



United States
Department of
Agriculture

Forest
Service

Intermountain
Region

Humboldt-Toiyabe
National Forest

Ely Ranger District

February 2009



Ely Ranger District Travel Management Project Environmental Assessment

**Humboldt-Toiyabe National Forest
White Pine, Lincoln, and Nye Counties, Nevada**



The US Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

Table of Contents

CHAPTER 1 - INTRODUCTION	1
BACKGROUND	1
PROPOSED ACTION	2
PURPOSE AND NEED FOR ACTION	3
FOREST PLAN	3
MANAGEMENT DIRECTION	4
DECISION FRAMEWORK	5
PUBLIC INVOLVEMENT	5
ISSUES	8
CHAPTER 2 - ALTERNATIVES, INCLUDING THE PROPOSED ACTION.....	11
ALTERNATIVES.....	11
<i>Alternative 1: No Action</i>	11
<i>Alternative 2: Proposed Action</i>	11
<i>Alternative 3: Current Road and Trail System</i>	14
<i>Design Elements Common to Both Action Alternatives</i>	14
<i>Comparison of Alternatives</i>	15
CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES.....	23
RECREATION	24
ROADLESS	36
NOXIOUS WEEDS.....	44
WILDLIFE/THREATENED AND ENDANGERED SPECIES	50
<i>Greater Sage-grouse</i>	51
<i>Pygmy Rabbit</i>	54
<i>Northern Goshawk</i>	56
<i>Flammulated Owl</i>	59
<i>Townsend’s Big-eared Bat and Spotted Bat</i>	62
<i>Peregrine Falcon</i>	64
<i>Bald Eagle</i>	65
<i>Bonneville Cutthroat Trout</i>	66
<i>Mule Deer</i>	67
<i>Rocky Mountain Elk</i>	70
<i>Bighorn Sheep</i>	71
<i>Neotropical Migratory Birds</i>	73
FOREST SERVICE SENSITIVE AND STATE PROTECTED PLANTS	81
CULTURAL RESOURCES.....	84
WATER QUALITY AND SOIL EROSION	86
NATIVE AMERICAN VALUES	96
ENVIRONMENTAL JUSTICE	97
SOCIAL/ECONOMIC	99
PUBLIC HEALTH AND SAFETY	100
ROAD MANAGEMENT	101
LIVESTOCK MANAGEMENT	103
CHAPTER 4 - CONSULTATION AND COORDINATION	105
INTERDISCIPLINARY TEAM MEMBERS	105
FEDERAL, STATE, AND LOCAL AGENCIES	105
TRIBES	106
OTHERS	106
CHAPTER 5 – GLOSSARY OF TERMS.....	107

CHAPTER 6 - REFERENCES	111
APPENDIX A: ROUTES PROPOSED FOR ADDITION	117
APPENDIX B: PROPOSED ROUTES LOCATED WITHIN WILDLIFE HABITAT	123
APPENDIX C: CUMULATIVE WATERSHED EFFECTS.....	129

TABLES

<i>Table 1: Public Involvement Activities Conducted for the Ely Travel Management Project.</i>	<i>6</i>
<i>Table 2: Forest Transportation System under the Proposed Action Alternative.....</i>	<i>12</i>
<i>Table 3: Miles of Routes in the Forest Transportation System under the Proposed Action.....</i>	<i>13</i>
<i>Table 4: Non-motorized Trails Added under the Proposed Action Alternative (number of trails/miles of trail).....</i>	<i>13</i>
<i>Table 5: Comparison of Alternatives</i>	<i>17</i>
<i>Table 6: Distribution of Semi-Primitive Motorized ROS and Semi-Primitive Non-Motorized ROS Classes across the Mountain Ranges of the Ely Ranger District (acres).</i>	<i>26</i>
<i>Table 7: Distribution of Semi-Primitive Motorized ROS and Semi-Primitive Non-Motorized ROS Classes across the Mountain Ranges of the Ely Ranger District under the Proposed Action Alternative (acres).....</i>	<i>29</i>
<i>Table 8: Distribution of Acres of Semi-Primitive Motorized ROS and Semi-Primitive Non-Motorized ROS Classes across the Mountain Ranges of the Ely Ranger District under the Current System Alternative.....</i>	<i>33</i>
<i>Table 9: Miles of Motorized Routes in IRAs under the No Action Alternative.....</i>	<i>38</i>
<i>Table 10: Miles of Proposed Motorized NFS Trails in IRAs under the Proposed Action Alternative (including existing NFS roads and NFS trails).</i>	<i>40</i>
<i>Table 11: Miles of Motorized Routes in Inventoried Roadless Areas (IRAs) under the Current System Alternative.....</i>	<i>42</i>
<i>Table 12: Annual Rate of Spread or Annual Seed Production for Selected Noxious Weeds.....</i>	<i>45</i>
<i>Table 13: Noxious and Invasive Weed Species on the Ely Ranger District.....</i>	<i>46</i>
<i>Table 14: Miles of Motorized Routes in High-Risk Noxious Weed Areas.....</i>	<i>47</i>
<i>Table 15: Miles of Routes in Wildlife Habitat.....</i>	<i>51</i>
<i>Table 16: Proposed Routes that Cross within 2 Miles of a Sage Grouse Lek.....</i>	<i>53</i>
<i>Table 17: Acres of Potential Habitat for Pygmy Rabbits by Mountain Range.....</i>	<i>55</i>
<i>Table 18: Proposed Routes within Potential Goshawk Habitat.....</i>	<i>58</i>
<i>Table 19: Acres of Potential Flammulated Owl Habitat on the Ely Ranger District by Mountain Range...60</i>	<i>60</i>
<i>Table 20: Proposed Routes within Potential Flammulated Owl Habitat.....</i>	<i>61</i>
<i>Table 21: Proposed Routes Near Caves or Tunnels Potentially Used by Bats</i>	<i>63</i>
<i>Table 22: Proposed Routes in Native Fish Habitat.....</i>	<i>67</i>
<i>Table 23: Proposed Routes Within or Crossing Big Horn Sheep Habitat</i>	<i>72</i>
<i>Table 24: Neotropical Birds Detected on the Ely Ranger District.....</i>	<i>75</i>
<i>Table 25: Miles of Routes within Occupied Rare Plant Habitat by Alternative on the Ely Ranger District. (Scorpion milkvetch is not included due to lack of spatial data information).</i>	<i>83</i>
<i>Table 26: Miles of Route located in Topographic or Vegetative Settings that Contribute to Soil Erosion and Water Quality Impairment.....</i>	<i>89</i>
<i>Table 27: Erosion Rates for Various Soil Textures, Levels of Traffic, for Two and Thirty Percent Slope are displayed for Four Road Designs.....</i>	<i>90</i>
<i>Table 28: Minority Populations Associated with the Project Area.....</i>	<i>97</i>
<i>Table 29: Income Comparison related to the Project Area.....</i>	<i>98</i>
<i>Table 30: Primary Travel Routes on the Ely Ranger District Maintained to Provide Safe and Comfortable Travel in a Passenger Vehicle.....</i>	<i>101</i>

CHAPTER 1 - INTRODUCTION

Background

Federal regulations adopted on November 9, 2005, and published at 70 FR 26959, provide for designation of those National Forest System roads, trails, and areas that are open to motor vehicle uses (36 CFR 212.50). After designated roads, trails, and areas are identified on a motor vehicle use map, motor vehicle use that is not in accordance with those designations is prohibited by federal regulations at 36 CFR 261.13.

The forest transportation atlas shows that there are currently approximately 210 National Forest System (NFS) roads totaling about 800 miles (187 miles of NFS roads are located outside of the Forest boundary and provide primary access to the Forest) and 84 NFS trails totaling about 222 miles that comprise the forest transportation system on the Ely Ranger District (District). Eight of these NFS trails (approximately 30 miles) are open to motor vehicle use. Some of the NFS roads are the primary access routes that lead into and across the District. Other NFS roads provide access for high-clearance vehicles into the backcountry of the District. These roads provide access for the administration, utilization, and protection of the NFS lands on the Ely Ranger District and include routes used by anglers, hunters, other recreation users, and authorized permittees. These routes provide access for people who want to enjoy the Forest. They afford opportunities for off-highway vehicle (OHV) drivers to explore the District and drive on challenging high-clearance four-wheel drive roads and trails.

Outside designated wilderness and the Duck Creek Basin, much of the Ely Ranger District is currently open to cross-country travel. Unauthorized routes have arisen through use over time in this area. These routes are not inventoried, managed, maintained, or included on the forest transportation system.

Some unauthorized routes are well situated and provide access to popular dispersed campsites, informal trailheads, and other features. Some have been in use for many years. Altogether, there may be as many as 900 unauthorized routes on the District. Most of these are less than 0.5 mile in length.

Based on a comprehensive travel analysis, the District Ranger proposes adding some of the unauthorized routes to the forest transportation system as NFS roads or NFS trails to facilitate recreation access or resource management. Many of the other unauthorized routes would not contribute substantially to recreation or use of the District or would involve serious environmental concerns, and are not proposed for inclusion on the forest transportation system. After completion of the designation process, motor vehicles would be restricted to designated routes.

Those routes proposed for inclusion in the forest transportation system are depicted on the set of maps included on the attached CD and on the Forest website.

Proposed Action

The forest transportation atlas shows that there are currently about 210 NFS roads totaling approximately 800 miles (187 miles of NFS roads are located outside of the Forest boundary and provide primary access to the Forest), and 84 NFS trails totaling about 222 miles that comprise the forest transportation system on the Ely Ranger District. The Forest Service proposes to add 190 existing unauthorized routes (approximately 213 miles) to the forest transportation system as NFS roads or NFS trails. The District would also reclassify four NFS roads as trails, and open two NFS trails to motor vehicle use.

In general, the routes proposed for addition to the forest transportation system are rough, unmaintained, and unsuitable for two-wheel drive low-clearance vehicles. They may be used by Forest Service personnel in the administration of their duties, ranchers accessing portions of their allotments, geologists searching for minerals, hunters and hikers gaining access to remote areas, and others driving for pleasure on NFS lands.

Following issuance of this decision, all roads and trails designated for motor vehicle use would be identified on a motor vehicle use map. Motor vehicle use that is not consistent with the designations will be prohibited under the terms of 36 CFR 261.13. However, the prohibitions on motor vehicle use will not apply to the following activities, as detailed in 36 CFR 261.13:

- Aircraft.
- Watercraft.
- Over-snow vehicles.
- Limited administrative use by the Forest Service.
- Use of any fire, military, emergency, or law enforcement vehicle for emergency purposes.
- Authorized use of any combat or combat-support vehicle for national defense purposes.
- Law enforcement response to violations of law, including pursuit.
- Motor vehicle use that is specifically authorized under a written authorization issued under Federal law or regulation (e.g., woodcutting permits, term grazing permits, approved plans of operations) (36 CFR 212.51a).

The proposed action would also prohibit over-snow vehicles in the Murray Watershed.

Motor vehicle use in Duck Creek Basin has been restricted to designated routes since 2004, and that decision is not being revisited. The miles of designated road and trails in Duck Creek Basin are included so the projected total miles of the forest transportation system on the District can be compared by alternative.

See the discussion on the Proposed Action Alternative on page 11 for a complete description.

Purpose and Need for Action

On November 9, 2005, the Secretary of Agriculture adopted rules which provided for a fundamental change in the management of motor vehicle use on the national forests (70 FR 68288). Until that time, there was a presumption that all roads, trails, and areas were open to use by motor vehicles. If use by motor vehicles was not appropriate for any reason, the Forest Service had to take action to close specific roads, trails, or areas and prohibit motorized use. This resulted in a largely unplanned transportation system, with many routes established by repeated use, and damage to resources occurring from uncontrolled cross-country travel.

The 2005 rule provided a mechanism for transition to a new system for managing motor vehicle use. Following appropriate environmental analysis and public involvement, those roads, trails, and areas designated for motorized use would be identified on a motor vehicle use map, and any motor vehicle use not consistent with those designations would be prohibited by the rule (36 CFR 261.13). In this way, the national forests would provide sustainable transportation systems for travel and recreation, and for management and protection of resources prone to damage from unmanaged use.

The rule also provides that the management of motor vehicle use is to be an ongoing process, with continuing evaluation of the designations and revision as needed (36 CFR 212.54). It is expected that many changes to the designated system will be made over time in order to meet recreation and transportation needs and protect national forest resources.

The number of unauthorized routes across the District has increased over the last several years. Some of these routes were established in areas where there is the potential for resource damage. Prohibiting motor vehicles from traveling off designated roads and trails would reduce the effects to natural resources caused by cross-country travel. This action responds to the goals and objectives outlined in the Humboldt Forest Plan (USDA Forest Service 1986). It helps move the project area towards the desired conditions described in the Forest Plan by allowing motor vehicle use where it will not unacceptably impact Forest resources or unnecessarily impact other Forest users.

The purpose of the proposed action is to designate roads, trails, and areas for motor vehicle use to meet recreation, access, and management objectives while limiting environmental impacts and ensuring a sustainable transportation system across the District. This also applies to the use of over-snow machines in the Murry Canyon Municipal Watershed. Use of these machines off designated routes can result in impacts to the city of Ely's municipal watershed. Closing this area to snowmobile use would reduce ground disturbance to the watershed, protecting the city of Ely's water source.

Forest Plan

Projects conducted within NFS lands are guided by forest plans for the specific national forest. The Humboldt National Forest Land and Resource Management Plan (Forest

Plan) sets forth the direction for managing the land and resources of the Humboldt National Forest (USDA Forest Service 1986). This action responds to the forest-wide and management area specific goals and objectives outlined in the Humboldt Forest Plan. Specifically, the proposed action implements Goals 1, 6 and 8, which address the need to provide a diversity of recreation opportunities, which include both motorized and non-motorized recreation (USDA Forest Service 1986, p. IV-1 to IV-3). Goal 8 specifically addresses motorized recreation opportunities and its relationship to other resources. At a more general level, the project is consistent with Goals 9, 10, 13, 15, 21, 24, 29, 32, 33, 43, 48, and 53, which require the design of proposals to be consistent with other resource management issues (USDA Forest Service 1986, p. IV-3 to IV-15).

This proposal is also consistent with direction to maintain the present amount of Recreation Opportunity Spectrum (ROS) Primitive and Semi-Primitive Non-Motorized area (USDA Forest Service 1986, p. IV-18).

Standards and guidelines are the management requirements necessary for achieving the Forest Plan goals and objectives. Standards and guidelines provide the constraints within which management practices will be performed. In relation to this project, there are three standards and guidelines consistently identified for each management unit:

- Provide a trail system adequate for administrators, permittees, and the public (USDA Forest Service 1986, p. IV-152).
- Provide habitat for sensitive and federally listed threatened and endangered species (USDA Forest Service 1986, p. IV-153).
- Protect and improve key wildlife habitats (USDA Forest Service 1986, p. IV-153).

This proposal would prohibit over-snow vehicles in the Murry Canyon Municipal Watershed to reduce ground disturbance to the city of Ely's municipal watershed. This action would be consistent with direction for the Ward Mountain Management Area (USDA Forest Service 1986, p. IV-172): "Maintain the Murray [sic] Watershed to protect the community of Ely, Nevada, from potentially damaging high runoff. Allow no activities on the Murray Watershed, which would increase erosion or runoff".

Management Direction

This proposal implements the Travel Management Rule (36 CFR. part 212, subpart B) as published on November 9, 2005, in the Federal Register (*Travel Management; Designated Routes and Areas for Motor Vehicle Use*, 70 FR 26959). This rule provides for designation of those NFS roads, trails, and areas that are open to motor vehicle use (36 CFR 212.50). After designated roads, trails, and areas are identified on a motor vehicle use map, motor vehicle use that is not in accordance with those designations is prohibited by federal regulations at 36 CFR 261.13. This rule can be viewed at <http://www.fs.fed.us/recreation/programs/ohv/index.shtml>.

In 2004, the Humboldt-Toiyabe National Forest completed a Forest-Scale Roads Analysis Process Report (RAP). This RAP had four key findings:

- Recreation use across the Forest was projected to increase.
- In some areas high levels of OHV use was causing significant degradation to soil, water, biological, and visual resources.
- Road maintenance funds are not adequate to maintain all inventoried roads on the Forest.
- The Forest level RAP could be used in finer scale analysis.

As part of this project, the Ely Ranger District conducted a Travel Analysis Process (TAP) (Forest Service Manual (FSM) 7712). This TAP verified some of the findings of the broad-scale Forest-wide RAP. The TAP was used throughout this analysis and was developed as the analysis in the EA progressed. One service the TAP provided was that it required the District to develop a means to look at all the roads and their effects across the District. To do this, the Forest developed the Humboldt-Toiyabe Route Designation Guide in 2005. In the Route Designation Guide, the relevant portions of the Forest Plan are identified as are several resource based areas of concerns and directions on how to map them. The guide (or the TAP) does not direct the Forest to close routes when one crosses a resource of concern but identifies what those concerns might be and gives the decision maker and resource specialist the means to assess impacts. The most recent version of this guide and the TAP is available in the project record.

Decision Framework

Based on this environmental analysis, the Ely District Ranger will decide:

- Which routes motorized traffic will be restricted to, and what areas, if any, will be open to cross-country motorized travel.
- Which alternative best represents the minimum road system needed to be open and available for continued use for utilization, protection, and administration of the Forest.

The District Ranger may choose an alternative that contains various parts of the three alternatives presented in this analysis.

Public Involvement

Over the past two years, the District collected public input on travel planning in preparation for this project. The efforts made by the District to inform the public of the project, to gather input related to routes, and to work with tribes, other agencies, county governments, individuals, and organizations are detailed below (table 1).

Table 1: Public Involvement Activities Conducted for the Ely Travel Management Project.	
Summer and Fall 2005	Held open houses every Thursday from 3 to 6 pm to gather public comments.
Fall 2005	Sought input from Ely Bureau of Land Management (BLM).
June and October 2005	Consulted with Ely Shoshone, Duckwater, and Yomba Tribes.
July 8 and August 12, 2005	Published articles on travel management in Ely Times.
November/December 2005	Met with Nevada State Parks and Nevada Department of Wildlife.
Fall 2005	Provided Nye and Lincoln County maps to Tonopah Ranger District Office for public review.
January 2006	Met with staff from Great Basin National Park to discuss travel management.
December 2006	Received proposal from South Steptoe Technical Review Team for roads and trails located on part of Ward Mountain and in areas south of Cave Lake State Park.
2007	Provided quarterly updates to the White Pine Coordinated Resource Management Steering Committee.
February 23, 2007	Presented information to White Pine, Lincoln, and Nye counties on project at Tri-County meeting.
April 2007	Met with Duckwater Shoshone Tribe to discuss the project.
May 15, 2007	Mailed request for comments to 240 individuals and organizations.
May 23, 2007	Published press release in The Ely Times.
May 18, 2007	Provided update to County Commissioners from White Pine, Lincoln, and Nye counties at Tri-County Meeting.
June 2007	Met with Ely Shoshone Tribe to discuss the project.
June 5, 2007	Presented the proposed action and maps to the White Pine County Public Land Users Advisory Committee.
February 29, 2008	Provided second update to County Commissioners from White Pine, Lincoln, and Nye counties at Tri-County Meeting
March/April 2008	Met with Yomba, Ely Shoshone, Goshute, and Duckwater Shoshone to discuss the project.

During the scoping period (May 23 to June 21, 2007), the District received 19 letters from interested individuals, state agencies, and organizations. The District used these comments to develop the issues and alternatives in this EA. Two individuals and one state agency provided specific comments on the following routes.

Dan Heinz suggested closing Kolcheck Road (59571) at the junction with the Cleve Creek Road (59435) because it was not needed. He also recommended changing the end of Cleve Creek Road (59435) into a motorized trail instead of a NFS road.

In the proposed action, NFS road 59571 would be designated as a trail open to motor vehicles less than 50 inches, and the end of NFS road 59435 would be designated as an NFS trail (non-motorized). National Forest System road 59435 washed out just above the intersection with NFS road 59571. Converting the section above the intersection with 59571 to a non-motorized trail would provide access to NFS trail 19074 and 19073. Use on NFS road 59571 would be permitted to the end of the road but motorized travel beyond that point would be prohibited. This would allow continued access in the cherry-stem but would reduce opportunities for motor vehicles to be driven into the wilderness. At some time in the future, there may be a need to physically close the two unauthorized routes that lead to the Kolcheck mine.

Gene Kolkman requested that the motorized portion of the Ice Plant Trail (E1489) be closed because it provides direct access to his property. During the initial project outreach in 2006, the South Steptoe Valley Technical Review Team (TRT) for roads located on Ward Mountain identified this trail as a route that provided good access.

Conflicts between users of the trail and private property owners (speed, noise, and resource damage) are discussed by alternative in chapter 3 of this EA. In this proposed action, route E1489 is proposed as a NFS trail open to motorized vehicles less than 50 inches.

Nevada Division of Wildlife (NDOW) asked the Forest Service to:

- Add the Harris Canyon Road (59628), Harris Canyon to Prune Springs Road (E12715), and a road in the southeast corner of the Schells (U59369) to provide hunter access.
- Add upper Horse Canyon Road (59151).
- Add Mosier Canyon Road (extend 59438).
- Add the North Fork of Rye Grass Road as a motorized trail (U59143D).
- Add the Cottonwood Spring-South Schell route as a motorized trail (19718).
- Add road that connects Cooper Canyon Road with route 578 (U59578, U59353).
- Confirm if Mustang to Stove Springs (U59404A) and Upper Chicken Springs (U59058) are cherry-stems excluded from the wilderness.
- Edit maps to show how the Hendry's Creek Road (59429) accesses the trailhead.

The proposed action was adjusted to address some of NDOW's comments as appropriate. Others were not appropriate because the Forest does not have rights-of-

way across much of the private land within the District's boundaries. Direction from the Chief of the Forest Service dated June 8, 2006, states, "The Forest Service will not manage, maintain, or designate roads and trails where it does not have the right to do so".

Issues

The interdisciplinary team (IDT) identified five issues from scoping comments and internal discussions. The environmental consequences associated with these issues are addressed for each alternative.

Recreation 1: Restriction of motorized vehicles to designated routes would prohibit Forest visitors from driving cross-country to hunt, retrieve game, create dispersed campsites, or engage in other motorized off-road recreation activities. This could result in reduced use of the District and discontent among some users.

Indicators:

- Semi-primitive motorized (SPM) acres
- Miles of motorized trails
- Miles of open routes

Recreation 2: Addition of unauthorized routes to the forest transportation system may result in conflicts between motorized users and non-motorized users. This in turn could reduce the quality of the recreation experience.

Indicators:

- Access to recreation
- Semi-primitive non-motorized (SPNM) acres
- Miles of non-motorized trails

Roadless: Addition of unauthorized routes in Inventoried Roadless Areas (IRAs) to the forest transportation system as NFS trails may degrade roadless characteristics and wilderness attributes.

Indicators:

- Existing miles of designated routes in roadless areas
- Unauthorized routes in roadless areas

Biological and Physical Resources: Addition of approximately 213 miles of unauthorized routes could result in degradation of watersheds, soils, vegetation, and terrestrial and aquatic wildlife habitat. The addition of these routes could also increase the spread of noxious and invasive species, which could further degrade wildlife habitat conditions and vegetation communities.

Indicators:

Noxious Weeds

- Miles of NFS roads and trails in high risk areas
- Miles of NFS roads and trails in medium risk areas

- Miles of unauthorized routes in high risk areas
- Acres of District at medium risk
- Risk of spread resulting from cross-country travel

Greater Sage-grouse

- Miles of NFS roads within 2 miles of sage grouse leks
- Miles of unauthorized routes within 2 miles of sage grouse leks
- Cross-country use

Pygmy Rabbit

- NFS roads within pygmy rabbit habitat
- Unauthorized routes within pygmy rabbit habitat
- Cross-country travel

Northern Goshawk

- NFS roads within potential goshawk habitat
- Unauthorized routes within potential goshawk habitat
- Cross-country travel

Flammulated Owl

- NFS roads within potential flammulated owl habitat
- Unauthorized routes within potential flammulated owl habitat
- Cross-country travel

Townsend's Big-eared Bat

- Miles of NFS roads near potential hibernula and maternity roost habitat
- Miles of unauthorized routes near potential bat habitat
- Cross-country travel

Mule Deer Winter Range

- Miles of NFS roads within deer winter range
- Miles of unauthorized routes within deer winter range
- Cross-country travel

Peregrine Falcon and Migratory Birds

- Miles of NFS roads open for motor vehicle use near potential falcon foraging and migratory bird habitat
- Miles of unauthorized routes open for motor vehicle use near potential falcon foraging and migratory bird habitat
- Cross-country motor vehicle use

Bighorn Sheep

- Miles of NFS roads within bighorn sheep habitat
- Miles of unauthorized routes within bighorn sheep habitat
- Cross-country travel

Forest Service Sensitive and State Protected Plants

- Miles of routes within occupied rare plant habitat

Cultural Resources

- Continued use of routes crossing heritage resource sites

Water Quality/Soil Erosion

- Miles and acres of routes within 300 feet of riparian areas
- Number of perennial stream crossings
- Number of intermittent stream crossings
- Miles and acres of routes located on slopes greater than 30 percent

Social/Economic: The addition of approximately 213 miles of existing unauthorized routes to the forest transportation system and the restriction of motorized vehicles to designated routes could result in an additional economic burden as the District or counties respond to the changing forest transportation system.

- Changes in county population or employment

During scoping, the District received several comments that are either part of the purpose and need, part of the proposed action, or already decided by laws, regulations, or policy. The IDT also identified issues brought up by the public during scoping that were outside the scope of the project, irrelevant to the decision being made, or conjectural in nature. These issues will not be carried through the analysis process but have been documented and included in the project record.

CHAPTER 2 - ALTERNATIVES, INCLUDING THE PROPOSED ACTION

This chapter describes and compares the alternatives considered for the Ely Ranger District Travel Management Project. This section also presents the alternatives in comparative form, defining the differences between each alternative, and providing a clear basis for choice by the decision maker. All routes considered in the following alternatives are depicted on the maps included on the attached CD and on the Forest website. Hard copies of these maps can be requested from the Ely Ranger District office.

Alternatives

Alternative 1: No Action

Under the No Action Alternative, the District would not add the proposed routes to the forest transportation system. Current travel management direction would continue, and no motor vehicle use map would be issued. Use of motor vehicles would not be restricted to designated roads and trails on most areas of the District.

This alternative serves as the baseline for the analysis and addresses the motorized recreation issue. Under this alternative, all motor vehicles could continue to travel on and off most routes except in wilderness and in the Duck Creek Basin.

Alternative 2: Proposed Action

The Proposed Action Alternative was defined to address the recreation access issue by adding several popular unauthorized routes to the forest transportation system. It also adds unauthorized routes into popular hunting areas and dispersed campsites. Following this decision, designated roads and trails would be identified on a motor vehicle use map in accordance with 36 CFR 212, Subpart B. Motor vehicle use that is not in accordance with the designations would be prohibited under 36 CFR 261.13, with limited exceptions identified in the rule.

The forest transportation atlas shows that there are currently approximately 210 National Forest System (NFS) roads totaling about 800 miles (187 miles of NFS roads are located outside of the Forest boundary and provide primary access to the Forest), and 84 NFS trails totaling about 222 miles that comprise the forest transportation system on the Ely Ranger District. The Proposed Action adds 190 unauthorized routes (approximately 213 miles) to the forest transportation system as NFS roads (36 [57 miles]) and NFS trails (154 [156 miles]) (table 2). The District would reclassify four NFS roads as trails, and open two NFS trails to motor vehicle use.

With the proposed changes, the forest transportation system on the Ely Ranger District would include 484 routes with approximately 1,239 miles of NFS roads and NFS trails (table 2).

Table 2: Forest Transportation System under the Proposed Action Alternative.	
NFS Roads*	828 miles, 238 routes
NFS Trails*	411 miles, 246 routes
* Totals include routes in Duck Creek Basin and NFS roads located outside the boundaries of Ely Ranger District.	

Specific changes to the forest transportation system on the Ely Ranger District would include:

- Adding 154 unauthorized routes as NFS trails, totaling 156 miles.
- Adding 36 unauthorized high-clearance four-wheel drive roads as NFS roads, totaling 57.2 miles.
- Reclassifying three NFS roads, Fawn Trail Road (59009), Kolcheck Road (59571), and Ice Plant Road (59442), totaling 8.9 miles, as motorized NFS trails open to off-highway vehicles (OHVs).
- Reclassifying NFS road 59420 as a non-motorized NFS trail.
- Prohibiting over-snow vehicles in the Murry Canyon Municipal Watershed to protect the municipal watershed.
- Allowing motor vehicle use on the Ranger Trail (19069) north of the Duck Creek area and on trail 19718 by vehicle type (i.e., all-terrain vehicle (ATV), single-track, OHV, etc.) for a total of 20 miles.
- Eliminating cross-country motorized travel, consistent with the Travel Management Rule.
- Prohibition of motor vehicle use that is not in accordance with the designations, within limited exceptions.

The unauthorized routes proposed for addition to the forest transportation system provide access to dispersed recreation sites, connection to other system routes, or valued recreation experiences. These routes average 1.2 miles in length, with the longest being 11.4 miles. While many of these routes have been in place for many years, others are more recent (all were created prior to 2002). Regardless of how or when they were created, the District proposes to retain them as roads or motorized trails because of their value as roads and trails on the Ely Ranger District. The District does not propose any road construction or reconstruction as part of this alternative.

The miles of NFS roads and NFS trails currently on the forest transportation system for the Ely Ranger District, and the miles of unauthorized routes that this alternative would add to the system are displayed in table 3. Appendix A provides a table of the routes that would be added to the forest transportation system under the Proposed Action Alternative. The table includes the following information for each proposed route: route number, designation as road or trail, location by mountain range, length of route, and the reason for designation.

Table 3: Miles of Routes in the Forest Transportation System under the Proposed Action.						
Routes	Grant-Quinn	Moriah	Schells*	Ward	White Pine	*Total
Current NFS Roads	104.9	87	259.5*	72.2	305	828.6
Proposed NFS Roads	5.8	13.8	10.6	4	23.1	57.2
Current NFS Trails (all classes)	33.7	53.8	98.4	22.5	13.2	221.6
Proposed NFS Trails	13.4	5.9	43.2	38.2	64.0	165.0
* Total includes Duck Creek Basin						

Motorized trails receive little maintenance and can be rough and difficult to travel. The proposed action adds approximately 156 miles to the forest transportation system as motorized NFS trails. Of these, 17 miles would be open specifically for ATVs, 2 miles would be open for single-track use, and the remaining 137 miles would be open for OHVs. The proposed action also adds 57 miles of high-clearance four-wheel drive roads across the District (table 3).

This alternative includes the designation of a portion of the Ranger Trail (19069), north of Duck Creek, as open for single-track motorized use. Currently motorized use on this trail is permitted but not limited to motorcycles. This change would provide a total of 20 miles of NFS trail open to motorcycles on the forest transportation system.

There are approximately 191 miles of non-motorized NFS trails on the District. The break down of NFS trail miles by mountain range is displayed below (table 4). Currently these trails, outside of designated wilderness, remain open to all forms of non-motorized travel. Under the proposed action, they would be designated for non-motorized use only.

Table 4: Non-motorized Trails Added under the Proposed Action Alternative (number of trails/miles of trail).						
	Grant-Quinn	Moriah	Schell	Ward	White Pine	Total
Current Non-motorized NFS Trails	10/34	14/54	17/67	15/23	5/13	61/191
Proposed Non-motorized NFS Trails			2/1.7			2/1.7
Current NFS Roads Converted to Non-motorized NFS Trails	1/3		1/1			2/4
Current Motorized NFS Trails			9/30.8			9/30.8
Current NFS Trails to be Converted to Motorized trails			3/20			3/20

This alternative also proposes to prohibit over-snow vehicles in the Murry Canyon Municipal Watershed on Ward Mountain to reduce disturbance to the city of Ely’s

municipal watershed. The closure is approximately 3,990 acres in size and is depicted on the Ward Mountain map ([Ely Map Package](#)).

Alternative 3: Current System

This alternative addresses the potential impacts of adding unauthorized routes on the physical, biological, and social resources of the District. Under this alternative, the District would not add any unauthorized routes to the forest transportation system. Under the Current System Alternative, the forest transportation system on the Ely Ranger District includes approximately 294 routes (202 NFS roads and 92 NFS trails), totaling about 1,026 miles (584 miles of NFS roads and 255 miles of NFS trails). Included in the NFS road total is 187 miles of NFS roads located outside of the Forest boundary which provide primary access to the Forest. Fifty-eight miles of NFS trails are open to motor vehicle use. These trails are all located on the Schell Creek Range in the Duck Creek Basin Area. Maps of the project area (see CD or Forest website) show the current NFS roads (gold routes) and NFS trails (purple solid and broken routes).

Like the Proposed Action Alternative, this alternative would not designate roads or trails for motor vehicle use on the upper part of the Cleve Creek Road (0.6 miles) (59435), on the east side of the Schell Creek Range, and on road 59420 for a total of 3.4 miles. This alternative would convert NFS roads 59009, 59442, and 59571 to NFS trails open to OHVs (8.9 miles).

This alternative also includes the prohibition on motor vehicles from traveling off the designated roads and trails identified on the motor vehicle use map under the terms of 36 CFR 261.13.

Design Elements Common to Both Action Alternatives

Silver State OHV Trail

This EA and Decision Notice would be completed before the Ely Bureau of Land Management (BLM) completes their analysis on the Silver State OHV Trail Project in White Pine County. At this time, it is unclear where the trail would cross NFS lands. The trail may cross NFS lands near Schellbourne, on the north end of the Schell Range, through the northeast edge of Ward Mountain, and across the north end of the White Pine Range. When the BLM makes their decision regarding the location of the Silver State Trail, the Forest would change the motor vehicle use map to agree with the final route.

Changing Road Conditions

The Forest Service must continue to respond to public safety concerns and close roads quickly when they become dangerous because of floods or other natural events. The Ely Ranger District would continue to implement emergency closures. As conditions change, the District would repair roads to standards, change the vehicle class, or close routes based on location, use, condition, and economic considerations. Annual updates to the motor vehicle use map would reflect these changes.

Permitted Uses

The exemptions to the proposed prohibitions would allow motor vehicle use that is specifically authorized under a written authorization issued under federal law or regulation (e.g., woodcutting permits, term grazing permits, approved plans of operations) (36 CFR 212.51a). Mine operators, livestock grazing permittees, private landowners, and others can acquire permits to use motor vehicles off designated system routes or even to construct roads in accordance with applicable federal laws and regulations.

Comparison of Alternatives

This section summarizes the effects of implementing each alternative. The effects or outputs of each alternative are distinguished either quantitatively or qualitatively among alternatives (table 5).

Issues

Recreation 1: This recreation issue is addressed by development of both the No Action Alternative and the Current System Alternative. These alternatives illustrate the effects of the forest transportation system on the distribution of Semi-Primitive Non-Motorized (SPNM) and Semi-Primitive Motorized (SPM) recreation opportunities across the District and provide the means to compare the effects of the Proposed Action. In the No Action Alternative, the effects of unmanaged cross-country travel are displayed. Motor vehicle users are free to travel on or off NFS routes and are unrestrained by restrictions limiting them to designated routes. Under the Current System Alternative, the opposite is true. Motor vehicles are restricted to a finite set of NFS roads and a very small set of NFS trails open to motor vehicles.

Recreation 2: For those seeking a non-motorized recreation experience, the No Action Alternative would have the highest potential for adverse impacts. Those visiting the Forest with the idea of escaping the sites and sounds of the modern world would potentially have to travel further to meet their needs. Without the restriction of motor vehicles to designated routes, there would always be a potential to find a favorite isolated location accessed by new tracks. The Current System Alternative restricts motor vehicles to designated routes and does not designate any unauthorized routes. This alternative was developed to address the concerns of users that by increasing the forest transportation system more of the District would be lost to non-motorized use.

Roadless: The roadless issue is also addressed in both the Proposed Action and Current System Alternatives. Contrasting the amount of routes in the No Action Alternative currently open in IRAs, the two action alternatives display impacts to roadless attributes and wilderness characteristics.

Biological and Physical Resources: The Current System Alternative was developed to address concerns regarding the effects of the Proposed Action Alternative on the physical and biological resources.

Social/Economic: The Current System Alternative was developed to address concerns regarding the social and economic effects of the Proposed Action Alternative.

Table 5: Comparison of Alternatives			
Issue/Resource	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 Current System
Impacts on Recreation Motorized Use			
Semi-Primitive Motorized (SPM) (acres)	316,448	212,514	150,056
Motorized Trails (miles)	54.7	216	60.3
Open Routes (miles)	608 miles NFS roads open to motor vehicle use.	636 miles of NFS roads open to motor vehicles use.	608 miles of NFS roads open to motor vehicles.
Impact on Non-motorized Recreation Use			
Access	Cross-country motorized use continues. All dispersed campsites accessible.	Cross-country motor vehicle use prohibited. Access to popular dispersed campsites maintained, along with access to popular big game and upland bird hunting areas.	Cross-country motor vehicle use prohibited. Motorized access to some dispersed campsites and hunting areas restricted. Reduced opportunities for OHV riding.
Semi-Primitive Non-Motorized (SPNM) (acres)	482,401	573,568	618,887
Non-Motorized Trails (miles)	191	175	174
Roadless			
Existing Designated Routes in Roadless Areas (miles)	11.6	11.6	11.6
Unauthorized Routes in Roadless Areas (miles)	151.9	16.7	0
Noxious Weeds			
NFS Roads and Trails in High Risk Areas (miles)	168	130	113
NFS Roads and NFS Trails in Medium Risk Areas (miles)	1,374	730	528
Unauthorized Routes in High Risk Areas (miles)	55	18	0
Acres of District at Medium Risk	584,587	570,319	564,535

Table 5: Comparison of Alternatives			
Issue/Resource	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 Current System
Risk of Spread Resulting from Cross-country Travel	New infestations may result from unrestricted cross-country motor vehicle use.	Cross-country motor vehicle use prohibited.	Cross-country motor vehicle use prohibited. No routes added in high risk areas.
Greater Sage-grouse			
NFS Roads within 2 Miles of Sage Grouse Leks (miles)	66	66	40
Unauthorized Routes within 2 Miles of Sage Grouse Leks (miles)	69	13	0
Cross-country Use	Cross-country motor vehicle use continues including use of approximately 60 miles of unauthorized routes.	Cross-country motor vehicle use prohibited	Cross-country motor vehicle use prohibited.
Pygmy Rabbit			
NFS Road within Pygmy Rabbit Habitat (miles)	291	291	291
Unauthorized Routes within Pygmy Rabbit Habitat (miles)	391	77	0 s
Cross-country Travel	Cross-country motor vehicle use continues including use of approximately 75 miles of unauthorized routes.	Cross-country motor vehicle use prohibited.	Cross-country motor vehicle use prohibited.
Northern Goshawk			
NFS Roads within Potential Goshawk Habitat (miles_	111	111	111
Unauthorized Routes in Potential Goshawk Habitat (miles)	80	31	0
Cross-country Travel	Cross-country motor vehicle use continues.	Cross-country motor vehicle use prohibited.	Cross-country motor vehicle use prohibited.

Table 5: Comparison of Alternatives			
Issue/Resource	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 Current System
Flammulated Owl			
NFS Roads Within Potential Flammulated Owl Habitat (miles)	13	13	13
Unauthorized Routes within Potential Flammulated Owl Habitat (miles)	14	6	0
Cross-country Travel	Cross-country motor vehicle use continues including use of approximately 13 miles of unauthorized routes.	Cross-country motor vehicle use prohibited.	Cross-country motor vehicle use prohibited.
Townsend's Big-eared Bat			
NFS Roads Near Potential Hibernula and Maternity Roost Habitat (miles)	2.4	2.4	2,4
Unauthorized Routes near Potential Bat Habitat (miles)	9.9	2.3	0
Cross-country Travel	Opportunity to create routes within habitat continues.	Cross-country motor vehicle use prohibited.	Cross-country motor vehicle use prohibited.
Mule Deer Winter Range			
NFS Roads within Deer Winter Range (miles)	313	313	313
Unauthorized Routes within Deer Winter Range (miles)	549	99	0
Cross-country Travel	Cross-country motor vehicle use continues.	Cross-country motor vehicle use prohibited.	Cross-country motor vehicle use prohibited.
Peregrine Falcon and Migratory Birds			
NFS Roads near Potential Falcon Foraging and Migratory Bird Habitat Open for Motor Vehicle Use (miles)	618	618	618

Table 5: Comparison of Alternatives			
Issue/Resource	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 Current System
Unauthorized Routes near Potential Falcon Foraging and Migratory Bird Habitat Open for Motor Vehicle Use (miles)	998	234	0
Cross-country Travel	Cross-country motor vehicle use continues.	Cross-country motor vehicle use prohibited.	Cross-country motor vehicle use prohibited.
Bighorn Sheep			
NFS Roads within Bighorn Sheep Habitat (miles)	22	22	22
Unauthorized Routes within Bighorn Sheep Habitat (miles)	24	7	0
Cross-country Travel	Cross-country motor vehicle use continues.	Cross-country motor vehicle use is prohibited resulting in improved habitat.	Cross-country motor vehicle use is prohibited resulting in improved habitat.
Forest Service Sensitive and State Protected Plants			
Routes within Occupied Rare Plant Habitat (miles)	7	5	5
Cultural Resources			
Continued Use of Routes Crossing Heritage Resource Sites	No adverse effect on heritage resource sites adjacent to proposed routes.	No adverse effect on heritage resource sites.	No adverse effect on heritage resource sites.
Water Quality/Soil Erosion			
Routes within 300 Feet of Riparian Areas (miles and acres)	173 miles (415 acres)	135 miles (324 acres)	119 miles (285 acres)
Number of Perennial Stream Crossings	174 crossings	133 crossings	108 crossings
Number of Intermittent Stream Crossings	1,572 crossings	956 crossings	747 crossings
Routes Located on Slopes Greater than 30% (miles and acres)	150 (360 acres)	64 (153 acres)	47 (112 acres)

Table 5: Comparison of Alternatives			
Issue/Resource	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 Current System
Social/Economics			
Changes in County Population or Employment	Little positive or negative effect on local economies that results in increases or decreases in population or employment		
Public Health and Safety			
	No increased likelihood of accidents under any alternative.		
Native American Values	Continued cross-country motor vehicle use with potential to adversely affect sites.	Prohibiting cross-country motor vehicle use minimizes the risk to areas with potential Native American values.	No impacts from existing roads. Prohibiting cross-country motor vehicle use minimizes the risk to areas with potential Native American values.
Environmental Justice	No disproportionate impact on minority or low income populations.		
Road Management	No new system mileage to maintain; system mileage remains at 613 miles.	74 miles of NFS road added to forest transportation system that would be maintained on as needed basis.	No new system mileage to maintain; system mileage remains at 613 miles.
Livestock Management	Livestock management would continue under current management under all alternatives. Appropriate motor vehicle use by permittees would be authorized under grazing permits.		

This page intentionally left blank.

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section summarizes the physical, biological, social, and economic environments and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives (see table 5, chapter 2).

Most of the data used in the following analysis are from the Humboldt-Toiyabe National Forest corporate geographic information system (GIS) layers. There is a certain amount of error in the location and alignments included in this GIS data. For example, the road layer overlying the stream layer may show more stream crossings than actually exist on the ground because of the various sources from which the different layers were obtained. Some perennial streams may show up as being intermittent. This may also create some inaccuracies as to the exact location and extent of riparian zones. The Forest is constantly working to improve map accuracies and the corporate GIS layers.

The best data available were used in this analysis. The data in the following tables and in the project record depict with a reasonable amount of accuracy what would be occurring on the ground for each alternative, within the limitations described above. The changes between alternatives remain relative to each other.

The proposed action reflects routes identified by the District through public involvement, scoping, and completion of the travel analysis process (TAP) that need to be open and available for continued use for recreation, utilization, and administration of the Forest. The proposed action includes most of the National Forest System (NFS) roads and NFS trails currently identified as part of the forest transportation system plus approximately 190 unauthorized routes currently in use by the public, permittees, and the District staff.

Many routes currently open to motor vehicle use on the District are not used with a great deal of regularity. Some routes included in the proposed action may not be used at all for several weeks, while other routes are used daily. Without an accurate estimate of average daily use on the major NFS roads, it would be meaningless to assess how use on a side route may or may not increase or how much resource damage may or may not occur with selection of any of the alternatives.

The interdisciplinary team (IDT) approach in the environmental assessment (EA) has been to identify the direct, indirect, and cumulative effects of use from the alternatives using the best available information. The IDT recognizes that some routes may experience more use but attempting to quantify the extent of that increase or the effect it may have on resources would be based on assumptions and speculation.

Recreation

Affected Environment

Many diverse recreation activities, both motorized and non-motorized, occur on the Ely Ranger District. In the spring, horn hunters visit the area in search of elk antlers. The summer season begins in early May with camping in both developed campgrounds and dispersed areas. Hikers, mountain bikers, equestrians, fishing enthusiasts, motorcyclists, off-highway vehicle (OHV) riders, and recreational drivers utilize roads and trails on the District throughout the summer.

In the fall, many hunters set-up camps and utilize motorized and non-motorized means to travel from their base camp to access hunting areas. Sometimes they travel off-route to pursue or retrieve game. The fall also brings an influx of sightseeing recreationists, mostly driving full-sized vehicles, to view the colors of the changing vegetation.

The winter season attracts cross-country skiers, a few backcountry skiers, and snowmobilers. Most winter recreationists are from the local communities. Cross-country skiers utilize trails in the Ward Mountain area. Backcountry skiers generally utilize the High Schells Wilderness. Snowmobile riders utilize the roads adjacent to this wilderness and the Cave Mountain area south of the wilderness.

Off-highway vehicle (OHV) riders utilize many of the existing routes on the District for recreation and transportation. Existing routes encompass approximately 1,616 miles of road and motorized trail. However, only about 600 miles of those routes are identified as NFS roads. The remaining miles are generally unauthorized routes used as a motorized trail experience by OHVs, full-size vehicles, all-terrain vehicles (ATV), and motorcycles. From observation, most unauthorized routes appear to be used by hunters to access isolated areas at the ends of canyons. For the most part, these routes do not provide good opportunities for motorized recreation because they lead to dead-ends.

The Ely Ranger District contains approximately 222 miles of NFS trail. Of that, about 160 miles are located in wilderness areas. Twenty-five miles of trails located outside of wilderness areas are managed as non-motorized, although there are no legal restrictions to keep motor vehicles off these trails. The Ward Mountain and Ice Plant Trail systems in the Murry Canyon Municipal Watershed and the Cave Lake Trails adjacent to Cave Lake State Park are examples of trails used by both motorized and non-motorized recreationists.

The 40-mile long Ranger Trail (19069), the Fawn Trail (19123), and many routes in the Ward Mountain area (including E1489, E9762, and 59442 in the Ice Plant area and E1189, E1497, and E1537 that connect to Lowery and further south to other motorized routes) provide varying challenges and some loop opportunities. Outside of the hunting season, most recreational OHV use is concentrated in these areas, which are near the city of Ely and easily accessible.

Currently the only designated OHV trail on the District is 15 miles of the Ranger Trail located in the Duck Creek Basin. Most of the Ranger Trail is designated as open to

motorized vehicles less than 50 inches in width. There are few motorized single-track recreation opportunities on the District. Some sections of the Ranger Trail (outside of Duck Creek) are currently managed as motorized single-track.

The portion of the Ice Plant Trail within the Murry Canyon Municipal Watershed provides an excellent mountain bike opportunity. The portion of the trail outside of the watershed (E1489) is used by ATVs. It connects to NFS road 59442, providing a motorized loop opportunity and a way to keep motorized traffic out of the watershed.

There are many opportunities for primitive recreation in the nine wilderness areas which encompass 456,000 acres of the District. Semi-primitive non-motorized (SPNM) trail experiences are less common on the District with only two existing non-motorized trail systems: Ward Mountain (Ice Plant) and the Schells Cave Lake trails.

Generally, there are few conflicts between user groups. Mountain bike users have expressed concerns that there is a limited amount of single-track outside of wilderness, and this could be turned into ATV trails. The Cave Lake trails are protected by the state park (motorized users cannot access the trails through the park); these trails are accessible to mountain bike users. Mountain bikers can use the Ward and Ice Plant trails in the Murry Canyon Municipal Watershed. Motorcycles cannot use the trails because of the restriction on motor vehicle use within the municipal watershed. Cross-country skiers also use the Ward Mountain trails and have reported some conflict with snowmobile users. There have been some snowmobile incursions into the High Schells Wilderness in areas used by backcountry skiers.

Environmental Consequences

The quality of the non-motorized recreation experience is diminished with the increase of motorized off-road travel and higher road densities. Gucinski and others (2001) observed that the presence of roads can have conflicting effects on recreation. While roads can provide staging access to remote areas and wilderness, they can also diminish opportunities for solitude and perceptions of wilderness. The environmental effects to motorized and non-motorized recreation experiences are measured by:

- The relative difference between the amount of Semi-Primitive Motorized (SPM) acres and Semi-Primitive Non-Motorized (SPNM) acres available for recreation opportunities on the different mountain ranges.

The Humboldt National Forest Land and Resource Management Plan (Forest Plan) directs managers to maintain the present amount of Recreation Opportunity Spectrum (ROS) Primitive and Semi-Primitive Non-Motorized areas (USDA Forest Service 1986, p. IV-18). Specific management direction in the Forest Plan that either directly or indirectly applies to Primitive and Semi-Primitive Non-Motorized ROS management includes:

- Allow no new permanent roads except for mineral production (USDA Forest Service 1986, p. IV-18).

Semi-Primitive Non-Motorized ROS corresponds to areas where there are no existing motorized routes, and non-motorized recreation is predominant. These areas provide

visitors with a high probability of getting away from the sights and sounds of other people, to be independent, to enjoy nature, and to practice outdoor skills. These areas are typically 0.50 to 3 miles away from motorized routes. The amount of SPNM ROS is used to measure impacts to non-motorized recreation rather than Primitive ROS because by definition primitive is an area with very little recreation and visitor use. In addition, Primitive ROS on the District is completely within wilderness areas or inventoried roadless areas (IRAs).

Semi-Primitive Motorized ROS corresponds to areas where there are existing motorized routes and recreation dependent on motorized use occurs with some regularity. This ROS setting still provides some opportunities for solitude but a user is more likely to encounter the sights and sounds of other users. Gucinski and others (2001) noted that almost all recreation use in national forests depends to some degree on motorized access. Sightseeing, driving for pleasure, and developed camping are examples of activities that directly use roads as a part of the recreation experience. The key issue to motorized recreationists is sustainable routes, with diversity in trail difficulty and loop opportunities.

On NFS land, there is a need and expectation that recreation opportunities for individuals seeking either the SPNM or SPM setting is available. The Ely Ranger District has many areas where recreationists can enjoy near pristine, uninterrupted solitude while sitting only a few meters from a route within the available 316,338 SPM acres. The District has approximately 482,400 acres of SPNM where recreationists can get further away from development (table 6), as well as 456,000 acres of wilderness that provide a primitive recreation experience.

ROS Class	Grant-Quinn	Moriah	Schell	Ward	White Pine
SPM	54,286	23,702	80,630	21,871	135,959
SPNM	113,893	57,494	140,873	14,811	155,330

Alternative 1 - No Action Alternative

Under this alternative, there is no restriction on motor vehicle use on the District outside of designated wilderness areas and the Duck Creek Basin.

Non-Motorized Recreation

Under the No Action Alternative, the entire 798,849 acres of SPM and SPNM on the District are open for motor vehicle use. This alternative has the greatest impact on non-motorized recreation experiences of all the alternatives.

The No Action Alternative allows many redundant routes to remain open and may result in more route proliferation into primitive and semi-primitive areas impacting non-motorized recreation opportunities. For example, hunters whose methods of accessing, scouting, stalking, and retrieving game by foot or horse are potentially affected by other hunters using motorized vehicles to travel cross-country to scout for game, access favorite hunting areas, drive or chase game for a better shot, and retrieve game. While the terrain prevents access into some areas, the proliferation of routes could eventually allow motorized access to all unroaded areas on the District.

Under the No Action Alternative, snowmobile use would continue in the Murry Canyon Municipal Watershed. This is the only area of the District with designated cross-country ski trails (based from the Ward Mountain Recreation Area). When there is adequate snow, the area is utilized by locals and visitors for non-motorized winter recreation. Cross-country skiers and snowshoers use the marked trails for a variety of loop opportunities with varying challenge. Backcountry skiers also use the area and access the higher peaks to the south. Leaving this area open to snowmobiles would negatively impact non-motorized winter recreation. Snowmobiles can quickly track up the available snow, disturb ski trails, and generate noise, reducing the quality of the backcountry experience. The Recreation Opportunity Spectrum refers more to summer recreation, but some impacts can be inferred. Much of the watershed is in SPNM ROS. Allowing motorized recreation in the winter would alter the ROS of the area making it more SPM.

Motorized Recreation

Under the No Action Alternative, there is little impact on the availability of motorized recreation. All of the existing routes would remain available for use. Motorized recreationists are able to travel off road and visit other areas. In the short-term, motorized exploration of more remote areas may offer a satisfying experience. However, over time the quality of this motorized experience would be diminished as dispersed motorized activities begin to degrade the scenery and natural appearance of the landscape. Route proliferation; eroded routes and hill climbs; and the associated sights, sounds, and impacts to other resources may degrade the experience of exploring NFS lands.

Grant-Quinn

The No Action Alternative would leave 113,893 of 219,857 total acres as SPNM, compared to 130,718 acres in the Proposed Action Alternative. Unrestricted cross-country motorized travel and continued use of existing unauthorized routes would negatively affect the non-motorized recreation experience in localized areas near these routes.

This alternative would also impact motorized recreationists in the SPM areas in this range. The proliferation of routes that either dead-end or bisect areas with numerous short routes that branch off main routes and travel ways, do not provide the type of motorized recreation experiences sought by many riders. Over time, route proliferation and the resulting degradation to scenery and the natural appearance of the landscape would reduce the quality of the motorized experience.

Mount Moriah

The Moriah Range has approximately 81,200 acres of SPM and SPNM ROS accessible from 121 miles of existing routes open to motor vehicles. Continued use of all of the existing routes and route proliferation resulting from unrestricted cross-country motorized travel would slowly convert the SPNM areas to SPM or Roded Natural (RN) areas impacting the non-motorized recreation experience in the Moriah Range. While providing more mileage to motorized recreationists, these routes would lack the variety and loop opportunities important to quality motorized recreational experiences.

Schells

The Duck Creek Transportation Plan (2005) designated 103 miles of roads and 20 miles of motorized trails in the Schells. An additional 390 miles of existing routes are available to motorized use. These routes provide access to 80,630 acres of SPM and 140,873 acres of SPNM. The associated sights, sounds, and physical impacts of motorized use in the SPM areas reduce the quality of the non-motorized recreation experience. Most of these are unauthorized routes that dead-end, and some motorized recreationists may be tempted to continue beyond the end of these routes into primitive and SPNM areas.

In the South Schells, there are many motorized trails open to full-sized vehicles, with some loop opportunities and many spurs that access ridges. All of these routes provide extensive motorized recreation opportunities. However, 227 of the 390 miles available in the Schells are redundant spurs that provide little in the way of quality-motorized recreation and do not contribute to loop opportunities.

Ward Mountain

This alternative leaves 150 miles of existing unauthorized routes open to motorized use on Ward Mountain. Most of these routes access the 21,871 acres of SPM and the edges of the 14,811 acres of SPNM. Ward Mountain is close to Ely and receives heavy OHV use, which is reflected in the distribution of SPM and SPNM acres. The No Action Alternative does not restrict motorized use to designated routes. There would be no separation between motorized and non-motorized recreation under this alternative. This can lead to conflicts and impacts to both non-motorized and motorized recreation.

There are two non-motorized trail systems located in the Murry Canyon Municipal Watershed. Under this alternative, these trails are threatened by unrestricted motorized travel.

Motorized recreationists can continue to enjoy 149 miles of routes open to motor vehicle use. A number of these routes are suitable as motorized trails, particularly on the east side of the range. Some of these routes offer interesting and challenging loop opportunities. However, the current number of redundant routes creates a spider web of confusing routes, which affects the motorized recreation experience.

This alternative allows for over-snow motorized recreation in the Murry Canyon Municipal Watershed. Some winters there is not adequate snow for snowmobile use, but during heavier snow years, the Ski Hill Road (59440) is used as a staging area for

snowmobile recreation. Snowmobiles can then access the higher areas of the range to the south. Typically, there will be a few riders on weekend days, but at times large groups utilize this area for snowmobiling. Even during good years, snow coverage is often thin, and ridge tops are exposed by wind. The quality of the opportunity is limited compared to other snowmobile destinations on the Forest.

White Pine

Under the No Action Alternative, there would 135,959 acres of SPM and 155,330 acres of SPNM ROS in the White Pine Range. The designated wilderness areas (Bald Mountain, Shellback, Currant Mountain, White Pine, and Red Mountain) in this range provide many primitive recreation opportunities. Given the abundant wilderness opportunities non-motorized recreation is minimally impacted, providing that motor vehicle users remain on existing routes. Under this alternative, cross-country travel could increase opportunities for route proliferation that would affect non-motorized recreation in both SPM and SPNM areas. The sights, sounds, and physical impacts of motorized vehicles would detract from the non-motorized recreation experience.

This alternative provides 617 miles of roads and trails for motorized recreation with loop opportunities and varied experiences, including access to the historic White Pine Mining District. Unfortunately, 273 miles of these routes cross private land, mining claims, and potentially hazardous mining areas.

Alternative 2 - Proposed Action Alternative

The Proposed Action Alternative adds approximately 190 unauthorized routes (approximately 213 miles), to the forest transportation system as both roads and trails. This alternative prohibits cross-country motorized travel, restricting use on 731 miles of existing routes. The proposed system would provide varied motorized recreation opportunities while protecting non-motorized opportunities. This alternative also designates a part of the Ranger Trail in the North Schell Creek Range for motorized use by motorcycles, and closes the Murry Canyon Municipal Watershed in the Ward Mountain area to over-snow use.

Non-Motorized Recreation

The impact on motorized and non-motorized recreation is measured by the number of acres that would be classified as either SPNM or SPM. The acres of SPNM and SPM under the Proposed Action Alternative are displayed below (table 7).

Table 7: Distribution of Semi-Primitive Motorized ROS and Semi-Primitive Non-Motorized ROS Classes across the Mountain Ranges of the Ely Ranger District under the Proposed Action Alternative (acres).					
ROS Class	Grant-Quinn	Moriah	Schell	Ward	White Pine
SPM	32,576	17,501	46,080	20,057	96,300
SPNM	130,718	62,209	171,304	17,794	191,543

Motorized Recreation

Under the Proposed Action Alternative, 876 miles of forest transportation system routes would be available for motor vehicle use. Cross-country motorized travel would be prohibited.

Grant-Quinn

The Proposed Action Alternative adds 10 miles of road and 17 miles of motorized trail (open to all vehicles) to the forest transportation system in the Grant-Quinn Range. These routes provide access to dispersed recreation, remote canyons, hunting, loop opportunities for OHVs, and recreational driving. Motorized use would be limited to designated routes and sustainable and reasonable opportunities are provided. The unauthorized routes that are not added to the system are mostly redundant and do not provide loop opportunities or needed access.

The amount of SPNM acres would be increased from 113,893 acres in the No Action Alternative to 130,718 acres in the Proposed Action Alternative. This is the result of restricting use on 116 miles of unauthorized routes that are not needed for recreation or resource management. A number of dispersed recreation spurs would become designated routes to retain the SPM experience. Prohibiting motor vehicle use off designated routes would end route proliferation in both the SPM and SPNM areas and preserve the recreation experience.

Motorized recreationists who prefer to travel cross-country and on unauthorized routes would be affected by reduced riding opportunities in the short-term. In the long-term, however, the quality of this experience is preserved as scenic and natural resource qualities are not degraded by route proliferation.

Mount Moriah

Under the Proposed Action Alternative, routes open to motor vehicle use would be reduced from 121 to 76 miles. The most utilized routes for motorized recreation, dispersed recreation, and hunting camps remain open under this alternative. The District would add many challenging and scenic routes and loop opportunities to the system in the Dog Springs/Four Mile area.

Under this alternative, opportunities to gain access to primitive experiences improve by adding the Silver Creek Spring route (E2039) and the South Fork Hendry's Creek route (U59162) to the forest transportation system. These routes provide access to dispersed campsites and access for hunters. Under this alternative, the amount of SPNM acres would be increased by approximately 4,715 acres over the No Action Alternative.

Schells

Under the Proposed Action Alternative, the amount of SPNM would be increased from 140,873 to 171,304 acres due to a decrease from 390 to 163 miles of unauthorized routes.

In the North Schells, this alternative provides many varied motorized recreation opportunities. The Proposed Action Alternative designates much of the Ranger Trail as

a single-track motorcycle route, providing an opportunity in short supply on the District. The Fawn Trail (19123) becomes a motorized trail open to all vehicles and provides a long and challenging loop opportunity that can be combined with other routes, including the Ranger Trail. Two additional routes (South Fork Mattier Creek [U59488B] and South McCurdy Creek [U59075]) in the North Schells would be added to the system as motorized trails. These routes would provide loop opportunities and important access for both SPM and SPNM recreation opportunities and hunting.

This alternative would add many dispersed recreation spurs to the forest transportation system in the Big Indian Creek drainage. The primary recreation use in this area includes dispersed recreation, hunting, and recreational driving. Hunters and recreational drivers accustomed to motorized access to every ridge top would no longer be able to access some areas. This alternative provides adequate access to the portions of the Schells that are not designated wilderness. It is anticipated that hunting on this range would be improved by eliminating some motorized pressures.

This alternative restricts travel on several routes important for motorized recreation and access on the west side of the Schell Range near Ely, Nevada. The Fence Line Road (U59371, U59384, and E7275) provides important north-south access along the foothills. This route is also important to pronghorn antelope hunters on adjacent Bureau of Land Management (BLM) land. Motorized recreationists can still access this area of the range but must travel back to the highway and follow other routes into the area.

In the southern part of the range, an important loop opportunity would be designated along Crethers Spring (U59391). This route has been used historically by automobiles and is shown on U.S. Geologic Survey (USGS) maps. Additional access to a ridge top and an important viewpoint for hunters and recreational drivers is provided by U59369, north of Connors Summit.

The High Schells Wilderness and a non-motorized trail system adjacent to Cave Lake State Park continue to provide excellent primitive and non-motorized recreation opportunities on this range.

Ward Mountain

Under the Proposed Action Alternative, the amount of SPNM is increased by 2,983 acres, and the amount of SPM decreased by 1,814 acres. This change in recreation opportunities is important because of the absence of Primitive ROS in the Ward Mountain Range. This alternative retains non-motorized recreation opportunities by protecting two extensive non-motorized trail systems and directing motorized use away from the Murry Canyon Municipal Watershed.

In the Ward Mountain area, the Proposed Action Alternative reduces the miles of motorized routes from 150 to 82, nearly doubling the miles of motorized routes available under the Current System Alternative.

The motorized unauthorized routes added to the system connect with system routes and adjacent BLM routes and provide many loop opportunities for all types of OHVs. One

comment during scoping requested a non-motorized designation for route E1489. Under the Proposed Action Alternative, this route is proposed as a NFS trail open to motor vehicles less than 50 inches because it provides a motorized loop opportunity outside of the Murry Canyon Municipal Watershed. This trail would also provide a quality opportunity for motorcycles and ATVs while protecting the non-motorized portion within the watershed and near private land. Two other routes (E1389 and E6027) in the Gallaghers Canyon area provide access to dispersed recreation and hunting. The Ice Plant motorized trail provides a popular loop opportunity near Ely, Nevada. On the Terraces on the west side of Ward Mountain, there are many loop opportunities and some dispersed recreation spurs. Motorized recreationists have access to scenic areas along many roads and trails. Under this alternative, unauthorized routes in the Murry Canyon Municipal Watershed would not be added to the forest transportation system to protect the city of Ely's water source. Unauthorized activities (e.g., illegal firewood cutting, oil dumping, trash dumping, and cross-country travel) currently occur in the watershed, threatening the quality of Ely's drinking water.

Both the Proposed Action and Current System Alternatives close the Murray Canyon Municipal Watershed to over-snow motorized travel except on designated routes. Though limited by size and snowfall, some locals utilize this area for winter snowmobiling. Closing the watershed to snowmobiles would reduce the available area for snowmobile riding on the District, which is already minimal. Much of the District's high country is designated wilderness, making the Ward Mountain Range one of the few areas on the District with winter snow that is not a wilderness area. Other areas in the range, such as the Terraces, would provide better riding and less conflict with non-motorized recreation, but trailhead access is more difficult. Closing the area to snowmobiles would have positive impacts to non-motorized recreation, allowing a more primitive experience for skiers without the associated sights and sounds of motorized traffic while eliminating user conflicts and saving the limited resource of fresh snow.

White Pine

Under this alternative, 191,543 acres of SPNM would be available for non-motorized recreation activities. This is an increase from the 155,330 acres available under the No Action Alternative and a result of designating 110 of the available 382 miles of unauthorized routes. Under the Proposed Action Alternative, non-motorized recreation opportunities will be improved with the increase in SPNM acres and the prohibition of cross-country motorized travel off designated routes.

Despite the sizable reduction to the SPM acres (from 135,959 to 96,300) motorized recreationists still have considerable access to the entire area (table 8). The many cherry-stems provide access for hunters and recreationists in numerous areas across the range. Most of the routes remain open to full-sized vehicles. The District would also add a few of the old mining roads in the White Pine Mining District to the forest transportation system as OHV trails. Many dispersed recreation spurs would be added along the White River, Ellison Creek, and Current Creek roads. These NFS roads are heavily used during the summer and hunting seasons, and the associated dispersed recreation sites provide many recreation opportunities.

Alternative 3 - Current System Alternative

Non-Motorized Recreation

The Current System Alternative provides approximately 610 miles of roads and trails open to all vehicles. It also prohibits motorized cross-country travel off designated routes. More primitive recreation opportunities are available under this alternative than under any other alternative. Access to these areas is more difficult, which improves the primitive experience for some recreationists. It may also make some of these areas inaccessible to other recreationists. Table 8 displays the amount of SPM and SPNM acres available under the Current System Alternative on each of the mountain ranges on the Ely Ranger District.

Motorized Recreation

Motorized recreation opportunities would be reduced by this alternative. Available routes would be reduced from 1,616 in the No Action Alternative to approximately 610 in the Current System Alternative. More important than the mileage, the existing quality loop opportunities for OHVs and motorcycles would be eliminated on Ward Mountain and reduced in the Schells, Mount Moriah, and White Pine ranges. Dispersed recreation opportunities are nearly eliminated because the only access to many of these dispersed recreation sites is on unauthorized routes that will not be utilized under this alternative. As a result, campers must use developed sites or camp on BLM-administered lands. These limitations have a negative impact on recreation and public access across the District. The basic transportation system is intact for full-sized vehicles with some challenging opportunities, but OHVs and motorcycles have only the current NFS routes to utilize, with very few trail opportunities. The ability of hunters to search for game is diminished as many of those routes would no longer be open to motor vehicle use.

Table 8: Distribution of Acres of Semi-Primitive Motorized ROS and Semi-Primitive Non-Motorized ROS Classes across the Mountain Ranges of the Ely Ranger District under the Current System Alternative

ROS Class	Grant-Quinn	Moriah	Schell	Ward	White Pine
SPM	28,250	13,773	29,388	12,965	65,680
SPNM	135,528	61,071	172,507	24,886	224,895

Cumulative Effects

In order to understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects. The cumulative effects analysis area for recreation is the area within the Ely Ranger District boundary.

There are a number of reasonably foreseeable projects that, when implemented, may have impacts on recreation when combined with this action. These projects include:

Range Rescission Project: The Ely Ranger District has nearly completed an analysis of the livestock grazing allotments on the west side of the District (White Pine, Grant, and Quinn ranges) for permit renewal. This project does not designate or close any routes on the District. It is unlikely that implementation of a range management decision would impact motorized or non-motorized recreation opportunities on the District.

Coal-Fired Electrical Plants: There is a proposal to construct two coal-fired electrical power generation plants in White Pine County, west of the Schell Creek Range. This project does not occur on NFS land and does not add or subtract routes from the forest transportation system. The power plants may have many impacts on recreation, but not cumulatively with route designation.

White Pine County Land, Recreation, and Development Act: The passage of the White Pine County Land, Recreation, and Development Act of 2006 (WPCRDA) created 456,000 acres of new wilderness on NFS lands and 295,600 acres on the public lands managed by the BLM. This act added to the Mount Moriah Wilderness. In this area, any effects to non-motorized recreation would be beneficial, such as providing additional areas capable of providing primitive experience. The White Pine County Land, Recreation, and Development Act of 2006 also designated the 121,497-acre High Schells Wilderness, which eliminated motorized access in much of the central Schell Creek Range. On the White Pine Range, four new wilderness areas were designated under the WPCRDA, which when combined with route designation, should result in adequate protection of non-motorized recreation in this area. Both the Proposed Action Alternative and the Current System Alternative increase the number of SPNM acres and prohibit cross-country motor vehicle use. Cumulatively, the Proposed and Current System Alternatives would have an overall positive effect on non-motorized recreation resulting in more areas and fewer opportunities to hear or see motorized recreation users.

The designation of these wilderness areas may have closed motorized routes that entered into these areas, reducing motorized recreation opportunities across the District. The areas designated as wilderness would have been predominately areas that met either the description of Primitive or SPNM. If this assertion is indeed the case, there was little SPM designated under WPCRDA. This action (Ely Ranger District Travel Management) does reduce the amount of routes open for motor vehicle use. However, most of these routes were short, redundant spurs.

Duck Creek Transportation Plan: The Duck Creek Transportation Plan designated motorized routes in the Duck Creek Basin. The impacts of that project to recreation are similar to this travel management project. Motorized users are required to stay on designated routes with cross-country travel prohibited, but many quality routes with adequate loop opportunities are left open including the Ranger Trail. The Ranger Trail in Duck Creek Basin was a popular route for equestrians. This route is now open to motorized travel (motorcycles and OHVs). This reduced the non-motorized recreation experience on that trail, but did not change the amount of available SPNM recreation opportunities in the area.

Taylor Mine and Mill Development: The District has received a plan of operation to mine and mill in the Taylor area of the South Schell Creek Range. This plan includes approximately 717 acres within the project area boundaries. This area would be closed for an indefinite period to both motorized and non-motorized recreation activity. Given the entire Schell Creek Range totals approximately 286,000 acres, the impact to recreation activities because of this mining proposal would be minimal (less than 0.01% of the total available area). The vast majority of the Schell Creek Range would remain open and accessible for both non-motorized and motorized recreation opportunities.

Ward Mountain Projects: Small ongoing trail, fuels, and wildlife projects in the Ward Mountain area are being proposed. The only potential recreation impact from these projects would occur if fuel treatments thin vegetation too much. Route proliferation may increase as motor vehicles can more easily travel off route. However, with the prohibition on motorized vehicle use off designated routes under the Proposed Action and Current System Alternatives, this activity would be addressed through the enforcement of the prohibition.

Landscape-scale Vegetation Projects: The BLM and Forest Service are planning landscape-scale vegetation projects on the lands on and near Ward Mountain, and the Forest Service is developing a landscape-scale vegetation project on the North Schells. These projects do not open or close any routes, but may allow increased route proliferation if vegetation is thinned next to designated routes, allowing vehicles to travel off-road. However, with the prohibition under the Proposed Action and Current System Alternatives on motorized vehicle use off designated routes, this activity would be addressed through the enforcement of the prohibition.

White Pine/Grant Quinn Oil and Gas: The White Pine/Grant-Quinn Oil and Gas environment impact statement (EIS) and Record of Decision (ROD) makes approximately 255,000 acres of the White Pine and Grant-Quinn ranges available for lease. The lease action does not approve any on the ground activities by future leaseholders. Once a lease is granted, the holder would be required to submit a plan of operations in order to occupy the lease block and explore for or develop the block. The Forest Service is then required to conduct the appropriate level of NEPA analysis to determine what effects the proposed operation would have on biological, physical, or cultural resources in the project area. The decision would reiterate any stipulations required under the White Pine Grant-Quinn Oil and Gas Record of Decision and any other measures required under the site-specific NEPA document.

Troy Canyon Mineral Exploration: Mineral exploration and potential development in Troy Canyon may have individual impacts to the non-motorized recreation experience, but when combined with this project should not result in a decrease in motorized or non-motorized recreation opportunities.

Ely BLM Resource Management Plan (RMP): The Ely BLM RMP is expected to close BLM-administered lands to cross-country travel. When combined with the route designations proposed in this project, the area available to motorized recreation is greatly reduced although many miles remain open that provide quality recreation opportunities.

Roadless

Affected Environment

Since 1970, the Forest Service has inventoried and studied roadless areas greater than 5,000 acres and roadless lands, regardless of size, adjacent to existing wilderness. These areas are referred to as Inventoried Roadless Areas (IRAs). The Roadless Area Conservation Rule was signed in 2001. In May 2006, an assessment of lands on the Humboldt-Toiyabe National Forest that have potential for consideration by Congress for wilderness designation was completed. This inventory was prepared as a part of the revision of the Humboldt-Toiyabe National Forest Land and Resource Management Plan as per Forest Service manual direction (USDA Forest Service 2006).

The White Pine County Conservation, Recreation, and Development Act of 2006 designated much of the IRAs on the District as wilderness. There are now 51 IRAs totaling 327,557 acres on the District outside of wilderness areas. For comparison, the Ely Ranger District is about 1 million acres and contains 456,500 acres of designated wilderness.

Currently, motorized use is allowed within the boundaries of IRAs on both NFS roads and NFS trails and on unauthorized trails (tables 9, 10, and 11). On the maps provided by the Forest for the 2001 Roadless Area Conservation Rule, 11.6 miles of NFS roads are located within the boundaries of IRAs (table 11). The current Forest Plan allows this use (USDA Forest Service 1986, p. IV-3), as does the Roadless Area Conservation Rule.

Environmental Consequences

Inventoried Roadless Areas have a variety of characteristics including soil, water, and air quality; diversity of plant and animal communities; public drinking water; habitat for sensitive species; primitive recreation; reference landscapes; distinctive landscape character and integrity; and locally unique features. Inventoried Roadless Areas also have wilderness attributes, including natural integrity, apparent naturalness, remoteness/solitude, opportunities for primitive recreation, special features, and manageability as a potential wilderness area.

Roads are often incompatible with these characteristics. Gucinski and others (2001) identified several effects of forest roads that conflict with roadless characteristics and wilderness attributes. Roads can result in the removal or displacement of topsoil and alter soil properties and productivity. Roads can alter hydrologic processes by intercepting rainfall, concentrating flow, and diverting or rerouting water from its natural path. Roads can lead to increases of fine sediment into streams. Animal populations can be affected by habitat fragmentation. Roads can also affect natural habitats by providing a pathway for non-native species to enter and spread into those habitats. Roads create noticeable linear features on the landscape. Because of little rainfall throughout Nevada, these linear features remain for many decades due to minimal or non-existent screening vegetation caused by the continual impact from OHVs.

The quality of roadless characteristics and wilderness attributes is diminished with the increase of motorized travel within IRAs. The environmental effects to roadless characteristics and wilderness attributes are measured by:

- Miles of motorized routes within IRAs.

Alternative 1 - No Action Alternative

Under the No Action Alternative, there is no change to the forest transportation system and no restriction on motor vehicles. In addition, many miles of existing unauthorized routes would remain open to motor vehicle use (table 9). Under this alternative, the recreation users are permitted to travel off motorized routes in pursuit of their recreation activity.

This alternative may result in widespread impacts to roadless characteristics and wilderness attributes. It is likely that more unauthorized trails would be pioneered, degrading roadless characteristics. Gucinski and others (2001) pointed out that as the number of routes in a roadless area increases, the quality of the roadless characteristics and wilderness attributes decline. This decline can lead to adverse effects to wildlife habitat through fragmentation, impacts to soil air and water, and the reduction of scenic and sustainable landscape character. Increased roads in roadless areas can also decrease the wilderness attributes associated with the roadless areas.

All routes within roadless areas decrease the opportunity for solitude and the primitive character of the area. Many unauthorized routes are poorly located and would be difficult to maintain or repair if the need arose. For example, a road that is too steep or is located where water cannot run off is not sustainable over time. They may remain passable for years, but leave a scar on the landscape degrading landscape character and apparent naturalness. Leaving these unauthorized routes open continues to degrade the quality of roadless areas.

Mountain Range	Miles in IRA
Grant-Quinn	40.5
Moriah	11.4
Schells	50.1
Ward	12.1
White Pine	34.6
Total	151.4

Grant-Quinn

The Grant-Quinn Range contains roughly 129,000 acres of IRA, most of which is contiguous with either the Grant Range Wilderness or the Quinn Canyon Wilderness ([Ely Map Package](#)). The No Action Alternative leaves 40.5 miles of unauthorized routes within the IRAs open to motor vehicle use. Motorized cross-country travel could also continue resulting in the expansion of the number of routes and affecting roadless character and wilderness attributes. Allowing these routes to remain open degrades the qualities of the roadless areas where the routes are located. This reduces the apparent naturalness of the immediate area near these routes. There is a visual scar upon the land as well as associated sights and sounds of motorized travel.

Mount Moriah

Most of this area is within an IRA or the Mount Moriah Wilderness ([Ely Map Package](#)). The IRAs are mostly contiguous with the wilderness area. Many roads provide access to wilderness trailheads. This alternative leaves 11.4 miles of motorized routes within the IRAs. Most of these routes are redundant with routes already designated as NFS roads. Roadless characteristics and wilderness attributes within the IRAs, as well as within the contiguous Mount Moriah Wilderness would be impacted by allowing motorized access to these areas. The presence of the routes on the landscape impairs the apparent naturalness, may reduce the natural integrity, and reduces the areas ability to function as a reference landscape. These routes dead-end within the IRAs creating the potential for extensions of these routes deeper into IRAs or wilderness. Few of these routes provide quality dispersed recreation opportunities.

Schells

This area contains the High Schells Wilderness and some very high quality roadless areas with unique and outstanding characteristics such as the dramatic limestone cliffs of Muncy Creek and many large aspen stands. The No Action Alternative allows 50.1 miles of motorized routes to remain in the IRAs and allows cross-country motorized travel to continue. The IRAs in the North Schell Range are high elevation, open country, and susceptible to route proliferation caused by cross-country motorized travel ([Ely Map Package](#)). The Schell Range is also near the city of Ely and heavily visited by recreationists. The No Action Alternative would likely lead to degradation of the North

Schell and West Schell IRAs. Route proliferation would degrade the apparent naturalness by leaving more visual scars on the landscape. Natural integrity and other roadless characteristics may also be impacted, as would the wilderness attributes in these IRAs.

Ward Mountain

This area is close to Ely, Nevada, and is heavily visited by residents and tourists. Currently, there are many NFS and unauthorized routes on this range ([Ely Map Package](#)). The core of this area is the 15,927-acre Ward Mountain IRA. In the No Action Alternative, 12.1 miles of existing routes in the IRA remain open to motorized use. These routes extend further each year. Apparent naturalness is diminished as routes are pushed deeper into the IRA. This alternative may lead to degradation of this small but exceptional IRA by allowing route proliferation to continue.

The Murry Canyon Municipal Watershed is not in an IRA, but borders the Ward Mountain IRA. Over-snow motorized travel is not a prohibited use in IRAs, but could have impacts to certain roadless characteristics such as primitive recreation and solitude.

White Pine

The White Pine Range contains a number of well-maintained NFS roads and many routes created by mining and ranching practices ([Ely Map Package](#)). There are also a growing number of unauthorized routes pioneered by OHVs pushing further into IRAs, particularly the Cottonwood and Indian Creek IRAs in the White River and Ellison areas. Most of the IRAs are adjacent to the five wilderness areas within this range. There are 34.6 miles of routes in IRAs that would remain open. Leaving these routes open to motor vehicle use degrades the roadless characteristics and wilderness attributes. The visual impact of many routes within IRAs degrades the apparent naturalness. Unrestricted motorized cross-country travel allows more pioneered routes, threatening adjacent wilderness areas and further degrading apparent naturalness and other roadless characteristics.

Alternative 2 - Proposed Action Alternative

The Proposed Action Alternative addresses the recreation access issue by adding several existing unauthorized routes that are popular with recreation users (including routes into popular hunting areas and dispersed campsites) to the forest transportation system. This alternative balances the need for recreation access with protecting the roadless characteristics and wilderness attributes of the IRAs. The miles of motorized routes in IRAs are reduced from 151.4 miles in the No Action Alternative to 26.7 miles. There would be little impact to roadless characteristics and wilderness attributes from designating these 26.7 miles as NFS trails because the routes are dispersed across the District (tables 10 and 11). The Proposed Action Alternative does not include the addition of any routes in IRAs determined to be capable of wilderness designation.

Table 10: Miles of Proposed Motorized NFS Trails in IRAs under the Proposed Action Alternative (including existing NFS roads and NFS trails).	
Mountain Range	Miles in IRA
Grant-Quinn	2.0
Moriah	1.0
Schells	17.3
Ward	3.1
White Pine	3.3
Total	26.7

Grant-Quinn

There are currently 2 miles of NFS road located in or adjacent to IRAs on the Grant-Quinn Range. The Proposed Action Alternative would not designate any additional routes within IRAs in the Grant-Quinn Range.

Mount Moriah

In the Mount Moriah Range, the Proposed Action Alternative includes 1.0 miles of routes in an IRA, which includes 0.6 miles of current NFS road. The remaining 0.4 miles are split between three small spur trails that provide access to dispersed recreation sites: E6197 (0.19 miles), E6193 (0.11 miles), and E13315 (0.06 miles). The trails are located along the Four Mile Road and in the Dog Springs area in the northwest portion of the Moriah Range. They lead to traditional dispersed recreation sites that have been in use for many years. These recreation sites allow people to enjoy the wilderness attributes and roadless qualities while still using motor vehicles. Designation of these routes would not affect roadless characteristics in this area or wilderness attributes because of their short length and isolated distribution on the landscape.

Schells

There are 17.3 miles of motorized routes in IRAs in the Schell Creek Range. In the current forest transportation system, 3.5 miles of NFS road borders the IRAs and because of mapping errors appear to be within the IRA boundaries. There are also 2.4 miles of NFS trail open for use by all vehicle types. The Proposed Action Alternative designates seven routes within IRAs in the Schell Range (3.2 miles) as motorized trail and restricts use by vehicle type on the Ranger Trail (19069), which crosses an IRA for 7.2 miles. There are 3.4 miles of NFS road located in Duck Creek Basin that were addressed in that analysis. This alternative does not make a change regarding these routes.

The District would designate 2.0 miles of unauthorized routes as a motorized trail in the south fork of Mattier Creek (U59488B) in the North Schells. This trail provides access for hunters and range permittees and provides a loop opportunity with the main fork of Mattier Creek. The District would also designate the following short spur routes as

motorized trail (U59661 (0.02), U59697A (0.06), U59436B (0.1), U59428D (0.2), and U59428B (0.06). These routes provide access to traditional dispersed recreation sites in the Indian Creek and Cave Lake areas. These recreation sites are often located in aspen stands. These aspen stands are an important component to the apparent naturalness of the North Schell and West Schell IRAs. Camping may have an impact on the apparent naturalness, but this impact is localized and not visible at any distance from the dispersed campsites. Camping is not expected to increase, but dispersed camping activities and the associated impacts would continue. The Ranger Trail (19069) is already a NFS trail and currently receives motorcycle traffic and some ATV traffic. The Proposed Action Alternative would restrict much of the trail in IRAs to motorcycle only, limiting the potential for route proliferation and reducing impacts to the IRA.

Ward Mountain

Under the Proposed Action Alternative, three routes (3.1 miles of motorized trail) are located inside the IRA. Two of the routes are in the Lowry area, E1389 (1.7 miles) and E6027 (1.2 miles). These routes provide access to dispersed recreation, hunting, and traditional wood cutting areas. In addition this area, though an IRA, is within the wildland-urban interface near Ely. These routes would provide access for future fuels reduction and vegetation treatment projects. The remaining route E1468 (0.1) is a short spur designated for dispersed camping. Adding these routes to the forest transportation system does not diminish the overall qualities of the Ward Mountain IRA. The Ward Mountain area is in Ely's backyard, and many motorized and non-motorized visitors recreate in the area. By adding these routes in the IRA, as well as adjacent routes outside of the IRA, that provide access and loop opportunities, resource management and recreation access is maintained and roadless characteristics and wilderness attributes are preserved. These routes will provide desired access to the public and reduce the urge to pioneer new routes that may impair apparent naturalness and other roadless characteristics.

The Murry Canyon Municipal Watershed is not in an IRA but borders the Ward Mountain IRA. Over-snow motorized travel is not a prohibited use in an IRA, but could still have impacts to certain roadless characteristics such as primitive recreation and solitude. Closing the area to over-snow use would reduce indirect effects resulting from machine use in the IRA.

White Pine

The White Pine Range contains 66,848 acres of IRAs and five wilderness areas. This alternative adds 3.3 miles of motorized trails in these IRAs. This is a relatively short distance of routes considering the total acreage.

Additions to the forest transportation system within IRAs on the White Pine Range include:

- NFS road 59615 that borders the IRAs, and because of mapping errors appears to be within the boundaries (1.0 mile).
- South Six Mile Wash spur (E3303) - Motorized trail that leads to a wildlife guzzler (.8 mile).

- Short spur trails to dispersed recreation sites (2.3 miles).
 - E3303 (0.8 miles) accesses dispersed campsites in the vicinity of Sagehen Spring.
 - U59726, southeast of Red Mountain, connects to an open route on BLM (0.6 miles).
 - E4203 is cherry-stemmed into the Shellback Wilderness (0.8 mile).
 - U59405E off the White River-Ellison Road provides access to dispersed recreation and access for hunters (0.1 mile).

Due to the large areas of IRAs and wilderness, these small spurs have no impact to the roadless characteristics or wilderness attributes of IRAs in the White Pine Range.

Alternative 3 - Current System Alternative

The Current System Alternative allows motorized use only on current forest transportation system routes. This alternative also prohibits motorized cross-country travel off designated routes.

There would be less miles of motorized routes in IRAs under the Current System Alternative than with any other alternative. There are currently over 600 miles of NFS roads on the District, which has an area of 1,024,410 acres. Under the Current System Alternative, there would be 10.6 miles of NFS routes within IRAs including 1.0 mile or less in each of the Mount Moriah, Ward Mountain, and White Pine areas; 2.0 miles in the Grant-Quinn area; and 6.9 miles in the Schells (from the Duck Creek Travel Plan signed in 2005). Limiting motorized use to this relatively small number of routes protects IRAs and wilderness, but also provides limited motorized recreational opportunities.

This alternative would prohibit motorized access to many traditional areas used for dispersed recreation on every mountain range. These dispersed sites are valuable resources on this District. These sites are used by people seeking semi-primitive motorized experiences and hunters, typically in the fall. The lack of access to these sites would result in a loss of this recreation opportunity.

Table 11: Miles of Motorized Routes in Inventoried Roadless Areas (IRAs) under the Current System Alternative.		
Mountain Range	Total Miles	Miles in IRA
Grant-Quinn	69.5	2.0
Moriah	52.4	0.6
Schell	206.6	6.9
Ward	40.5	0.1
White Pine	231	1.0
Total	600	10.6

Cumulative Effects

In order to understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects. The cumulative effects analysis area for roadless is the area within the Ely Ranger District boundary. Reasonably foreseeable actions include:

Range Rescission Project: Range analysis for the Ely Ranger District does not increase miles of motorized routes in IRAs, so there would be no cumulative impact to roadless characteristics or wilderness attributes because of this analysis.

Coal-Fired Electrical Plants: The construction of coal-fired plants in Steptoe Valley does not increase miles of motorized routes in IRAs located on the Ely Ranger District. This travel management project would not incrementally result in any cumulative impact to roadless characteristics or wilderness attributes when combined with the proposal to construct coal-fired plants.

White Pine County Land, Recreation, and Development Act: Passage of the White Pine County Land, Recreation, and Development Act of 2006 does not increase miles of motorized routes in IRAs located on the Ely Ranger District. This travel management project would not incrementally result in the degradation of roadless characteristics or wilderness attributes when combined with the actions related to the passage of the White Pine County Land, Recreation, and Development Act of 2006. This project along with the Act would have positive impacts, preserving wilderness attributes and roadless characteristics.

Duck Creek Transportation Plan: The Duck Creek Transportation Plan designated motorized routes in the Duck Creek Basin. The impacts of the Duck Creek Transportation Plan to roadless characteristics are similar to this travel management project's District-wide route designation process. The Duck Creek Transportation Plan did not designate any routes in IRAs, except for a small number that were cherry-stemmed in the High Schells Wilderness.

Taylor Mine and Mill Development: Redevelopment of the Taylor Mill and Mine would not add any miles of motorized routes in IRAs. There would be no incremental effects to roadless characteristics or wilderness attributes resulting from the selection of any of the alternatives.

Ward Mountain Projects: Restoration (vegetation treatments) in Ward Mountain and North Schells does not increase miles of motorized routes in IRAs. The travel management project when combined with the restoration treatment project would not result in a decrease in the roadless characteristics or wilderness attributes associated with the roadless areas located on the Ward Mountain and North Schell ranges.

White Pine/Grant Quinn Oil and Gas: Completion of the White Pine Grant-Quinn Oil and Gas EIS and Record of Decision make approximately 255,000 acres of the White Pine and Grant-Quinn ranges available for lease. Some IRAs on the White Pine and Grant-Quinn ranges are available for lease with controlled surface use lease stipulations. This stipulation prohibits new temporary roads, permanent roads, and road construction or reconstruction within the IRAs. This travel management project alternatives would designate 3.3 miles of routes under the Proposed Action Alternative and 0.1 miles under the Current System Alternative. These increases in the miles of motorized routes in IRAs do not have any cumulative impact to roadless characteristics or wilderness attributes when combined with the White Pine Grant-Quinn Oil and Gas decision. In the future, there may be potential impacts to wilderness attributes and roadless characteristics from oil and gas exploration and development, but there are currently no proposed projects and no leases have been issued.

Ely BLM Resource Management Plan: Implementation of the Ely BLM RMP is expected to close public lands managed by the BLM to cross-country travel. Because of the closures, IRAs situated adjacent to public lands managed by the BLM will be less susceptible to incursion. There are no negative cumulative effects.

Based on the 2001 Roadless Area Conservation Rule there are 51 IRAs on the Ely Ranger District. These roadless areas range in size from a few areas adjacent to a newly designated wilderness area to large expanses of sagebrush on the low benches of the mountain ranges. The No Action Alternative has the potential to affect these roadless areas by not restricting motor vehicles to designated routes. Over time, cross-country motorized travel could reduce the roadless character. The Proposed Action and the Current System Alternatives would prohibit cross-country motorized travel and preserve the character of roadless areas on the District.

With the exception of the designation of 16.6 miles of motorized OHV trail in some of the roadless areas under the Proposed Action Alternative, there is nothing currently planned, or that has occurred since 2001, that would significantly impact the integrity of roadless characteristics or values.

Noxious Weeds

Affected Environment

Noxious weeds are highly invasive plants that generally possess poisonous, toxic, parasitic, invasive, and aggressive characteristics. The presence of noxious weeds signifies an area that is at risk in terms of ecological health and sustainability, whether the landscape is disturbed or pristine. The District has several known locations of noxious plant species on the Nevada State Noxious Weeds list in addition to invasive species such as cheatgrass.

By providing a conduit for their expansion, roads are a major contributing factor in the proliferation of invasive plants into natural areas in the arid and semi-arid landscapes of the American West (Gelbard and Belnap 2003). Noxious weed seed is easily

transported and dispersed by wind, livestock, wildlife, recreation, and off-road motor vehicles. Once established, the plants spread quickly after major disturbances, such as fire. Noxious weeds produce seeds that can persist in the soil for several decades.

Duncan and Clark (2005) estimated the rate of spread for noxious weeds if left untreated. The rate of spread depends upon their reproduction mechanism or the amount of disturbance to a site (table 12). The Humboldt-Toiyabe National Forest utilizes an Integrated Pest Management System program that includes inventory and mapping of weed locations. When weeds are found an attempt to treat them is made using mechanical, biological, and or herbicide applications. However, the majority of weed species are treated on the District with herbicides.

Common Name/Nevada Noxious Weed Category	Scientific Name	Maximum Annual Rate of Spread or Seed Production
Black henbane (C)	<i>Hyoscyamus niger</i>	10,000+ seeds/plant
Bull thistle (n/a)	<i>Cirsium vulgare</i>	5,000+ seeds/plant
Canada thistle (C)	<i>Cirsium arvense</i>	10–12%
Hoary crest/whitetop (C)	<i>Cardaria draba</i>	1200 to 4800/plant
Leafy spurge (A)	<i>Euphorbia esula</i>	12–16%
Musk thistle (B)	<i>Carduus nutans</i>	12–22%
Perennial pepperweed (C)	<i>Lepidium latifolium</i>	Rhizomes/abundant seed/plant
Russian knapweed (B)	<i>Acroptilon repen</i>	8–14%
Salt cedar (tamarisk) (C)	<i>Tamarix spp</i>	Adventitious roots/1000+seeds/plant
Scotch thistle (B)	<i>Onorpardum acanthium</i>	12–20%
Spotted knapweed (A)	<i>Centaurea maculosa</i>	140,000 seeds/plant

Existing routes present a high risk for the spread of noxious and invasive weed species. Weeds are known to occur along 168 miles of these routes, which include 113 miles of NFS roads (table 13). The District has mapped all of these occurrences and included them in the Forest Weed Plan for treatment.

Species	Location (management areas)
Black henbane (<i>Hyoscyamus niger</i>)	White Pine Range
Bull thistle (<i>Cirsium vulgare</i>)	Scattered throughout the District
Canada thistle (<i>Cirsium arvense</i>)	Scattered throughout the District
Hoary crest/whitetop (<i>Cardaria draba</i>)	White Pine Range
Leafy spurge (<i>Euphorbia esula</i>)	Scattered throughout the District
Musk thistle (<i>Carduus nutans</i>)	North Schell Range
Perennial pepperweed (<i>Lepidium latifolium</i>)	Scattered throughout the District
Russian knapweed (<i>Acroptilon repen</i>)	Southern White Pine Range
Salt cedar (<i>tamarisk</i>)	North Schell, Mount Moriah, Grant-Quinn Ranges
Scotch thistle (<i>Onoropordum acanthium</i>)	Scattered throughout the District
Spotted knapweed (<i>Centaurea maculosa</i>)	Scattered throughout the District

Cheatgrass occurs primarily below 6,500 feet in elevation in the foothills on the District, though it can be found at higher elevations. South-facing slopes are more vulnerable to cheatgrass invasion. Cheatgrass spreads by animals and vehicles moving through the grass and picking up seeds. Vehicles entering the District from low elevation areas have a risk of spreading cheatgrass seeds onto the District along these routes.

Environmental Consequences

Noxious and invasive species cause substantial resource damage by disrupting plant communities and replacing valuable wildlife forage. Transportation routes are the most significant corridors for the spread of weeds. Federal and state laws direct the Forest to minimize the potential for spreading noxious weeds when planning projects (Federal Noxious Weed Act 1974, National Strategy and Implementation Plan of Invasive Species System 2004, Executive Order on Invasive Species 1999, Forest Service Manual 2080, Nevada Revised Statutes Section 555, Nevada Administrative Code Section 555).

The environmental effects for the expansion and control of noxious weeds are measured by:

- Miles of route through known infestations or high-risk areas and acres in medium risk areas.

To predict the risk of noxious weed spread from roads, the Forest overlaid all routes with known weed infestations. A 30-meter buffer was used around each infestation to account for the predicted rate of spread. The infestation plus the area within the 30-meter buffer is considered high-risk areas on the District. To determine areas with

medium risk for spread of noxious weeds, a 5-mile buffer was used (USDA Forest Service 2008b).

Alternative 1 - No Action Alternative

This alternative has the highest potential to spread weeds through motorized travel because motor vehicles are allowed to travel cross-country, which moves seed into non-infested areas (table 14). In all, there are 168 miles of routes located in high-risk areas and 1,118 miles of routes in medium risk areas. All of the unauthorized routes would remain open and weeds could become established along those routes. Weed treatments would focus on the primary system routes that provide a corridor for weeds to establish and feather out from those routes. In more remote country, an infestation may go unnoticed and untreated.

Table 14: Miles of Motorized Routes in High-Risk Noxious Weed Areas.						
Alternative	Miles of Route in High-Risk Areas	Percentage of Proposed Routes in High-Risk Areas	Acres in High-Risk Areas	Miles of Route in Medium-Risk Areas	Percentage of Proposed Routes in Medium-Risk Areas	Acres in Medium-Risk Areas
Alternative 1 No Action	168	10.5%	5,213	1,118	69.7%	584,587
Alternative 2 Proposed Action	130	15.9%	4,869	622	71.4%	570,319
Alternative 3 Current System	113	18.1%	4,855	442	70.7%	564,535

Alternative 2 - Proposed Action Alternative

The Proposed Action Alternative restricts use on 38 miles of unauthorized routes in high-risk areas and 496 miles of unauthorized routes in medium risk areas (table 14). This alternative also restricts motor vehicle use to forest transportation system routes. This restriction ends motorized cross-country travel and eliminates one of the major methods for transmitting and spreading weeds in both high and medium risk areas. Weed treatments focus on the primary system routes that provide a corridor for weeds to establish and feather out from those routes.

Although snow machines are probably a poor vector for the spread of noxious weeds, closing the Murry Canyon Municipal Watershed to over-snow use would reduce the risk of spread from this activity.

Alternative 3 - Current System Alternative

The Current System Alternative restricts motor vehicle use to the current forest transportation system routes. This alternative restricts use on an additional 17 miles of unauthorized routes in high-risk areas and 676 miles of unauthorized routes in medium risk areas. However, 113 miles in high-risk and 442 in medium risk areas remain open. This alternative also prohibits motorized cross-country travel eliminating a major vector

that spreads weeds. This alternative is an improvement over the No Action Alternative in working to control the spread of noxious weeds. Weed treatments would focus on the primary system routes that provide a corridor for weeds to establish and feather out from those routes.

Cumulative Effects

The cumulative effects analysis area for noxious weeds is the area within the Ely Ranger District boundary. In order to understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects. Many of the routes included in this analysis have resulted from the approval of past actions. Reasonably foreseeable actions that may have an incremental effect on the spread of noxious weeds include:

Range Analysis for the Ely Ranger District: The Ely Ranger District has nearly completed an analysis of the west side of the District (White Pine Range, Grant and Quinn ranges) to determine whether to permit continued livestock grazing. Continued livestock management may contribute to the spread of noxious weeds because livestock are a vector for spread (Gelbard and Belnap 2003). The Forest will continue to employ integrated weed management to monitor and treat the spread of noxious weeds regardless of vector or location.

Construction of coal-fired plants: There are plans for two coal-fired plants west of the Schell Creek Range. Construction of coal-fired plants would not contribute to the spread of noxious weeds on the Ely Ranger District because they are located off NFS lands.

Passage of the White Pine County Conservation, Recreation, and Development Act of 2006: This legislation created 456,000 acres of new wilderness on the Humboldt-Toiyabe National Forest, and 295,600 acres on the BLM lands in White Pine County. Passage of the White Pine County Land, Recreation, and Development Act of 2006 would have a positive effect in that large areas formerly open to motorized travel are no longer accessible. With the development of wilderness management plans for all of the wilderness areas, treatment of known noxious weed infestations would be identified and over time implemented.

Re-development of the Taylor Mill and Mine: The District has received an application to mine and mill at the old Taylor Mill. Redevelopment of the Taylor Mill and Mine has the potential to spread noxious weeds within the 717-acre project area. This mine development project is expected to have limited cumulative effects because Forest and Regional policy incorporates design criteria and best management practices to address noxious weeds into the plan of operations, and the operators will be required to take preventative actions and treat areas when weeds are observed.

Restoration (vegetation treatments) in Ward Mountain and North Schells: The BLM and the Forest Service are planning landscape-scale vegetation projects on the lands on and near Ward Mountain, and the Forest Service is developing a landscape-scale vegetation project on the North Schells. Restoration (vegetation treatments) in Ward Mountain and North Schells has the possibility of cumulative effects as any ground disturbing activity increases the chance of noxious weed infestations. As with all proposed projects, best management practices will be applied to reduce the risk.

Completion of an oil and gas EIS and record of decision for leasing on the White Pine Range and the Grant and Quinn Ranges: This EIS made some areas of the White Pine and the Grant and Quinn ranges available for lease. The decision does not approve any surface disturbing activities or occupation. Before occupation or activities can proceed on a lease block, there would need to be a complete NEPA analysis to review the plan of operations. During this process, cumulative effects from activities that may contribute to the spread of noxious weeds will be analyzed.

Implementation of the Ely BLM RMP: Implementation of the Ely BLM RMP, would eventually close BLM-administered lands to motorized cross-country travel. This would limit motorized travel on adjacent BLM lands. Because of these closures, the transport of weeds from BLM to Forest Service is expected to be reduced.

Summary of the Effects to Noxious Weeds

The No Action Alternative would incrementally add to the current potential for the spread of noxious weeds. Unrestricted motorized cross-country travel would make new areas susceptible to the spread of noxious weeds. Due to the nature of unrestricted motorized cross-country travel, it is very difficult to predict the rate at which this disturbance will add to the current potential for the spread of noxious weeds. Because motor vehicle use could occur anywhere, detecting and treating new infestations of noxious weeds would be very difficult.

The Proposed Action and the Current System Alternatives would not incrementally add to the current potential for the spread of noxious weeds. Both alternatives prohibit the use of motor vehicles off designated routes which would in turn reduce the opportunity for the establishment of new areas susceptible to the spread of noxious weeds. Both alternatives also restrict motor vehicle use on some current system routes, again reducing the opportunity for the spread of weeds. While the Proposed Action Alternative adds some unauthorized routes to the current system, there is no construction or other ground disturbing activity associated with this designation. Because the routes already exist on the ground, designation is an administrative action completed so the Forest users can continue to travel on the routes and so the routes can be managed and maintained as appropriate.

Wildlife/Threatened and Endangered Species

The District biologist addressed federally listed threatened, endangered, and Forest Service sensitive (TES) species in a biological assessment/evaluation. The report analyzed flammulated owl, bald eagle, peregrine falcon, northern goshawk, sage grouse, Townsend's big-eared and spotted bats, pygmy rabbit, and Bonneville cutthroat trout. Mule deer and trout were analyzed in the Wildlife Specialist Report as Forest Management Indicator Species (MIS) (goshawk and sage grouse were analyzed in the BA/BE as sensitive species). Big game species (elk and big horn sheep) and migratory birds were also analyzed in the Wildlife Specialist Report as required by the Migratory Bird Species Act. These reports are on file in the project record. Detailed information for each of these species can be found in the biological assessment/biological evaluation and Wildlife and Rare Plant Specialist Report in the project record.

Environmental Consequences

Gucinski and others (2001) identified several effects of forest roads on wildlife. Roads can cause fragmentation of wildlife habitat "by changing landscape structure, dissecting vegetation patches, increasing the amount of edge, decreasing interior area, and increasing the uniformity of patch characteristics." Roads may also cause some species to avoid habitat near roads and may attract other species to those areas. When populations become fragmented, it can produce greater fluctuation in the population, loss of genetic variability, and even local extinctions. The District measured the environmental effects on wildlife by:

- Miles of routes in occupied and potential habitat (table 15).

Roads and trails result in disjunctive habitat patches (i.e., fragmentation: the breaking up of large habitat or land areas into smaller parcels). Many species of wildlife cannot maintain viable populations in small habitat patches, which lead to extinction and loss of biodiversity (Forman 1998). There are areas on the District that are highly fragmented because of the roads and trails which are present. Roads and trails can function as barriers to movement by wildlife within the analysis area (e.g., reptiles and small mammals). For most non-flying terrestrial animals, motor vehicle routes equate to movement barriers that restrict the animals' range, make habitats inaccessible, and can finally lead to an isolation of populations. The barrier effect is the most prominent factor in the overall fragmentation caused by roads and trails (Forman 1998).

Table 15: Miles of Routes in Wildlife Habitat.			
Habitat	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 Current System
Greater sage grouse nesting	135	79	66
Pygmy rabbit	682	368	291
Goshawk nesting	191	142	111
Flammulated owl	27	19	13
Townsend's big-eared bat	12	4	2
Bonneville cutthroat trout	4	2	2
Critical deer winter range	862	411	313
Rocky Mountain and desert bighorn sheep range	46	29	22
Peregrine Falcon	1,616	852	618
Bald Eagles	No nesting or winter habitat component important to bald eagles present on the Ely Ranger District.		
Elk	1,616	852	618

Greater Sage-grouse

Affected Environment

The primary species of upland game bird on the District is the Greater Sage-grouse (*Centrocercus urophasianus*). There are 243,782 acres of sagebrush habitat on the District. Leks and nesting habitat are most common in the north central part of the White Pine Range and Duck Creek Basin in the Schell Range, but they also occur in the Mount Moriah and Ward Mountain areas. Five leks are known to exist in the White Pine Range, and additional lek sites are known to exist on BLM lands adjacent to the Forest across the District. In Nevada, sage grouse populations are monitored through lek counts during the spring and by analysis of hunter wing returns. Long-term population densities and distribution of sage grouse have been greatly reduced due to reduction of habitat from fire, overgrazing, and conversion to agriculture (Neel 2001). Sage grouse populations in Nevada are currently estimated at over 100,000 adult birds (Nevada Department of Wildlife Data 2006). Populations peaked during the late 1970s. Since then they have been on a steady decline and are currently down an estimated 49 to 60 percent from their peak (Neel 2001). These declines may have resulted from multiple factors including the hard winters with heavy snow years during the early to mid-1980s, which were followed by multiple drought periods during the last two decades. However, estimates for the entire conservation area of Nevada and eastern California in 2006 indicate the population increased 13 percent from the 2005 estimate. In the spring of 2007, over 1,000 leks were visited and over 11,000 sage-grouse were observed on 545 active leks. These data, coupled with data collected in eastern

California, generated a minimum spring breeding population estimate range of between 89,934 and 112,549 within the conservation planning area of Nevada and eastern California. These estimates are down approximately 13 percent from 2006 and are similar to 2005 estimates (Nevada Sage-Grouse Conservation Project W-64-R-6, Federal Aid Report, pp. 3 and 11).

The Forest Plan identified the current population of sage grouse at 36,300 birds, with a maximum potential of 40,000 (USDA Forest Service 1986). Minimum viable population was identified as 3,900 birds. Nevada Department of Wildlife (NDOW) monitoring efforts estimated that, as of 2001, sage grouse populations within the state of Nevada were at about 65,000 adult birds (USDA Forest Service 2008a, p. 34).

To analyze the effects of NFS roads on sage grouse and to describe the existing condition, all of the NFS and unauthorized routes within 2 miles of sage grouse leks were measured (see appendix B for specific routes). The District considers this the most important sagebrush habitat for nesting. Reduction of or alterations to this habitat can cause the most disruption to nesting adults and young sage grouse.

Habitat fragmentation consists of breaking up large areas of habitat into smaller, isolated areas of habitat. Species need to move through non-habitat to use the resulting patchwork of suitable habitats. The non-habitats can be physical/psychological barriers (e.g., roads or fences), blocks of unsuitable habitat (e.g., crested wheatgrass seeding or annual grassland), or other zones that a species avoid due to predation risks (e.g., adjacent to transmission lines). Designated routes would reduce the effects of fragmentation to the sagebrush community, enhancing habitat for many wildlife species that use this community. Vehicles would not be crushing the vegetation used for nesting, hiding, or foraging, nor flushing or displacing wildlife from these areas. Sagebrush areas that are in poor condition would be allowed to regenerate thereby restoring the connectivity of important habitat. The potential to spread noxious weeds would be reduced. This would result in a reduction in habitat loss and an increase in habitat quality.

Environmental Consequences

Alternative 1 - No Action Alternative

Currently, there are 135 miles of NFS roads and unauthorized routes in sage grouse nesting habitat (about 65,270 acres) resulting in a road density of 1.32 miles/mile². Under this alternative, motor vehicle use on all these routes and cross-country travel would continue. Over time, routes would extend further into unroaded wildlife habitat. Sagebrush is one the most impacted vegetative communities from roads and cross-country travel on the District. Many of these roads bisect important habitat for sagebrush dependent species such as sage grouse. In the White Pine Range, NFS road 59402 comes within 0.25 mile of lek sites. Continued use from roads and cross-country travel would affect additional sagebrush habitats. This would result in additional habitat loss and altered habitat quality. Under this alternative, sage grouse population trends are expected to remain static or decrease because of the continued use of unauthorized routes and the potential disturbance to habitat.

Alternative 2 - Proposed Action Alternative

This alternative restricts motor vehicle use to 79 miles of routes in sage grouse nesting habitat, resulting in a road density of 0.77 miles /mile², and prohibits cross-country motorized travel. This would curtail the establishment of new routes and cross-country travel. The reduction of 56 miles of routes would minimize the overall potential for disturbance to birds. Nesting and foraging habitat for sage grouse would improve with the restriction of motor vehicle use to designated routes. With the prohibition on motorized cross-country travel, vehicles would not crush vegetation used for nesting or foraging nor would displacement occur from human disturbance. This alternative would ultimately benefit sage grouse by allowing native plant communities to regenerate thereby restoring the connectivity of important habitat.

Even though NFS road 59402 would still be within 0.25 mile of lek sites, disturbance to sage grouse would be reduced. Most years this road is not open during the breeding season due to snow, and because of the prohibition of motorized cross-country travel, disturbance to nesting and early brood rearing would be reduced.

Sage grouse population trends are expected to remain static or increase because route proliferation in nesting habitat would be curtailed and 45 miles of unauthorized routes would not be added to the forest transportation system. In addition, potential threats to sagebrush habitat, such as noxious weeds, would be reduced. Table 16 displays routes proposed for addition to the forest transportation system that cross within 2 miles of a sage grouse lek.

Route Number	Status	Mountain Range	Miles of Routes within 2 Miles of a Sage Grouse Lek
E3841	Trail	Grant Quinn	0.21
E3839	Trail	Grant Quinn	0.34
E3834	Trail	Grant Quinn	0.36
U59136	Trail	Grant Quinn	0.41
U59098	Trail	Schell	0.02
U59323	Trail	Schell	0.04
U59203	Trail	Schell	0.48
E1027	Trail	Schell	0.87
19718	Trail	Schell	0.84
U59048D	Road	White Pine	0.14
U59199	Road	White Pine	1.24
U59627	Trail	White Pine	0.03
U59048A	Trail	White Pine	0.17
U59007	Trail	White Pine	0.44
U59614	Trail	White Pine	0.49
U59045	Trail	White Pine	0.75

Route Number	Status	Mountain Range	Miles of Routes within 2 Miles of a Sage Grouse Lek
E3303	Trail	White Pine	0.76
U59404A	Trail	White Pine	1.21
E4203	Trail	White Pine	1.31
U59005	Trail	White Pine	1.32
U59048	Trail	White Pine	1.64

Alternative 3 - Current System Alternative

This alternative restricts motor vehicle use to 66 miles of routes in sage grouse nesting habitat, resulting in a road density of 0.654 miles/mile², and prohibits cross-country motorized travel. This would curtail the establishment of new routes and cross-country travel. The reduction of 69 miles of routes would also minimize the overall potential for disturbance to birds.

Even though NFS road 59402 would still be within 0.25 mile of lek sites, disturbance to sage grouse would be reduced. Most years this road is not open during the breeding season due to snow, and because of the prohibition of cross-country travel disturbance to nesting and early brood rearing would be reduced.

Nesting and foraging habitat for sage grouse would improve with the restriction of motor vehicle use to designated routes. Vehicles would not crush vegetation used for nesting or foraging, nor would displacement occur from disturbances. This alternative would ultimately benefit sage grouse by allowing native plant communities to regenerate thereby restoring the connectivity of important habitat. Sage grouse population trends are expected to remain static or increase because route proliferation in nesting habitat would be curtailed and 69 miles of unauthorized routes would not be added to the forest transportation system. In addition, potential threats to sagebrush habitat, such as noxious weeds, would be reduced.

Pygmy Rabbit

Affected Environment

The pygmy rabbit (*Brachylagus idahoensis*) is the smallest of North American rabbits. They can be distinguished from other rabbits by size alone, and by their shorter ears and tails which are not white like cottontails. The pygmy rabbit has a discontinuous distribution occurring in Montana, Wyoming, Idaho, Utah, Nevada, California, Oregon, and Washington (Roberts 2001). There is little information on the current distribution of pygmy rabbits in Nevada. On January 8, 2008, the U.S. Fish and Wildlife Service initiated a status review to determine if listing the pygmy rabbit is warranted. Pygmy rabbits are impacted by the loss of habitat linked to livestock grazing or large fires and activities that create broad openings in habitat. Pygmy rabbits are averse to traveling across open country because they become more vulnerable to predators.

On the District, habitat for pygmy rabbits consists of broad sagebrush basins where thick, healthy Wyoming, Basin big sagebrush, and mountain big sagebrush communities occur adjacent to riparian areas, springs, or other sources of water. Old mine sites and/or homesteads may also provide potential habitats. There are pygmy rabbit populations in Currant Summit, Corduroy Basin, Ellison Basin, and Little Tom Plain Spring in the White Pine Range and Garden Valley in the Grant-Quinn ranges. Table 17 displays the pygmy rabbit habitat available on each mountain range across the District. Using the Remote Sensing Applications Center (RSAC) vegetation map, habitat for pygmy rabbits was mapped using the following parameters:

- Basin, mountain, and Wyoming big sagebrush stands, that occur at elevations of 8,500 feet and slopes less than 25 percent.

Table 17: Acres of Potential Habitat for Pygmy Rabbits by Mountain Range.	
Range	Existing Habitat (acres)
Grant-Quinn	20,978
Mount Moriah	1,135
Schell Creek	12,778
Ward Mountain	2,272
White Pine	45,044

There are 82,207 acres of potential habitat for pygmy rabbits on the Ely Ranger District. Overlaying the existing routes, the District identified 682 miles of motorized roads and trails in this potential habitat. For a list of proposed routes within potential habitat for pygmy rabbits, see appendix B.

Environmental Consequences

Alternative 1 - No Action Alternative

Currently, there are 682 miles of NFS roads and unauthorized routes within the 82,207 acres of potential pygmy rabbit habitat on the District. Within the potential habitat, 49,976 acres are affected by the roads (roads within the potential habitat were buffered by 0.25 mile to determine affected acres). Under this alternative, approximately 61 percent of the potential pygmy habitat is affected by roads. This alternative would also allow motor vehicle use on all routes and cross-country travel would continue. Over time, routes would likely extend further into unroaded pygmy rabbit habitat reducing the amount and quality of habitat. Pygmy rabbit population trends are expected to remain static, or decrease, because of the potential future loss of habitat.

Alternative 2 - Proposed Action Alternative

This alternative restricts motor vehicle use to 368 miles of routes within potential pygmy rabbit habitat, affecting 32,336 acres. Under this alternative, approximately 39 percent of the potential pygmy habitat is affected by roads. Along with the reduction in miles of routes between the No Action Alternative and the Proposed Action Alternative is the prohibition of cross-country motorized travel. The prohibition of cross-country travel is expected to end the proliferation of unauthorized routes and the associated sagebrush habitat fragmentation resulting from pioneered routes. This would benefit pygmy rabbits, as they do not move great distances or cross large areas that are not suitable habitat (Dobkin and Sauder 2004). Pygmy rabbit population trends are expected to remain static or increase because the number of unauthorized routes in potential habitat would be reduced by 314 miles and cross-country travel would be prohibited. In addition, potential threats to sagebrush habitat, such as noxious weeds, would be reduced.

Alternative 3 - Current System Alternative

This alternative restricts motor vehicle use to 291 miles of NFS routes within potential pygmy rabbit habitat, affecting 26,633 acres. Under this alternative, approximately 32 percent of the potential pygmy habitat is affected by roads. Along with the reduction in miles of routes between the No Action Alternative and the Current System Alternative is the prohibition of cross-country motorized travel. The prohibition of cross-country travel is expected to end the proliferation of unauthorized routes and the associated sagebrush habitat fragmentation resulting from pioneered routes. This would benefit pygmy rabbits as they do not move great distances or cross large areas that are not suitable habitat. Pygmy rabbit population trends are expected to remain static or increase because the number of unauthorized routes in potential habitat is reduced by 391 miles and cross-country travel would be prohibited. In addition, potential threats to sagebrush habitat, such as noxious weeds, would be reduced.

Northern Goshawk

Affected Environment

In northern Nevada, northern goshawks (*Accipiter gentilis*) occupy small stands of aspen surrounded by shrub-steppe occurring at elevations between 6,500 to 7,800 feet during the warmer months, and in lower foothills and valley habitats during the winter. The goshawk in Nevada is considered a year-round resident (Herron et al. 1985).

The typical northern goshawk nest in Nevada occurs in aspen stringers about 600 feet long and 75 feet wide at 7,400 to 7,800 feet in elevation, and near small perennial streams (typically within 100 yards). Ninety-eight percent of nests are located within 100 feet of water (Herron et al. 1985). Aspen is the most commonly used nesting tree with over 85 percent of the observed nests found in this vegetative community (Herron et al. 1985).

Goshawks have been known to nest within aspen stands in the Schell Creek, Ward Mountain, and Mount Moriah ranges, and within aspen and/or cottonwoods in the

White Pine and Grant-Quinn ranges. Field surveys in the spring of 2007 found no active nests in White River, Currant Creek, Ellison Creek, and Aspen Springs in the White Pine Range; Berry Creek in the Schell Creek Range; or Little Cherry Creek in the Quinn Canyon Range. An active goshawk nest was located in a large pinyon tree in 2007 on the east side of Ward Mountain. The Forest Service and NDOW completed surveys in the Schell Creek and Mount Moriah ranges in 2004, 2005, and 2006. The Forest Plan identified both the current and minimum viable population of goshawks to be 500 pairs, with a maximum potential of 1,000 pairs (USDA Forest Service 1986 and Amendment 2, July 1990). Data provided by NDOW identified 141 nest sites on NFS land within the Humboldt NF in 2001 (USDA Forest Service 2008a, p. 10).

For the Ely Ranger District, potential nesting habitat was identified by analyzing aspen, aspen/conifer, cottonwood, and riparian aspen communities, within 0.50 mile of perennial water sources and on slopes less than 25 percent. This analysis revealed about 12,044 acres of suitable nesting habitat. The majority of impacts to goshawks would be from disturbance associated with recreation activities since aspen areas are popular camping places.

Some types of human disturbances to goshawk nests have been a suspected cause of nest abandonment. In addition, roads and trails may facilitate access for falconers to remove young from nests. Grubb and others (1998) reported that vehicle traffic from roads caused no discernable behavioral response by goshawks at distances greater than 400 meters from nest sites in forested habitats with noise levels less than 54 decibels (Grubb et al. 1998). Critical times for human disturbance to be evaluated include the nesting period and post fledgling periods for goshawks. The post fledgling area is an area of concentrated use from the time the young leave the nest until they are no longer dependent on the adults for food. Forest road-associated factors include the fragmentation or loss of goshawk habitat as a result of roads, or more likely, road networks (Wisdom et al. 2000). Goshawks have been shown to be sensitive to changes in canopy closure and habitat fragmentation (Gaines et al. 2003) such as could result from a road network.

Environmental Consequences

Alternative 1 - No Action Alternative

Currently there are 191 miles of NFS routes and unauthorized routes within the 12,044 acres of potential goshawk habitat on the District. Within the potential habitat, about 2,975 acres are affected by the roads (roads within the potential habitat were buffered by 0.25 mile to determine the affected acres). Under this alternative, motor vehicle use on all these routes and cross-country travel would continue, and habitat quality and quantity would be expected to decrease. Over time, routes could extend further into unroaded goshawk habitat. In addition to the actual removal of habitat that occurs when the routes are established, there is also an increased disturbance to wildlife from motor vehicles on the routes. As a result, habitat quality would be expected to decrease use as new routes are created.

Alternative 2 - Proposed Action Alternative

This alternative restricts motor vehicle use to 142 miles of NFS routes and unauthorized routes within potential goshawk habitat and prohibits cross-country motorized travel (table 18). With this alternative, routes affect about 2,695 acres (22 % of the potential habitat). By restricting vehicles to a system of routes, future impacts to vegetation, disturbance, and habitat fragmentation would be reduced, especially in the riparian and aspen communities. The prohibition of cross-country travel would help reduce disturbance to goshawk in the aspen areas. Under this alternative, goshawk population trends are expected to remain static or increase because of the reduction of routes in potential habitat and the reduction in disturbance related to routes. In addition, potential threats to goshawk habitat, such as noxious weeds, would be reduced.

The alternative would also close the Murry Canyon Municipal Watershed to over-snow vehicle use. This closure would reduce the amount of stress goshawk and other species might experience during the winter because of snow machine use near nest or roost sites and on prey species.

Route Number	Status	Mountain Range	Miles within Potential Goshawk Habitat
U59649	Road	Grant Quinn	0.61
U59122	Trail	Grant Quinn	0.31
U59118	Trail	Grant Quinn	0.65
U59162	Road	Moriah	0.06
U59148A	Road	Moriah	0.73
E12410	Road	Moriah	3.70
E13321	Trail	Moriah	0.17
E2096	Trail	Moriah	0.45
E9798	Road	Schell	0.33
U59697C	Trail	Schell	0.07
U59427L	Trail	Schell	0.08
U59697A	Trail	Schell	0.08
U59203	Trail	Schell	0.12
U59428C	Trail	Schell	0.15
U59323	Trail	Schell	0.16
U59318	Trail	Schell	0.17
U59428A	Trail	Schell	0.18
U59663	Trail	Schell	0.21
U59436B	Trail	Schell	0.21
U59098	Trail	Schell	0.23
E1027	Trail	Schell	0.32
U59658	Trail	Schell	0.33
U59674	Trail	Schell	0.56
U59675	Trail	Schell	0.77
E904	Trail	Schell	0.85

Table 18: Proposed Routes within Potential Goshawk Habitat.			
Route Number	Status	Mountain Range	Miles within Potential Goshawk Habitat
U59661	Trail	Schell	1.11
E418	Trail	Schell	1.55
U59696	Trail	Schell	1.55
59009	Trail	Schell	3.97
59571	Trail	Schell	0.29
19069	Trail	Schell	8.57
19069	Trail	Schell	1.42
U59075	Trail	Schell	0.02
U59488B	Trail	Schell	1.16
E1412	Trail	Ward	0.02
E1604	Trail	Ward	0.12
E1601	Trail	Ward	0.39
E1602	Trail	Ward	0.42
E13505	Trail	Ward	0.61
U59723B	Road	White Pine	0.10
U59610D	Trail	White Pine	0.03
U59610B	Trail	White Pine	0.05
U59722	Trail	White Pine	1.08

Alternative 3 - Current System Alternative

This alternative restricts motor vehicle use to 112 miles of routes within potential goshawk habitat and prohibits cross-country motorized travel. With this alternative, roads affect about 2,256 acres (18 % of the potential habitat). By restricting vehicles to a system of routes, future impacts to vegetation, disturbance, and habitat fragmentation would be greatly reduced, especially in the riparian and aspen communities. The prohibition of motorized cross-country travel would help reduce potential conflicts between goshawks and recreationists in the aspen areas. Goshawk population trends are expected to remain static or increase because of the reduction in miles of routes open for use. In addition, potential threats to goshawk habitat, such as noxious weeds, would be reduced.

Flammulated Owl

Affected Environment

Flammulated owls (*Otus flammeolus*) occur in limited areas in the mid to higher elevations within the Grant-Quinn, Mount Moriah, Schell Creek, and White Pine Mountain ranges. There are known nesting sites for flammulated owls present within each of these ranges. Flammulated owls have been found in aspen, white fir, and some bristlecone pine stands in Scofield Canyon in the Grant Range; in Deadman and Big Canyons in the Mount Moriah Range in 2005 (Mika 2007); and in aspen and white fir habitats in Kalamazoo Canyon. They were also found in Sagehen Canyon in the Schell

Creek Range in 2005, in Berry Creek in the Schell Creek Range in 2006, in McEllen and Seligman Canyons in the White Pine Range in 2005, and in Seligman Canyon in 2006. Using the RSAC vegetation map, the District identified potential habitat for flammulated owls using the following vegetation types: aspen, mixed aspen/conifer, riparian aspen, mixed conifer, white fir, whitebark/limber pine, and bristlecone pine (table 19).

Most of the habitat in the Grant-Quinn, Mount Moriah, White Pine, and Schell Creek ranges occurs in wilderness areas. There is additional habitat in the White Pine Range around the Mount Hamilton area and in the Schell Creek Range within Duck Creek Basin. The majority of the impacts to owls from routes would be from the actual removal of habitat that occurs when the routes are established. There is also an increased disturbance to flammulated owls and a decrease in habitat for their prey species when people travel overland. Owls can be displaced or avoid areas, which alter habitat use, by disturbance during a critical periods such as breeding, nesting, and fledging time periods (Gaines et al. 2003).

Range	Acres of Potential Habitat
Grant-Quinn	3,084
Mount Moriah	30,489
Schell Creek	54,684
Ward Mountain	4,967
White Pine	6,468

Environmental Consequences

Alternative 1 - No Action Alternative

Under this alternative, flammulated owl population trends are expected to remain static or decrease. Currently there are 27 miles of NFS routes and unauthorized routes within the 99,692 acres of potential flammulated owl habitat on the District. Within the potential habitat, about 9,000 acres (9% of the potential habitat) are affected by the roads (roads within the potential habitat were buffered by 0.25 mile to determine the affected acres).

Because the District would remain open to overland travel by vehicles, new routes could be developed in riparian and aspen habitats. As a result, habitat quality would be expected to decrease as new routes are created. Under this alternative, motor vehicle use on all these routes and cross-country travel would continue. Over time, routes would likely extend further into unroaded flammulated owl habitat reducing the amount and quality of habitat.

Alternative 2 - Proposed Action Alternative

Flammulated owl population trends are expected to remain static or increase because of reductions in miles of available travel routes and the prohibition of cross-country travel. This alternative restricts motor vehicle use to 19 miles of routes within potential flammulated owl habitat (table 20). With this alternative, about 6,000 acres (6% of the potential habitat) are affected by roads. This represents a three percent decrease in the disturbance caused by the No Action Alternative and a one percent increase to the disturbance caused by the Current System Alternative. Along with the reduction in miles of routes between the No Action Alternative and the Proposed Action Alternative is the prohibition of cross-country motorized travel. This would curtail the establishment of new routes and motorized cross-country travel. By restricting vehicles to designated NFS roads and NFS trails, future impacts to vegetation and habitat fragmentation would be greatly reduced. Foraging habitat for flammulated owls would improve with the reduction in routes as disturbance to prey species and their habitats decrease. In addition, potential threats to flammulated owl habitat, such as noxious weeds, would be reduced.

Table 20: Proposed Routes within Potential Flammulated Owl Habitat			
Route Number	Status	Mountain Range	Miles of Route within Potential Flammulated Owl Habitat
U59148A	Road	Moriah	0.06
U59146	Road	Moriah	0.23
E12407	Road	Moriah	0.37
E12410	Road	Moriah	0.98
E6189	Trail	Moriah	0.02
E2040	Trail	Moriah	0.04
E13321	Trail	Moriah	0.06
E2096	Trail	Moriah	0.13
E6197	Trail	Moriah	0.19
U59098	Trail	Schell	0.00
U59428C	Trail	Schell	0.03
E418	Trail	Schell	0.08
U59696	Trail	Schell	0.12
U59318	Trail	Schell	0.21
59009	Trail	Schell	0.62
19069	Trail	Schell	2.38
19069	Trail	Schell	0.04
E8232	Trail	Schell	0.24
E1601	Trail	Ward	0.01
E1604	Trail	Ward	0.12
E13505	Trail	Ward	0.20

Alternative 3 - Current System Alternative

Flammulated owl population trends are expected to remain static or increase because of the reduction in available routes and the prohibition of cross-country travel. This alternative restricts motor vehicle use to 13 miles of routes within potential flammulated owl habitat. With this alternative, about 4,800 acres (5% of the potential habitat) are affected by routes. Along with the reduction in miles of routes between the No Action Alternative and the Current System Alternative is the prohibition of cross-country motorized travel. This would curtail the establishment of new routes and motorized cross-country travel. By restricting vehicles to a system of routes, future impacts to vegetation and habitat fragmentation would be greatly reduced. Foraging habitat for flammulated owls would improve with the reduction in routes as disturbance to prey species and their habitats would decrease. In addition, potential threats to flammulated owl habitat, such as noxious weeds, would be reduced.

Townsend's Big-eared Bat and Spotted Bat

Affected Environment

Townsend's big-eared bats (*Plecotus townsendii*) are found throughout Nevada, as well as the rest of the western United States. The Townsend's big-eared bat is highly associated with caves and mines. It roosts communally on the ceilings of cave-like structures (caves, mines, and buildings) and feeds primarily (>90%) on moths (Bradley et al. 2006, p. 18; and Wisdom et al. 2000, p. 120). Historical records for the White Pine, Grant-Quinn, Schell Creek, and Mount Moriah ranges indicate the presence of Townsend's big-eared bat (Bradley et al. 2006, p. 19).

There are no historical records for the spotted bat (*Euderma maculatum*) on the Ely Ranger District. The closest known sites are in the south Snake Mountain Range in Great Basin National Park and the Cherry Creek Range on BLM (Bradley et al. 2006, p. 23). The spotted bat is closely associated with rocky cliffs and is found in a variety of habitats from low elevation desert scrub to high elevation coniferous habitats, including pinyon-juniper, sagebrush, and riparian.

Overall, the most serious factor leading to population declines in bats is loss and/or disturbance of suitable roosting habitat. Loss and/or degradation of foraging habitat may also be a contributing factor in the decline of Townsend's big-eared and spotted bats. Cross-country vehicle use can cause a loss of foraging habitat by reducing the habitat used by the bats and their prey species. The closer a route is to caves, mines, and roost sites the greater the chances of human disturbance from recreational caving during critical time periods (hibernation and maternity). This can cause losses in colony populations. Disturbance by humans of winter hibernation roosts can arouse bats from hibernation causing them to expend their body fat reserves during each arousal period. Bats subjected to excessive disturbance during the winter months often run out of energy reserves and die of starvation prior to the arrival of spring. The Townsend's big-eared bat is a colonial species with relatively restrictive roost requirements. Unlike many species that seek refuge in crevices, the Townsend's big-eared bat forms highly visible clusters on open surfaces (e.g., domed areas of caves or ceilings of old barns),

making them extremely vulnerable to disturbance. Roost fidelity, longevity, and low reproductive capability all combine to intensify any negative effects of anthropogenic threats to the species (Pierson 1999).

Environmental Consequences

Alternative 1 - No Action Alternative

Because there are 12 miles of routes with sections within 0.25 mile of hibernacula and/or maternity roost habitat on the District under this alternative, Townsend’s big-eared bat and spotted bat population trends are expected to remain static or decrease. Both species forage over larger areas, especially during the summer. Potentially suitable foraging habitats for both species include springs, seeps, and riparian areas. Under this alternative, motor vehicle use on all these routes and cross-country travel would continue. Over time, routes could potentially extend further into unroaded wildlife habitat reducing the amount and quality of habitat.

Alternative 2 - Proposed Action Alternative

This alternative restricts motor vehicle use to 4 miles of routes near potential hibernacula and maternity roost habitat for Townsend’s big-eared bats. Potential habitat for the spotted bats occurs throughout the District. Along with the reduction in miles of routes between the No Action Alternative and the Proposed Action Alternative is the prohibition of cross-country motorized travel. This would curtail the establishment of new routes and motorized cross-country travel. By restricting vehicles to a system of routes, future impacts to vegetation and habitat fragmentation would be greatly reduced. Foraging habitat for both bats would improve with the reduction in routes as disturbance to prey species and their habitats would improve. Townsend’s big-eared bat and spotted bat population trends are expected to remain static or increase because of the reduction in miles of routes near roosting habitat and the prohibition of cross-country travel. Table 21 displays proposed routes located near caves or tunnels potentially used by bats.

Route Number	Status	Mountain Range	Miles of Route Near Caves or Tunnels Potentially Used by Bats
U59101	Trail	Grant Quinn	0.09
U59437	Road	Schell	0.11
19069	Trail	Schell	0.24
19069	Trail	Schell	0.35
U59259	Trail	Schell	0.12
E13505	Trail	Ward	0.08
E1602	Trail	Ward	0.11
E1604	Trail	Ward	0.12
E12435	Road	White Pine	0.33
U59623C	Trail	White Pine	0.03
U59757A	Trail	White Pine	0.04

Route Number	Status	Mountain Range	Miles of Route Near Caves or Tunnels Potentially Used by Bats
U59718	Trail	White Pine	0.09
U59722	Trail	White Pine	0.09
U59024	Trail	White Pine	0.11
U59045	Trail	White Pine	0.29

Alternative 3 - Current System Alternative

This alternative restricts motor vehicle use to 2 miles of routes near potential hibernacula and maternity roost habitat for Townsend's big-eared bats. Potential habitat for the spotted bat occurs throughout the District. Along with the reduction in miles of routes between the No Action Alternative and the Current System Alternative is the prohibition of cross-country motorized travel. This would curtail the establishment of new routes and cross-country travel. By restricting vehicles to a system of routes, future impacts to vegetation and habitat fragmentation would be greatly reduced. Foraging habitat for both bats would improve with the reduction in routes as disturbance to prey species and their habitats would improve. Townsend's big-eared bat and spotted bat population trends are expected to remain static or increase because of the reduction in miles of routes near roosting habitat and the prohibition of motorized cross-country travel.

Peregrine Falcon

Affected Environment

Peregrine falcons (*Falco peregrinus*) often nest on ledges or holes on faces of rocky cliffs or crags, with a sheltering overhang. Ideal locations include undisturbed areas with a wide view, and a close proximity to water and plentiful prey. Substitute man-made sites include tall buildings, bridges, rock quarries, and raised platforms. They feed primarily on birds (medium-size passerines up to small waterfowl), but they may eat small mammals (e.g., bats, lemmings), lizards, fishes, and insects (by young birds). Foraging habitat includes wetlands and riparian habitats, meadows and parklands, croplands such as hayfields and orchards, gorges and mountain valleys, and lakes that support good populations of small to medium-sized terrestrial birds, shorebirds, and waterfowl. Peregrines may forage up to 12 miles from the nest site, but normally stay within 7 miles (USFWS 1999). Their prey consists almost entirely of birds that are usually taken on the wing.

Peregrine falcons nested in Cathedral Canyon in the White Pine Range in 2003. They may use other areas in the White Pine, Grant-Quinn, Schell Creek, Mount Moriah, or Ward Mountain ranges for nesting, or during migration for resting and foraging.

Environmental Consequences

Alternative 1 - No Action Alternative

Potential nesting, foraging, and/or migration habitat is present in all the mountain ranges on the District; therefore, the entire District is potential habitat for peregrine falcons. Currently, there are 1,616 miles of routes throughout the District. Under this alternative, motor vehicle use on all these routes and cross-country travel would continue. Over time, routes would extend further into unroaded wildlife habitat. Although routes would have a minimal effect on nesting habitat for peregrine falcons, they would reduce the amount of available foraging habitat in good condition. The miles of routes across the District decrease the number of prey for peregrine falcons, which would negatively affect falcons. Under this alternative, peregrine falcon population trends are expected to remain static.

Alternative 2 - Proposed Action Alternative

This alternative restricts motor vehicle use to 852 miles of NFS road and NFS trails on the District. Along with the reduction in miles of routes between the No Action Alternative and the Proposed Action Alternative is the prohibition of cross-country motorized travel. This would curtail the establishment of new routes and cross-country travel. By restricting vehicles to a system of routes, future impacts to vegetation and habitat fragmentation would be greatly reduced. Foraging habitat for peregrines falcons would improve with the reduction in routes as disturbance to prey species and their habitats improve. Peregrine falcon population trends are expected to remain static or increase because of this alternative. In addition, potential threats to peregrine falcon habitat, such as noxious weeds, would be reduced.

Alternative 3 - Current System Alternative

This alternative restricts motor vehicle use to 618 miles of routes on the District. Along with the reduction in miles of routes between the No Action Alternative and the Current System Alternative is the prohibition of cross-country motorized travel. This would curtail the establishment of new routes and cross-country travel. By restricting vehicles to a system of routes, future impacts to vegetation and habitat fragmentation would be greatly reduced. Foraging habitat for peregrines falcons would improve with the reduction in routes as disturbance to prey species and their habitats would improve. Peregrine falcon population trends are expected to remain static or increase because of this action. In addition, potential threats to peregrine falcon habitat, such as noxious weeds, would be reduced.

Bald Eagle

Affected Environment

The Fish and Wildlife Service removed the bald eagle (*Haliaeetus leucocephalus*) from the federal list of endangered and threatened wildlife on August 8, 2007. Since then, they are considered a sensitive species. The bald eagle is a winter visitor to the Ely Ranger District (USDA Forest Service 1986, p. II-10). The Ely Ranger District does

not provide any of the important wintering habitat requirements for bald eagles and lies outside any known wintering areas. Eagles may use areas of the District as travel routes between nesting and known wintering areas. The District has no nesting or winter habitat component important to bald eagles.

Environmental Consequences

Alternative 1 - No Action Alternative

The District is outside any known wintering areas but does provide minimal wintering habitat requirements for bald eagles. There is no nesting habitat within the project area, although summer habitat occurs at Illipah Reservoir north of the White Pine Range. Eagles may use the District as a travel route between nesting and known wintering areas. No winter habitat component important to bald eagles is present, thus no bald eagle wintering habitat is affected by the existing routes. Under this alternative, bald eagle population trends are expected to remain static.

Effects Common to Alternative 2 - Proposed Action and Alternative 3 - Current System Alternatives

The District is outside any known wintering areas but does provide minimal wintering habitat requirements for bald eagles. There is no nesting habitat within the project area, although summer habitat occurs at Illipah Reservoir north of the White Pine Range. Eagles may use the District as a travel route between nesting and known wintering areas. With the reduction in routes, foraging habitat for bald eagles would improve as disturbances to the eagle decrease and habitat for prey species improve.

Bonneville Cutthroat Trout

Affected Environment

Bonneville cutthroat trout (*Oncorhynchus clarki utah*) (BCT) require clear, cool water throughout their lives. Historically, BCT occurred throughout the Bonneville Basin. Currently they are restricted to less than 50 populations in Idaho, Nevada, Utah, and Wyoming. On the Ely Ranger District, BCT occupy Hendry's, Hampton, Smith, Deep Canyon, and Deadman creeks in the Mount Moriah Range, and Deep Creek in the Grant-Quinn Range. A tributary to Silver Creek may also have Bonneville cutthroat trout. Genetic testing to determine if the trout from the Silver Creek tributary are indeed pure strains of BCT is currently in progress.

Environmental Consequences

Alternative 1 - No Action Alternative

Currently there are 4 miles of NFS and unauthorized routes within Bonneville cutthroat trout habitat on the District. Under this alternative, motor vehicle use on these routes and cross-country travel would continue. Over time, routes would extend further into unroaded wildlife habitat and could potentially increase sediment, reducing the quality of the habitat. Under this alternative, population trends of Bonneville cutthroat trout are

expected to remain static or possibly decrease because of the number of routes open to motor vehicles.

Effects Common to Alternative 2 - Proposed and Alternative 3 - Current System Alternatives

These alternatives would limit motor vehicle use to 2.2 miles of NFS routes within Bonneville cutthroat trout habitat (table 22). These NFS roads in Hendry's Creek (59429) and Hampton Creek (59582) are located on the eastside of the Moriah Range. With the reduction of unauthorized routes, most of this use would occur along Hampton Creek. Along with the reduction in miles of routes between the No Action Alternative and the Proposed Action and Current System Alternatives is the prohibition of cross-country motorized travel. This would curtail the establishment of new routes and cross-country travel. By prohibiting motor vehicles from traveling off designated NFS roads or NFS trails, future impacts to vegetation and habitat fragmentation would be greatly reduced, especially in the riparian areas. Because of the reduced miles of route in these alternatives and the prohibition of cross-country travel, Bonneville cutthroat trout population trends are expected to remain static or increase.

Route Number	Status	Mountain Range	Miles within Native Fish Habitat
59429	NFS Road	Moriah	0.1
59582	NFS Road	Moriah	2.06

Mule Deer

Affected Environment

Mule deer (*Odocoileus hemionus*) are one of the Management Indicator Species (MIS) in the Humboldt National Forest Land and Resource Management Plan (USDA Forest Service 1986) used to monitor habitat for mule deer and other species with similar habitats.

The Ely Ranger District contains both summer and winter ranges for mule deer. Mule deer winter range is at lower elevations, while they summer at higher elevations. Winter range is typified by shrublands that do not accumulate large amounts of snow so forage can be accessible to deer through most of the winter. The majority of the fawning areas on the District are within a 0.50 mile of riparian areas, perennial streams, or water sources. The District provides a good distribution and diversity of vegetation for mule deer year round. The most common browse plants are big sagebrush, antelope bitterbrush, snowberry, willow, and rubber rabbitbrush (Taylor 1991). Food habits of deer appear to be influenced by phenological changes in forage as well as the abundance of different species.

The District lies within the NDOW Hunt Units 11 (111-115), 13 (131-134), and 22 (221-223). The Forest Plan determined a minimum viable population level for mule deer at 11,247 with a maximum potential population of 88,200 deer for the entire Forest. The Forest Plan identified the current population of mule deer at 63,000 (USDA Forest Service 1986). Statewide mule deer numbers have remained relatively stable over the past ten years (USDA Forest Service 2008a, pp. 27 and 28). Aerial surveys in 2007 for these units counted 4,083 deer, which indicated an increasing trend (NDOW 2006-2007 Big Game Status).

The long-term quality and quantity of summer ranges on the Ely Ranger District are slowly being reduced by pinyon-juniper forests taking over mountain brush zones. This lowers the carrying capacity for mule deer. This deteriorating condition also affects winter range. The designation of new wilderness areas on the District has a positive effect by restricting off road travel, wind energy development, mining, and oil and gas exploration (NDOW 2006-2007 Big Game Status). Appendix B displays routes proposed for addition to the forest transportation system located within deer winter range.

Environmental Consequences

Roads and other human developments adversely affect mule deer by introducing disturbance during a period when physical stress is already high (Canfield et al. 1999). Researchers have reported decreased use of areas within 0.25 to 0.50 mile from a road (Thomas 1979; Canfield et al. 1999; Wasley 2004). In general, ungulates (deer and elk) respond to recreational activities by avoiding areas near roads, recreation trails, and other types of human activities (Gaines et al. 2003). As road densities increase, mule deer habitat values decrease (Canfield et al. 1999). Restricting motor vehicles to designated routes within winter, summer, and fawning habitat are beneficial to mule deer by limiting overland travel and disturbance (Canfield et al. 1999).

Alternative 1 - No Action Alternative

Currently, there are 862 miles of routes within mule deer winter range on the District. The entire District is summer range for mule deer with 1,616 miles of routes (about 1 mile/mile²). There are about 374 miles of routes within fawning areas (about 213,590 acres for the District) resulting in a road density of 1.2 miles/mile². Roads and trails can affect mule deer by reducing available forage and cover, and by creating migration barriers. Under this alternative, motor vehicle use on all these routes and cross-country travel would continue. Over time, routes could extend further into unroaded wildlife habitat. Mule deer population trends are expected to remain static or decrease because of the number of routes open to motor vehicles. Over-snow vehicle use in the Murry Municipal Watershed would also continue under this alternative. Stress to mule deer during the winter can result in high mortality rates.

Alternative 2 - Proposed Action Alternative

This alternative restricts motor vehicle use to 412 miles of routes within mule deer winter range on the District. The effects of disturbance to mule deer may be greater

during the winter months when deer are often relying on energy reserves for survival. If disturbance levels are consistently high, deer may permanently avoid these areas. Under the Proposed Action Alternative, the other 450 miles of routes in winter habitat would not be added to the forest transportation system. Impacts to mule deer during the winter months would be reduced by prohibiting use of motor vehicles off designated routes. Vehicles would have to stay on designated routes which would reduce harassment of deer during this critical and stressful period.

The entire District is summer range for mule deer. This alternative restricts motor vehicle use to 852 miles of routes for the District, and to about 255 miles within fawning areas. By allowing use on designated routes only, there would be a reduction in the overall level of habitat fragmentation and game harassment. Areas where routes were formerly established would eventually return to native brush communities suitable for mule deer. Over-snow vehicle use in the Murry Municipal Watershed would not be allowed to continue under this alternative. This restriction could result in reduced stress to the mule deer population located in this and adjacent watersheds.

The primary difference between the No Action Alternative and the Proposed Action Alternative is the prohibition of cross-country motorized travel. This would curtail the establishment of new routes and cross-country travel. By restricting vehicles to a system of routes, future impacts to vegetation and habitat fragmentation would be greatly reduced, especially in the brush communities. Mule deer population trends are expected to remain static or increase because of this alternative. In addition, potential threats to mule deer habitat, such as noxious weeds, would be reduced.

Alternative 3 - Current System Alternative

This alternative restricts motor vehicle use to 313 miles of routes within mule deer winter range on the District. The effects of disturbance to mule deer may be greater during the winter months when deer are often relying on energy reserves for survival. If disturbance levels are consistently high, deer may permanently avoid these areas. Under the Current System Alternative, the use of 549 miles of unauthorized routes would be prohibited. Prohibiting travel on these routes would minimize disturbance to mule deer during the winter months.

The entire District is summer range for mule deer. This alternative restricts motor vehicle use to 618 miles of routes for the District, and about 221 miles within fawning areas. By allowing use on designated routes only, there would be a reduction in the overall level of habitat fragmentation. These areas would be restored to native brush communities suitable for mule deer, and there would be reduction in disturbance to mule deer summering in the area. Over-snow vehicle use in the Murry Canyon Municipal Watershed would not continue under this alternative. This restriction could result in reduced stress to the mule deer population located in this and adjacent watersheds.

The primary difference between the No Action Alternative and the Current System Alternative is the prohibition of cross-country motorized travel. This would curtail the establishment of new routes and cross-country travel. By restricting vehicles to a

system of routes, future impacts to vegetation and habitat fragmentation would be greatly reduced, especially in the brush communities. Because of the reduction in routes and the prohibition of motor vehicle use off designated routes, mule deer population trends are expected to remain static or increase. In addition, potential threats to mule deer habitat, such as fragmentation and the spread of noxious weeds, would be reduced.

Rocky Mountain Elk

Affected Environment

Rocky Mountain elk (*Cervus Canadensis nelsoni*) are very adaptive and live in many habitats, including sagebrush/grass, grasslands, shrub, pinion-juniper, and aspen vegetation communities. Elk have a broad dietary tolerance and consume grasses, other herbaceous plants, and browse (NDOW Elk Species Management Plan 1997). Elk continue to increase in numbers in east-central Nevada.

Elk were released into the Schell Creek Range in 1932; the elk herd has reached the population objective of 1,200 animals (White Pine County Elk Management Plan 2008). Elk became established in the Mount Moriah Range in the 1990s. The population is now at about 200 animals with a population objective of 500 animals. The White Pine Range has an established elk herd and elk are moving south into the Grant-Quinn Range. The White Pine herd may have been established by animals from the nearby Schell Creek Range and is currently estimated at 220 animals. Nevada Department of Wildlife has identified year-round habitat in the White Pine Range and in the northeast corner of the Grant-Quinn Range. The population objective for elk for the White Pine and Grant-Quinn Range is 300. Although elk calving areas comprise a relatively small number of acres, they are an important component of the elk range. Elk reproductive success has been shown to decrease following human disturbance to calving areas (Gaines et al. 2003). The majority of the calving areas are within 0.50 mile of riparian areas or water sources. These areas also serve as deer fawning areas.

Environmental Consequences

Alternative 1 - No Action Alternative

Rocky Mountain elk occur throughout the District. The entire District is considered potential habitat for Rocky Mountain elk. Some habitats are more important than others, such as riparian areas and wet meadow vegetation. Potential foraging, calving, and/or winter habitat is present in all the mountain ranges. Currently, there are 1,616 miles of routes throughout the District, and about 374 miles in elk calving areas (about 213,590 acres for the District). Under this alternative, motor vehicle use on all these routes and cross-country travel would continue. Over time, routes would extend further into unroaded wildlife habitat. These routes would reduce the available habitat through inadvertent effects to foraging habitat and fragmentation, and would increase the disturbance to elk. Rocky Mountain elk population trends are expected to remain static or decrease because of this alternative.

Alternative 2 - Proposed Action Alternative

This alternative restricts motor vehicle use to 876 miles of routes for the District (of which 242 miles are unauthorized routes), and to about 255 miles within calving areas. Along with the reduction in miles of routes between the No Action Alternative and the Proposed Action Alternative is the prohibition of cross-country motorized travel. The current number of unauthorized routes as described in the No Action Alternative has reduced available habitat and likely limited the distribution of elk. The Proposed Action Alternative would curtail the establishment of new routes and motorized cross-country travel. By restricting vehicles to NFS roads and NFS trails, future impacts to vegetation and habitat fragmentation would be greatly reduced, especially in the riparian and brush communities. This restriction would also allow previously impacted areas to recover over time. The overall potential for disturbance to elk would decline and foraging habitat would improve by allowing native plant communities to regenerate. Rocky Mountain elk population trends are expected to remain static or increase because of this alternative. In addition, potential threats to their habitat, such as noxious weeds, would be reduced.

Alternative 3 - Current System Alternative

This alternative restricts motor vehicle use to 625 miles of routes for the District and to about 221 miles within calving areas. Along with the reduction in miles of routes between the No Action Alternative and the Current System Alternative is the prohibition of cross-country motorized travel. The number of unauthorized routes has reduced available habitat and likely limited the distribution of elk. This alternative would curtail the establishment of new routes and cross-country travel. By restricting vehicles to a system of routes, future impacts to vegetation and habitat fragmentation would be greatly reduced, especially in the riparian and brush communities. The overall potential for disturbance to elk would decline and foraging habitat would improve by allowing native plant communities to regenerate. Rocky Mountain elk population trends are expected to remain static or increase because of this alternative. In addition, potential threats to their habitat, such as noxious weeds, would be reduced.

Bighorn Sheep

Affected Environment

The Ely Ranger District supports both desert bighorn (*Ovis canadensis nelsoni*) and Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*). The desert bighorn sheep in the White Pine Range live in the southwestern area of the range, within and near the Currant Mountain Wilderness. The Grant-Quinn Range, around the Troy Peak area, also supports a herd of desert bighorn sheep. Since 1959 the sheep population has fluctuated, but overall has shown a declining trend. Rocky Mountain bighorn sheep occur in the North Snake Range (Mount Moriah).

Studies that evaluated bighorn sheep diets throughout the year showed a variety of grasses, forbs, and shrubs were important at different times of the year, with graminoids making up the majority of their diet throughout the year (Wagner and Peak 2006).

Along with having preferred forage, bighorns also need escape cover. Good visibility and steep escape cover are structural habitat elements that provide bighorns with security from predators (Coates and Schemnitz 1994).

Environmental Consequences

Alternative 1 - No Action Alternative

Currently there are 46 miles of routes within bighorn sheep habitat on the District. Roads and trails can affect bighorn sheep by reducing available forage and cover, and by creating migration barriers. Roads allow direct access to bighorn escape terrain causing bighorn to flee when vehicles or people use an area. If disturbance levels are consistently high, sheep may permanently avoid these areas. Under this alternative, motor vehicle use on all these routes and cross-country travel continue. Over time, routes would extend further into unroaded wildlife habitat. Bighorn sheep population trends are expected to remain static or decrease under this alternative.

Alternative 2 - Proposed Action Alternative

This alternative restricts motor vehicle use to 29 miles of routes within bighorn sheep habitat on the District (table 23). It would also curtail the establishment of new routes and cross-country travel. By restricting vehicles to a system of routes, future impacts to vegetation, habitat fragmentation, and disturbance to bighorn sheep would be greatly reduced. The effects of disturbance to bighorn sheep may be greater during the winter months when sheep are often relying on energy reserves for survival. The overall potential for disturbance to bighorn sheep would decline and foraging habitat would improve by allowing native plant communities to regenerate. Bighorn sheep population trends are expected to remain static or increase because of this alternative. In addition, potential threats to bighorn sheep habitat, such as noxious weeds, would be reduced.

Table 23: Proposed Routes Within or Crossing Big Horn Sheep Habitat			
Route Number	Status	Mountain Range	Length of Route Within or Crossing Big Horn Sheep Habitat
E5962	Trail	Ward	0.1
E1599	Trail	Ward	0.1
E1604	Trail	Ward	0.1
E1411	Trail	Ward	0.1
E1412	Trail	Ward	0.3
E12489	Trail	Ward	0.4
E1601	Trail	Ward	0.4
E1602	Trail	Ward	0.4
E1419	Trail	Ward	0.5
E13505	Trail	Ward	0.6
E1433	Trail	Ward	1.4
E1432	Trail	Ward	2.1
59442	Trail	Ward	1.4
E1489	Trail	Ward	0.3

Alternative 3 - Current System Alternative

This alternative designates 22 miles of NFS roads and NFS trails for motor vehicle use, and would curtail the establishment of new routes and cross-country travel within bighorn sheep habitat. By restricting vehicles to a system of routes, future impacts to vegetation, habitat fragmentation, and disturbance to bighorn sheep would be greatly reduced. The effects of disturbance to bighorn sheep may be greater during the winter months when sheep are often relying on energy reserves for survival. The overall potential for disturbance to bighorn sheep would decline and foraging habitat would improve by allowing native plant communities to regenerate. Bighorn sheep population trends are expected to remain static or increase because of this alternative. In addition, potential threats to bighorn sheep habitat, such as noxious weeds, would be reduced.

Neotropical Migratory Birds

Affected Environment

Executive Order (EO) 13186, signed January 10, 2001, lists several responsibilities of federal agencies to protect migratory birds. Among them: support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions.

Additional direction comes from the memorandum of understanding (MOU) between USDA Forest Service and USDI Fish and Wildlife Service signed January 17, 2001. The MOU strengthens migratory bird conservation through enhanced collaboration between the Forest Service and Fish and Wildlife Service, in coordination with state, tribal, and local governments. The MOU identifies specific activities for bird conservation, pursuant to EO 13186, including: strive to protect, restore, enhance, and manage habitat of migratory birds, and prevent the further loss or degradation of remaining habitats on NFS lands. This includes identifying management practices that affect populations of high priority migratory bird species, including nesting, migration, or over-wintering habitats on NFS lands, and developing future specific protocols called for in an MOU implementing the Executive Order.

Neotropical migratory birds (NTMB) use all habitats within the Ely Ranger District during the breeding season. The Nevada Bird Conservation Plan (Neel, Nevada Partners in Flight 1999) identified primary species. In 2002, the Forest, in partnership with the Great Basin Bird Observatory, Nevada Department of Wildlife, and Bureau of Land System, began a long-term bird-monitoring program to determine bird distribution, abundance, and population trends for Neotropical migratory birds (Great Basin Bird Observatory 2002). The District has completed bird-monitoring samples for each of the primary vegetation types and point counts annually since 2002. The District conducted survey transects in pinyon-juniper, montane riparian, aspen, mountain mahogany, and coniferous forest habitats. The District detected the following species

(table 24). Priority species identified in the Nevada Bird Conservation Plan are in bold print with their corresponding priority habitat types in parentheses.

The Ely Ranger District has a great diversity of birds (table 24). Of the birds that have been detected, most range over broad geographic areas, and it is difficult, if not impossible, to determine the effects of forest management (Dobkin and Sauder 2004). Some birds breed and nest on the Ely Ranger District, some migrate off and through the District in the early fall (returning in the spring), and some remain on the District as year round residents.

Direct effects to migratory birds from routes and motorized cross-country travel can occur from inadvertent trampling or flushing birds from perches and nest sites. Riparian and wet meadow vegetation is particularly critical to a number of migratory birds. The presence of routes may indirectly affect migratory birds by increasing habitat fragmentation. Habitat fragmentation is considered the major factor for population declines in migratory bird species, particularly when the fragmentation occurs within riparian zones (Hutto 1995). Habitat fragmentation can lead to an increase in predation and nest parasitism from the increase in edge habitat (Haaman et al. 1999). Roads can also act as movement barriers for foraging birds if disturbance levels are consistently high.

Table 24: Neotropical Birds Detected on the Ely Ranger District.			
American crow	Clark's nutcracker	Lesser Goldfinch	Short-eared owl
American kestrel	Common poorwill	Lewis's woodpecker	Song sparrow
American robin	Common raven	Loggerhead shrike	Spotted towhee
Ash-throated flycatcher	Cooper's hawk	MacGillivray's warbler (aspen)	Steller's jay
Bank swallow	Cordilleran flycatcher	Mountain bluebird (pinyon-juniper/aspen)	Tree swallow
Bewick's wren	Dark-eyed junco	Mountain chickadee	Turkey vulture
Black-billed magpie	Dusky flycatcher	Mourning dove	Vesper sparrow
Black-capped chickadee	Flammulated owl	Northern flicker	Violet green swallow
Black-chinned hummingbird	Fox sparrow	Northern goshawk	Virginia's warbler (pinyon-juniper/montane riparian)
Black headed grosbeak	Golden eagle	Northern harrier	Warbling vireo
Black-throated gray Warbler (pinyon-juniper)	Gray flycatcher (pinyon-juniper)	Olive-sided flycatcher	Western kingbird
Black-throated sparrow	Gray vireo (pinyon-juniper)	Orange-crowned warbler	Western meadowlark
Blue-gray gnatcatcher	Greater sage* grouse	Pinyon jay (pinyon-juniper)	Western scrub jay
Blue grouse*	Green-tailed towhee	Pine siskin	Western tanager
Brewer's sparrow	Hairy woodpecker	Plumbeous vireo	Western wood-Pewee
Broad-tailed hummingbird	Hermit thrush	Red-breasted nuthatch	White-breasted nuthatch
Brown-headed cowbird	House finch	Red-naped Sapsucker (aspen/mountain mahogany/ coniferous forest)	White-throated swift
Bushtit	House wren	Red-tailed hawk	Williamson's sapsucker
Canyon wren	Killdeer	Ruby-crowned kinglet	Wilson's warbler
Cassin's finch	Juniper titmouse (pinyon-juniper)	Sage sparrow	Yellow breasted chat (montane riparian)
Chipping sparrow	Lark sparrow	Sage thrasher	Yellow-rumped warbler
Chukar*	Lazuli bunting	Sharp-shinned hawk	Yellow warbler (aspen)
Source: Great Basin Bird Observatory survey transects and sightings			
* Species included on the list but not considered Neotropical migratory species.			

Environmental Consequences

Alternative 1 - No Action Alternative

Neotropical migratory birds occur throughout the District. Some habitats are more important than others, such as riparian and wet meadow vegetation. Potential nesting, foraging, and/or migration habitat is present in all the mountain ranges on the District; therefore, the entire District is considered potential habitat for Neotropical migratory birds. Currently, there are 1,616 miles of routes throughout the District. Under this alternative, motor vehicle use on all these routes and cross-country travel would continue. Over time, routes would extend further into unroaded wildlife habitat. These routes would reduce the available habitat through inadvertent crushing of nesting and foraging habitat, fragmentation, and increased disturbance to Neotropical migratory birds. As a result, habitat quality would be expected to decrease as new routes and dispersed sites are created. Neotropical migratory bird population trends are expected to remain static or decrease because of this action.

Alternative 2 - Proposed Action Alternative

This alternative restricts motor vehicle use to 852 miles of route on the District. Along with the reduction in miles of route between the No Action Alternative and the Proposed Action Alternative is the prohibition of cross-country motorized travel. The District assumed that the number of unauthorized routes has reduced available habitat and likely limited the distribution of some birds. When implemented the prohibition of cross-country travel would curtail the proliferation of unauthorized routes and associated habitat fragmentation. The reduction of 76 miles of routes would also minimize the overall potential for disturbance to birds. Foraging habitat would improve with the reduction in routes as habitat for prey species would improve. The reduction in routes would ultimately benefit migratory birds by allowing native plant communities to regenerate thereby restoring the connectivity of important habitat. Neotropical migratory bird population trends are expected to remain static or increase because of this alternative. In addition, potential threats to their habitat, such as noxious weeds, would be reduced.

Alternative 3 - Current System Alternative

This alternative restricts motor vehicle use to 618 miles of routes on the District. Along with the reduction in miles of routes between the No Action Alternative and the Current System Alternative is the prohibition of cross-country motorized travel. The District assumed the number of unauthorized routes has reduced available habitat and likely limited the distribution of some birds. When fully implemented the prohibition of cross-country travel would curtail the proliferation of unauthorized routes and associated habitat fragmentation. The reduction of 998 miles of route would also minimize the overall potential for disturbance to birds. Foraging habitat would improve with the reduction in routes as habitat for prey species improve. The reduction in routes would ultimately benefit migratory birds by allowing native plant communities to regenerate thereby restoring the connectivity of important habitat. Neotropical migratory bird population trends are expected to remain static or increase because of

this alternative. In addition, potential threats to their habitat, such as noxious weeds, would be reduced.

Cumulative Effects for All Wildlife Species

In order to understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects.

There are a number of past, present and future projects that may affect wildlife species when combined with this project. The District boundary was used to assess cumulative impacts for all of the wildlife species based on the required habitats for these species are encompassed within the District boundaries. This cumulative effects area allows us to determine these effects for a wide range of species and their habitats. Ongoing activities that are now acting cumulatively with road management to affect wildlife include livestock grazing, fuel wood gathering, fire, mining and exploration, recreation, and noxious weed treatments. This area also includes all activities and management actions that are authorized on both public and private lands within the boundaries of the Ely Ranger District. Implementation of the Proposed Action or Current System Alternatives, in combination with these present and foreseeable future projects would not likely to cause a decline in populations trends.

Livestock Grazing

Past: For over a century, ranchers have used the land on the Ely Ranger District for cattle and sheep grazing during the summer months and moved their stock to the home ranch or other public lands for winter feeding. When the Forest Service was established in the western states, livestock were already heavily using the lands. Vegetation was already degraded and erosion was starting in many places. Early agency managers worked hard at getting livestock numbers reduced, considering the challenges of doing the job with few employees and vast expanses of country that could only be accessed with a horse and packhorse. Grazing permits were based on the numbers of livestock the first ranchers grazed, and the season of use was determined by the weather. As soon as an area opened up in the spring, livestock started grazing it. With few fences present on the landscape, livestock followed the most palatable forage wherever it occurred. Fall storms or lack of feed would drive livestock to lower elevations. The size of these operations has been in decline since the late 1800s.

Present: There are presently 34 allotments on the Ely Ranger District. Currently the District is in the process of completing the Ely Westside Rangeland Project EIS which will provide guidance for grazing management on 12 of those allotments. Management direction included as one alternative in the range management project would increase wildlife habitat protections by making livestock management decisions based on ecological conditions. Wildlife habitat conditions are expected to improve over time once the range management direction is implemented. When combined with the travel management proposed action to reduce motorized roads and trails and prohibit motor

vehicles from traveling off NFS roads and NFS trails, these actions would improve wildlife habitats.

Foreseeable Future: Future grazing management for the allotments on the west side of the District will be determined by the record of decision for the Ely Westside Rangeland Project. When that analysis is complete, the District will begin an analysis of the rest of the District.

Mining/Mineral Exploration

Past: Historically, mining activity occurred throughout the cumulative effects area. All of the mountain ranges experienced small, scatter mining activity, with the exception of the White Pine Mining District. This area in the northwest corner of the White Pine Range experienced concentrated use from 1876 through 1888. More recent mining activity has occurred at the Taylor Mine in the southern Schells, and Mount Hamilton and Griffon Mines in the White Pines. During the mining boom era, mining exploration and mining in general had effects on water quality and quantity, riparian areas, and fish and wildlife species. Some of these effects include sediment inputs from mine tailing and waste rock dumps into the streams and rivers of the watershed. The fine sediments covered spawning gravels and, in some cases, altered the water chemistry. Rivers and streams were rechanneled, and vegetation in riparian areas declined due to increased human occupation. Within this project area, these effects were generally restricted to the forest lands near Hamilton, Nevada. Mining elsewhere was at a small scale and the impacts from the activities were minimal and short term. Today, much of the evidence of mining outside the main mining districts consists of small adits or shafts and human habitation sites.

Present: There are currently no active mines on the Ely Ranger District. Active exploration is either planned or ongoing near Taylor and Mount Hamilton. Exploration activities are occurring in the form of exploratory drilling in the White Pines, Grant-Quinn, and Schell ranges. Cumulative effects to wildlife and wildlife habitat from planned or ongoing exploration activities are expected to be minimal because of the size of these project areas when compared to the amount of available habitat.

Foreseeable Future: There is currently an application to mine and mill at the old Taylor Mill located on the southwest side of the Schell Creek Range. This mineral development plan would affect approximately 717 acres in pinyon and juniper habitats. Cumulative effects to wildlife and wildlife habitat from the Taylor Mill and mine are expected to be minimal because of the size of the project when compared to the amount of available habitat. Project design criteria and the application of best management practices required in order to avoid adverse impacts to wildlife and habitat will be part of the proposed action and alternatives.

Prescribed Fire/Vegetation Treatments

Past: Vegetation treatments on the Ely Ranger District have included prescribed fires, mechanical treatments, and seedings. During the mid 1900s, sagebrush communities were mechanically treated and seeded with various non-native seed mixtures at various locations around the District. Today these areas are primary dominated by sagebrush communities; however, non-native grass species are still present on the sites.

Present: In 2006 and 2007, the Ely Ranger District approved the Currant Creek Prescribed Burn Project in the White Pine Range. This project approved up to 4,500 acres of treatments within pinyon-juniper communities.

Foreseeable Future: The BLM and the Forest Service are planning landscape-scale vegetation projects on the lands on and near Ward Mountain, and the Forest Service is developing a landscape-scale vegetation project on the North Schells. Restoration (vegetation treatments) in Ward Mountain and North Schells are being designed to change the predominately late seral vegetation communities to a more balanced distribution of age classes. Treating vegetation, primarily with fire, would result in some changes to wildlife habitats within the project areas. These projects are being proposed in part to improve wildlife habitat. Reducing the amount of routes and prohibiting motor vehicle use off NFS roads and NFS trails when combined with the landscape treatments would allow wildlife habitat to improve.

Wildfire

Past, Present, and Foreseeable Future: Historically, the Ely Ranger District receives about 25 to 30 wildfires each year. Most of these wildfires are less than 0.10 acre in size, although between 1 and 3 fires could range from 100 acres or larger.

Recreation

Past, Present and Foreseeable Future: Recreation activities, such as camping, hiking, and hunting have not historically been a major factor in the condition of resources. However, where developed and dispersed campsites occur impacts have affected soil, vegetation, wildlife distribution, and water quality. This disturbance is most obvious in the major drainages where dispersed and developed campsites are located adjacent to rivers and streams within the riparian area. Active management of NFS lands includes maintenance of recreation campgrounds, dispersed camp areas, and trails. Maintenance of existing campgrounds and concentrated use areas is expected to continue similar to existing conditions. No new developed recreation facilities are planned over the next ten years.

Fuelwood Gathering/Pine Nuts

Past and Present: Fuelwood and pine nut gathering, a practice first started by local American Indian tribes, continues today by the tribes as well as the public. The Ely Ranger District has historically and currently issues very limited permits for the harvest of fuelwood. Fuelwood permits are limited to the harvest of dead and down pinyon, juniper, and white fir. Mountain mahogany can be harvested after August 1. On an average year, the District sells about 150 permits. Limited firewood is also cut for use in campfires on the District. Cumulative effects to wildlife and wildlife habitat from fuelwood and pine nut gathering are expected to be minimal when combined with the travel management proposal to reduce motorized roads and trails, and prohibit motor vehicles from traveling off NFS roads and NFS trails. This would reduce the number of areas available to fuelwood and pine nut gathering, especially in the pinyon-juniper communities where most of these activities occur. The combinations of these actions would be considered minimal to wildlife habitats, as some areas would receive increased use, or improve in areas that would no longer be accessible.

Foreseeable Future: Fuelwood harvesting levels are expected to remain relatively stable into the future.

Noxious Weed Treatments

Past and Present: Noxious weeds on the Ely Ranger District and within the cumulative effects area include black henbane, bull thistle, Canada thistle, hoary crest/whitetop, leafy spurge, musk thistle, perennial pepperweed, Russian knapweed, salt cedar, Scotch thistle, and spotted knapweed.

The Ely Ranger District has historically and currently uses both chemical and biological (insects) methods to treat noxious weeds. Noxious weed infestations are generally less than 10 acres in size. During 2007 the District treated approximately 5,733 acres of noxious weeds within the cumulative effects area.

Foreseeable Future: The Ely Ranger District will continue to annually treat noxious weeds using both chemical and biological methods. The number of acres treated should remain relatively stable in future years and may decline as weed infestations are eradicated. Cumulative effects to wildlife and wildlife habitat from noxious weed treatments are expected to improve wildlife habitat by removing the competition between weeds and native vegetation.

White Pine/Grant Quinn Oil and Gas

In 2007, the Forest published the White Pine/Grant-Quinn Oil and Gas FEIS and Record of Decision. This decision allows oil and gas leasing in these areas, with stipulations for occupancy and timing of activities. While the record of decision authorized leasing in these areas, no leases have been awarded. The decision to authorize leasing does not result in activity occurring on the ground and therefore would not have any cumulative effects when combined with the effects of the travel management alternatives. All activities related to oil and gas exploration, development, and transport will require additional site specific NEPA to determine the biological, physical, and cultural effects of the proposed action and alternatives. During that process, direct, indirect, and cumulative effects will be assessed. At this time the District has no plans of operations from leaseholders. When the Forest receives a plan of operations, the District will conduct the appropriate level of NEPA

White Pine County Land, Recreation, and Development Act

The White Pine County Land, Recreation, and Development Act of 2006 created 456,000 acres of new wilderness on the NFS lands, and 295,600 acres on the BLM in White Pine County. Passage of the White Pine County Land, Recreation, and Development Act of 2006 would have positive cumulative effects on wildlife, as motorized access to wilderness areas is restricted. This restriction and the prohibition of motor vehicle use off designated NFS roads and NFS trails would work together to decrease fragmentation disturbance in wildlife habitats.

Summary of Effects to Wildlife

The No Action Alternative would have an incrementally adverse effect on wildlife and their habitats on the District. This alternative could result in an increase in the number of unauthorized routes which in turn could amplify the spread of noxious and invasive

species into sensitive wildlife habitats. It could also result in increased mortality and degraded habitat through fragmentation. Maintaining the status quo would have no beneficial effects for wildlife and, as a result, no benefits for humans.

The Proposed Action and the Current Management Alternatives would both still include routes in wildlife habitats. In these areas, there would be few benefits. However, these two alternatives would not add many of the existing unauthorized routes to the Forest transportation plan (see discussion above for how mileage would be reduced under these alternatives). Depending on the wildlife species and habitat requirements, these route closures and the prohibition on motorized cross-country travel and over-snow travel in the Murry Canyon Municipal Watershed could result in an overall positive effect on habitat and species.

Forest Service Sensitive and State Protected Plants

Affected Environment

There are 19 sensitive plant species with potential and/or occupied habitats on the Ely Ranger District. Information from District surveys through 2007, Nevada Natural Heritage Program Occurrence database (NNHP 2005), Natural Resource Information System (NRIS), Threatened, Endangered, and Sensitive Plants (TESP) database, and the Humboldt-Toiyabe Rare Plant database (through 2007) were used to determine known/occupied locations. Predictive computer models were developed through a geographic information system (GIS) based on habitat attributes to identify potential habitat for the sensitive plant species. The parameters of elevation, slope, aspect, and geology were used for all of the species, except the *Botrychiums*, which used geology and spring locations.

To determine the miles of road near or within known plant locations, the known locations of plants were buffered by 300 feet, and then roads within that buffered area were considered within occupied habitat for the plant. For the *Botrychium* species, the spring areas on the District were buffered by 500 feet to determine potential habitat.

Models were developed for: Eastwood milkvetch (*Asclepias eastwoodiana*), Currant milkvetch (*Astragalus uncialis*), Railroad Valley globemallow (*Sphaeralcea caespitosa* var. *williamsiae*), Upswept moonwort (*Botrychium ascendens*), Dainty moonwort (*Botrychium crenulatum*), Mount Moriah beardtongue (*Penstemon moriahensis*), Maguire lewisia (*Lewisia maguirei*), Currant Summit clover (*Trifolium andinum* var. *podocephalum*), and alpine habitat. The following sensitive species occur in the alpine habitat model: snowy spring parsley (*Cymopterus nivalis*), Snake Range whitlowgrass (*Draba oreibata* var. *serpentine*), Pennell's draba (*Draba pennellii*), Cave Mountain fleabane (*Erigeron cavernensis*), Nevada primrose (*Primula cusickiana* var. *nevadense* (*P. nevadense*)), and Nachlinger catchfly (*Silene nachlingerea*). Pinyon, juniper, and pinyon-juniper habitat types on the Mount Moriah Range were used to determine potential habitat for Tunnel springs beardtongue (*Penstemon concinnus*). Models were not developed for Basin jamesia (*Jamesia tetrapetala*) which occurs in crevices and bases of limestone cliffs, rock violet (*Viola lithion*) which occurs in high-elevation

avalanche chutes, and Marsh's bluegrass (*Poa abbreviata* ssp. *marshii*) which occurs at high elevation alpine scree and talus slopes in wilderness since the habitats are not likely to be impacted by off-road vehicles. Scorpion milkvetch (*Astragalus lentiginosus* var. *scorpionis*) has the potential to occur throughout the District above 6,000 feet; the habitat was not modeled.

Detailed information for each of these species, its status, habitat requirements, areas(s) of occurrence and plant disturbance vectors can be found in the biological assessment/biological evaluation and the Wildlife and Rare Plant Specialist Report in the project record.

Environment Consequences

Effects Common to All Alternatives

Motorized and non-motorized travel within potential habitat can be correlated with alteration of the vegetation community, soil compaction, change in pollinators and seed set, disruption of the seed bank, decreased plant vigor, and the increase in weed density and distribution through the spread of weed material. Disturbance of soil surfaces and vegetation can set the stage for weed establishment. Non-native plants can spread quickly and affect the amount and distribution of native plant species. Travel routes are often invasion corridors for the spread of noxious weeds and other invasive species. Dispersed camping adjacent to designated routes and associated disturbance can also contribute to direct effects. The magnitude of impacts will depend on the type of road or trail, level of use, type of maintenance, and current condition.

Motorized vehicle use on roads/trails within and adjacent to rare plant species occurrence have the ability to negatively impact the species by reducing the quality and/or the amount of habitats that support rare plant species. Potential direct and indirect effects from the use of roads and trails that would remain are trampling associated with motorized vehicles adjacent to roads and trails, compacting of the soil, and loss/modification of habitat. Roads and trails may serve as corridors for the introduction and spread of noxious and invasive weeds. Disturbance associated with dispersed camping within potential habitat next to roads/trails would continue.

Alternative 1 - No Action Alternative

The miles of road/trails through occupied and/or potential habitat for each plant are shown in table 25. Under this alternative, motor vehicle use on all these routes and cross-country travel would continue. Over time, routes could potentially extend further into unroaded rare plant habitats. These routes would reduce the available habitat through the inadvertent crushing of vegetation and fragmentation. As a result, habitat quality would be expected to decrease along routes as new routes are created.

Alternative 2 - Proposed Action and Alternative 3 - Current System Alternatives

The Proposed Action and Current System Alternatives would benefit sensitive plants and other vegetation as miles of roads and trails would be reduced in occupied and/or potential habitat for rare plants, and vehicles would only be permitted on designated routes. Overland

vehicular traffic would be prohibited, thus eliminating future impacts to plants and other vegetation from vehicles through inadvertent crushing of vegetation and habitat fragmentation. Other indirect beneficial effects include (1) the reduction of noxious weed establishment in sensitive plant habitats caused from vehicles spreading noxious weed seed to uninfested areas, and (2) compaction of soil and removal of vegetation in the immediate camp area minimized by limiting dispersed vehicle camping to designated routes and curtailing the establishment of new dispersed recreation sites. The presence of road and trails in the known habitat and potential habitat may continue to cause impacts to the habitat and populations for 16 of the rare plant species. There would be fewer impacts under the Current System Alternative than the Proposed Action Alternative because of fewer motorized roads and trails. Therefore, the Proposed Action Alternative or the Current System Alternative may impact individuals or habitat of the 16 rare plants, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species. There are no impacts to Marsh’s bluegrass and rock violet, and there are beneficial impacts for Basin jamesia (see the biological assessment/biological evaluation for analysis for each plant species).

Table 25: Miles of Routes within Occupied Rare Plant Habitat by Alternative on the Ely Ranger District. (Scorpion milkvetch is not included due to lack of spatial data information).			
Species	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 Current System
Eastwood milkweed	0.21 miles	0.21 miles	0.21 miles
Currant milkvetch	0.5 miles	0.5 miles	0.5 miles
Upswept moonwort	No known occurrences	No known occurrences	No known occurrences
Dainty moonwort	No known occurrences	No known occurrences	No known occurrences
Snowy spring parsley	No known occurrences	No known occurrences	No known occurrences
Snake Range whitlowgrass	No known occurrences	No known occurrences	No known occurrences
Pennell draba	0.23 miles	0.23 miles	0.23 miles
Cave Mountain fleabane	0.07 miles	0.07 feet	0.07 feet
Basin jamesia	390 feet	390 feet	390 feet
Maguire bitterroot	0.59 miles	0.59 miles	0.59 miles
Tunnel Springs beardtongue	No known occurrences	No known occurrences	No known occurrences
Mount Moriah beardtongue	4.4 miles	2.85 miles	2.76 miles
Marsh’s bluegrass	No overlap in occupied habitat	No overlap in occupied habitat	No overlap in occupied habitat
Nevada primrose	No overlap in occupied habitat	No overlap in occupied habitat	No overlap in occupied habitat
Nachlinger catchfly	0.1 miles	0.1 miles	0.1 miles
Jones’ globemallow	0.5 Miles	0.5 miles	0.5 miles
Currant Summit clover	0.15 miles	0.02 miles	No roads
Rock violet	No overlap in occupied habitat	No overlap in occupied habitat	No overlap in occupied habitat

Cumulative Effects

There are a number of past, present, and future projects that may affect sensitive plant species when combined with this project. The Ely Ranger District boundary was used to assess cumulative impacts for all of the sensitive species as the required habitats for these species are encompassed within the District boundaries. Cumulative impacts in the known populations and/or potential habitat of rare plants include grazing impacts including trampling by livestock and soil compaction, competition from invasive weeds, road maintenance, recreational activities, mineral exploration, and fuel treatments. Most of these activities are currently occurring across the District. Cumulative impacts would decrease in areas where unauthorized routes would not be designated and motorized cross-country travel would no longer continue in occupied or potential habitats. See the biological assessment/biological evaluation for the cumulative effects analysis for each plant species.

Cultural Resources

Affected Environment

The Ely Ranger District contains numerous cultural resources. For the past 11,000 years, these mountain ranges have served man as 'islands' of lush vegetation, wildlife habitat, and water, compared to the surrounding 'sagebrush ocean'. Man's use in the area is marked with prehistoric/ethnographic sites that include artifact scatters (lithics, ground stone, fire-altered rock, and ceramics), open campsites, trails, rock shelters, habitation sites, stone circles, lithic sources/quarries, and rock art sites.

Historic archaeology sites include sites related to transportation (i.e., wagon roads and stage stations), mining (towns, buildings, foundations, shafts, adits, debris scatters, mines, and mills), ranching/farming (corrals, water lines, fences, and pastures), communication (telegraph lines and trails), government (Civilian Conservation Corps camps and projects), and numerous other site types. The majority of historic sites in the Ely Ranger District are related to mining. Most of the historic mining took place in the White Pine Mining District (ca. 1868 to 1885 and again in the 1920s) in the White Pine Range and at sporadic mining locations (ca. 1870 to 1950) in the Schell Creek Range.

In the fall of 2007 and in 2008, the District conducted a cultural resource inventory of the proposed action. The District conducted their inventory on foot and by vehicle depending on the proposed use of the existing route. The District developed this strategy with assistance of the Nevada State Historic Preservation Office (SHPO). The purpose of the inventory was to locate cultural resources and determine if they are eligible to the National Register of Historic Places and if the proposed action would have any adverse effects to those sites determined eligible or those sites left unevaluated.

Most of these sites were related to historic mining (20 total), followed by nine prehistoric sites (primarily lithic scatters), eight historic ranching/sheepherding sites, five historic residences, three historic debris scatters, three historic transportation sites,

and one rock shelter that contained historic artifacts and might have potential to contain prehistoric artifacts.

Of these 49 sites, 21 are eligible for the National Register of Historic Places either for their association with broad patterns of our history, a significant person, design, or are likely to yield important information in prehistory or history. Thirteen sites are not eligible to the National Register. The remaining 15 sites will need further evaluation before their eligibility can be determined. The District will treat these 'unevaluated' sites as if they were eligible cultural resources.

Environmental Consequences

The District is measuring the environmental effects on cultural resources by the number of eligible or unevaluated archaeological, ethnographic, or historic sites (historic properties) that are adversely affected by each alternative. According to 36 CFR 801.3(i), adverse effects on eligible cultural resources include destruction or alteration of the property itself (i.e., the unplanned creation of new roads or widening of roads within a historic property). Roads also make sites more accessible to Forest visitors who may accidentally or intentionally damage a historic property (i.e., vandalism, collection of artifacts).

Alternative 1 - No Action Alternative

Under this alternative motorized travel off forest transportation system routes will increase. This alternative has the potential to damage more known and unrecorded historic properties within the Ely Ranger District than any other alternative. Damage will include physical alteration of sites and artifacts by the mechanical action of vehicles, creation of new roads over historic properties, and the increase in vandalism or collection of artifacts.

Alternative 2 - Proposed Action Alternative

There are 25 historic properties located along the routes identified in the Proposed Action Alternative. Adding the proposed routes to the forest transportation system under this alternative does not result in additional effects to historic properties located along the routes. This alternative prohibits motor vehicle use off designated routes. This will minimize the amount of damage to known and unrecorded historic properties within the District.

Since these routes have already been created, additional vehicle impacts to these historic properties is expected to be minimal or non-existent. Furthermore, the vegetation along the routes restricts motor vehicle impacts or physical alteration to these sites to the wheel tracks on the road. Collection of artifacts and vandalism will be minimized by posting Archaeological Resource Protection Act signs at each historic property; visitor register boxes at the historic sites of Belmont Mill, Hamilton, and Treasure Hill; and systematic monitoring of historic properties for the next five years (monitoring plan is located in the project file).

Alternative 3 - Current System Alternative

Under the Current System Alternative, motor vehicle use is restricted to current NFS roads and trails. The limited impacts to historic properties currently resulting from motorized cross-country travel and use of unauthorized routes are reduced. Prohibiting motor vehicle use off designated routes protects sites from future disturbance resulting from off-road travel and limits the creation of additional unauthorized routes.

Cumulative Effects

The cumulative effects analysis area for cultural resources is the area within the boundaries of the Ely Ranger District. Designation of the routes described in the Proposed Action Alternative would not result in impacts to historic properties or cumulatively result in further degradation of sites located either along or off designated routes. In the absence of a prohibition on motorized cross-country travel under the No Action Alternative, there may be an incremental increase in effects to potentially eligible sites if new routes are created that cross them. These potential impacts will be monitored at each historic property over the next five years.

Water Quality and Soil Erosion

Affected Environment

The project area includes all of the NFS lands in the Ely Ranger District, except the Duck Creek area. The analysis area encompasses 101 subwatersheds or 6th order hydrologic unit codes (HUC 6). Drainage throughout the analysis area is controlled by north-south trending mountain ranges. On the east side of the District are the Moriah, Schell Creek, and Ward Mountain ranges. The Moriah Range, just north of Great Basin National Park, rises from about 6,000 to 12,000 feet. Generally perennial streams originating in the Moriah Range drain off the east slopes. The Schell Creek Range has a similar elevation range; here perennial streams drain off both the east and west slopes. The Ward Mountain Range, adjacent to and immediately southwest of the city of Ely, has a few perennial springs and is void of perennial streams. The Elderberry Canyon Watershed, more commonly known as the Murry Canyon Watershed, is the source area for the city of Ely's municipal watershed. This watershed is 3,990 acres.

The White Pine and Grant-Quinn ranges are on the west side of the District. Most of the perennial flow from the White Pine Range flows south and southeast from the southern half of the range. Ellison Creek and White River, the two major streams in this range, are part of the Colorado River Flow System. East of the analysis area, Ellison Creek converges with the White River and flows intermittently southward through the White River Valley. This river eventually joins the Muddy River, which flows into Lake Mead. All other streams in the analysis area are part of the Great Basin Hydrographic Province.

The Grant-Quinn Range, the southwestern portion of the analysis area, is quite dry when compared to the rest of the District. There are a few perennial streams in the southeast corner and a few on the west side.

Hydrologically connected road systems and road-stream crossings can cause large inputs of sediment to streams impairing water quality. Roads may be conduits for water pollutants such as petroleum products, herbicides, and fertilizers. When waterbodies become impaired and no longer meet state or EPA standards, they are listed on the 303(d) list. There are no impaired waterbodies or 303(d) listed streams in the project area.

The amount of soil erosion associated with a road depends greatly on the erodibility of the soils that make up the road surface. Soils derived from volcanic parent materials, including pyroclastic andesite, generally are more developed and highly erosive on the road surfaces because of their particle size; poor drainage characteristics; susceptibility to shrink swell under a variety of moisture conditions; tendency for mass instability, compaction, and rilling; and road maintenance problems. Twenty-four percent of the roads in the project area are derived from volcanic parent material. In contrast, soils developed from granitics are shallow to deep, poorly developed, loosely consolidated, and less erosive on road surfaces because of their grain size, good drainage characteristics, low shrink swell potential, and bearing strength. Given their large component of coarse sands, there is a low tendency toward compaction. Fourteen percent of the roads in the project area are located on soils with granitic parent material. In comparison, alluvium and lake deposits soils are a deep, well formed mix of interbedded fine silt and sand with occasional gravel lenses. Alluvial fill dominated slopes are generally less susceptible to erosion because of their position on the slope and their gentle gradient. Approximately eight percent of the roads fall into this category. Soils formed from carbonate parent material are highly compressible due to their weak nature and the crushability of the grains. In dry climates, carbonate derived soils can form hard and dense horizons similar to layers of cement. These layers inhibit plant growth but breakdown under low stress. Low stress is in the order of two pounds per square inch (psi). Two psi is approximately equivalent to an 180-pound person riding an average size ATV. Forty-seven percent of the roads are located on soils derived from carbonates. The remaining six percent of the roads are on various sediments.

Grant-Quinn

The southern half of the Grant-Quinn Range consists mostly of volcanic rocks while the north half is a mixture of carbonates, quartzite, alluvial sediments, and small portions of volcanic rocks. Routes in the southern half are prone to hillslope erosion because of their particle size and steep slopes.

Mount Moriah

The majority of Mount Moriah consists of quartzite, which underlies most of the analysis roads. Some of the routes in the southern section overlie intrusive rocks and some are on alluvium. A few sections overlie limestone strata.

Schell Creek

The southern portion of the Schells consists mostly of carbonate rocks (limestone and dolomite) and some scattered volcanics. The middle section consists largely of quartzite, while the northwest flanks are largely volcanic. The northeast side is a

mixture of quartzite and limestone, with some volcanics and alluvium at the northern tip. This range has more routes that traverse steep terrain than the other ranges in the project area.

Ward Mountain

The lower elevations of Ward Mountain are alluvium on gentle slopes. The area is also comprised of limestone, volcanic, and lacustrine (lake bed) substrates. Lack of organic matter makes soils in this area more susceptible to rain splash compaction and erosion. As slopes decrease in grade, the potential for erosion is reduced.

White Pine

The geologic substrate of the White Pine Mountain Range consists mostly of a mixture of carbonates and volcanics. A few areas have alluvial sediments.

Environmental Consequences

In a synthesis of published literature, Elliot (2000) noted that, "on most forested watersheds, sediment is the most troublesome pollutant and roads are a major source of that sediment." Sediment runoff rates from watersheds with roads and other soil disturbances tend to be significantly higher than watersheds with their natural cover of vegetation intact (Elliot and Hall 1997).

The effect on water quality and the potential for increased sediment concentrations depend greatly on the location of routes within a watershed. Routes located within riparian areas produce more sediment that is available to be transported into the stream than those located further away from riparian areas (table 26). Riparian zones are areas 150 feet on either side of intermittent stream channels and 300 feet on either side of perennial streams. Most sediment from roads enters streams where roads cross streams, or where roads are close to streams (Elliot 2000). For the purposes of this analysis, an average road width of 20 feet was used to calculate road acres (1 mile of road equals 2.4 acres).

The environmental effects on water quality are measured by¹:

- Number of acres of routes within riparian zones.
- Number of perennial and intermittent stream crossings.
- Watershed disturbances as measured by the Equivalent Roaded Area (ERA) model.

Gucinski and others (May 2001) identified several ways forest roads can affect stream channel networks. They can affect streams by concentrating storm runoff and snowmelt onto road surfaces and into roadside ditches. Roads can extend stream channel networks through eroding gullies or intermittent channels on hillslopes and by linking road segments to small tributary streams (Weaver et al. 1995, Wemple et al. 1996a).

¹ See the Ely Ranger District Travel Management Project Travel Analysis Report (USDA Forest Service 2008b)

The formation of rills and gullies due to concentrated runoff depends greatly on the erodibility of the soils that make up the road surface.

The environmental effects on soil erosion are measured by:

- Routes on slopes greater than thirty percent.
- Road density.
- Rates of erosion.

Alternative 1 - No Action Alternative

Under the No Action Alternative, there is continued use of all NFS and unauthorized routes and continued cross-country travel. This alternative would retain 476 miles of route within 150 feet of an intermittent watercourse (1,142 acres) and 173 miles of route within 300 feet of a perennial stream (415 acres). Out of those 173 miles, 159 miles would also be within 150 feet of riparian habitat (381 acres). There would also be 174 perennial and 1,572 intermittent water crossings (table 26)

Table 26: Miles of Route located in Topographic or Vegetative Settings that Contribute to Soil Erosion and Water Quality Impairment			
	Alternative 1 No Action	Alternative 2 Proposed Action	Alternative 3 Current System
Miles (acres) within 300 feet of perennial water	173 (415)	135 (324)	119 (285)
Miles (acres) within 150 feet of intermittent water	476 (1,142)	291 (698)	225 (540)
Miles (acres) of within 150 feet of riparian areas	159 (381)	122 (292)	109 (261)
Number of perennial water crossings	174	133	108
Number of intermittent water crossings	1572	955	747
Road density of HUCs ws = watersheds	2 ws > 1% - 3 ws > .5% 52 ws < .5% and > .01% 42 ws < or = to .01%	. 1 ws > .5% 35 ws < .5% and > .01% 61 ws < or = to .01%.	1 ws > .5% 29 ws < .5% and > .01% 67 ws < or = to .01%.

This alternative also has 150 miles of routes located on slopes greater than 30 percent (360 acres). Routes that contour across steep slopes are less likely to cause erosion than routes climbing parallel up the slope. The orientation of the road on the slope, the soil texture, level of traffic and design, as well as its position on the slope contributes to the erosion rate generated by the route. According to Rice and Lewis, 1991, critical road features are those where erosion rates exceed 100 yd³ acre⁻¹. The data that lead to the proposed threshold shows these erosional features accounted for two percent of the road network but contributed 68 percent or more of the erosion. Erosion rates for various soil textures, levels of traffic, for two and thirty percent slope is displayed for four road designs in table 27. For comparison of this value with the values listed in table 27, 100 yd³ acre⁻¹ is approximately 55 to 270 tons per acre dependent on the density of the roadbed material. In another study, Swift (1984) and Kochenderfer and Helvey (1987) found “soil loss from well-located roads” ranged from 2 to 115 and 2 to

80 tons per acre, per year (Ice and Stednick 2004). The predicted erosion rates do not approach “critical” for any soil texture and fall in the low to very low range for typical measured values with few exceptions. Where roads exist on clay loam and traverse slopes greater than 29 percent, erosion rates are expected to be approximately 6 to 14 tons per acre which is still well below "critical". There are approximately 20 miles or 48 acres of roads on clay loam that are on slopes greater than 29 percent. The combined erosion potential across the project area from these roads would be one to twelve yd³. Mid-slope roads have the greatest rate of failure per mile.

When cross-country motorized travel is unrestricted, route density increases over time. Given that unauthorized routes do not go through the environmental planning process, there is a risk they will be in locations susceptible to soil erosion and prone to water quality issues. As road density increases, so does the risk of erosion.

This alternative poses the greatest risk for erosion, loss of vegetative cover, and sediment transportation to the stream system because it has more miles of road that would remain, that are in close proximity to streams, are poorly located, traverse steep slope, are on highly erosive soils, and/or lack adequate design features.

Table 27: Erosion Rates for Various Soil Textures, Levels of Traffic, for Two and Thirty Percent Slope are displayed for Four Road Designs.

Soil Texture	Road Surface, Traffic Level, and Percent Slope	Erosion Measured in Tons per Mile by Road Design			
		Insloped, Bare Ditch	Insloped, Vegetated or Rocked Ditch	Outsloped, Rutted	Outsloped, Unrutted
Clay Loam	Native low traffic 2% slope	0.68	0.62	0.45	0.09
	Native low traffic 2% slope leaving 50' vegetative buffer	0.13	0.12	0.11	0.07
	Native low traffic 30% slope	3.82	2.18	3.49	2.29
	Native low traffic 30% slope leaving 50' vegetative buffer	0.22	0.22	0.22	0.22
	Native high traffic 2% slope	1.00	0.82	0.71	NA
	Native high traffic 2% slope leaving 50' vegetative buffer	0.17	0.15	0.07	NA
	Native high traffic 30% slope	14.20	6.01	13.54	NA
	Native high traffic 30% slope leaving 50' vegetative buffer	0.55	0.55	0.55	NA
	Native no traffic 2% slope	0.13	0.12	0.13	0.12
	Native no traffic 2% slope leaving 50' vegetative buffer	0.11	0.10	0.11	0.07
	Native no traffic 30% slope	2.84	0.87	2.84	2.07
	Native no traffic 30% slope leaving 50' vegetative buffer	0.22	0.22	0.22	0.11
Sandy Loam	Native low traffic 2% slope	0.14	0.13	0.12	0.08
	Native low traffic 2% slope leaving 50' vegetative buffer	0.04	0.04	0.03	0.03
	Native low traffic 30% slope	0.66	0.66	0.66	0.66
	Native low traffic 30% slope leaving 50' vegetative buffer	0.08	0.08	0.08	0.07
	Native high traffic 2% slope	0.23	0.20	0.20	NA
	Native high traffic 2% slope				

Table 27: Erosion Rates for Various Soil Textures, Levels of Traffic, for Two and Thirty Percent Slope are displayed for Four Road Designs.

Soil Texture	Road Surface, Traffic Level, and Percent Slope	Erosion Measured in Tons per Mile by Road Design			
		Insloped, Bare Ditch	Insloped, Vegetated or Rocked Ditch	Outsloped, Rutted	Outsloped, Unrutted
	leaving 50' vegetative buffer	0.04	0.04	0.04	NA
	Native high traffic 30% slope	1.97	1.64	2.29	NA
	Native high traffic 30% slope leaving 50' vegetative buffer	0.11	0.11	0.11	NA
	Native no traffic 2% slope	0.08	0.08	0.08	0.10
	Native no traffic 2% slope leaving 50' vegetative buffer	0.03	0.03	0.03	0.03
	Native no traffic 30% slope	0.66	0.44	0.66	0.66
	Native no traffic 30% slope leaving 50' vegetative buffer	0.08	0.07	0.08	0.07
Silt Loam	Native low traffic 2% slope	0.57	0.44	0.34	0.11
	Native low traffic 2% slope leaving 50' vegetative buffer	0.07	0.07	0.05	0.00
	Native low traffic 30% slope	2.62	1.75	2.62	1.86
	Native low traffic 30% slope leaving 50' vegetative buffer	0.22	0.22	0.22	0.10
	Native high traffic 2% slope	0.76	0.62	0.58	NA
	Native high traffic 2% slope leaving 50' vegetative buffer	0.09	0.08	0.08	NA
	Native high traffic 30% slope	1.77	1.00	1.81	NA
	Native high traffic 30% slope leaving 50' vegetative buffer	0.33	0.33	0.33	NA
	Native no traffic 2% slope	0.15	0.13	0.15	0.16
	Native no traffic 2% slope leaving 50' vegetative buffer	0.05	0.05	0.05	0.00
	Native no traffic 30% slope	2.40	0.98	0.43	0.33
	Native no traffic 30% slope leaving 50' vegetative buffer	0.10	0.10	0.11	0.10

Clay loam: Native-surface roads on shales and similar decomposing sedimentary, some volcanics.

Sandy loam: Glacial outwash and finer grain granitics.

Silt loam: Ash cap native surface. Fine grained alluvium

The average road has 2.4 acres per mile of road at 20 feet width; however, Forest roads and trails in the project area range from 8 to 20 feet.

Alternative 2 - Proposed Action Alternative

Under the Proposed Action Alternative, 231 miles of unauthorized routes are proposed to be added to the current forest transportation system. This alternative also proposes to place a prohibition on cross-country motor vehicle use.

This alternative would designate approximately 26 miles of unauthorized routes that occur within 300 feet of a perennial stream (62 acres). Along these routes, there are approximately 25 perennial water crossings. Along intermittent streams, this alternative would designate 66 miles of unauthorized routes (158 acres) located within 150 feet of an intermittent stream and approximately 209 intermittent stream crossings. This alternative would designate 13 miles of routes located within 150 feet of riparian habitat (31 acres) beyond the current NFS roads, 109 miles (261 acres).

Compared to the No Action Alternative, this alternative results in a reduction of 36 miles of route in riparian zones (86 acres), a reduction of 41 perennial stream crossings, and a reduction of 86 miles of road crossing on slopes greater than 30 percent (206 acres). In this alternative, 83 watersheds would see a decline in road density over the No Action Alternative. These reductions result in lower potential for sediment production from routes crossing streams, steep slopes, and acres of bare ground.

Compared to the Current System Alternative, the Proposed Action has more road miles and higher road densities in 51 watersheds. However, analysis of the geologic substrate and road gradient of the additional routes show these routes do not increase erosion rates, road densities, roaded acres, or acres of bare ground to levels that would impair water quality or soil productivity. Some of the proposed routes are located in areas with highly erodible soils; however, the road densities within any given watershed is very low (see appendix C).

In addition to adding new routes to the current forest transportation system, this alternative proposes to prohibit motorized travel off authorized routes. This action reduces future potential for erosion and loss of vegetation related to motor vehicle use. Over time, lack of use and/or restoration of unauthorized routes allow revegetation and stabilization, which results in restored hydrologic function and lower sediment erosion rates. Once traffic is removed, recovery of the watersheds can take years to decades.

Under this alternative, over-snow vehicle use in the Murry Canyon Municipal Watershed would be prohibited. Impacts to the watershed from illegal firewood cutting, trash dumping, oil dumping, and unauthorized cross-country travel would be stopped because all motor vehicle use would be prohibited. Dumping of household refuse and oil in the municipal watershed may take years to decades to clear up. Preventing further dumping is important to ensure a clean water supply into the future.

Alternative 3 - Current System Alternative

Under this alternative, no additional routes would be added to the forest transportation system. This alternative also proposes the prohibition of cross-country travel. This alternative has the fewest miles of travel routes in riparian zones (109 miles or 261 acres), the fewest stream crossings (108 perennial and 617 intermittent), and the least number of miles of travel routes over slopes in excess of 30 percent (67 or 160 acres). The Current System Alternative has reductions in road densities in 51 watersheds and the lowest overall densities of any of the alternatives (table 26). In comparison, this alternative has the lowest potential to impact water quality and soil productivity.

Since no new routes are added, the risk of soil erosion and stream sedimentation does not increase beyond that of the existing condition and declines as soil compaction declines, vegetation returns, and hydrologic function is restored; this takes years to decades. The potential for erosion-causing disturbance and stream sedimentation in areas outside the existing system routes is reduced because undesignated routes would eventually be closed, either through restoration or a natural process. This in turn decreases the route densities and miles of routes over the landscape.

Cumulative Effects

This effects assessment addresses impacts to both the watershed resource and the soil resource. The cumulative effects area for the soil and water resources is the boundary of the HUC 6 watersheds. The following section introduces cumulative effects as they relate to watershed and soils.

A cumulative impact, as defined in 40 CFR 1508.7, is the impact on the environment which results from the incremental impact of the action when added to other past, present, and foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (CEQ 1971).

Cumulative impacts may occur off-site and, in the case of the water resource, may affect downstream beneficial uses of water. Effects can be either beneficial or adverse and result from the synergistic or additive effects of multiple management activities within a watershed (USDA Forest Service 1988a, MacDonald 2000).

Disturbance related to roads, cross-country travel, fire, livestock grazing, and mineral exploration impact watershed condition. When these disturbances occur together in a watershed, they can have the cumulative adverse effect of increasing compaction and soil erosion and impairing water quality (Menning et al. 1996, McGurk and Fong 1995).

The analysis area contains a number of present and reasonably foreseeable future projects. The effects of ongoing projects are included in the analysis of cumulative effects as part of the existing condition. These projects along with the reasonably foreseeable future projects are discussed below.

Range Recision Project: The Ely Ranger District has nearly completed a rangeland management environmental impact statement for the west side of the Ranger District (White Pine Range and Grant-Quinn Range), and then will start an analysis of the rest of the District. Effects to soil and water quality from this activity are incorporated into the Equivalent Roaded Area model, which is discussed below.

Coal-fired Electrical Plants: There are plans for two coal-fired electric plants west of the Schell Creek Range in Steptoe Valley. These proposed coal-fired electric plants will not cause ground-disturbing activities that would result in cumulative erosion or sedimentation within the analysis area.

Passage of the White Pine County Land, Recreation, and Development Act of 2006. This legislation created 446,442 acres of new wilderness on the Ely Ranger District. The results of this act have the potential to affect rates of soil erosion or water quality in a positive way. Because motor vehicle use is prohibited in the areas designated as wilderness and existing travel routes will no longer be used, soil erosion will decrease and water quality will improve over time as hydrologic function and vegetation is restored.

Taylor Mine and Mill Development: An application to mine and mill at the old Taylor Mill is currently under review. Cumulative effects from this project are isolated to a small portion of the Schell Creek Range and will be assessed as part of this proposed action. Implementation of this project may increase soil erosion through the construction of roads and drill pads and the expansion of the mine and waste rock dumps. There are no perennial streams in the proposed project area so there are no predicted impacts to water quality.

Landscape-scale Vegetation Projects: The BLM and the Forest Service are planning landscape-scale vegetation treatment projects on and adjacent to Ward Mountain. The Forest Service is developing a landscape-scale vegetation project on the North Schells. Those projects are under development. The effects of this project will be analyzed as part of the existing condition and during the cumulative effects analysis of these projects.

White Pine/Grant Quinn Oil and Gas: A record of decision was recently signed for leasing land for gas and oil exploration and development on the White Pine Range and the Grant-Quinn Range. This recent decision allows oil and gas leasing in these areas, with restrictions. Once a plan of operations to explore for oil and gas or develop a well to pump oil and gas is submitted, then the proposed activity will be analyzed.

Equivalent Roaded Area Model

There are numerous methods for assessing the effects of land use activities on the landscape. A discussion and comparison of different methodologies can be found in documents such as *A Scientific Basis for the Prediction of Cumulative Watershed Effects*, *Cumulative Watershed Effects: Applicability of Available Methodologies to the Sierra Nevada*, and *Research and Cumulative Watershed Effects* (University of California Committee on Cumulative Watershed Effects 2001, Berg et al. 1996, Reid 1998, USDA Forest Service 1988). For the purpose of this cumulative water effects (CWE) analysis, the effects of past, present, and reasonably foreseeable future impacts were assessed using the Equivalent Road Acres Model (ERA). Under this approach, the impacts of land management activities were evaluated based on equivalent roaded acres.

“Equivalent roaded acres” is a conceptual unit of measure used to assess ground-disturbing activities. One acre of road surface equals one ERA. Numeric coefficients are used to convert acres of management activities such as timber harvest, underburning, and grazing to ERAs. For example, 1 acre of underburning equals 0.05 ERA. In a given watershed, disturbances are added together to determine a cumulative ERA for that watershed. This value is often expressed as a percentage of the Threshold of Concern (TOC). The TOC is an indicator used to assess the risk of cumulative watershed effects. The TOC is generally expressed as a percentage of watershed area. When the total ERA in a watershed exceeds the TOC, susceptibility for significant adverse cumulative effects are high. The cumulative ERA in a watershed is often expressed as a percent of the TOC. For example, in a 1,000-acre watershed where the TOC is 12 percent of the watershed area, 100 percent of the TOC represents a condition

where the amount of disturbance is similar to 120 acres of road surface, 600 acres of mechanical harvest, or 343 acres of group selects.

Analysis occurred at the sixth order HUC scale containing an analysis route. The model was modified to incorporate a recovery factor for roads that would not be authorized for continued use. The rationale is discussed below.

The rate of surface erosion is not constant throughout the life of a road (Dissmeyer 2000; Luce and Black 2001). As regrowth of vegetation occurs over time, disturbed soils stabilize and surface erosion decreases. Most surface erosion occurs within the first two years of construction, and tends to drop off significantly when a road is closed (Elliot 2000). The ERA model compensates the effect of roads and other disturbances for the gradual revegetation of disturbed areas over time by using a recovery factor.

In general, cumulative disturbance is not likely to be a concern until it reaches a TOC of 10-12 percent for the entire watershed (Menning and others 1996). Using the ERA model, the maximum disturbance was found in the Cathedral Canyon Watershed (HUC 6 160600120901). This watershed had a 3,400-acre wildfire in 2007; a large portion of this fire was high intensity. The model showed that the total cumulative disturbance was 6.4 percent under the No Action Alternative, 6.3 percent under the Proposed Action Alternative, and 6.2 percent under the Current System Alternative. Only one other watershed (Upper Sherwood Wash, HUC 6 150100110701) had a total cumulative disturbance that exceeded 2 percent.

When the ERA analysis is limited to riparian areas, the cumulative soil disturbance is not likely to be a concern until it approaches 5 percent TOC (McGurk and Fong 1995). For any riparian area within a watershed, the maximum soil disturbance is 1.3 percent for the No Action Alternative and less for both the Proposed Action and Current System Alternatives (see Hydrology Specialist Report, Travel Management EA, table 6, p. 14-15, in the project record).

Soil disturbance for the analysis routes for any one watershed amounts to a maximum of less than one percent for both the No Action Alternative and the Proposed Action Alternative (Hydrology Specialist Report, pp. 15-16). None of the past, present, or reasonably foreseeable projects, when added to the No Action Alternative, the Proposed Action Alternative, or the Current System Alternative, result in cumulative impacts that approach the threshold of concern (Hydrology Specialist Report, table 9, page 26).

Appendix C shows the cumulative effects in selected watersheds. Threshold of concern values are only shown for watersheds with the greatest values from all disturbance or uses including travel routes. The Hydrologists Specialist Report includes a complete list of watersheds in the project area.

Native American Values

Affected Environment

The American Indian Religious Freedom Act of 1978 and Executive Order 13007 dictates that federal agencies consider the repercussions of their actions when they may affect Native American traditions and religious practices. The District works with tribal governments to identify locations having traditional cultural or religious values to Native Americans and to ensure that land management actions do not unduly or unnecessarily burden the pursuit of traditional religion or lifeways by inadvertently damaging important locations or hindering access to them.

On May 15, 2007, the District mailed a *Request for Comments* to the Duckwater Shoshone and the Ely Shoshone tribal organizations. The District also met and consulted with the Yomba, Duckwater Shoshone, and Ely Shoshone Tribes and described the project. In March 2008, the District again met with these three tribes and the Goshute Tribe.

Environmental Consequences

The environmental effects on Native American traditional values are addressed in a qualitative discussion of the potential effects to these properties from each of the alternatives.

Effects Common to All Alternatives

Tribal representatives did not identify the location or existence of any traditional cultural properties related to any of the routes. In addition to consulting with Tribes, the District surveyed for cultural properties along all existing forest transportation system and unauthorized routes. Although during consultation the route was not specifically identified, the District is aware of one potential area that is of interest to a tribe. The route that tribal members use remains open under all alternatives.

Alternative 1 - No Action Alternative

Cross-country travel is permitted under this alternative. While there are no impacts to cultural properties by continued use of the existing routes, new unauthorized routes could result in concerns about increased public access or damage to Native American traditional cultural properties.

Effects Common to the Proposed Action and Current System Alternatives

Motorized cross-country travel is prohibited under these alternatives. With motor vehicle use restricted to designated routes, the District expects no impacts to Native American traditional cultural properties.

Environmental Justice

Affected Environment

Executive Order 12898 requires federal agencies to consider impacts of proposed actions on minority and low-income populations. In accordance with the Environmental Protection Agency's (EPA) Environmental Justice Guidelines (EPA 1998), minority and Native American populations are identified when either of the following exist:

- Minority population of the affected area exceeds 50 percent.
- Minority population of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.

The EPA's Environmental Justice Guidelines (EPA 1998) suggest that the District identify low-income populations by using annual statistical poverty thresholds.

Minority Populations

The U.S. Census Bureau collects demographic characteristics on five race groups: white, African-American, American Indian and Alaska Native, Asian, and Pacific Islander (table 28). According to the U.S. Census Bureau, the African-American and Hispanic populations represented 4.1 percent and 11 percent, respectively, of the total population of White Pine County in 2000. American Indian, Asian, and Pacific Islanders comprised 3.3, 0.8, and 0.2 percent, respectively (U.S. Census 2008a). In Nye County, African-American and Hispanic populations accounted for 1.2 percent and 8.4 percent respectively and American Indian, Asian, and Pacific Islanders comprised 2.0 percent, 0.8 percent, and 0.3 percent of the whole (U.S. Census 2008a). For Nevada as a whole, African Americans and Hispanics represented 6.8 and 19.7 percent, respectively, in 2000. American Indian, Asian, and Pacific Islanders constituted 1.3, 4.5, and 0.4 percent of the State's population in 2000, respectively (U.S. Census 2008a).

	White Pine County	Nye County	State of Nevada
African-American	4.1	1.2	6.8
American Indian	3.3	2.0	1.3
Asian	0.8	0.8	4.5
Hispanic	11.0	8.4	19.7
Pacific Islanders	0.2	0.3	4.5

Source: U.S. Census Bureau 2000

Low-Income Population

In 2000, the percentage of individuals below the poverty level in Nye and White Pine counties was 10.7 percent and 11 percent (table 29). This is only slightly higher than the state of Nevada, which was 10.5 percent (U.S. Census Bureau 2008a) (Table 29).

	White Pine County	Nye County	State of Nevada
Median Household Income	\$36,688	\$36,024	\$44,581
Individuals Below Poverty Level	11.0%	10.7%	10.5%
Source: U.S. Census Bureau 2008			

In White Pine County, neither the population of African Americans, American Indian, Hispanics, Asian, nor Pacific Islanders exceeds 50 percent of the population and none of the populations percentages is “meaningfully greater” than the minority population in the general population in the state of Nevada. Therefore, for the purposes of screening for environmental justice concerns, minority populations are not a concern in Nye County or White Pine County. Likewise, the widely dispersed area over which this travel management project takes place makes it unlikely that any particular minority population in either Nye County or White Pine County is disproportionately impacted.

Environmental Consequences

The Council on Environmental Quality guidance on environmental justice (Environmental Justice: Guidance Under the National Environmental Policy Act, 1997) advises agencies to consider the composition of an affected area to determine whether minority populations, low-income populations, or American Indian tribes are present, and if so whether there may be disproportionately high and adverse effects to human health. The environmental effects on minority populations or low-income populations are measured by:

- The disproportionately high and adverse effects to human health on minority or low-income populations.

Effects common to the proposed action reflects the road system identified by the District through public involvement, scoping, and completion of the TAP. This road system reflects routes people identified that needed to be open and available for continued use for recreation, utilization, and administration of the Forest. The road system includes most of the NFS routes currently identified and approximately 190 unauthorized routes currently in use by the public, permittees, and the District staff.

Routes currently open to motor vehicle use on the District are not used with a great deal of regularity. Many of the routes included in the proposed action may not be used at all for several years, while other routes are used on a daily basis by a number of users.

Without an accurate estimate of average daily use on the major system roads, it would be meaningless to create an estimation of how use on a side route may or may not increase or how much resource damage may or may not occur with selection of the proposed action.

The IDT approach in the EA has been to identify the direct, indirect, and cumulative effects of use from the alternatives using the best available information. The IDT recognizes that some routes may experience more use but attempting to quantify the extent of that increase or the affect it may have on resources results in a guessing game based on assumptions and speculation.

Effects Common to All Alternatives

The effects of all alternatives would not disproportionately affect minority or low income populations. There are no cumulative effects associated with other past present or reasonably foreseeable projects that would incrementally contribute to a disproportionately high and adverse effect on human health of either a minority or low-income population.

Social/Economic

Affected Environment

The project area is located in remote areas of Nye County, population 42,485, and White Pine County, population 9,150 (U.S. Census 2008b). The median household income in 2004 for Nye County was \$41,025 and \$39,420 in White Pine County (U.S. Census 2008b). Services in the region surrounding the project area are limited to motels, grocery stores, and gas stations located in Ely, Baker, and Pioche, Nevada.

Environmental Consequences

Environmental impacts to the socioeconomic well being of Nye and White Pine counties would be significant if the alternatives resulted in any of the following:

- Substantial growth or concentration of population.
- Displacement of a large number of people.
- Substantial reduction in employment.
- Substantial reduction in wage and salary earnings.
- Substantial net increase in the counties expenditures.
- Substantial demand for public services.

Effects Common to All Alternatives

The proposed action would have little positive or negative effect on the local economies because it would not result in increases or decreases in population, wages, or employment. Use of the road system would not increase or decrease significantly because of these alternatives. To the extent that they receive maintenance, the Forest Service, not the counties, would maintain the routes identified for designation. As the

proposed additions to the forest transportation system already exist and are in use, the proposal would not affect the demand for public services.

Public Health and Safety

Affected Environment

Safe travel for all users on routes that cross the District is a concern that was identified when developing the proposed action. The District considered the types of proposed routes, the types of vehicles traveling on the routes, the speeds at which vehicles can safely travel, and the times of year the routes are open. At present, all routes on the Ely Ranger District are open to both highway-legal and non-highway legal vehicles. Route conditions off the main routes are generally rough and require slow speeds (<10 mph) in high-clearance vehicles. Main routes generally receive only light use through most of the year with the highest use period being during the hunting season in September and October. The District is not aware of any multi-vehicle accidents occurring on current NFS roads.

With the exception of E1489, most of the transportation system is located some distance from populated areas and does not result in noise or emission impacts. Low volume and slow speeds also contribute to the reduction of noise and emissions. In the case of E1489, access to this route crosses public land managed by the BLM, which passes residential properties located on the edges of Ely, Nevada. This route is also accessible from other routes that cross public land and to which the Forest has a right-of-way.

Environmental Consequences

The environmental effects on public safety are addressed by a qualitative discussion on the potential effects of the proposed action.

Effects Common to All Alternatives

Because of the low speeds, low traffic volumes, and current open nature of all roads to all vehicles types, the District was not required to complete an engineering analysis for the approval of mixed use. The inherent risk of traveling on forest transportation system routes is not increased under either of the action alternatives and may decrease under the No Action Alternative. The District does not anticipate that use of the routes in either of the action alternatives would increase the risk of multiple vehicle accidents. As for single vehicle accidents, the District expects that the prohibition on cross-country travel under the Proposed Action and the Current System Alternatives would reduce the risk of accidents associated with traveling across steep terrain and uneven ground. All of the routes analyzed under the Proposed Action Alternative are low volume roads, and travel speeds are kept low because of rough conditions. There is no increased risk of accident under any of the action alternatives because the use of these routes is not expected to change with designation. There would be no direct, indirect, or cumulative effects under any alternative. Under the Proposed Action Alternative, route E1498 would remain open. The portion of this route on NFS land is accessible from public land managed by the BLM from three routes, one of which is NFS road 59442.

Road Management

Affected Environment

The District currently has approximately 600 miles of NFS roads and NFS trails on the forest transportation system open to motor vehicles use. The majority of these roads are low speed, low volume native surface two track routes with non-engineered turnouts. Because of these conditions, these roads are open to all vehicle types. On an annual basis, the District maintains the primary access routes to a standard that provides safe and comfortable travel in a passenger vehicle (table 30). Some of the roads listed on table 30 are part of the White Pine County transportation system. These roads are maintained by the Forest through an agreement with the county. This maintenance agreement is in the best interest of the Forest in that these routes provide safe and economical access to the NFS lands. The District manages all other NFS roads (437.3 miles) to provide access into the remote areas of the District as primitive four-wheel drive routes. These roads were constructed at low cost and typically require little or no maintenance. The District experienced severe road washouts in the spring of 2005, and while the District has repaired the major roads, many others remain unrepaired due to the cost compared to the significance of, or need for, the route. As similar situations occur, the District would continue to close roads or change the vehicle class on roads and trails based on both resource and economic considerations.

The District manages and maintains NFS trails following the same strategy as NFS roads. There is limited trail maintenance funds allocated to the District. Primary trails, those that get most of the traffic, receive most of the maintenance. Other trails are maintained on an as needed basis.

Table 30: Primary Travel Routes on the Ely Ranger District Maintained to Provide Safe and Comfortable Travel in a Passenger Vehicle.			
Mountain Range	Route #	Route Name	Length
Grant-Quinn	59410	Cherry Creek	13.4
	59411	Sawmill Canyon	8.6
	59415	Quinn Canyon	7.6
	59412	Scofield Canyon	4.9
	59420	Troy Canyon	2.2
Moriah	59460	Smith Creek	10.1
	59582	Hampton Creek	3.25
	59429	Hendrys Creek	1.5
	59151	Horse Canyon	1.3
Schells	59424	Berry Creek	4.9
	59435	Cleve Creek	4.1
	59425	Timber Creek	2.8
	59427	Kalamazoo	14.8
	59426	Bird Creek	2.5
	59564	East Creek	3.7

Table 30: Primary Travel Routes on the Ely Ranger District Maintained to Provide Safe and Comfortable Travel in a Passenger Vehicle.			
Mountain Range	Route #	Route Name	Length
Ward	59440	Ski Hill	3
	59439	Ward Campground Road	0.6
	59620	Lower Terraces	3.4
White Pine	CR1163 (59405)	White River	21.6
	CR10 (59402)	Ellison Creek/Hamilton-Pioche	30.7
	CR1164	Current	10.9
	CR1165	Hamilton-Pioche	
	59400	Cottonwood Creek	16.8

Environmental Consequences

Environmental impacts to road management would be significant if the alternatives resulted in an increased need to expend limited road maintenance resources to maintain the District's transportation system.

Effects Common to All Alternatives

The District uses road maintenance funds and the road maintenance crew to maintain the primary access routes. This budget is finite, and the District does not expect any increases. The District receives the services of the Forest road crew for twelve working days annually. Consequently, the District Ranger and staff make hard decisions every year as to where to work the road crew. The District's priority is the maintenance of routes that receive the most use or that have been damaged by flooding or heavy rains.

High-clearance four-wheel drive roads and motorized trails make-up the majority of the routes on the District. This vehicle class is highly compatible with the road geometry and native surfaces on the Ely Ranger District. Speeds are slow on these routes and encounters with other vehicles are rare in most areas because of the distribution and traffic volume. These routes receive very little maintenance, and the District does not expect that to change with the selection of the any of the alternatives. This does not mean that the District does not monitor the conditions of the roads. If the District becomes aware of a road or motorized trail that is causing environmental impacts or is unsafe for the public, the District would assess the need for the route and make a determination on whether to repair or close the route.

The miles of road or motorized trail would increase with the Proposed Action Alternative. This, however, does not indicate an added burden on the already limited road maintenance resources. Given the current and projected level of road maintenance, the District should be able to provide a similar level of maintenance for the forest transportation system under the No Action, Proposed Action, or Current System Alternatives. Accordingly, none of the alternatives has direct, indirect, or cumulative effects on the District's ability to manage the forest transportation system on the District.

Livestock Management

Affected Environment

The Ely Ranger District currently has 38 livestock grazing permits on 33 allotments. The season of use varies on these allotments; however, use generally occurs between June 1 and October 15 of each year. Permitted livestock on the Ely Ranger District number 3,603 cattle and 16,311 sheep.

Most unauthorized routes on the Ely Ranger District were created by hunters and/or sportsmen or developed over many years for the management of livestock allotments. Livestock permittees generally use unauthorized routes as well as NFS roads to access allotments on NFS lands. These roads are utilized to monitor livestock locations, to move livestock between pastures, to place salt supplements, and to maintain fences and water developments. Generally vehicle use on roads to maintain developments and to place salt supplements is limited to one trip per year for each activity and only occurs on select roads each year.

Vehicle use by livestock permittees to monitor and move livestock varies widely by allotment. This use of District roads generally occurs more frequently and takes place almost exclusively between mid-April and October. The unauthorized routes proposed to remain open are generally used by livestock permittees to maintain allotment developments, place salt supplements, and monitor livestock locations.

Environmental Consequences

Environmental impacts to livestock management activities would be significant if the alternatives resulted in a decreased ability of permittees to manage their livestock as specified in the terms and conditions of their grazing permits.

Effects Common to All Alternatives

Under all alternatives, livestock management would continue as specified in the terms and conditions of the grazing permits. Motorized travel management would not significantly affect livestock management. Livestock permittees would continue to have access to their allotments as specified in their grazing permits. Access could be permitted off road to manage livestock and repair range structures such as fences and water developments.

Cumulative Effects

Impacts to soils and watersheds from livestock grazing were included in the Equivalent Roaded Area model discussed in the Water Quality and Soil Erosion section. The combined effects of roads, livestock grazing, recent prescribed and wildfires, and other ground disturbing activities on soil and watershed condition is very small and does not come close to meeting the threshold.

This page intentionally left blank.

CHAPTER 4 - CONSULTATION AND COORDINATION

The Forest Service consulted the following individuals, federal, state, and local agencies, tribes, and non-Forest Service persons during the development of this Environmental Assessment.

Interdisciplinary Team Members

James Winfrey	Project Lead
Dan Morris	Recreation, Engineering, Lands, and Minerals Staff Officer
Peter Haraden	Hydrologist
Barbara Drake	Soils/Hydrology
Kathleen Johnson	Wildlife Biologist
Justin Rozich	Wildlife Biologist
Cheryl Johnson	GIS Analyst
Terri Sonner	Engineering Technician
Dave Palmer	Natural Resources Staff Officer
Nate Thomas	Archeologist
Joanne Baggs	Botanist
Jim Harvey	Fisheries Biologist
Linda Crawley	Writer-Editor

Federal, State, and Local Agencies

US Department of Interior, Fish and Wildlife Service

US Department of Interior, Great Basin National Park

US Department of Interior, Bureau of Land Management, Ely Field Office

Nevada State Historic Preservation Office

Nevada State Parks, Cave Lake State Park

Nevada Department of Wildlife

Lincoln County Commissioners

Nye County Commissioners

White Pine County Commissioners

Tribes

Duckwater Shoshone Tribe

Ely Shoshone Tribe

Yomba Tribe

Goshute Tribe

Others

South Steptoe Travel Management Technical Review Team

Chapter 5 – Glossary of Terms

Cherry-stemmed Road	A road which follows a narrow isthmus of land that is not designated as wilderness or other land management designation.
Cross-country Travel	Use of motor vehicle off designated roads and trails.
Designated Road or Trail	A National Forest System road or a National Forest System trail that is designated for motor vehicle use as directed in 36 CFR 212.51 on a Motor Vehicle Use Map (MVUM).
Forest Road or Trail	A road or trail wholly or partly within or adjacent to and serving the National Forest System that the Forest Service determines is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources.
Forest Transportation Atlas	A display of the system of roads, trails, and airfields of an administrative unit.
Forest Transportation System	The system of National Forest System roads, National Forest System trails, and airfields on National Forest System lands.
Historic Property	A historic or prehistoric site that is eligible to be listed on the National Register of Historic Places.
Minimum Road System	The minimum road system as identified by the responsible official that is needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands.
Mixed Motor Vehicle Use	A route that is not restricted to one motor vehicle type, i.e., ATVs and full-sized vehicles.
Motor Vehicle	Any vehicle, which is self-propelled, other than: 1) a vehicle operated on rails; and 2) any wheelchair or mobility device, including one that is battery-powered, that is designated solely for use by a mobility-impaired person for locomotion, and that is suitable for use in an indoor pedestrian area.

Motor Vehicle Use Map (MVUM)	A map reflecting designated roads, trails, and areas on an administrative unit or a ranger district of the National Forest System.
Motorized Trail	A trail upon which motor vehicles may be operated.
Motorized Use	Any activity involving the use of a motor vehicle.
National Forest System Road	A forest road other than a road, which has been authorized by a legally documented right-of-way held by a state, county or other local public road authority.
National Forest System Trail	A forest trail other than a trail, which has been authorized by a legally documented right-of-way held by a state, county or other local public road authority.
Non-motorized Use	Any activity that does not involve the use of a motor vehicle.
Unauthorized route	A route that is not identified as a National Forest System road or a National Forest System Trail
Unauthorized road or trail	A road or trail that is not a forest road or trail or a temporary road or trail and that is not included in a forest transportation atlas.
Off-highway Vehicle	Any motor vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain.
Over-snow Vehicle	A motor vehicle that is designed for use over snow and that runs on a track or tracks and/or a ski or skis, while in use over snow.
Road	A motor vehicle route over 50 inches wide, unless identified and managed as a trail.
Route	A general name for any road or trail, including forest roads or trails, other permanent, authorized roads or trails (e.g., a county right-of way), unauthorized roads or trails, and temporary roads and trails.
Single-track	A trail managed for two-wheeled motorized or non-motorized use.

Temporary Road or Trail

A road or trail necessary for emergency operations or authorized by contract, permit, lease, or other written authorization that is not a forest road or trail and that is not included in a forest transportation atlas.

Trail

A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail.

This page intentionally left blank.

Chapter 6 - References

- Berg, N.; Roy, K.; McGurk, B. 1996. Cumulative Watershed Effects: Applicability of Available Methodologies to the Sierra Nevada. *In: Sierra Nevada Ecosystem Project: Final Report to Congress, Vol. III, and Report 2.* Davis: University of California, Centers for Water and Wildland Resources.
- Bradley, P.V., M.J. O'Farrell, J.A. Williams and J.E. Newark. Editors. 2006. The Revised Nevada Bat Conservation Plan. Nevada Bat Working Group. Reno, Nevada. 216 p.
- Canfield, Jodie E., L. Jack Lyon, J. Micheal Hillis, and Michael J. Thompson. 1999. Ungulates. Pages 6.1-6.25 *in* G. Joslin and H. Youmans, Coordinators. Effects of Recreation on Rocky Mountain Wildlife. A Review of Montana. Montana Chapter of the Wildlife Society. 307 p.
- Coates, Kevin P., and S. D. Schemnitz. 1994. Habitat Use and Behavior of Male Mountain Sheep in Foraging Associations with Wild Horses. *Great Basin Naturalist* 54(1). 1994. p. 86-90.
- Dissmeyer, G.E. 2000. Drinking Water from Forests and Grasslands: A Synthesis of the Scientific Literature. USDA Forest Service. Southern Research Station. Asheville, NC.
- Dobkin, David S. and Joel D. Sauder. 2004. Shrubsteppe Landscapes in Jeopardy. Distributions, Abundances, and the Uncertain Future of Birds and Small Mammals in the Intermountain West. High Desert Ecological Research Institute.
- Duncan, C.L.; Clark, J., eds. 2005. Invasive plants of range and wildlands and their environmental economic and societal impacts. Lawrence, KS: Weed Science Society of America. 222 p.
- Elliot, J. W. 2000. Roads and Corridors. *In: Dissmeyer, G.E. (Editor). 2000. Forest and Grasslands: A Synthesis of Scientific Literature. General Technical Report SRS-39.* Ashville, NC. USDA Forest Service, Southern Research Station.
- Elliot, J.W. and Hall, D.E. August 1997. Water Erosion Prediction Project (WEPP) Forest Applications. General Technical Report INT-365. USDA Forest Service. Intermountain Research Station. Ogden, UT.
- EPA. 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses.
- Forman, R. T. T. and L. E. Alexander. 1998. Roads and their major ecological effects. *Annual Review of Ecology and Systematics*. 29: 207-231.

- Gaines, William L., Singleton, P.H., and Ross, R.C. 2003. Assessing the Cumulative Effects of Linear Recreation Routes on Wildlife Habitats on the Okanogan and Wenatchee National Forests. General Technical Report. PNW-GTR-586.
- Gelbard, Jonathan L. and Belnap, Jayne. 2003. Roads as Conduits for Exotic Plant Invasions in a Semiarid Landscape. *Conservation Biology*. Vol. 17, No. 2, 420-432.
- Great Basin Bird Observatory. 2002. All Bird Monitoring Data. (www.gbbo.org).
- Grubb, T.G.; Pater, L.L.; Delaney, D.K. 1998. Logging truck noise near nesting northern goshawks. Res. Notes RMRS-RN-3. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 2 p.
- Gucinski, Hermann, Furniss, Michael J., Zeimer, Robert R., and Brookes, Martha H. 2001. Forest Roads: A Synthesis of Scientific Information. U. S. Department of Agriculture. Forest Service. Pacific Northwest Research Station. General Technical Report PNW-GTR-509. May.
- Hamann, B., H. Johnston, P. McClelland, S. Johnson, L. Kelly and J. Gobielle. 1999. Birds. Pages 3.1-3.34 in G. Joslin and H. Youmans, coordinators. Effects of Recreation on Rocky Mountain Wildlife: A Review for Montana. Committee on Effects of Recreation on Wildlife, Montana Chapter of the Wildlife Society. 307p.
- Hayward, G.D. and J. Verner, tech. eds. 1994. Flammulated, boreal, and great grey owls in the United States: A technical conservation assessment. Gen. Tech. Rep. RM-253. Fort Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 214 p. (3 maps).
- Herron, G. B., C. A. Mortimore, and M. S. Rawlings. 1985. Nevada Raptors: Their Biology and System. Nevada Department of Wildlife. Biological Bulletin No. 8. 114 p.
- Hutto, R. 1995. Northern Region Landbird Monitoring Program. USFS Region 1 Contract #57-0343-5-00012. Second Report. 17p.
- Ice, G.C., and Stednick, J.D., eds. 2004. A Century of Forest and Wildland Watershed Lessons. Society of American Foresters. Bethesda, MD. p. 80.
- Kochenderfer, J.N. and J.D. Helvey. 1987. Using gravel to reduce soil losses from minimum-standard forest roads. *Journal of Soil and Water Conservation*. 42(1):46-50.
- Luce, C.H., and Black, T.A. 2001. Effects of Traffic and Ditch Maintenance on Forest Road Sediment Production. USDA Forest Service. Rocky Mountain Research Station. Boise, Idaho. Preprint of Luce, C.H. and T.A. Black, 2001. Effects of Traffic and Ditch Maintenance on Forest Road Sediment Production. *In Proceedings of the Seventh Federal Interagency Sedimentation Conference*, March 25-29, 2001. Reno, NV. pp. V67-V74.

Luce, C.H. and T.A. Black. 2001. Spatial and Temporal Patterns in Erosion from Forest Roads. Preprint of Luce, C.H. and T.A. Black. 2001. Spatial and Temporal Patterns in Erosion from Forest Roads. In Influence of Urban and Forest Land Uses on the Hydrologic-Geomorphic Responses of Watersheds, Edited by M.S.

MacDonald, L.H. 2000. Evaluating and managing cumulative effects: process and constraints. *Environmental Management* 26(3): 299-315.

McGurk, B.J.; Fong, D.R. 1995. Equivalent Roaded Area as a Measure of Cumulative Effect of Logging. *Environmental System*. 19(4): 609-621.

Menning, K.M. and Erman, D.C.; Johnson, K.N. 1996. Modeling Aquatic Riparian Systems, Assessing Cumulative Watershed Effects, and Limiting Watershed Disturbance. In: Sierra Nevada Ecosystem Project: Final Report to Congress, Vol. III, Report 2. Davis: University of California, Centers for Water and Wildland Resources.

Mika, Markus. 2007. Biological Investigation of Flammulated Owl (*Otus flammeolus*). Distribution and Densities on National Forest Lands in Nevada: Biological Survey Protocol and Results. Department of Biology, University of Nevada, Las Vegas. June.

NatureServe: An online encyclopedia of life [web application]. 2002. Comprehensive report for Bald Eagle. Version 1.5. Arlington (VA): Association for Biodiversity Information. Available: <http://www.natureserve.org/>. (Accessed: July 6, 2003 and April 15, 2005).

Neel, L. 2001. Nevada Sage Grouse Conservation Strategy. Governor Kenny Guinn's Sage Grouse Conservation Planning Team. Carson City, NV.

Nevada Division of Wildlife. 1997. Nevada Elk Species Management Plan. 59 p.

Nevada Department of Wildlife. 2006. Nevada Sage-Grouse Conservation Projects, W-64-R-6. Nevada Department of Wildlife. Nevada Sage-grouse Conservation Team. Carson City, NV.

Nevada Department of Wildlife. 2006-2007. Big Game Status. Compiled and edited by Mike Cox. 110 p.

Nevada Partners in Flight Bird Conservation Plan. 1999. Edited by Larry A. Neel.

Nevada Department of Wildlife. Nevada Sage-Grouse Conservation Project W-64-R-6, Federal Aid Report, pp. 3 and 11.
<http://www.ndow.org/wild/conservation/sg/resources/report/2007%20W64%20FA%20Report.pdf>.

Pierson, E. D., M. C. Wackenhut, J. S. Altenbach, P. Bradley, P. Call, D. L. Genter, C. E. Harris, B. L. Keller, B. Lengus, L. Lewis, B. Luce, K. W. Navo, J. M. Perkins, S. Reid, L. M. 1993. Research and cumulative watershed effects. USDA Forest Service. Pacific Southwest Research Station. General Technical Report GTR-141. 118 p.

- Rice, R.M., and J. Lewis. 1991. Estimating erosion risk associated with logging and forest roads in Northwest California. *Water Resource Bulletin*. 27(5): 809-817.
- Roberts, H.B. 2001. Survey of Pygmy Rabbit Distribution, Numbers and Habitat Use in Lemhi and Numbers and Habitat Use in Lemhi and Custer Counties, Idaho. Hadley B. Roberts. Tech. Bull. No. 01-11. Idaho BLM. 25 p.
- Smith, and L. Welch. 1999. Species conservation assessment and strategy for Townsend's big-eared bat (*Corynorhinus townsendii townsendii* and *Corynorhinus townsendii pallescens*). Idaho Conservation Effort. Idaho Department of Fish and Game. Boise, ID.
- Swift, L.W., Jr. 1984. Soil Losses from Roadbeds and Cut and Fill Slopes in the Southern Appalachian Mountains. *Southern Journal of Applied Forestry*. 8(4): 209-215.
- Taylor Tim, 1991. Ecology and Productivity of Two Interstate Deer Herds in the Eastern Sierra Nevada. California Department of Fish and Game.
- Thomas, Jack Ward. 1979. Technical Editor. Wildlife Habitats in Managed Forests in the Blue Mountains of Oregon and Washington. US Department of Agriculture. Forest Service. Agriculture Handbook No. 553.
- Travel Management; Designated Routes and Areas for Motor Vehicle Use; Final Rule. November 9, 2005. 36 CFR 212, 251, 261, and 295.
- US Census Bureau. 2008a. American Factfinder.
http://factfinder.census.gov/servlet/SAFFFacts?_event
- US Census Bureau. 2008b. State and County Quick Facts.
<http://quickfacts.census.gov/qfd/states/32/32033.html>
- USDA Forest Service. 1986. Humboldt National Forest Land and Resource Management Plan. Humboldt National Forest. Elko, NV.
- USDA Forest Service. 1988. Cumulative Off-site Watershed Effects Analysis. *In*: USFS Region 5, Soil and Water Conservation Handbook. FSH 2509.22. San Francisco.
- USDA Forest Service. 2001. Survey of Pygmy Rabbit Distribution, Numbers and Habitat Use in Lemhi and Numbers and Habitat Use in Lemhi and Custer Counties, Idaho. Hadley B. Roberts, Certified Wildlife Biologist.
- USDA Forest Service. 2006. DRAFT Assessment of Wilderness Potential: An Assessment of Lands on the Humboldt-Toiyabe National Forest that have Potential for Consideration By Congress for Wilderness Designation. Humboldt-Toiyabe National Forest. Sparks, NV.
- USDA Forest Service. 2008a. Management Indicator Species (MIS) and Range Suitability/Capability Analysis. Updated MIS Monitoring Report. Humboldt National Forest.

USDA Forest Service. 2008b. Travel Analysis Report (TAP) for the Ely Ranger District. Humboldt-Toiyabe National Forest.

USDA Forest Service. 2009. Forest Service Manual 7700 Travel Management, Chapter 10 Travel Planning, Section 7712 Travel Analysis. Washington, DC.

US Fish and Wildlife Service. 1999. Final rule to remove the American peregrine falcon from the federal list of endangered and threatened wildlife, and to remove the similarity of appearance provision for free-flying peregrines in the conterminous United States. Federal Register 64:46541-46558.

University of California Committee on Cumulative Watershed Effects. 2001. A scientific basis for the prediction of cumulative watershed effects . University of California Wildland Resource Center Report No. 46. Berkeley, CA. 107 p.

Wagner, Guy D. and James M. Peak. 2006. Bighorn Sheep Diet Selection and Forage Quality in Central Idaho. Northwest Science. Vol. 80, No. 4: 246-258.

Wasley, Tony. 2004. Mule Deer Population Dynamics: Issues and Influences. Biological Bulletin No. 14. Nevada Department of Wildlife, Carson City, NV.

Weaver, W.E.; Hagans, D.K.; Popenoe, J.H. 1995. Magnitude and causes of gully erosion in the lower Redwood Creek basin, northwestern California. *In*: Nolan, K.M.; Kelsey, H.M.; Marron, D.C., eds. Geomorphic processes and aquatic habitat in the Redwood Creek basin, northwestern California. Prof. Pap. 1454. Washington, DC. U.S. Geological Survey. I1-I21.

Wemple, B.C., J.A. Jones, and G.E. Grant. 1996. Channel network extension by logging roads in two basins, Western Cascades, Oregon. Water Resource Bulletin 32: 1195-1207.

White Pine County Elk Management Plan. 2007 Revision. Prepared by the White Pine Elk Management Technical Review Team. Submitted by White Pine County Coordinated Resource Management Steering Committee. Approved by the Nevada Board of Wildlife Commissioners.

Wigmosta and S.J. Burges. Water Resources Monographs. American Geophysical Union. Washington, D.C. p. 165-178.

Wisdom, M.J., R.S. Holt, B.C. Wales, C.D. Hargis, V.A. Saab, D.C. Lee, W.J. Hann, T.D. Rich, M.M. Rowland, W.J. Murphy, and M.A. Eames. 2000. Source habitat for terrestrial vertebrates of focus in the Interior Columbia Basin: broad scale trends and system implications. USDA Forest Service. Pacific Northwest Research Station. General Technical Report PNW-GTR-485. Portland, OR.

This page intentionally left blank.

APPENDIX A: Routes Proposed for Addition

Table A-1: Routes Proposed for Addition to the Forest Transportation System on the Ely Ranger District				
Route Number	Status	Mountain Range	Route Length	Need
U59116	Proposed NFS Road	Grant/Quinn	0.48	Forest Access to Trailhead
U59413A	Proposed NFS Road	Grant/Quinn	1.08	Access from Other Ownership
U59649	Proposed NFS Road	Grant/Quinn	4.27	Forest Access
E13238	Proposed NFS Trail (Motorized)	Grant/Quinn	0.15	Dispersed Recreation Access
E3834	Proposed NFS Trail (Motorized)	Grant/Quinn	0.36	Dispersed Recreation Access
E3839	Proposed NFS Trail (Motorized)	Grant/Quinn	0.34	Dispersed Recreation Access
E3841	Proposed NFS Trail (Motorized)	Grant/Quinn	0.21	Dispersed Recreation Access
E3845	Proposed NFS Trail (Motorized)	Grant/Quinn	0.44	Dispersed Recreation Access
U59101	Proposed NFS Trail (Motorized)	Grant/Quinn	1.28	Recreation Loop Opportunity
U59105	Proposed NFS Trail (Motorized)	Grant/Quinn	4.81	Access to Spring Development
U59107	Proposed NFS Trail (Motorized)	Grant/Quinn	1.91	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59117	Proposed NFS Trail (Motorized)	Grant/Quinn	0.13	Dispersed Recreation Access
U59118	Proposed NFS Trail (Motorized)	Grant/Quinn	0.90	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59122	Proposed NFS Trail (Motorized)	Grant/Quinn	1.93	Dispersed Camping Access
U59129	Proposed NFS Trail (Motorized)	Grant/Quinn	1.87	Dispersed Camping Access
U59129A	Proposed NFS Trail (Motorized)	Grant/Quinn	0.20	Dispersed Camping Access
U59136	Proposed NFS Trail (Motorized)	Grant/Quinn	0.87	Recreation and Hunting Access
U59411A	Proposed NFS Trail (Motorized)	Grant/Quinn	0.26	Dispersed Recreation Access
U59411B	Proposed NFS Trail (Motorized)	Grant/Quinn	0.26	Dispersed Recreation Access
59420	NFS Road	Grant/Quinn	2.98	Change to Non-motorized Trail
E12407	Proposed NFS Road	Moriah	0.96	Connect System
E12410	Proposed NFS Road	Moriah	5.34	Connect System
E2135	Proposed NFS Road	Moriah	0.97	Range Access
U59146	Proposed NFS Road	Moriah	1.04	Connect System
U59148A	Proposed NFS Road	Moriah	1.00	Recreation Access
U59156	Proposed NFS Road	Moriah	1.13	Recreation Access
U59162	Proposed NFS Road	Moriah	1.22	Access from Other Ownership
U59164	Proposed NFS Road	Moriah	0.95	Access from Other Ownership
U59581C	Proposed NFS Road	Moriah	0.27	Dispersed Recreation Access
E13315	Proposed NFS Trail (Motorized)	Moriah	0.14	Dispersed Camping Access
E13321	Proposed NFS Trail (Motorized)	Moriah	0.17	Dispersed Camping Access
E2040	Proposed NFS Trail (Motorized)	Moriah	0.57	Cherry-stemmed into Wilderness for Access

Table A-1: Routes Proposed for Addition to the Forest Transportation System on the Ely Ranger District				
Route Number	Status	Mountain Range	Route Length	Need
E2096	Proposed NFS Trail (Motorized)	Moriah	0.71	Forest Access per Public Comment
E6189	Proposed NFS Trail (Motorized)	Moriah	0.17	Dispersed Camping Access
E6193	Proposed NFS Trail (Motorized)	Moriah	0.19	Dispersed Camping Access
E6197	Proposed NFS Trail (Motorized)	Moriah	0.26	Dispersed Camping Access
U59143D	Proposed NFS Trail (Motorized)	Moriah	1.32	Connects System Roads
U59149	Proposed NFS Trail (Motorized)	Moriah	0.88	Dispersed Camping Access
U59152	Proposed NFS Trail (Motorized)	Moriah	1.51	Recreation Access
E9798	Proposed NFS Road	Schell	0.69	Access to Trailhead
U59390	Proposed NFS Road	Schell	3.76	Access to Taylor Bench.
U59391	Proposed NFS Road	Schell	2.66	Access to Taylor Bench.
U59398	Proposed NFS Road	Schell	3.00	Access to Private Lands
U59437	Proposed NFS Road	Schell	0.53	Dispersed Recreation Access
E1027	Proposed NFS Trail (Motorized)	Schell	0.87	Recreational Use
E12659	Proposed NFS Trail (Motorized)	Schell	0.84	Dispersed Camping Access
E418	Proposed NFS Trail (Motorized)	Schell	1.68	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
E904	Proposed NFS Trail (Motorized)	Schell	0.85	ATV Trail; Part of Loop
U59076	Proposed NFS Trail (Motorized)	Schell	1.27	Access to Mud Springs
U59078	Proposed NFS Trail (Motorized)	Schell	0.64	Hunting Access
U59098	Proposed NFS Trail (Motorized)	Schell	3.20	Hunting Access Popular Jeep Trail
U59203	Proposed NFS Trail (Motorized)	Schell	0.48	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59253	Proposed NFS Trail (Motorized)	Schell	0.19	Range Administration Dispersed Camping
U59254	Proposed NFS Trail (Motorized)	Schell	0.38	Range Administration Dispersed Camping
U59279B	Proposed NFS Trail (Motorized)	Schell	1.62	Dispersed Camping Access
U59289	Proposed NFS Trail (Motorized)	Schell	0.77	Dispersed Camping Access
U59295	Proposed NFS Trail (Motorized)	Schell	1.92	Access to Private
U59298	Proposed NFS Trail (Motorized)	Schell	1.11	Dispersed Camping Access
U59318	Proposed NFS Trail (Motorized)	Schell	0.55	Dispersed Camping Access
U59323	Proposed NFS Trail (Motorized)	Schell	0.16	Dispersed Camping Access
U59369	Proposed NFS Trail (Motorized)	Schell	2.56	Recreation Access Hunting Access
U59374	Proposed NFS Trail (Motorized)	Schell	2.42	Access to Dams and Administration
U59427L	Proposed NFS Trail (Motorized)	Schell	0.08	Dispersed Camping Access
U59428A	Proposed NFS Trail (Motorized)	Schell	0.18	Dispersed Camping Access
U59428B	Proposed NFS Trail (Motorized)	Schell	0.13	Dispersed Camping Access
U59428C	Proposed NFS Trail (Motorized)	Schell	0.15	Dispersed Camping Access
U59428D	Proposed NFS Trail (Motorized)	Schell	0.11	Dispersed Camping Access

Table A-1: Routes Proposed for Addition to the Forest Transportation System on the Ely Ranger District				
Route Number	Status	Mountain Range	Route Length	Need
U59428E	Proposed NFS Trail (Motorized)	Schell	0.10	Dispersed Camping Access
U59436B	Proposed NFS Trail (Motorized)	Schell	0.21	Dispersed Camping Access
U59488B	Proposed NFS Trail (Motorized)	Schell	2.51	Recreation Loop Opportunity
U59658	Proposed NFS Trail (Motorized)	Schell	0.33	Dispersed Camping Access
U59661	Proposed NFS Trail (Motorized)	Schell	1.11	Dispersed Camping Access
U59663	Proposed NFS Trail (Motorized)	Schell	1.77	Access for Administration
U59674	Proposed NFS Trail (Motorized)	Schell	0.72	Dispersed Camping Access
U59675	Proposed NFS Trail (Motorized)	Schell	1.08	Dispersed Camping Access
U59677A	Proposed NFS Trail (Motorized)	Schell	0.80	Access to Ranger Trail
U59696	Proposed NFS Trail (Motorized)	Schell	1.63	Hunting Access per Public Comment
U59697A	Proposed NFS Trail (Motorized)	Schell	0.13	Access to Fawn Trail
U59697C	Proposed NFS Trail (Motorized)	Schell	0.07	Dispersed Camping Access
59009	NFS Road Proposed NFS Trail (motorized)	Schell	5.24	Dispersed Camping Access
59571	Proposed NFS Trail (Motorized <50")	Schell	1.13	Dispersed Camping Access
U59259	Proposed NFS Trail (Motorized Single-track)	Schell	1.93	Dispersed Camping Access
U59075	Proposed NFS Trail (Motorized <50")	Schell	2.64	Potentially Part of Silver State Trail
U59669	Proposed NFS Trail (Non-motorized)	Schell	0.34	Dispersed Recreation Access
19069	Proposed change to NFS Trail (Motorized)	Schell	19.01	Single-track Access
19718	Proposed change to NFS Trail (Motorized)	Schell	1.56	Single-track Access
E1189	Proposed NFS Road	Ward	2.99	Forest Access
E9786	Proposed NFS Road	Ward	1.13	Forest Access
E12489	Proposed NFS Trail (Motorized)	Ward	0.38	Dispersed Camping Access
E13505	Proposed NFS Trail (Motorized)	Ward	0.61	Dispersed Camping Access
E1389	Proposed NFS Trail (Motorized)	Ward	2.10	Recreation Access
E1397	Proposed NFS Trail (Motorized)	Ward	1.61	Dispersed Camping Access
E1405	Proposed NFS Trail (Motorized)	Ward	0.62	Access to Private Loop Technical Review Team (TRT) included Route
E1406	Proposed NFS Trail (Motorized)	Ward	1.10	Hunting Access
E1410	Proposed NFS Trail (Motorized)	Ward	1.04	Recreation Access
E1411	Proposed NFS Trail (Motorized)	Ward	0.43	Hunting and Recreation Access
E1412	Proposed NFS Trail (Motorized)	Ward	2.08	County Requested Open for access
E1419	Proposed NFS Trail (Motorized)	Ward	1.29	Forest Management Hunting Access
E1432	Proposed NFS Trail (Motorized)	Ward	2.84	Recreation Loop

Table A-1: Routes Proposed for Addition to the Forest Transportation System on the Ely Ranger District				
Route Number	Status	Mountain Range	Route Length	Need
E1433	Proposed NFS Trail (Motorized)	Ward	2.22	Recreation Loop
E1464	Proposed NFS Trail (Motorized)	Ward	1.29	Access from Other Ownership
E1467	Proposed NFS Trail (Motorized)	Ward	1.75	TRT recommended to keep Access to Wildlife Guzzler
E1586	Proposed NFS Trail (Motorized)	Ward	2.28	Access from Other Ownership
E1594	Proposed NFS Trail (Motorized)	Ward	1.43	Access from Other Ownership
E1601	Proposed NFS Trail (Motorized)	Ward	0.39	Dispersed Camping Access
E1602	Proposed NFS Trail (Motorized)	Ward	0.42	Dispersed Camping Access
E1604	Proposed NFS Trail (Motorized)	Ward	0.12	Dispersed Camping Access
E5962	Proposed NFS Trail (Motorized)	Ward	0.09	Dispersed Camping Access
E6027	Proposed NFS Trail (Motorized)	Ward	1.30	Dispersed Camping Access
E6039	Proposed NFS Trail (Motorized)	Ward	0.98	Dispersed Camping Access
E9762	Proposed NFS Trail (Motorized)	Ward	0.36	Dispersed Camping Access
E1493	Proposed NFS Trail (Motorized Single-track)	Ward	0.18	ATV Trail Coordination w/ Silver State Trail
E12519	Proposed NFS Trail (Motorized <50")	Ward	1.66	Dispersed Camping Access
E1489	Proposed NFS Trail (Motorized <50")	Ward	3.65	ATV Trail <50" TRT Recommendation
E1497	Proposed NFS Trail (Motorized <50")	Ward	1.74	ATV Trail Silver State
E1537	Proposed NFS Trail (Motorized <50")	Ward	3.16	ATV Trail Loop Opportunity Silver State Trail
E12435	Proposed NFS Road	White Pine	3.22	Connects System
E12708	Proposed NFS Road	White Pine	0.18	Access to Private Land
U59016	Proposed NFS Road	White Pine	0.98	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59017	Proposed NFS Road	White Pine	0.82	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59048D	Proposed NFS Road	White Pine	0.14	Access from Other Ownership
U59056	Proposed NFS Road	White Pine	0.46	Access to Spring
U59081	Proposed NFS Road	White Pine	5.30	Connects System
U59197	Proposed NFS Road	White Pine	3.47	Access from Other Ownership
U59199	Proposed NFS Road	White Pine	2.24	Access from Other Ownership
U59405D	Proposed NFS Road	White Pine	0.06	Dispersed Recreation Access
U59408A	Proposed NFS Road	White Pine	0.68	Access from Other Ownership
U59641A	Proposed NFS Road	White Pine	1.97	Connects System
U59723B	Proposed NFS Road	White Pine	0.10	Dispersed Recreation Access
U59723C	Proposed NFS Road	White Pine	0.13	Dispersed Recreation Access
U59731	Proposed NFS Road	White Pine	1.62	Dispersed Recreation Access
U59764	Proposed NFS Road	White Pine	1.81	Forest Access
E10888	Proposed NFS Trail (Motorized)	White Pine	0.12	Dispersed Recreation Access
E12424	Proposed NFS Trail (Motorized)	White Pine	0.87	Access to Private Land

Table A-1: Routes Proposed for Addition to the Forest Transportation System on the Ely Ranger District				
Route Number	Status	Mountain Range	Route Length	Need
E12725	Proposed NFS Trail (Motorized)	White Pine	0.52	Access to Private Land
E12811	Proposed NFS Trail (Motorized)	White Pine	0.41	Access to Private Land
E12815	Proposed NFS Trail (Motorized)	White Pine	0.73	Access to Private Land
E2986	Proposed NFS Trail (Motorized)	White Pine	0.11	Access to Private Land
E3303	Proposed NFS Trail (Motorized)	White Pine	0.89	Recreation Access
E4203	Proposed NFS Trail (Motorized)	White Pine	1.31	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
E5210	Proposed NFS Trail (Motorized)	White Pine	0.12	Dispersed Recreation Access
E5210X	Proposed NFS Trail (Motorized)	White Pine	0.09	Dispersed Recreation Access
U59005	Proposed NFS Trail (Motorized)	White Pine	1.32	Forest Access
U59007	Proposed NFS Trail (Motorized)	White Pine	0.63	Forest Access
U59015	Proposed NFS Trail (Motorized)	White Pine	0.07	Dispersed Recreation Access
U59020	Proposed NFS Trail (Motorized)	White Pine	0.75	Recreation Access
U59024	Proposed NFS Trail (Motorized)	White Pine	1.03	Recreation Access
U59026	Proposed NFS Trail (Motorized)	White Pine	0.05	Recreation Access
U59031	Proposed NFS Trail (Motorized)	White Pine	0.95	Recreation Access
U59045	Proposed NFS Trail (Motorized)	White Pine	1.94	Access from Other Ownership
U59048	Proposed NFS Trail (Motorized)	White Pine	1.64	Access from Other Ownership
U59048A	Proposed NFS Trail (Motorized)	White Pine	1.15	Connect System
U59058	Proposed NFS Trail (Motorized)	White Pine	0.51	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59064	Proposed NFS Trail (Motorized)	White Pine	2.44	Connect System
U59196	Proposed NFS Trail (Motorized)	White Pine	0.58	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59402D	Proposed NFS Trail (Motorized)	White Pine	1.70	Recreation Access
U59403B	Proposed NFS Trail (Motorized)	White Pine	2.06	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59404A	Proposed NFS Trail (Motorized)	White Pine	4.73	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59405E	Proposed NFS Trail (Motorized)	White Pine	1.13	Recreation Access
U59405G	Proposed NFS Trail (Motorized)	White Pine	0.04	Dispersed Recreation Access
U59405J	Proposed NFS Trail (Motorized)	White Pine	0.07	Dispersed Recreation Access
U59407A	Proposed NFS Trail (Motorized)	White Pine	1.53	Dispersed Recreation Access
U59407D	Proposed NFS Trail (Motorized)	White Pine	0.73	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59610B	Proposed NFS Trail (Motorized)	White Pine	0.05	Dispersed Recreation Access
U59610D	Proposed NFS Trail (Motorized)	White Pine	0.03	Dispersed Recreation Access
U59614	Proposed NFS Trail (Motorized)	White Pine	3.53	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59623C	Proposed NFS Trail (Motorized)	White Pine	1.55	Connect System
U59627	Proposed NFS Trail (Motorized)	White Pine	4.77	Access from Other Ownership
U59639B	Proposed NFS Trail (Motorized)	White Pine	0.67	Dispersed Recreation Access

Table A-1: Routes Proposed for Addition to the Forest Transportation System on the Ely Ranger District				
Route Number	Status	Mountain Range	Route Length	Need
U59645A	Proposed NFS Trail (Motorized)	White Pine	1.17	Access from Other Ownership
U59717	Proposed NFS Trail (Motorized)	White Pine	3.23	Connect System
U59718	Proposed NFS Trail (Motorized)	White Pine	1.24	Connect System
U59718A	Proposed NFS Trail (Motorized)	White Pine	0.50	Connect System
U59722	Proposed NFS Trail (Motorized)	White Pine	2.42	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59722A	Proposed NFS Trail (Motorized)	White Pine	0.10	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59722B	Proposed NFS Trail (Motorized)	White Pine	0.04	Cherry-stemmed Motor Vehicle Trail into Wilderness for Access
U59726	Proposed NFS Trail (Motorized)	White Pine	2.52	Access from Other Ownership
U59733	Proposed NFS Trail (Motorized)	White Pine	0.98	Hunting Access Dispersed Camping
U59735	Proposed NFS Trail (Motorized)	White Pine	0.69	Mine Access Recreational Rock Collecting
U59744	Proposed NFS Trail (Motorized)	White Pine	0.74	Access from Other Ownership
U59749A	Proposed NFS Trail (Motorized)	White Pine	0.66	Access from Other Ownership
U59750	Proposed NFS Trail (Motorized)	White Pine	0.25	Dispersed Recreation Access
U59752A	Proposed NFS Trail (Motorized)	White Pine	0.37	Access to Private Lands
U59753	Proposed NFS Trail (Motorized)	White Pine	0.49	Access to Private Lands
U59756	Proposed NFS Trail (Motorized)	White Pine	1.21	Connect System
U59757	Proposed NFS Trail (Motorized)	White Pine	0.92	Connect System
U59757A	Proposed NFS Trail (Motorized)	White Pine	0.68	Recreation Access
U59765	Proposed NFS Trail (Motorized)	White Pine	0.07	Dispersed Recreation Access
E2547	Proposed NFS Trail (Motorized <50")	White Pine	1.23	Recreation Access
E3700	Proposed NFS Trail (Motorized <50")	White Pine	0.56	Access to Private Lands
U59720	Proposed NFS Trail (Motorized <50")	White Pine	0.42	Access to Private Lands
U59720X	Proposed NFS Trail (Motorized <50")	White Pine	0.44	Connect System

APPENDIX B: Proposed Routes Located within Wildlife Habitat

Table B-1: Proposed Routes that are Located in or Cross Potential Pygmy Rabbit Habitat			
Route Number	Status	Mountain Range	Miles in Potential Pygmy rabbit Habitat
U59413A	Road	Grant Quinn	1.1
U59649	Road	Grant Quinn	0.6
U59116	Road	Grant Quinn	0.1
U59129	Trail	Grant Quinn	1.5
U59107	Trail	Grant Quinn	1.5
U59101	Trail	Grant Quinn	1.2
U59136	Trail	Grant Quinn	0.3
E3845	Trail	Grant Quinn	0.3
U59118	Trail	Grant Quinn	0.2
E13238	Trail	Grant Quinn	0.1
U59411B	Trail	Grant Quinn	0.1
U59117	Trail	Grant Quinn	0.1
U59411A	Trail	Grant Quinn	0.1
U59156	Road	Moriah	0.9
U59162	Road	Moriah	0.3
U59164	Road	Moriah	0.3
U59152	Trail	Moriah	0.9
E2040	Trail	Moriah	0.6
U59390	Road	Schell	1.0
U59391	Road	Schell	0.6
U59437	Road	Schell	0.3
U59374	Trail	Schell	1.8
U59098	Trail	Schell	1.2
U59369	Trail	Schell	1.1
U59279B	Trail	Schell	0.8
U59078	Trail	Schell	0.6
U59295	Trail	Schell	0.6
U59076	Trail	Schell	0.6
E12659	Trail	Schell	0.5
U59663	Trail	Schell	0.5
U59696	Trail	Schell	0.4
U59661	Trail	Schell	0.4
U59298	Trail	Schell	0.2
U59697A	Trail	Schell	0.1
E418	Trail	Schell	0.1
U59658	Trail	Schell	0.1
U59203	Trail	Schell	0.1
U59323	Trail	Schell	0.0
U59675	Trail	Schell	0.0

Table B-1: Proposed Routes that are Located in or Cross Potential Pygmy Rabbit Habitat			
Route Number	Status	Mountain Range	Miles in Potential Pygmy rabbit Habitat
59009	Trail	Schell	1.6
59571	Trail	Schell	1.1
19069	Trail	Schell	0.3
19718	Trail	Schell	0.2
U59259	Trail	Schell	0.0
U59075	Trail	Schell	1.3
U59488B	Trail	Schell	1.1
E8232	Trail	Schell	0.5
E1189	Road	Ward	0.8
E9786	Road	Ward	0.1
E1432	Trail	Ward	2.3
E1419	Trail	Ward	1.2
E1397	Trail	Ward	1.0
E1467	Trail	Ward	0.9
E1433	Trail	Ward	0.8
E1389	Trail	Ward	0.8
E1412	Trail	Ward	0.6
E6039	Trail	Ward	0.6
E1410	Trail	Ward	0.6
E1464	Trail	Ward	0.4
E12489	Trail	Ward	0.4
E1406	Trail	Ward	0.3
E1586	Trail	Ward	0.3
E6027	Trail	Ward	0.3
E1489	Trail	Ward	0.2
E9762	Trail	Ward	0.1
E5962	Trail	Ward	0.1
E1405	Trail	Ward	0.1
59442	Trail	Ward	0.6
E1493	Trail	Ward	0.1
E1497	Trail	Ward	1.6
E1489	Trail	Ward	0.3
E1537	Trail	Ward	0.1
E12519	Trail	Ward	0.1
U59197	Road	White Pine	2.7
U59199	Road	White Pine	2.2
E12435	Road	White Pine	1.5
U59731	Road	White Pine	0.5
U59056	Road	White Pine	0.5
U59016	Road	White Pine	0.4
U59408A	Road	White Pine	0.4
U59723C	Road	White Pine	0.1
U59017	Road	White Pine	0.1
U59723B	Road	White Pine	0.1
U59048D	Road	White Pine	0.0

Table B-1: Proposed Routes that are Located in or Cross Potential Pygmy Rabbit Habitat			
Route Number	Status	Mountain Range	Miles in Potential Pygmy rabbit Habitat
U59404A	Trail	White Pine	4.7
U59064	Trail	White Pine	2.4
U59403B	Trail	White Pine	2.0
U59717	Trail	White Pine	1.7
U59402D	Trail	White Pine	1.7
U59024	Trail	White Pine	1.3
E4203	Trail	White Pine	1.3
U59645A	Trail	White Pine	1.0
U59031	Trail	White Pine	0.9
U59196	Trail	White Pine	0.9
U59407A	Trail	White Pine	0.8
U59405E	Trail	White Pine	0.8
U59733	Trail	White Pine	0.7
U59744	Trail	White Pine	0.7
U59639B	Trail	White Pine	0.7
U59749A	Trail	White Pine	0.7
U59007	Trail	White Pine	0.6
U59048A	Trail	White Pine	0.6
U59726	Trail	White Pine	0.6
E12725	Trail	White Pine	0.5
U59045	Trail	White Pine	0.5
U59058	Trail	White Pine	0.5
U59722	Trail	White Pine	0.4
U59735	Trail	White Pine	0.4
U59614	Trail	White Pine	0.4
U59627	Trail	White Pine	0.4
U59005	Trail	White Pine	0.4
U59407D	Trail	White Pine	0.3
E3303	Trail	White Pine	0.3
U59623C	Trail	White Pine	0.2
U59718A	Trail	White Pine	0.2
E10888	Trail	White Pine	0.1
E5210	Trail	White Pine	0.1
E5210X	Trail	White Pine	0.1
U59405J	Trail	White Pine	0.1
U59015	Trail	White Pine	0.1
U59026	Trail	White Pine	0.0
U59405G	Trail	White Pine	0.0
U59610B	Trail	White Pine	0.0
U59610D	Trail	White Pine	0.0
U59718	Trail	White Pine	0.0

Table B-2: Proposed Routes Located in or Crossing Deer Winter Range				
Route Number	Status	Mountain Range	Route Length	Miles of Route in Winter Range
U59116	Road	Grant Quinn	0.5	0.5
U59413A	Road	Grant Quinn	1.1	1.1
U59649	Road	Grant Quinn	4.3	4.3
U59117	Trail	Grant Quinn	0.1	0.1
E13238	Trail	Grant Quinn	0.1	0.1
U59129A	Trail	Grant Quinn	0.2	0.2
E3841	Trail	Grant Quinn	0.2	0.2
U59411A	Trail	Grant Quinn	0.3	0.3
U59411B	Trail	Grant Quinn	0.3	0.3
E3839	Trail	Grant Quinn	0.3	0.3
E3834	Trail	Grant Quinn	0.4	0.4
E3845	Trail	Grant Quinn	0.4	0.4
U59136	Trail	Grant Quinn	0.9	0.9
U59118	Trail	Grant Quinn	0.9	0.9
U59101	Trail	Grant Quinn	1.3	1.3
U59129	Trail	Grant Quinn	1.9	1.9
U59107	Trail	Grant Quinn	1.9	1.9
U59122	Trail	Grant Quinn	1.9	1.9
U59105	Trail	Grant Quinn	2.3	2.3
59420	Trail	Grant Quinn	3.0	3.0
U59581C	Road	Moriah	0.3	0.3
U59148A	Road	Moriah	0.7	0.6
U59164	Road	Moriah	1.0	1.0
E12407	Road	Moriah	1.0	1.0
E2135	Road	Moriah	1.0	1.0
U59146	Road	Moriah	1.0	1.0
U59156	Road	Moriah	1.1	1.1
U59162	Road	Moriah	1.2	1.2
E12410	Road	Moriah	5.3	5.1
U59149	Trail	Moriah	0.9	0.0
E6189	Trail	Moriah	0.2	0.2
E6193	Trail	Moriah	0.2	0.2
E2040	Trail	Moriah	0.6	0.6
E2096	Trail	Moriah	0.7	0.7
U59437	Road	Schell	0.5	0.5
U59391	Road	Schell	2.7	0.8
U59390	Road	Schell	3.8	1.8
U59398	Road	Schell	3.0	2.0
U59323	Trail	Schell	0.2	0.2
U59253	Trail	Schell	0.2	0.2
U59677A	Trail	Schell	0.8	0.2
U59658	Trail	Schell	0.3	0.3
U59098	Trail	Schell	3.2	0.3

Table B-2: Proposed Routes Located in or Crossing Deer Winter Range				
Route Number	Status	Mountain Range	Route Length	Miles of Route in Winter Range
U59254	Trail	Schell	0.4	0.4
U59203	Trail	Schell	0.5	0.5
U59675	Trail	Schell	1.1	0.6
U59674	Trail	Schell	0.7	0.7
E1027	Trail	Schell	0.9	0.9
E418	Trail	Schell	1.7	1.0
U59661	Trail	Schell	1.1	1.1
U59076	Trail	Schell	1.3	1.2
U59279B	Trail	Schell	1.6	1.2
U59663	Trail	Schell	1.8	1.8
U59374	Trail	Schell	2.4	2.4
19069	Trail	Schell	16.4	0.1
U59259	Trail	Schell	1.9	1.9
E5962	Trail	Ward	0.1	0.1
E12489	Trail	Ward	0.4	0.4
E1419	Trail	Ward	1.3	1.3
E1433	Trail	Ward	2.2	2.2
E1432	Trail	Ward	2.8	2.8
E12435	Road	White Pine	3.2	0.1
U59723B	Road	White Pine	0.1	0.1
U59723C	Road	White Pine	0.1	0.1
U59048D	Road	White Pine	0.1	0.1
U59641A	Road	White Pine	2.0	0.6
U59408A	Road	White Pine	0.7	0.7
U59017	Road	White Pine	0.8	0.8
U59016	Road	White Pine	0.9	0.9
U59731	Road	White Pine	1.6	1.6
U59610D	Trail	White Pine	0.0	0.0
U59610B	Trail	White Pine	0.1	0.1
U59718	Trail	White Pine	1.2	0.3
U59007	Trail	White Pine	0.6	0.6
U59749A	Trail	White Pine	0.7	0.7
U59735	Trail	White Pine	0.7	0.7
U59744	Trail	White Pine	0.7	0.7
U59722	Trail	White Pine	2.4	0.8
U59733	Trail	White Pine	1.0	1.0
U59048A	Trail	White Pine	1.2	1.2
U59645A	Trail	White Pine	1.2	1.2
U59005	Trail	White Pine	1.3	1.3
U59407A	Trail	White Pine	1.5	1.5
U59048	Trail	White Pine	1.6	1.6
U59196	Trail	White Pine	2.2	1.9
U59045	Trail	White Pine	1.9	1.9
U59403B	Trail	White Pine	2.1	2.1

Table B-2: Proposed Routes Located in or Crossing Deer Winter Range				
Route Number	Status	Mountain Range	Route Length	Miles of Route in Winter Range
U59726	Trail	White Pine	2.5	2.5
U59717	Trail	White Pine	3.2	3.2
U59614	Trail	White Pine	3.5	3.5
U59627	Trail	White Pine	4.8	4.8
E2547	Trail	White Pine	1.2	1.2

APPENDIX C: Cumulative Watershed Effects

Table C-1: Cumulative Watershed Effects					
Watershed Code (HUC 6)	HUC Name	% Cumulative Disturbance/HUC 2 (Other Sources)	Alternative 1 % Cumulative Disturbance/HUC (Other Sources + Roads)	Alternative 2 % Cumulative Disturbance/HUC (Other Sources + Roads)	Alternative 3 % Cumulative Disturbance/HUC (Other Sources + Roads)
Grant/Quinn					
150100110701	Upper Sherwood Wash	2.2	2.3	2.2	2.2
160600140104	Cherry Creek	1.0	1.2	1.1	1.1
160600140105	Pine Creek	1.0	1.1	1.1	1.0
160600140106	Upper Cottonwood Creek	0.3	0.4	0.4	0.4
Mount Moriah					
160203011004	Silver Creek-Baker Creek	1.0	1.1	1.1	1.0
160203011212	Smith Creek	1.1	1.2	1.2	1.1
160600081413	Negro Creek	1.0	1.1	1.0	1.0
160600081414	Sixmile Creek	1.0	1.0	1.0	1.0
Schell Creek Range					
160600080301	Steptoe Creek/Cave Creek	1.2	1.3	1.3	1.3
160600080404	Duck Creek/Big Indian Creek	1.1	1.1	1.1	1.1
160600081305	Cooper Canyon	1.0	1.7	1.2	1.1
160600080201	Duck Creek/Gilford Creek	1.0	1.1	1.1	1.1
160600080202	Berry Creek	1.0	1.1	1.1	1.1
160600080203	North Creek	1.0	1.3	1.3	1.3
160600080204	Duck Creek/Timber Creek	1.0	1.1	1.1	1.1

Table C-1: Cumulative Watershed Effects					
Ward Mountain					
150100110101	Holt Creek	0.2	0.4	0.3	0.2
160600080302	Steptoe Creek-Sawmill Canyon	1.0	1.1	1.1	1.0
160600080303	Steptoe Creek-Mosier Canyon	1.0	1.2	1.1	1.0
160600080304	Elderberry Canyon	0.0	0.2	0.0	0.0
White Pine					
150100110201	Upper Ellison Creek	1.1	1.3	1.2	1.2
150100110204	Headwaters White River	1.0	1.2	1.3	1.1
150100110205	White River/The Cove	1.0	1.1	1.1	1.0
160600060401	Seligman Canyon	1.0	1.1	1.0	1.0
160600070201	Circle Wash	1.0	1.1	1.1	1.0
160600120901	Cathedral Canyon	6.2	6.4	6.3	6.2
160600120903	Sixmile Wash	1.7	1.9	1.8	1.8
160600121203	Currant Creek	1.0	1.1	1.1	1.0