) (NRCS 2006a). Soil moisture regime in this MLRA is limited, but present when conditions are suitable for plant growth, and the soil temperature regime is mesic or frigid. The dominant soil orders within this MLRA are:

- Alfisols – comprised of moist and nutrient rich soils;
- Inceptisols – comprised of soils with a wide range of characteristics and can be found in both semiarid and humid environments;
- Mollisols – comprised of base rich and fertile soils;
- Entisols – comprised of unconsolidated parent material with little soil horizon development; and,
- Aridisols – comprised of typically saline or alkaline soils with very little organic matter characteristic of arid regions.

3.3.1.1 Sensitive Soils

Important characteristics for evaluating the suitability of soils are their susceptibility to erosion, or the capacity of a site to limit redistribution and loss of soils (including nutrients and organic matter) by wind, and steep slopes. For this analysis, slopes over 15 percent are considered steep. Slopes can be calculated using digital elevation models (DEM) produced by the US Geological Survey (USGS). Within Horsethief Mesa, approximately 1,198 acres have slopes over 15 percent. Areas with sensitive soil are more susceptible to accelerated erosion and require specific management consideration.

Wind erosion is physical wearing of the earth's surface by wind. Wind erosion removes and redistributes soil. Small blowout areas may be associated with adjacent areas of deposition at the bases of plants or behind obstacles, such as rocks, shrubs, fence rows, and road banks. Wind erodible soils are rated as having a high, medium, or low potential for wind erodibility. The Natural Resources Conservation Service (NRCS) groups soils with similar properties together into wind erodibility groups (WEG) to indicate susceptibility to blowing. Figure 3.3-1 shows the distribution of areas within Horsethief Mesa with high, medium, and low potential for wind erosion. Most of Horsethief Mesa falls into the low potential for wind erosion class. Table 3.3-1 presents the number of acres within Horsethief Mesa in each of the wind erosion risk classes. Note that approximately 13 percent of the area has no available wind erosion data.

Table 3.3-1 Wind Erosion Potential on BLM-Administered Lands within Horsethief Mesa

Rating	Wind Erosion Potential (acres)[2]
High	0
Medium	0
Low	1,795
No data for some areas per NRCS	265
Total	**2,060**

Source: NRCS 2013

[2]Wind erodibility group ratings: 1-3 severe, 4-5 moderate, and 6-8 slight.

Route use may lead to soil compaction. Soil compaction occurs when soil particles are pressed together; the pore spaces between them are reduced; and bulk density is increased. This results in decreased infiltration rates and increased runoff and erosion. Moist, fine textured (clay) soils are most susceptible to compaction. However, occasionally roads or trails may require additional maintenance or implementation of additional erosion control measures. NRCS provides soil erosion hazard ratings for roads and trails that integrate water erosion potential, slope, and content of rock fragments. A majority of soils in Horsethief Mesa are considered severely susceptible to erosion on unsurfaced roads and trails (Table 3.3-2).

Table 3.3-2 Soil Erosion Hazard within Horsethief Mesa

Erosion Hazard	Acres
Moderate	474
Severe	1,321
Not Rated	265
Total	**2,060**

Source: NRCS 2013

3.3.1.2 Biological Soil Crusts

Biological soil crusts are an intimate association between soil particles and cyanobacteria, algae, microfungi, lichens, and bryophytes (in different proportions), which live within or on top of the uppermost millimeters of soil. These communities are known by a variety of names, including cryptobiotic, cryptogamic, and microbiotic soil crusts. They are found in all dryland regions of the world and in all vegetation types within these lands (Belnap et al. 2007). Biological soil

crusts in arid and semiarid regions are effective in stabilizing soil and reducing soil erosion by water from raindrop impact and surface runoff (Warren 2001). NRCS soil surveys categorize soils into soil map units, however mapping occurs at a scale too broad to identify biological soil crusts. Biological soil crusts within the TAFO have not been mapped, though are not known to occur within Horsethief Mesa. Table 3.3-3 presents soil map units and expected basal cover of biological soils crusts within Horsethief Mesa.

Table 3.3-3 Soil Map Units within Horsethief Mesa

Soil Map Unit	Ecological Site ID	Acres	Basal Cover of Biological Soil Crusts
Amalia-Manzano association, steep	F048AY011NM – Ponderosa Pine – Rocky Mountain Juniper 17-25"[1]	663	unknown
Manzano clay loam, 3 to 5 percent slopes	R036XB006NM – Loamy	57	0%
Orthents-Calciorthids association, very steep	R051XA006NM – Loamy[2]	251	unknown
Orthents-Rock outcrop association, very steep	R051XA006NM – Loamy[2]	236	unknown
Rock outcrop, very steep	R036XB001NM – Breaks	234	0%
Sedillo-Silva association, strongly sloping	R036XA004NM – Gravelly Slopes	171	0%
Silva-Sedillo association, gently sloping	R036XB006NM – Loamy	417	0%
Water	N/A	32	N/A

Source NRCS 2013, NRCS 2021

[1]According to the NRCS, this is an obsolete site description that no longer meets current standards and is no longer considered a viable ecological site concept.

[2]This is a draft Ecological Site ID that is either incomplete or has not undergone quality control and quality assurance review.

3.3.2 Environmental Impacts

Soils within Horsethief Mesa are susceptible to impacts from compaction and disturbance, which can lead to accelerated erosion and soil loss, changes in soil chemistry, and/or disturbance of route tread. Surface disturbances generally increase soil susceptibility to erosion and compaction, which increases the potential for offsite movement, salinity, and sediment delivery to streams. Management actions that involve surface disturbing activities; a reduction in vegetation cover, trampling, and the use of vehicles and heavy machinery can result in such impacts. This is especially true in areas where natural erosion rates are high because of soil type, condition, or slope.

Travel across soils can create fugitive dust. Fugitive dust can be generated by OHVs and passenger vehicles and can settle on vegetation in the area. The dust generated by travel activities depends on several factors including wind, frequency and timing of precipitation events, soil and dust particle size, and effectiveness of dust control measures.

The types of motorized routes vary within Horsethief Mesa. Two track routes create a wider footprint than a single-track for motorcycles or non-motorized travel. Routes located on steep slopes and in areas with fragile, exposed soils are vulnerable to disturbance. The displaced soil

particles can be transported by wind, water, or other natural and anthropogenic forces. Traveling on routes during the spring season, or other times of year with higher soil moisture content (i.e., after a recent precipitation event), could lead to rutting, compaction, accelerated runoff, erosion, and increased sedimentation in rivers and streams outside of Horsethief Mesa. Sediment transport can be reduced by route maintenance, including installation of culverts where appropriate, and other BMPs. Tables 3.3-4 through Table 3.3-7 provide a summary of route mileage of open or limited routes located on erodible soils under each alternative. There are no routes under any alternative through severe or moderately erodible soils.

Development of either trailhead option 1 or option 2 would impact soil resources within Horsethief Mesa similarly across all action alternatives. Both options are located within areas that have moderate or high potential for erosion. Soils in these areas would likely become more compact with increased use, which would reduce the chance for growth of a protective vegetative cover in the surrounding area. Where soils are bare, fugitive dust may be generated, which can move soil particles away from the site. Compacted soils may alter drainage patterns at a local scale, concentrating the surface penetration and the overland flow of water away from the parking area, moving sediment and eroded material elsewhere.

Trailhead option 1 would require additional widening and maintenance of access roads to accommodate public use, thus displacing more soils and providing increased opportunity for erosion away from the project area compared to existing conditions. Trailhead option 2 would encompass a larger area, and therefore would impact more soils, compared to option 1. However, this option would be constructed on soils with moderate erosion hazard compared to the severe erosion hazard soils for option 1. Option 2 would require construction of a new access route to accommodate public use.

Best management practices that concentrate users within the footprint of the trailheads, such as fencing or vehicle barriers, would decrease potential for off-site travel and may help to protect against increased trampling, erosion, and compaction in the surrounding area. Potential impacts from construction of the trailhead options would be temporary and limited to the trailhead area. Best management practices would be employed during construction to reduce construction-related impacts such runoff potential. Development of trailhead options and connector routes would be subject to additional surveys and construction could require further site-specific analysis under NEPA.

3.3.2.1 Impacts of Alternative A (No Action)

Under Alternative A, there would be no changes in access or use within Horsethief Mesa. Weathering and erosion would be expected to continue at current levels or increase with increased route use. No new routes would be constructed under this alternative.

Alternative A would have the greatest impact on soils, with 17.3 miles of open motorized routes located on soils with severe erosion hazard, and 9.9 miles of open motorized routes on soils with

moderate erosion hazard (Tables 3.3-4 through 3.3-7). These routes would be more susceptible to erosion and would contribute to sedimentation into offsite rivers and streams.

Soil compaction and rutting of existing routes would continue and unauthorized cross-country travel would continue to compact soils and damage vegetation. The highly erodible soils within these areas would continue to degrade at current or increased levels over time. Compaction would decrease infiltration of moisture and increase runoff and erosion. Routes located on steep slopes would also be prone to increased runoff and erosion, leading to the formation of rill and gullies if left unmitigated.

3.3.2.2 Impacts of Alternative B (Resource Protection)

Alternative B would have the least impact and provide the greatest benefit to soil resources compared to the other alternatives. Routes that were determined to adversely impact soil resources would be closed to OHV use, and would instead be allowed to passively restore, thus decreasing potential for unchecked erosion and sedimentation across Horsethief Mesa. Concentrating use to specific managed routes away from erodible soils would also prove beneficial in the long term. Potential for fugitive dust from OHVs and passenger vehicles is lowest under this alternative. Routes on slopes fifteen percent or greater would continue to pose the risk of erosion, though because there is no public OHV use allowed under this alternative, impacts would likely be minimal.

Under Alternative B total of 8.0 miles of open or limited routes would be located on lands with severe erosion hazard, and 3.8 miles of open or limited routes would be located on lands with moderate erosion hazard (Tables 3.3-4 through 3.3-7). Soil compaction and rutting of existing routes would decrease as compared to Alternative A, specifically on 9.3 miles of routes on soils with severe erosion hazard and 6.1 miles of routes on soils with moderate erosion hazard. Approximately 7.5 miles of routes would be located on steep slopes, 6.9 miles of which would allow non-motorized and e-bike class 1 use (Tables 3.3-8 and 3.3-9).

3.3.2.3 Impacts of Alternative C (Balanced)

Alternative C would provide a balance of protection soil resources. Under Alternative C limitations on motorized use in areas with sensitive or erodible soils would protect soil resources as well as soils within the route tread. As motorized routes erode due to use over time, additional maintenance would be necessary to prevent impactful degradation of the route tread and soils beneath. Approximately 10.0 miles of routes located on steep slopes would continue to pose the risk for increased erosion, including 1.3 miles of routes open to OHV use (Tables 3.3-8 and 3.3-9).

A total of 11.8 miles of open or limited routes would be located on soils with high erosion hazard, and 7.3 miles of open or limited routes on soils with moderate erosion hazard (Tables 3.3-4 through 3.3-7). Under Alternative C, soil compaction and rutting and damage would decrease as compared to existing conditions. Approximately 5.5 miles of routes would be closed

on soils with severe erosion hazard, and 2.6 miles of routes would be closed on soils with moderate erosion hazard.

3.3.2.4 Impacts of Alternative D (Access)

Under Alternative D there would be minimal restrictions on the type of route use, which would increase potential for increased compaction, loss of soil structure, and alteration of drainage across a larger area over time, compared to other alternatives. As motorized routes erode due to use over time, additional maintenance would be necessary to prevent impactful degradation of the route tread and soils beneath. Potential for fugitive dust from OHVs and passenger vehicles is greatest under this alternative. Approximately 11.5 miles of routes located on steep slopes would continue to pose the risk for increased erosion, including 2.8 miles of routes open to OHV use (Tables 3.3-8 and 3.3-).

Under Alternative D, a total of 15.6 miles of open or limited routes would be located on soils with sever erosion hazard, and 8.4 miles of open or limited routes on soils with moderate erosion hazard (Tables 3.3-4 through 3.3-7). Under Alternative D, soil compaction and rutting would decrease as compared to Alternative A. Approximately 1.7 miles of routes would be closed on soils with severe erosion hazard, and 1.5 miles of routes would be closed on soils with moderate erosion hazard, the least of all action alternatives.

3.3.2.5 Impacts of Alternative E (Expanded Route Network)

Impacts from Alternative E would be similar to those discussed for Alternative C; however the proposed new routes would result in additional impacts to soils in Horsethief Mesa. Approximately 14.0 miles of new proposed routes would be constructed on soils with severe erosion hazard, and 11.1 miles of proposed new routes would be located on slopes fifteen percent or greater. However, 0.1 of those proposed miles over soils with severe erosion hazard and steep slopes would only be constructed if trailhead option 2 were implemented. The impact from route construction would be greater impacts from managing use on existing routes, as would the formation of fugitive dust and erosion and sediment transport down steep slopes. In the long term, impacts from use on these new routes would be similar to other non-motorized routes in the area. The approximately 0.1 miles of proposed OHV open routes would be constructed over a previously disturbed dump and would likely not create additional impacts compared to existing conditions.

Table 3.3-4 Open and Limited Designated Routes through Areas with Severe Erosion Hazard (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
OHV Open	17.3	0.0	3.1	6.2	3.1
Limited Non-Motorized and E-Bike Class 1	0.0	6.7	7.7	7.6	7.4
Limited Hiking	0.0	0.0	0.0	0.0	0.0
Limited to Administrative and Authorized Users	0.0	1.3	1.1	1.7	1.1

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Proposed New (OHV Open)	0.0	0.0	0.0	0.0	0.1
Proposed New (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	12.5
Proposed New Reroute (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	1.4
Total[1]	**17.3**	**8.0**	**11.8**	**15.6**	**25.5**

Source: NRCS 2013

Table 3.3-5 Closed Routes through Areas with Severe Erosion Hazard (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Closed/Decommissioned	0.0	9.3	5.5	1.7	5.3
Closed/Decommissioned (To Be Rerouted)	0.0	0.0	0.0	0.0	1.0
Total[1]	0.0	**9.3**	**5.5**	**1.7**	**6.2**

Source: NRCS 2013

Table 3.3-6 Open and Limited Designated Routes through Areas with Moderate Erosion Hazard (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
OHV Open	9.9	0.0	3.9	4.9	3.9
Limited Non-Motorized and E-Bike Class 1	0.0	3.5	3.3	3.3	2.7
Limited Hiking	0.0	0.0	0.1	0.1	0.1
Limited to Administrative and Authorized Users	0.0	0.4	<0.1	0.1	<0.1
Proposed New (OHV Open)	0.0	0.0	0.0	0.0	0.1
Proposed New (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	1.3
Proposed New Reroute (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	0.6
Total[1]	**9.9**	**3.8**	**7.3**	**8.4**	**8.8**

Source: NRCS 2013

Table 3.3-7 Closed Routes through Areas with Moderate Erosion Hazard (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Closed/Decommissioned	0.0	6.1	2.6	1.5	2.6
Closed/Decommissioned (To Be Rerouted)	0.0	0.0	0.0	0.0	0.6
Total[1]	**0.0**	**6.1**	**2.6**	**1.5**	**3.2**

Source: NRCS 2013

Table 3.3-8 Open and Limited Designated Routes on Slopes 15 Percent or Greater (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
OHV Open	12.8	0.0	1.3	2.8	1.3
Limited Non-Motorized and E-Bike Class 1	0.0	6.9	7.9	7.9	7.2
Limited Hiking	0.0	0.0	0.2	0.2	0.2
Limited to Administrative and Authorized Users	0.0	0.7	0.6	0.8	0.6
Proposed New (OHV Open)	0.0	0.0	0.0	0.0	0.1
Proposed New (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	9.8
Proposed New Reroute (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	1.2
Total[1]	**12.8**	**7.5**	**10.0**	**11.5**	**20.3**

Source: NRCS 2013

Table 3.3-9 Closed Routes on Slopes 15 Percent or Greater (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Closed/Decommissioned	0.0	5.3	2.9	1.3	2.8
Closed/Decommissioned (To Be Rerouted)	0.0	0.0	0.0	0.0	1.0
Total[1]	**0.0**	**5.3**	**2.9**	**1.3**	**3.9**

Source: NRCS 2013

3.3.2.6 Cumulative Impacts

A majority of the soils in the Horsethief Mesa area have a low potential for wind erosion, but a severe erosion hazard rating. Past, present, and RFFAs including recreational OHV use would affect soil compaction and erosion. Over time, soil conditions near closed, and to some degree limited, routes are expected to improve. The BLM would require BMPs for soil protection applicable across all RFFA project disturbances. Implementation of the TMP would contribute minimally to cumulative impacts to soil resources. The addition of the future seasonal parking areas outside of Horsethief Mesa, identified in Section 2.1.1 of this EA, would increase public access and use within the area and routes on erodible soils.

3.4 Resource Issue 4 – Transportation and Access

Issue: How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact public motorized and non-motorized access, and adjoining private property access?

3.4.1 Affected Environment

The public currently accesses Horsethief Mesa via NM Highway 522 and USFS land to the northeast, and illegally via private land to the south. There are no trailheads in the Horsethief area. The level of use that is occurring, particularly during spring, summer, and fall has made

parking a premium, leading many users to park either on private land or on the highway shoulder near a County transfer station. Route proliferation and unauthorized access to Horsethief Mesa are common and have led to private landowners installing signs and traffic control devices (speed bumps) to curb public use of those areas. A comprehensive route inventory was completed, to the greatest extent possible to include all motorized and non-motorized routes used by the public and for permitted uses within the Horsethief Mesa area. The route inventory dataset includes approximately 29.0 miles of existing routes located on BLM-administered land. The routes were evaluated for designation based on access and recreational uses, including hiking, mountain biking, OHVs, etc. Route designations are discussed in more detail in Chapter 2 of this EA. The routes were classified based on maintenance level, jurisdiction, and whether the route permits motorized or non-motorized use. Within Horsethief Mesa, a maintenance level of one through five was considered, with one representing the lowest level of maintenance and five representing the highest. Most routes would be designated with the lowest or no maintenance levels except for a primary access route from a state highway. Within the BLM road maintenance standards, two track routes used by 4WD or high clearance vehicles are typically not maintained to a road design standard. The primary access route from a state highway would be considered a Resource Road and probably assigned moderate maintenance for low volume use. Trails for use by human-powered means of transport would be maintained according to recreation experience outcomes and environmental sustainability.

3.4.1.1 Fuelwood Gathering

Fuelwood gathering is a popular activity within Horsethief Mesa. Special forest products, plant materials like seeds, berries, and firewood, may be collected on BLM-administered lands in select field offices in New Mexico, including TAFO. Permits are not required for a reasonable amount of personal, non-commercial use of specific resources per household annually, as identified by BLM New Mexico office (BLM 2020b). Collection or removal of larger amounts of special forest products would require a Forest Product Permit. This permit is supplemented by Special Stipulations to which the permitted user must adhere. Because off-route, or cross-country, OHV use is prohibited in Horsethief Mesa, gathering of special forest products is largely influenced by access via transportation routes.

3.4.2 Environmental Impacts

Tables 2.2-1 and 2.2-2 present total miles of open, closed, and limited routes under each of the alternatives. Travel management designations would not affect BLM ROWs, permitted uses, County or State roads, or other valid existing rights. Restrictions apply only to motorized public access and recreational OHV use. All roads designated as open, closed, or limited for motorized use are available for non-motorized use.

Measures to protect natural and cultural resources may reduce opportunities for travel-related activities, including access for fuelwood gathering. These decisions would result in adverse impacts by limiting accessibility and availability of public lands and features. Legal public access to Horsethief Mesa would be improved with the development of option 1 or option 2

trailhead parking areas under all action alternatives. Trailhead option 1 would be located on an existing route and would provide for fast access to the Horsethief Mesa route network. Access routes for this trailhead option would be widened and maintained for public use. Trailhead option 2 would be located closer to the County transfer station and to private property, which may contribute to trespass in the area. This trailhead option would be larger than option 1, thus it may provide for more parking and public use of Horsethief Mesa. Both Trailhead options would require additional coordination with USFS to secure road use agreement instrument on existing routes within the Carson National Forest in order to connect to the Horsethief Mesa route network.

3.4.2.1 Impacts of Alternative A (No Action)

The No Action Alternative would maintain existing conditions and management and would not result in any route closures. Use and travel by motorized and non-motorized vehicles would be allowed on all existing routes except where not currently permitted. No legal public access or parking would be provided which would not resolve issues with parking on the highway shoulder and private property. Without designation of existing routes there would be continuing lack of management in the form of signs and user maps, as well as lack of enforcement capability. This would likely lead to continued user-created route proliferation and illegal access via private land.

3.4.2.2 Alternative B (Resource Protection)

Under Alternative B, motorized public access to the Horsethief Mesa area would be restricted on all routes. This would include 15.7 miles of route closures, and the redistribution of uses to a select few non-motorized routes. Access for fuelwood gathering would be precluded, and opportunities for non-motorized recreation would decrease. Alternative B would impact motorized travel by limiting many routes to non-motorized or administrative uses. Closures would create the need for installation of gates, barricades, and other closure devices to enforce the travel restrictions. Screening, signing, and user maps are also techniques for closing and/or managing the route network. Figure 2.4-1 shows which routes would be open and closed under Alternative B.

3.4.2.3 Impacts of Alternative C (Balanced)

Alternative C would close 8.3 miles of routes (Table 2.2-2). Access would be limited to administrative and authorized users (i.e., private landowners or permittees) on 1.1 miles of the existing routes. Approximately 7.0 miles of existing routes would remain open for public OHV use. Under Alternative C, some existing primitive roads would be closed. With the closure of routes, signage and barriers would be necessary to enforce these closures. Motorized access for hunting, and fuelwood and forest products would decrease, compared to existing conditions.

3.4.2.4 Impacts of Alternative D (Access)

Alternative D would prioritize access to Horsethief Mesa for all users. Alternative D would allow OHV use on 11.1 miles of open routes. It would result in the fewest closures of all action alternatives, 3.4 miles of existing routes (Table 2.2-2) and limit access to authorized users on 1.8 miles of routes, leaving 12.5 miles limited for public e-bike and non-motorized use. Alternative

D would provide a high level of motorized access, but would not allow for a comprehensive, diverse transportation system. Motorized access to hunting and fuelwood resources would be maximized under this alternative.

3.4.2.5 Impacts of Alternative E (Expanded Route Network)

While route closure and use limitations may impede access to certain areas within Horsethief Mesa, construction of new proposed routes would improve transportation throughout the area. Development of new access (i.e., proposed new routes) may increase opportunities for travel related activities and fuelwood gathering. Rerouting of specific routes would maintain access and flow of users through Horsethief Mesa. Motorized access to fuelwood resources would be similar to Alternative C, however new routes would increase non-motorized access for hunting and fuelwood and forest product gathering.

3.4.2.6 Cumulative Impacts

Past, present, and RFFAs may impact the transportation network. Implementation of the TMP would close routes that are redundant or dead-end spurs that serve no purpose. It is expected that implementation of the proposed TMP would improve transportation by improving signage and improving route designations to decrease user conflict and resource degradation. Future wood collecting of down and dead fuels and forestry and thinning projects may improve the health and ecological diversity of the area. The addition of the future seasonal parking areas outside of Horsethief Mesa, identified in Section 2.1.1 of this EA, would increase legal public access to the area and to routes used for fuelwood gathering.

3.5 Resource Issue 5 – Vegetation Communities, Special Status Plant Species, and Invasive, Non-Native Plant Species

Issue: How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact vegetation communities, the distribution and spread of invasive, non-native plant species, and BLM special status plant species (SSPS)?

3.5.1 Affected Environment

General management and regulatory authority for vegetation communities and invasive, non-native species is described in the Taos RMP (BLM 2012a), Section 2.1.7. Appendix G of the RMP provides more detailed guidance for special status species management. The Taos RMP (2012) outlines goals and objectives for terrestrial vegetation communities that are also relevant to travel management planning.

3.5.1.1 Vegetation Communities

Horsethief Mesa lies primarily within the Arizona/New Mexico Plateau Ecoregion, which is a transitional region between forest-covered mountainous areas and the lower, hotter Mohave Basin. It is generally characterized by sparse, semiarid grasslands, and tablelands (USEPA 2016). The landscape is generally dry, though regional topography may cause variation in

precipitation. The portion of this ecoregion that encompasses Horsethief Mesa is dominated by pinyon-juniper woodland and big sagebrush shrubland and steppe (Table 3.5-1).

The USGS LANDFIRE existing vegetation dataset (2017) was used to determine the fine-scale vegetation community types present in Horsethief Mesa. The variety of vegetation communities provides habitat for a diversity of wildlife species. One of the more prevalent vegetation types in the area, sagebrush communities are comprised of slow-growing woody species that generally exhibit a delay in recovery from impacts in comparison to herbaceous vegetation, such as grassland species. This dataset identifies approximately 102 acres of open water in Horsethief Mesa, however rather than natural lakes or ponds, this is due to two earthen stock tanks constructed to impound water. Riparian and wetland vegetation communities are not present within the area.

Table 3.5-1 Vegetation Communities within Horsethief Mesa

Community Type	Acres
Aspen Forest, Woodland, and Parkland	1
Big Sagebrush Shrubland and Steppe	523
Deciduous Shrubland	14
Douglas-fir-Ponderosa Pine-Lodgepole Pine Forest and Woodland	9
Grassland	<1
Greasewood Shrubland	51
Introduced Annual and Biennial Forbland	<1
Introduced Perennial Grassland and Forbland	1
Open Water	102
Pinyon-Juniper Woodland	1,355
Salt Desert Scrub	1
Sand Shrubland	1
Aspen Forest, Woodland, and Parkland	1
Total	**2,060**

Source: LANDFIRE 2017

3.5.1.2 BLM Sensitive Species

There are no federally listed plant species documented or with potential to occur in Horsethief Mesa (USFWS 2019 – ECOS). The BLM Sensitive Species with potential to occur in Horsethief Mesa are discussed in Section 3.5.3.1. The BLM will follow the BMPs presented in Appendix D of the Taos ROD and RMP (BLM 2012a) to prevent impacts to vegetation and special status species.

3.5.1.3 Special Status Plant Species

The BLM Special Status Species Management Manual (BLM 2008) defines special status species as 1) species listed or proposed for listing under the ESA and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. All Federal candidate species, proposed species, and delisted species in the 5 years following delisting are conserved as BLM Sensitive Species (BLM 2008).

Species identified on the BLM Watch List have no management impact, whereas BLM Sensitive Species should be conserved to avoid potential future listing under the ESA.

The 2019 Taos Field Office BLM Sensitive Plant Species list was analyzed to determine species' potential for occurrence in Horsethief Mesa (BLM 2019). Suitable habitat information for each species was cross-referenced with habitat identified as present within Horsethief Mesa. If habitat in Horsethief Mesa was identified as suitable for a species, then the species is assumed to have the potential to occur for the purposes of the analysis in this EA. Species with potential to occur in Horsethief Mesa are included in Table 3.5-2. The TAFO, in partnership with USGS, is in the process of developing preliminary models to identify potential for occurrence and suitable habitat and for BLM Sensitive Species. This data would be used to inform future monitoring and planning efforts. If construction of new routes were to occur, preconstruction surveys would be completed to avoid impacts to BLM Sensitive Species.

Table 3.5-2 BLM Sensitive Species with Potential to Occur in Horsethief Mesa

Common Name	Scientific Name	Habitat	Status
Ripley's milkvetch	*Astragalus ripleyi*	Pinyon-juniper and sagebrush communities	Verified in TAFO, G3/S3
Taos springparsely	*Cymopterus spellenbergii*	Pinyon-juniper and Douglas fir-ponderosa pine communities, Taos Plateau canyon rims	Verified in TAFO, G2/S2
Clipped wild buckwheat	*Eriogonum lachnogynum* var. *colobum*	Pinyon-juniper communities, open sandy or gypseous limestone ridges-juniper communities, open sandy or gypseous limestone ridges	Verified in TAFO, T2/S2

Source: BLM 2019, NatureServe 2021

3.5.1.3.1 Ripley's Milkvetch

Ripley's milkvetch (*Astragalus ripleyi*) occurs within sagebrush, pinyon-juniper woodland, and Gambel oak thickets in ponderosa pine forest at elevations of 7,000-8,250 ft. Ripley's milkvetch is listed by the BLM and USFS as sensitive, New Mexico State listed as Vulnerable, Globally Vulnerable, and has a New Mexico Rare Plant Scorecard rating of Weakly Conserved. Future BLM TAFO SSPS Surveys for Ripley's milkvetch will be completed.

3.5.1.3.2 Taos Springparsley

Taos springparsley (*Cymopterus spellenbergii*) typically grows among basalt boulders that cover much of the Taos Plateau and form caprock along canyons rims. It occasionally grows in soils derived from metamorphic rock or in sandy draws. The plant community is open piñon-juniper woodland or Douglas fir-ponderosa pine forest at elevations of 6,200-8,800 ft. Taos springparsley is listed by the BLM as sensitive, New Mexico State listed as Endangered, Globally Imperiled, and has a New Mexico Rare Plant Scorecard rating of Under Conserved. BLM TAFO SSPS Surveys for Taos spring parsley will be completed in the future.

3.5.1.3.3 Clipped Wild Buckwheat

Clipped wild buckwheat (*Eriogonum lachnogynum var. colobum*) typically grows in open sandy or gypseous limestone ridges and edges of mesas, such as the Rio Grande Gorge, in piñon-juniper woodlands at elevations of 6,820-7,540 ft. Clipped wild buckwheat is listed by the BLM as sensitive, New Mexico State listed as Imperiled, Globally Uncommon but Not Rare, and has a New Mexico Rare Plant Scorecard rating of Weakly Conserved. BLM TAFO SSPS Surveys for clipped wild buckwheat will be completed in the future.

3.5.1.4 Invasive, Non-native Plant Species

Noxious weeds and invasive, non-native species are exotic plant species that may harm native plant communities and degrade wildlife habitat. Table 3.5-3 presents invasive, non-native (weed) species with potential to occur in Horsethief Mesa. These species are highly competitive and can often out-compete native vegetation, especially on disturbed soils such as roadsides. Once established, these species decrease wildlife habitat value, reduce livestock range productivity, and increase management costs. The BLM considers plants as weeds if they have been introduced into an environment where they did not evolve. These plants often have no natural enemies or limitations on spread and reproduction.

Weeds management guidance is provided by The Programmatic Treatment Plan for the Rapid Response to Weeds (BLM 2010), Departmental Manual 517, as well as the following laws and Executive Orders: Executive Order 13112, Invasive Species; the Federal Noxious Weed Act of 1974; the New Mexico Noxious Weed Management Act of 1978; the Noxious Weed Control Act of 2004; and the Federal Plant Protection Act of 2000 (Public Law 106-224).

In June 2020, the New Mexico Department of Agriculture updated the New Mexico Noxious Weed List to include 47 species targeted as noxious weeds for control or eradication (NMDA 2020). Of these, 18 species are classified as Class A noxious weeds; 10 are classified as Class B noxious weeds; and 13 are classified as Class C noxious weeds. The remaining 6 species are listed as Watch List Species. Most of the weed infestations in Horsethief Mesa occur along roads, where the BLM and the counties regularly patrol and treat as needed.

3.5.1.4.1 Class A Noxious Weed Species

Class A species are currently not present in New Mexico or have limited distribution. Preventing new infestations of these species and eradicating existing infestations is the highest priority. Table 3.5-3 lists the three Class A weed species with potential to occur in Horsethief Mesa.

3.5.1.4.2 Class B Noxious Weed Species

Class B Species are limited to portions of the State. In areas with severe infestations, management should be designed to contain the infestation and stop any further spread. Table 3.5-3 lists the one Class B weed species with potential to occur in Horsethief Mesa.

3.5.1.4.3 Class C Noxious Weed Species

Class C species are widespread in the State. Management decisions for these species are determined at the local level, based on feasibility of control and level of infestation. Table 3.5-3 lists the five Class C weed species with potential to occur in Horsethief Mesa.

3.5.1.4.4 Watch List Noxious Weed Species

Watch List noxious weed species are species of concern in the State. These species have the potential to become problematic. More data is needed to determine if these species should be listed. There are no Watch List noxious weed species with potential to occur in Horsethief Mesa.

Table 3.5-3 Noxious Weeds with Potential to Occur in Horsethief Mesa

Common Name	Scientific Name	Status
Black Henbane	*Hyoscyamus niger*	Class A
Canada Thistle	*Cirsium arvense*	Class A
Spotted knapweed	*Centaurea biebersteinii*	Class A
Perennial Pepperweed	*Lepidium latifolium*	Class B
Cheatgrass	*Bromus tectorum*	Class C
Jointed Goatgrass	*Aegilops cylindrica*	Class C
Musk Thistle	*Carduus nutans*	Class C
Russian Knapweed	*Acroptilon repens*	Class C
Siberian Elm	*Ulmus pumila*	Class C

Source: Ashigh et al. 2010, NMDA 2016, NMDA 2020, NMSU 2020

3.5.2 Environmental Impacts

The analysis of effects to vegetation communities was conducted by evaluating the miles of route designations within each vegetation type, under each alternative. Travel on roads and trails could increase route width and the area of disturbance to soils and vegetation. This could result in increased mortality of adjacent native vegetation, soil compaction, rutting, surface runoff, and subsequent erosion. Impacts would be greatest in areas of concentrated use that are not maintained or improved. Ruts created by OHVs could disrupt hydrologic patterns by providing channels for concentrated flow and alter habitat conditions for native plant species. Damage to, or loss of, individual plants could affect community structure, which in turn would affect habitat suitability for plant and wildlife species. Tables 3.5-4 and 3.5-5 present the miles of route designations within the major vegetation types within Horsethief Mesa under each alternative.

All action alternatives involve some degree of route limitation or closure. Route closure alone does not necessarily equate to a reduction of invasive, non-native vegetation. It is anticipated that eventually closed routes would return to a more natural condition and some diminishment of invasive, nonnative vegetation concentrations would occur along closed routes through treatment efforts. This could result in an increase in native plant growth. A reduction in length and density of the route network would also reduce the potential for interaction with existing infestations and resulting introduction of invasive, nonnative species to previously uninfested areas. Limiting routes to administrative or authorized users would reduce the amount of vehicle traffic and

therefore would reduce the likelihood of introducing new populations of invasive, non-native species.

Development of either trailhead option 1 or option 2 would impact vegetation communities within Horsethief Mesa similarly across all action alternatives. Trailhead option 1 would be located within an existing clearing in deciduous shrubland vegetation, and trailhead option 2 would be located within a previously disturbed area in big sagebrush shrubland vegetation.. Potential impacts from construction of the trailhead options would be temporary and limited to the trailhead area. Best management practices would be employed during construction to reduce construction-related impacts. Best management practices that concentrate users within the footprint of the trailheads, such as fencing or vehicle barriers, would decrease potential for off-site travel and may help to prevent increased trampling or denuding of vegetation. As trampling does occur, species composition may shift to those more suited to disturbance or modified soils. Vegetation may be crushed, sheared, or uprooted, and young plants would have decreased success establishing. Fugitive dust is more likely in these areas, which may drift away from trailheads and impede vegetative growth.

Trailhead option 1 would require additional widening and maintenance of access routes to support public use. Disturbance associated with these activities, such as trampling, denuding, or interference of fugitive dust, would increase potential for impacts to nearby vegetation. Trailhead option 2 would cover a larger area. Peripheral vegetation communities would be impacted to a larger extent, and higher levels of use and access would increase trampling of individual plants compared to option 1.

Non-native, invasive species may have a greater potential to be spread with user concentration within Horsethief Mesa. Disturbed areas may allow for the establishment of non-native, invasive species if the native vegetation communities are inhibited from succeeding because of consistent travel or disturbance. Development of trailhead options would be subject to additional surveys, and site-specific analysis under NEPA.

3.5.2.1 Special Status Plant Species

Horsethief Mesa is located entirely within the TAFO boundary. The impacts effects zone for the alternatives ranges from 20 – 100 meters, depending on the intensity, extent, and duration of surface disturbance. Direct impacts could result from construction, operation, and/or maintenance related activities within and adjacent to proposed new routes and trailhead. These activities could immediately displace or acutely stress SSPS individuals and/or reduce or degrade available habitat for SSPS. Potential indirect impacts to SSPS and the ecological processes that sustain them include, but are not limited to, changes in the following habitat conditions: ground cover, soil nutrient flows and processes, hydrological flows and processes, solar exposure, thermal cover, fugitive dust loads, non-native species dispersal, habitat connectivity and/or fragmentation, and pollinator and dispersal agents' visitation behaviors.

3.5.2.2 Impacts of Alternative A (No Action)

Under Alternative A, all existing routes would remain without change in use or designation. OHV use would not be restricted further, and vegetation communities would continue to be impacted by travel routes in the same manner as under existing conditions.

Impacts to BLM Sensitive plant species would continue to occur as they would under existing conditions. With no route closures, or management of user-proliferated braiding of routes, this alternative would have the least benefit to BLM Sensitive plant species of all alternatives. Route proliferation through suitable habitat would continue to occur, existing routes near sensitive plant occurrences would not be improved.

The introduction and spread of non-native, invasive species along existing would prove difficult to control under Alternative A. OHV travel throughout Horsethief Mesa would continue to spread invasive plant species. Since the area is a popular area for nearby communities, it is possible that new invasive plant species would become established.

3.5.2.3 Impacts of Alternative B (Resource Protection)

Alternative B would provide the greatest extent of protection for vegetative communities within Horsethief Mesa, largely due to 15.7 miles of closed routes and exclusion of public OHV use, which would improve soil conditions, habitat, and opportunity for plant success. Revegetation of previously disturbed areas could occur over time, as use and motorized access are removed.

Alternative B would result in the greatest benefit to special status plant species. This alternative would not allow public motorized use on any routes, and would improve enforcement of route use compared to Alternative A.

Route closure alone would not necessarily equate to an improvement in invasive, non-native species conditions. However, it is anticipated that closed routes would be reclaimed to a more natural condition and some diminishment of weed concentrations would occur along closed routes through treatment efforts. This would result in an increase in native plant growth. The 11.6 miles of routes limited to non-motorized and e-bike class 1 use would continue to pose a risk of introducing seed or plant parts to uninfested areas via users' shoes, clothing, or non-motorized vehicles (e.g., bike tires), but the level of disturbance on the routes would be reduced and conditions for invasive, non-native species would improve as the routes recover from vehicle travel and convert to single-track trails.

3.5.2.4 Impacts of Alternative C (Balanced)

Alternative C would provide long-term benefits for vegetative communities and special status plant species within Horsethief Mesa. Routes through sensitive soils would be limited or closed, which would decrease potential for vegetative denuding and erosion along routes. Revegetation of previously disturbed areas could occur with purposeful designation of routes and management of off-route use.

Under Alternative C, 8.3 miles of routes would be closed to motorized OHV use and 13.7 miles of routes would have limited designations. The 12.5 miles of routes limited to non-motorized and e-bike class 1 use would continue to pose a risk of introducing seed or plant parts to uninfested areas via users' shoes, clothing, or non-motorized vehicles (e.g., bike tires), but the level of disturbance on the routes would be reduced and conditions for native species would improve as the routes recover from vehicle travel and convert to single-track trails.

3.5.2.5 Impacts of Alternative D (Access)

Alternative D would allow motorized use on the most routes within Horsethief Mesa, which could negatively impact soil conditions and suitable habitat for vegetative communities and special status plant species. Areas previously disturbed by intense use would not have the potential to reclaim, and disturbance from off route access associated with permitted activities (e.g. fuelwood gathering) would be greatest due to most potential motorized access.

Potential for introduction of non-native invasive weeds would increase with Alternative D as widespread motorized use moves propagules weed species around the area.

Under Alternative D, a total of 3.4 miles of routes would be closed and 14.5 miles of routes would have limited designations. The 12.5 miles of routes limited to non-motorized and e-bike class 1 use would result in the same types of impacts described for Alternative C.

3.5.2.6 Impacts of Alternative E (Expanded Route Network)

Impacts for Alternative E would be similar to those described for Alternative C, with additional adverse effects on vegetation from the 15.8 miles of proposed new routes and reroutes, and the 0.3 miles of proposed routes associated with trailhead option 2. Areas where soil and vegetation have been disturbed are especially susceptible to the establishment of invasive, non-native species. Use of new routes may results in adverse impacts to special status plant species if the constructed routes are in suitable habitat, as described in Affected Environment. Site-specific surveys and analysis would be required before construction of new routes could occur. Approximately 16.1 miles of new routes are proposed under Alternative E, however 2.0 of those miles would be reroutes of existing route segments, and 0.3 miles could be located in a former dumpsite that has already been highly impacted, and would lead to trailhead option 2 if this trailhead option is chosen.

While Alternative E may contribute to declines in species abundance, habitat quality, and species occurrence connectivity, overall the alternative would not be expected to impact special status plant species, pollinators or ecosystem integrity on BLM land to a large degree, by virtue of best practices, standard and special stipulations and conditions of approval that reduce impacts and reclaim disturbed areas. A decision to authorize Alternative E would not contribute to a need to list sensitive plant species under the ESA. This Alternative would have No Effect on federally listed plant species or their designated critical habitats. Federally listed species or designated critical habitat would not be affected (adversely or beneficially) because no listed plant species or their designated critical habitats are present and/or because Alternative E does not have any

elements with the potential to affect federally listed plant species or their designated critical habitats.

Table 3.5-4 Open or Limited Designated Routes through Plant Communities

Community Type	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Aspen Forest, Woodland, and Parkland	0.1	<0.1	0.1	0.1	<0.1
Big Sagebrush Shrubland and Steppe	10.3	3.7	6.9	8.5	8.6
Deciduous Shrubland	0.5	0.1	0.4	0.5	0.4
Douglas-fir-Ponderosa Pine-Lodgepole Pine Forest and Woodland	0.0	0.0	0.0	0.0	<0.1
Grassland	<0.1	<0.1	<0.1	<0.1	<0.1
Greasewood Shrubland	0.8	0.2	0.3	0.8	0.5
Introduced Annual and Biennial Forbland	0.0	0.0	0.0	0.0	0.0
Introduced Perennial Grassland and Forbland	0.0	0.0	0.0	0.0	0.0
Open Water	<0.1	<0.1	<0.1	<0.1	<0.1
Pinyon-Juniper Woodland	16.9	9.1	12.8	15.5	25.8
Salt Desert Scrub	0.0	0.0	0.0	0.0	0.0
Sand Shrubland	0.1	0.0	0.0	0.1	0.0
Aspen Forest, Woodland, and Parkland	0.0	0.0	0.0	0.0	0.0
Total	**28.7**	**13.2**	**20.5**	**25.3**	**35.4**

Source: LANDFIRE 2017

3.5.2.7 Cumulative Impacts

Past, present, and RFFAs have impacted vegetation communities within the Horsethief Mesa area. . Invasive, non-native species also proliferate along previously disturbed areas, such as roads and trails. Implementation of the TMP would close routes that are redundant or dead-end spurs that serve no purpose. Limitations on use would be expected to benefit vegetation communities. Impacts would generally be reduced from current conditions when utility routes and infrastructure are closed and reclaimed. The BLM requires BMPs and stipulations that would reduce impacts to vegetation from RFFAs. Implementation of the TMP would contribute only incremental cumulative impacts or even reduce adverse cumulative impacts to vegetation resources with the designation of routes and implementation of monitoring to ensure that the routes are being used as intended. Any improvement of the health, vigor, and recruitment of native plant species would result in increased resilience and resistance to disturbance for the community. The addition of the future seasonal parking areas outside of Horsethief Mesa, identified in Section 2.1.1 of this EA, would increase public access to the area and to vegetative communities and special status plant species nearby routes.

3.5.2.7.1 Special Status Plant Species

Special status plant species may be impacted by the designation of open and limited routes within Horsethief Mesa, and implementation of the TMP may contribute to incremental cumulative impacts. Impacts could result from users travelling off-route in areas where special status plant species occur. However, with increased management presence, impacts should be minimized. Cumulatively, when combined with past, present, and RFFAs, effects of the implementation of the TMP may result in negligible adverse cumulative impacts on special status plant species within Horsethief Mesa. Route closures under the action alternatives provide a beneficial effect to special status plant species, which may help to balance or mitigate the effects of other actions. Surveys would be conducted for any special status plant species habitat for RFFAs. Cumulative disturbance to special status plant populations from new routes and other projects in Horsethief Mesa would be minimized through surveys and design, to avoid individuals and populations. Prior to implementation, inventories for special status plant species would occur along new routes to avoid impacts and the removal of individual special status plants.

3.5.2.7.2 Non-Native, Invasive Species

Removal of the disturbance typically associated with motorized vehicles on routes designated as closed under the action alternatives would reduce the potential for the introduction of invasive, non-native species. Disturbances associated with road maintenance and herbicide application would reduce threats to vegetation and special status species from invasive, non-native species. Implementation of the TMP would contribute only incremental cumulative impacts or even reduce adverse cumulative impacts to vegetation resources with the designation of routes and implementation of monitoring to ensure that the routes are being used as intended. Any improvement of the health, vigor, and recruitment of native plant species would result in increased resilience and resistance to disturbance for the community.

3.6 Resource Issue 6 – Visual Resources

Issue: How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact visual resources?

3.6.1 Affected Environment

The goal for visual resources management defined in the Taos RMP (2012) is to manage public lands in a manner that will maintain the overall visual quality of the region, certain open space landscapes, undisturbed views, and other high quality visual resources. In order to meet its responsibility to maintain the scenic values of the public lands, BLM has developed a Visual Resource Management (VRM) program that provides a framework for defining the allowable degree of modification and assessment of visual impacts from projects. The BLM VRM Manual 8400 (BLM 1984) provides guidance for this program. Within Horsethief Mesa, approximately 684 acres are designated for management as VRM Class I, and 1,376 acres are managed as VRM Class II.

The objective of VRM Class I is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention. VRM Class I designation in Horsethief Mesa is confined to the Wild and Scenic River Corridor.

The objective for VRM Class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be visible, but should not attract the attention of the casual observer. Changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

Horsethief Mesa sits on top of the east rim of the Rio Grande, with views of Ute Mountain to the north and San Antonio Mountain to the northwest. This diverse landscape offers a complexity of visual intrigue along rolling hills and flat expanses of sagebrush shrubland. It is a rural area of many repeating small meandering cliffs and bluffs created by uplift and deposits caused by the Rio Grande Rift. Landform colors include light tan, and rust on exposed alluvium slopes.

Grasses and sagebrush are visible in lower areas and pinyon-juniper woodlands are found in draws and on the tops of bluffs. Cottonwood trees and grasses can also be seen in valley bottoms outside of Horsethief Mesa.

Table 3.6-1 Visual Resource Management Classes within Horsethief Mesa

Class	Acres
I	684
II	1,376
III	0
IV	0
Total	**2,060**

Source: BLM 2012

3.6.2 Environmental Consequences

Impacts on visual resources are evaluated and described in terms of the Visual Resource Management Objectives and as contrasts to form, line, color and texture. Contrast to the characteristic landscape may be none, weak, moderate or strong and these correlate to the VRM Objectives I, II, III, and IV. Impacts vary according to the size and type of a project. Contrasts may dominate the view, be short term or long term or only be seen from the immediate foreground. Factors that determine level of contrasts are the type and amount of viewers, relevant key observation points (KOPs), topography and vegetation. Therefore, the type and degree of contrasts depend on many factors. See Figure 3.6-2 for a viewshed analysis of the planning area from two KOPs of what would be visible at a height of 5’6”.

Over the long-term, it is expected that closed routes would blend back into the landscape, reducing the impact on the visual landscape. Implementation of the action alternatives could result in beneficial effects to visual resources by reducing the overall density of linear features on

the landscape when compared to current conditions. This would be especially true in high sensitively areas of VRM I and II. Table 3.6-1 presents the total miles of route designations by alternative within the VRM I and II Class. Design and construction of new non-motorized routes may require future site-specific analysis. However, with the closure and decommissioning of motorized routes and the re-designation of open routes to limited uses, the overall travel network under the action alternatives could benefit the visual landscape. In general, the greater the length and density of open routes, the greater the level of impacts on visual resources.

The development of new single-track trail would result in weak contrasts to the structural element of form, line, color and texture. Design features for forestry and trail tread such as minimizing vegetation removal and soil disturbance make them hard to see from any likely viewing point, except along the proposed trails themselves. The topography and dense pinyon-juniper woodland, prevalent throughout the planning area would screen the effects of both trail construction and usage. The routes and trails would be virtually invisible from county roads or residential development. Figure 3.6-3 shows vehicles parking along NM Highway 522 to access Horsethief Mesa.

Trailhead options 1 and 2 may be visible from route and trail users in the immediate foreground. Both areas are near the edge of existing openings of disturbance. Note that reflection from cars and possibly a vault toilet in Option 1 trailhead may be visible from the Taos Plateau KOP a couple of miles to the west but would also be partially screened by vegetation. However, parking that currently occurs on the highway shoulder may be moved to existing openings in the forest and screened by vegetation and topography. See Figure 3.6-3.The access road into proposed trailhead options would take advantage of a pre-existing disturbance (an old road cut) and would result in weak contrasts to the structural element of the characteristic landscape. The proposed trailhead options are sited to take advantage of a pre-existing disturbance: a partially reclaimed dumpsite that has left an opening in the pinyon-juniper vegetation. Construction of fencing, vehicle barriers, and a vault toilet would introduce weak structural contrasts. Regulatory and informational signage can also create a weak impact on visual resources in the immediate foreground. All of the alternatives proposed would be consistent with VRM Class I and II Objectives. The level of change would be low and not attract attention of the casual observer.

Figure 3.6-3 Vehicle Parking on NM Highway 522

3.6.2.1 Impacts of Alternative A (No Action)

Under Alternative A, existing management and recreational activities and other uses of the area would continue and impacts to visual qualities would continue at current levels.

3.6.2.2 Impacts of Alternative B (Resource Protection)

Alternative B would close or decommission the most route miles of any action alternative. Most of the closures would occur in VRM Class I (3.6 miles). A total of 11.9 miles of routes would be closed in VRM Class II. Alternative B would have the greatest benefit to visual resources of any alternative. Closed routes would be allowed to restore passively, resulting in a reduction in route density in the landscape. Over the short-term, closed routes would continue to be visible until vegetation reestablishes. After the reestablishment of vegetation, these closures would improve the visual character of the landscape. Closure of dead-end routes would prevent trash dumping and improve the natural scenic quality in Horsethief Mesa.

3.6.2.3 Impacts of Alternative C (Balanced)

Alternative C would benefit visual resources by closing 8.2 miles of routes. Most of these closures would occur in VRM Class II (6.1 miles). A total of 2.1 miles would be closed in VRM Class I areas. Under this alternative nearly 1 mile of routes would be limited to hiking or administrative uses, 12.5 miles would be limited to Class I e-bikes, and 6.8 miles would be open to all motorized use.

3.6.2.4 Impacts of Alternative D (Access)

Alternative D would have fewer visual impacts than Alternative A but would close the least number of routes of the action alternatives. A total of 3.4 route miles would be closed or decommissioned (1.1 miles in VRM Class I and 2.3 miles in VRM Class II). This would provide a minor benefit to visual resources because these routes would passively restore, thereby improving the visual character of the landscape.

3.6.2.5 Impacts of Alternative E (Expanded Route Network)

Alternative E would result in the greatest impact to visual resources because it proposes new routes. Under Alternative E, 2.0 miles of proposed routes would be limited to e-bike Class 1

within VRM Class I. A total of 13.8 miles would be within VRM Class II, 13.5 of which would be limited to E-Bike Class 1, and 0.3 miles proposed as open only if trailhead option 2 were implemented. While it results in the greatest impact to visual resources, Alternative E grants the most access to recreation within Horsethief Mesa. Proposed new routes would be single-track, narrow linear features across the landscape. This alternative would close approximately 8.0 miles of double track routes, which leave a much more visible mark across the landscape compared to single-track routes. Single-track routes are more easily visually obscured by vegetation or other screening obstruction versus the larger footprint of double track routes.

Table 3.6-2 Open or Limited Routes within VRM Class I (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
OHV Open	9.3	0.0	1.3	2.4	1.3
Limited Non-Motorized and E-Bike Class 1	0.0	5.7	5.6	5.6	5.4
Limited Hiking	0.0	0.0	0.2	0.2	0.2
Limited to Administrative and Authorized Users	0.0	0.0	0.0	0.0	0.0
Proposed New (OHV Open)	0.0	0.0	0.0	0.0	0.0
Proposed New (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	1.8
Proposed New Reroute (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	0.2
Total	**9.3**	**5.7**	**7.1**	**8.2**	**8.9**

Source: BLM 2012

Table 3.6-3 Closed Routes within VRM Class I (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Closed/Decommissioned	0.0	3.6	2.1	1.1	2.1
Closed/Decommissioned (To Be Rerouted)	0.0	0.0	0.0	0.0	0.2
Total	**0.0**	**3.6**	**2.1**	**1.1**	**2.3**

Source: BLM 2012

Table 3.6-4 Open or Limited Routes within VRM Class II (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
OHV Open	19.4	0.0	5.4	8.5	5.4
Limited Non-Motorized and E-Bike Class 1	0.0	5.9	6.8	6.8	6.2
Limited Hiking	0.0	0.0	0.0	0.0	0.0
Limited to Administrative and Authorized Users	0.0	1.6	1.1	1.8	1.1
Proposed New (OHV Open)	0.0	0.0	0.0	0.0	0.3
Proposed New (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	11.8

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
OHV Open	19.4	0.0	5.4	8.5	5.4
Proposed New Reroute (Limited Non-Motorized and E-Bike Class 1)	0.0	0.0	0.0	0.0	1.7
Total	**19.4**	**7.5**	**13.3**	**17.1**	**26.5**

Source: BLM 2012

Table 3.6-5 Closed Routes within VRM Class II (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Closed/Decommissioned	0.0	11.9	6.1	2.3	5.9
Closed/Decommissioned (To Be Rerouted)	0.0	0.0	0.0	0.0	1.3
Total	**0.0**	**11.9**	**6.1**	**2.3**	**7.2**

Source: BLM 2012

3.6.2.6 Cumulative Impacts

Past, present, and RFFAs may result in contrasts to the existing landscape characteristics. Implementation of the TMP would not result in anything more than minor or weak contrasts to visual resources within VRM Class I and II areas from existing conditions. The motorized and non-motorized trails analyzed under the action alternatives are currently meeting VRM management objectives, resulting in weak contrasts within the immediate foreground of the planning area. When combined with present visually impacting actions, implementation of the proposed TMP would not result in measurable cumulative impacts. Due to the low profile size of this project, type and amount of traffic as well as vegetative and topographic screening, VRM Class I Objectives would still be met within the WSR corridor and VRM Class II Objectives would still be met throughout the remainder of the planning area.

Off-Season parking areas 1 and 2 would likely be visible in the foreground from the most viewers which would be traveling along NM Highway 522. As the highway changes direction slightly for a few miles, cars parked in one of these optional parking areas may be visible for a couple of moments as drivers pass by and travel at the designated speed limit. However, the analysis does not show the dense vegetation which would provide screening of the cars. Note that currently, cars parked along the highway right of way are visible, See Figure 3.6-3 for a photo of cars parking along NM Highway 522. The proposed developed parking areas would be set back off of the highway and screened by the trees.

3.7 Resource Issue 7 - Wildlife Resources

Issue: How would designation and management of existing routes and construction of non-motorized routes through implementation of the TMP impact wildlife (including raptors and other migratory bird species), big game and small game species, and special status wildlife species?

3.7.1 Affected Environment

General management and regulatory authority for wildlife species and habitats are described in the Taos RMP (BLM 2012). Appendix G of the RMP provides more detailed guidance for special status species management. Secretarial Order (SO) 3362 provides direction on improving habitat quality in western big-game winter range and migration corridors. Horsethief Mesa is designated a Priority 1 and 2 landscape in the New Mexico State Wildlife Action Plan (New Mexico Department of Game and Fish [NMDGF] 2019). Horsethief Mesa is also within the boundary of the Rio Grande del Norte National Monument. Wildlife species and habitats and ecological diversity are identified as monument objects in the Proclamation.

The Taos RMP (2012), Section 2.1.3 outlines the goals and objectives for wildlife species and habitats that are also relevant to travel management planning. Horsethief Mesa lies within Taos County, New Mexico in the Colorado Plateaus Ecoregion. This ecoregion is dominated by sagebrush steppe and pinyon-juniper woodlands. Wildlife habitats and associated species are diverse and abundant throughout Horsethief Mesa. The New Mexico Natural Heritage Department Biota Information System (BISON-M 2019) documents a total of 649 wildlife species in Taos County, which are summarized by taxonomic group in Table 3.7-1. These include game and nongame species present seasonally, as residents, and during migration.

Table 3.7-1 Wildlife Species Documented in Taos County

Taxonomic Group	Species in Taos County
Mammals	75
Birds	215
Amphibians	7
Reptiles	17
Fish	20
Invertebrates	315
Total	**649**

Source: BISON-M 2019
Note: Data are not available for most species occurrence specifically within Horsethief Mesa. For this reason, general species occurrence information is presented for Taos County, considering presence/absence of suitable habitat in Horsethief Mesa.

Vegetation communities that serve as habitat for wildlife species are described in Section 3.5. No perennial surface water, wetlands, or riparian communities are present within Horsethief Mesa. Species associated with these habitats are not analyzed in this EA.

3.7.1.1 Big Game Species

Big game species with potential to inhabit Horsethief Mesa include black bear (*Ursus americanus*), elk (*Cervus canadensis*), mountain lion (*Puma concolor*), mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), and bighorn sheep (*Ovis canadensis*). A total of 1,317 acres of winter habitat for elk, mule deer, and pronghorn is present in Horsethief Mesa. Deer, elk, and bighorn sheep summer in the high elevations of the Northern Sangre de Cristo Mountain range. Winter conditions can force these herds to lower elevations, but exact wintering areas and movement corridors are unknown. In addition, some elk migrants are

thought to move south into New Mexico from Colorado in the northernmost part of the landscape, but little information is known about this migration or the corridor(s) utilized (NMDGF 2019). Ongoing NMDGF research includes GPS collaring of big game species to identify detailed movements within the Northern Sangre de Cristo landscape. No big game migration corridors are documented within two miles of Horsethief Mesa to date (BLM 2019).

3.7.1.2 Small Game Species

Small game species documented or with potential to occur in Horsethief Mesa include upland game birds, small game mammals, furbearers, and migratory birds (Table 3.7-2). Potential for presence is determined by habitat association. Vegetation communities within Horsethief Mesa are presented in Section 3.5, Vegetation Communities. The primary vegetation communities in Horsethief Mesa are sagebrush shrubland and steppe, pinyon-juniper woodland, and other types of shrubland.

Table 3.7-2 Small Game Species and Furbearers with Potential to Occur in Horsethief Mesa

Common Name	Scientific Name
Abert's squirrel	*Sciurus aberti*
American badger	*Taxidea taxus*
Band-tailed pigeon	*Patagioenas fasciata*
Black-tailed jackrabbit	*Lepus californicus*
Bobcat	*Lynx rufus*
Coyote	*Canis latrans*
Desert cottontail rabbit	*Sylvilagus audubonii*
Dusky grouse	*Dendragapus obscurus*
Gray fox	*Urocyon cinereoargenteus*
Long-tailed weasel	*Mustela frenata*
Mourning dove	*Zenaida macroura*
Nuttall's cottontail rabbit	*Sylvilagus nuttallii*
Red fox	*Vulpes vulpes*
Red squirrel	*Tamiasciurus fremonti*
Scaled quail	*Callipepla squamata*
Striped skunk	*Mephitis mephitis*
Ring-necked pheasant	*Phasianus colchicus*
Ringtail	*Bassariscus astutus*

Sources: New Mexico Department of Game and Fish 2019b, BISON-M 2019

3.7.1.3 Nongame Species

A diversity of nongame species occupies the various habitats within Horsethief Mesa. Greater species diversity typically occurs in areas with greater vegetation structure, soil moisture, and open water, including wetlands and riparian areas. Nongame species serve as predators, prey, scavengers, and pollinators in ecosystems. Common nongame species include birds, bats, mammals, amphibians, reptiles, and invertebrates. Approximately 49 percent of the wildlife species documented in Taos County are invertebrates, including mollusks, crustaceans, mayflies,

dragonflies, grasshoppers and crickets, beetles, caddisflies, moths, butterflies, spiders, and other arachnids.

3.7.1.4 Migratory Bird Species

A total of 215 avian species are documented in Taos County (BISON-M 2019). Migratory bird species encompass a wide variety of raptor and other avian species, most of which are protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-711). Most bird species in North America and their parts, including eggs, feathers, and nests are protected under the MBTA. The BLM and the U.S. Fish and Wildlife Service (USFWS) entered into a Memorandum of Understanding in 2010 (BLM and USFWS 2010) to promote the conservation of migratory birds.

The online database, eBird, records all migratory bird observations for which a volunteer observer entered data regarding his or her observations. eBird records for Taos County in 2019 include approximately 276 species (eBird 2019). Of these, eBird records include 21 raptor species. Table 3.7-3 presents raptor species with potential to occur in suitable habitat in Horsethief Mesa (eBird 2019).

Table 3.7-3 Raptor Species Documented in Taos County

Common Name	Scientific Name
American kestrel	*Falco sparverius*
Barn owl	*Tyto alba*
Cooper's hawk	*Accipiter cooperii*
Ferruginous hawk	*Buteo regalis*
Flammulated owl	*Psiloscops flammeolus*
Golden eagle	*Aquila chrysaetos*
Great horned owl	*Bubo virginianus*
Long-eared owl	*Asio otus*
Merlin	*Falco columbarius*
Northern goshawk	*Accipiter gentilis*
Northern harrier	*Circus hudsonius*
Peregrine falcon	*Falco peregrinus*
Prairie falcon	*Falco mexicanus*
Red-tailed hawk	*Buteo jamaicensis*
Rough-legged hawk	*Buteo lagopus*
Sharp-shinned hawk	*Accipiter striatus*
Swainson's hawk	*Buteo swainsoni*

Source: eBird 2019

The USFWS identifies species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) (USFWS 2008). These species are designated as Birds of Conservation Concern (BCC). Most of these species are also designated with other types of status. BCC with potential to occur in Horsethief Mesa are noted in Table 3.7-5.

Raptors typically produce one clutch per year and many exhibit high fidelity to nest sites and nesting territories (Romin and Muck 2002). For this reason, raptor nests are identified and monitored by a variety of agencies and organizations. An active nest is defined as any nest that has been occupied in the last seven years. Species-specific seasonal and spatial avoidance measures for select raptor species are presented in Table 3.7-4.

Table 3.7-4 Seasonal and Spatial Avoidance Measures for Raptor Nests

Species	Seasonal and Spatial Avoidance Measures
Golden eagle	0.5 – 1.0 mile (January 1 – August 31)
Peregrine falcon	1.0 mile (February 1 – August 31)
Prairie falcon	0.5 mile (April 1 – August 31)
Cooper's hawk	0.25 mile (March 15 – August 31)
Northern goshawk	0.5 mile (March 1 – July 31)
Red-tailed hawk	0.125 mile (February 1 – July 15)
Ferruginous hawk	1.0 mile (February 1 – July 15)

Source: BLM 2012

3.7.1.5 Special Status Wildlife Species

The BLM 6840 Special Status Species Management Manual (BLM 2008) defines special status species as 1) species listed or proposed for listing under the ESA and 2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the Endangered Species Act. All Federal candidate species, proposed species, and delisted species in the five years following delisting are conserved as BLM Sensitive Species (BLM 2008). Species identified on the BLM Watch List have no management impact, whereas impacts to BLM Sensitive Species should be analyzed to avoid potential future listing under the ESA. BLM Watch List species occurrence is typically documented during field surveys.

BLM Sensitive Species that are documented or have potential to inhabit Horsethief Mesa are presented in Table 3.7-5. Bald and golden eagles are specifically protected under the Bald and Golden Eagle Protection Act (BGEPA). Suitable habitat information for species was cross-referenced with habitat present within Horsethief Mesa (Section 3.5, Vegetation Communities). If habitat identified as suitable for a species is present in Horsethief Mesa, then the species is assumed to have the potential to occur in the area for the purposes of the analysis in this EA. Consideration was given to avoid or mitigate known special status species habitats during the evaluation phase of the travel planning process.

3.7.1.6 BLM Sensitive Species

BLM Sensitive Species identified on the Taos County BLM Sensitive Wildlife Species Lists (BLM 2019b) were analyzed to determine their potential for occurrence in Horsethief Mesa. BLM Sensitive Species that are documented or have potential to occur in Horsethief Mesa are noted in Table 3.7-5.

Table 3.7-5 Sensitive Species with Potential to Occur in Horsethief Mesa

Common Name	Scientific Name	Federal Status	BLM Status	Range or Habitat Requirements	Potential for Occurrence in Horsethief Mesa	Conservation Measures[1]
Bendire's thrasher	*Toxostoma bendirei*	MBTA	Sensitive	Suitable habitat includes desert grassland and shrubland communities, including juniper woodlands. Horsethief Mesa is within the geographic breeding range for this species.	Suitable habitat is present in Horsethief Mesa; therefore, the Bendire's thrasher has potential to occur during the breeding season.	Nest avoidance during the primary nesting season (May1 – July 31).
Chestnut-collared longspur	*Calcarius ornatus*	MBTA BCC	Sensitive	Suitable habitat includes shortgrass prairie and desert grasslands (Bleho et al. 2015).	Grassland communities are present in Horsethief Mesa; therefore, the chestnut-collared longspur has the potential to occur during the non-breeding season.	None
Golden eagle	*Aquila chrysaetos*	BGEPA MBTA BCC	Watch List	Suitable nesting habitat includes cliffs and mature trees in grassland and open shrub-steppe habitats (Wickersham 2016b).	There are no documented nest or roost sites in Horsethief Mesa (BLM 2019a). Shrub-steppe vegetation communities are present in Horsethief Mesa; therefore, the golden eagle has potential to occur.	Nest avoidance during the typical nesting season (January 1 – August 31): 0.5-1.0 mile.

Common Name	Scientific Name	Federal Status	BLM Status	Range or Habitat Requirements	Potential for Occurrence in Horsethief Mesa	Conservation Measures[1]
Gunnison's prairie dog	*Cynomys gunnisoni*	None	Sensitive	The Gunnison's prairie dog inhabits grassland communities.	Suitable habitat for this species exists in Horsethief Mesa; however, no colonies are documented.	Gunnison's prairie dog colony avoidance: Long duration activities will not be allowed within 0.25 mile from February 15 – June15). Short duration activities will be limited to the spatial buffer zone outside of the boundary of the occupied prairie dog colony and will not occur within the occupied colony between April 1 and September 15. Restrictions may be adjusted or waived if impacts can be mitigated.
Mexican whip-poor-will	*Antrostomus arizonae arizonae*	MBTA	Sensitive	Suitable breeding and transient habitat includes pinyon/juniper woodland and other mixed conifer forests (BISON-M 2017).	The Mexican whip-poor-will is considered a rare breeding and transient subspecies in Horsethief Mesa.	The subspecies does not construct a nest. Eggs are laid directly on the ground. The first brood is likely produced in May and a second brood is possible.
Monarch butterfly	*Danaus plexippus*	Candidate	Sensitive	Suitable breeding habitat includes vegetative communities that contain milkweed. Suitable winter habitat is in high-altitude forests in Mexico and coastal California (NatureServe Explorer 2019).	The monarch butterfly has a complex, multi-generational migratory life cycle. The known winter range for this species is outside of Horsethief Mesa. The monarch butterfly has potential to occur in Horsethief Mesa in vegetative communities that contain milkweed.	Documented occurrences of milkweed would be avoided with buffers similar to SSPS, as determined by the TAFO.

Common Name	Scientific Name	Federal Status	BLM Status	Range or Habitat Requirements	Potential for Occurrence in Horsethief Mesa	Conservation Measures[1]
Pinyon jay	*Gymnorhinus cyanocephalus*	MBTA BCC	Sensitive	Pinyon jays are colonial nesters and breeding commences during winter in areas where pine-seed crops were abundant the previous autumn (Balda 2002). Occasionally occurs in neighboring regions when pinecone crops fail (NMPIF 2020). In New Mexico, they are variable residents in mainly middle elevation areas containing piñon-juniper woodlands almost statewide and range from uncommon to locally abundant (BISON-M 2020).	The pinyon jay is documented in pinyon pine forests within Horsethief Mesa. The pinyon jay has the potential to occur year-round.	Nest avoidance during the primary nesting season. If a nest or nesting colony is detected, appropriate buffers would be applied prior to implementation (March 1 – July 31).
Townsend's big-eared bat	*Corynorhinus townsendii*	None	Sensitive	Suitable habitat includes semi-desert shrublands, pinyon-juniper woodlands, and open montane forests. The species may occupy caves, mine tunnels, or large rock shelters ranging from low desert to mixed conifer woodland (BLM 2012).	Semi-desert shrublands and pinyon-juniper woodlands are present in Horsethief Mesa; therefore, the Townsend's big-eared bat has potential to occur.	None
Virginia's warbler	*Leiothlypis virginiae*	MBTA BCC	Sensitive	Suitable breeding habitat includes pinyon – juniper and oak woodlands (Olson and Martin 1999).	Pinyon-juniper woodlands are present in Horsethief Mesa; therefore, the Virginia's warbler has potential to occur during the breeding season.	Nest avoidance during the typical nesting season (May1 – July 31).

Main Sources: Birds of the World online 2020, BLM Taos Field Office (Herrera-Olivas) 2018 (Sensitive Wildlife Species List); BLM 2012 (Taos Field Office Resource Management Plan); NatureServe Explorer 2019; NMDGF 2019; NMDGF 2016 (New Mexico State Wildlife Action Plan); New Mexico Natural Heritage Program 2020, (Biota Information System of New Mexico [BISON-M]), USFWS 2008 (Birds of Conservation Concern).

[1] Conservation measures presented are from the Taos Field Office Management Plan (BLM 2012). Typical nesting seasons were determined from Birds of North America online, BLM 2012, BLM Taos Field Office (Herrera-Olivas).

3.7.2 Environmental Impacts

The analysis of potential impacts to wildlife species was conducted by evaluating the miles of designated routes within each vegetation community, under each alternative (Tables 3.5-4 and 3.5-5).

3.7.2.1 General Wildlife Species

Routes and associated uses can have a variety of impacts to wildlife species and habitats. The types of impacts include habitat loss, degradation (e.g., spread of non-native species), fragmentation, and increased wildfire risk. Routes impact individuals by impeding movement (barriers), causing mortality (e.g., vehicle collisions, increased competition, and predation), and causing disturbance (e.g., noise and human activity). The spread of invasive, non-native plant species as a result of route use impacts wildlife habitat (see Section 3.5).

The creation of additional edges within habitat can have several types of impacts on wildlife, depending on the species. These include the modification of distribution and dispersal and an increased potential for predation and nest parasitism. The creation of edges may be detrimental to those species that require large undisturbed areas of habitat. Increases in edge generally result in reductions in patch size and possible isolation of patches and corridors (Yahner 1988). Edges created by routes can fragment otherwise suitable habitat. Conversely, species diversity typically increases in edge habitat. It is not expected that implementation of the TMP would create or modify edge habitat to a large extent within Horsethief Mesa. Design features, such as those identified in Section 2.1.9 for tree retention would protect these areas.

Habitat fragmentation can become compounded when numerous route networks are created. Fragmented habitats can lead to a reduction in total area and suitability of habitat Landscape fragmentation can also alter habitat complexity because it results in loss of original habitat(Wilcox and Murphy 1985).

A study conducted in 1999 found that ambient noise can reduce species richness in areas of high ambient noise (Stone 2000). This study supports a hypothesis first proposed by Krause (1987) called the Niche Hypothesis. The Niche Hypothesis basically states that birds and other wildlife may be affected by human-induced noise pollution. Krause suspected that introducing constant noise such as vehicles, aircraft, chainsaws, highways, etc. may lead to a decreased ability for birds to effectively communicate during territorial and breeding behaviors. Krause found strong evidence to support this hypothesis and determined that bird survival may be impaired by excessive noise levels (Krause 1987). Noise pollution created by OHVs can produce extremely loud decibel (dB) levels, some ranging as high as 100 dB, which can cause hearing loss in humans after a sustained period.

Many different factors contribute to road-related wildlife mortalities but some of the more important factors are the intensity of use and the width of the road (Underhill and Angold 2000). The greatest threat is direct mortality from vehicle collisions (Bissonette and Rosa 2009). Effects appear greatest for larger animals, species that have declining or restricted distributions, as well

as those whose migratory paths cross or are near to roads (Bennett 1991). Many individuals that become seriously injured will seek cover and die out of sight; therefore, death rate tolls are difficult to determine (Underhill and Angold 2000). Although trail use has lower intensity effects than highways, some of the effects cited in the study would apply to OHV use.

Each of the action alternatives involves some degree of route limitation or closure. Route closures and restrictions would reduce route redundancy, habitat degradation and fragmentation, and human disturbance to wildlife. Passive restoration would occur on some closed routes, which would benefit wildlife species and habitats. However, remaining routes within wildlife habitats would continue to cause disturbance, potentially increasing with increased use. Tables 3.7-6 and 3.7-7 present the miles of designated routes within elk, mule deer, and pronghorn winter range. Habitat loss, degradation, and fragmentation would be decreased when routes are closed, or use is limited. Decreased human disturbance, especially during the breeding season, would enhance breeding success and survival of young.

Development of either trailhead option 1 or option 2 would impact wildlife within Horsethief Mesa similarly across all action alternatives. Trailhead option 1 would be located within an existing clearing on the landscape and trailhead option 2 would be located within a previously disturbed area. Both trailhead options would be located within pronghorn, elk, and mule deer winter range. Motorized use within the area is typically self-limiting during the winter season, however with the addition of dedicated parking areas, use would likely increase. Disturbance associated with increased use may result in depletion of important energy reserves and stress to wildlife. Potential impacts from construction of the trailhead options would be temporary and limited to the trailhead area. Best management practices would be employed during construction to reduce construction-related impacts. Best management practices that concentrate users within the footprint of the trailheads, such as fencing or vehicle barriers, would decrease potential for off-site travel and may help to protect wildlife habitat and may prevent increased wildlife encounters. Development of trailhead options would be subject to additional surveys, and construction could require additional site-specific analysis under NEPA.

Trailhead option 1 would require additional widening and maintenance of access routes, which would contribute to habitat fragmentation, degradation, and noise disturbance to wildlife. Trailhead option 2 would be located in a former dumpsite, thus impacts to wildlife habitat already exist. However, the larger size of option 2 would provide for increased access and visitation, leading to more potential for wildlife-human encounters.

3.7.2.2 Special Status Species

The types of potential impacts to special status species would be consistent with the effects analyzed in Section 3.7.2.1, General Wildlife Species. Special status species typically have smaller populations and could therefore be more sensitive to disturbance than other wildlife species. Impacts to special status wildlife species and habitats would occur under all action alternatives, but to different degrees. There would be long-term beneficial effects as a result of route closures and limitations. Open routes through habitat for special status species can disturb

individuals during the breeding season, causing them to avoid otherwise suitable habitat and possibly abandon nests or other breeding habitats. Avoidance or mitigation of known special status species habitats was built into the evaluation phase of the travel planning process.

In December 2020 the USFWS determined that listing the monarch butterfly (*Danaus plexippus*) under the ESA was warranted but precluded at that time by higher priority listing actions. With this finding, the monarch butterfly became a candidate species for listing. Its status will be reviewed annually until USFWS can begin developing a proposal to list the species. The monarch butterfly has a complex transcontinental migratory life cycle. Habitat loss and fragmentation contribute to the species' decline. Milkweed species (*Asclepias spp.*) serve as a host for monarch caterpillars and eggs (USFWS 2021). There is potential for monarch butterfly to occur within the Horsethief Mesa area, and surveys for milkweed are planned for summer of 2021.

3.7.2.2.1 BLM Sensitive, BLM Watch List, SGCN, BCC, and Migratory Bird Species

Effects to BLM Sensitive, BLM Watch List, SGCN, BCC, and Migratory Bird Species are considered based on the route miles and designations proposed within certain vegetation types, which are described in Section 3.5. Route designations and closures could affect species with the potential to occur in those habitat types for all or part of their life cycles.

3.7.2.2.2 Migratory Bird and Raptor Species

Travel management planning can reduce the level of disturbance that a travel network has on avian species and habitats through closure and restriction of routes or management of uses. Disturbance to vegetation communities that provide avian habitat is discussed in Section 3.5. The types of potential impacts to avian species associated with routes and route uses that are common to all alternatives include the following:

- Injury or mortality from collisions with vehicles or by crushing of nests;
- Habitat degradation and fragmentation caused by travel routes;
- Increased potential for nest abandonment and failure;
- Reduction in breeding productivity;
- Reduction in prey availability; and
- Avoidance of otherwise suitable habitat due to disturbance from noise and human activity. Avian responses to human disturbance vary according to several factors, including habitat type and species.

The types of impacts from route closures and other restrictions that are common to all action alternatives include:

- Decreased injury or mortality from collisions with vehicles;
- Decreased noise and human activity, which cause behavioral changes for avian species;
- Improved habitat connectivity;

- Improved breeding productivity;
- Increased prey availability;
- Permanent route closures would potentially encourage avian species to return to previously abandoned habitats;
- Increased suitable habitat in areas where routes are closed and revegetated; and
- Increased ecosystem resiliency from other natural and anthropogenic disturbances.

The types of impacts to migratory bird habitats from invasive, non-native plant species are common to all alternatives and consistent with the effects analyzed in Section 3.5. These impacts include seed distribution and existing infestations, although some non-native plants provide suitable habitat for migratory bird species.

3.7.2.3 Alternative A (No Action)

Under Alternative A, all existing routes would remain without change in use or designation. OHV use would not be limited, and wildlife habitat and winter range would continue to be degraded and disturbed. Potential impacts to sage brush habitat would continue, and introduction of non-native, invasive plants species would contribute to wildlife habitat loss.

3.7.2.4 Alternative B (Resource Protection)

Under Alternative B, there would be no open routes in Horsethief Mesa and route density within big game winter habitats would be reduced by closing and decommissioning 15.7 miles of routes, the most of all alternatives. Implementation of Alternative B would result in 6.4 total miles of routes within elk, pronghorn, and mule deer winter range (Table 3.7-6), and a reduction of route miles within important sage brush habitat, as shown in Section 3.5 Vegetation Communities. This reduction of route miles would decrease potential for habitat loss, degradation, fragmentation, and human disturbance. Passive restoration would likely occur on closed routes; however remaining routes would continue to cause a low level of disturbance.

3.7.2.5 Alternative C (Balanced)

Impacts under Alternative C would be similar to those described at the beginning of this section (3.7.2 Environmental Impacts). Under Alternative C, a total of 7.0 miles of routes would be designated as OHV open, including 4.4 miles of routes within elk, mule deer, and pronghorn winter range. This Alternative would close approximately 8.3 miles of routes, 4.8 miles of which would be within elk, mule deer, and pronghorn winter range. No new routes would be proposed under this alternative, which would help to maintain the integrity of existing habitat at Horsethief Mesa.

3.7.2.6 Alternative D (Access)

Impacts under Alternative D would be similar to those described at the beginning of this section (Section 3.7.2 Environmental Impacts). This alternative would maintain the most motorized access through wildlife habitat of all action alternatives, including 7.5 miles of OHV open routes through elk, mule deer, and pronghorn winter range. Minimal route closures (3.4 total miles)

would maintain habitat fragmentation at levels near existing conditions. Potential wildlife encounters with OHVs would be high relative to the other action alternatives.

3.7.2.7 Alternative E – (Expanded Route Network)

Under Alternative E, a total of 9.6 miles of routes would be closed or rerouted and 19.9 miles of existing routes would remain open or have limited designations. Approximately 16.1 miles of new or rerouted trail are proposed under Alternative E (Table 2.2-1), however the 0.3 miles of proposed new OHV open routes would only be constructed in trailhead option 2 were implemented. The 15.8 miles of proposed new routes limited to non-motorized and e-bike class 1 use would result in the same types of impacts described above for Alternative C. The construction and use of new routes would result in increased habitat loss, degradation, and fragmentation, compared to other alternatives. Alternative E would have the greatest potential for wildlife encounters with 35.9 miles of total routes within Horsethief Mesa.

Table 3.7-6 Open or Limited Route Designations within Elk, Mule Deer, and Pronghorn Winter Range (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
OHV Open	16.7	0	4.4	7.5	4.4
Limited Non-Motorized and E-Bike Class 1	0	5.3	6.8	6.8	6.1
Limited Hiking	0	0	0	0	0
Limited to Administrative and Authorized Users	0	1.1	0.5	1.3	0.5
Proposed New (OHV Open)	0	0	0	0	0.3
Proposed New (Limited Non-Motorized and E-Bike Class 1)	0	0	0	0	11.3
Proposed New Reroute (Limited Non-Motorized and E-Bike Class 1)	0	0	0	0	1.8
Total	**16.7**	**6.4**	**11.8**	**15.6**	**24.5**

Source: BLM 2017

Table 3.7-7 Closed Routes within Elk, Mule Deer, and Pronghorn Winter Range (Miles)

Designation	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
Closed/Decommissioned	0	10.3	4.8	1.0	4.6
Closed/Decommissioned (To Be Rerouted)	0	0	0	0	1.4
Total	**0**	**10.3**	**4.8**	**1.0**	**5.9**

Source: BLM 2017

3.7.2.8 Cumulative Impacts

Past, present, and RFFAs including uses on the current transportation network have fragmented and degraded wildlife habitat within Horsethief Mesa.

RFFAs that involve vegetation removal would continue to contribute to cumulative impacts to wildlife species and habitats. Habitat fragmentation would continue and increase accordingly as a result of vegetation removal, potential increase in invasive, non-native species, and increased recreational use. RFFAs would decrease wildlife grazing, browsing, and foraging habitat and increase the potential for mortality from motor vehicle collisions. Noise and human disturbance from RFFAs would combine with the current and increasing level of disturbance from recreational and other route uses.

Implementation of the TMP would incrementally reduce the existing levels of disturbance and habitat fragmentation by closing or limiting route use and restoring previous disturbance to vegetation communities. Habitat loss, degradation, and fragmentation would decrease when routes are closed, or use is limited. Management of designated routes would incrementally improve habitat quality by maintaining proper trail width and reducing impacts to vegetation. Creation of new routes and reroutes would increase recreational use of Horsethief Mesa, resulting in increased impacts to wildlife species and habitats. Implementation of the proposed TMP would close routes that are redundant and dead-end spurs that serve no purpose. The addition of the future seasonal parking areas outside of Horsethief Mesa, identified in Section 2.1.1 of this EA, would increase public access to the area and to routes within big game winter range, which would increase potential for impacts to wildlife species.

4.0 CONSULTATION AND COORDINATION, AND PUBLIC PARTICIPATION

4.1 Consultation and Coordination

The BLM notifies and consults with tribal governments concerning public land management projects. Several laws, regulations and BLM policy guide these efforts, including the NHPA and its implementing regulations (36 CFR 800), NEPA and its implementing regulations (40 CFR 1500), the Native American Graves Protection and Repatriation Act and its implementing regulations (43 CFR 10), Executive Orders 13175 and 12898, and BLM Manual H-1780.

The following tribes and tribal organization potentially affected by the proposed TMP were contacted: Comanche, Hopi, Isleta, Jicarilla Apache, Kiowa, Navajo Nation, Ohkay Owingeh, Picuris, Southern Ute, Taos, and Tesuque. The Southern Ute tribe is participating in this TMP process. Navajo Nation responded that they did not feel a need to participate.

The BLM would collaborate with USFS to secure legal access to Horsethief Mesa through Carson National Forest through a road use agreement instrument. USFS would prepare a decision through a separate environmental planning process for the access road as part of that collaboration.

4.2 Public Participation

Public outreach and involvement throughout the TMP process was critical to the development of the alternatives. Extensive public input was gathered and documented to develop the TMP/EA. Route designations and alternatives were developed and refined through the public involvement process. On July 22, 2020, a virtual (Zoom) public scoping meeting was held to review the inventory data and collect comments related to travel management. The meeting presented the travel management process and draft alternatives and requested input on routes identified within Horsethief Mesa. A total of 60 people attended the virtual public meeting. BLM staff members, resource specialists, and staff from Logan Simpson (BLM's travel management consultant) conducted the virtual scoping meeting to gather public comments and answer questions. The Zoom meeting was also streamed live on the New Mexico BLM Facebook page.

Comment forms were available online and comments were accepted via e-Planning. An online interactive map was provided during the presentation for members of the public to reference and comment. Questions and comments were received during the virtual scoping meeting via the Zoom Question and Answer function. A total of 17 comments were received via email and 105 comments were posted in e-Planning after the meeting. New routes proposed via public input were analyzed and considered, as described in Section 2.7 of this EA.

5.0 LIST OF PREPARERS

Tables 5.1-1 and 5.1-2 present all BLM staff and Logan Simpson staff that were involved and participated in scoping, route evaluation, and preparation of the Implementation Plan and EA.

Table 5.1-1 List of BLM Staff

Name	Role
Brad Higdon	Planning and NEPA Specialist
Carl Thomson	Rangeland Management Specialist
Elyssa Duran	Forester
Herbert Chavez	Farmington District Engineer
Judy Culver	Assistant Field Manager, Recreation
Mark Lujan	Realty Specialist
Natalie Sanford	Cultural Resource Specialist
Nik MacPhee	Ecologist/Botanist
Pamela Herrera-Olivas	Wildlife Biologist
Ryan Besser	Fisheries and Aquatic Resources Biologist
Sage Dunn	Fisheries and Aquatic Resources Biologist
Tami Torres	Outdoor Recreation Planner

Table 5.1-2 List of Logan Simpson Staff

Name	Role
Andy Grinstead	Environmental Planner
Bruce Meighan	Principal/Contract Manager
Casey Smith	GIS Analyst

Name	Role
Erin Bibeau	Senior Environmental Planner/Project Manager
Julie Capp	Environmental Planner/Senior Wildlife Biologist
Kristina Kachur	Planner/Administrative Record Coordinator
Ted Hoefer	Senior Archaeologist