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Forest Service

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Region

Dixie National
Forest

May 2008

Dixie National Forest Motorized Travel Plan

Draft Environmental Impact Statement

Garfield, Iron, Kane, Piute, Washington, and Wayne Counties, Utah

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Dixie National Forest
Motorized Travel Plan
Draft Environmental Impact Statement

Garfield, Iron, Kane, Piute, Washington, and Wayne Counties, Utah

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Abstract: This Draft Environmental Impact Statement (DEIS) discloses the effects of modifying the current motorized travel plan for the Dixie National Forest to ensure compliance with new travel management regulations. Effects of the current travel plan are shown in analysis of Alternative A, the No Action Alternative. Under this alternative, use of the current travel system is maintained, including the allowance of cross-country travel on 61 percent of the Forest. Each of the four action alternatives describes a different combination of route designations for the approximately 6,000 miles of authorized and unauthorized routes on the Forest. All of the action alternatives would close the Forest to cross-country travel. Alternative D is the preferred alternative.

Reviewers should provide the Forest Service with their comments during the review period of the DEIS. This will enable the Forest Service to analyze and respond to the comments at one time and to use information acquired in the preparation of the Final Environmental Impact Statement, thus avoiding undue delay in the decision-making process. Reviewers have an obligation to structure their participation in the National Environmental Policy Act process so that it is meaningful and alerts the agency to the reviewers' position and contentions. Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553 (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the Final Environmental Impact Statement. City of Angoon v. Hodel (9th Circuit, l986) and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). Comments on the Draft Environmental Impact Statement should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 CFR 1503.3).

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FAX: 435-865-3791 (please reference the Motorized Travel Plan in the subject line)
Email: comments_dixie_motorized_travel_plan@fs.fed.us

Date Comments Must Be Received: 45 days after publication of the Notice of Availability for this document in the Federal Register.

Project Website: http://www.fs.fed.us/r4/dixie/projects/MTP

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Chapter 1: Purpose of and Need for Action

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1.1. Location of Project Area

The Dixie National Forest is the largest of the six national forests in Utah, covering close to two million acres and stretching for over 200 miles. The Forest is located in Garfield, Iron, Kane, Piute, Wayne, and Washington counties in southcentral and southwestern Utah. There are currently four ranger districts on the Forest: Cedar City, headquartered in Cedar City; Escalante, headquartered in Escalante; Pine Valley, headquartered in St. George; and Powell, headquartered in Panguitch. The Supervisor's Office is collocated with the Cedar City Ranger District in Cedar City.

In March 2006 the Teasdale Ranger District on the Dixie National Forest and the Loa Ranger District on the Fishlake National Forest were consolidated into the Fremont River Ranger District. This new ranger district is administered by the Fishlake National Forest, though the area that was the Teasdale Ranger District remains part of the Dixie National Forest. As this Motorized Travel Plan was begun prior to the reorganization, the Teasdale portion of the Fremont River Ranger District is included in this analysis. The Fremont River Ranger District is headquartered in Loa, and the Fishlake National Forest Supervisor's Office is in Richfield.

The project area for the Motorized Travel Plan comprises approximately 1,883,730 acres. The area is portrayed on the following two maps: State of Utah Vicinity Map on page 1-3, and Southern Utah Vicinity Map on page 1-4.

Map name: State of Utah Vicinity Map
File name: ch1_map01_vicinity_utah.pdf
File size: 812 KB

Map name: Southern Utah Vicinity Map
File name: ch1_map02_vicinity_so_utah.pdf
File size: 558 KB

1.2. Background

Increased recreational use and demand, including increased off-highway vehicle (OHV) use, on the Dixie National Forest has been linked to the immense population growth of southwestern Utah, Salt Lake City, and Las Vegas, Nevada, over the past decade. Concurrent growth of subdivisions located within and adjacent to the Dixie National Forest has also occurred, accounting for hundreds of building permits issued annually for private residential and vacation homes. Increased OHV use and related impacts have been observed surrounding these growing forest communities.

Dale Bosworth, former Chief of the Forest Service, identified unmanaged recreation – particularly impacts from OHVs – as one of the key threats facing national forests today. Locally, as well as regionally and nationally, unmanaged OHV use on federal lands has resulted in unplanned roads and trails, erosion, watershed and habitat damage, impacts to cultural sites, and increasing degradation of recreational experiences, especially a loss in opportunities for solitude, primitive hunting, and other quiet experiences.

The current Dixie National Forest Travel Map relies on the "open unless posted closed" enforcement method, which is complicated to interpret and difficult to administer. In addition, the lack of consistent management policies between the Dixie National Forest and other nearby national forests and other land management agencies is confusing for the public and inhibits cooperative law enforcement and successful prosecution of offenders.

All of the factors described above have contributed to the current situation where some motorized travel is occurring on routes where motorized use is prohibited. In some areas of the Forest open to cross-country travel there are networks of user-created routes that are causing use conflicts and resource impacts. Problems do not occur equally throughout the analysis area. Some of this use has occurred in riparian areas and on highly erosive slopes. In other areas, use is very light and little or no effects from wheeled motorized cross-country travel are evident. Types of impacts include the introduction and spread of invasive plants, displacement and compaction of soils, impacts to rare plants, rutting of wetlands, disturbance of wildlife and livestock, damage to cultural resources, degradation of water quality, and impacts to riparian and fisheries habitat.

The Fishlake National Forest began the process of updating their motorized travel plan in 2004. In December 2006, the Fishlake Forest Supervisor signed a Record of Decision, and implementation of the Fishlake motorized travel plan began late summer 2007. The decision covers motorized travel on the Loa portion of the Fremont River Ranger District. The Dixie National Forest has worked closely with the Fremont River Ranger District to ensure that decisions made on the Teasdale portion are consistent with those made earlier on the Loa portion.

1.3. Route Analysis

In January 2001 the Forest Service issued interim administrative directives requiring that all road management activities, including construction, reconstruction, or obliteration, must be

preceded by a roads analysis that identifies the need for a road and emphasizes a minimum road system (USDA 2001).[1] In 2003 the Dixie and Fishlake National Forests completed a combined Roads Analysis Process report (RAP) (USDA 2003b). This analysis evaluated the need for and determined the environmental impacts of operational maintenance level 3, 4, and 5 roads. These are higher standard roads that are maintained for low clearance (passenger car) vehicles.

As part of this Motorized Travel Plan, a supplemental RAP was completed for the remaining maintenance level 1 (closed) and 2 (high clearance vehicle) roads, as well as for all motorized trails on the Forest and all non-system (unauthorized) routes (USDA 2006c). Routes covered in previous and pending decisions, however, were not included as those decisions either contained a separate RAP and/or a travel management component. The supplemental RAP considered the need for the remaining system and non-system roads and trails and weighed those needs against possible environmental, social, and safety concerns. It also made recommendations for management of those roads and trails.

A Travel Analysis Process (TAP) as described in the draft directives generally is a more broad analysis than that conducted under a RAP, but extends to trails and designated areas, not just the roads required in a RAP. The RAP prepared for the Dixie (comprising the original 2003 version and the 2006 supplement) provides a more detailed analysis of all roads and motorized trails on the Forest than the analysis required in a TAP. None of the action alternatives propose any designated areas on the Forest.

1.4. Desired Condition

The Dixie National Forest's goal related to OHV management is to manage the use of OHVs in partnership with other federal and state land management agencies, local governments, and communities and interest groups to protect public lands and resources while providing opportunities for the safe use and enjoyment of OHVs on designated roads and trails that comply with the Dixie National Forest's Land and Resource Management Plan (hereafter referred to as the Forest Plan) (USDA 1986, pp IV-3 and IV-11).[2]

The desired condition is to provide a range of motorized recreation opportunities, recognizing their legitimate use while minimizing the current or anticipated effects on wildlife and their habitat, soil, vegetation, water, fish, and other users.

1.5. Purpose of and Need for Action

The purpose of this project is to designate a system of authorized roads, trails, and/or areas for motor vehicle use in order to better protect natural resources, provide legal access, and improve recreation management and enforcement related to motor vehicle use. This purpose and need is in accordance with 36 CFR Parts 212, 251, 261 (which also incorporate Executive Orders

[1] Directives to guide implementation of the 2005 Travel Rule have not yet been finalized.
[2] Information on Forest Plan consistency is located later in this chapter in the *Relationship to Other Plans, Decision Documents, and Regulatory Authority* section on page 1-11 and in the *Forest Plan Consistency* section of Chapter 3.

11644 and 11989), and 295 Travel Management; Designated Routes and Areas for Motor Vehicle Use; Final Rule (hereafter referred to as the Travel Rule).

The purpose of and need for action was developed over the course of three years beginning in 2003 as the Dixie National Forest conducted an assessment in accordance with the National Forest Management Act (NFMA). This NFMA analysis included a detailed agency review of each motorized route for known or potential effects to the environment, legal access issues, or other social uses, and was augmented by pre-planning public input. Broad, landscape-scale and site-specific considerations were made, identifying opportunities to improve watershed and wildlife habitat health, as well as the connectivity of communities, and recreational access. The Forest also considered opportunities to improve non-motorized and motorized trail systems and to facilitate desirable recreation activities. The Forest used the *Motor Vehicle Route and Area Designation Guide* to assist in the designation process (USDA 2005c).

1.6. Proposed Action

The action proposed by the Dixie National Forest to meet the purpose and need is to designate a motorized travel system that addresses the following four components:

1. Cross-country travel.
    a. Prohibition of motorized cross-country travel (travel off designated roads or trails) except as specified for permitted uses (e.g., firewood gathering, allotment maintenance), emergency fire suppression, search and rescue activities, law enforcement activities, military operations, and Forest Service administrative uses and purposes.
2. Designation of authorized National Forest System roads and motorized trails.
    a. Closure of currently authorized routes that will not be designated for motorized use and will therefore be removed from the National Forest System of roads and motorized trails. All routes removed from the system will be decommissioned.
    b. Designation of unauthorized routes that will be added to the National Forest System of roads and motorized trails, thereby becoming authorized routes.
3. Designation of authorized uses of National Forest System roads and motorized trails.
    a. Designation of routes that will be open to all uses.
    b. Designation of routes needed to accommodate administrative activities and permitted uses.
    c. Designation of routes needed for access to private lands, rights-of-way, easements, and other jurisdictions.
    d. Designations of routes with seasonal restrictions or routes that only allow certain types of vehicles.
4. Construction or relocation of designated National Forest System roads and motorized trails.
    a. Construction or relocation of routes to improve the transportation system or to respond to evaluation findings.

As authorized by section 212.50 (b) of the Travel Rule, previous and pending decisions that allow, restrict, or prohibit motor vehicle use on National Forest System roads, trails, or areas have been incorporated into this travel management decision.

1.7. Decision Framework

Given the purpose and need for this action, the Forest Supervisors will review the proposed action, the alternatives, anticipated effects, and public comments to decide on motorized routes that will be added to or deleted from the current authorized system. The Forest Supervisors will also decide on the type and season of motorized use to be allowed on the authorized system.

All routes not designated will be considered unauthorized routes and motorized use of those routes will be illegal. Motorized cross-country travel will be prohibited except as specified for the purposes of dispersed camping, emergency fire suppression, search and rescue, law enforcement, military operations, and Forest Service administrative use, including uses authorized by permit such as firewood gathering.

User-created motorized routes that develop after the decision will be considered unauthorized, and will be closed or removed by the Forest Service upon discovery. No public process or analysis will be necessary to remove such a route.

The assessment will consider the effects of forest travel management on adjacent lands. The decision does not include travel management for State lands, Bureau of Land Management (BLM) lands, or adjacent private lands or private "in-holdings."

This analysis and decision can neither validate nor deny R.S. 2477 assertions made by a county. The status of R.S. 2477 roads will be determined by state and/or federal courts.

1.8. Public Involvement

In October 2004 the Dixie National Forest held a series of workshops in Cedar City, St. George, Ruby's Inn (now Bryce Canyon City), Torrey, and Las Vegas, Nevada. Participants were asked to review the route inventory and evaluation questions and provide feedback on the evaluation process. At the same time, a working group of citizens who provided suggestions for motorized travel in revising the Dixie Land and Resource Management Plan was reconvened to make suggestions for the proposed travel system and evaluation process. Input received from cooperating agencies, the public, and the work group contributed to the proposed action.

The Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) was published in the Federal Register on December 5, 2006. The NOI asked for comments on the proposed action by January 31, 2007. Prior to release of the NOI, the Forest Service briefed local government officials, motorized advocacy groups, environmental groups, and businesses. Public involvement efforts after release of the NOI included public open houses in St. George, Cedar City, Panguitch, Escalante, Torrey, and Salt Lake City, Utah. The project website (http://www.fs.fed.us/r4/dixie/projects/MTP) was also used to disseminate information and gather comments. About 500 scoping responses from individuals, advocacy groups, and state and other federal agencies were received and analyzed. Subsequent to the open houses, comments on the project were reviewed and the proposed action was revised. The Forest also developed two additional alternatives based on public comments.

1.9. Scope of the Project and Analysis

This DEIS is a site-specific document with a focus on route designation for motorized use. The analysis, however, requires a broad geographic scope since the project covers the entire Dixie National Forest. This project will update and replace the current Dixie National Forest Travel Map. It is not intended to address all aspects of unmanaged recreation or motorized use. Dispersed camping, the most desirable route system for long-term multiple use, resource protection, and access needs are addressed to varying degrees depending on site-specific considerations and the context provided by the purpose of and need for action. Travel by over-snow vehicles is outside the scope of the route designation project.

The analysis area is limited to National Forest System lands, but the Dixie National Forest has coordinated with and will continue to seek consistency with the Fishlake National Forest, Cedar Breaks National Monument, Bryce Canyon National Park, Grand Staircase-Escalante National Monument, Capitol Reef National Park, state lands, and BLM district and field offices. The Forest does not have jurisdiction on all routes that are located on National Forest System lands. The mapped designations for routes under other jurisdictions are provided so that the public can see how the route system interconnects.

1.10. Issues

An issue is a concern, dispute, or debate about the environmental effect of an action. Issues were identified through the scoping process and internal review. Significant issues are defined as those directly or indirectly caused by implementing the proposed action. Non-significant issues are identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) regulations explain this delineation in Sec. 1501.7(a)(3), “Identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3), ...”

There were many non-significant issues raised during scoping and internal review. All comments received during scoping are part of the project record and are available for review upon request. The Dixie National Forest identified the following four issues as the biophysical and social elements that drove the development, design, and analysis of the alternatives.

1.10.1. Issue 1: Access

The majority of the comments and concerns heard at the open houses and in the comments received during scoping regarded access. Most individuals listed specific routes and their specific recommendations for those routes, whether for recreational uses, permitted uses, hunting access, emergency access, private property access, or general Forest access. Those specific recommendations included converting routes to motorized use, converting routes to non-motorized use, and closing or rerouting routes to prevent resource damage.

Many people stated that they wanted all existing motorized opportunities maintained, others wanted an increase in motorized opportunities for full-sized vehicles and OHVs, and others

wanted OHVs banned from the Forest. Those who wanted all existing motorized opportunities maintained mentioned access to conduct traditional forest activities, opportunities for family activities, recreational access, and potential negative impacts to local communities and businesses if access were decreased. Some who wanted an increase in motorized opportunities cited increased sales of OHVs and growing demand for OHV opportunities. Some who wanted a decrease in motorized opportunities referenced negative impacts to biological and physical resources, and potential negative impacts to local communities and businesses if motorized opportunities remained at their current levels. Many people were in favor of closing the Forest to cross-country travel.

Some individuals were concerned about designating motorized routes in largely non-motorized areas, and others stated the need to retain areas for non-motorized opportunities. Others urged the Forest Service to ensure that designations on Forest Service land matched route or area designations on neighboring federal lands (e.g., do not designate a motorized route that dead-ends at a boundary with National Park Service or BLM lands where motorized use is not allowed).

1.10.2. Issue 2: Management of Administrative Routes

Administrative routes are Maintenance Level 1 roads that are closed to the public but may be used for administrative or permitted purposes. Often these roads are gated to prevent unauthorized use by the general public. Many people questioned whether or not the Dixie National Forest was able or willing to enforce the closure of administrative roads to the public. Others questioned more specifically if the Forest Service could maintain those administrative routes that are gated (which could also include roads gated during seasonal closures or where frequent administrative, permittee, or private property access is needed).

Some individuals requested that all routes recommended as administrative routes be open to public use as well. Some stated that the public should be able to travel everywhere Forest Service employees can. Others questioned why the Forest Service needed so many administrative routes, and suggested the number of administrative routes be reduced. In areas where administrative routes were located in critical wildlife areas, some stated that Forest Service employees should only use non-motorized transportation methods. Some asked if it wouldn't be more effective to close or mothball administrative routes that aren't needed in the immediate future to improve enforcement.

When use of an administrative route is authorized through permit, some questioned how that use would be managed so as to provide the permitted access but prevent abuse, especially during hunting season.

1.10.3. Issue 3: Physical and Biological Resources

Many people expressed concern over the potential negative impacts of motorized travel (both on and off of designated routes) on physical and biological resources. Some stated that nothing in the travel plan should lead to any adverse impacts to threatened, endangered, or sensitive species. Some stated that soil, water, wildlife, and other natural resources should be protected above all other uses. Others commented on the negative impacts of noxious weeds and invasive species on native ecosystems, and how use of OHVs can result in increased infestations.

Some requested that any routes that are determined to be contributing to soil erosion (and subsequent sedimentation of waterbodies) be closed, while others expressed concern that OHV impacts to water quality on the Forest be considered, particularly in areas where local communities depend on watersheds located on the Forest. Riparian areas, including wet meadows and lakeshores, were cited as areas of critical wildlife habitat where motorized routes should not be allowed.

1.10.4. Issue 4: Inventoried Roadless Areas

Some people expressed concern that OHV use in Inventoried Roadless Areas would negatively impact roadless and wilderness area characteristics. Some also believed that motorized trails would impact roadless area characteristics.

1.11. Relationship to Other Plans, Decision Documents, and Regulatory Authority

Direction and authority for the proposal come from the NFMA, NEPA, and CEQ, all of which provide general land management and environmental analysis direction. The NFMA requires that all projects and activities proposed and considered be consistent with the Forest's Forest Plan. If a project or activity cannot be conducted consistent with the Forest Plan, it cannot go forward as planned unless the Forest Plan is amended. The *Forest Plan Consistency* section in Chapter 3 of this EIS documents those components of the various alternatives that would require an amendment to the Forest Plan if selected.

Federal Codes of Regulation 36 CFR 212 and 261 have given the Forest Service the authority to manage OHV use and provide specific regulations for the agencies based on Executive Orders 11644 and 11989. The agency maintains other discretionary authorities such as the ability to issue emergency closure orders that allow enforcement or modification of the motorized travel plan or that regulate use and occupancy of National Forest System lands.

1.12. Decisions to Be Made

Based on the environmental analysis in this DEIS, the Forest Supervisors of the Dixie National Forest and the Fishlake National Forest will decide whether or not to retain, close, construct, relocate, or decommission roads and motorized trails within the Motorized Travel Plan project area in accordance with 36 CFR Parts 212, 251, 261, and 295, the Travel Rule, and with Forest Plan goals, objectives, and desired future conditions. The Forest Supervisors will also decide whether to implement an action alternative, a modified action alternative, or the no action alternative.

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Chapter 2: Alternatives

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This chapter describes and compares the alternatives considered for the Motorized Travel Plan. It includes a description of each of the alternatives. Maps of each alternative are located at the end of the chapter.

The terminology used to describe the alternatives, particularly in the comparison tables, contains important distinctions. The term "routes" applies to both roads and trails. The term "roads" applies to travelways where full-size vehicle use is allowed. If used generally, the term "trails" refers only to motorized trails 50 inches in width or less. Wherever a reference to non-motorized trails or a motorized trail for vehicles over 50 inches in width is intended, that specific language will be used.

2.1. Alternative Development

In order to gain substantial agreement about the proposed action, input was collected beginning in spring 2004 from members of the public; state, local, and other federal governments; and interest groups. A series of public workshops was held in the fall of 2004. Input received during the Forest Plan Revision process was also used, especially information provided by the Topical Working Groups (TWiGs).

A route evaluation process was used by the Forest's interdisciplinary team in development of the proposed action. Each route was evaluated using an extensive series of questions developed and reviewed by Dixie National Forest employees, the MTP Work Group, interested members of the public, and cooperating governments. A series of public workshops was held in fall 2004 in Cedar City, St. George, Ruby's Inn (now Bryce Canyon City), Torrey, and Las Vegas, Nevada. These workshops provided opportunities to participate in the development and review of the evaluation process.

As the proposed action was reviewed with the public during the scoping period, there appeared to be substantial agreement about many of the designations of individual routes, of which there were 8,440 reviewed during the pre-NEPA route evaluation. There were between 100 and 200 routes that were the subject of specific disagreement as far as designation. There also appeared to be agreement about most of the uses and impacts that were identified for each route during route evaluation; however, broader issues related to motorized travel management tended to be a general source of disagreement.

In reviewing the scoping comments, disagreement seemed to center upon differing perspectives about motorized recreation. Some examples are summarized below:

- Some individuals wished to see a reduction in overall miles of open routes in order to facilitate non-motorized recreation experiences or to provide better protection of natural and cultural resources. Other individuals wished to see an increase in overall miles of open routes in order to enjoy more motorized recreation activities and access. Some people perceive the popularity of the Dixie National Forest as a destination area for OHV recreation as an increase in demand, and wanted to see no reduction in the motorized recreation opportunity. Other people believed that now is the time to make choices about where motorized recreation should be allowed to occur.

- Some individuals believed it would be important to designate open motorized routes into blocks of largely non-motorized landscapes in order to allow easier access into an already limited area. Other individuals preferred to see such routes closed in order to maintain primitive, non-motorized recreation qualities and protect natural resources within large blocks of land.
- Some individuals wanted to see motorized travel restricted in certain areas during the big game hunt in order to improve non-motorized hunting success and to provide a degree of sanctuary to game animals. Others did not wish to see a reduction in motorized access during the hunt and believed that restrictions would result in crowding on fewer open routes and reduce overall hunting success.

2.2. Alternatives Considered in Detail

2.2.1. Alternative A

This is the No Action Alternative. This alternative would retain all existing National Forest System roads and motorized trails as open. No non-system or unauthorized motorized routes would be added to the system. Current restrictions on cross-country travel (off-road or trail) would remain in place: cross-country travel would continue to be allowed on 1,150,113 acres (61 percent of the Forest), but would be prohibited on 735,943 acres (39 percent of the Forest).

Although no non-system or unauthorized routes would be added to the system, use of non-system or unauthorized routes located in areas that allow cross-country travel would continue to be allowed. In areas where cross-country travel is not allowed, non-system routes identified as necessary for private property access, permitted uses, or administrative access, or routes necessary for public access (as determined through the route evaluation process) would not be open to motorized travel. System routes that have been identified as unnecessary or undesirable (again, as determined through the route evaluation process) would remain open.

No new motorized trails would be proposed for construction.

Maps of Alternative A by ranger district are located on page 2-31 (Cedar City), page 2-36 (Escalante and Teasdale), page 2-41 (Pine Valley), and page 2-46 (Powell).

2.2.2. Alternative B

This alternative emphasizes the protection of natural and cultural resources. It would also provide the most opportunity for enhanced non-motorized recreation experiences: there would be fewer miles of motorized routes and therefore fewer conflicts with motorized users. Cross-country travel would be prohibited forest-wide. Some unauthorized routes, including those that must remain open for private property access, permitted uses, or administrative access, would be added to the system. Some system routes that are negatively impacting soil, water, and wildlife resources would be closed. Alternative B retains the fewest miles of open motorized routes of all the action alternatives.

This alternative was developed to respond to the Sustained Multiple Use Alternative submitted by a group of 10 organizations (see page 2-28). It also includes suggestions made by other individuals and organizations during scoping.

No new motorized routes would be proposed for construction.

Maps of Alternative B by ranger district are located on page 2-32 (Cedar City), page 2-37 (Escalante and Teasdale), page 2-42 (Pine Valley), and page 2-47 (Powell).

2.2.3. Alternative C

Alternative C was developed to address public and agency input received during scoping related to access and physical and biological resources. This alternative allows for a higher level of motorized access than does Alternative B. Alternative C would close approximately 468 additional miles of road for wildlife and hydrology concerns as compared with Alternative D. Under Alternative C, cross-country travel would be prohibited forest-wide. More unauthorized routes, including routes that must remain open for private property access, permitted uses, or administrative access, would be added to the system than under Alternative B. Some system routes that are negatively impacting soil, water, and wildlife resources would be closed. Motorized access for recreation, administrative uses, and permitted uses is allowed to a higher degree than under Alternative B.

No new motorized routes would be proposed for construction.

Maps of Alternative C by ranger district are located on page 2-33 (Cedar City), page 2-38 (Escalante and Teasdale), page 2-43 (Pine Valley), and page 2-48 (Powell).

2.2.4. Alternative D

This alternative allows for a higher level of motorized access than does Alternative B or C, but less than Alternative E. Alternative D is a modified version of the proposed action released in December 2006. It includes changes made in response to public and government input made during scoping.

Under this alternative, cross-country travel would be prohibited forest-wide. Some unauthorized routes, including those that must remain open for private property access, permitted use, or administrative access, would be added to the system. Some system routes that are negatively impacting soil, water, and wildlife resources would be closed. Motorized access for recreation, administrative access, and permitted use is allowed to a higher degree than under Alternative B or C, but to a lower degree than under Alternative E.

Two new motorized routes would be proposed for construction as shown in the table below. A map of these routes is included in the *Recreation and Scenery* section of Chapter 3.

Table 2-1. Proposed Motorized Trail Construction – Alternatives D and E

Route #	District	Geographic Area	Length in Miles
T34070	Cedar City	Panguitch/Mammoth	0.65
U24028A	Cedar City	Panguitch/Mammoth	0.61
Total miles			1.26

Maps of Alternative D by ranger district are located on page 2-34 (Cedar City), page 2-39 (Escalante and Teasdale), page 2-44 (Pine Valley), and page 2-49 (Powell).

2.2.5. Alternative E

This alternative provides the most motorized access on designated routes. With the exception of routes that are currently closed and/or decommissioned and those routes covered under previous and pending decisions, all non-system or unauthorized routes would be added to the system and designated as open to public motorized travel. All trails that are currently designated as non-motorized, however, would remain non-motorized. Cross-country travel would be prohibited forest-wide.

This alternative designates a system of routes for motorized travel that includes all routes that must remain open for private property access, permitted use, and administrative access. This alternative includes suggestions made by some individuals, organizations, and government officials who commented during scoping.

Two new motorized routes would be proposed for construction as shown in the table above. These are the same routes proposed for construction in Alternative D. A map of these routes is included in the *Recreation and Scenery* section of Chapter 3.

Maps of Alternative E by ranger district are located on page 2-35 (Cedar City), page 2-40 (Escalante and Teasdale), page 2-45 (Pine Valley), and page 2-50 (Powell).

There are approximately 215 routes or segments of unauthorized routes currently located in Inventoried Roadless Areas (IRAs). On September 20, 2006, the Roadless Area Conservation Rule (RACR) was reinstated. Under the rule, no roads in IRAs may be added to the system, though motorized trails may be added.

Under Alternative E, however, all 215 of these routes or segments of routes would be added to the system. As RACR is currently in place, Alternative E would have to be modified regarding the designation of those routes that would be added as roads (though those added as trails would not be affected). If Alternative E were to be selected and RACR were still in effect, those roads in IRAs could not be added to the system except by the Chief of the Forest Service.

2.3. Comparison of Alternatives

The following pages contain tables illustrating the differences between alternatives aggregated forest-wide. Tables containing more detailed information disaggregated by ranger district

(instead of the forest-wide totals shown here) are located in *Appendix A: Data Tables and Designation Key*. As implied by its title, Appendix A also contains a key describing each route designation.

Table 2-2. Route Designation by Alternative – Forest-wide

Designation	Alternative				
	A	B	C	D	E
Administrative	631	959	1,037	962	399
Closed Classified	203	1,043	756	462	179
Closed Unauthorized	210	1,335	1,247	1,074	213
Existing Motorized Trail	97	101	89	103	90
Existing Non-motorized Trail	821	823	817	821	803
Existing Highway	139	139	139	139	139
Not Closed (Unauthorized)	1,022	0	0	0	0
Open - Street Legal	32	53	24	65	21
Open to All	2,911	1,445	1,648	2,284	4,276
Proposed Admin/Permittee ATV Only	0	0	0	<1	0
Proposed Motorized Trail	6	92	203	85	11
Proposed Motorized Trail Construction	0	0	0	>1	>1
Proposed Non-motorized Trail	3	133	148	88	3
Seasonal	87	38	53	74	36
Total	6,162	6,161	6,161	6,158	6167

All mileages rounded to the nearest 1 mile. Differences between totals by alternative due to minor mapping discrepancies in GIS.

Table 2-3. Summary of Routes Open and Closed to the Public – Forest-wide

Designation	Alternative									
	A		B		C		D		E	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Open to Public	4,275	80%	1,867	36%	2,173	42%	2,742	52%	4,563	85%
Closed to Public*	1,063	20%	3,337	64%	3,040	58%	2,496	48%	790	15%
Total	5,338	100%	5,204	100%	5,213	100%	5,238	100%	5,353	100%

All miles rounded to the nearest 1 mile. Differences between totals by alternative due to minor mapping discrepancies in GIS.
* Includes administrative routes and routes to be decommissioned.

Table 2-4. Disposition of Unauthorized Routes by Alternative – Forest-wide

Designation	Alternative									
	A		B		C		D		E	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Closed as "unauthorized"	354	24%	1,334	90%	1,244	84%	1,072	73%	214	14%
Added as "administrative"	18	1%	82	6%	147	10%	228	15%	20	1%
Added as "open to all"	87	6%	18	1%	31	2%	103	7%	1,249	84%
Added as "open to full size vehicles only"	0	0%	4	<1%	1	<1%	6	<1%	0	0%
Added as "seasonal"	0	0%	1	<1%	1	<1%	1	<1%	0	0%
Added as "proposed motorized trail"	0	0%	9	1%	22	1%	36	2%	4	<1%
Added as "proposed non-motorized trail"	1	<1%	30	2%	33	2%	30	2%	0	0%
Not closed (unauthorized)*	1,021	69%	0	0%	0	0%	0	0%	0	0%
Total	1,481	100%	1,476	100%	1,478	100%	1,476	100%	1,487	100%

All miles rounded to the nearest 1 mile. Differences between totals by alternative due to minor mapping discrepancies in GIS.
Previous and pending decisions have already been applied to all alternatives. For example, all unauthorized routes are added to the system under Alternative E as noted on page 2-5. This table only shows 84% of unauthorized routes being added as open to all as the other 16% are covered by previous and pending decisions. Of the 84% of routes not addressed by previous or pending decisions, 100% are added as open to all.
* Only applicable to Alternative A. These are unauthorized routes in the 61 percent of the Forest open to cross-country travel.

Table 2-5. Summary of Alternatives by Issue and Topic

Issue/Topic	Alternative				
	A	B	C	D	E
Issue 1: Access					
Cross-country travel	Currently allowed on 61% of Forest	No cross-country travel allowed on the Forest	Same as Alt. B	Same as Alt. B	Same as Alt. B
Disposition of unauthorized routes (approx. 1,500 miles)[1]	25% of miles closed; 6% open; <1% non-motorized trail Additionally, 69% of miles are not closed, but use will continue to be allowed as these miles of unauthorized routes occur in the 61% of the Forest where cross-country travel is allowed	96% of miles closed; 1% open; 1% motorized trail; 2% non-motorized trail	94% of miles closed; 2% open; 2% motorized trail; 2% non-motorized trail	88% of miles closed; 8% open; 2% motorized trail; 2% non-motorized trail	16% of miles closed; 84% open; <1% motorized trail
Total open versus closed[2]	77% of routes open to public; 23% closed	46% of routes open to public; 54% closed	51% of routes open to public; 49% closed	60% of routes open to public; 40% closed	87% of routes open to public; 13% closed
Percent of Forest within specified distance of a motorized route	0 to 0.5 miles: 70% 0 to 1 mile: 88% 0 to 2 miles: 98% 0 to 3 miles: 100%	0 to 0.5 miles: 59% 0 to 1 mile: 81% 0 to 2 miles: 96% 0 to 3 miles: 99%	0 to 0.5 miles: 62% 0 to 1 mile: 83% 0 to 2 miles: 96% 0 to 3 miles: 99%	0 to 0.5 miles: 66% 0 to 1 mile: 86% 0 to 2 miles: 97% 0 to 3 miles: 100%	0 to 0.5 miles: 71% 0 to 1 mile: 89% 0 to 2 miles: 98% 0 to 3 miles: 100%
Proposed new motorized trail construction	No new motorized trail construction proposed	Same as Alt. A	Same as Alt. A	1.26 miles (2 routes) proposed	Same as Alt. D

[1] "Closed" includes "closed" and "administrative/permittee/private property access." "Open" includes "open to all," "open to street legal," and "seasonal." All alternatives carry forward the closure of 16% of unauthorized routes from previous and pending decisions. Additionally, a greater percentage of miles are shown as closed in Alternative A as these are unauthorized routes in the 39% of the Forest closed to cross-country travel. Under Alternative E, only those 16% of miles carried forward as closed from previous and pending decisions are closed, as all other unauthorized routes would be added to the system.

[2] As noted in the previous footnote, for this summary, "closed" includes "closed" and "administrative/permittee/private property access." "Open" includes "open to all," "open to street legal," and "seasonal."

Issue/Topic	Alternative				
	A	B	C	D	E
Issue 2: Management of Administrative Routes					
Administrative routes	631 miles of administrative routes (10% of entire system)	959 miles of administrative routes (16% of entire system)	1,037 miles of administrative routes (17% of entire system)	962 miles of administrative routes (16% of entire system)	399 miles of administrative routes (6% of entire system)
Issue 3: Physical and Biological Resources					
Soils	108 miles of road intercepting slopes ≥35% 64 miles of road on highly erodible soils	73 miles of road intercepting slopes ≥35% 39 miles of road on highly erodible soils	84 miles of road intercepting slopes ≥35% 47 miles of road on highly erodible soils	95 miles of road intercepting slopes ≥35% 54 miles of road on highly erodible soils	112 miles of road intercepting slopes ≥35% 72 miles of road on highly erodible soils
Watershed	Projected increase in road density in most of the 179 watersheds. Road mileage within Riparian Influence Zone (RIZ) is either greater than or equal to that in Alts B, C, and D	Projected reduction in road density in 149 of the 179 watersheds. Reduction in road mileage within RIZ in 108 of the 179 watersheds	Projected reduction in road density in 149 of the 179 watersheds. Reduction in road mileage within RIZ in 108 of the 179 watersheds	Projected reduction in road density in 143 of the 179 watersheds. Reduction in road mileage within RIZ in 91 of the 179 watersheds	Projected increase in road density in 97 of the 179 watersheds. Increase in road mileage within RIZ in 53 of the 179 watersheds
Threatened plant species (*Townsendia aprica*)	Greatest negative impact from cross-country travel provision.	Motorized cross-country travel prohibited. 62% decrease in miles of motorized routes. 5.58 miles open to administrative use adjacent to *T. aprica*.	Motorized cross-country travel prohibited. 57% decrease in miles of motorized routes. 5.58 miles open to administrative use adjacent to *T. aprica*.	Motorized cross-country travel prohibited. 40% decrease in miles of motorized routes. 1.5 miles open to administrative and public OHV use, and 5.58 miles open to all uses adjacent to *T. aprica*.	Motorized cross-country travel prohibited. 7% decrease in miles of motorized routes. 7.11 miles open to all uses adjacent to *T. aprica*.

Issue/Topic	Alternative				
	A	B	C	D	E
Vegetation, Fire & Fuels	**Access to vegetation mgt. projects:** provides motorized access to all planned for the next 5 years. **Access to suitable timber:** provides motorized access within ½ mile to 87% of suitable timber. **Fire suppression:** roads in critical strategic locations remain open. **Access to fuels mgt projects:** provides access to all planned for the next 5 years.	**Access to vegetation mgt. projects:** provides reasonable motorized access to planned for the next 5 years, though some roads may need to be reopened. **Access to suitable timber:** provides motorized access within ½ mile to 73% of suitable timber. **Fire suppression:** same as Alt. A **Access to fuels mgt projects:** provides access to all planned for the next 5 years.	**Access to vegetation mgt. projects:** same as Alt. B **Access to suitable timber:** provides motorized access within ½ mile to 78% of suitable timber. **Fire suppression:** same as Alt. A **Access to fuels mgt projects:** provides access to all planned for the next 5 years.	**Access to vegetation mgt. projects:** same as Alt. A **Access to suitable timber:** provides motorized access within ½ mile to 85% of suitable timber. **Fire suppression:** same as Alt. A **Access to fuels mgt projects:** provides access to all planned for the next 5 years.	**Access to vegetation mgt. projects:** same as Alt. A **Access to suitable timber:** provides motorized access within ½ mile to 88% of suitable timber. **Fire suppression:** same as Alt. A **Access to fuels mgt projects:** provides access to all planned for the next 5 years.
Aquatic biota	Would permit further development of increasing networks of user-created routes, resulting in persistent and expanding degradation to aquatic habitats.	Would limit current and future expansion and creation of unauthorized routes, thus limiting potential degradation of high value aquatic habitats.	Same as Alt B.	Same as Alt B.	Degradation to aquatic biota habitats and population would be reduced when compared to Alt. A. Provides the least amount of benefit to resource of the action alternatives.

Issue/Topic	Alternative				
	A	B	C	D	E
Wildlife – general	Cross-country travel would continue with a net result of proliferation of routes through potential habitat and a net loss of available and effective wildlife habitat. Currently there are 3,422 miles of open roads and 6 miles of motorized trails on the Forest.	Miles of open motorized roads reduced to 1,501 and open motorized trail miles increase to 51. Elimination of cross-country travel would reduce the potential for disturbance and increase overall habitat availability and effectiveness.	Miles of open motorized roads reduced to 1,650 and open motorized trail miles increase to 203. Elimination of cross-country travel would reduce the potential for disturbance and increase overall habitat availability and effectiveness.	Miles of open motorized roads reduced to 2,290 and open motorized trail miles increase to 90. Elimination of cross-country travel would reduce the potential for disturbance and increase overall habitat availability and effectiveness.	Miles of open motorized roads reduced to 3,074 and open motorized trail miles to 12. Many more unauthorized routes would be classified as Level 2 roads (high clearance vehicles), with net increase of 1% increase of motorized access. Elimination of cross-country travel would reduce the potential for disturbance and increase overall habitat availability and effectiveness.
Wildlife – mule deer	Continued increase in new routes within all seasonal ranges. Open Motorized Road Density (OMRD) would remain higher than desirable for the Zion Wildlife Management Unit (WMU) seasonal fawning habitat, Panguitch Lake WMU winter habitat, and Paunsaugunt WMU summer and winter habitats.	Higher than desirable OMRD for the Zion WMU summer habitat and Paunsaugunt WMU winter habitat.	Same as Alt. B.	Higher than desirable OMRD for the Zion and Paunsaugunt WMUs summer habitat and Panguitch Lake and Paunsaugunt WMUs winter habitats.	Higher than desirable OMRD for the Zion, Panguitch Lake, Mount Dutton, Paunsaugunt, and Boulder Plateau WMUs.

Issue/Topic	Alternative				
	A	B	C	D	E
Wildlife – Rocky Mountain elk	No change in habitat security. OMRDs in Zion and Paunsaugunt WMUs would exceed 2 miles/sq. mile.	Dramatic increase in acres of secure habitat. OMRD in Zion WMU would exceed 2 miles/sq. mile.	Same as Alt. B.	Decreased habitat effectiveness. Higher than desirable OMRDs for Zion WMU seasonal calving habitat, the Paunsaugunt WMU calving and winter habitat, and Boulder Plateau WMU winter habitat.	Increase in habitat effectiveness. OMRDs in Zion, Panguitch Lake, and Paunsaugunt WMUs would exceed 2 miles/sq. mile.
Noxious weeds	Highest risk to increase the spread of noxious weeds forest-wide as cross-country travel permitted on 61% of the Forest.	Overall, Alt. B would have the least risk of spreading noxious weeds, followed next by Alt. C, then Alt D.	Same as Alt. B.	Same as Alt. B.	This alternative has the second highest risk to increase noxious weeds and invasive species because it has the greatest number of miles of routes open to the public.

Issue/Topic	Alternative				
	A	B	C	D	E
Issue 4: Inventoried Roadless Areas					
Routes in Inventoried Roadless Areas (IRAs)	No unauthorized routes within IRAs would be added to the system.	No unauthorized routes within IRAs would be added as roads to system; 8 miles (7 routes) would be added as motorized trail.	Same as Alt. B.	Same as Alt. B.	Approx. 90 miles (138 routes) of unauthorized routes within IRAs would be added to the system.[3] (134 routes added as roads; 4 added as motorized trails)
Routes in Unroaded and Undeveloped Areas	Of the 1,056,221 acres of unroaded and undeveloped areas, only 29% are outside an IRA or wilderness. Areas will continue to be managed for multiple resource benefits while maintaining their undeveloped character to the extent possible.	Same as Alt. A.	Same as Alt. A.	Same as Alt. A.	Same as Alt. A.
Cross-country travel in IRAs	58% of IRAs open to cross-country travel.	No cross-country travel allowed on the Forest.	Same as Alt. B.	Same as Alt. B.	Same as Alt. B.
Cross-country travel in Unroaded and Undeveloped Areas	56% of Unroaded and Undeveloped Areas open to cross-country travel	No cross-country travel allowed on the Forest.	Same as Alt. B.	Same as Alt. B.	Same as Alt. B.

[3] As noted above under the discussion for Alternative E beginning on page 2-5, Alternative E would need to be modified if it were to be selected and RACR were still in effect as those roads in IRAs could not be added to the system or the Chief of the Forest Service would have to be petitioned to add them to the system.

Issue/Topic	Alternative				
	A	B	C	D	E
Other Resources					
Social and Economic	No impacts	Potential impacts in Garfield, Kane, and Wayne counties (in that decreasing order) due to clubs, events, focus of economy, and a few businesses	Some impact on Garfield, Kane, and Wayne counties, but not as high as under Alt. B	Not much impact	Potential impact on other (non-motorized) recreation uses.
Livestock Grazing	Livestock grazing activities, whether affecting the livestock themselves or the permittee, are not expected.	Same as Alt. A	Same as Alt. A	Same as Alt. A	Same as Alt. A
Non-Recreation Special Uses and Easements	Holders of special use authorizations have the right to access their facilities for operation and maintenance on NFS lands.	Same as Alt. A	Same as Alt. A	Same as Alt. A	Same as Alt. A
Recreation Special Uses	May be impacts on permit holders who seek to use unauthorized routes in areas currently closed to cross-country travel, and on those whose permits depend on larger areas closed to motorized travel (i.e., big game outfitter and guides)	Recreation-related permit holders who seek motorized opportunities may see the greatest impact due to the decrease in motorized access. Those who seek non-motorized opportunities would see greatest benefit.	Recreation-related permit holders who seek motorized opportunities may see impacts due to the decreased amount of motorized access, though impacts would be lower that in Alt. B. More benefit for those seeking non-motorized opportunities, but less than in Alt. B.	Recreation-related permit holders who seek motorized opportunities should see fewer impacts than those associated with Alts. B and C.	Recreation-related permit holders who seek vast motorized opportunities may see the least amount of impact. Those seeking non-motorized opportunities would see the most impact.

Issue/Topic	Alternative				
	A	B	C	D	E
Recreation	Approximately 828 miles of non-motorized trails; more miles of motorized routes than Alts. B, C, or D.	Approximately 960 miles of non-motorized trails; provides the least amount of miles for motorized travel.	Approximately 969 miles of non-motorized trails; provides the second least amount of miles for motorized travel.	Approximately 915 miles of non-motorized trails; mid-range among motorized travel. Generally allows for a higher level of motorized access than Alt. C.	Provides the most motorized access by designating all routes as open to public motorized travel with the exception of routes designated through previous and pending decisions.
Scenery	Vast majority of the Forest would meet or exceed Scenic Integrity Objectives.	Same as Alt. A	Same as Alt. A	Construction of routes T34040 and U24028A may result in impacts that reduce scenic integrity from high to moderate.	Same as Alt. D
Cultural Resources	Unauthorized routes would continue to be developed by the public in the 61% of the Forest open to cross-country travel, impacting cultural and paleontological sites and resources. Sites and resources would continue to be impacted intentionally and unintentionally by visitors and natural processes.	Impacts to sites and resources would be least among alternatives. Sites and resources would continue to be impacted intentionally or unintentionally by visitors and natural processes.	Impacts to sites and resources would be more intense than under Alt. B, but fewer than under A, D, and E, in that order. Sites and resources would continue to be impacted intentionally or unintentionally by visitors and natural processes.	Impacts to sites and resources would be more intense than under Alts. B and C, but fewer than A or E. Cultural resource surveys, review, and concurrence from the State Historic Preservation Office would be conducted on the 4 proposed motorized trails prior to construction. Sites and resources would continue to be impacted intentionally or unintentionally by visitors and natural processes.	Impacts to sites and resources would be fewer than in Alt. A, but greater than in B, C, and D. Cultural resource surveys, review, and concurrence from the State Historic Preservation Office would be conducted on the 7 proposed motorized trails prior to construction. Sites and resources would continue to be impacted intentionally or unintentionally by visitors and natural processes.

Issue/Topic	Alternative				
	A	B	C	D	E
Transportation	61% (1,150,113 acres) of Forest open to motorized, wheeled, cross-country travel. Cross-country travel would remain prohibited on 39% (735,943 acres). Site-specific planning and enforcement of OHV regulations would continue at current levels.	Closing the Forest to motorized cross-country travel would reduce the potential for direct and indirect off-route interactions and impacts with other land uses.	Same as Alt. B	Same as Alt B	Same as Alt B

2.4. Features Common to All Alternatives

A variety of resource protection measures and policies are currently in place to mitigate potential adverse effects of travel routes on the Forest. CFR 261.5 parts A and B allow district rangers to close, re-designate, or impose restrictions on roads or trails at any time if further use poses an immediate risk to public safety or if adverse effects are occurring. These closures or restrictions are intended to be short-term in nature; however, future decisions can be made to change route designations for the long-term. Therefore the designations in this decision have an adaptive management component.

2.4.1. Exemptions to Cross-country Travel Prohibitions

The following vehicles and uses are exempted from the prohibitions to motorized cross-country travel by 36 CFR part 212.51:

- 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, and
- Motor vehicle use that is specifically authorized under a written authorization issued under federal law or regulations.

2.4.2. Emergency Access

The travel plan does not restrict responses to emergency events to protect human life, property values, structures, and forest resources (see the list of vehicles and uses that are exempted from prohibitions to motorized cross-country travel above). Emergency activities are coordinated through the authorized official.

2.4.3. Private Land Access

Private land access would be provided within National Forest boundaries as required by Section 1323(a) of the Alaska National Interest Lands Conservation Act of 1980.

Routes on private land within National Forest System lands are not under the jurisdiction of the Forest Service and would remain open to the public through rights-of-way or easements obtained for the purposes of public access. Routes without rights-of-way or easements may not be open to public access, depending on landowner preference.

2.4.4. Disabled Access

All alternatives would provide equal access to people with disabilities. Wheelchair travel is considered non-motorized travel. OHV vehicles are not classified as mobility devices or wheelchairs.

2.4.5. Permitted Activities

Permitted activities often require motorized access. Permitted activities such as livestock operations, mineral development, outfitter-guide operations, and access to special use developments are approved or denied through the permit process and operating plan. Some of the routes authorized for permittee use are not designated for public use and are depicted as administrative use or non-motorized trails on the alternative maps. In all cases, permitted uses are non-recreational, intended to allow maintenance of utilities, water improvements, etc., and/or to haul materials needed for the permitted operation. Permit holders and agency officials are allowed motorized access only for official purposes.

2.4.6. Minerals Management and Administration

All alternatives recognize the rights of access under the various mineral laws. Activities within the constraints of regulations implementing those acts are deemed consistent with or in compliance with this travel plan.

2.4.7. Over-snow or Winter Travel

Most areas of the Forest are open to cross-country over-snow vehicle (e.g., snowmobile) use when adequate snow cover exists. The decision to restrict over-snow vehicles to designated routes will be made over time, if necessary, to address disturbance in big game winter range areas.

2.4.8. Parking

Parking is allowed along the edge of designated routes and should only occur where a vehicle can safely pull over and where meadows, streams, and riparian areas are avoided. Roads and closed gates are not to be blocked. This allowance provides the public reasonable access off designated routes to park their vehicle to fish, picnic, hike, etc., during the snow free-season. If parking is causing unacceptable resource damage, the Forest Service can close the area to parking off designated routes.

2.4.9. Dispersed Camping

Dispersed camping would be allowed within 150 feet along designated open routes; however, some specific areas have already been restricted to designated campsites only. More dispersed campsites and dispersed camping areas may be designated in the future if physical and social conditions reach a level where it is deemed necessary.

This limited use of motor vehicles off designated routes within 150 feet of roads and motorized trails would be allowed solely for the purposes of dispersed camping in areas determined through this analysis. This access would not authorize the creation of new campsites or travelways. Motorized travel between multiple dispersed campsites would be prohibited.

2.4.10. Firewood Gathering

Off-road travel for the purpose of firewood gathering would be allowed only as specified under permit. Access to administrative use routes will be controlled as part of permit issuance.

2.4.11. Non-motorized Travel

All travel routes and areas are open to non-motorized and non-mechanized modes of travel such as hiking, horse riding, skiing, or snowshoeing, unless specifically closed to such uses. At this time, these modes of travel are not restricted to designated travel routes.

Mechanized modes of travel, including the use of mountain bikes, are not currently restricted to designated routes. Except in areas specifically closed to mechanized uses (such as designated wilderness areas and non-mechanized trails), all travel routes and areas would be open to mechanized modes of travel. The decision to designate a non-mechanized system of routes may be made over time with other project decisions.

2.4.12. Previous and Pending Decisions

Pursuant to 36 CFR 212.50 of the Travel Rule, 22 previous and pending decisions that allow, restrict, or prohibit motor vehicle use on National Forest System roads, trails or areas have been incorporated as previously designated into this travel planning project. See the following table for a list of these decisions.

Table 2-6. Previous and Pending Decisions

Name	District	NFS Roads Open to Public	NFS Road Open Only for Admin Use	NFS Roads Closed[1]	NFS Roads with Seasonal Restrictions	Unauthorized Closed	ATV Trails	Non-motorized Trails
South Fork Pinto Creek Rd	Pine Valley	5.25	0.46	3.13	0	0	0	0
Upper Santa Clara	Pine Valley	7.35	0.36	0	0	0.26	0	7.39
Duck Creek Swains	Cedar City	202.63	28.22	130.74	0	177.30	35.70	8.13
Long Deer	Cedar City	24.80	48.69	0.49	0	2.71	0	1.74
Pretty Tree Bench	Escalante	47.34	19.76	5.44	21.54	13.03	2.3	4.33
Black Forest	Escalante	1.73	4.87	0	0	0.65	0	0
Velvet Lake/ Coyote Hollow	Escalante	0.19	0.09	0	0.13	0.03	0	0
Velvet Lake	Escalante	4.94	14.01	0.04	0.12	0.13	0	0
Roundy	Escalante	3.65	16.71	0	0.44	0	0	1.07
Coyote Hollow	Escalante	0.05	11.89	0.28	2.98	0.58	0	0
Griffin Springs	Escalante	26.54	17.85	5.58	0	9.58	2.31	4.56
Main Canyon	Escalante	4.49	18.74	0.79	4.11	0.07	0	0
Pockets	Escalante	11.61	13.44	0	5.87	0	2.67	0
Pacer	Escalante	8.06	10.67	0	0	0.02	2.44	0
Mt. Dutton	Powell	21.40	12.01	1.96	0	2.40	3.82	0
Puma	Powell	9.93	7.94	0	0	4.80	0	0
Boulder Top	Teasdale	49.25	3.21	83.40	0	1.39	0	27.15
Barney Top	Teasdale	11.93	1.34	0	0	1.44	0	0.9
Lower Bowns Rec.	Teasdale	19.04	1.62	1.34	0	4.06	8.21	15.90
South Creek	Teasdale	9.92	20.12	2.22	4.78	24.77	0	5.48
South Cr/Under Barney	Teasdale	3.66	13.26	0.64	7.39	11.20	0	1.11
Purple Lake	Teasdale	0	0	.07	0	0	0	0

[1] Decommissioned.

2.4.13. Signing Protocol and Publication of the Motor Vehicle Use Map

Travel routes are closed unless designated open for motorized use. Routes that would be designated open for public motorized use would be shown on the Motor Vehicle Use Map (MVUM), which will be published as a result of this decision. The MVUM is a national requirement that will become the legal document to illustrate route designations and will be reissued each year, much like hunting proclamations or regulations. It will be the user's responsibility to be familiar with the annual MVUM, which will be provided free of charge at local Forest Service offices and on the Internet.

Routes that are designated for motorized use would be signed with a route number, according to Forest Service signing and installation standards, at all appropriate junctions. Allowed uses

would also be posted, according to Forest Service standards. In response to specific problems, a few closed routes may be signed accordingly; however, routes not designated as open for public use will not be shown on the MVUM and generally will not be signed as closed.

The Forest is committed to signing motorized and non-motorized routes to improve the recreation experience and to increase compliance. The Forest will begin signing priority routes the first field season after the decision on this plan is made. Due to the reality of missing or damaged signs, and the time and funding necessary to install numerous signs across the forest, not all designated routes can be expected to be signed immediately or all the time. It is the user's responsibility to know the routes that are open for public motorized use. Users are strongly advised to obtain a current MVUM to be sure of routes that are legally designated for public use.

2.4.14. Route Maintenance

Over time, the forest objective is that all system routes, motorized and non-motorized, will be maintained to Forest Service standards to provide for user enjoyment, safety, and resource protection. Standards vary depending on intended use, but allow for a range of route conditions from primitive native surface (designed for high-clearance vehicles) to paved surface routes (designed for low clearance vehicles and passenger comfort). Maintaining routes to standard requires routine maintenance, which would continue as funding allows.

Portions of some routes may require relocation or improvement to meet standards and have been identified through the route evaluation/analysis process. Authorization of some of the actual road or trail relocation work may require supplemental analysis and, in some cases, a subsequent NEPA decision. Road and trail maintenance standards are set by their maintenance level or trail class and are described in FSH 7709.56 and FSH 2309.18.

2.4.15. Information, Education, Enforcement, and Partnerships

Over the years, the Dixie National Forest has become a popular place for motorized recreation. The Forest has been working since the mid-1990s to improve motorized travel management, through smaller route designation projects and increased efforts toward visitor information and education. Non-motorized areas can be affected by motorized travel planning; therefore long-term impacts on non-motorized areas must be considered. Through increased coordination with the State of Utah and local counties, the Dixie National Forest is working to publish high quality maps of motorized and non-motorized recreation opportunities, install trailhead kiosks and trail signs, and outreach to visitors through the media. Substantial funding has been contributed by these partners to provide an enjoyable motorized recreation experience.

Partnership opportunities continue to emerge as state and local governments, organizations, and individuals offer volunteer labor, trail patrol, and grant funding. Coordination with other governments continues in the areas of law enforcement. OHV manufacturers and motorized interest groups are also partnering with the Forest Service to improve protection of natural resources, improve user etiquette, and to protect the riding privilege.

2.5. Features Common to All Action Alternatives

2.5.1. Project Design Features

Forest Plan standards and guidelines apply to all alternatives. Best Management Practices (BMPs) addressing soil, water, and noxious weeds would be applied to the maintenance of travel routes and to route closures. BMPs would also be applied to any route construction (Alternatives D and E only). Following a decision, all areas proposed for ground-disturbing activities and all non-system routes proposed to become system routes will be surveyed for heritage resources with State Historical Preservation Office review.

2.5.1.1. Hydrology

Reconstruction and relocation of roads and motorized trails would meet the following project design features:

- Slope would be less than 8 percent.
- Trail drainage would be provided at the proper spacing according to trail slope and location.
- Running surface would be provided based on traffic volume, soils, and geology.
- Stream crossings would be provided that mitigate or eliminate the effects to the stream channel, the water in the channel, and the wetland associated with the channel.
- Highly erosive soils would be avoided.
- Routes would be located outside of the riparian influence zone.

  Riparian and wetland areas of concern for each activity or project should be identified using the following guidelines (Belt et al. 1992):

  1) Site-specific identification of riparian influence zones for fish-bearing streams should include the area from the edges of the active stream channel to whichever of the following widths is most appropriate:
     - To the top of the inner gorge,
     - To the outer edges of the 100-year floodplain,
     - To the outer edges of the riparian vegetation,
     - To a distance equal to the height of two site-potential trees, or
     - To a 300 foot slope distance (600 feet, including both sides of the stream channel).

  2) Site-specific identification of riparian influence zones for permanently flowing non-fish bearing streams should include the area from the edges of the active stream channel to whichever of the following widths is most appropriate:
     - To the top of the inner gorge,
     - To the outer edges of the 100-year floodplain,
     - To the outer edges of the riparian vegetation,
     - To a distance equal to the height of one site-potential tree, or
     - To a 150 foot slope distance (300 feet, including both sides of the stream channel).

  3) Site-specific identification of riparian influence zones for wetlands, ponds, lakes, reservoirs, and seasonally-flowing or intermittent streams should

include the area from the edge of the waterbody to whichever of the following widths is most appropriate:

- To the outer edges of the riparian vegetation,
- To the extent of the seasonally-saturated soil,
- To the extent of moderately and highly unstable areas,
- To a distance equal to the height of one site-potential tree,
- To a 150 foot slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs.

Seasonal restrictions may be used to protect the road, trail, or route during saturated or near saturated soil conditions. Natural processes of road closure, if ineffective, may be augmented with active obliteration.

2.5.1.2. Soil and Water Conservation

The Clean Water Act requires each state to implement its own water quality standards. The State of Utah's Water Quality Antidegradation Policy requires maintenance of water quality to protect existing instream Beneficial Uses on streams designated as Category 1 High Quality Waters. All surface waters geographically located within the outer boundaries of the Dixie National Forest, whether on private or public lands, are designated as High Quality Waters (Category 1). This means they are to be maintained at existing high quality. New point sources are not to be allowed, and non-point sources will be controlled to the extent feasible through implementation of BMPs or regulatory programs (Utah Division of Water Quality 1994).

The State of Utah and the Forest Service have agreed through a 1991 Memorandum of Understanding to use Forest Plan standards and guidelines and the Forest Service Handbook (FSH) 2509.22 Soil and Water Conservation Practices (SWCPs) as the BMPs. The use of SWCPs as the BMPs meets the water quality protection elements of the Utah Nonpoint Source Management Plan.

The soil and water conservation practices associated with this Motorized Travel Plan project would be modified with additional site-specific direction that would directly or indirectly improve water quality, protect beneficial uses, reduce losses in soil erosion and productivity, and abate or mitigate management effects, while meeting other resource goals and objectives.

The following SWCPs apply to this travel plan project. They serve as checkpoints in designing a project. The site-specific direction for each of the SWCPs listed below is taken from FSH 2509.22 Soil and Water Conservation Practices Handbook, R1/R4 Amendment No. 1, effective May 1988.

15.01 General Guidelines for Transportation Planning
15.02 General Guidelines for the Location and Design of Roads and Trails
15.03 Road and Trail Erosion Control Plan
15.04 Timing of Construction Activities
15.05 Slope Stabilization and Prevention of Mass Failures
15.06 Mitigation of Surface Erosion and Stabilization of Slopes
15.07 Control of Permanent Road Drainage
15.09 Timely Erosion Control Measures on Incomplete Roads and Streamcrossing Projects
15.10 Control of Road Construction Excavation and Sidecast Material
15.11 Servicing and Refueling of Equipment

15.12 Control of Construction in Riparian Areas
15.16 Bridge and Culvert Installation (Disposition of Surplus Material and Protection of Fisheries)
15.17 Regulation of Borrow Pits, Gravel Sources and Quarries
15.18 Disposal of Right-of-Way and Roadside Debris
15.21 Maintenance of Roads
15.22 Road Surface Treatment to Prevent Loss of Materials
15.23 Traffic Control During Wet periods

2.5.1.3. Rare Plants

Firewood collection areas would not be designated where any population of a Threatened, Endangered, Proposed, or Sensitive plant species is known to occur.

2.5.1.4. Wildlife

Given the potential for short-term disturbance due to decommissioning activities, surveys for presence or absence for some wildlife species would be completed prior to implementation. The following species would have surveys completed per recovery plan or standard protocols:

- Mexican spotted owl,
- Mojave Desert tortoise,
- Utah prairie dog,
- American peregrine falcon (known eyries),
- Northern goshawk (known nest areas and post-fledgling areas [PFAs]), and
- Greater sage grouse (known leks).

Appropriate limited operating seasons would be applied to decommissioning activities if a given species were present.

2.5.1.5. Recreation

A public education program should be implemented in conjunction with the Travel Plan. An implementation plan should also be developed, to include a schedule of closures to assist in public education. To accomplish the project objectives, a signing plan should be developed. Due to the cost and extent of needed signing, cost of road closures, cost of public education, and cost of law enforcement, a project financial work plan should also be developed.

Common to Alternatives D and E

Table 2-7. Project Design Features for Motorized Trail Construction

	Easiest	More Difficult	Most Difficult
Grade			
Max. sustained	15%	25%	35%
Length	200’	300’	500’
Max. pitch	20%	30%	50%
Clearing (wooded)			
Downhill side	2’	1.5’	1’
Uphill side	3’	3’	3’
Level	3.1’ each side	2.6’ each side	2.5’ each side
Clearing (open)			
Downhill side	2’	1.5’	1’
Uphill side	3’	3’	3’
Level	3.1’ each side	2.6’ each side	2.4’ each side
Height			
	6’	6’	5’
Tread (width)			
Minimum	6.2’	5.2’	4.8’
Maximum	7.2’	6.2’	5.8’
Surface			
	Relatively smooth	Sections of relatively rough	Relatively rough with very rough sections

Source: Forest Service Handbook, Section 2309.18-Trails Management Handbook: ATV Trail (three-wheel/four-wheel vehicle) Guide.

2.5.1.6. Scenery

Common to Alternatives D and E
Project design features include professional trail design, construction in sustainable locations, and proper signage and enforcement.

2.5.1.7. Transportation

Some routes proposed for closure would be decommissioned (ripped and seeded) and others would be allowed to revegetate naturally. Some routes proposed for closure are already brushed in (revegetating naturally), a process that would be left alone to continue. For roads that are proposed for decommissioning, there would be a one-time cost to accomplish those activities. Decommissioning activities would follow the methods described in *A Guide for Road Closure and Obliteration in the Forest Service* (USDA 1996).

The Forest Service Manual (FSM 7712.1) allows for a spectrum of treatments for roads to be decommissioned depending on the most appropriate action for a given road segment. It would be the responsibility of the project engineer and hydrologist to determine which decommissioned roads would be best served by obliteration and to determine which type of closure would be the most effective.

Portions of some routes may require relocation or improvement to meet Forest Service standards; these route sections have been identified through the route evaluation and analysis process. Authorization of some of the actual road relocation work may require supplemental analysis and, in some cases, a subsequent decision made according to NEPA provisions.

2.5.1.8. Cultural Resources

Areas with high probability of having cultural resources within areas proposed for ground disturbance and/or reclassification of routes that have not been surveyed would be surveyed and evaluated by an archaeologist in an effort to locate and record any archaeological, historical, or Traditional Cultural Properties. Survey methods would include pedestrian transects and visual assessments of the project *Area of Potential Effects* for all site-specific undertakings.

Each site identified would be evaluated for inclusion on the National Register of Historic Places. Those sites found to exhibit the characteristics for inclusion on the Register would be identified as Historic Properties and actions undertaken near or adjacent to them must identify what effect they would have.

2.5.2. Mitigation Measures

2.5.2.1. Rare Plants

The five mitigation measures below will help reduce the risk to Threatened, Endangered, Proposed, and Sensitive plant populations and their habitat from the invasion and expansion of noxious weeds and invasive species.

1. During motorized trail construction and road obliteration activities, all off-road and maintenance equipment is required to be free of noxious weed seeds when moving equipment into a new area and/or moving between areas that are known to contain noxious weeds. Use federal form B6.35 – Equipment Cleaning.
2. Use certified weed-free straw and mulch for all projects conducted or authorized by the Forest Service on National Forest System lands. If state-certified straw and/or mulch is not available, the Forests should require sources certified to be weed free using the North American Weed Free Forage Program standards or a similar certification process.
3. Certified “weed-free” seed mix is required for areas that are seeded.
4. Avoid weed-infested areas for use as staging or parking areas.
5. Complete post-project surveys to document infestations and to allow treatment of noxious weeds in areas of disturbance.

2.5.2.2. Wildlife

Designation of unauthorized routes as motorized trails, non-motorized trails, or Level 2 (high clearance vehicle) roads within northern goshawk nest areas and PFAs would require mitigation (USDA 2000e, standard X, page CC-25). Under Alternatives B, C, and D, designation actions will be mitigated by re-designation of PFAs to increase the amount of suitable habitat and the classification of an additional alternate nest area within the PFA boundaries.

Under all action alternatives, any active reconstruction of routes to achieve trail and route standards will occur outside the northern goshawk breeding season (March 1-September 30) if the territory is occupied.

2.5.2.3. Cultural Resources

Mitigation measures must be undertaken for those actions that would pose an adverse effect. Mitigations could include fencing, rerouting, burying the site, and/or full scale excavation. Mitigations are identified on a site-by-site basis. A Programmatic Agreement between the Advisory Council on Historic Preservation, the Utah State Historical Preservation Office, and the Dixie National Forest will outline how the surveys, evaluations, and mitigations will be implemented.

2.5.3. Designation of Non-system Routes

There are a large number of unauthorized routes (routes not currently part of the National Forest System of roads and trails) currently on the Forest. While some of these unauthorized routes were user-created, the majority were created to facilitate range, timber, and special use activities over the course of decades. In some cases, these routes have acquired recreational value. Through careful route evaluation, this travel plan considers the uses and impacts of unauthorized routes, and proposes to add some of them to the system. The number and mileage of non-system routes proposed for addition to the system varies by alternative (see *Table 2-5. Disposition of Unauthorized Routes by Alternative* on page 2-7).

2.5.4. Travel Route Restrictions and Closures

Routes that are not designated for public or administrative access in this decision would be closed and decommissioned from the National Forest System. A variety of closure methods are considered in this decision (see the *Transportation* section under *Project Design Features* on page 2-25). If a route is proposed to be closed, the method would be the same for all alternatives that recommend a closure.

2.6. Alternatives Considered But Eliminated From Detailed Study

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the proposed action provided suggestions for alternative methods for achieving the purpose and need. Some of these alternatives may have been outside the scope of designating a system of authorized roads, trails, or areas for motor vehicle use, duplicative of the alternatives considered in detail, or determined to contain components that would cause unnecessary environmental harm. Therefore, a number of alternatives were considered, but dismissed from detailed consideration for reasons summarized below.

2.6.1. Sustainable Multiple Use Alternative

This alternative was submitted by Grand Canyon Trust on behalf of the following organizations:

- Center for Biological Diversity,
- Center for Water Advocacy,
- Grand Canyon Trust,
- Great Old Broads for Wilderness,
- Red Rock Forests,
- Sierra Club, Utah Chapter,
- Southern Utah Wilderness Alliance,
- Utah Environmental Congress,
- Wild Utah Project, and
- Wildlands CPR.

The Sustainable Multiple Use Alternative (SMUA) submitted by these groups was not studied in detail in its entirety because

- It closed routes to, into, or around private and other agency lands which would have resulted in incongruent management with adjoining State, private, and BLM lands (e.g., route 30871),
- It would have added routes to the system that the Forest designated as either “closed’ or “administrative” (e.g., route 30764), and
- It designated some routes as “open to all” that the Forest designated as “administrative” (e.g., route 31007).

The SMUA also assigned designations to routes that were addressed in previous decision areas (e.g., within the Duck Creek-Swains project area), an action that is outside the scope of this project. Many of the suggestions from this alternative, however, were used to develop Alternative B.

2.6.2. Non-motorized Trails Opened to Motorized Vehicles

Some individuals and groups requested that existing non-motorized trails be converted to motorized trails. As allowed by the Travel Rule, all previous and pending decisions that allow, restrict, or prohibit motor vehicle use on NFS roads, trails, or areas have been incorporated into this project and will not be revisited. There are previous decisions in place for the non-motorized trails that were proposed for conversion to motorized trails (e.g., Grand View, Virgin River Rim, and Spruce trails).

2.6.3. Off-road Motorized Use for Game Retrieval or Antler Gathering

Game may be retrieved off of designated routes using non-motorized means only. Antlers may also be retrieved off of designated routes using non-motorized means only. This direction provides consistency among the national forests in Utah, none of which allow off-road motorized use for either game retrieval or antler gathering. This direction is also consistent with travel restrictions on State of Utah Wildlife Management Areas (UDWR 2008, p 42).

2.7. Alternative Maps

Maps of each alternative, organized by ranger district, are located on the following 20 pages. The Escalante Ranger District and the Teasdale portion of the Fremont River Ranger District are included on the same maps.

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Map name: Cedar City Ranger District – Alternative A
File name: ch2_map03_d2_alta.pdf
File size: 1,146 KB

Map name: Cedar City Ranger District – Alternative B
File name: ch2_map04_d2_altb.pdf
File size: 1,168 KB

Map name: Cedar City Ranger District – Alternative C
File name: ch2_map05_d2_altc.pdf
File size: 1,175 KB

Map name: Cedar City Ranger District – Alternative D
File name: ch2_map06_d2_altd.pdf
File size: 1,163 KB

Map name: Cedar City Ranger District – Alternative E
File name: ch2_map07_d2_alte.pdf
File size: 1,144 KB

Map name: Escalante and Teasdale Ranger Districts – Alternative A
File name: ch2_map08_d4d5_alta.pdf
File size: 983 KB

Map name: Escalante and Teasdale Ranger Districts – Alternative B
File name: ch2_map09_d4d5_altb.pdf
File size: 1,017 KB

Map name: Escalante and Teasdale Ranger Districts – Alternative C
File name: ch2_map10_d4d5_altc.pdf
File size: 1,031 KB

Map name: Escalante and Teasdale Ranger Districts – Alternative D
File name: ch2_map11_d4d5_altd.pdf
File size: 1,020 KB

Map name: Escalante and Teasdale Ranger Districts – Alternative E
File name: ch2_map12_d4d5_alte.pdf
File size: 984 KB

Map name: Pine Valley Ranger District – Alternative A
File name: ch2_map13_d1_alta.pdf
File size: 632 KB

Map name: Pine Valley Ranger District – Alternative B
File name: ch2_map14_d1_altb.pdf
File size: 648 KB

Map name: Pine Valley Ranger District – Alternative C
File name: ch2_map15_d1_altc.pdf
File size: 671 KB

Map name: Pine Valley Ranger District – Alternative D
File name: ch2_map16_d1_altd.pdf
File size: 650 KB

Map name: Pine Valley Ranger District – Alternative E
File name: ch2_map17_d1_alte.pdf
File size: 626 KB

Map name: Powell Ranger District – Alternative A
File name: ch2_map18_d3_alta.pdf
File size: 1,312 KB

Map name: Powell Ranger District – Alternative B
File name: ch2_map19_d3_altb.pdf
File size: 1,339 KB

Map name: Powell Ranger District – Alternative C
File name: ch2_map20_d3_altc.pdf
File size: 1,371 KB

Map name: Powell Ranger District – Alternative D
File name: ch2_map21_d3_altd.pdf
File size: 1,344 KB

Map name: Powell Ranger District – Alternative E
File name: ch2_map22_d3_alte.pdf
File size: 1,298 KB

Chapter 3: Affected Environment and Effects Analysis

Chapter 3: Affected Environment and Effects Analysis

This chapter summarizes the physical, biological, and social and economic environments of the project area and the effects of implementing each alternative on that environment. It also presents the scientific and analytical basis for the comparison of alternatives presented in Chapter 2.

The information in this chapter is derived from the specialist reports prepared for this motorized travel plan. For more information on any of the sections in this chapter, please refer to the corresponding specialist report available on the Motorized Travel Plan website at http://www.fs.fed.us/r4/dixie/projects/MTP.

3.1. Soils

The information in this section is summarized from the *Soils Specialist Report* prepared for this motorized travel plan (USDA 2008j). Please see that report for more detail on the affected environment and effects analysis.

3.1.1. Affected Environment

Motorized vehicle use off roads and trails can degrade soil productivity. Direct mechanical impacts have several components: abrasion, compaction, shearing, and displacement. Indirect impacts include hydraulic modification (such as the disruption of surface water flow), reduction in infiltration and percolation, surface ponding, and the loss of water-holding capacity. Unauthorized roads and trails have the potential to accelerate erosion and sediment delivered to streams due to lack of design and poor location (Luce and Black 2001).

Disturbances from roads and trails can increase erosion and sediment delivery. Existing roads and trails are a primary source of long-term management-related sediment. The type, extent, and location of a designated motorized system of roads, trails, and areas will contribute to the amount of accelerated erosion. Accelerated erosion and sediment delivery have been identified as a primary source of water quality pollution in many Dixie National Forest watersheds.

Soil productivity on the Dixie National Forest has been directly impacted by the type, extent, and location of designated roads, motorized trails, and cross-country motor vehicle use. These impacts have affected the existing condition of all the ranger districts to varying degrees.

There are no known locations of asbestos influenced soils on the Dixie National Forest (Van Gosen 2008).

The following five indicators are used to evaluate effects on the soil resource.

1. **Percent of Forest open to cross-country travel.** This percentage is used as a general measure of potential effects to soil productivity. Motorized cross-country travel can result in new trails being pioneered across sensitive areas. Degraded areas can become a major environmental problem because of their direct effects on vegetation, soils, and site hydrology.

2. **Miles of road that intercept slopes of 35 percent or more.** Accelerated erosion and sediment from roads continue over the long-term as a result of traffic use, compaction, high runoff, and concentrated water on the road surface, ditch lines, and from relief culverts.
3. **Miles of roads on high erosion potential soils.** Erosion potential ratings characterize the natural inherent sensitivity of soil types to detach and erode. In high potential areas, disturbance poses a higher risk of accelerated erosion and sediment delivery (Switalski et al. 2004).
4. **Miles of road surface.** Roads represent a long-term commitment of the soil to a non-productive condition. This is a total resource commitment of the soil resource.
5. **Miles of designated ATV trails.** ATV trails can have similar effects to soil productivity as can roads, but the effects differ based on the width of the travelway. As with single track motorized trails, ATV trails create additional problems due to steep grades, lack of designed stream crossings, and difficulty of maintaining water management features. In addition, cross-country motorized vehicle use can cause additional damage to the soil resource.

3.1.2. Effects Analysis

3.1.2.1. Direct and Indirect Effects

The table below summarizes the soil indicators by alternative. Effects were determined to be an improvement, no change, or degradation as compared to Alternative A. A negative change indicates an improvement to soil productivity, a positive number indicates degradation, and a zero indicates no change. The larger the negative number, the greater relative improvement to the soil resources; the larger the positive number, the greater relative degradation to the soil resources. For a breakdown of indicators and percent change by ranger district, see the *Soils Specialist Report* (USDA 2008j).

The size of the increase or decrease was qualitatively described for each indicator. For the indicators, a rating of “major” was given when the difference was 20 percent or more. A rating of “moderate” was given when the change was 10-19 percent. A rating of “minor” was given to changes of 1-9 percent. If the change was less than 1 percent, a “no change” rating was applied.

Table 3-1. Soil Indicators and Percent Change from Existing Condition by Alternative

Soil Indicator	Alternative									
	A		B		C		D		E	
	Measure	% Change	Measure	% Change	Measure	% Change	Measure	% Change	Measure	% Change
1. Percent of Forest open to cross-country travel	61%	0	0%	-100	0%	-100	0%	-100	0%	-100
2. Miles of road that intercept slopes of 35% or more	108	0	73	-32	84	-22	95	-12	112	4
3. Miles of road on high erosion potential soils	64	0	39	-39	47	-27	54	-16	72	12
4. Miles of road surface	4,604	0	2,755	-40	3,062	-33	3,545	-23	4,875	6
5. Miles of designated ATV trail	94	0	154	64	165	76	151	61	98	4

3.1.2.1.1. Soil Indicator #1: Percent of Forest Open to Cross-country Travel

All action alternatives would have a major reduction in negative effects to soils by eliminating cross-country travel.

Under Alternative A, motorized cross-country travel could result in new trails being pioneered across alpine areas, wetlands, steep slopes, and other areas with sensitive soils. Degraded areas become a major environmental problem because of their direct effects on vegetation, soils, and site hydrology.

Soil quality is expected to improve with the elimination of cross-country travel in the action alternatives. There would also be an improvement due to the elimination of motorized use on and adjacent to unauthorized roads. However, accelerated erosion and sediment delivery would continue from unauthorized roads until such time as restoration plans are made and implemented.

Under the action alternatives, limited access for dispersed camping and parking would generally be allowed within 150 feet of a designated road or motorized trail (there are currently three areas on the Forest that have been restricted to designated campsites only as described on page 3-102 in the *Recreation* section). Adverse affects to soil quality are expected to continue on those areas open to limited motorized access within that 150 feet along designated roads and motorized trails.

3.1.2.1.2. Soil Indicator #2: Miles of Road That Intercept Slopes of 35 Percent or More

Alternatives B and C would have major improvements in the miles of road that intercept slopes of 35 percent or more, and Alternative D would have a moderate improvement. Alternative E would have a minor degradation due to an increase in miles of road on steep slopes.

The miles of roads that intercept slopes of 35 percent or more are used as a relative measure of detrimental soil disturbance in areas that are highly susceptible to accelerated erosion, and where sediment from roads continues over the long-term as a result of traffic use, compaction, high runoff, and concentrated water on the road surface, ditch lines, and from relief culverts. Cut and fill slopes can also be a chronic source of surface erosion and mass failures (Satterlund 1972).

3.1.2.1.3. Soil Indicator #3: Miles of Road on High Erosion Potential Soils

Alternatives B and C would have major improvements in the miles of road on high erosion potential soils, and Alternative D would have a moderate improvement. Alternative E would have a moderate degradation due to an increase in miles of road on highly erodible soils.

The miles of roads that are on high erosion potential soils is used as a relative measure of detrimental soil disturbance for soil that can be easily detached and eroded. In high potential areas, disturbance poses a higher risk of accelerated erosion and sediment delivery.

3.1.2.1.4. Soil Indicator #4: Miles of Road Surface

Alternatives B, C, and D would have major improvements due to decreases in the miles of road. Alternative D would have a minor degradation due to an increase in miles of road.

The miles of designated roads are used as a relative measure of total soil resource commitment and detrimental soil disturbance. Accelerated erosion and sediment from roads continue over the long-term as a result of traffic use, compaction, high runoff, concentrated water on the road surface, ditch lines, and from relief culverts. Cut and fill slopes can also be a chronic source of surface erosion and mass failures (Satterlund 1972). Total soil resource commitment can affect water quality because it often creates the greatest extent of accelerated erosion and sediment delivery. Detrimental soil disturbance can result from off-route motorized activities and can produce unacceptable levels of soil degradation by compacting, moving, eroding, or puddling the soil.

3.1.2.1.5. Soil Indicator #5: Miles of Designated ATV Trails

The miles of designated ATV trails would be a major degradation for Alternatives B, C, and D, and a minor degradation for Alternative E.

The miles of designated ATV trails are used as a relative measure of total soil resource commitment and detrimental soil disturbance. ATV trails can have effects to soil productivity similar to those of roads, but the effects differ based on the width of the travelway. ATV trails create additional problems due to steep grades, lack of designed stream crossings, and difficulty of maintaining water management features.

3.1.2.1.6. New Motorized Trail Construction

Two new motorized ATV trails totaling 1.26 miles are proposed for construction in Alternatives D and E on the Cedar City Ranger District. More information on these routes can be found in the *Recreation* section beginning on page 3-101 and the *Scenery* section beginning on page 3-113. A map of the two trail locations is on page 3-115.

New motorized trails represent a total soil resource commitment and detrimental soil disturbance. ATV trails can have effects to soil productivity similar to those of roads, but the effects differ based on the width of the travelway. The proposed routes would likely be 60 inches wide, and would require the removal of all vegetation. Motorized trails can create additional problems due to steep grades, lack of designed stream crossings, and difficulty of maintaining water management features, such as rolling dips that are used to limit water/sediment movement. In addition, motorized vehicle use off the trail can occur, resulting in additional damage to the soil resource.

Both proposed motorized trail segments represent a total resource commitment; the total commitment (applicable to both alternatives) is 0.8 acres. The soils where route T34070 would be located are not suited for new motorized trails. The soils where route U24028A would be located are suitable for new construction with proper project design features to minimize effects to the soil resource. Specific effects from each new route are disclosed in the table below.

Table 3-2. New Motorized Trails Proposed for Construction in Alternatives D and E

Proposed Route #	Mileage	Soil Types and Characteristics*	Existing Condition of Area Proposed for New Motorized Trail	Effects to Soil Resources from the Proposed New Motorized Trail
T34070	0.65	Four soil types (223, 237, 242A, and 242) would be affected from this proposed route. These soil types are found on slump-land topography to the south of Brian Head Peak. These soils are located at very high elevation (10,000 feet or higher) and are formed from tertiary volcanic rocks of the Brianhead Formation. They are well-drained.	Active gully erosion is occurring down slope of the proposed motorized trail. The vegetation in the area is a sparse cover of low shrubs and forbs. The proposed new route traverses slopes that are 10-45 percent.	By constructing a motorized trail mid-slope across this soil, additional gullies would likely develop from the interruption of the natural surface flow, causing the runoff to be accumulated and released along varying sections of this trail and increasing the water erosion potential on these high elevation sideslopes with little vegetative cover.
U24028A	0.61	Soil Type 239 is located at very high elevation (10,000 feet or higher) and on mountain sideslopes with soils that are shallow (less than 20 inches) to bedrock.	Slopes affected by the proposed route construction are less than 15 percent with sparse Engelmann spruce and subalpine fir.	The soils are suitable for motorized trail development. Additional design practices would need to be utilized to prevent water erosion.

* Source: Soil Survey of the Dixie National Forest (USDA 1999).

3.1.2.2. Cumulative Effects

3.1.2.2.1. Cumulative Effects Common to All Alternatives

The cumulative effects analysis is grouped into the following eight categories (details of projects associated with these groups can be found in the project record [USDA 2007a]).

1. **Utilities.** Proposals for new power lines, telecommunication facilities, and water lines and tanks to be located on the Forest are received annually. All these projects result in additional disturbance to the soil resource through the removal of vegetation and long-term commitments for access to these improvements. Detrimental cumulative effects to the soil resource from future utility developments would increase at the Forest level in all alternatives.
2. **Oil and Gas.** Analysis for new oil and gas exploration and development on both the Dixie National Forest and the Fishlake National Forest is currently ongoing. Oil and gas exploration and development cause additional disturbance to the soil resource with new roads and drill pad development, and through the long-term commitments for access to these improvements. Detrimental cumulative effects to the soil resource from future oil and gas development would increase at the forest level in all alternatives.
3. **Transportation**.
    a. **Level 1 Maintenance Roads.** Level 1 roads are roads on the designated National Forest System (NFS) that have been closed to use but that may actually be operationally open. In recent years these roads have been physically closed, waterbars have been installed, and roadbeds and cut and fill slopes have been scarified and seeded. However, many of these roads still need to be physically closed and stabilized to keep them from contributing sediment.
    b. **Unauthorized Motor Vehicle Use and Unauthorized Roads.** Unauthorized motorized use would continue to be a problem that adversely affects soil productivity. The major problems occur on unauthorized roads and in meadows adjacent to roads and motorized trails. Unauthorized roads may or may not be open or drivable. Access may be physically blocked by down or live trees. These roads receive no maintenance so drainage and erosion problems do occur in areas. Drainage structures such as ditches, crossdrains, waterbars, or dips may never have been constructed or are no longer functioning. The majority of routes that are being considered for designation across the alternatives of this project currently exist and are receiving some amount of use. If Alternative B, C, or D is selected, detrimental effects to the soil resource from the motorized route network would be reduced from the current condition.
    c. **Cross-country Travel.** All action alternatives would eliminate cross-country travel. This action would reduce current and potential future interaction between cross-country travel and other forest actions, thereby reducing the threat of detrimental effects to the soil resource. Alternative A has the highest potential to result in adverse cumulative impacts to aquatic resources. This is primarily related to the continuation of cross-country travel on the 61 percent of the Forest where it is currently allowed, including sensitive riparian areas, stream corridors, and lake basins.
4. **Recreation.** Dispersed camping and ATV use are activities that are widespread across the Forest. ATV use and cross-country travel are commonly related activities that occur within and near popular dispersed camping areas. Selection of Alternative A would result in cumulative detrimental impacts associated with dispersed camping and ATV use on the soil resource within areas open to cross-country travel. Additionally, routes included within all action alternatives that increase the designated ATV system would present the potential for adverse cumulative effects associated with dispersed camping. These effects may produce unacceptable levels of soil degradation by compacting, moving, eroding, or puddling the soil.

5. **Vegetation Treatments.** Proposals for new timber sales are an annual occurrence on the Forest. These projects typically result in 2 to 5 percent of each activity area resulting in detrimental soil disturbance (Jaros 2005, 2007a, 2007b). Detrimental cumulative effects to the soil resource from timber sale activity would remain at current levels in the future at the forest level in all alternatives.
6. **Land Exchange and Easements.** Proposals for land exchanges do not directly affect detrimental soil disturbance.
7. **Special Use Permits.** Proposals for special use permits do not directly affect detrimental soil disturbance.
8. **Grazing.** Livestock grazing is a use that is managed under proper use guidelines. The actions proposed in this EIS would not alter the grazing pattern or management of livestock.

Alternatives B, C, and D (in the same order of preference) would result in beneficial cumulative effects to soil resource in response to past, present, and future implementation of travel management actions on the Forest. Some of these actions are included in signed decisions that have yet to be implemented on the ground. All of these projects either reduced total motorized route mileage or reduced route encroachment on steep soils or highly erodible areas. These actions have been initiated primarily to improve watershed function and aquatic and terrestrial habitat conditions. Alternative A would have a continuance of negative cumulative effects as it would allow continued cross-country travel on 61 percent of the Forest. Alternative E would increase the number and miles of road on the Forest and would also increase negative cumulative effects.

3.2. Hydrology

The information in this section is summarized from the *Hydrology Specialist Report* prepared for this motorized travel plan (USDA 2008c). Please see that report for more detail on the affected environment and effects analysis.

3.2.1. Affected Environment

The major watersheds associated with the Dixie National Forest are the Virgin River, Colorado River, and Great Basin watersheds. Each of these larger watersheds are further sub-divided into 5th Hydrologic Unit Code (HUC) watersheds and numerous smaller 6th HUC watersheds of about 20,000 acres in size (31 square miles). These HUCs are the basis for this analysis. There are 39 5th HUC watersheds and 179 6th HUC watersheds, which include areas on and off National Forest System (NFS) lands. Water quality impairments are associated with 40 of these 6th HUC watersheds (USDA 2008c).

Existing impacts to soil and water resources from past and present activities include livestock grazing of upland and riparian areas, timber harvest, mining, oil and gas activities, stream augmentations and impoundments, developed ski areas, developed and dispersed recreation, OHV and ATV use, wildland fires, wildland fire use fires (WFUs), prescribed fires, and road and trail construction, and well as maintenance associated with many of these activities

Most of the waters within the Forest boundary are considered High Quality Waters (Category I). The exceptions to this may be found in the Standards of Quality for the Waters of the State (UAC 2008b).

The existing condition with regard to roads on each of the 179 watersheds on the Forest is reflected in Alternative A, the No Action Alternative, as shown in detail in the *Hydrology Specialist Report* (USDA 2008c).

3.2.2. Effects Analysis

3.2.2.1. Direct and Indirect Effects

In general, access management that increases accessibility also increases the risk of impacting the soil and water resources. The potential impacts include soil disturbance in the form of soil displacement and compaction in the uplands as well as stream management zones including wetlands, streambanks, meadows, and riparian areas. This soil displacement leads to sediment inputs into the streams in addition to any other pollutant inputs that may be associated with vehicular traffic.

Geomorphic effects of roads range from chronic and long-term contributions of fine sediment into streams to catastrophic mass failures of road cuts and fills during large storms. Roads may alter channel morphology directly or may modify channel flow and extend the drainage network into previously unchanneled portions of the hillslope. The magnitude of road-related geomorphic effects differs with climate, geology, road age, construction practices, and storm

history. Improvements in designing, constructing, and maintaining roads can reduce road-related erosion at the scale of individual road segments (Gucinski et al. 2001).

Roads have three primary effects on hydrologic processes:

1. They intercept rainfall directly on the road surface and road cutbanks and affect subsurface water moving down the hillslope,
2. They concentrate flow, either on the surface or in an adjacent ditch or channel, and
3. They divert or reroute water from paths it otherwise would take were the road not present.

Problems of road drainage and transport of water and debris – especially during floods – are primary reasons roads fail, often with major structural, ecologic, economic, or other social consequences. The effect of roads on peak streamflow depends strongly on the size of the watershed. For example, capture and rerouting of water can remove water from one small stream while causing major channel adjustments in another stream receiving the additional water. In large watersheds, roads constitute a small proportion of the land surface and have relatively insignificant effects on peak flow (Gucinski et al. 2001).

Roads can impact streams and aquatic systems in many ways. Roads with inadequate buffers can have higher sediment loads. Road obliteration can eliminate these impacts. User-created roads often are close to streams and have poor if any drainage features to prohibit sediment from entering the stream. ATVs can travel many trails or roads or off-road, resulting in the same impacts as from roads designed for full-size vehicles. Road systems can change watershed hydrology and increase peak flows while reducing late summer base flows. Roads can be a conduit for moving chemicals and sediment into streams.

The choice of analysis for this project was to equate all past, present, and proposed road disturbances to a “detrimentally disturbed soil,” which is a soil that has been displaced, compacted, or severely burned such that its hydrologic properties are impaired (Forest Service Handbook for Soil Management [FSH] 2509.18). Literature review indicates that the area of detrimentally disturbed soils should not exceed 5 percent within the 300 foot riparian influence zone adjacent to both sides of the stream and in the stream (McGurk and Fong 1995). Our assumption is that all road acreages constituted a detrimentally disturbed soil as they perform like a compacted soil and are hydrologically impaired.

The logic behind the analysis is that once a riparian influence zone exceeds the 5 percent threshold of detrimentally disturbed soils, effects to water quality will occur, as will changes to the sponge filter system. This may then cause a malfunction of the sponge filter system which may lead to detrimental changes in vegetation health, stream channel integrity, suspended sediment loads, and bedload.

To simplify analysis, the approximate 5 percent threshold used in this approach would be a 1:1 ratio of stream miles and road miles within the riparian influence zone. Use of this ratio assumes a median compacted width of 30 feet. Road density by 6th HUC watershed will also be used as a comparison parameter to track the miles of road/square mile of watershed. The logic behind using this parameter is that an increase in the miles can be considered a relative detrimental affect to the watershed and its function.

Assumptions used in this effects analysis:

- Roads considered in the effect analysis include all unauthorized routes (U and G routes) and all classified roads as of 2005,

- Roads located on private land or under the jurisdiction of local counties, the State of Utah, National Park Service, and Bureau of Land Management that were located within any of the cumulative effects watersheds were considered in the analysis,
- The two motorized trails proposed for construction (comprising 1.26 miles) are included in the analysis of Alternatives D and E,
- The cross-country travel allowance in Alternative A will lead to an increased density of roads within each watershed and in each riparian influence zone, and
- Naturally closed roads will continue to influence surface and subsurface hydrology for up to 30 years. Any reduction of road miles within a watershed from road closures will take time before negative effects are no longer realized.

3.2.2.1.1. Alternative A

Compared to Alternatives B, C, and D, there is a projected increase in the road density within most of the 179 watersheds in Alternative A. Road mileage within the riparian influence zone is either greater than or equal to that in Alternatives B, C, and D. Compared to Alternative E, road density within the 179 watersheds is either greater than or equal to Alternative A. Road mileage within the riparian influence zone is either less than or equal to that in Alternative E.

Cross-country motorized travel would have a negative impact on watershed function as route proliferation is expected to increase over time in those watersheds where cross-country travel is allowed. An increase in road mileage would contribute to the area compacted within a watershed and would ultimately lead to increases in erosion and runoff rates and interruption of surface and subsurface water flow. Increases in road mileage within the riparian influence zone would affect water quality, stream stability, and wetland and floodplain health.

3.2.2.1.2. Alternatives B and C

Compared to Alternative A, there is a projected reduction in road density in 149 of the 179 watersheds and a reduction in road mileage within the riparian influence zone in 108 of the 179 watersheds in both Alternatives B and C. There may be some isolated and/or localized areas where roads within the riparian influence zone would have a negative influence and/or impact to the stream channel, wetlands, floodplains, and water quality.

The elimination of cross-country motorized travel would lead to fewer user-created roads, which impact wetlands, floodplains, stream channel health, and water quality. Concentrating vehicular travel to a designated route designed for motorized travel would reduce and localize impacts to a more manageable level.

3.2.2.1.3. Alternative D

Compared to Alternative A, there is a projected reduction in road density in 143 of the 179 watersheds and a reduction in road mileage within the riparian influence zone in 91 of the 179 watersheds. There may be some isolated and/or localized areas where roads within the riparian influence zone would have a negative influence and/or impact to the stream channel, wetlands, floodplains, and water quality.

The elimination of unrestricted cross-country travel would lead to fewer user-created roads, which impact wetlands, floodplains, stream channel health, and water quality. Concentrating vehicular travel to a designated route designed for motorized travel would reduce and localize impacts to a more manageable level.

3.2.2.1.4. Alternative E

Compared to Alternative A, there is a projected increase in road density within 97 of the 179 watersheds and an increase in road mileage within the riparian influence zone in 53 of the 179 watersheds.

There may be some isolated and/or localized areas where roads within the riparian influence zone would have a negative influence and/or impact to the stream channel, wetlands, floodplains, and water quality.

The elimination of unrestricted cross-country travel would lead to fewer user-created roads, which impact wetlands, floodplains, stream channel health, and water quality. Concentrating vehicular travel to a designated route designed for motorized travel would reduce and localize impacts to a more manageable level.

3.2.2.2. Cumulative Effects

Effects other than roads considered in the cumulative effects analysis:

1. **Utilities.** Includes power lines, water lines/tanks, fiber optic and other telecom lines, and communication sites.
2. **Oil and Gas.** Also includes other minerals and mineral materials (e.g., gravel, perlite, cinders). These activities would continue to occur with a possible increase in oil and gas activity in the near future.
3. **Transportation.** Motorized route designation, construction, and decommissioning. The is what is addressed in this plan.
4. **Recreation.** Includes general activities not under special use permit (sightseeing, hiking, camping) and developed recreation maintenance. Levels of use would stay the same or increase over time.
5. **Vegetation Treatments.** Includes timber harvest, chaining, fuel reductions, prescribed fire, firewood collection, and Christmas tree collection. Vegetation treatments would continue to occur with an estimated increase in chaining maintenance and prescribed fire.
6. **Land Exchange and Easements.** Includes property disposal, highway easements, water diversions, and water augmentation. Over time these adjustment would occur at a reduced rate.
7. **Special Use Permits.** Includes one time events (e.g., horse races, trekking) and outfitter guide activities. These would continue to occur with some increases in use.
8. **Grazing.** Grazing would continue to occur at the present level.

3.2.2.2.1. Alternative A

Since detrimental disturbance to soils from proposed road mileage does not exceed the 5 percent threshold in any of the riparian influence zones, none of the watersheds are expected to display cumulative impacts initially. In time this would change as the proliferation of user-created routes within the riparian influence zone, coupled with effects from other forest uses as listed above, would exceed the 5 percent threshold and lead to detrimental changes in vegetation health, stream channel integrity, water quality, and bedload.

Although the detrimental disturbance within riparian influence zones does not exceed the 5 percent threshold, with time the damage from unrestricted cross-country travel and user-created routes would surpass the threshold and cumulative effects would become evident at the confluence of each watershed. These effects would likely contribute pollutants to 303d listed waters and would likely exceed Total Maximum Daily Loads mandated by the State of Utah.

3.2.2.2.2. Alternatives B, C, and D

Since detrimental disturbance to soils from proposed road mileage does not exceed the 5 percent threshold in any of the riparian influence zones, none of the streams are expected to display any cumulative impacts initially or over time. In fact, if disturbance from other past, present, and future uses were doubled, the impacts to the riparian influence zone in all 179 watersheds would still not exceed the 5 percent threshold.

Since cumulative effects are not expected to be evident initially or over time, changes to water quality down stream of each of the 6th HUC watersheds is not expected to further impair any 303d listed water or add to any mandated Total Maximum Daily Load.

3.2.2.2.3. Alternative E

Since detrimental disturbance to soils from proposed road mileage does not exceed the 5 percent threshold in any of the riparian influence zones, none of the streams are expected to display any cumulative impacts initially or over time. With the exception of one watershed, if disturbance from other past, present, and future uses (section the list under *Cumulative Effects* on page 3-13) were doubled, the impacts to the riparian influence zone in all 179 watersheds would still not exceed the 5 percent threshold. The single watershed where the threshold would be exceeded if disturbance were doubled is Cottonwood Creek (160300020406) on the Powell Ranger District.

Since cumulative effects are not expected to be evident initially or over time, changes to water quality down stream of each of the 6th HUC watershed is not expected to further impair any 303d listed water or add to any mandated Total Maximum Daily Load.

3.3. Rare Plants

The information in this section is summarized from the *Rare Plants Specialist Report* prepared for this motorized travel plan (USDA 2008f). Please see that report for more detail on the affected environment and effects analysis.

3.3.1. Affected Environment

Plant species selected for this analysis are composed of species that are listed as Threatened, Endangered, or Proposed under the Endangered Species Act (USDI 2005), and Sensitive Species listed on the Intermountain Region Proposed, Endangered, Threatened, and Sensitive Species list (USDA 2003a) that have habitat within areas open to cross-country travel (Table 3-3 on page 3-16). *Townsendia aprica* (Last Chance townsendia) is the only Threatened species located within the project area. This Threatened species has habitat in areas open to cross-country travel. *T. aprica* and the 18 sensitive species with known populations within the project area will be analyzed in detail. There are no Endangered species on the Forest (Rodriguez 2004b).

The recovery plan for *Townsendia aprica* does not designate any critical habitat; however, threats to this species include road development and road building (USDI 1993). The recovery plan states:

> At present, off-road vehicle use on *T. aprica* habitat is light. However, with possible human population increases in the region in which *T. aprica* occurs, and with increasing popularity and availability of improved off-road vehicles, off-road vehicle use is expected to increase. This can be expected to result in an increase in damage to the habitat of *T. aprica*. The Bureau of Land Management, Forest Service, and National Park Service should develop off-road vehicle use plans that prohibit off-road vehicle use on *T. aprica* habitat.

The following table lists those Sensitive plants that were analyzed. A complete list of all Sensitive species, including those that do have suitable habitat on the Dixie but were not analyzed, is included in the Rare Plants Specialist Report (USDA 2008f).

Table 3-3. Rare Plant Species Analyzed

Scientific Name (Common Name)	Status	Presence and Location
Townsendia aprica (Last Chance townsendia)	T	Known on Teasdale
Astragalus limnocharis var. *tabulaeus* (Table Cliff milkvetch)	S	Known on Escalante; suspected on Powell
Botrychium paradoxum (paradox moonwort)	S	Known on Escalante
Castilleja aquariensis (Aquarius paintbrush)	S	Known on Escalante and Teasdale
Castilleja parvula var. *revealii* (Reveal paintbrush)	S	Known on Cedar City, Escalante, and Powell
Cryptantha ochroleuca (yellow-white catseye)	S	Known on Escalante and Powell
Cymopterus beckii (pinnate spring-parsley)	S	Known on Teasdale
Cymopterus minimus (Cedar Breaks biscuitroot)	S	Known on Cedar City, Escalante, and Powell
Eriogonum aretiodes (Widtsoe buckwheat)	S	Known on Escalante and Powell
Gilia caespitosa (Rabbit Valley gilia)	S	Known on Teasdale
Heterotheca jonesii (Jones goldenaster)	S	Known on Escalante
Penstemon bracteatus (Red Canyon beardtongue)	S	Known on Powell
Penstemon parvus (little penstemon)	S	Known on Escalante and Teasdale
Penstemon pinorum (pinyon penstemon)	S	Known on Pine Valley
Salix arizonica (Arizona willow)	S	Known on Cedar City, Powell, and Teasdale
Senecio malmstenii (podunk groundsel)	S	Known on Cedar City, Escalante, and Powell
Silene petersonii (Maguire campion)	S	Known on Cedar City and Powell
Sphaeromeria capitata (rock tansy)	S	Known on Powell
Thelesperma subnuda var. *alpina* (Bicknell thelesperma)	S	Known on Teasdale

Source: Madsen 2004.
T = Threatened; S = Sensitive.
There are additional Sensitive species on the Forest; however, only these 18 species listed in the table have been analyzed for this motorized travel plan.

3.3.2. Effects Analysis

3.3.2.1. Direct and Indirect Effects

3.3.2.1.1. Alternative A

Effects Common to All Rare Plants

This alternative allows cross-country travel on 61 percent of the Forest. The areas open to cross-country travel encompass habitat and known populations of 18 Sensitive species and 1 Threatened species (*T. aprica*). These 19 species and their habitat located in areas open to cross-country travel are at risk of habitat degradation and destruction of plants from OHVs crushing the plants, disturbing the habitat, and by potentially introducing invasive species to the area. Cross-country travel can contribute to noxious weed and invasive species introduction into uninfested areas and can aid in expanding existing populations. Noxious weeds and invasive species are aggressive plants that can take over an area choking out the native species (Gelbard and Belnap 2003).

Effects to T. aprica

There are known locations of the federally-listed species *T. aprica* that occur in areas open to cross-country travel. These populations are located adjacent to 7.11 miles of roads on the Teasdale portion of the Fremont River Ranger District. Currently 5.61 miles of these roads are open to all motorized travel and 1.5 miles are open to full-size vehicles for motorized use and to

OHVs for public use. Due to the existing locations of *T. aprica* within areas open to cross-country travel and along routes that have motorized vehicle use, there is a risk of degradation and decline of these populations.

Increased interest in public lands coupled with the increasing numbers of the new side-by-side ATVs would result in an increase in motorized activity (A & A Research 1994). This increased activity would likely increase the disturbance to populations of *T. aprica*. Examples were documented from one trail where allowable motorized activity was moving into areas occupied by *T. aprica*. Over time, the habitat for this species may begin to erode and compromise the unique nature of these ecosystems (Campbell 2006).

Alternative A poses the greatest potential risk to *T. aprica* populations and habitat due to the potential degradation to *T. aprica* habitat and potential adverse effect on the populations.

Determinations – Sensitive Species

The 18 sensitive species located in areas open to cross-country travel would have some impacts, increasing with escalating motorized use on public lands (A & A Research 1994) under Alternative A because of their vulnerability to cross-country OHV activities.

Alternative A would have no additional affect on the remaining six Sensitive species not analyzed as part of this travel plan due to the fact that known populations are found only in areas already closed to cross-country travel. This determination is based on life histories, field surveys, and habitat assessments for the Sensitive plant species on the Dixie National Forest (Rodriguez 2004b).

Determinations – Threatened Species

Alternative A would have the potential to impact populations of the federally-listed *T. aprica*. This determination is based on the fact that suitable habitat and a few individuals in some populations may continue to be affected due to the open OHV areas with *T. aprica* populations, while other populations would not be affected. In all cases, where suitable habitat and a few individual plants of *T. aprica* may be affected, the determination is that the population as a whole would not be at risk.

3.3.2.1.2. Alternatives B, C, D, and E

Effects Common to Sensitive Species

The impact to sensitive plants would increase in proportion to the increase in number of miles of designated routes within each Sensitive plant colony. None of the action alternatives allow cross-country travel, thereby reducing the impact that cross-country travel can have on plant populations and their habitat. Additionally, the risk of exposing these colonies and unadulterated acres of the Forest to invasive species would decrease in proportion to the reduction of miles of designated routes.

Effects Common to Threatened Species

The action alternatives address existing routes adjacent to *T. aprica* populations on the Teasdale portion of the Fremont River Ranger District differently. Under Alternatives B and C, 5.58 miles of routes would remain open only to administrative motorized use. Under Alternative

D, those same 5.58 miles of routes would remain open to all uses with proposed mitigation (see Chapter 2). Also under Alternative D, 1.5 miles would remain open to both administrative use and OHV use by the public. Under Alternative E, 7.11 miles would remain open to all motorized use.

Due to the motorized use on these routes near populations and habitat, there is a risk to the known populations. An invasion of noxious and invasive species could degrade the habitat compromising *T. aprica* populations. Of the action alternatives, Alternative E poses the greatest risk to this Threatened plant. Alternatives B and C pose the least risk, and Alternative D falls in the middle for risk. The following table compares the miles of routes associated with known *T. aprica* populations by action alternative.

Table 3-4. Miles of Routes by Designation and Alternative Adjacent to *Townsendia aprica* Populations

Alternative	Miles Open to Administrative Use	Miles Open to Administrative Use and Public OHV Use	Miles Open to All Uses
B	5.58	0	0
C	5.58	0	0
D	0	1.5	5.58
E	0	0	7.11

Determinations – Sensitive Species

The action alternatives (Alternatives B, C, D, and E), all of which close the Forest to cross-country travel and restrict travel to designated routes, would have little to no affect on any populations of the 18 analyzed Sensitive plant species with known populations on the Dixie National Forest. This determination is based on life histories, field surveys, and habitat assessments for the Sensitive plant species on the Dixie National Forest as described in Rodriguez 2004.

Determinations – Threatened Species

Alternatives B and C would have no detrimental effect to *T. aprica*. Under these alternatives cross-country travel is closed and travel routes are limited; these alternatives have deterred possible future damage. This determination is based on life histories, field surveys, and habitat assessments for this Threatened plant species on the Dixie National Forest as described in Rodriguez 2004.

Alternatives D and E would have a may affect, not likely to adversely affect determination for populations of *T. aprica*. This determination is based on the fact that suitable habitat and a few individuals in some populations may continue to be affected, while other populations would not be affected. In all cases, where suitable habitat and a few individual plants of *T. aprica* may be affected, the population as a whole would not be at risk.

Any of the action alternatives would be more restrictive than Alternative A. Populations of *T. aprica* would be benefited by any action alternative over time due to the substantial reduction of the area where motorized activity would be allowed.

Effects Common to Rare Plant Species from Proposed Motorized Trail Construction in Alternatives D and E

Alternatives D and E both propose the construction of 2 segments of motorized trail comprising 1.26 miles on the Cedar City Ranger District (see map on page 3-115). Neither of the motorized trails proposed for construction are located within habitat for any Sensitive species or within habitat for the Threatened *T. aprica*. There would be no effect to rare plants from construction of either motorized trail.

3.3.2.2. Cumulative Effects

- **Utilities.** Proposals for new power lines, telecommunication facilities, and water lines and tanks to be located on the Forest are received annually. All these projects result in additional disturbance opening sites to noxious weeds. Routes used for utilities are closed to the public and therefore there would be no additional effect to rare plants. Special use permittees would follow guidelines to prevent spread of noxious weeds.
- **Oil and gas.** Site-specific analysis would be conducted when specific oil and gas projects are proposed and specific locations are known. Disturbance and heavy equipment creates exposure and opportunity for noxious weed seeds and plant parts to become established. However, there would be no greater threat when combined with the implementation of any alternatives. Effects to rare plants would remain unchanged.
- **Transportation.** All action alternatives would result in the elimination of cross-country travel. This action would reduce current and potential future interaction between cross-country travel and other forest actions, thereby reducing the threat to sensitive plant populations. Alternative A has the highest potential to result in adverse cumulative impacts to sensitive plant populations, primarily related to the continuation of cross-country travel on the 61 percent of the Forest where it is currently allowed.
- **Recreation.** Dispersed camping and ATV use are widespread across the Forest. ATV use and cross-country travel are commonly related activities that occur within and near popular dispersed camping areas. Selection of Alternative A would result in cumulative detrimental impacts associated with dispersed camping and ATV use on the sensitive plant populations within areas open to cross-country travel. Additionally, routes included within all action alternatives that increase the designated ATV system would present the potential for adverse cumulative effects associated with dispersed camping. This would result in minimal additional impacts to sensitive plants.
- **Vegetation treatments.** Proposals for new timber sales and other vegetation treatments are an annual occurrence on the Forest. Alternative A would continue current impacts with no changes to sensitive species impacts. All action alternatives actually decrease impacts to sensitive plants. These reductions are proportional to miles of roads closed.
- **Land exchanges and easements.** Land exchanges and easements may require new travel routes, increasing miles of roads when combined with Alternative A, resulting in a net increase in road impacts. The action alternatives would curtail this affect, minimizing impacts to noxious weed spread and sensitive species degradation.
- **Special uses.** Each special use permit increases use of public lands when combined with Alternative A more overall area is open to degradation and therefore increases opportunity for noxious weed seeds to be introduced in remote areas as well as degradation to sensitive species populations. The action alternatives concentrate these uses onto designated routes, reducing the potential impact.

- **Livestock grazing.** Alternative A would have no more cumulative effects than at present for noxious weeds and sensitive plants. The action alternatives would improve our ability to monitor travel routes for noxious weeds and reduce cross-country impacts on sensitive species cumulatively as well as reducing the stresses on plant communities giving vegetative resources the advantage.

3.4. Vegetation and Fire and Fuels

The information in this section is summarized from the *Vegetation and Fire and Fuels Specialist Report* prepared for this motorized travel plan (Jump 2008). Please see that report for more detail on the affected environment and effects analysis.

3.4.1. Affected Environment

Vegetation on the Dixie National Forest consists of trees, shrubs, grasses, and forbs. Some of the most common uses of Forest vegetation include:

- Conifers and aspen: saw timber, mine timbers and props, fence material (poles and posts), house logs, firewood, Christmas trees, and cones and seeds,
- Shrubs: deer and elk forage, limited livestock forage, ornamentals, berries for wildlife and humans, and
- Grass and forbs: elk and livestock grazing, seeds (wildlife food source).

Use and administration of vegetation require an appropriate motorized travel network to access areas. Firewood collection availability is an important consideration as wood is a common heating source for homes located in rural areas in and near the Dixie National Forest.

The vegetation on the Forest has been affected by change elements including wildfire, drought, and insect infestations. Thinning, salvaging dead trees, and treating accumulations of dead wood to reduce fuels require a reasonable level of motorized access. Decades of wildfire suppression has kept fire out of aspen groves. Low or absent demand for aspen wood products has resulted in minimal acres of aspen managed for regeneration. The Forest has recently begun aspen restoration projects to regenerate decadent stands; motorized access will be required in these areas for project completion and monitoring.

Suitable timber land is forest land suitable for management of commercial timber species (conifers and aspen) (USDA 2007c). Areas excluded from the suitable timber land base include areas of non-Forest Service ownership, designated wilderness areas, administratively withdrawn lands, economically and technologically infeasible lands, and lands where adequate reforestation is not assured. Timber suitability assumes that motorized travel access exists adequate to perform all aspects of timber management such as timber harvest and administration, reforestation and associated site preparation, pre-commercial thinning, stand examination, and fuel reduction projects. Most roads in suitable timber areas were constructed in conjunction with timber harvest. This has resulted in relatively high road densities where timber has been harvested. The Forest Service system road network is adequate in most areas to serve the needs of currently appropriate vegetation management intensity. For more detail, see the *Vegetation and Fire and Fuels Specialist Report* (Jump 2008).

The current forest products program on the Forest averages timber harvest on 1,500 to 2,000 acres annually. Commercial products harvested include saw logs and house logs, each accounting for about half of the annual 13 MMBF (million board feet) harvest. Tree seedlings are planted on about 500 acres annually across the Forest to replenish stands killed by bark beetles or fire, and a few stands receiving regeneration harvest (Jump 2008).

3.4.2. Effects Analysis

3.4.2.1. Direct and Indirect Effects

Motorized travel route designation does not directly affect forested vegetation, but it does affect access to vegetation for resource uses and management, primarily timber harvest and salvage and Forest Service access for vegetation management project work. Effects indicators for vegetation are the change in:

1. Opportunity for management of forested vegetation on suitable timber lands, and
2. Public opportunity to collect firewood and other forest products.

There are 467,870 acres of lands suitable for timber management on the Forest. For this analysis, only those suitable lands within one-half mile of roads designated as open in each alternative were considered. There are scattered areas of suitable timber beyond one-half mile of the existing road system; however, these areas would not likely need to be accessed for management within the foreseeable future so will not be considered in this analysis. The following table displays the suitable timber within one-half mile of open roads by alternative.

Table 3-5. Acres Suitable for Timber Production within a Half-Mile Buffer by Alternative

Area	Total Suitable Acres	Alternative									
		A		B		C		D		E	
		Acres Within Buffer	% Within Buffer	Acres Within Buffer	% Within Buffer	Acres Within Buffer	% Within Buffer	Acres Within Buffer	% Within Buffer	Acres Within Buffer	% Within Buffer
Cedar City	167,430	144,690	86%	127,960	76%	135,770	81%	143,460	86%	147,930	88%
Escalante	136,460	126,960	93%	100,750	74%	107,530	79%	124,480	91%	127,790	94%
Pine Valley	1,510	1,220	81%	1,220	81%	1,220	81%	1,220	81%	1,220	81%
Powell	66,830	64,290	96%	56,040	84%	60,460	90%	63,030	94%	64,580	97%
Teasdale	95,640	69,230	72%	57,730	60%	59,250	62%	66,020	69%	69,710	73%
Forest-wide	467,870	406,390	87%	343,700	73%	364,230	78%	398,210	85%	411,230	88%

All acres are rounded to the nearest 10 acres.

3.4.2.1.1. Effects Common to All Alternatives

Vegetation

Vegetation Management. Additional temporary roads and reconstruction of existing roads may be needed to facilitate vegetation management activities as needs and opportunities are identified. Individual project analysis conducted according to the National Environmental Policy Act (NEPA) would evaluate needs for existing road reconstruction and construction of temporary roads.

Opportunities to access major portions of the Forest, including suitable timber base lands, would continue under all alternatives. None of the alternatives are limiting to forested vegetation management projects planned for the next five years. All planned projects would remain reasonably accessible under all alternatives.

Unforeseen needs for future motorized access for forested vegetation management, including rehabilitation of stands burned by wildfire or damaged by insect or disease outbreaks, would be assessed by NEPA analysis of each individual project.

Ongoing monitoring must be conducted across the Forest to assess the condition and health of forested vegetation. Existing motorized travel routes contribute to access for monitoring and management of forest stands.

Effects on vegetation below the commercial conifer zone (pinyon and juniper, shrub lands, and grasslands) can only be considered in a relative sense. Alternatives offering greater motorized access may increase chances of damage to vegetation near roads and trails.

Firewood Collection. Collection of dead and down wood through use of personal use firewood permits would continue under all alternatives. Firewood can be found most anywhere from the pinyon/juniper vegetation type to the high elevation spruce-fir stands. Trees die somewhat randomly, so it is impossible to predict where firewood would be located. Firewood located near roads is preferred because it is most easily accessible. Some alternatives would provide greater opportunities to collect firewood than others. Relative opportunity to collect firewood is discussed in the individual alternative sections below. Firewood permits would specify any associated motorized travel rules specific to the permit.

Fire and Fuels

Most fire suppression relies on motorized access for engines and crews. Alternatives with fewer miles of open road could cause longer travel times and possibly larger fires due to the increased travel time for crews and equipment. However, fewer miles of road open for public access could offer less chance of human-caused fires to occur. These effects cannot be quantified due to the fact that wildfires are more or less random events, so analysis of them can only be relative in terms of motorized access.

Any effects of lack of open roads on wildfire suppression are expected to be minimal since the roads in critical strategic locations for wildfire suppression within the Dixie National Forest remain open in all alternatives. Fuels management projects, including prescribed burning, require individual NEPA analyses where motorized access needs would be evaluated for each planned project.

Planned fuel management projects would continue as usual as all planned fuels management projects remain reasonably accessible under all alternatives.

3.4.2.1.2. Comparison of Effects

Vegetation

Vegetation Management. All alternatives would provide reasonable motorized access to all of the vegetation management projects planned on the Dixie National Forest for the next five years. All alternatives would also provide motorized access to major portions of suitable timber lands. Alternative E provides the greatest number of miles of open roads for these purposes and for general public access. Alternatives A and D also provide open public roads to most forested areas. Alternatives B and C offer the least amounts of motorized access, and some roads closed in these alternatives might need to be reopened in the future to manage vegetation

resources. However, as noted above, these needs would be analyzed in each project's NEPA. While Alternatives B and C offer the least amount of access to suitable timber lands, future timber harvests would probably not need to be significantly reduced from the current level of 13 MMBF, although the possibility does exist depending upon future forest product types and project economics.

Firewood Collection. Alternative A offers the greatest potential area for firewood collection as cross-country travel is allowed on 61 percent of the Forest. Alternative E has the next greatest potential for firewood collection areas, followed by Alternatives D, C, and B, in that order.

Fire and Fuels

Effects of the motorized transportation system on wildfire suppression cannot be quantified as fires begin in somewhat random locations. Where motorized access exists, it is logical to assume that fire crews and equipment can get to fires faster so fires would have less time to burn before initial attack begins. This should result in generally smaller fires where they are accessible by motorized travel. Alternatives A and E would therefore offer a somewhat lower risk of larger fires. Alternative B would offer the highest risk of larger fires since fewer miles of roads are open. Alternatives with more roads, however, offer additional areas accessible to people in vehicles and a corresponding higher risk of human-caused fires. Alternative B has the fewest miles of open road so would offer a somewhat lower risk of human-caused fires. Alternatives A and E have the most miles of open roads so would offer higher risks of human-caused fires.

None of the alternatives restrict motorized access to fuels management projects planned for the next five years.

The Motorized Travel Plan alternatives do not propose to construct or reconstruct any new roads. Decisions regarding access for fire suppression and fuels management projects are deliberately deferred to appropriate project analysis. Therefore, there would be no conflicts in any of the alternatives with current laws, regulations, policy, or land use plans.

3.4.2.2. Cumulative Effects

There are no cumulative effects to forested vegetation or forested vegetation management from any of the alternatives.

3.5. Aquatic Biota

The information in this section is summarized from the *Aquatic Biota Specialist Report* prepared for this motorized travel plan (USDA 2008a). Please see that report for more detail on the affected environment and effects analysis.

3.5.1. Affected Environment

Aquatic biota on the Forest can be broken into four broad categories: sport fish, non-game fish, amphibians, and aquatic macroinvertebrates. The more inconspicuous forms of aquatic biota such as aquatic mollusks and aquatic plants have not generally been studied across the Forest, and there is little trend data on macroinvertebrates.

The Forest contains portions of 39 5th field Hydrologic Unit Code (HUC) watersheds. Only those 22 watersheds within the Forest boundary that support self-sustaining fisheries have been analyzed. See the *Aquatic Biota Specialist Report* for descriptions of the condition of each of these 22 watersheds (USDA 2008a).

3.5.2. Effects Analysis

3.5.2.1. Direct and Indirect Effects

3.5.2.1.1. Effects Common to All Alternatives

Roads, particularly those located in close proximity to riparian areas, pose a distinct threat to aquatic biota habitat quality and population structure (Gucinski et al. 2001, Furniss et al. 1991). Roads can route sediment into water bodies, fragment aquatic habitat (i.e., migration barriers), and provide a vector for introduction of aquatic nuisance species and hazardous materials (Trombulak and Frissell 2000). Additionally, roads provide access to and concentrate human and livestock use within riparian areas. This can lead to widespread degradation of stream banks, in-channel aquatic habitat, and riparian vegetation.

Under any of the alternatives, there are roads and motorized trails within watersheds that support fish populations and other aquatic biota. Some of these routes are located within riparian influence zones (RIZs), and thus can negatively impact both aquatic biota populations and habitat. For this analysis, a RIZ is defined as any area falling within 300 feet of fish-bearing streams and high value lakes.

None of the alternatives would increase road- and motorized trail-related impacts to aquatic biota beyond what is currently occurring. Selection of any of the action alternatives would result in a decrease in detrimental effects to aquatic biota from roads and motorized trails due to the elimination of cross-country travel and some road decommissioning.

A major effect to aquatic biota on the Dixie National Forest are system roads, non-system roads, and motorized trails, all of which generally run alongside streams and riparian zones and in canyon bottoms in areas where locations for routes are constrained. Routes often run near

water even in unconstrained upper mountain headwaters and plateaus. The effects of motorized routes include increased stream channel confinement, reduced stream sinuosity, increased gradient, increased sedimentation, reduced riparian shading, and decreased amounts of large woody debris. Easy access also generally increases the degree of land management activities in an area such as grazing or timber harvest, and increases human activity such as recreation. All of these aspects can increase effects to aquatic habitat that in turn affect aquatic biota. Examples of potential effects are reduced carrying capacity, increased water temperature, degradation of water quality, introduction of non-native organisms, or aquatic nuisance species.

3.5.2.1.2. Alternative A

Under Alternative A, 61 percent of the Forest would remain open to cross-country travel, including approximately 14,823 acres within fish-bearing stream RIZs and approximately 2,843 acres within high value lake RIZs. Alternative A would permit further development of increasing networks of user-created routes in these areas, resulting in persistent and expanding (as new routes are created) degradation of aquatic habitats.

Depending on slope, terrain, and vegetation, the actual amount of these open travel areas that may receive motorized use varies. In some sub-watersheds with gentle terrain and open vegetation, motorized vehicles (primarily OHVs) may be able to travel across a large percentage of the area. This can lead to higher rates of erosion across broad areas, but may also diffuse impacts. In other sub-watersheds with steep terrain and dense vegetation, OHV use is often physically restricted to major ridgetops and drainage bottoms. Ridgetop use would generally be far enough away from streams to reduce sedimentation, but drainage bottom use can affect aquatic biota due to the direct proximity to streams and lakes, with damage including sedimentation, stream bank damage, and damage to vegetation. Additionally, these drainage bottoms are often important passageways for amphibians.

3.5.2.1.3. Alternatives B, C, D, and E

The key benefit to aquatic biota and habitat under the action alternatives is the elimination of motorized cross-country travel on the Forest. This action should limit current and future expansion and creation of unauthorized routes, thus limiting potential degradation of high value aquatic habitats.

Alternatives B, C, and D are relatively similar in terms of effects to aquatic biota and habitat. Any one of these three alternatives would decrease road density within the RIZ of fish-bearing streams and high value lakes as compared to Alternative A. The variation in RIZ road mileage between these alternatives is spread out across the Forest and does not represent a significant difference within any one drainage.

Alternative E would designate more miles of motorized routes within RIZs than any other alternative, including Alternative A. However, Alternative E would prohibit cross-country travel; thus, potential future degradation to aquatic biota habitats and populations would be reduced when compared to Alternative A. Of the four action alternatives, Alternative E provides the least amount of benefit to aquatic biota resources on the Forest.

Road mileage within the RIZ of lakes is fairly low in all alternatives. Access to lakes on the Forest is generally via a single route that dead ends at the lake in question. The majority of

these routes have been maintained within all alternatives as they serve specific destinations and provide necessary access for special uses or recreation.

3.5.2.1.4. Proposed Motorized Trail Construction – Alternatives D and E

Alternatives D and E both include the construction of two segments of motorized trail comprising 1.26 miles. Construction of both of these new trails would occur outside of the RIZs of fish-bearing streams and high value lakes. No effects to aquatic biota resources or habitat would occur as a result of this new trail construction in either alternative.

3.5.2.1.5. Effects to Threatened, Endangered, and Sensitive Species

Virgin River Chub and Woundfin
There are only two federally listed aquatic species: the Virgin River chub and woundfin, both listed as Endangered. These two fish species occur downstream of National Forest System lands within the Virgin River system. Implementation of any alternative being considered within this process would not affect fisheries habitat within the Virgin River mainstem where these species are known to occur.

The remaining species in this section are listed on either the Intermountain Region's Sensitive Species List (USDA 2003a) or on the State of Utah Sensitive Species List (UDWR 2006).

Bonneville Cutthroat Trout
Bonneville cutthroat trout (BCT) occupies streams and lakes on the Pine Valley, Cedar City, Powell, and Escalante Ranger Districts. Across the Forest, all action alternatives would provide similar or identical protection for BCT and its occupied habitat. However, Alternatives B and C could provide better protection for the species within the Threemile Creek watershed. These two alternatives have reduced RIZ road densities within the upper Delong Creek area and along lower Threemile Creek when compared to Alternatives A, D, and E. Given the other current land uses (e.g., livestock grazing, dispersed recreation) within the watershed, however, it is unlikely that the reduced road densities within Alternatives B and C alone would result in significant increases in habitat quality or population structure.

Colorado River Cutthroat Trout
Colorado River cutthroat trout (CRCT) occupies streams and lakes on the Escalante Ranger District and on the Teasdale portion of the Fremont River Ranger District. All action alternatives would provide similar or identical protection for CRCT and its occupied habitat. There is some potential that proposed road closures within the West Branch Pine Creek drainage, which are included in Alternatives B and C, could help facilitate future work to biologically connect West Branch CRCT with mainstem Pine Creek and Right Fork Pine Creek CRCT through the elimination of culverts along roads 30729 and 30652.

Southern Leatherside
On the Dixie National Forest, distribution of southern leatherside (formerly leatherside chub) is limited to a few small drainages on the Cedar City and Escalante Ranger Districts. All action alternatives provide similar or identical protection for this species.

Virgin Spinedace
Virgin spinedace distribution on the Forest is limited to the Moody Wash drainage on the Pine Valley Ranger District. However, this species is somewhat widespread within the Virgin River headwaters downstream of the Pine Valley and Cedar City Ranger Districts. Road closures

included within Alternatives B and C would reduce threats to Virgin spinedace habitat within Moody Wash. Alternatives D and E would provide only limited benefits to Virgin spinedace when compared to Alternative A, primarily a result of eliminating motorized cross-country travel.

Arizona Toad
Arizona toad is known to occur in several drainages in the southwest portion of the Pine Valley Ranger District. Road closures included within Alternatives B and C would reduce threats to Arizona toad habitat within Moody Wash. Alternatives D and E would provide only limited benefits to Arizona toad when compared to Alternative A, primarily a result of eliminating motorized cross-country travel. In other occupied drainages, including the Pine Park area, all action alternatives would provide similar or identical protection for Arizona toad populations and habitat.

Boreal Toad
Boreal toad occupies habitat on the Paunsaugunt Plateau on the Powell Ranger District and on Boulder Mountain on the Teasdale portion of the Fremont River Ranger District. All known occupied habitat and populations on the Forest would be equally protected under all action alternatives. The Paunsaugunt Plateau is heavily roaded and would remain so regardless of which alternative is selected. Aside from roads, livestock grazing and chytrid fungus are currently limiting boreal toad habitat and populations in this area. Conversely, boreal toad occupied habitat on Boulder Mountain is sparsely roaded and would remain so regardless of which alternative is selected. On Boulder Mountain the primary threats to boreal toad habitat include livestock grazing, water impoundments, diversions, and conveyance structures.

3.5.2.2. Cumulative Effects

The cumulative effects area for the aquatic biota resource is all lands within the Dixie National Forest boundary. Known aquatic biota population distribution and the limited connectivity (current and potential) of aquatic habitats on the Dixie National Forest with adjacent non-Forest Service lands support the relevance of this effects area.

1. **Utilities.** Utility corridors are common features on the Forest. In general, currently existing corridors are causing very limited impacts to the aquatic biota resource. What impacts there are, are associated with utility corridor stream crossings and do not tend to be related to the motorized travel system. The greatest potential for detrimental effects to aquatic biota occurs during utility corridor construction. During these periods, ground disturbance is common and the potential for erosion and sediment deposition within aquatic habitats is high. Following construction, disturbed ground tends to recover quickly as vegetation and ground cover is reestablished. Selection and implementation of any of the alternatives is not expected to result in long-term cumulative impacts to the aquatic biota resource from utility corridor interactions.
2. **Oil and gas.** Oil, gas, and other mineral use on the Forest is currently fairly limited. The most common mineral use is from gravel and cinder pits located across the Forest, and a small number of gas wells on the Escalante Ranger District. Impacts to the aquatic biota resource from oil, gas, and other mineral activities are extremely limited due to the upland location of most of the gravel pits and gas wells. Selection and implementation of any of the alternatives is not expected to result in cumulative impacts to the aquatic biota resource from oil, gas, or other mineral activities.
3. **Transportation**.
    - All routes considered for designation within the alternatives currently exist and are receiving some amount of use. The only exception to this is the small

amount of new motorized trail construction (1.26 miles) proposed in Alternatives D and E (discussed on page 3-27). Because of this existing use, regardless of which alternative is selected, detrimental effects to aquatic biota habitat and populations from the motorized route network would either be reduced or maintained when compared to the current condition.

- All action alternatives would result in the elimination of cross-country travel. This action would reduce current and potential future interaction between cross-country travel and other Forest actions, thereby reducing the threat of detrimental effects to aquatic biota populations and habitat.
- Alternative A has the highest potential to result in adverse cumulative impacts to aquatic resources. This is primarily related to the continuation of cross-country travel on portions of the Forest, including sensitive riparian areas, stream corridors, and lake basins. This issue is further exacerbated due to the current travel system providing limited protection of aquatic resources as described in the *Aquatic Biota Specialist Report* (USDA 2008a) and the expected increase in motorized use of the Dixie National Forest (USDA 2008i).
- All of the action alternatives would result in beneficial cumulative effects to aquatic biota in response to past and present implementation of travel management actions on the Forest. All of these projects either reduced total motorized route mileage within specific watersheds or reduced route encroachment on sensitive aquatic habitats.

4. **Recreation.** Dispersed camping within riparian areas is widespread across the Forest. OHV use and cross-country travel are common related activities that occur within and near popular dispersed camping areas. Selection of Alternative A would result in cumulative detrimental impacts associated with dispersed camping and OHV use within the RIZ of drainages within areas open to cross-country travel. Additionally, routes included within all alternatives that encroach upon RIZs would present the potential for adverse cumulative effects associated with dispersed camping. These effects may include increased sediment influx into waterbodies from bank damage and user-created crossings, reduced riparian plant composition and structure, and increased risk of aquatic nuisance species transfer and introduction. Each of these effects has the potential to reduce aquatic biota habitat condition and population structure.
5. **Vegetation treatments.** Road construction, maintenance, closure, and obliteration are common components to many vegetation projects. Selection of any of the action alternatives would result in beneficial cumulative effects to the aquatic biota resource through the reduction of total motorized route mileage and open motorized cross-country areas. These beneficial effects would be most evident within Alternatives B, C, and D.
6. **Land exchanges and easements.** Existing road easements on the Forest are included within the motorized route network that has been analyzed as part of this process. There are no foreseeable future land exchanges or easements that would result in cumulative effects to the aquatic biota resource in conjunction with this project. Current easements and recent past land exchanges are not appreciably affecting the quality of the aquatic biota resource on the Forest.
7. **Special use permits.** The Forest issues many special use permits for various activities. The effects to the aquatic biota resource from these activities are highly variable, but tend to be innocuous and site-specific. Since selection and implementation of any of the action alternatives would result in beneficial effects to the aquatic biota resource, no detrimental cumulative effects to the aquatic biota resource in conjunction with the various special uses is expected or likely.
8. **Livestock grazing.** Livestock grazing is common and widespread on the Dixie National Forest. Since selection and implementation of any of the action alternatives would result

in beneficial effects to the aquatic biota resource, no detrimental cumulative effects to the aquatic biota resource in conjunction with livestock grazing is expected or likely.

Regardless of the alternative selected, forest-wide improvement or degradation within aquatic biota populations and habitats is likely to be slight. Additionally, the magnitude of these responses is expected to fall within the normal variation and would be difficult to tie directly to this project. However, certain elements contained within the action alternatives of this project have the capability of improving the aquatic biota resource at specific locations.

Selection of any of the action alternatives would result in slight beneficial effects to aquatic biota populations and habitat on the Forest. This is primarily a response to the elimination of cross-country travel. Additionally, Alternatives B, C, and D would reduce total motorized route mileage across the Forest and within certain watersheds. However, these effects are not likely to result in marked improvement in fish biomass production or a wholesale improvement in aquatic habitats on the Forest.

Selection of Alternative A would result in a continuation of current deleterious effects to aquatic biota populations and habitat associated with the motorized travel system. The primary causative factor behind these effects is the continuation of cross-country travel and the persistence of specific routes within RIZs and key watersheds.

3.6. Terrestrial Wildlife

The information in this section is summarized from the *Wildlife Specialist Report* prepared for this motorized travel plan (USDA 2008n). Please see that report for much more detail on the affected environment and effects analysis.

3.6.1. Affected Environment

Motorized forest roads and trails have the potential to affect wildlife and their habitat depending on the mode of motorized travel, type (width and surfacing) and location of the road, traffic volume and speed of travel, and the season of use by both animal and vehicle (Forman and Sperling 2003, Forman and Alexander 1998, Trombulak and Frissell 2000, Wisdom et al. 2000). Roads influence wildlife in numerous ways, including a direct loss of habitat, changes in the quality and/or effectiveness of the adjacent habitats, increasing habitat fragmentation, alteration of wildlife movements, and direct mortality from vehicle collisions (ibid).

This analysis focuses on quantifying the effects of roads on species habitat. Measures for the various species include habitat availability, road density, habitat effectiveness, and road buffers. The following table lists those species potentially affected by the alternatives and analyzed in the effects analysis.

Table 3-6. Wildlife Species – Existing Condition

Species (Status)	Existing Condition
California condor (E and T)*	Condors reintroduced near the Grand Canyon in Arizona have been detected as far north as Flaming Gorge Reservoir and as far east as Moab. While no observations of this species have been documented within the project area (Rodriguez 2004b), potentially suitably nesting habitat does exist along steep cliffs located on the Pine Valley, Cedar City, and Powell Ranger Districts. There are 616,825 acres of available nesting habitat in the project area.
Mexican spotted owl (T)	Mexican spotted owls have been confirmed on the Cedar City (winter location), Teasdale, and Escalante Ranger Districts, though no nesting Mexican spotted owls have been located anywhere on the Dixie National Forest. There are approximately 35,800 acres of Critical Habitat designated on the Escalante and Teasdale Ranger Districts.
Mojave Desert tortoise (T)	Approximately 1,860 acres of potentially suitable habitat have been identified on the Pine Valley Ranger District for this species. This acreage includes 80 acres of Critical Habitat designated by the Desert Tortoise Recovery Plan (USDI 1994).
Utah prairie dog (T)	The species' range is limited to Iron, Garfield, Piute, Wayne, and Sevier counties in southcentral Utah. Of the 29,130 acres of habitat within the project area, 26,926 acres are on NFS lands. Acres includes habitat and known populations of prairie dogs for the Awapa Plateau and Paunsaugunt Recovery Areas.
American peregrine falcon (S)	There are 11 known peregrine nest sites on the Dixie National Forest, with nest activity varying from year to year. Suitable habitat is abundant; however, no other nest sites have been located on the Forest (Rodriguez 2004b). Currently known nesting habitat includes the nest cliff sites and a 1-mile foraging area buffer. There are approximately 21,945 acres of known habitat in the project area, 19,840 acres of which are on NFS lands.
Bald eagle (S)	Bald eagles occur within the project area predominately during late fall and winter months; no nests have been found in the project area. Of the approximately 13,950 acres of potentially suitable wintering habitat in the project area, 12,770 acres are on NFS lands.
Flammulated owl (S)	Flammulated owls have been documented throughout the Dixie National Forest. Of the approximately 472,640 acres of potentially suitable habitat within the project area, 454,100 acres are on NFS lands.
Greater sage grouse (S)	The Forest provides summer brood rearing habitat and a limited amount of known nesting and winter foraging habitat. A total of 18 leks have been identified within or near the project area, 12 of which have all or part of the buffered lek within the project area. Of the approximately 235,190 acres of potential lek and brood-rearing habitat within the project area, 226,360 acres are on NFS lands.
Northern goshawk (S)	Approximately 130 territories (and 375 associated nests) have been located within the project area. All but 4 of the approximately 23,820 acres of known nesting habitat in the project area are on NFS lands. Of the approximately 101,050 acres of designated post-fledgling area (PFA) habitat in the project area, 100,980 acres are on NFS lands.
Pygmy rabbit (S)	This species has not been located within the project area to date. Of the approximately 57,840 acres of potentially suitable habitat within the project area (the vast majority of which is on the Pine Valley Ranger District), 47,880 acres are on NFS land.
Spotted bat (S) and Townsend's big-eared bat (S)	Key potentially suitable foraging habitat for both species includes a 300-foot buffer surrounding all perennial streams, lakes, and ponds within the project area. Of the approximately 112,200 acres of key foraging habitat within the project area, 100,040 acres are on NFS lands. Potential roosting habitat for Townsend's big-eared bat includes all forested areas on the Forest (approx. 656,900 acres). Mammoth and Bowers caves are important winter hibernacula and day-time roost sites for Townsend's big-eared bat.

Species (Status)	Existing Condition
Three-toed woodpecker (S)	A total of 131 locations have been documented since 1997, with an increasing number of individuals observed during the height of the spruce bark beetle infestations (Rodriguez 2004a, 2004b). Of the approx. 248,870 acres of potentially suitable habitat in the project area, 241,870 acres are on NFS lands.
Mule deer (MIS)	The project area encompasses portions of 7 different Wildlife Management Units (WMUs): Pine Valley, Zion, Panguitch Lake, Paunsaugunt, Mount Dutton, Plateau, and Kaiparowits. Mule deer populations are currently below objectives in all units due to a combination of factors including limited winter range, predation, and special hunts to alleviate depredation on private property. Existing habitat within the project area is currently impacted by higher than desirable road densities and diminished secure habitat throughout most of the 7 WMUs. See the *Wildlife Specialist Report* (USDA 2008n) for more detail on the existing condition of mule deer habitat availability and population goals within each of the WMUs.
Northern flicker (MIS)	Northern flickers occur on all 5 ranger districts within the project area. Forest-wide surveys indicate that the number of flickers are on an upward trend and have increased since 1986 by approximately 24,100 pairs (Rodriguez 2004a, 2004b). Of the approx. 1,192,640 acres of potentially suitable habitat in the project area, 1,161,410 acres are on NFS lands.
Rocky Mountain elk (MIS)	The project area encompasses portions of 7 different WMUs: Pine Valley, Zion, Panguitch Lake, Mount Dutton, Paunsaugunt, Boulder Plateau, and Kaiparowits. Elk populations trends on the Dixie National Forest are stable to slightly up and viable (Rodriguez 2004a, 2004b), though elk populations are presently below objectives in all but 2 of the 7 units (UDWR 2007). Existing habitat within the project area is currently impacted by higher than desirable road densities and diminished secure habitat throughout most of the 6 WMUs. See the *Wildlife Specialist Report* (USDA 2008n) for more detail on the existing condition of elk habitat availability and population goals within each of the WMUs.
Wild turkey (MIS)	Both Merriam's and Rio Grand turkeys are found on the Dixie National Forest. Wild turkey populations have been stable on the Forest, with hunting opportunities provided on all populations on the Forest (Rodriguez 2004a, 2004b). Of the approx. 712,240 acres of potentially suitable habitat in the project area, 692,160 are on NFS lands.
Black-rosy finch (O)	This species was not documented on any of the Breeding Bird Survey (BBS) transects; however, none of these transects are located in the species' alpine habitats. All the potentially suitable habitat for this species, 50,740 acres, is on NFS lands on the Cedar City Ranger District and Teasdale Ranger Districts.
Black-throated gray warbler (O)	BBS data suggest a decreasing trend for this species in the area. Of the approx. 618,720 acres of potentially suitable habitat in the project area, 605,170 acres are on NFS lands, primarily on the Pine Valley Ranger District.
Brewer's sparrow (O)	BBS data suggest a decreasing trend for this species in the area. Of the approx. 113,390 acres of potentially suitable habitat in the project area, 98,410 acres are on NFS lands.
Broad-tailed hummingbird (O)	BBS data suggest a relatively stable to decreasing trend for this species in the area. Preferred nesting habitat is available within the approx. 45,760 acres of riparian habitat along the perennial streams corridors, lakes, and ponds located within the project area.
Gambel's quail (O)	Limited data from the Newcastle BBS transect suggest a decreasing trend for this species in the area. Of the approx. 330 acres of potentially suitable habitat in the project area, 250 acres are on NFS lands.
Gray vireo (O)	BBS data suggest a decreasing trend for this species in the area. Of the approx. 626,450 acres of potentially suitable habitat in the project area, 612,060 acres are on NFS lands.

* Endangered west of I-15; Threatened east of I-15.
Status: E=Endangered, T=Threatened, S=Sensitive, MIS=Management Indicator Species, O=Other species of concern.

3.6.2. Effects Analysis

As noted above, the information included here is a summary from the *Wildlife Specialist Report* (USDA 2008n). For detailed information such as specific habitat type acres impacted by alternative, please see the specialist report.

3.6.2.1. California Condor

3.6.2.1.1. Direct and Indirect Effects

Alternative A

This species is not currently nesting within the project area so no disturbance or direct mortality is expected from continued motorized travel or decommissioning activities. Cross-country travel would continue with a net result of proliferation of routes throughout potential nesting habitat and a net lost of habitat. Only 65 miles unauthorized routes would be closed, with a net motorized reduction of only 5 percent within modeled habitat.

Alternatives B, C, and D

This species is not currently nesting within the project area so no disturbance or direct mortality is expected from continued motorized travel or decommissioning activities. In addition, all three of these alternatives would result in a closure of motorized cross-country travel within 54 percent of the available potential nesting and associated foraging habitat for this species. In conjunction with previous management decisions, Alternatives B, C, and D would result an incremental decrease in motorized access of 40 percent, 34 percent, and 18 percent, respectively, from the existing condition. Miles of non-motorized trails would increase under all three of these alternatives. A reduction in miles of road and elimination of cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

Alternative E

This species is not currently nesting within the project area so no disturbance or direct mortality is expected from continued motorized travel or decommissioning activities. Cross-country travel would be eliminated within 54 percent of the potential nesting habitat. However, Alternative E would result in the classification of many more unauthorized routes to a Level 2 classification, with a net 1 percent increase in available motorized access within this species' habitat over the existing condition. The elimination of cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

3.6.2.1.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, livestock grazing, and general development (both for special uses, oil and gas, and private property) would impact the total availability and juxtaposition of potential nesting and/or foraging

habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact for potential nesting habitat for this species. This would offset the continued minor loss of foraging habitat via development on private land, and the ongoing localized alteration of prey base associated with continued timber harvest, thinning, and prescribed burning across the landscape.

3.6.2.1.3. Determination and Rationale

Alternative A

Given the small net reduction in motorized routes, implementation of this alternative would lead to a very small improvement in potential nesting and associated foraging habitat for this listed species over the long-term. However, the potential for cross-country travel would continue to degrade available habitat. Condors do not currently nest within the project area; therefore, disturbance during decommissioning activities or motorized activities is not anticipated. However, given the potential for continued degradation of potential habitat within 54 percent of potential habitat, selection of Alternative A *may affect, but is not likely to adversely affect* the California condor.

All Action Alternatives

Given the net reduction of motorized access and elimination of cross-country travel in the action alternatives, implementation of any of these alternatives would lead to a minor improvement in condor habitat over time. Condors do not currently nest within the project area; therefore, disturbance during decommissioning activities is not anticipated. Implementation of any of the alternatives would have a *beneficial impact* on potential nesting habitat for California condor.

3.6.2.2. Mexican Spotted Owl

3.6.2.2.1. Direct and Indirect Effects

Alternative A

This species is not currently known to be nesting within the project area but surveys continue annually within portions of the project area. There is a potential for disturbance from continued motorized travel or decommissioning activities. Under Alternative A, cross-country travel would continue with a net result of proliferation of routes throughout designated critical nesting habitat and a net lost of habitat. Only 2 miles of unauthorized routes would be closed, with a net motorized reduction of only 6 percent within designated habitat.

In addition, cross-country travel would continue throughout the 13 percent and 46 percent of potential breeding and the designated Protected Activity Centers, respectively. This would result in an increase in habitat loss and fragmentation, and an overall decrease in habitat effectiveness. The risk of disturbance and/or mortality (collection, harassment of young, or poaching) within these sensitive areas would continue.

All Action Alternatives

This species is not currently known to be nesting within the project area but surveys continue annually within portions of the project area. There is a potential for disturbance from continued motorized travel or decommissioning activities. In addition, all action alternatives would result in a closure of motorized cross-country travel within 13 percent, 46 percent, and 66 percent of the available potential breeding, designated Protected Activity Centers, and designated critical habitat for this species, respectively. The elimination of cross-country travel would reduce the potential for disturbance and mortality and increase overall habitat effectiveness via a reduction in habitat fragmentation.

3.6.2.2.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, livestock grazing, and general development (both for special uses and oil and gas) would impact the total availability and juxtaposition of designated critical habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact for critical habitat for this species. This would offset the any minor alteration of foraging and roosting habitat associated with any foreseeable thinning, prescribed burning, and livestock grazing that may occur within designated habitat. However, implementation of road closures (i.e., presence and activity of equipment and personnel) may result in a short-term disturbance to Mexican spotted owls that may be in the area.

3.6.2.2.3. Determination and Rationale

All Alternatives

Given the net reduction of motorized access for all alternatives and elimination of cross-country travel for Alternatives B, C, D, and E, implementation of any of these alternatives would lead to some level of improvement in Mexican spotted owl habitat over time. Improvement in habitat effectiveness and reduction in disturbance would be the highest under Alternative B and the lowest under Alternative A. Mexican spotted owls may occur within the project area; therefore, disturbance during decommissioning activities may occur. Because of this potential for disturbance during implementation, selection of any of the alternatives *may affect individuals or their habitat, but is not likely to adversely affect species viability*.

3.6.2.3. Mojave Desert Tortoise

3.6.2.3.1. Direct and Indirect Effects

Alternative A

Under this alternative, the majority of Mojave Desert tortoise habitat (99 percent) would still be vulnerable to the impacts of unrestricted cross-country motorized travel. Some 2.76 miles of unauthorized routes would not be added to the system, but would remain in place for cross-country motorized travel. Impacts to tortoises would include continued potential for disturbance, possible mortality (via collection or poaching), and negative habitat alternation.

All Action Alternatives

There is a potential for disturbance from continued motorized travel or decommissioning activities. In addition, all four action alternatives would result in a closure of motorized cross-country travel within 99 percent of designated tortoise habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this listed species and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation.

Alternatives B, C, and D

Implementation of any of these three alternatives would result in an incremental decrease in motorized access of 48 percent, 55 percent, and 48 percent, respectively, from the existing condition. Miles of non-motorized trails would increase slightly under Alternatives C and D. Alternative C would have the least motorized impacts on tortoise habitat, followed by Alternative B and D, in that order. A reduction in miles of road would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

Alternative E

Alternative E would result in the classification of all unauthorized routes to a Level 2 classification with no net change in available motorized access within this species' habitat over the existing condition.

3.6.2.3.2. Cumulative Effects

Alternative A

Alternative A would result in no change to the environmental baseline; therefore, there would be no cumulative effects with implementation.

All Action Alternatives

The cumulative effects of past and present recreational activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact on habitat for this species. This reduction would help direct and control future recreational activities in tortoise habitat, including biking, hiking, and driving along designated routes.

3.6.2.3.3. Determination and Rationale

Alternative A

This alternative would result in no change from the environmental baseline; therefore, there would be no cumulative effects and implementation would have *no effect* on the Mojave Desert tortoise.

All Action Alternatives

Given the net reduction of motorized access and elimination of cross-country travel for the action alternatives (Alternatives B, C, D, and E), implementation of any of these alternatives would lead to improvement in Mojave Desert tortoise habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest with implementation of Alternative E. There is a risk of disturbing Desert tortoises during decommissioning activities. However, surveys and consultation with the U.S. FWS would be completed prior to any earth-disturbing activities to ensure protection of tortoises (see the Project Design Features in Chapter 2). Because of this potential for disturbance during implementation, selection of any of the alternatives *may affect individuals or their habitat, but is not likely to adversely affect* the Mojave Desert tortoise.

3.6.2.4. Utah Prairie Dog

3.6.2.4.1. Direct and Indirect Effects

Alternative A

Under Alternative A, the majority of Utah prairie dog habitat (85 percent) would still be vulnerable to the impacts of unrestricted cross-country motorized travel. Some 5.04 miles of unauthorized routes would be decommissioned (in areas already closed to motorized travel), while the remaining 26.64 miles of unauthorized routes would remain in place for cross-country motorized travel. This alternative would result in only a 2 percent and 5 percent reduction in motorized access within the Awapa and Paunsaugunt Recovery Areas, respectively. Impacts to prairie dogs would include continued potential for disturbance, mortality (via shooting), and negative habitat alternation (soil compaction, removal of cover, fragmentation). This alternative would result in a very minor improvement over the existing condition.

All Action Alternatives

There is a potential for disturbance and mortality to Utah prairie dogs from continued motorized travel or decommissioning activities. However, all four action alternatives would result in a closure of motorized cross-country travel within 85 percent of designated Utah prairie dog habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation, disturbance, and mortality to this listed species and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation.

Alternatives B, C, and D

Implementation of any of these three alternatives would result an incremental decrease in cross-country motorized access in the Awapa Recovery Area of 40 percent (Alternative B), 34 percent (Alternative C), and 22 percent (Alternative D) from the existing condition. In conjunction with previous management decisions concerning access, Alternatives B, C, and D would result in an incremental decreases in cross-country motorized access in the Paunsaugunt Recovery Area of 35 percent (Alternative B), 28 percent (Alternative C), and 22 percent (Alternative D) from the existing condition. No motorized trails would be added to the Awapa Recovery Area, but minor amounts (<1 mile) would be added within the Paunsaugunt Recovery Area. Alternative B would have the least motorized impacts on prairie dog habitat, followed by Alternative C and D, in that

order. A reduction in miles of road would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

Alternative E

There would be no decommissioning associated with implementation of this alternative. Instead, Alternative E would result in the classification of all unauthorized routes to a Level 1 and Level 2 classification with no net change in available motorized access within this species' habitat over the existing condition.

3.6.2.4.2. Cumulative Effects

Alternative A

Alternative A would result in a very small improvement in conditions from the environmental baseline. Relevant past, present, and reasonable foreseeable actions within this species habitat include livestock grazing, thinning, prescribed burning, special uses (including utility development), and recreational activities (ATV riding, hunting, and hiking). This alternative would result in a small beneficial effect in the long-term, which would offset negative impacts from other management activities within the cumulative effects area.

All Action Alternatives

Relevant past, present, and reasonable foreseeable actions within prairie dog habitat include livestock grazing, thinning, prescribed burning, special uses (including utility development), and recreational activities (ATV riding, hunting, and hiking). The cumulative effects of past, present, and reasonably foreseeable recreational activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact on habitat for this species. This reduction would help direct and control future recreational activities in Utah prairie dog habitat, as well as offset some of the short-term impacts associated with burning and thinning, and the long-term negative impacts associated with special use development.

3.6.2.4.3. Determination and Rationale

Alternative A

This alternative would result in very small improvement in conditions from the environmental baseline. There is a risk of disturbing Utah prairie dogs during decommissioning activities; however, surveys and consultation with the U.S. FWS would be completed prior to any earth-disturbing activities to ensure protection of prairie dogs (see the Project Design Features in Chapter 2). Because of this potential for disturbance during implementation, selection of any of the alternatives *may affect individuals or their habitat, but is not likely to adversely affect* the Utah prairie dog.

All Action Alternatives

Given the net reduction of motorized access and elimination of cross-country travel for Alternatives B, C, D, and E, implementation of any of these alternatives would lead to improvement in Utah prairie dog habitat over the long-term. Improvement in habitat

effectiveness and reduction in the potential for disturbance and mortality would be the highest under Alternative B and the lowest under Alternative E. There is a risk of disturbing Utah prairie dogs during decommissioning activities; however, surveys and consultation with the U.S. FWS would be completed prior to any earth-disturbing activities to ensure protection of prairie dogs (see the Project Design Features in Chapter 2). Because of this potential for disturbance during implementation, selection of any of the alternatives *may affect individuals or their habitat, but is not likely to adversely affect* the Utah prairie dog.

3.6.2.5. American Peregrine Falcon

3.6.2.5.1. Direct and Indirect Effects

Alternative A

Under this alternative, cross-country travel would continue with a net result of proliferation of routes throughout known and potential nesting habitat, and a resulting loss of habitat effectiveness. No roads would be closed within known nesting/foraging areas and only 38 miles would be closed within potential habitat, with a net motorized reduction (with previous decisions) of only 4 percent within known nesting/foraging habitat, and 5 percent within potential modeled habitat.

All Action Alternatives

All action alternatives would result in a closure of motorized cross-country travel within 46 percent of known and 54 percent of potential peregrine falcon nesting/foraging. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this sensitive species and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a potential for disturbance to this species from continued motorized travel and any mechanized decommissioning activities.

Alternatives B, C, and D

Because the actual nesting locations are very difficult to access, direct impacts to nest sites from motorized activity is not likely to occur. However, these three alternatives would result in a closure of motorized cross-country travel within the 46 percent of known nesting and 54 percent of the potential nesting and associated foraging habitat for this species. In conjunction with previous management decisions, Alternatives B, C, and D would result in an incremental decrease in motorized access within known nesting habitat of 64 percent, 60 percent, and 49 percent, respectively, from the existing condition. In addition, implementation of Alternatives B, C, or D would result in a decrease in motorized access within potential nesting habitat of 60 percent, 55 percent, and 37 percent, respectively, from the existing condition. A reduction in miles of road and cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation and long-term rehabilitation of road prisms.

Alternative E

Cross-country travel would be eliminated within 46 percent and 54 percent of the known and potential nesting habitat, respectively. However, Alternative E would result in the classification of many more unauthorized routes to a Level 2 classification, with virtually no change in the

available motorized access within this species' habitat over the existing condition. However, the elimination of cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

3.6.2.5.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, livestock grazing, and general development (both for special uses, oil and gas, and private property) would impact the total availability and juxtaposition of known and potential nesting/foraging habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact for potential nesting habitat for this species. This would offset the continued minor loss of foraging habitat via development on private land, and the ongoing localized alteration of prey base associated with continued timber harvest, thinning, and prescribed burning across the landscape.

3.6.2.5.3. Determination and Rationale

Alternative A

Given the small net reduction of motorized access, implementation of Alternative A would lead to a small improvement in known and potential nesting and associated foraging habitat for peregrine falcons over the long-term. However, the potential for cross-country travel and associated risk to habitat and breeding birds would continue. There is a minimal risk of disturbing foraging peregrine falcons that might be in the area during decommissioning activities in areas surrounding known nests. Because of this potential for disturbance during implementation, selection of Alternative A *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

Alternatives B, C, and D

Given the net reduction of motorized access and elimination of cross-country travel, implementation of any of these three alternatives would lead to improvement in known and potential peregrine falcon habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is a minimal risk of disturbing foraging peregrine falcons that might be in the area during decommissioning activities in areas surrounding known nests. Because of this potential for disturbance during implementation, selection of Alternative B, C, or D *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

Alternative E

Given the net increase in miles of motorized access but elimination of cross-country travel over known and potential nesting/foraging habitat, implementation of Alternative E would lead to improvement in peregrine falcon habitat over the long-term, but the alternative does not include the reduction in roads and associated habitat restorative characteristics of Alternatives B, C, and D. There is a minimal risk of disturbing foraging peregrine falcon that might be in the area

during decommissioning activities in areas surrounding known nests. However, because of this potential for disturbance during implementation, selection of Alternative E *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

3.6.2.6. Bald Eagle

3.6.2.6.1. Direct and Indirect Effects

Alternative A

Under Alternative A, cross-country travel would continue with a net result of proliferation of routes throughout known and potential winter roosting/foraging habitat. This would increase motorized-vehicle generated disturbance to foraging eagles and add to additional habitat alternation that could affect roosting trees (via firewood collection) and loss of ground cover that supports prey species. Some 14 miles of roads would be closed within known winter roosting/foraging habitat, with a net motorized reduction (with previous decisions) of only 8 percent within known winter roosting/foraging habitat.

All Action Alternatives

All four action alternatives would result in a closure of motorized cross-country travel within the 45 percent of potential bald eagle winter roosting/foraging habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this sensitive species and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a potential for disturbance to this species from continued motorized travel and any mechanized decommissioning activities.

Alternatives B, C, and D

Each of these three alternatives would result in a closure of motorized cross-country travel within the 36 percent of known/potential winter roosting and associated foraging habitat for this species. In conjunction with previous management decisions, Alternatives B, C, and D would result in an incremental decrease in motorized access within winter roosting habitat of 25 percent, 25 percent, and 18 percent, respectively, from the existing condition. A reduction in miles of road and cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation and long-term rehabilitation of road prisms.

Alternative E

Cross-country travel would be eliminated within 36 percent of the known and potential winter roosting and foraging habitat. However, Alternative E would result in the classification of many more unauthorized routes to a Level 2 classification, with virtually no change in the available motorized access within this species' habitat over the existing condition. However, a reduction in cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

3.6.2.6.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, livestock grazing, and general development (for special uses, oil and gas, and private property) would impact the total availability and juxtaposition of known and potential nesting/foraging habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact within the winter roosting/foraging habitat for this species. This would offset the continued minor loss of foraging habitat via development on private land, and the ongoing localized alteration of prey base associated with continued timber harvest, thinning, and prescribed burning across the landscape.

3.6.2.6.3. Determination and Rationale

Alternative A

Given the small net reduction in motorized routes, implementation of Alternative A would lead to a very small improvement in winter roosting and associated foraging habitat for bald eagles over the long-term. However, the potential for cross-country travel would continue to degrade available habitat and increase risk of disturbance and possible mortality to wintering eagles. There is no risk of disturbing roosting and foraging bald eagle during decommissioning activities because these would occur during the spring, summer, and fall months when eagles are not in the area. Because of this potential for further habitat degradation and increasing disturbance from cross-country travel in open areas, selection of Alternative A *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

All Action Alternatives

With the elimination of cross-country travel, implementation of any of these alternatives would lead to significant improvement in winter roosting/foraging habitat for eagles over the long-term. Alternatives B, C, and D go a step further and eliminate some roads throughout identified habitat, which would further improve habitat effectiveness and reduce disturbance. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative E. There is no risk of disturbing roosting and foraging bald eagles during decommissioning activities because these would occur during the spring, summer, and fall months when eagles are not in the area. Hence, selection of any of the action alternatives would have a *beneficial impact* on bald eagles and their habitat.

3.6.2.7. Flammulated Owl

3.6.2.7.1. Direct and Indirect Effects

Alternative A

Under Alternative A, cross-country travel would continue with a net result of proliferation of routes throughout potential flammulated owl habitat. This would increase motorized vehicle-generated disturbance to nesting and foraging owls and add to additional habitat alternation that

could affect roosting trees (via firewood collection) and loss of ground cover that supports prey species (moths and insects). Some 108 miles of roads would be closed within potential habitat with a net improvement of 261 acres of habitat. This would result in a net motorized reduction (with previous decisions) of only 5 percent within potential habitat. Under this alternative, snags would continue to be removed along open motorized routes within a maximum area of 58,151 acres, or 12 percent of available habitat. This would be a small improvement (20 percent) over the existing condition.

All Action Alternatives

All action alternatives would result in a closure of motorized cross-country travel within the 49 percent of potential flammulated owl habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this sensitive species, and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a potential for disturbance to this species from continued motorized travel and any mechanized decommissioning activities.

Alternatives B, C, and D

In conjunction with previous management decisions, Alternatives B, C, and D would result an incremental decrease in motorized access within potential habitat of 42 percent, 34 percent, and 21 percent, respectively, from the existing condition. This reduction in access would also reduce the number of acres of snag habitat vulnerable to firewood collection by 41 percent, 33 percent, and 20 percent, respectively, from the existing condition. A reduction in miles of road and cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation and long-term rehabilitation of road prisms.

Alternative E

Alternative E would result in the classification of most unauthorized routes to a Level 2 classification, with a net increase of 1 percent in the available motorized access within this species' habitat over the existing condition. However, a reduction in cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation. Snags would continue to be removed along open motorized routes within a maximum area of 73,056 acres or 17 percent of available habitat, which is a net increase over the existing condition.

3.6.2.7.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, livestock grazing, and general development (for special uses, oil and gas, and private property) would impact the total availability and juxtaposition of potential breeding habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact within modeled habitat for this species. This would offset the continued minor loss of foraging habitat via development on private land, and the ongoing localized alteration of prey base and availability of nesting trees (large snags) associated with continued timber harvest, thinning, and prescribed burning across the landscape.

3.6.2.7.3. Determination and Rationale

Alternative A

Given the small net reduction in motorized routes, implementation of this alternative would lead to a very small improvement in potential breeding habitat for flammulated owls over the long-term. However, the potential for cross-country travel would continue to degrade available habitat and increase risk of disturbance from motorized vehicles. There is little risk of disturbing nesting owls during decommissioning activities because this species is fairly tolerant of humans. Because of this potential for further habitat degradation and increasing disturbance from cross-country travel in open areas, selection of Alternative A *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

Alternatives B, C, and D

With the elimination of cross-country travel, implementation of any of these three alternatives would lead to some improvement in potential habitat for owls over the long-term. Alternatives B, C, and D go a step further and eliminate some roads throughout identified habitat, which would further improve habitat effectiveness and reduce disturbance. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is little risk of disturbing nesting owls during decommissioning activities because this species is fairly tolerant of humans. Therefore, selection of Alternative B, C, or D would have a *beneficial impact* on flammulated owls and their habitat.

Alternative E

With the elimination of cross-country travel, implementation of this alternative would lead to improvement in potential habitat for owls over the long-term. However, this alternative actually increases the mile of routes within potential habitat and results in an increase in vulnerability of preferred nesting trees to firewood collections. Because of this potential for further habitat degradation, selection of Alternative E *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

3.6.2.8. Greater Sage Grouse

3.6.2.8.1. Direct and Indirect Effects

Alternative A

Under this alternative, cross-country travel would continue with a net result of proliferation of routes throughout known and potential nesting habitat, and a resulting loss of habitat effectiveness. Less than 3 miles of roads would be closed within known leks and 74 miles would be closed within potential habitat, with a net motorized reduction (with previous decisions) of 29 percent within known leks habitat, and 7 percent within potential modeled habitat.

All Action Alternatives

All four action alternatives would result in a closure of motorized cross-country travel within 67 percent of known leks and 76 percent of potential brood-rearing/lek habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this sensitive species and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a potential for disturbance to this species from continued motorized travel and any mechanized decommissioning activities.

Alternatives B, C, and D

In conjunction with previous management decisions, Alternatives B, C, and D would result in an incremental decrease in motorized access within known nesting habitat of 47 percent, 41 percent, and 34 percent, respectively, from the existing condition. In addition, implementation of Alternatives B, C, and D would result in a decrease in motorized access within potential nesting habitat of 53 percent, 47 percent, and 35 percent, respectively, from the existing condition. A reduction in miles of road and cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation and long-term rehabilitation of road prisms.

Alternative E

Alternative E would result in the classification of most unauthorized routes to a Level 2 classification, with a net increase of motorized access of 1 percent in the potential brood-rearing habitat, but no change in known lek areas over the existing condition. However, the elimination of cross-country travel within 67 percent of known leks and 76 percent of potential habitat would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

3.6.2.8.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future pinyon-juniper reduction, thinning, prescribed burning, livestock grazing, and general development (for special uses, oil and gas, and private property) would impact the total availability and juxtaposition of known and potential nesting/foraging habitat within the cumulative effects area for this species. Some of these activities would have a net beneficial impact on the quality of habitat for this species (e.g., thinning pinyon-juniper and limited burning). A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact for potential nesting habitat for this species. This would offset the continued minor loss of foraging habitat via development on private land, and the ongoing localized alteration of habitat associated with continued livestock grazing across the landscape.

3.6.2.8.3. Determination and Rationale

Alternative A

Given the small net reduction of motorized access, implementation of Alternative A would lead to a small improvement in known and potential brood-rearing habitat for sage grouse over the long-term. However, the potential for cross-country travel and associated risk to habitat and

breeding birds would continue. There is a risk of disturbing sage grouse that might be in the area during decommissioning activities in areas near known leks. However, surveys would be completed prior to implementation and appropriate limited operating seasons would be implemented to avoid disturbance during breeding activities. Because of this potential for continued habitat degradation in the areas open to cross-country travel, selection of Alternative A *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

Alternatives B, C, and D

Given the net reduction of motorized access and elimination of cross-country travel, implementation of any of these alternatives would lead to improvement in known and potential sage grouse habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is a risk of disturbing sage grouse that might be in the area during decommissioning activities in areas near known leks. However, surveys would be completed prior to implementation and appropriate limited operating seasons would be implemented to avoid disturbance during breeding activities (see the Project Design Features in Chapter 2). Therefore, selection of any of these alternatives would have a *beneficial impact* on greater sage grouse and their habitat.

Alternative E

Given the net increase in miles of motorized access but the elimination of cross-country travel over known lek and potential brood-rearing/lek habitat, implementation of Alternative E would lead to improvement in sage grouse habitat over the long-term, but the alternative does not include the reduction in roads and associated habitat restorative characteristics of Alternatives B, C, and D. This lack of change in motorized access within known sage grouse lek area is of particularly concern for this sensitive species. Because of the potential for continued disturbance in known leks area, selection of Alternative E *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

3.6.2.9. Northern Goshawk

3.6.2.9.1. Direct and Indirect Effects

Alternative A

Cross-country travel would continue with a net result of proliferation of routes throughout known nesting and Post-Fledgling Area (PFA) habitat, and a resulting loss of habitat effectiveness. Two miles of road would be closed within known nesting areas, and 33 miles would be decommissioned within PFA habitat, with a net motorized reduction (with previous decisions) of only one mile (3 percent) within known nesting habitat, and 22 miles (4 percent) within PFA habitat.

All Action Alternatives

All four action alternatives would result in a closure of motorized cross-country travel within 50 percent of nesting and 54 percent of PFA goshawk habitat. Closure to cross-country travel

would eliminate the potential for further habitat degradation and disturbance to this sensitive species and Management Indicator Species (MIS) and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a high potential for disturbance to this species from continued motorized travel and any mechanized decommissioning activities.

Alternatives B, C, and D

In conjunction with previous management decisions, Alternatives B, C, and D would result in an incremental decrease in cross-country motorized access within known nesting habitat of 74 percent, 66 percent, and 55 percent, respectively, from the existing condition. In addition, implementation of Alternatives B, C, and D would result in a decrease in motorized access within PFA habitat of 39 percent, 54 percent, and 20 percent, respectively, from the existing condition. All three alternatives include conversion of some existing unauthorized or closed routes into Level 2 routes, motorized trails, and non-motorized trails. Conversion of these routes into motorized trails and Level 2 routes would likely lead to higher levels of disturbance, dust, and the potential for harassment within these individual nests area and could lead to nest abandonment.

Up to 18 nest sites would be impacted with these route conversions, while up to 35 PFAs would be influenced by 5.93 miles of routes converted to roads and trails. However, four nest sites would likely experience abandonment with implementation of Alternative D. A reduction in miles of road and cross-country travel would help reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation and long-term rehabilitation of road prisms.

These actions would be mitigated by re-designation of PFAs to increase the amount of suitable habitat and the classification of alternate nest areas within their boundaries. In addition, any active construction of unauthorized routes to achieve trail and route standards would have to occur outside the breeding season (March 1-September 30) if the territory is occupied.

Alternatives D and E

New trail construction of approximately 1.26 miles of motorized trail would occur with implementation of either of these alternatives, but none of this construction would occur within a designated nest site or PFA. Associated with this motorized trail construction, however, is the proposal to designate 1.01 miles of road currently designated as closed (Level 1) as a motorized trail. This would not be new construction, but 0.4 miles of the 1.01 mile total would be in a designated nest area, and the entire 1.01 miles would be within a designated PFA.

Alternative E

This alternative would directly impact 23 known nests areas with the conversion of 7.19 miles of unauthorized routes into high clearance vehicle routes and motorized trails. In addition, 81.6 and 1.0 miles of unauthorized routes would be converted to high clearance vehicle roads and motorized trails, respectively, within 66 of the 195 known northern goshawk PFAs. This is a net increase of 1 percent in the available motorized access within this species' habitat over the existing condition. More importantly, designation of user-created routes into system roads and trails would facilitate increasing motorized traffic and associated disturbance, dust, and potential for harassment within known nesting habitat. This would be slightly compensated for by the elimination of cross-country travel, which would help reduce the potential for disturbance and

increase overall habitat effectiveness via a reduction in habitat fragmentation. However, 14 nest sites would still be at a high risk of abandonment with implementation of Alternative E.

Alternative E would not meet the Forest Plan guidelines for planning of the transportation system to minimize and mitigate habitat loss within known northern goshawk PFAs (USDA 2000e, guideline Tc, page CC-24, and guideline X, page CC-25). This is due to the magnitude of the population negatively affected by the conversion of routes in this alternative. In general, this alternative would result in the conversion of almost 83 miles of unauthorized routes into the official transportation system for 50 percent of the known goshawk territories within the project area, and would likely have long-term disturbance impacts for the goshawk population as a whole within the project area.[1] More specifically, 14 nest areas would be vulnerable to a high risk of abandonment. This alternative also goes counter to the Forest Plan direction to maintain habitat for viable populations of MIS, which includes the northern goshawk (USDA 1986), and would likely result in more than a 10 percent decline the goshawk population over a 3-year period.

3.6.2.9.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and reasonably foreseeable future timber harvest, thinning, prescribed burning, livestock grazing, and general development (both for special uses, oil and gas) would impact the total availability and juxtaposition of known and potential nesting/foraging habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes in tandem with elimination of cross-country travel or just eliminating cross-country travel is expected to result in long-term increases in habitat effectiveness in potential nesting habitat for this species. This would help offset the continued and the on-going localized alteration of prey base associated with on-going timber harvest, thinning, and prescribed burning across the landscape.

3.6.2.9.3. Determination and Rationale

Alternative A

Given the small net reduction of motorized access, implementation of Alternative A would lead to small improvements in known nesting and PFA habitat over the long-term. However, the potential for cross-country travel and associated risk to habitat and breeding birds would continue. There is a high risk of disturbing nesting goshawks that might be in the area during decommissioning activities in areas surrounding known nests. However, surveys would be completed prior to implementation and appropriate limited operating seasons would be implemented to avoid disturbance during nesting and post-fledging activities (see Project Design Features in Chapter 2). Because of the potential for continued habitat degradation in the areas open to cross-country travel and elevated levels of noise associated with unrestricted motorize travel, selection of Alternative A *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

[1] Conversion of unauthorized routes into Level 2 roads and motorized trails is considered to have a “high” risk of abandonment. Conversion of unauthorized routes into Level 1 roads and non-motorized trails is considered to have a “low” risk of abandonment. All unauthorized routes located within PFAs would be converted to Level 2 or non-motorized trails under Alternative E.

Alternatives B, C, and D

Given the net reduction of motorized access and elimination of cross-country travel, implementation of any of these alternatives would lead to improvements in nesting and PFA habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is a high risk of disturbing nesting goshawks that might be in the area during decommissioning activities in areas surrounding known nests. However, surveys would be completed prior to implementation and appropriate limited operating seasons would be implemented to avoid disturbance during nesting and post-fledging activities (see Project Design Features in Chapter 2). Therefore, selection of Alternative B, C, or D *may impact individual northern goshawks, but viable populations would be maintained*.

Alternative E

Given the net increase in miles of motorized access but elimination of cross-country travel over known nesting and PFA habitat, implementation of Alternative E would lead to some protection in northern goshawk habitat over the long-term, but this alternative does not include the reduction in roads and associated habitat restorative characteristics of Alternatives B, C, and D. This lack of change in motorized access within known goshawk nesting areas and PFAs is of particularly concern for this sensitive species. Because of the potential for continued disturbance in known nesting areas and PFAs, selection of Alternative E *may impact individuals or habitat, and would likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

3.6.2.10. Pygmy Rabbit

3.6.2.10.1. Direct and Indirect Effects

Alternative A

Under Alternative A, some 51 percent of pygmy rabbit sagebrush habitat would still be vulnerable to the impacts of unrestricted cross-country motorized travel. In addition, 24 miles of unauthorized routes would be decommissioned for a net long-term benefit of 59 acres in habitat over the long-term. Impacts to this species would include continued potential for disturbance and continued habitat alternation with the construction and use of new routes throughout areas open to cross-country travel.

All Action Alternatives

All action alternatives would result in a closure of motorized cross-country travel within 51 percent of potential pygmy rabbit sagebrush habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this sensitive species and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a potential for disturbance to this species from continued motorized travel and any mechanized decommissioning activities.

Alternatives B, C, and D

Implementation of any of these three alternatives in tandem with previous access management decisions would result in an incremental decrease in cross-country motorized access of 33 percent (Alternative B), 28 percent (Alternative C), and 22 percent (Alternative D) within potential habitat from the existing condition. In addition, miles of non-motorized trails would increase by 1 to 6 miles with implementation of a given alternative. Once decommissioning was completed, Alternative B would result in the least motorized impacts on rabbit habitat, followed by Alternative C and then D. A reduction in miles of road would reduce the potential for disturbance and possible mortality (road kill and harvest) and increase overall habitat effectiveness via a reduction in habitat fragmentation and habitat restoration over time.

Alternative E

Alternative E would result in the classification of almost all unauthorized routes to a Level 2 classification, with only minor amounts of decommissioning. Implementation of this alternative in tandem with previous access management decision would result in a net increase in motorized access of 1.58 miles over the existing condition.

3.6.2.10.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and reasonably foreseeable future vegetation projects (particularly pinyon-juniper removal and prescribed burning), livestock grazing, and recreational and special use activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact on habitat for this species. This reduction would help direct and control future recreational activities in pygmy rabbit habitat. This beneficial impact would offset the cumulative impacts of habitat alternation associated with these other management activities and public uses of rabbit habitat.

3.6.2.10.3. Determination and Rationale

Alternative A

Given the small net reduction of motorized access, implementation of Alternative A would lead to only a very small improvement in potential pygmy rabbit habitat over the long-term. However, the potential for cross-country travel and associated risk to habitat and rabbits would continue. There is a very minor risk of disturbing pygmy rabbits that might be in the area during decommissioning activities. Because of this potential for disturbance during implementation and the continued opportunity for habitat degradation associated with cross-country travel in open areas, selection of Alternative A *may impact individual pygmy rabbits, but viable populations would be maintained*.

Alternatives B, C, and D

Given the net reduction of motorized access and elimination of cross-country travel in Alternatives B, C, and D, implementation of any of these alternatives would lead to improvement in potential pygmy rabbit habitat over the long-term. Improvement in habitat effectiveness and

reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is a very minor risk of disturbing pygmy rabbits that might be in the area during decommissioning activities. Because of this minor risk of disturbance during decommissioning, selection of Alternative B, C, or D *may impact individual pygmy rabbits, but viable populations would be maintained*.

Alternative E

Given the net increase in miles of motorized access, but the elimination of cross-country travel over 75 percent of pygmy rabbit habitat, implementation of Alternative E would lead to protection of potential habitat over the long-term. There is a very minor risk of disturbing pygmy rabbits that might be in the area during decommissioning activities. Because of this potential for disturbance during implementation, selection of this alternatives *may impact individual rabbits, but viable populations would be maintained*.

3.6.2.11. Spotted Bat and Townsend's Big-eared Bat

3.6.2.11.1. Direct and Indirect Effects

Alternative A

Under this alternative, some 46 percent of riparian bat foraging habitat and 100 percent of winter hibernacula acres would still be vulnerable to the impacts of unrestricted cross-country motorized travel. This would allow a continuation of habitat alternation that could affect roosting trees (via firewood collection) and loss of ground cover that supports prey species (moths and insects). Some 29 miles of unauthorized routes (not affected by previous management decisions) would be decommissioned within this highly sensitive and very limited habitat. This would result in a net motorized reduction (with previous decisions) of only 4 percent within potential foraging habitat. Under Alternative A snags would continue to be removed along open motorized routes within a maximum area of 72,285 acres or 65 percent of available habitat. This would be a small improvement (18 percent) over the existing condition. Impacts to these two bat species would include continued potential for disturbance and continued habitat alternation with the construction and use of new routes throughout areas open to cross-country travel.

All Action Alternatives

All action alternatives would result in a closure of motorized cross-country travel within the 46 percent of potential bat foraging habitat, as well as the 250 acres surrounding winter hibernacula. Closure to cross-country travel would eliminate the potential for further habitat degradation (e.g., loss of shrubs and trees, ground cover, and soil compaction) and disturbance to these sensitive species, and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. Implementation of any of these alternatives, in tandem with previous access management decisions, would result in an incremental decrease in motorized access of 42 percent (Alternative B), 38 percent (Alternative C), 33 percent (Alternative D), and 17 percent (Alternative E) from the existing condition. Once decommissioning was completed, Alternative B would result in the least motorized impacts on bat foraging habitat, followed by Alternatives C, D, and E, in that order. There is no potential for disturbance to these species from any mechanized decommissioning activities because these activities would occur during the day when these nocturnal species are roosting.

3.6.2.11.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and reasonably foreseeable future vegetation projects (thinning, harvest, prescribed burning), livestock grazing, and recreational and special use activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects areas for these species. Recreational activities are especially high in these sensitive riparian areas as the public seeks out these types of sites for dispersed camping and hiking. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact on habitat for these species. This reduction would help direct and control future recreational activities in bat habitat. This beneficial impact would offset the cumulative impacts of habitat alternation associated with these other management activities and public uses of bat foraging habitat.

3.6.2.11.3. Determination and Rationale

Alternative A

Given the small net reduction (only 4 percent) in motorized access associated with this alternative, implementation of Alternative A would lead to only a small improvement in potential bat foraging habitat over the long-term. However, the potential for cross-country travel and associated risk to habitat would continue. Because of this potential for further habitat degradation and increasing disturbance from cross-country travel in open areas, selection of Alternative A *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

All Action Alternatives

With the elimination of cross-country travel, implementation of any of these alternatives would lead to significant improvement in potential riparian foraging habitat over the long-term. Alternatives B, C, and D go a step further and eliminate some roads throughout identified habitat which further improves habitat effectiveness and reduces disturbance. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative E. There is little risk of disturbing bats during decommissioning activities because these nocturnal species would be roosting in cliffs and snags during the daytime. Therefore, selection of any of the action alternatives would have a *beneficial impact* on spotted and Townsend's big-eared bats and their habitat.

3.6.2.12. Three-toed Woodpecker

3.6.2.12.1. Direct and Indirect Effects

Alternative A

Under Alternative A, cross-country travel would continue with a net result of proliferation of routes throughout potential breeding habitat. This would increase motorized vehicle-generated disturbance to nesting and foraging woodpeckers and continue habitat alternation that could affect foraging/nesting trees (via firewood collection). Some 74 miles of roads would be closed

within potential habitat with a net improvement of 180 acres of habitat. This would result in a net motorized reduction (with previous decisions) of only 5 percent within potential habitat. Under this alternative, snags would continue to be removed along open motorized routes within a maximum area of 36,337 acres, or 15 percent, of available habitat. This would be a small improvement (9 percent) over the existing condition.

All Action Alternatives

Implementation of any of these action alternatives would result in a closure of motorized cross-country travel within 50 percent of potential three-toed woodpecker habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this sensitive species and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation.

Alternatives B, C, and D

In conjunction with previous management decisions, Alternatives B, C, and D would result in an incremental decrease in motorized access within potential habitat of 45 percent, 37 percent, and 21 percent, respectively, from the existing condition. This reduction in access would also reduce the number of acres of snag habitat vulnerable to firewood collection by 38 percent (Alternative B), 27 percent (Alternative C), and 10 percent (Alternative D) from the existing condition. A reduction in miles of road and elimination of cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation and long-term rehabilitation of road prisms.

Alternative E

Alternative E would result in the classification of most unauthorized routes to a Level 2 classification, with a net increase of 1 percent in the available motorized access within this species' habitat over the existing condition. However, the elimination of cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation. Snags would continue to be removed along open motorized routes within a maximum area of 45,120 acres, or 18 percent, of available habitat.

3.6.2.12.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, land general development (for special uses, oil and gas, and private property) would impact the total availability and juxtaposition of potential nesting and foraging habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact within modeled habitat for this species. This would offset the continued minor loss of foraging habitat via development on private land, and the ongoing localized alteration of available large snags associated with continued timber harvest, thinning, and prescribed burning across the landscape.

3.6.2.12.3. Determination and Rationale

Alternative A

Given the small net reduction in motorized routes, implementation of Alternative A would lead to a very small improvement in potential breeding habitat for woodpeckers over the long-term. However, the potential for cross-country travel would continue to degrade available habitat and increase risk of disturbance from motorized vehicles. Because of this potential for further habitat degradation and increasing disturbance from cross-country travel in open areas, selection of Alternative A *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

Alternatives B, C, and D

With the elimination of cross-country travel, implementation of any of these alternatives would lead to significant improvement in potential habitat for this woodpecker over the long-term. These three alternatives go a step further and eliminate some roads throughout identified habitat, which further improves habitat effectiveness and reduces disturbance. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is little risk of disturbing three-toed woodpeckers during decommissioning activities. Therefore, selection of Alternative B, C, or D would have a *beneficial impact* on three-toed woodpeckers and their habitat.

Alternative E

With the elimination of cross-country travel, implementation of Alternative E would lead to improvement in potential habitat for three-toed woodpeckers over the long-term. However, this alternative actually increases the mile of routes within potential habitat and results in an increase in vulnerability of preferred nesting trees to firewood collections. Because of this potential for further habitat degradation, selection of Alternative E *may impact individuals or habitat, but will not likely contribute to a trend toward federal listing or cause a loss of viability to the population or species*.

3.6.2.13. Mule Deer

3.6.2.13.1. Direct and Indirect Effects

The *Wildlife Specialist Report* includes specific detail on Open Motorized Road Density (OMRD) by seasonal habitat by WMU. OMRD is an important measure in the discussion of effects on both mule deer and Rocky Mountain elk (beginning on page 3-64) as it ties to the Forest Plan guideline on road density (USDA 1986, p IV-50). Two tables showing the OMRD by alternative by WMU and seasonal range, one for the project area and one for the cumulative effects area, are found on page 3-59 and page 3-60, respectively.

Alternative A

Project Area
Alternative A would result in a small decrease in OMRD within every WMU. This is a direct result of not adding unauthorized routes that are located within areas closed to cross-country travel to the system (USDA 2005a). It is assumed that these routes would be decommissioned

and/or barriered, and enforced as closed to the public. The Zion, Panguitch Lake, and Paunsaugunt WMUs would continue to have OMRDs approaching or in excess of 2.0 miles/square mile within the project area, which is driven by higher than desirable OMRDs in summer habitat on Forest Service lands.

Conversely, there would be no change in habitat security for mule deer under Alternative A. Cross-country travel in designated areas would remain open, with a net result that acres of secure habitat would not increase.

The implementation of this alternative would continue to allow an increase in new routes within all big game seasonal ranges. In addition, OMRDs would remain higher than the recommended Forest Plan guideline within the project area for the Zion WMU seasonal summer habitat and the Panguitch Lake WMU winter habitat. Over time, this would result in decreased habitat effectiveness and higher rates of legal and illegal mortality.

In addition, implementation of Alternative A would result in no decrease in the OMRDs in the Haycock Mountain Timber Stand Improvement project area within the Panguitch Lake WMU.

Cumulative Effects Area
All WMUs would have an overall rating of less than 2.0 miles per square mile, although the Zion, Panguitch Lake, and Boulder Plateau WMUs would continue to have OMRDs exceeding 2.0 miles/square mile in year-round habitat. In addition, available winter habitat on NFS land within the Panguitch Lake WMU would have an OMRD of 1.44 miles/square mile.

The implementation of Alternative A would continue to allow an increase in new routes within all mule deer seasonal ranges. In addition, OMRDs would remain higher than desirable within the project area for the Zion WMU seasonal fawning habitat, Panguitch Lake winter habitat, and Paunsaugunt WMU summer and winter habitats. Over time, this would result in decreased habitat effectiveness and higher rates of legal and illegal mortality.

Alternatives B and C

Project Area
Implementation of either of these two alternatives would result in a decrease in total OMRDs in every WMU. This is a result of reducing the total number of open roads across the project area. Alternatives B and C would result in overall OMRDs of less than 2.0 miles/square mile in all WMUs, with Alternative B providing the biggest reduction in OMRDs. OMRDs would still be in excess of 2.0 miles/square mile within Zion WMU summer habitats for both alternatives. In addition, OMRDs would still be in excess of 1.0 miles/square mile within Panguitch Lake WMU winter habitats for both alternatives.

Implementation of Alternative B or C would decrease OMRDs to 2.68 and 281 miles/square mile, respectively, in the Haycock Mountain Timber Stand Improvement project area within the Panguitch Lake WMU. These OMRDs are an improvement from the 5.68 miles/square mile conditions documented in the Haycock Mountain Timber Stand Improvement project.

Conversely, there would be a dramatic increase in acres of secure habitat for mule deer with application of any of these three alternatives. This is a direct result of closing areas to cross-country travel as well as a decrease in open roads across the project area.

Cumulative Effects Area
All WMUs would have an overall rating of less than 2.0 miles/square mile, although the Zion, Panguitch Lake, and Boulder Plateau WMUs would continue to have OMRDs approaching or exceeding 2.0 miles/square mile in year-round habitat. In addition, available winter habitat on NFS lands within the Panguitch Lake WMU would have an OMRD that exceeds 1.0 miles/square mile.

The implementation of either of these two alternatives would result in higher than desirable OMRDs within the project area for the Zion WMU summer habitat and for Paunsaugunt WMU winter habitat. Over time, this would result in decreased habitat effectiveness and the potential for higher rates of legal and illegal mortality.

Alternative D

Project Area
Implementation of Alternative D would result in total OMRDs of less than 2.0 miles/square mile in all WMUs except the Paunsaugunt and Zion WMUs, including the new motorized trail construction (1.26 miles) that would occur within the Panguitch Lake WMU. Likewise, OMRDs for summer and fawning habitats would be reduced below the Forest Plan recommended level of 2.0 miles/square mile in all WMUs. However, winter habitat OMRDs would remain above 1.0 miles/square mile in the Panguitch Lake, Mount Dutton, and Paunsaugunt WMUs with implementation of Alternative D.

Implementation of this alternative would only decrease OMRD to 2.67 miles/square mile in the Haycock Mountain Timber Stand Improvement project area within the Panguitch Lake WMU.

In addition, there would be a dramatic increase in acres of secure habitat for mule deer with application of this alternative. This is a direct result of closing areas to cross-country travel as well as a decrease in open roads across the project area.

Cumulative Effects Area
All WMUs would have an overall rating of less than 2.0 miles/square mile, although the Pine Valley, Panguitch Lake, Paunsaugunt, and Bounder Plateau WMUs would continue to have OMRDs exceeding 1.0 miles/square mile in winter habitats.

The implementation of Alternative D would result in higher than desirable OMRDs within the cumulative effects area for the Zion and Paunsaugunt WMUs seasonal summer habitat, and higher than desirable OMRDs for the Panguitch Lake and Paunsaugunt WMUs winter habitats. Over time, this would result in decreased habitat effectiveness and the potential for higher rates of legal and illegal mortality.

Alternative E

Project Area
Implementation of Alternative E would result in total OMRDs of more than 2.0 miles/square mile in the Zion, Panguitch Lake, and Paunsaugunt WMUs. This includes OMRDs in excess of 3.0 miles/square mile in summer habitat on the Zion and Paunsaugunt WMUs, and OMRDs in excess of 2.0 miles/square mile for all seasonal habitats within the project area for the Panguitch Lake WMUs.

This alternative includes the construction of 1.26 miles of new motorized trail in the Panguitch Lake WMU. In addition, the recommended OMRD of 1.0 miles/square mile would be exceeded on the Mount Dutton and Boulder Plateau WMUs.

Implementation of this alternative would result in no decrease in the OMRDs in the Haycock Mountain Timber Stand Improvement project area within the Panguitch Lake WMU.

Cumulative Effects Area
Implementation of Alternative E would result in no change or a slight increase in total OMRDs from the existing condition for all WMUs. This includes an overall rating of 2.01 miles/square mile for the Panguitch Lake and Paunsaugunt WMUs. In addition, resulting OMRDs would be exceeded for all seasonal habitats in the Panguitch Lake WMU, and for summer habitat located within the Paunsaugunt WMU.

The implementation of this alternative would result in higher than desirable OMRDs within the Zion, Panguitch Lake, Mount Dutton, Paunsaugunt, and Boulder Plateau WMUs. Over time, this would result in decreased habitat effectiveness and the potential for higher rates of legal and illegal mortality.

The two tables on the following pages show the OMRD by WMU by seasonal range. The first table on page 3-59 shows the OMRDs within the project area (on the Dixie National Forest), while the second table on page 3-60 shows the OMRD within the cumulative effects area (within the entire WMU regardless of land ownership). Big game seasonal range acreages reflects a combination of “crucial” and “substantial” habitats within each season.

Table 3-7. Open Motorized Road Density within Mule Deer Habitat in the Project Area

Mule Deer WMU	Big Game Seasonal Ranges	Existing Condition OMRD (miles/square mile)	OMRD by Alternative (miles/square mile)				
			A	B	C	D	E
Pine Valley	Summer	0.98	0.78	0.69	0.78	0.81	0.99
	Fawning	0.07	0.06	0.06	0.06	0.07	0.07
	Winter	1.16	0.72	0.72	0.78	0.86	1.16
	Year-round	1.82	0.61	0.61	1.04	1.16	1.83
	OMRD Total	**1.01**	**0.69**	**0.69**	**0.78**	**0.83**	**1.06**
Zion	Summer	3.89	3.79	3.73	3.73	3.79	3.88
	Fawning	---	---	---	---	---	---
	Winter	2.58	2.58	2.58	2.58	2.58	2.58
	Year-round	---	---	---	---	---	---
	OMRD Total	**3.87**	**3.77**	**3.70**	**3.70**	**3.70**	**3.70**
Panguitch Lake	Summer	2.35	1.90	1.68	1.80	1.94	2.39
	Fawning	2.45	1.97	1.68	1.82	1.92	2.45
	Winter	2.24	1.62	1.13	1.31	1.45	2.24
	Year-round	4.29	2.41	2.17	2.13	2.66	4.29
	OMRD Total	**2.35**	**1.86**	**1.59**	**1.71**	**1.85**	**2.39**
Mount Dutton	Summer	1.06	0.68	0.56	0.61	0.68	1.10
	Fawning	---	---	---	---	---	---
	Winter	1.79	0.93	0.78	0.91	1.06	1.81
	Year-round	0.32	---	---	---	---	---
	OMRD Total	**1.39**	**0.79**	**0.66**	**0.74**	**0.85**	**1.42**
Paunsaugunt	Summer	3.03	2.16	1.26	1.60	2.13	3.04
	Fawning	---	---	---	---	---	---
	Winter	3.55	2.24	1.51	2.04	2.21	3.55
	Year-round	---	---	---	---	---	---
	OMRD Total	**3.11**	**2.18**	**1.30**	**1.70**	**2.14**	**3.11**
Boulder Plateau	Summer	1.77	1.47	1.06	1.16	1.40	1.76
	Fawning	1.54	1.40	1.22	1.36	1.48	1.55
	Winter	1.18	0.83	0.61	0.70	0.85	1.18
	Year-round	5.29	3.72	1.94	2.06	3.69	5.28
	OMRD Total	**1.56**	**1.25**	**0.92**	**1.02**	**1.26**	**1.56**
Kaiparowits	Summer	---	---	---	---	---	---
	Fawning	4.16	4.16	4.16	4.16	4.16	4.16
	Winter	0.94	0.63	0.63	0.63	0.63	0.63
	Year-round	2.07	1.45	1.22	1.30	1.53	2.07
	OMRD Total	**1.86**	**1.31**	**1.13**	**1.20**	**1.40**	**1.86**

Table 3-8. Open Motorized Road Density within Mule Deer Habitat in the Cumulative Effects Area

Mule Deer WMU	Big Game Seasonal Ranges	Existing Condition OMRD (miles/square mile)	OMRD by Alternative (miles/square mile)				
			A	B	C	D	E
Pine Valley	Summer	0.96	0.79	0.71	0.79	0.81	0.96
	Fawning	0.24	0.23	0.24	0.24	0.24	0.24
	Winter	1.31	1.18	1.14	1.16	1.20	1.31
	Year-round	1.33	1.20	1.06	1.15	1.18	1.33
	OMRD Total	**1.17**	**1.02**	**0.96**	**1.02**	**1.04**	**1.17**
Zion	Summer	1.88	1.85	1.83	1.84	1.85	1.88
	Fawning	---	---	---	---	---	---
	Winter	1.06	1.06	1.05	1.06	1.06	1.06
	Year-round	4.91	4.90	4.90	4.90	4.90	4.90
	OMRD Total	**1.45**	**1.44**	**1.44**	**1.44**	**1.44**	**1.45**
Panguitch Lake	Summer	2.22	1.83	1.63	1.74	1.86	2.26
	Fawning	2.45	1.97	1.68	1.82	1.92	2.45
	Winter	1.60	1.44	1.31	1.36	1.39	1.60
	Year-round	3.63	3.04	2.96	2.95	3.12	3.62
	OMRD Total	**1.99**	**1.69**	**1.52**	**1.60**	**1.69**	**2.01**
Mount Dutton	Summer	1.06	0.67	0.56	0.60	0.68	1.10
	Fawning	---	---	---	---	---	---
	Winter	1.51	1.12	1.05	1.11	1.17	1.52
	Year-round	2.53	2.60	2.52	2.52	2.52	2.53
	OMRD Total	**1.40**	**1.03**	**0.94**	**0.99**	**1.06**	**1.40**
Paunsaugunt	Summer	2.25	1.92	1.57	1.71	1.90	2.25
	Fawning	---	----	---	---	---	---
	Winter	1.24	1.20	1.17	1.19	1.20	1.24
	Year-round	---	---	---	---	---	---
	OMRD Total	**1.58**	**1.44**	**1.31**	**1.37**	**1.44**	**1.58**
Boulder Plateau	Summer	1.70	1.44	1.07	1.16	1.44	1.70
	Fawning	1.55	1.45	1.32	1.42	1.45	1.55
	Winter	1.10	0.99	0.93	0.96	1.00	1.09
	Year-round	5.29	2.61	1.94	2.06	3.71	5.30
	OMRD Total	**1.33**	**1.16**	**1.00**	**1.05**	**1.17**	**1.32**
Kaiparowits	Summer	0.38	0.40	0.38	0.38	0.38	0.38
	Fawning	1.88	1.88	1.88	1.88	1.88	1.88
	Winter	0.50	0.59	0.50	0.50	0.50	0.50
	Year-round	1.27	0.98	0.87	0.91	1.01	1.27
	OMRD Total	**0.58**	**0.51**	**0.50**	**0.51**	**0.51**	**0.58**

3.6.2.13.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, livestock grazing, and general development (for special uses, oil and gas, and private property) would impact the total availability and juxtaposition of available habitat within the cumulative effects area for mule deer. In areas where vegetation management has resulted in a reduction of hiding cover below 30 percent, the effects of higher road densities are cumulative (Thomas et al. 1979). Application of any of the action alternatives would result in a net decrease in motorized access – either by reducing the overall miles of motorized routes and eliminating cross-country travel (Alternatives B, C, and D) or just eliminating cross-country travel (Alternative E). This is expected to have a long-term beneficial impact on mule deer. Therefore, implementation of any action alternative in combination with past, present, and reasonably foreseeable future actions would lead to an increase in habitat effectiveness across the project area.

3.6.2.13.3. Determination and Rationale

Alternative A

Implementation of Alternative A would result in continued, unrestricted cross-country travel within all mule deer seasonal habitats. This use would increase the potential for motorized expansion and thereby increase the risks of habitat fragmentation, increase impacts to soils and vegetation that support these species, and increase energy expenditures during a time of year when mule deer can least afford it. Although these impacts would decrease habitat effectiveness for mule deer *and may impact individual animals, viable populations would be maintained within the Pine Valley, Zion, Panguitch Lake, Mount Dutton, Boulder Plateau, and Kaiparowits WMUs*.

Conversely, mule deer populations within the Paunsaugunt WMU are at higher risk from the existing motorized road densities and unrestricted cross-country travel. The project area incorporates 14 percent of the total available mule deer habitat within this WMU, but more than 38 percent of seasonal summer habitats, and these areas are clearly impacted by the high density of roads and motorized activities. Given these conditions, *implementation of Alternative A may impact individual animals, and viable populations would not likely be maintained over time within the Paunsaugunt WMU*.

Alternatives B and C

Implementation of either of these alternatives would result in closure of unrestricted cross-country travel within all mule deer seasonal habitats. This would reduce the potential for disturbance and increase overall habitat effectiveness throughout the project area. However, the recommended OMRD of 2.0 miles/square mile would be exceeded for summer habitat in the Zion WMU at the project area level of analysis. An OMRD of 1.0 miles/square mile would be exceeded for winter habitats at both the project area and cumulative effects area (WMU) level of analysis within the Panguitch Lake WMU. Currently, the Panguitch Lake WMU mule deer population does not appear limited by existing motorized access and activities.

Implementation of Alternative B or C would result in reductions in total and seasonal OMRDs and the elimination of cross-country travel throughout the seven WMUs. This would increase habitat effectiveness for mule deer over time. Therefore, *implementation of Alternative B or C may impact individual animals, but viable populations would be maintained within the Pine Valley, Zion, Panguitch Lake, Mount Dutton, Paunsaugunt, Boulder Plateau, and Kaiparowits Mule Deer WMUs*.

Alternative D

Implementation of Alternative D would result in closure of unrestricted cross-country travel within all mule deer seasonal habitats. This would reduce the potential for disturbance and increase overall habitat effectiveness throughout the project area. However, the recommended OMRD of 2.0 miles/square mile would be exceeded for summer habitat in the Zion WMU at the project area level of analysis. In addition, implementation of Alternative D would slightly exceed this guideline on summer ranges within the Paunsaugunt WMU (with an OMRD of 2.13 miles/square mile). Finally, an OMRD of 1.0 miles/square mile would be exceeded for winter habitats at both the project area and cumulative effects area (WMU) level of analysis within the Panguitch Lake WMU. Currently, the Panguitch Lake WMU mule deer population does not appear limited by existing motorized access and activities. However, the Paunsaugunt WMU mule deer population *is* influenced by high levels of motorized access.

Implementation of Alternative D would result in reductions in total and seasonal OMRDs and the elimination of cross-country travel throughout the seven WMUs. This would increase habitat effectiveness for mule deer over time. Therefore, implementation of Alternative D *may impact individual animals, but viable populations would be maintained within the Pine Valley, Zion, Panguitch Lake, Mount Dutton, Paunsaugunt, Boulder Plateau, and Kaiparowits Mule Deer WMUs*.

Alternative E

Implementation of Alternative E would result in closure of unrestricted cross-country travel within all mule deer seasonal habitats. This would reduce the potential for disturbance and increase overall habitat effectiveness throughout the project area. However, the recommended OMRD guideline of 2.0 miles/square mile would be exceeded for all seasonal ranges at both the project area and cumulative effects area (WMU) level for the Panguitch Lake WMU. In addition, recommended OMRD would be exceeded for summer habitats at both the project area and cumulative effects area for the Paunsaugunt WMU. Currently, the Panguitch Lake WMU mule deer population does not appear limited by existing motorized access and activities. However, the Paunsaugunt WMU mule deer population is influenced by high levels of motorized access.

Although implementation of Alternative E would result in almost no change from existing OMRDs, the elimination of cross-country travel would increase habitat effectiveness for mule deer. Therefore, implementation of Alternative E *may impact individual animals, but viable populations would be maintained within the Pine Valley, Zion, Panguitch Lake, Mount Dutton, Boulder Plateau, and Kaiparowits Mule Deer WMUs*. Conversely, given the existing known impacts to mule deer in the Paunsaugunt WMU, implementation of Alternative E *may impact individual animals, and viable populations would not likely be maintained over time within the Paunsaugunt WMU*.

3.6.2.14. Northern Flicker

3.6.2.14.1. Direct and Indirect Effects

Alternative A

Under Alternative A, cross-country travel would continue with a net result of proliferation of routes throughout potential breeding habitat. This would increase motorized vehicle-generated disturbance to nesting and foraging woodpeckers and continue habitat alternation that could affect foraging/nesting trees (via firewood collection). Some 164 miles of roads would be closed within potential habitat with a net improvement of 394 acres of habitat. This would result in a net motorized reduction (with previous decisions) of only 5 percent within potential habitat.

All Action Alternatives

Implementation of any of the action alternatives would result in a closure of motorized cross-country travel within 61 percent of potential northern flicker habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this MIS and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation.

Alternatives B, C, and D

In conjunction with previous management decisions, Alternatives B, C, and D would result in an incremental decrease in motorized access within potential habitat of 40 percent, 32 percent, and 21 percent, respectively, from the existing condition. A reduction in miles of road and cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation and long-term rehabilitation of road prisms.

Alternative E

Alternative E would result in the classification of most unauthorized routes to a Level 2 classification, with a net increase of 1 percent in the available motorized access within this species' habitat over the existing condition. However, a reduction in cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

3.6.2.14.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, land general development (for special uses, oil and gas, and private property) would impact the total availability and juxtaposition of potential nesting and foraging habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact within modeled habitat for this species. This would offset the continued minor loss of foraging habitat via development on private land, and the ongoing localized alteration of habitat including retention of available large snags associated with continued timber harvest, thinning, and prescribed burning across the landscape.

3.6.2.14.3. Determination and Rationale

Alternative A

Given the small net reduction in motorized routes, implementation of Alternative A would lead to a very small improvement in potential breeding habitat for northern flickers over the long-term. However, the potential for cross-country travel would continue to degrade available habitat and increase risk of disturbance from motorized vehicles. Because of this potential for further habitat degradation and increasing disturbance from cross-country travel in open areas, selection of Alternative A *may impact individual flickers, but viable populations would be maintained*.

Alternatives B, C, and D

With the elimination of cross-country travel, implementation of any of these three alternatives would lead to a significant improvement in potential habitat for the northern flicker over the long-term. Alternatives B, C, and D eliminate some roads throughout identified habitat, which further improves habitat effectiveness and reduces disturbance. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is little risk of disturbing northern flickers during decommissioning activities. Therefore, selection of Alternative B, C, or D would have a *beneficial impact* on northern flickers and their habitat.

Alternative E

With the elimination of cross-country travel, implementation of Alternative E would lead to improvement in potential habitat for flickers over the long-term. However, this alternative actually increases the mile of routes within potential habitat and results in an increase in vulnerability of preferred nesting trees to firewood collections. Because of this potential for further habitat degradation, selection of Alternative E *may impact individual flickers, but viable populations would be maintained*.

3.6.2.15. Rocky Mountain Elk

3.6.2.15.1. Direct and Indirect Effects

The *Wildlife Specialist Report* includes specific detail on Open Motorized Road Density (OMRD) by seasonal habitat by WMU. OMRD is an important measure in the discussion of effects on both Rocky Mountain elk and mule deer (beginning on page 3-55) as it ties to the Forest Plan guideline on road density (USDA 1986, p IV-50). Two tables showing the OMRD by alternative by WMU and seasonal range, one for the project area and one for the cumulative effects area, are found on page 3-68 and page 3-69, respectively.

Alternative A

Project Area
Alternative A would result in a small decrease in OMRD within every WMU at the project area level. This is a direct result of not adding unauthorized routes that are located within areas closed to cross-country travel to the system (USDA 2005a). It is assumed that these routes would be decommissioned and/or barriered, and enforced as closed to the public. The Zion and

Paunsaugunt WMUs would continue to have total OMRDs in excess of 2.0 miles/square mile within the project area, which is driven by higher than desirable OMRDs in calving and winter habitat on NFS lands.

Conversely, there would be no change in habitat security for elk under this alternative. Cross-country travel in designated areas would remain open, with a net result that acres of secure habitat would not change from the existing condition.

In addition, implementation of this alternative would result in no decrease in the OMRDs in the Haycock Mountain Timber Stand Improvement project area within the Panguitch Lake WMU.

Cumulative Effects Area
Implementation of this alternative would result in total OMRDs of less than 2.0 miles/square mile in all WMUs. However, available winter habitat on the Panguitch Lake, Mount Dutton, Paunsaugunt, and Boulder Plateau WMUs would have OMRDs of 1.10, 1.02, 2.28, and 1.03 miles/square mile, respectively. The Paunsaugunt OMRDs within winter habitat are more than twice the amount recommended by Thomas et al. (1988).

The implementation of this alternative would continue to allow an increase in new routes within all big game seasonal ranges. In addition, OMRDs would remain higher than desirable within the project area for the Zion WMU seasonal calving habitat and the Paunsaugunt WMU calving and winter habitat. Over time, this would result in decreased habitat effectiveness and higher rates of legal and illegal mortality.

Alternatives B and C

Project Area
Implementation of either of these two alternatives would result in total OMRDs of less than 2.0 miles/square mile in all WMUs except the Zion WMU. However, this unit only encompasses a very small portion of the total available calving habitat for the entire WMU (<7 percent). Likewise, OMRDs for summer, calving, and winter seasonal habitats would be reduced below recommended levels in all WMUs except the Paunsaugunt WMU. Winter OMRDs in the Paunsaugunt WMU would remain well above the recommend OMRD of 1.0 miles/square mile with implementation of either Alternative B or C.

Implementation of either alternative would decrease OMRDs to 2.68 and 2.81 miles/square mile, respectively, in the Haycock Mountain Timber Stand Improvement project area within the Panguitch Lake WMU.

In addition, there would be a dramatic increase in acres of secure habitat for elk application of either alternative. This is a direct result of closing areas to cross-country travel as well as a decrease in open roads across the project area.

Cumulative Effects Area
All WMUs would have an overall rating of less than 2.0 miles/square mile, although the Panguitch Lake and Paunsaugunt WMUs would continue to have OMRDs exceeding 1.0 miles/square mile in winter habitats.

The implementation of either Alternative B or C would result in higher than desirable OMRDs within the project area for the Zion WMU seasonal calving habitat and the Paunsaugunt WMU

calving and winter habitat. Over time, this would result in decreased habitat effectiveness and the potential for higher rates of legal and illegal mortality.

Alternative D

Project Area
Implementation of Alternative D would result in total OMRDs of less than 2.0 miles/square mile in all WMUs except the Paunsaugunt and the Zion WMUs. Likewise, OMRDs for summer, calving, and winter seasonal habitats would be reduced below the Forest Plan recommended guideline in all units except the Paunsaugunt WMU. This alternative includes the construction of two new motorized trails comprising 1.26 miles located within crucial calving habitat n the Panguitch Lake WMU. In addition, winter habitat OMRDs in the Paunsaugunt WMU would remain almost three times the recommend OMRD of 1.0 miles/square mile with implementation of this alternative.

Implementation of Alternative D would only decrease the OMRD to 2.67 miles/square mile in the Haycock Mountain Timber Stand Improvement project area within the Panguitch Lake WMU.

In addition, there would be a dramatic increase in acres of secure habitat for elk application of this alternative. This is a direct result of closing areas to cross-country travel as well as a decrease in open roads across the project area.

Cumulative Effects Area
All WMUs would have an overall rating of less than 2.0 miles/square mile, although the Panguitch Lake, Paunsaugunt, and Boulder Plateau WMUs would continue to have OMRDs exceeding 1.0 miles/square mile in winter habitats.

The implementation of Alternative D would result in higher than desirable OMRDs for the Zion WMU seasonal calving habitat, the Paunsaugunt WMU calving and winter habitat, and the Boulder Plateau WMU winter habitat. Over time, this would result in decreased habitat effectiveness and the potential for higher rates of legal and illegal mortality.

Alternative E

Project Area
Implementation of Alternative E would result in total OMRDs of more than 2.0 miles/square mile in the Zion, Panguitch Lake, and Paunsaugunt WMUs. This alternative includes the construction of two new motorized trails comprising 1.26 miles in crucial calving habitat in the Panguitch Lake WMU. This includes OMRDs in excess of 2.0 miles/square mile in calving habitat on the Zion, Paunsaugunt, and Kaiparowits WMUs, and OMRDs in excess of 1.0 miles/square mile in winter habitat on the Panguitch Lake, Mount Dutton, Boulder Plateau, Paunsaugunt, and Kaiparowits WMUs.

In addition, implementation of this alternative would result in no decrease in the OMRDs in the Haycock Mountain Timber Stand Improvement project area within the Panguitch Lake WMU.

Cumulative Effects Area
Implementation of Alternative E would result in no change or a slight increase in total OMRDs from the existing condition for all WMUs. This includes an overall rating in excess of 2.0 miles/square mile for the Panguitch Lake and Paunsaugunt WMUs. In addition, resulting

OMRDs would be exceeded for calving and winter seasonal habitats within the Panguitch Lake and Paunsaugunt WMUs, and for winter habitat located within the Boulder Plateau WMU.

The implementation of this alternative would result in higher than desirable OMRDs within the project area for the Zion WMU seasonal calving habitat, the Panguitch Lake WMU calving and winter habitat, the Mount Dutton WMU winter habitat, the Paunsaugunt WMU calving and winter habitat, the Boulder Plateau WMU winter habitat, and the Kaiparowits WMU summer, calving, and winter habitats. Over time, this would result in decreased habitat effectiveness and the potential for higher rates of legal and illegal mortality.

The two tables on the following pages show the OMRD by WMU by seasonal range. The first table on page 3-68 shows the OMRDs within the project area (on the Dixie National Forest), while the second table on page 3-69 shows the OMRD within the cumulative effects area (within the entire WMU regardless of land ownership). Big game seasonal range acreages reflects a combination of “crucial” and “substantial” habitats within each season. Calving habitat includes those habitats classified as primary summer or year-long elk seasonal ranges for the Zion, Panguitch Lake, Mount Dutton, and Paunsaugunt WMUs.

Table 3-9. Open Motorized Road Density within Rocky Mountain Elk Habitat in the Project Area

Rocky Mountain Elk WMU	Big Game Seasonal Ranges	Existing Condition OMRD (miles/square mile)	OMRD by Alternative (miles/square mile)				
			A	B	C	D	E
Zion	Summer	---	---	---	---	---	---
	Calving	3.33	3.24	3.14	2.98	3.30	3.32
	Winter	---	---	---	---	---	---
	Year-round	---	---	---	---	---	---
	OMRD Total	**3.33**	**3.24**	**3.14**	**2.98**	**3.30**	**3.32**
Panguitch Lake	Summer	---	---	---	---	---	---
	Calving	2.39	1.86	1.56	1.70	1.85	2.43
	Winter	1.13	0.85	0.71	0.79	0.89	1.12
	Year-round	---	---	---	---	---	---
	OMRD Total	**2.24**	**1.74**	**1.46**	**1.59**	**1.74**	**2.28**
Mount Dutton	Summer	---	---	---	---	---	---
	Calving	1.21	0.75	0.62	0.67	0.74	1.91
	Winter	1.49	0.79	0.68	0.74	0.86	1.57
	Year-round	1.92	0.97	0.85	1.00	1.21	1.28
	OMRD Total	**1.44**	**0.81**	**0.69**	**0.77**	**0.88**	**1.47**
Paunsaugunt	Summer	---	---	---	---	---	---
	Calving	3.42	2.42	1.41	1.84	2.42	3.42
	Winter	4.57	2.94	1.87	2.62	2.94	4.57
	Year-round	0.71	0.44	0.11	0.41	0.41	0.71
	OMRD Total	**3.49**	**2.43**	**1.44**	**1.91**	**2.42**	**3.50**
Boulder Plateau	Summer	1.76	1.48	1.06	1.17	1.47	1.76
	Calving	1.70	1.40	1.09	1.00	1.49	1.70
	Winter	1.48	1.12	0.87	0.99	1.15	1.48
	Year-round	4.37	2.71	1.12	1.21	3.82	4.37
	OMRD Total	**1.63**	**1.33**	**0.98**	**1.01**	**1.34**	**1.63**
Kaiparowits	Summer	2.08	1.46	1.25	1.32	1.55	2.08
	Calving	2.13	1.42	1.27	1.37	1.63	2.13
	Winter	1.06	0.79	0.79	0.83	0.97	1.06
	Year-round	---	---	---	---	---	---
	OMRD Total	**1.87**	**1.32**	**1.16**	**1.23**	**1.44**	**1.87**

Table 3-10. Open Motorized Road Density within Rocky Mountain Elk Habitat in the Cumulative Effects Area

Rocky Mountain Elk WMU	Big Game Seasonal Ranges	Existing Condition OMRD (miles/square mile)	OMRD by Alternative (miles/square mile)				
			A	B	C	D	E
Zion	Summer	---	---	---	---	---	---
	Calving	1.47	1.47	1.46	1.45	1.47	1.47
	Winter	1.32	1.32	1.32	1.32	1.32	1.32
	Year-round	1.34	1.34	1.34	1.34	1.34	1.34
	OMRD Total	**1.43**	**1.43**	**1.42**	**1.42**	**1.43**	**1.43**
Panguitch Lake	Summer	---	---	---	---	---	---
	Calving	2.24	1.80	1.55	1.67	1.80	2.28
	Winter	1.22	1.10	1.04	1.08	1.12	1.22
	Year-round	---	---	---	---	---	---
	OMRD Total	**2.03**	**1.67**	**1.45**	**1.54**	**1.66**	**2.06**
Mount Dutton	Summer	---	---	---	---	---	---
	Calving	1.23	0.75	0.62	0.67	0.74	1.23
	Winter	1.34	1.02	0.98	1.00	1.06	1.34
	Year-round	1.91	0.95	0.86	0.97	1.12	1.91
	OMRD Total	**1.39**	**0.88**	**0.79**	**0.85**	**0.94**	**1.39**
Paunsaugunt	Summer	---	---	---	---	---	---
	Calving	2.85	2.16	1.47	1.77	2.16	2.85
	Winter	2.97	2.28	1.82	2.14	2.27	2.97
	Year-round	1.50	1.50	1.49	1.50	1.50	1.50
	OMRD Total	**2.20**	**1.85**	**1.52**	**1.68**	**1.85**	**2.20**
Boulder Plateau	Summer	1.73	1.48	1.11	1.20	1.47	1.73
	Calving	1.70	1.40	1.10	1.00	1.49	1.70
	Winter	1.17	1.03	0.94	0.98	1.05	1.17
	Year-round	4.27	2.70	1.42	1.28	3.75	4.27
	OMRD Total	**1.38**	**1.21**	**1.00**	**1.06**	**1.21**	**1.38**
Kaiparowits	Summer	1.39	1.42	0.94	0.99	1.11	1.39
	Calving	2.13	1.63	1.27	1.37	1.63	2.13
	Winter	0.91	0.82	0.82	0.83	0.88	0.91
	Year-round	---	---	---	---	---	---
	OMRD Total	**1.29**	**1.01**	**0.93**	**0.97**	**1.07**	**1.29**

3.6.2.15.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, livestock grazing, and general development (for special uses, oil and gas, and private property) would impact the total availability and juxtaposition of available habitat within the cumulative effects area for elk. In areas where vegetation management has resulted in a reduction of hiding cover below 30 percent, the effects of higher road densities are cumulative (Thomas et al. 1979). Application of the action alternatives would result in a net decrease in motorized access – either by reducing the overall miles of motorized routes and eliminating cross-country travel (Alternatives B, C, and D) or by just eliminating cross-country travel (Alternative E). Therefore, implementation of any of the all action alternatives in combination with past, present, and reasonably foreseeable future actions would lead to an increase in habitat effectiveness across the project area.

3.6.2.15.3. Determination and Rationale

Alternative A

Implementation of Alternative A would result in unrestricted cross-country travel within all elk seasonal habitats. This use would increase the potential for motorized expansion and thereby increase the risks of habitat fragmentation, impacts to soils and vegetation that support these species, and increase energy expenditures during a time of year when they can least afford it. Although these impacts would decrease habitat effectiveness for elk and may impact individual animals, *viable populations would be maintained within the Pine Valley, Zion, Panguitch Lake, Mount Dutton, Boulder Plateau, and Kaiparowits WMUs*.

Conversely, elk populations within the Paunsaugunt WMU would be at higher risk from the existing motorized road densities and unrestricted cross-country travel. The project area incorporates 31 percent of the total available elk habitat within this WMU, but more than 63 percent of seasonal summer and 37 percent of seasonal winter habitats, and these areas are clearly impacted by the high density of roads and motorized activities. Given these conditions, implementation of Alternative A *may impact individual animals, and viable populations of elk would not likely be maintained over time within the Paunsaugunt WMU*.

Alternatives B and C

Implementation of either of these two alternatives would result in the closure of unrestricted cross-country travel within all elk seasonal habitats. This would reduce the potential for disturbance and increase overall habitat effectiveness throughout the project area. An OMRD of 1.0 miles/square mile would be exceeded for winter habitats at both the project area and cumulative effects area level (WMU) level of analysis within the Paunsaugunt WMU, and at the cumulative effects area level for the Panguitch Lake WMU. Currently, the Panguitch Lake WMU elk population does not appear limited by existing motorized access and activities. However, the Paunsaugunt WMU elk population *is* influenced by high levels of motorized access.

Implementation of Alternative B or C would result in reductions in total and seasonal OMRDs and the elimination of cross-country travel throughout the six WMUs. This would increase habitat effectiveness for elk over time. Therefore, implementation of any of these alternatives *may impact individual animals, but viable populations would be maintained within the Pine Valley, Zion, Panguitch Lake, Mount Dutton, Paunsaugunt, Boulder Plateau, and Kaiparowits WMUs*.

Alternative D

Implementation of this alternative would result in closure of unrestricted cross-country travel within all elk seasonal habitats. This would reduce the potential for disturbance and increase overall habitat effectiveness throughout the project area. An OMRD of 1.0 miles/square mile would be exceeded for winter habitats at both the project area and cumulative effects area (WMU) level of analysis within the Paunsaugunt WMU, and at the cumulative effects area level for the Panguitch Lake and Boulder Plateau WMUs. Currently, the Panguitch Lake WMU and Boulder Plateau WMU elk populations do not appear limited by existing motorized access and activities. However, the Paunsaugunt WMU elk population *is* influenced by high levels of motorized access.

Implementation of Alternative D would result in reductions in total and seasonal OMRDs and the elimination of cross-country travel throughout the six WMUs. This would increase habitat effectiveness for elk over time. Therefore, implementation of this alternative *may impact individual animals, but viable populations would be maintained within the Pine Valley, Zion, Panguitch Lake, Mount Dutton, Boulder Plateau, and Kaiparowits WMUs*.

Conversely, elk populations within the Paunsaugunt WMU are at higher risk from the existing motorized road densities and unrestricted cross-country travel. The project area incorporates 31 percent of the total available elk habitat within this WMU, but more than 63 percent of seasonal summer and 37 percent of seasonal winter habitats, and these areas are clearly impacted by the high density of roads and motorized activities. Given these conditions, implementation of Alternative D *may impact individual animals, and viable populations of elk would not likely be maintained over time within the Paunsaugunt WMU*.

Alternative E

Implementation of this alternative would result in closure of unrestricted cross-country travel within all elk seasonal habitats. This would reduce the potential for disturbance and increase overall habitat effectiveness throughout the project area. However, the recommended OMRDs guideline of 2.0 miles/square mile would be exceeded for all seasonal ranges at both the project area and cumulative effects area (WMU) level for the Panguitch Lake WMU. In addition, recommended OMRDs would be exceeded for summer habitats at both the project area and cumulative effects area for the Paunsaugunt WMU. Currently, the Panguitch Lake WMU elk population does not appear limited by existing motorized access and activities. However, the Paunsaugunt WMU mule deer population *is* influenced by high levels of motorized access.

Although implementation of Alternative E would result in almost no change from existing OMRDs, the elimination of cross-country travel would increase habitat effectiveness for elk. Therefore, implementation of this alternative *may impact individual animals, but viable populations would be maintained within the Pine Valley, Zion, Panguitch Lake, Mount Dutton, Boulder Plateau, and Kaiparowits Rocky Mountain elk WMUs*. Conversely, given the existing known impacts to elk in the Paunsaugunt WMU, implementation of Alternative E *may impact*

individual animals, and viable populations would not likely be maintained over time within the Paunsaugunt WMU.

3.6.2.16. Wild Turkey

3.6.2.16.1. Direct and Indirect Effects

Alternative A

Under this alternative, cross-country travel would continue with a net result of proliferation of routes throughout potential breeding habitat. This would increase motorized vehicle-generated disturbance to nesting and foraging turkeys and continued habitat alternation that could decrease habitat effectiveness. Some 142 miles of roads would be closed within potential habitat with a net improvement of 345 acres of habitat, but this is a very minor improvement given the large number of acres available.

All Action Alternatives

Implementation of any of the action alternatives would result in a closure of motorized cross-country travel within the 61 percent of potential wild turkey habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this MIS and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation.

Alternatives B, C, and D

In conjunction with previous management decisions, Alternatives B, C, and D would result in an incremental decrease in motorized access within potential habitat of 40 percent, 32 percent, and 19 percent, respectively, from the existing condition. A reduction in miles of road and cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation and long-term rehabilitation of road prisms.

Alternative E

Alternative E would result in the classification of most unauthorized routes to a Level 2 classification, with a net increase of 1 percent in the available motorized access within this species' habitat over the existing condition. However, a reduction in cross-country travel would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

3.6.2.16.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and future timber harvest, thinning, prescribed burning, land general development (for special uses, oil and gas, and private property), and livestock grazing would impact the total availability and juxtaposition of potential nesting and foraging habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is

expected to have a long-term beneficial impact within modeled habitat for this species. This would offset the continued minor loss of foraging habitat via development on private land, and the ongoing localized alteration of available habitat associated with continued timber harvest, thinning, and prescribed burning across the landscape.

3.6.2.16.3. Determination and Rationale

Alternative A

Given the small net reduction in motorized routes, implementation of Alternative A would lead to a very small improvement in potential breeding habitat for turkeys over the long-term. However, the potential for cross-country travel would continue to degrade available habitat and increase risk of disturbance from motorized vehicles. Because of this potential for further habitat degradation and increasing disturbance from cross-country travel in open areas, Alternative A *may impact individual turkeys, but viable populations would be maintained*.

Alternatives B, C, and D

With the elimination of cross-country travel, implementation of any of these three alternatives would lead to significant improvement in potential habitat for the wild turkey over the long-term. Alternatives B, C, and D eliminate some roads throughout identified habitat, which further improves habitat effectiveness and reduces disturbance. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is very little risk of disturbing turkeys during decommissioning activities as turkeys are highly mobile and there is an abundance of habitat available throughout the project area. Therefore, selection of Alternative B, C, or D would have a *beneficial impact* on wild turkeys and their habitat.

Alternative E

This alternative actually increases the mile of routes within potential habitat. Because of this potential for further habitat degradation, selection of Alternative E *may impact individual turkeys, but viable populations would be maintained*.

3.6.2.17. Black-rosy Finch

3.6.2.17.1. Direct and Indirect Effects

Alternative A

Under Alternative A, some 815 acres of black-rosy finch habitat (<2 percent) would still be vulnerable to the impacts of unrestricted cross-country motorized travel. In addition, limited miles (1.67) of unauthorized routes would be decommissioned for a net long-term benefit of >4 acres in habitat. Impacts to this species would include continued potential for disturbance and negative alpine habitat alternation.

All Action Alternatives

All action alternatives would result in a closure of motorized cross-country travel within 2 percent of potential black-rosy finch habitat. Closure to cross-country travel would eliminate the

potential for further habitat degradation and disturbance to this species of concern and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. This species has not been specifically surveyed for in the Brian Head or Boulder Top area, so its presence within the project area is not certain. However, given the availability of potential breeding habitat, it is safe to assume that there is a potential for disturbance to this species from continued motorized travel or decommissioning activities.

Implementation of any of the action alternatives would result in an incremental decrease in motorized access from the existing condition. This includes decommissioning of 2 to >3 miles of roads and only a small net addition of unauthorized routes to the system (up to 2 miles and <5 acres of habitat). Alternative C would have the least motorized impacts on finch habitat, followed by Alternatives B, D and E, in that order. A reduction in miles of road would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

3.6.2.17.2. Cumulative Effects

Alternative A

Alternative A would result in no change to the environmental baseline; therefore, there would be no cumulative effects with implementation.

All Action Alternatives

The cumulative effects of past and present recreational activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact on habitat for this species. This reduction would help direct and control future recreational activities in finch habitat, including biking, hiking, and driving along designated routes.

3.6.2.17.3. Determination and Rationale

Alternative A

Given the small net reduction of motorized access, implementation of Alternative A would lead to a small improvement in potential black-rosy finch habitat over the long-term. However, the potential for cross-country travel and associated risk to habitat and breeding birds would continue. There is a very minor risk of disturbing black-rosy finches that might be in the area during decommissioning activities. Because of this and the potential for continued habitat degradation in the areas open to cross-country travel and elevated levels of noise associated with unrestricted motorize travel, selection of Alternative A *may impact individual finches, but viable populations would be maintained*.

All Action Alternatives

Given the net reduction of motorized access and elimination of cross-country travel in Alternatives B, C, D, and E, implementation of any of them would lead to improvement in potential black-rosy finch habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative E. There is a very minor risk of disturbing black-rosy finches that might be in the

area during decommissioning activities. Because of this potential for disturbance during implementation, selection of any of the action alternatives *may impact individual finches, but viable populations would be maintained*.

3.6.2.18. Black-throated Gray Warbler

3.6.2.18.1. Direct and Indirect Effects

Alternative A

Under Alternative A, some 75 percent of gray warbler habitat would still be vulnerable to the impacts of unrestricted cross-country motorized travel. In addition, limited miles (<24) of unauthorized routes would be decommissioned for a net long-term benefit of 58 acres in habitat over the long-term. Impacts to this species would include continued potential for disturbance and continued habitat alternation with the construction and use of new routes throughout areas open to cross-country travel.

All Action Alternatives

All action alternatives would result in a closure of motorized cross-country travel within 75 percent of potential black-throated gray warbler habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this species of concern and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a potential for disturbance to this species from continued motorized travel and any mechanized decommissioning activities.

Alternatives B, C, and D

Implementation of any of these three alternatives would result in an incremental decrease in motorized access from the existing condition. Implementation of these three alternatives in tandem with previous access management decisions would result an incremental decrease in motorized access of 40 percent (Alternative B), 31 percent (Alternative C), and 27 percent (Alternative D) from the existing condition. In addition, miles of non-motorized trails would increase by 10-33 miles with implementation of a given alternative. Once decommissioning was completed, Alternative B would result in the least motorized impacts on warbler habitat, followed by Alternative C and then D. A reduction in miles of road would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

Alternative E

Alternative E would result in the classification of almost all unauthorized routes to a Level 2 classification, with only minor decommissioning and conversion to a closed classification (<1 mile). Implementation of this alternative in tandem with previous access management decision would result in a net increase in motorized access of more than 2 miles over the existing condition.

3.6.2.18.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and reasonably foreseeable future vegetation projects (pinyon-juniper removal, prescribed burning), livestock grazing, and recreational and special use activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact on habitat for this species. This reduction would help direct and control future recreational activities in warbler habitat. This beneficial impact would offset the cumulative impacts of habitat alternation associated with these other management activities and public uses of warbler habitat.

3.6.2.18.3. Determination and Rationale

Alternative A

Given the small net reduction of motorized access, implementation of Alternative A would lead to only a small improvement in potential black-throated gray warbler habitat over the long-term. However, the potential for cross-country travel and associated risk to habitat and breeding birds would continue. There is a very minor risk of disturbing warblers that might be in the area during decommissioning activities. Because of this and the potential for continued habitat degradation in the areas open to cross-country travel and elevated levels of noise associated with unrestricted motorize travel, selection of Alternative A *may impact individual warblers, but viable populations would be maintained*.

Alternatives B, C, and D

Given the net reduction of motorized access and elimination of cross-country travel for these three alternatives, implementation of any of these alternatives would lead to improvement in potential black-throated gray warbler habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is a very minor risk of disturbing black-throated gray warblers that might be in the area during decommissioning activities. Because of this potential for disturbance during implementation, selection of Alternative B, C, or D *may impact individual warblers, but viable populations would be maintained*.

Alternative E

Given the net increase in miles of motorized access but elimination of cross-country travel over 75 percent of warbler habitat, implementation of this alternative would lead to improvement in potential black-throated gray warbler habitat over the long-term. There is a very minor risk of disturbing black-throated gray warblers that might be in the area during decommissioning activities. Because of this potential for disturbance during implementation, selection of Alternative E *may impact individual warblers, but viable populations would be maintained*.

3.6.2.19. Brewer's Sparrow

3.6.2.19.1. Direct and Indirect Effects

Alternative A

Under Alternative A, some 45 percent of Brewer's sparrow habitat would still be vulnerable to the impacts of unrestricted cross-country motorized travel. In addition, 67 miles of unauthorized routes would be decommissioned for a net long-term benefit of 161 acres in habitat over the long-term. Impacts to this species would include continued potential for disturbance and continued habitat alternation with the construction and use of new routes throughout areas open to cross-country travel.

All Action Alternatives

All action alternatives would result in a closure of motorized cross-country travel within 45 percent of potential Brewer's sparrow habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this species and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a potential for disturbance to this species from continued motorized travel and any mechanized decommissioning activities.

Alternatives B, C, and D

Implementation of any of these three alternatives, in tandem with previous access management decisions, would result an incremental decrease in motorized access of 33 percent (Alternative B), 29 percent (Alternative C), and 23 percent (Alternative D) from the existing condition. In addition, miles of non-motorized trails would increase by 5-22 miles with implementation of a given alternative. Once decommissioning was completed, Alternative B would result in the least motorized impacts on sparrow habitat, followed by Alternative C and then D. A reduction in miles of road would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation and habitat restoration over time.

Alternative E

Alternative E would result in the classification of almost all unauthorized routes to a Level 2 classification, with only minor decommissioning. Implementation of this alternative in tandem with previous access management decision would result in a net increase in motorized access of more than 2 miles over the existing condition.

3.6.2.19.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and reasonably foreseeable future vegetation projects (particularly pinyon-juniper removal, prescribed burning), livestock grazing, and recreational and special use activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact on habitat for this species. This reduction would help direct and control future recreational activities in Brewer's sparrow habitat. This beneficial

impact would offset the cumulative impacts of habitat alternation associated with these other management activities and public uses of sparrow habitat.

3.6.2.19.3. Determination and Rationale

Alternative A

Given the small net reduction of motorized access, implementation of Alternative A would lead to only a very small improvement in potential Brewer's sparrow habitat over the long-term. However, the potential for cross-country travel and associated risk to habitat and breeding birds would continue. There is a very minor risk of disturbing sparrows that might be in the area during decommissioning activities. Because of this and the potential for continued habitat degradation in the areas open to cross-country travel and elevated levels of noise associated with unrestricted motorize travel, Alternative A *may impact individual sparrows, but viable populations would be maintained*.

Alternatives B, C, and D

Given the net reduction of motorized access and elimination of cross-country travel in Alternatives B, C, and D, implementation of any of these alternatives would lead to improvement in potential Brewer's sparrow habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is a very minor risk of disturbing Brewer's sparrows that might be in the area during decommissioning activities. Because of this potential for disturbance during implementation, Alternative B, C, or D *may impact individual sparrows, but viable populations would be maintained*.

Alternative E

Given the net increase in miles of motorized access but elimination of cross-country travel over 75 percent of sparrow habitat, implementation of this alternative would lead to improvement in potential Brewer's sparrow habitat over the long-term. There is a very minor risk of disturbing Brewer's sparrows that might be in the area during decommissioning activities. Because of this potential for disturbance during implementation, Alternative E *may impact individual sparrows, but viable populations would be maintained*.

3.6.2.20. Broad-tailed Hummingbird

3.6.2.20.1. Direct and Indirect Effects

Alternative A

Under Alternative A, some 40 percent of riparian hummingbird habitat would still be vulnerable to the impacts of unrestricted cross-country motorized travel. However, 9 miles of unauthorized routes (not effected by previous management decisions) would be decommissioned within this highly sensitive and very limited habitat. Impacts to this species would include continued potential for disturbance and continued habitat alternation with the construction and use of new routes throughout areas open to cross-country travel.

All Action Alternatives

All action alternatives would result in a closure of motorized cross-country travel within 40 percent of potential broad-tailed hummingbird habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation (e.g., loss of shrubs, ground cover, and soil compactions) and disturbance to this species and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a potential for disturbance to this species from continued motorized travel and any mechanized decommissioning activities.

Alternatives B, C, and D

Implementation of any of these three alternatives, in tandem with previous access management decisions, would result an incremental decrease in motorized access of 27 percent (Alternative B), 21 percent (Alternative C), and 36 percent (Alternative D) from the existing condition. In addition, miles of non-motorized trails would increase slightly with implementation of Alternatives C and D. Once decommissioning was completed, Alternative D would result in the least motorized impacts on hummingbird habitat, followed by Alternative B and then C. A reduction in miles of road would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

Alternative E

Alternative E would result in the classification of almost all unauthorized routes to a Level 2 classification, and no decommissioning would be completed. Implementation of this alternative in tandem with previous access management decision would result in a net increase in motorized access of 1 percent from the existing condition.

3.6.2.20.2. Cumulative Effects

All Alternatives

The cumulative effects of past, present, and reasonably foreseeable future vegetation projects (thinning, harvest, prescribed burning), livestock grazing, and recreational and special use activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects area for this species. Recreational activities are especially high in these sensitive riparian areas as the public seeks these types of site out for dispersed camping and hiking. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact on habitat for this species. This reduction would help direct and control future recreational activities in hummingbird habitat. This beneficial impact would offset the cumulative impacts of habitat alternation associated with these other management activities and public uses of hummingbird habitat.

3.6.2.20.3. Determination and Rationale

Alternative A

Given the small net reduction in motorized access associated with this alternative (only 3 percent), implementation of Alternative A would lead to only a small improvement in potential broad-tailed hummingbird habitat over the long-term. However, the potential for cross-country travel and associated risk to habitat and breeding birds would continue. There is a very minor

risk of disturbing hummingbirds that may be in the area during decommissioning activities. Because of this and the potential for continued habitat degradation in the areas open to cross-country travel and elevated levels of noise associated with unrestricted motorize travel, selection of Alternative A *may impact individual hummingbirds, but viable populations would be maintained*.

Alternatives B, C, and D

Given the net reduction of motorized access and elimination of cross-country travel in Alternatives B, C, and D, implementation of any of these alternatives would lead to improvement in potential broad-tailed hummingbird habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative D and the lowest under Alternative C. There is a very minor risk of disturbing hummingbirds that might be in the area during decommissioning activities. Because of this potential for disturbance during implementation, selection of Alternative B, C, or D *may impact individual hummingbirds, but viable populations would be maintained*.

Alternative E

Given the net increase in miles of motorized access but elimination of cross-country travel over 40 percent of hummingbird habitat, implementation of Alternative E would lead to some protection in riparian nesting habitat over the long-term, but does not include the reduction in roads and associated habitat restorative characteristics of Alternatives B, C, and D. This lack of change in motorized access within these very limited types of habitat is of particular concern. In addition, there is a very minor risk of disturbing hummingbirds that might be in the area during decommissioning activities. Because of the continued disturbance and the potential for additional habitat degradation in these sensitive riparian areas, selection of Alternative E *may impact individual hummingbird, but viable populations would be maintained*.

3.6.2.21. Gambel's Quail

3.6.2.21.1. Direct and Indirect Effects

Alternative A

Under Alternative A, some 79 acres of Gambel's quail habitat (24 percent) would still be vulnerable to the impacts of unrestricted cross-country motorized travel. Impacts to this species would include continued potential for disturbance and negative alpine habitat alternation. Some 0.57 miles of unauthorized routes would not be added to the system, but would remain in place for cross-country motorized travel. This alternative would result in no change from the existing condition.

All Action Alternatives

All action alternatives would result in the elimination of motorized cross-country travel within 24 percent of potential quail habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this species of concern and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. There is a potential for disturbance to this species from continued motorized travel or decommissioning activities.

Alternatives B, C, and D

Implementation of any of these alternatives would result small an incremental decrease in motorized access from the existing condition. This includes decommissioning of <1 mile of road. Alternative B would have the least motorized impacts on quail habitat, followed by Alternatives C and D. A reduction in miles of road would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

3.6.2.21.2. Cumulative Effects

Alternative A

This alternative would result in no change to the environmental baseline; therefore, there would be no cumulative effects with implementation.

All Action Alternatives

The cumulative effects of past, present, and reasonably foreseeable recreational activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact on habitat for this species. This reduction would help direct and control future recreational activities in quail habitat, including biking, hiking, and ATV and other motorized driving along designated routes.

3.6.2.21.3. Determination and Rationale

Alternative A

Alternative A represents no change from the existing condition for Gambel's quail. Potential for cross-country travel and associated risk to habitat and breeding birds would continue. There is a very minor risk of disturbing Gambel's quail that might be in the area during decommissioning activities. Because of this and the potential for continued habitat degradation in the areas open to cross-country travel and elevated levels of noise associated with unrestricted motorize travel, Alternative A *may impact individual Gambel's quail, but viable populations would be maintained*.

All Action Alternatives

Given the net reduction of motorized access and elimination of cross-country travel for Alternatives B, C, D, and E, implementation of any of these alternatives would lead to improvement in the limited amount of available potential Gambel's quail habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative E. There is a very minor risk of disturbing Gambel's quail that might be in the area during decommissioning activities. Because of this potential for disturbance during implementation, Alternative B, C, D, or E *may impact individual quail, but viable populations would be maintained*.

3.6.2.22. Gray Vireo

3.6.2.22.1. Direct and Indirect Effects

Alternative A

Under Alternative A, some acres of gray vireo habitat (77 percent) would still be vulnerable to the impacts of unrestricted cross-country motorized travel. However, almost 24 miles of unauthorized routes would be decommissioned for a net long-term benefit of >57 acres in habitat. Impacts to this species would include continued potential for disturbance and negative habitat alternation within the pinyon-juniper and oak woodland habitat types.

All Action Alternatives

All action alternatives would result in a closure of motorized cross-country travel within 77 percent of potential gray vireo habitat. Closure to cross-country travel would eliminate the potential for further habitat degradation and disturbance to this species of concern and increase overall habitat effectiveness via a reduction in habitat alternation and fragmentation. However, there is a potential for disturbance to this species from continued motorized travel or decommissioning activities.

Alternatives B, C, and D

Implementation of any of these three alternatives, in tandem with previous access management decisions, would result an incremental decrease in motorized access of 41 percent (Alternative B), 31 percent (Alternative C), and 26 percent (Alternative D) from the existing condition. In addition, miles of non-motorized trails would increase slightly with implementation of Alternatives C and D. Alternative B would have the least motorized impacts on vireo habitat, followed by Alternative C and then D. A reduction in miles of road would reduce the potential for disturbance and increase overall habitat effectiveness via a reduction in habitat fragmentation.

Alternative E

Alternative E would result in the classification of almost all unauthorized routes to a Level 2 classification, and no decommissioning would be completed. Implementation of this alternative in tandem with previous access management decision would result in a net increase in motorized access of 1 percent from the existing condition.

3.6.2.22.2. Cumulative Effects

Alternative A

Alternative A would result in no change to the environmental baseline; therefore, there would be no cumulative effects with implementation.

All Action Alternatives

The cumulative effects of past and present recreational activities would impact the total availability and juxtaposition of designated habitat within the cumulative effects area for this species. A reduction in motorized access either by reducing the overall miles of motorized routes and/or eliminating cross-country travel is expected to have a long-term beneficial impact

on habitat for this species. This reduction would help direct and control future recreational activities in finch habitat, including biking, hiking, and driving along designated routes.

3.6.2.22.3. Determination and Rationale

Alternative A

Given the small net reduction of motorized access, implementation of Alternative A would lead to small improvement in potential gray vireo habitat over the long-term. However, the potential for cross-country travel and associated risk to habitat and breeding birds would continue. There is a very minor risk of disturbing gray vireos that might be in the area during decommissioning activities. Because of this and the potential for continued habitat degradation in the areas open to cross-country travel and elevated levels of noise associated with unrestricted motorize travel, Alternative A *may impact individual vireos, but viable populations would be maintained*.

Alternatives B, C, and D

Given the net reduction of motorized access and elimination of cross-country travel, implementation of any of these three alternatives would lead to improvement in potential gray vireo habitat over the long-term. Improvement in habitat effectiveness and reduction in possible disturbance would be the highest under Alternative B and the lowest under Alternative D. There is a very minor risk of disturbing gray vireos that might be in the area during decommissioning activities. Because of this potential for disturbance during implementation, Alternative B, C, or D *may impact individual vireos, but viable populations would be maintained*.

Alternative E

Given the net increase in miles of motorized access but elimination of cross-country travel over 77 percent of gray vireo habitat, implementation of Alternative E would lead to improvement in potential gray vireo habitat over the long-term. There is a very minor risk of disturbing vireos that might be in the area during decommissioning activities. Because of this, Alternative E *may impact individual vireos, but viable populations would be maintained*.

3.7. Social and Economic Resources

The information in this section is summarized from the *Social and Economic Specialist Report* prepared for this motorized travel plan (USDA 2008i). Please see that report for more detail on the affected environment and effects analysis.

3.7.1. Affected Environment

The Dixie National Forest is associated with quality of life values for a variety of people. Among other contributions that the Forest provides, and for which roads and trails are used:

- Homeowners and visitors value the scenery and nearby recreation opportunities the Forest provides,
- Permitted ranchers utilize the Forest to provide grazing for sheep and cattle,
- Vegetation is managed through a variety of projects that include commercial logging,
- Communities and private landowners benefit from a number of special use authorizations that facilitate including water improvements, roads, and utilities,
- Game species populations are largely managed through seasonal hunting by the public, and
- Commercial recreation opportunities are permitted to occur on the Forest, such as skiing, resorts, and guided recreation.

The landownership patterns in Garfield, Iron, Kane, Piute, Washington, and Wayne counties are dominated by federal land. Less of the area's economic base is now reliant on resource extraction and gathering of forest products than it once was. Recreation and tourism are becoming the major industry in some counties, with federal land providing much of the opportunity.

Table 3-11. Landownership Patterns

County	Total County Acres	All Federal Land		Dixie National Forest	
		Acres	% of County	Acres	% of County
Garfield	3,311,360	2,947,110	89%	1,059,635	32%
Iron	2,110,720	1,203,110	57%	253,286	12%
Kane	2,554,880	2,120,550	83%	127,744	5%
Piute	485,120	358,989	74%	2,765	<1%
Washington	1,553,280	1,164,960	75%	403,853	26%
Wayne	1,574,400	1,338,240	85%	78,720	5%

Recreation and tourism levels on the Forest have shown a dramatic increase since the Forest Plan was released in 1986, paralleling or exceeding statewide trends during this same period. The Dixie National Forest's proximity to several state and national parks, its location near Interstates 15 and 70 between major western population centers, and a growing resident and transient population are contributing to increases in Forest visitation.

The areas around the Forest have become attractive to second home buyers. Out-of-county and out-of-state landowners make up a large percentage of county property taxpayers, a trend that is expected to continue.

Utah is the fifth fastest-growing state in the nation (State of Utah 2006), and Washington and Iron counties were two of the fastest growing counties in the country (U.S. Census Bureau 2005a). Salt Lake City and Las Vegas, Nevada, where many Forest users live, continue to see explosive growth (State of Utah 2006, U.S. Census Bureau 2005a). According to recent population projections, Utah will have a population of over four million by 2030 (State of Utah 2005).

Many traditional sources of economic income such as natural resources and mining are projected to lose their share of the state economic output. These shifts are largely due to growth in the economy, not necessarily a decrease in outputs in these sectors. Professional business, education, and health services are projected to grow.

Most of the project area has historically been rural in character. Many local people are concerned about the loss of agricultural lands and associated traditional livelihoods such as ranching, farming, and other natural resource-based economic endeavors. Forest lands would continue to provide opportunities for rural communities to have a "working" connection with the land through the continuation of traditional livelihoods, but larger, global trends may nonetheless make traditional lifestyles and occupations increasingly difficult to maintain. Based on the experience of other western states, this is a trend that extends beyond Utah (Rasker and Holmes 2003).

Because of variation between the economic bases of the area communities, the *Social and Economic Specialist Report* includes an economic analysis by county (USDA 2008i).

3.7.2. Effects Analysis

None of the alternatives are likely to have much impact to the social and economic resources of the counties in the project area. All impacts described below are relative within the greater context of the overall relatively minimal impact.

Among the six counties, Garfield County would likely see the most impacts, relatively speaking, because of the high acreage of National Forest System lands in the county, the focus of the economy (on the *Hospitality and Leisure* sector), planned events, and some small businesses that cater to motorized recreation use.

Kane County would likely see the second-most impacts for similar reasons, but of a lesser impact as it doesn't have the same Forest acreage as does Garfield County. Wayne County could see the third-most impacts largely due to the county's reliance upon tourism. Groups and organized events in Iron and Washington counties could be impacted, but the overall impact on social or economic resources in these counties would be minimal regardless of the alternative. There are potential impacts on non-motorized uses and businesses that cater to these users across all alternatives.

Alternatives B and E would have a greater potential to impact social and economic resources because they would provide a mix of motorized and non-motorized uses on trails and roads that would be most weighted towards motorized or non-motorized use at the expense of other users. For example, Garfield County may experience impacts from reduced motorized opportunities under Alternative B because of planned events that focus on motorized recreation use and some small businesses that cater to that use. Under Alternative E, however, Garfield County could experience impacts on other recreation uses such as non-motorized uses.

3.7.2.1. Effects Common to All Counties

There would be no impact to the current social and economic conditions of any of the six counties under Alternative A as there would be no change from the existing condition.

3.7.2.2. Direct and Indirect Effects

As noted above, all impacts described below are relative within the greater context of the overall relatively minimal impact under all alternatives. Additionally, alternatives that have the potential to affect current social and economic conditions also have the potential to provide opportunities for expansion in other sectors catering to other recreation uses.

3.7.2.2.1. Garfield County

Under Alternative B there would be greater pressure on the county's economy to change and provide services to non-motorized visitors. As motorized recreation opportunities would be reduced from those available in Alternative A, more effort would be necessary to resolve the conflicting interests of trails users across the county. Alternative B would have the highest chance of creating a disruption to the existing social and economic conditions in Garfield County.

Under Alternative C there would be more motorized opportunities available than in Alternative B, but not as many as in Alternatives A, D, and E. This alternative would have the second highest potential disruption to social and economic conditions in the county. There would not likely be much impact upon the economic and social resources in Garfield County under Alternative D. There would, however, be some possible impact on those businesses that depend upon visitors interested in non-motorized recreation.

Under Alternative E, a very large number of motorized roads and trails would be open to the public. This could create some positive impacts to businesses that deal directly with recreation vehicle sales, rental, and repair. Motorized opportunities at this scale could, however, create a disincentive for other visitors (e.g., those pursuing non-motorized opportunities) to visit the county. This could have negative economic implications for many county businesses.

3.7.2.2.2. Iron County

Under Alternative B, the reduction of roads and trails open to the public could impact the organized groups and ATV events in Iron County. This alternative would have the largest impact on those activities. The impacts under Alternative C would be slightly less than Alternative B, but otherwise similar. Alternative D would not negatively impact ATV clubs or events, but non-motorized users and businesses that depend upon their patronage could be impacted. Under Alternative E, the provision of a large amount of motorized roads and trails could impact the sectors of the economy that depend upon other types of trail users (e.g., hiking and mountain biking).

The differences between alternatives are not great as far as their impacts on the county as a whole. Overall, social and economic resources in Iron County are not likely to be impacted under any alternative.

3.7.2.2.3. Kane County

Under Alternative B there would be greater pressure on the county's economy to change and provide services to non-motorized visitors. As motorized recreation opportunities would be reduced from those available under Alternative A, more effort would be necessary to resolve the conflicting interests of trails users across the county. Alternative B would have the highest chance of creating a disruption to the social and economic conditions in Kane County.

Under Alternative C, there would be more motorized opportunities available than in Alternative B, but not as many as in Alternatives A, D, and E. This alternative would have the second highest potential disruption to social and economic conditions in the county. There would not likely be much impact upon the social and economic resources in Kane County under Alternative D. There would, however, be some possible impact on those businesses that depend upon visitors interested in non-motorized recreation.

Under Alternative E a very large number of motorized roads and trails would be open to the public. This could create some positive impacts to businesses that deal directly with recreation vehicle sales, rental, and repair. Motorized opportunities at this scale could, however, create a disincentive for other visitors (e.g., those pursuing non-motorized opportunities) to come to the county. This could have negative economic implications for many county businesses.

3.7.2.2.4. Piute County

Dixie National Forest lands make up only about one-half of one percent of Piute County's land base, and there are no identified roads or trails on the Forest in the county. No further social and economic analysis, other than that included in the summary above, will be conducted as there would be no social or economic impacts in any alternative.

3.7.2.2.5. Washington County

Under Alternative B the reduction in the mileage of roads and trails open to the public could impact organized groups and ATV events in Washington County. This alternative would have the largest impact on those activities. The impacts under Alternative C would be slightly less than Alternative B, but otherwise similar. Alternative D would not negatively impact ATV clubs or events, but non-motorized users and businesses that depend upon their patronage could be impacted. Under Alternative E, the provision of a large amount of motorized roads and trails could impact the sectors of the economy that depend upon other types of trail users (e.g., hiking and mountain biking).

The differences between alternatives are not great as far as their impacts on the county as a whole. Overall, social and economic resources in Washington County are not likely to be impacted under any alternative.

3.7.2.2.6. Wayne County

Alternative B would represent the biggest change from the current use patterns in Wayne County. Since the county's economy is very specialized and vulnerable to disruptions, Alternative B would have the greatest potential impact on the county's social and economic resources. Impacts would be less than in Garfield and Kane County, however, because there are no clubs or events that depend upon motorized recreation, and only a few businesses that do.

Under Alternative C there would be more motorized opportunities available than under Alternative B, but not as many as in Alternatives A, D, and E. Alternative C would have the second highest potential disruption to social and economic conditions in Wayne County. There would not likely be much impact upon the aspects of the social and economic resources in Wayne County under Alternative D. There would, however, be some possible impact on those businesses that depend upon visitors interested in non-motorized recreation.

There would be a very large number of motorized roads and trails open to the public in Alternative E. Motorized opportunities at this scale could, however, create a disincentive for other visitors (e.g., those pursuing non-motorized opportunities) to come to the county. This could have negative economic implications for many county businesses.

3.7.2.3. Cumulative Effects

The cumulative effects area for the social and economic resource is the same as the cumulative effects area for the Recreation analysis: the southern half of the State of Utah (the six counties analyzed in the direct and indirect effects and Beaver, Millard, and Sevier counties), the two nearest contiguous counties in Arizona (Coconino and Mohave), and the two nearest contiguous counties in Nevada (Clark and Lincoln).

The eight categories below were considered in the cumulative effects analysis.

1. **Utilities.** Requests to construct new utility corridors or conduct activities within existing corridors to respond to increasing growth and demand would continue. One example is the Dixie National Forest's recent Notice of Intent to prepare an EIS to analyze the construction, operation, and maintenance of a new transmission line from Tropic to Hatch (USDA 2008m). The electric transmission line is proposed to provide energy to Garfield and Kane counties to meet current and projected demand. Because future utility-related actions would be addressed through site-specific NEPA analysis (which would assess the need for temporary and long-term motorized access for construction, operation, and maintenance), there would be no cumulative effects on the social and economic resources from utility operations under any alternative.
2. **Oil and Gas.** Current oil, gas, and other mineral activity on the Forest is mostly limited to mineral materials (gravel and cinder pits) and a small number of gas wells on the Escalante Ranger District. Demand for mineral materials is generally limited to Utah Department of Transportation for winter road maintenance, some personal use, and some administrative use. None of the alternatives would affect the availability of mineral materials to the public, other governments or agencies, or the Forest Service itself. Both the Dixie and Fishlake National Forests are preparing oil and gas leasing EISs, with a potential increase in that activity once decisions have been made (the Dixie decision will apply to the Cedar City, Escalante, Pine Valley, and Powell ranger districts, and the Fishlake decision will apply to the entire Fremont River Ranger District). Both EISs address reasonable foreseeable development scenarios that include new road construction and reconstruction for exploration, development, and production. None of the alternatives in this motorized travel plan would affect the decisions made in either EIS.
3. **Transportation**. All action alternatives would add varying mileages of unauthorized routes to the system to provide private property and permittee access, although motorized access can continue to be authorized through permit for all permitted uses on the Forest. As all alternatives provide an adequate transportation system for Forest

Service administrative uses and permitted uses, there would be no cumulative effects on the social and economic resources of the area from any alternative.

4. **Recreation.** As discussed above under *Direct and Indirect Effects*, negative impacts to the current social and economic conditions of Garfield, Kane, and Wayne counties are greatest under Alternative B and, to a lesser extent, Alternative C. However, there are no impacts to the greater social and economic cumulative effects area under any alternative as the impacts to Garfield, Kane, and Wayne counties are absorbed by the other counties' more diversified economies, broader economy foci, and land ownership patterns (U.S. Census Bureau 2005b, 2005c, 2005d, 2005e, 2005f, 2005g, 2005h).
5. **Vegetation Treatments.** All alternatives would provide adequate access for all future planned vegetation treatments. Access to timber sales and stewardship contracts would not be affected by any of the alternatives, and the site-specific analysis conducted prior to any treatments would identify if any additional roads or trails were needed as part of the project.
6. **Land Exchanges and Easements.** There are no foreseeable land exchanges or easements that would result in cumulative effects to the social and economic resources in the cumulative effects area.
7. **Special Use Permits.** The minor differences between alternatives regarding firewood collection is discussed in *Direct and Indirect Effects* section in the *Vegetation and Fire and Fuels* section beginning on page 3-22. As this use would continue to be administered through special use permit, there is no appreciable difference between alternatives given the availability of firewood. Most who collect firewood on the Forest are residents of the counties in which the Dixie National Forest is located. The same is true for other personal use collections like Christmas tree permits and post and pole permits. Commercial special use permits would continue to be analyzed on a case-by-case basis; there would be no change for these activities between alternatives in the cumulative effects area.
8. **Grazing.** Livestock grazing is expected to continue at current at the present level under all alternatives. Any motorized access needed above that provided by the travel system under any alternative can be authorized through the permit process. No effect on the social and economic resource in conjunction with grazing is expected or likely.

3.8. Livestock Grazing

The information in this section is summarized from the *Livestock Grazing Specialist Report* prepared for this motorized travel plan (USDA 2008d). Please see that report for more detail on the affected environment and effects analysis.

3.8.1. Affected Environment

Livestock grazing has been an historic and traditional use of the Dixie National Forest for over 100 years. Grazing on the National Forest is authorized by Congress and is a significant use on the Dixie National Forest. Livestock forage is an important Forest product and many permittees use this forage to meet at least part of their year-round grazing needs.

Motorized access is often needed by permittees holding grazing permits to access range improvements within their allotments such as fences, troughs, and corrals, access to locations for sheep herder camps, and access for livestock management. Motorized access for grazing permittees is authorized by provisions incorporated into each grazing permit. This authorization process would not be changed with this decision.

There are 104 grazing allotments on the Dixie National Forest (81 cattle and 23 sheep allotments). Approximately 18,000 head of cattle and their calves, and 11,000 head of sheep and their lambs are permitted on the Forest (USDA 2006a). Presently about 263 grazing permittees are authorized to graze their livestock on 104 grazing allotments. About 769,000 acres (41 percent) of the Dixie National Forest are suitable for grazing cattle and sheep.

To facilitate livestock management on the allotments, structural range improvements have been constructed and are assigned for maintenance by the permittees.

Table 3-12. Range Improvements on the Dixie National Forest

Improvement Type	Number of Existing Improvements
Miles of fence	895
Number of corrals	49
Miles of water pipeline	205
Water developments	267
Water storage units	1,208

Livestock grazing permittees are required to maintain all existing structural range improvements and to manage their allotments in accordance with the terms and conditions of their grazing permits. Administrative roads (Operational Maintenance Level 1 roads) within allotments can be authorized for permittee use by local District Rangers through each Term Grazing Permit. This use is only for administrative purposes directly associated with the management of the grazing permit.

3.8.2. Effects Analysis

3.8.2.1. Direct and Indirect Effects

Livestock grazing activities, whether affecting the livestock themselves or the permittee, are not expected to be affected by implementing any of the travel management alternatives. As mentioned above, permittees may be allowed motorized access to maintain or develop range improvements assigned in their grazing permits or for other authorized administrative activities. No direct or indirect effects are anticipated under any of the alternatives as motorized access is and can be authorized through the grazing permit regardless of the configuration of the Forest's motorized travel system.

3.8.2.2. Cumulative Effects

This travel plan would not contribute to the cumulative effects on the range resources on the Dixie National Forest. Livestock grazing would not be adversely or positively affected by this project.

3.9. Noxious Weeds

The information in this section is summarized from the *Noxious Weeds Specialist Report* prepared for this motorized travel plan (USDA 2008e). Please see that report for more detail on the affected environment and effects analysis. The *Rare Plants* section beginning on page 3-15 and the *Rare Plants Specialist Report* (USDA 2008f) also contain information related to noxious weeds.

3.9.1. Affected Environment

The Forest Service defines noxious weeds as ". . . plants designated as noxious weeds by the Secretary of Agriculture or by the responsible State official. Noxious weeds generally possess one or more of the following characteristics: aggressive and difficult to manage, poisonous, toxic, parasitic, a carrier or host of serious insects or disease and being native or new to or not common the United States or parts thereof" (FSM 2080.5).

Currently, there are 53 species identified on the Regional Designated Noxious Weed and Undesirable Plant List. Twenty-one of these species occur in Utah and nine occur on the Dixie National Forest. Two additional weeds have been proclaimed noxious by Iron County and Garfield County: bull thistle and field bindweed, respectively. Noxious weed species on the Dixie National Forest:

1. Bull thistle (*Cirsium vulgare*),[2]
2. Canada thistle (*Cirsium arvense*),
3. Dalmatian toadflax (*Linaria genistifolia* spp. *dalmatica*),
4. Field bindweed (*Convolvulus arvensis*),[3]
5. Musk thistle (*Carduus nutans*),
6. Perennial pepperweed (*Lepidium latifolium*),
7. Russian knapweed (*Acroptilon repens*),
8. Scotch thistle (*Onopordum acanthium*),
9. Spotted knapweed (*Centaurea maculosa*),
10. Whitetop (*Cardaria draba*), and
11. Yellow star-thistle (*Centaurea solstitialis*).

The Forest Plan was amended in 2000 to address noxious weed management. The following "Noxious Weeds and Invasive Plant Species Goal" applies forest-wide:

1. Noxious weeds and undesirable invasive plants are managed and controlled to prevent new infestations, control existing populations and eradicate invasions where possible and practical so that ecological biodiversity, ecosystem stability and function, and native plant composition, structure, and successional patterns are maintained or improved (USDA 2000b, Appendix F, Attachment 1, p 1).

Noxious weed prevention methods are routinely incorporated into resource management activities such as grazing permits and annual operating instructions, and timber sale contracts. A voluntary Regional Forage Certification Program was initiated in Utah in 1991, and in 1992 a

[2] Noxious weed in Garfield County.
[3] Noxious weed in Iron County.

Closure Order was issued limiting livestock feed used on National Forest System lands in Utah to that which has been certified weed-free. The Weed-Free Hay Program was initiated to reduce the spreading of noxious weeds by stock eating weed-contaminated feed and then distributing weed seeds in fecal matter.

The source of many weed infestations and other introduced plant species has been traced to disturbed sites such as travel corridors (roads, trails, skid trails, etc.), trailheads, parking areas, campsites, fire suppression activities, harvest units, and landings. Unwanted plants can be spread by vehicles, material from gravel pits, livestock, wildlife and birds, camping/fishing gear and clothing, straw and mulch, and livestock feed (hay and grain). Noxious weed seed is also transported by motorized vehicle tires (including OHVs). Noxious weed infested acres continue to increase due to a variety of factors including continuing drought conditions and the ability of noxious weeds to out-compete native plants for space, nutrients, water, and sunlight.

Cross-country travel off of designated routes contributes to distribution of weed seed through the transport of seed on stock, people and vehicles. Cross-country motorized travel contributes to this trend through loss of native vegetation and soil disturbance.

The following table displays acres infested by noxious weeds within each ranger district boundary. These numbers include noxious weed infestations on other land ownership within the district boundaries (inholdings).

Table 3-13. Acres of Noxious Weeds

Area	Acres within Ranger District Boundary	Infested Acres	% of Ranger District Infested
Cedar City	404,265	257	0.06
Escalante	436,586	5	0.001
Pine Valley	481,218	1,679	0.35
Powell	388,597	32	0.008
Teasdale	253,707	1	0.0004
Forest-wide	1,964,373	1,974	0.1

Acres include non-Forest Service acres within the proclaimed Forest boundary.

Infestations of weeds would continue to exist under all alternatives. Access is the biggest threat to spread existing infestations and to introduce new infestations of noxious and invasive weed species.

3.9.2. Effects Analysis

Designated travel routes and acres open to cross-country motorized travel can contribute to the spread of noxious weeds. The indicator to measure the effects on this issue will be acres open to cross-country motorized travel and miles of routes open to motorized travel. Comparing miles of designated motorized routes by alternative will indicate the relative risk of each alternative contributing to the spread and intensity of noxious weed infestations.

3.9.2.1. Direct and Indirect Effects

3.9.2.1.1. Common to All Alternatives

Designated motorized travel routes, especially roads receiving high levels of use, are monitored and treated for noxious weed infestations. All alternatives would maintain these monitoring and treatment activities. Continuing use of designated travel routes through both motorized and non-motorized means has the potential to spread noxious weeds and other invasive species.

Routes that are to be decommissioned naturally, the number of which varies by alternative, are expected to return naturally to vegetative production unless there is a localized need to vegetate some areas to prevent erosion, noxious weed invasion, or for other purposes. Some routes are proposed to be decommissioned by obliteration. These routes would be seeded using weed seed free seed as designated by Dixie National Forest direction (USDA 2000a, 2000b). Routes proposed for decommissioning would be surveyed to determine whether or not any noxious weed infestations exist, existing infestations would be monitored, and control measures would be taken to eliminate or minimize any infestation.

3.9.2.1.2. Alternative A

Managing 61 percent of the Forest as open to cross-country motorized travel increases the risk of the spread of noxious weeds into adjacent areas, and increases the risk of noxious weeds being continually spread within the areas already infested. Under this alternative, the spread of noxious weeds to areas physically accessible to rubber-tired vehicles of all kinds would be accelerated. The use of OHVs in areas never before accessed by tired vehicles can import weed seed, which may eventually establish noxious weed populations in other areas of the Forest.

The motorized network of unauthorized routes would continue to grow given the acreage open to cross-country travel. This alternative has the second highest number of designated motorized routes among all the alternatives (Alternative D would designate more); however, it is the only alternative that maintains cross-country travel. This alternative has the highest risk to increase the spread of noxious weeds forest-wide.

3.9.2.1.3. Alternative B

In Alternative B, cross-country travel would be prohibited forest-wide. This alternative has the least number of miles open to the public. Compared to the existing condition, Alternative B reduces the miles of open motorized routes by 2,408 miles (a 56 percent reduction) (see Table 2-3. Summary of Routes Open and Closed to the Public in Chapter 2). A reduction in the miles of open motorized routes has the potential to reduce the risk of noxious weeds being introduced or transported into uninfested areas, and reduce the risk of noxious weeds being continually spread within the area already infested.

3.9.2.1.4. Alternative C

Alternative C allows for a higher level of motorized access than Alternative B. Under this alternative, cross-country travel would be prohibited forest-wide. This alternative has fewer open miles of designated motorized routes than do Alternatives A, D, and E. Compared to the existing condition, Alternative C reduces the miles of open motorized routes by 2,102 miles (a 49 percent reduction). A reduction in the miles of open motorized routes has the potential to

reduce the risk of noxious weeds being introduced or transported into uninfested areas, and reduce the risk of noxious weeds being continually spread within the area already infested.

3.9.2.1.5. Alternative D

This alternative allows for a higher level of motorized access than does Alternative C, including the proposed the construction of two new motorized trail segments with a combined length of 1.26 miles. Under Alternative D, cross-country travel would be prohibited forest-wide. Compared to the existing condition, Alternative D reduces the miles of open motorized routes by 1,533 miles (a 36 percent reduction). This alternative has a lower risk of the spread of noxious weeds than does Alternatives A or E.

3.9.2.1.6. Alternative E

Alternative E prohibits cross-country travel. As under Alternative D, two new motorized trail segments would be constructed with a combined length of 1.26 miles. Compared to Alternative A, Alternative D increases the miles of open motorized routes by 288 miles (a 7 percent increase). This alternative has the second highest risk to increase noxious weeds and invasive species because it has the greatest number of miles of motorized routes open to the public (Alternative A has the highest risk).

Alternative E would have the second highest potential to facilitate noxious weed and invasive species expansion and introduction because of the high mileage of open routes combined with the proposed construction of 1.26 miles of motorized trails. Alternative D also proposes to construct 1.26 miles of motorized trails, which would increase the chance of weed establishment and expansion; however, the risk associated with this new trail mileage would not significantly increase this risk. Overall, Alternative B would have the least risk of spreading noxious weeds, followed next by Alternative C, then Alternative D, with Alternative A having the highest risk.

3.9.2.2. Cumulative Effects

The cumulative effects analysis area is southwestern Utah because noxious weeds are a regional issue and weed infestations occur on adjacent lands. Increases in noxious weed invasion and spread can occur as a result of increased miles of road, ground disturbance, or fire. It is anticipated that new weeds would continue to invade public lands and other lands from various sources. Existing infestations would continue to be treated aggressively until they are controlled, contained, and/or eradicated. Mitigation measures would be used with any new federal projects, which would aid in decreasing the introduction and spread of noxious weeds and invasive species. None of the alternatives would appreciable accelerate the spread of noxious weeds over the existing trend.

3.10. Special Uses

The information in this section is summarized from the *Special Uses Specialist Report* prepared for this motorized travel plan (USDA 2008k). Please see that report for more detail on the affected environment and effects analysis.

3.10.1. Affected Environment

There are currently over 400 issued special use permits within the boundaries of the Dixie National Forest's Motorized Travel Plan project area. Permitted uses include, but are not limited to, fixed improvements, easements, and recreational activities. Special use authorizations can vary greatly in length of time. Some term permits are only authorized for a few months, while others, such as those for winter resorts, may be authorized for 40 years. Special uses also vary greatly in requirements, with some such as short-term recreation events only using a few trails during the summer months, while an oil and gas pipeline may require a 30-year permit and the use of large areas of land. The following table lists those special use permits currently issued on the Dixie National Forest.

Table 3-14. Currently Authorized Special Use Permits

Permit Designation	Number of Permits
Recreation Special Uses	0
Agriculture	0
Community and Public Information	0
Feasibility, Research, Training, Cultural Resources, and Historical	0
Industry	0
Energy Generation and Transmission	0
Transportation	0
Communication	0
Water (Non-power Generating)	0
Total	0

3.10.2. Effects Analysis

3.10.2.1. Direct and Indirect Effects

Direct effects include decreased motorized access to the project area. Indirect effects may include crowding, increased conflict levels, and increased use in adjacent or similar areas (displacement). Direct effects to outfitter and guide permit holders may include a displacement of permitted use outside of the project area. This potential displacement could adversely affect the viability of some permittees whose operations are based near their homes.

In general, the alternatives were developed to continue to provide authorized access to known roads and trails used by special use permit holders. Fixed improvement special use permits or Federal Land Policy and Management Act (FLPMA) easements would not be affected because the alternatives were designed to maintain known accesses.

The action alternatives would not jeopardize occupancy or re-issuance of any special use permits. However, under Alternative A, non-system routes identified as necessary for private property, permittee, or administrative access within the 39 percent of the Forest closed to cross-country travel areas would not be open to motorized travel, thus potentially jeopardizing occupancy or re-issuance of special use permits.

3.10.2.1.1. Alternative A

Under this alternative, non-system routes identified as necessary for special use permittee access (as well as private property, other permittee, or administrative access) within the 39 percent of the Forest closed to cross-country travel would not be open to motorized travel. Some permitted special use holders may see an impact under Alternative A due to the fact that some routes deemed important to certain special uses may be unauthorized routes within the 39 percent of the Forest where cross-country travel is not allowed. However, substitute legal routes may avoid this impact.

In addition to the 61 percent of the Forest open to cross-country travel, Alternative A would allow for the second highest amount of motorized access from a designated route among the alternatives. Under Alternative A, 70 percent of the Forest is within one-half mile of a motorized route, and 100 percent of the Forest is within 3 miles of a motorized route. See Table 3-19. Percent of Forest Within a Specified Distance of a Motorized Route, on page 3-108.

Alternative A may have an impact on special use permittees whose permits depend on larger areas being closed to motorized travel, such as big game outfitter and guides or backpacking and hiking groups. In contrast, Alternatives A and E may be the preferred alternatives for those seeking vast amounts of motorized routes. Alternative A would be the preferred alternative for permit holders seeking cross-country travel for multiple reasons, including game retrieval, on the 61 percent of the Forest open to that use.

3.10.2.1.2. Alternative B

Alternative B is unlikely to have an impact on non-recreation associated activities. Recreation-related special use permit holder who seek vast motorized opportunities may see the greatest amount of impacts due to the amount of motorized routes decommissioned and decreased amounts of access as the Forest would be closed to cross-country travel.

Alternative B offers the least amount of motorized route miles among alternatives. Alternative B also has the greatest amount of buffer area between motorized routes, with 41 percent of the Forest greater than one-half mile from a motorized route. Conversely, only 1 percent of the Forest is greater than 3 miles from a motorized route (see Table 3-19. Percent of Forest Within a Specified Distance of a Motorized Route, on page 3-108). Thus, for permit holders who specialize in motorized recreation, impacts such as displacement, conflict, and lower satisfaction levels may be greatest in Alternative B.

Conversely, recreation-related permit holders seeking non-motorized experiences, larger forested areas, and opportunities for solitude may benefit most from Alternative B. Alternative B

would likely be the preferred alternative for permit holders specializing in non-motorized experiences, or permit holders who depend on greater areas with fewer roads, and the least preferred alternative for those desiring vast motorized access.

3.10.2.1.3. Alternative C

Alternative C is unlikely to have an impact on non-recreation associated activities. Recreation-related special use permit holders who seek vast motorized opportunities may see impacts due to the amount of motorized routes decommissioned, and decreased amounts of access as the Forest would be closed to cross-country travel. However, impacts would be lower than those under Alternative B.

Alternative C has the second largest amount of buffer area between motorized routes, with 38 percent of the Forest greater than one-half mile from a motorized route. Conversely, only 1 percent of the Forest is greater than 3 miles from a motorized route (see Table 3-19. Percent of Forest Within a Specified Distance of a Motorized Route, on page 3-108). Thus, when associated with motorized travel, impacts such as displacement, conflict, and lower satisfaction levels may be significant when compared to Alternatives A and E. However, these impacts should decrease when compared to Alternative B.

Conversely, recreation-related permit holders seeking non-motorized experiences, larger forested areas, and solitude opportunities may benefit from Alternative C when compared to Alternatives A, D, and E. Alternative C may be an adequate alternative for permit holders specializing in non-motorized experiences or those who depend on larger areas without roads; Alternative C may potentially be the least attractive alternative for those desiring vast motorized access, preferred only above Alternative B.

3.10.2.1.4. Alternative D

Alternative D is unlikely to have an impact on non-recreation associated activities. Recreation-related special use permit holders who seek vast motorized opportunities may see impacts due to the amount of motorized routes decommissioned, and decreased amounts of access as the Forest would be closed to cross-country travel; however, impacts would be less than those associated with Alternatives B and C.

Alternative D is mid-range among the alternatives regarding amount of buffer area between motorized routes, with 34 percent of the Forest greater than one-half mile from a motorized route, and less than 1 percent (0.43 percent) of the Forest greater than 3 miles from a motorized route (see Table 3-19. Percent of Forest Within a Specified Distance of a Motorized Route, on page 3-108). Thus, when associated with motorized travel, impacts such as displacement, conflict, and lower satisfaction levels may be greater when compared to Alternatives A and E, but less than those associated with Alternatives B and C.

Conversely, recreation-related permit holders seeking non-motorized experiences, larger forested areas, and opportunities for solitude may benefit from Alternative D when compared to Alternatives A and E. Alternative D is the mid-range alternative for permit holders specializing in both non-motorized and motorized activities.

3.10.2.1.5. Alternative E

This alternative provides the most motorized access on designated routes by designating all routes as open to public motorized travel, with the exception of routes already designated through a specific previous decision. All non-system or unauthorized routes would also be designated as open to public motorized travel, many of which provide access for permitted uses.

Alternative E is unlikely to have a impact on non-recreation associated activities. When compared to all other alternatives, recreation-related special use permit holders who seek vast motorized opportunities may see the least amount of impact with Alternative E. Alternative E allows for the least amount of buffer area from motorized routes, with only 29 percent of the Forest greater than one-half mile from a motorized route, and less than 1 percent (0.22 percent) of the Forest greater than 3 miles from a motorized route (see Table 3-19. Percent of Forest Within a Specified Distance of a Motorized Route, on page 3-108).

When associated with motorized users, recreation-related impacts such as displacement, conflict, and lower satisfaction levels may be least among all alternatives, with the possible exception of Alternative A, where cross-country travel is allowed on 61 percent of the Forest. Conversely, recreation-related permit holders seeking non-motorized experiences, larger forested areas, and opportunities for solitude may experience the greatest negative impact from Alternative E.

Alternative E would be the least preferred alternative, with the possible exception of Alternative A, among permit holders specializing in non-motorized experiences or those who depend on greater areas without roads. It would be the most attractive alternative for those desiring vast motorized access.

3.10.2.2. Cumulative Effects

The southwest section of Utah is the cumulative effects area for special uses for this project. This area includes the following counties south of I-70: Sevier, Wayne, Garfield, Kane, Washington, Iron, Beaver, and Piute. When dealing with recreation-related permits, areas immediately adjacent to the project area or areas further away that provide similar experiences are likely to experience the most direct impacts from this project.

Non-recreation special uses are usually very site-specific and few authorizations can be easily replaced on other NFS lands. The fixed improvements and FLPMA authorizations are related to specific lands that provide a route for power, phone, or fiber-optic cable lines. Weather stations are also located according to conducive conditions for collecting data. Water lines and service buildings are generally authorized in areas most conducive to their purpose, such as areas adjacent to private lands or located in conjunction with another authorization

All alternatives could cause some displacement of recreation-related permitted operations within the cumulative effects area. Displacement of permitted activities could be further impacted if locations adjacent to the project area implement land management actions that severely reduce motorized route mileage. Adjacent areas would generally fall under authorization of the BLM (Richfield, Kanab, St. George, and Cedar City field offices) and the Forest Service (Fishlake National Forest). Recreation-related permitted holders seeking a non-motorized or primitive experience would see a positive cumulative effect across all action alternatives.

Currently, the Richfield, Kanab, and St. George field offices are in the process of updating their Resource Management Plans (RMPs), the equivalent of the Forest Service's Forest Plans. The Fishlake National Forest completed its Motorized Travel Plan in late 2006. The Cedar City Field Office is scheduled to begin updating their RMP within the next few years. All these recently completed, ongoing, and planned projects would establish motorized route guidelines for the foreseeable future (USDA 2008k).

The proposed actions and management plans for management of adjacent areas should not significantly add to the impact of displacement of recreation-related permit holders currently operating on the Dixie National Forest unless the permit holder is dependent on cross-country travel. If cross-country travel is a necessity to permit operations, then displacement impacts would be extreme.

Non-recreation special uses are not anticipated to experience any cumulative effects from the action alternatives because the alternatives were designed to maintain known access. However, as noted under Alternative A, non-system routes identified as necessary for private property, permittee, or administrative access within areas closed to cross-country travel areas would not be open to motorized travel, thus potentially jeopardizing occupancy or re-issuance of special use permits.

3.11. Recreation

The information in this section is summarized from the *Recreation and Scenery Specialist Report* prepared for this motorized travel plan (USDA 2008g). Please see that report for more detail on the affected environment and effects analysis.

3.11.1. Affected Environment

Recreation is a primary use of the Dixie National Forest. Visitors come to the Forest for a wide variety of activities and experiences ranging from primitive wilderness settings to developed campgrounds to permitted resorts and a downhill ski area. There are 42 recreation residences on the Forest. Thirty-nine outfitter-guides are authorized to operate on the Forest, providing guided hunting, fishing, OHV and mountain bike touring, and horse riding trips. Dispersed camping, including dispersed use for large family reunions and hunting camps, is popular.

The Forest provides habitat and non-motorized and motorized access for small and big game hunting, a highly-valued activity in southern Utah. Several streams and lakes provide fishing opportunities; some lakes accommodate boats while others require hiking-in. Non-motorized and motorized trails are available for hiking, mountain biking, OHV use, and horse riding.

Since the publication of the Forest Plan in 1986, recreation and tourism levels on the Forest have shown a dramatic increase, paralleling or exceeding statewide trends during this same period. According to the National Visitor Use Monitoring results for the Dixie National Forest, the Forest received 773,789 visits in 2003 (USDA 2004c, p 6). Visits to the Dixie National Forest are often associated with visits to surrounding national and state parks and other recreation and travel opportunities. The Dixie National Forest's proximity to several parks, its location near Interstates 15 and 70 between major western population centers, and a growing resident and transient population are contributing to swelling trends in Forest visitation.

According to the National Visitor Use Monitoring results, approximately 20.7 percent of visits to the Dixie National Forest in 2003 were by people from Washington County, Utah. Approximately 7.4 percent were from Iron County, Utah, and approximately 8.6 percent were by people from Clark County, Nevada. Two percent were from Garfield County and approximately 1.4 percent were from Kane County. Approximately 0.8 percent were from Salt Lake City (ibid).

The Forest Service uses the Recreation Opportunity System (ROS) to match visitor's desires, abilities, and expectations to a particular activity and setting (PLAE, Inc. 1993, pp 25-27). ROS provides a framework for stratifying and defining classes of outdoor recreation environments, and considers social factors such as remoteness, size of the space, evidence of human activity, social encounters, and managerial presence. ROS is based upon the following philosophical premises:

- People purposefully choose settings for their recreation activities,
- Choices are made with the expectation of achieving particular recreation experiences, and
- It is desirable to present a diverse spectrum of activity and recreation setting opportunities, ranging from highly developed to primitive, from which people may choose.

There are five different ROS classes on the Forest: Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, and Roaded Natural.

Table 3-15. Forest-wide ROS Acres

Measure	ROS Class			
	Primitive	Semi-Primitive Non-Motorized	Semi-Primitive Motorized	Roaded Natural
Acres	103,960	805,500	687,610	284,000

All acres rounded to the nearest 10 acres. There are no Rural or Urban classes on the Forest.

The Forest Plan predicted substantial growth in demand for opportunities for driving for pleasure and dispersed recreation. Although demand for dispersed recreation was not expected to exceed supply, competition for sites was expected to create social conflict. The growing popularity of ATV use was also described as a growing concern, and a plan to regulate use was recognized as necessary to prevent damage to critical areas (pp II-8 through II-10). Conflict between recreation user groups would be minimized because of sufficient areas of each experience type to accommodate the expected increase in user groups (pp III-2 through III-3).

Some of the more popular recreation uses of the Forest include camping, trail use (both motorized and non-motorized), and hunting and fishing.

Developed Camping: Camping at developed recreation sites is a popular recreation activity, with 26 campgrounds and 5 picnic sites on the Forest. A number of these sites accommodate large groups. Several campgrounds are located near lakes and reservoirs and have boating and fishing opportunities.

Dispersed Camping: Dispersed camping, or camping in non-developed areas, is a common recreation activity on the Dixie National Forest, occurring primarily during the summer and the fall hunting season. Dispersed camping is allowed on most areas of the Forest except within the vicinity of developed recreation sites such as trailheads, picnic areas, or campgrounds. Additionally, there are three specific areas on the Forest that have been restricted to designated campsites only: East Fork of the Sevier River south of Tropic Reservoir, Mammoth Creek near Mammoth Spring, and Yankee Meadows. There are currently 1,624 inventoried dispersed campsites on the Forest.

Motorized Trail Use: There are 1,500 miles of trails on 266 designated trails providing recreation opportunities including hiking, biking, horseback riding, and OHV riding.

Non-motorized Trail Use: There are 1,087 miles of designated non-motorized trail on the Forest, 155 miles of which are located in federally-designated wilderness areas. Uses consist mainly of hiking, biking, and horseback riding. Hiking is common on most all non-motorized trails, but is most common on trails that are too steep or narrow for equestrian or mountain bike use. Although horseback riding occurs on many trails across the Forest, it is most common on trails that access the Pine Valley Mountain Wilderness Area. Due to terrain constraints, equestrian use is limited on trails that access the Ashdown Gorge and Box-Death Hollow wilderness areas. The Dixie National Forest issues special use permits for a number of

mountain bike races, including the National Off-Road Bicycling Association (NORBA) national series race.

Motorized Use: There are a total of 3,475 miles of roads and trails open to OHV/ATV recreation: 413 miles of designated motorized trails, 2,580 miles of level 2 roads, and 482 miles of level 3 roads. Dispersed motorized recreation use has grown and developed considerably on the Forest, with many motorized users coming from Las Vegas, the Salt Lake area, and local communities. Growth in demand for OHV use and other dispersed motorized recreation opportunities has increased on the Dixie, reflective of similar demand in other areas of the U.S, particularly the West.

The Dixie National Forest has several designated OHV/ATV trail systems. The Markagunt ATV/OHV trail system located on the Cedar City Ranger District is comprised of 408 miles of well-marked trail riding opportunities. The Fremont and Paunsaugunt ATV/OHV trail system located on the Powell Ranger District provides 147 miles of riding opportunities. The Great Western ATV/OHV trail system on the Powell and Escalante ranger districts provides approximately 65 miles of riding opportunities. Many of the miles of these ATV/OHV trail systems are located on level 2 and level 3 roads.

Hunting and Fishing: There is extensive hunting use on the Dixie National Forest during the general season deer and elk hunts. Limited Entry elk hunts occur in the Panguitch Lake area north of Highway 14 on the Cedar City Ranger District, the Mount Dutton area north of Highway 12 on the Powell Ranger District, and the Thousand Lake area on the Teasdale portion of the Fremont River Ranger District. The Paunsaugunt Limited Entry Deer hunt occurs south of Highway 12 on the Powell Ranger District. A Limited Entry antelope hunt occurs in the Panguitch Lake, Paunsaugunt, Mount Dutton, and Pine Valley areas as well. Black bears, mountain lions, turkeys, waterfowl, and upland game birds are hunted across the Forest. Ruffed grouse are generally hunted along the rim areas.

Popular fishing sites are numerous and include opportunities for anglers to catch various trout and smallmouth bass. Three are many popular lakes and streams across the Forest.

Recreation Residences and Private Subdivisions: There are 42 recreation residences under Forest Service permit. Private residences, both primary and secondary homes, are located in numerous subdivisions within the Forest boundary at Duck Creek Village, Strawberry Valley, Swains Creek, Mammoth Creek, and Zion View. Duck Creek Village, within the boundaries of the Cedar City Ranger District, offers all amenities, including several retail stores, gasoline, lodging, restaurants, and ATV purchase and rentals.

3.11.1.1. Trail Maintenance

The Forest objective is that all system trails, motorized and non-motorized, will be maintained to Forest Service standards to provide for user enjoyment, safety, and resource protection. These Forest Service standards vary depending on the intended use of the trail, and allow for a range of trail conditions from primitive native surfaced routes to higher-level improved surfaced routes. Much of the improvement associated with bringing individual trails up to standard falls within the category of routine maintenance and would proceed as funding is secured. Portions of some trails may require relocation to meet standards. Authorization of any trail relocation work may require supplemental analysis and in some cases a subsequent NEPA decision. Trail

maintenance standards are set by the trail's maintenance level or trail class. Standards are described in FSH 2309.18.

The following tables represent the Dixie National Forest accomplishment reports for Miles of Trail Maintained to Standard and Miles of Trail Improved to Standard.

Table 3-16. Trail Accomplishment Reports, FY 2006-2007

Accomplishment Description	Target Miles	Actual Miles	% of Target Accomplished
Fiscal Year 2006			
Miles of Trail Maintained to Standard	179	284	159%
Miles of Trail Improved to Standard	9	3	(67%)
Fiscal Year 2007			
Miles of Trail Maintained to Standard	N/A	642	N/A
Miles of Trail Improved to Standard	4	13	325%

Trails include motorized and non-motorized trails.
Miles of Trail Maintained to Standard = miles of trails receiving maintenance. This is the annual amount of maintenance done with the annual appropriations.
Miles of Trail Improved to Standard = miles of trails improved to standard as identified in the Meaningful Measures trails component. This is the annual amount of improvement (construction) done with the annual appropriations.
N/A = not applicable; new report format introduced in 2007 does not contain targets.

3.11.2. Effects Analysis

When discussing effects to those who desire a non-motorized or a motorized experience, it should be noted that Forest users are very diverse, and attributes required for goal attainment may in fact contradict common theory. For example, motorized users may seek large tracks of undeveloped land, and non-motorized users may seek large amount of motorized access in certain locations.

3.11.2.1. Direct and Indirect Effects

3.11.2.1.1. Effects Common to All Alternatives

Implementation of any alternative could result in the displacement of some Forest visitors. A travel plan that does not offer the particular desired setting or desired mode of transportation on a preferred road, trail, or area could displace some people to other areas or they may choose to engage in other activities.

Non-motorized travel is generally allowed across most of the Forest and on most travel routes. With the exception of designated wilderness (no mechanized travel allowed) and some research natural areas, cross-country travel on foot, stock, snowshoe, skis, and bicycle is allowed on most of the Forest.

Travel routes are closed unless designated open for motorized use. Routes designated open for public motorized use will be shown on the Motor Vehicle Use Map (MVUM), which will be

published after the motorized travel plan is signed. The MVUM is a national requirement that will be the legal document to illustrate route designations. It will be the user's responsibility to be familiar with the MVUM, which will be provided free of charge at local Forest Service offices and on the Internet.

Routes designated open for public motorized use will be signed with a route number at all appropriate junctions according to Forest Service signing and installation standards. Allowed uses will also be posted according to Forest Service standards. Routes not designated as open for public motorized use will not be shown on the MVUM.

3.11.2.1.2. Alternative A

There are 828 miles of non-motorized trails under Alternative A (the fewest outside of Alternative E), and more miles of motorized routes than under Alternative B, C, or D. This alternative allows for motorized cross-country travel on 61 percent of the Forest. By allowing this use, this alternative is likely to match, and possibly increase, the current level of Forest user conflict between non-motorized and motorized users. With the total amount of motorized travel offered by this alternative combined with cross-country travel, the Dixie National Forest is likely to see similar or increased levels of resource impacts, including creation of illegal routes, thus potentially displacing a greater number of Forest users. Alternative A would be the least attractive to those seeking a non-motorized setting.

Table 3-17. Miles of Available Roads and Trails by Alternative

Measure	Miles by Alternative				
	A	B	C	D	E
Miles of motorized routes[1]	4,136	1,802	2,017	2,617	4,428
Miles of motorized trails[2]	103	190	292	194	101
Miles of non-motorized trails	828	960	969	915	812

[1] To accurately display recreational opportunities, highway and administrative route mileages are not included. Mileages of motorized trails, as shown in the following row, are included.
[2] Does not include miles of motorized roads where OHV use is also allowed.

3.11.2.1.3. Alternative B

Alternative B offers 960 miles of non-motorized trails (the most outside of Alternative C), and provides the least amount of miles for motorized travel (215 miles fewer than Alternative C). This alternative does not allow cross-country travel. Alternative B would provide the greatest amount of non-motorized opportunity. Furthermore, this alternative is likely to have the greatest affect on decreasing conflict, maintaining or increasing satisfaction levels, and mitigating displacement among non-motorized users.

3.11.2.1.4. Alternative C

Alternative C offers 969 miles of non-motorized trails (the highest among alternatives), and provides the second least amount of miles for motorized travel, 215 miles more than Alternative B. Motorized cross-country travel is prohibited. Alternative C would provide a similar setting for non-motorized opportunities as would Alternative B. However, due to the fact that Alternative C has more motorized route mileage, non-motorized opportunities may be slightly less than those available in Alternative B.

3.11.2.1.5. Alternative D

Alternative D offers 915 miles of non-motorized trails (mid-range among alternatives for non-motorized opportunities), and is mid-range among motorized travel, allowing 815 more miles than Alternative B, and 1,811 fewer miles than Alternative E. Motorized cross-country travel is prohibited. Alternative D would provide a similar setting for non-motorized opportunities as would Alternative C, but as a whole, may be the compromise alternative if associated with motorized use. As Alternative D has more motorized route mileage, non-motorized opportunities may be slightly less than those available in Alternatives B and C.

3.11.2.1.6. Alternative E

Alternative E offers 812 miles of non-motorized trails (the fewest among alternatives), and provides the greatest amount of miles for motorized travel, 2,626 more miles than Alternative B. Motorized cross-country travel would be prohibited. Alternative E would be likely to have a positive affect on decreasing conflict between non-motorized and motorized Forest users when compared to Alternative A, but a potential negative impact (greater user conflict) when compared to Alternatives B, C, and D. Alternative E would provide the least amount of setting for non-motorized opportunities as related to all other alternatives, with the potential exception of Alternative A.

3.11.2.1.7. ROS

As discussed on page 3-101, there are five ROS classes on the Forest. The information in the following table portrays the miles of motorized routes and miles of non-motorized routes in each ROS class by alternative.

Note that under Alternative A there are motorized routes in both Primitive and Semi-Primitive Non-Motorized ROS classes. The inclusion of motorized routes in non-motorized ROS classes is a reflection of an anomaly in the ROS mapping. When a final decision is made on this motorized travel plan for the Dixie National Forest, the ROS classes for the Forest will be updated to match the selected Forest Service system of routes. For purposes of this EIS, however, all mileages are presented to show the differences between alternatives to allow comparison.

Table 3-18. Motorized and Non-motorized Routes by ROS Class

ROS Class	Measure	Alternative				
		A	B	C	D	E
Primitive	Miles of motorized routes	5	0	0	4	5
	Miles of non-motorized routes	106	107	110	106	106
Semi-Primitive Non-Motorized	Miles of motorized routes	199	49	56	88	233
	Miles of non-motorized routes	464	479	484	478	462
Semi-Primitive Motorized	Miles of motorized routes	3,222	1,487	1,709	2,027	2,761
	Miles of non-motorized routes	179	275	275	235	172
Roaded Natural	Miles of motorized routes	1,966	1,280	1,406	1,564	1,936
	Miles of non-motorized routes	78	98	100	96	75

All mileages rounded to the nearest 1 mile. Motorized routes include all roads and motorized trails.

Non-motorized Opportunities

Conflict is a key issue when dealing with motorized and non-motorized uses (Ramthun 1995, Hendee and Dawson 2002, Hammitt and Cole 1998, Manning 1999, Gibbons and Ruddell 1995). Conflict among user groups is generally asymmetrical, with one group perceiving a greater amount of conflict than the other (Ramthun 1995). In the field of outdoor recreation, non-mechanized users have generally perceived higher levels of conflict. This seems especially true when associated with mechanized users (Ramthun 1995; Adelman et al. 1982, Jackson and Wong 1982).

Conflict frequently stems from goal interference (Gibbons and Ruddell 1995). For example, forest visitors expecting solitude in a certain location may experience conflict if this goal is interfered with by coming across other forest visitors in the same location. Or, if a hiker is expecting a non-motorized experience, conflict may be perceived if OHV users are encountered or heard. Conflict may even simply stem from the evidence of past OHV use in a non-motorized area.

With this in mind, for those seeking non-motorized opportunities, Alternative E allows for the most motorized use within Semi-Primitive Non-Motorized areas. This is followed by Alternatives A, D, C, and B, in that order. Within Primitive areas, Alternatives A and E each offer the same number of motorized route miles, followed by Alternative D with 4 miles, and then Alternatives B and C, both of which have 0.01 miles.

Motorized Opportunities

Motorized users seeking a Semi-Primitive Motorized or Roaded Natural experience may prefer Alternative A, followed closely by Alternative E, then D, C, and B, in that order. Those seeking a Primitive experience may prefer Alternatives A and E, followed by D, and, lastly, B and C. However, motorized routes within the Primitive ROS class are minimal and do not change much across alternatives. Motorized users purely seeking the maximum route mileage may prefer Alternative A, followed by Alternatives E, D, C, and B, in that order.

3.11.2.1.8. Distance From Motorized Routes

Table 3-19. Percent of Forest Within a Specified Distance of a Motorized Route

Distance to a Motorized Route	Percent of Forest Within Specified Distance by Alternative				
	A	B	C	D	E
0 to 0.5 miles	70%	59%	62%	66%	71%
0 to 1 mile	88%	81%	83%	86%	89%
0 to 2 miles	98%	96%	96%	97%	98%
0 to 3 miles	100%	99%	99%	100%	100%

Includes highways and roads on private land (including Cedar Breaks National Monument) within the Forest boundary.

The table above shows the percent of the Forest within varying distances from motorized routes. Paralleling previous analysis, Alternative B generally offers the greatest percentage of acres away from motorized routes. After Alternative B, Alternatives C, D, A, and E, in that order, present decreasing acres away from motorized routes. Alternative E allows the least amount of buffer area, or acres, away from motorized routes.

Given these figures, non-motorized users may prefer Alternative B, followed by Alternatives C, D, A, and E, in that order. Motorized users may prefer Alternative E, followed by Alternatives A, D, C, and B, in that order. However, as noted above, Forest users are very diverse, and attributes required for goal attainment may in fact contradict common theory.

In addition to illustrating the percentage of the Forest within varying distances from motorized routes, this table also illustrates the percentage of motorized access provided across the Forest by alternative.

3.11.2.1.9. Dispersed Camping

Dispersed camping would be allowed within 150 feet along designated routes except in areas in the vicinity of developed recreation sites and in the three areas on the Forest where camping has been restricted to designated campsites only (see the *Dispersed Camping* description on page 3-102). More dispersed campsites and dispersed camping areas may be designated in the future if physical and social conditions reach a level where it is deemed necessary. This motorized travel plan would directly affect dispersed camping across the Forest for those who access these sites through motorized means. Impacts to dispersed camping vary by alternative: with the exception of Alternative A and its areas open to cross-country travel, the greater the number of miles of motorized routes, the greater the number of available dispersed sites.

Table 3-20. Number of Legally Accessible Inventoried Dispersed Campsites

Measure	Alternative				
	A	B	C	D	E
Number of dispersed campsites accessible by motorized vehicle	1,409	725	817	1,052	1,315
Percent change from Alternative A	N/A	51%	58%	75%	93%

Note: There are a total of 1,624 inventoried dispersed campsites across the Forest, 215 of which are in areas closed to cross-country travel and not legally accessible via motorized vehicles.
Alternative A: 1,227 campsites are within 150' of a designated route. There are an additional 182 campsites further than 150' from a designated route but within the 61 percent of the Forest open to cross-country travel; these sites are therefore legally accessible by motorized vehicles.
Alternatives B, C, D, and E: These are the number of campsites within 150' of a designated route.

As illustrated in the previous table, Alternative A provides motorized access to the greatest number of dispersed campsites across alternatives, with 1,409 legally accessible inventoried sites. This figure decreases by 94 sites when compared to the next highest amount in Alternative E. Compared to Alternative A, the numbers decline further with a decrease of 357 sites accessible in Alternative D, by 592 sites accessible in Alternative C, and by 684 sites accessible in Alternative B. Given these figures, impacts to use associated with dispersed camping are greatest with Alternative B, and least with Alternative A. Paralleling this is the fact that displacement associated with dispersed camping would be greatest with Alternative B, and the least with Alternative A. However, a decrease in dispersed campsites may actually increase users' experiences if solitude is a main objective.

3.11.2.2. Cumulative Effects

The cumulative effects area for recreation is the southern section of Utah (Millard, Sevier, Wayne, Garfield, Kane, Washington, Iron, Beaver, and Piute counties), portions of eastern Nevada (Clark and Lincoln counties), and the northern section of Arizona (Coconino and Mohave counties).

Travel Management Decisions on BLM and other Forest Service Lands

All alternatives would cause some displacement of both non-motorized and motorized users. Displacement of forest users could be further impacted if locations adjacent to the project area implement land management actions that severely reduce motorized route mileage.

Currently, the BLM Richfield, Kanab, Arizona Strip, Ely, and St. George field offices are in the process of updating their respective Resource Management Plans (RMPs). The Fishlake National Forest completed its Motorized Travel Plan in late 2006. The Fillmore RMP is about 20 years old and the Las Vegas RMP is about 9 years old; no revisions are currently scheduled for either. Lastly, the Cedar City BLM field office is slated to begin their RMP update within the next several years. These processes will establish motorized route guidelines for the foreseeable future.

The Fishlake National Forest designated 2,742 miles of motorized routes open to the public, a reduction from their existing condition of approximately 16 percent. The Fishlake decision

closed the Forest to cross-country travel, with the exception of two play areas comprising 879 acres.

Generally speaking, the three main categories for OHV use on BLM public lands are Open (open to cross-country travel), Limited (travel restricted to designated routes), and Closed. The preferred alternative for the Richfield BLM field office would designate 90 percent of the public lands in its jurisdiction as Limited. It would also reduce motorized route mileage by 139 miles. The preferred alternative for the Kanab BLM field office would increase Closed areas by 7,700 acres. In total, 524,000 acres would be Limited, 1,100 acres would be Open, and 28,900 acres would be Closed.

The preferred alternative for the Arizona Strip BLM Field Office would essentially change the vast majority of areas to Limited; however, OHV area designations increased in acres when compared with their No Action Alternative.

The Ely BLM Field Office RMP is expected in the summer of 2008, and would essentially limit OHV travel to existing roads and trails, while generally eliminating cross-country travel. Currently, about 86 percent, or 9.8 million acres, are open to cross-country travel. The Ely BLM Field Office may review specific route designations further in the future.

The Las Vegas BLM Field Office RMP essentially eliminated cross-country travel by decreasing Open areas by over 2.8 million acres. As with other RMPs, the Las Vegas RMP dramatically increased OHV travel regulations to “Limited to existing roads trails and washes” and “Limited to designated roads, trails, and washes.” Areas completely closed to OHV use essentially did not change.

The St. George BLM Field Office began a revision of their RMP in late 2004. Their revision is currently on hold; they are awaiting additional funding to continue revision efforts.

For Forest users seeking motorized use on designated travel routes, management actions within the cumulative effects area should not significantly add to the impact of displacement associated with the Dixie National Forest Motorized Travel Plan. However, Forest users seeking motorized cross-country travel may see a significant impact associated with displacement when combined with other management actions within the cumulative effects area and the Dixie National Forest Motorized Travel Plan.

Oil and Gas

The cumulative effect of past, present, and future oil and gas exploration and development activities is displacement of forest visitors from areas directly adjacent to or part of the activities. Scenic integrity is also affected by oil and gas development. Some oil and gas impacts are long-term, so localized displacement and scenic integrity impacts can also be long-term depending on reclamation practices. Oil and gas leasing on the Forest can affect recreation use patterns. Associated with oil and gas leasing is construction and reconstruction of roads. This could assist in mitigating impacts to motorized users and/or increase displacement of non-motorized users, or those seeking a primitive experience.

In some cases, oil and gas activities are short-term and cause very little ground disturbance. In these cases, impacts associated to recreation and scenic integrity would be minimal and generally brief in nature. Impacts associated to recreation may be short-term displacement of non-motorized users or those seeking a primitive experience. Due to the scale of acres

affected, the displacement is not significant for the cumulative effects area. Effects would be the same for all alternatives.

Vegetation Treatments

The cumulative effects of past, present, and proposed vegetation and fuel reduction treatments could be temporary displacement of Forest users and a change in the visual quality of the area. Results would be similar with wildfire. However, displacement and change in visual qualities may be prolonged when associated with wildfire. These effects would be the same under all alternatives.

Vegetation treatments on the Dixie National Forest can affect recreation use patterns. The cumulative effects of past, present, and proposed vegetation treatments could be temporary displacement of Forest users from areas directly adjacent to or part of the treatment activities, and a change in the visual quality of the area. Associated with vegetation treatments may be the construction and reconstruction of roads. This could assist in mitigating impacts to motorized users and/or increase displacement of non-motorized users, or those seeking a primitive experience. Due to the scale of acres affected, the displacement is not significant for the cumulative effects area; effects would be the same for all alternatives.

Wildlife and Fisheries

The cumulative effects of past, present, and future wildlife and fisheries management and watershed restoration projects would have a positive long-term effect on Forest visitors who view wildlife, hunt, or fish in the area. However, past restoration projects have displaced dispersed users from streamside campsites. This displacement could occur with future projects. Restoration projects generally improve the visual quality of riparian areas within three to five years. These effects would be the same with all alternatives.

Noxious Weeds

Noxious weed control could have a minor but cumulative effect on forest road and trail use. Noxious weed control activities include spraying from ATVs. These activities leave a noticeable track in some areas, which could encourage illegal off-route travel by members of the public. On-site signing could mitigate the situation. It is likely that these treatments would continue throughout the cumulative effects area. In the long-term, successful weed control would improve landscape conditions for all forest visitors.

Motorized travel is known to encourage the spread of noxious weeds. Thus, a reduction in route mileage may assist in mitigating the spread of noxious weeds. When compared to the other alternatives, Alternatives B and C would do the most in mitigating off-route travel associated with weed control and the spread of noxious weeds associated with travel routes.

Land Exchanges and Easements

Includes property disposal, highway easements, water diversions, and water augmentation. Over time these adjustments would occur at a reduced rate.

Special Uses

Includes one time events (e.g., horse races, trekking) and outfitter and guide activities. These would continue to occur with some increases in use.

Livestock Grazing

Livestock grazing in some areas has caused conflicts with recreation use. If livestock is allowed to congregate in developed sites, at trailheads, or along popular travel routes, resulting conditions can reduce the recreation experience for forest visitors. Recent and future grazing management changes would reduce this conflict through improved riparian protection measures and adjusting the timing and duration of grazing in high-use recreation areas. Due to the scale of acres affected, the displacement is not significant for the cumulative effects area. The effect may be greatest among alternatives that offer the most designated route mileage (Alternatives A and E).

3.12. Scenery

The information in this section is summarized from the *Recreation and Scenery Specialist Report* prepared for this motorized travel plan (USDA 2008g). Please see that report for more detail on the affected environment and effects analysis. Additionally, the *Recreation* section beginning on page 3-101 contains information applicable to Scenery Management.

3.12.1. Affected Environment

The National Forest Scenery Management System is the process used for planning and design of the visual elements of multiple use land management. There are 11 fundamental principles to the Scenery Management System.

1. Biological, physical and social factors create and influence scenery and interact to determine landscape character.
2. Landscape character varies greatly with the interaction of environmental factors.
3. People have the ability to perceive landscape character and develop expected images.
4. Through various activities, people have the ability to modify landscape character and scenic conditions and have often done so.
5. Such changes in landscape character and scenic condition often modify, suppress, or replace the original landscape character.
6. People value most highly the more scenic landscapes.
7. Generally, natural-appearing landscapes are the most valued.
8. Resource managers can design their activities to reduce adverse impacts on landscape character and scenic integrity.
9. People have the ability to establish goals to maintain or create desired landscape character.
10. People have the ability to apply ecological, technical, and design knowledge to meet scenery management goals and objectives.
11. In some situations, resource managers perpetuate or create desired scenic environments to provide an improved quality of life (USDA 1995).

Concern Levels represent a method of categorizing the importance of scenic resources to Forest visitors. Concern Level 1 travel routes are those that are nationally or regionally important locations associated with recreation and tourism use, where there is a high interest in scenic resources (USDA 1995). Examples of travel routes that would fall into this rating would include designated scenic byways, national parks, and areas such as Red Canyon, Panguitch Lake, and Navajo Lake. An example of a trail that would fall into this rating is the Virgin River Rim Trail and areas seen from it as it would be of high scenic concern because of its popularity for mountain biking and other uses. Concern Level 2 routes would be those that are locally important and are associated with recreation, and where there is a high to moderate interest in scenic resources. All remaining roads and unnamed trails would be Concern Level 3 travel routes, which are routes that receive low use and where users have a moderate to low interest in scenic resources.

In 2000 the Forest Plan was amended to update from the Visual Management System to the Scenery Management System. The amendment specified Scenery Integrity Objectives (SIOs)

for each management area. Scenic integrity is defined as "a measure of the degree to which a landscape is visually perceived to be 'complete.' The highest scenic integrity ratings are given to those landscapes that have little or no deviation from the character valued by constituents for its aesthetic appeal" (USDA 1995). **Concern Levels** describe the current condition of the scenic resource, while **Scenic Integrity Objectives** describe the objectives for management, or the desired future conditions.

The Scenic Integrity Objectives and percentages of each on the Dixie National Forest are displayed in the following table. The Management Areas listed in the table are defined in the 2000 amendment (USDA 2000d).

Table 3-21. Scenic Integrity Objectives for the Dixie National Forest

Scenic Integrity Objectives	Notes
Very High (5%)	Wilderness Areas (8A), Research Natural Areas (10A), and Antone Bench and Box Death Hollow (8A1/8A2 adjacent to designated wilderness)
High (27%)	Management Areas 1A, 1B, 2A, 4A, 4A*, 9B and the foreground of Concern Level 1 travelways and use areas in other management areas.
Moderate (30%)	Management Areas 2B, 5A, 5B, 6A, 9A and foreground of Concern Level 2 travelways and use areas in other management areas.
Low (18%)	Management Areas 4B, 4C, 4D, 7A, and 10B.
Unclassified (16%)	Management Area 1, except within the foreground of Concern Level 1 and 2 travelways and use areas. These areas can range from low to high scenic integrity objectives.

* Private land makes up the remaining 4 percent.

3.12.2. Effects Analysis

Two motorized trails are proposed for construction in Alternatives D and E. This scenery analysis is focused solely on the effects of this construction in these two alternatives. All effects associated with route construction would be with the same for Alternatives D and E. Alternatives A, B, and C would have no effects associated with trail construction.

Table 3-22. Proposed Motorized Trail Construction – Alternatives D and E

Route #	Length in Miles	District	Scenic Integrity Objective Class
T34070	0.65	Cedar City	High
U24028A	0.61	Cedar City	High

Map name: Alternatives D and E – Proposed Motorized Trail Construction
File name: ch3_map23_proposed_moto_trail_construction.pdf
File size: 426 KB

3.12.2.1. Direct and Indirect Effects

In general, the vast majority of the Forest would meet or exceed Scenic Integrity Objectives across all alternatives. However, within Alternatives D and E, construction of routes T34070 and U24028A may result in impacts that reduce scenic integrity from high to moderate. Construction of the routes would not result in a change in scenery integrity guidelines as described in the 2000 amendment. Scenic Integrity Objectives provide a standard for management or a desired future condition; Concern Levels examine the significance of scenic quality and aesthetic experience to people. Mitigation techniques, such as sustainable trail design and seeding, could limit the reduction in scenic integrity to less than 5 years.

3.12.2.1.1. Route T34070

Description

This route's location is approximately 1.5 miles southwest of Brian Head Peak in Iron County. This 0.65 mile route, in conjunction with U24028A, would assist in the connection of Brian Head to the Markagunt OHV Trail System. Specifically, this route would allow legal access from Brian Head Resort to Forest Service Road 30047.

OHVs are currently accessing Road 30047 by traveling cross-country. Construction of this route would eliminate the need for cross-country travel through the construction of a sustainable trail. Construction of this route would meet Forest Service ATV standards of "more difficult," and construction operations would be accomplished with a trail dozer. BMPs would be used during construction. Signing, enforcement, sustainable trail building techniques, and volunteers would be used to reduce user conflicts and resource damage.

Development of this route would assist in reducing cross-country travel and the proliferation of user-created routes, thus helping to reduce further resource damage. However, due to the fact that T34070 would directly cross the non-motorized Marathon Trail (#32024), this route would likely increase conflict levels between non-motorized and motorized users, thus potentially reducing user satisfaction and increasing displacement.

Variety

In general, the terrain is flat to rolling, with a mix of grass, sub-alpine fir, aspen, and spruce. In this location, a large amount of the spruce is dead standing due to bug kill. As seen from the actual route, open fields of grass provide an experience of vastness and great visual variety. The forest offers a variety of colors, shapes, and textures in all season. While some views from this route may be limited to foreground because of the screening effect of adjacent forest cover or topography, most of this route allows views into Cedar Break National Monument, Ashdown Gorge Wilderness Area, and other areas of scenic interest.

Visibility

Large portions of this route could be seen as immediate foreground (from zero feet to 300 feet) and foreground views (from 300 feet to one-half mile) from Highway 14 and Forest Service Road 30047, both Concern Level 1 routes. In addition, this route would directly cross over the non-motorized Marathon Trail (#32024), a Concern Level 2 trail. Furthermore, this route, and

associated users, may be visible from Cedar Breaks National Monument overlooks and Ashdown George Wilderness trailheads.

T34070 may increase use of this specific area, thus increasing the chance that OHV and associated impacts, such as dust plumes, would be within the immediate foreground and foreground views more consistently. Other impacts to visibility may include scarring as a result of trail construction and OHV use. Scarring impacts should decrease within a 5-year period. In order to mitigate impacts, BMPs would be implemented. Currently, this area is used during the winter season by snowmobiles, thus impacts to immediate foreground and foreground views do currently exist, although temporarily.

Scenic Integrity and Scenic Integrity Objectives

Portions of this route would be constructed in an area classified as having a high scenic integrity objective. High SIO is defined as, "Appears unaltered. Landscapes where the valued landscape character 'appears' intact. Deviations may be present but must repeat the form, line color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident" (USDA 1995).

Construction of this route may alter intact landscapes. This is due to a combination of potential construction results, such as the unearthing of a large quantity of soils that may not blend with the surrounding landscape, and newly constructed routes that run perpendicular to Concern Level 1 roads. Mitigation techniques, such as seeding and the use of unobtrusive gravel and trail design, may decrease the level of visual impacts. However, implementation of this route could reduce scenic integrity objectives from high to moderate.

3.12.2.1.2. Route U24028A

Description

This route's location is approximately 1 mile southeast of Brian Head Peak in Iron County. This 0.61 mile route would assist in the connection of existing routes U24028 and Forest Service Road 32310. In addition, this route, in conjunction with T34070, would allow legal access from Brian Head Resort to the Markagunt OHV Trail System.

Construction of this route would meet Forest Service ATV standards of "more difficult," and construction operations would be accomplished with a trail dozer. The trail would be located in a sustainable location and BMPs would be used during construction. Signing, enforcement, sustainable trail building techniques, and volunteers would be used to reduce user conflicts and resource damage.

Development of this route would assist in reducing cross-country travel and the proliferation of user-created routes, thus helping to reduce further resource damage. However, due to the fact that U24028A would be within view and within the soundscape of the non-motorized Marathon Trail (#32024) and Sydney Peak Trail (#32010), it is likely that conflict levels between non-motorized and motorized users would increase, thus potentially reducing user satisfaction and increasing displacement.

Variety

In general, the terrain is flat to rolling, with a mix of grass, sub-alpine fir, aspen, and spruce. In this location, a large amount of the spruce is dead standing due to bug kill. As seen from the actual route location, open fields of grass provide an experience of vastness and great visual variety. The forest offers a variety of colors, shapes, and textures in all season. While views from this route may be limited to foreground (from 300 feet to one-half mile) because of the screening effect of adjacent forest cover or topography, some of this route would allow middleground (from one-half mile to four miles) views into Cedar Break National Monument, Brian Head Peak, and other areas of scenic interest.

Visibility

Some portions of this route may be seen as foreground views (from 300 feet to one-half mile) from Forest Service Road 30047, a Concern Level 1 road. In addition, this route would be seen as immediate foreground (from zero feet to 300 feet) and foreground views (from 300 feet to one-half mile) from the non-motorized Marathon Trail (#32024) and Sydney Peak Trail (#32010), both Concern Level 2 trails. Further, this route, and associated users, may be visible from Cedar Breaks National Monument and Brian Head Peak.

U24028A may increase use of this specific area, thus increasing the chance that OHV and associated impacts, such as dust plumes, would be within the immediate foreground and foreground views more consistently. Impacts to visibility may also include scarring resulting from trail construction. Scarring impacts should decrease within a 5-year period. In order to mitigate impacts, BMPs would be use during construction.

Scenic Integrity and Scenic Integrity Objectives

Portions of this route would be constructed in an area classified as having a high scenic integrity objective. High SIO is defined as, “Appears unaltered. Landscapes where the valued landscape character ‘appears’ intact. Deviations may be present but must repeat the form, line color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident” (USDA 1995).

Construction of this route may alter intact landscape. This is due to a combination of potential construction results, such as the unearthing of a large quantity of soils that may not blend with the surrounding landscape, and newly constructed routes that run perpendicular to Concern Level 1 roads. Mitigation techniques, such as seeding, the use of unobtrusive gravel, and trail design, may decrease the level of visual impacts. However, implementation of this route could reduce scenic integrity objectives from high to moderate.

3.12.2.2. Cumulative Effects

The cumulative effects area for scenery management is the viewsheds surrounding the area of the proposed trail construction. Areas immediately adjacent to the constructed routes are likely to experience the most direct impacts.

The major influences on scenery within and adjacent to the project area have been timber harvest, insect infestations, fuel treatment, fire, roads, trails, and recreation development, all of

which have the potential to change the vegetative cover and landform being viewed on the Forest.

Cumulative effects on scenery are predictable within the provisions of the guidelines in the amendment. This is also the case with all routes proposed for construction. However, routes U24028A and T34070 may provide two circumstances where scenic integrity objective levels would be modified from high to moderate, although those modifications would still be within the parameters of the guidelines.

Both of the routes proposed for construction in Alternatives D and E may diminish the views that Forest users' would experience. This may be particularly true for those seeking a more primitive experience or those whose expectations are altered or are not met due to the presence of motorized routes and associated impacts. Additionally, the effects of proposed routes U24028A and T34070 may have some cumulative effect with the visual effects of the dead and dying spruce component of the adjacent Forest and project area, which would remain after route implementation. However, due to the scale of acres affected, impacts are not significant for the cumulative effects area.

Further impacts associated with route construction may be displacement of other forest users in conflict with motorized use or those seeking higher levels of solitude. This action has the potential to increase use and conflict levels in other nearby areas or areas with similar settings. Also, route construction would add to soil compaction, thus potentially creating instances of soil erosion. Further, route construction may increase cross-country travel due to the fact that some route placement occurs in areas with no formidable obstacles to mitigate off-road travel. Combined, these items may lead to further impacts to the scenic resource. However, due to the scale of acres affected, impacts are not significant for the cumulative effects area.

Past, present, and future environmental conditions within the cumulative effects area include drought cycles, accumulation of forest fuels, and the increasing threat of invasive species. These conditions, alone or in combination with one another, have the potential to change the scenery and settings of the Forest. However, national responses have been put in place to mitigate impacts. The alternatives considered would have no impact associated with drought, though Alternatives D and E, which include motorized route construction, may slightly increase the spread of invasive species and increase human-caused fires within the cumulative effects area (see the *Vegetation and Fire and Fuels* section beginning on page 3-21, the *Noxious Weeds* section beginning on page 3-92, and the *Rare Plants* section beginning on page 3-15).

Past and foreseeable future actions within the cumulative effects area include vegetative treatments, oil and gas activities, utilities, and grazing. These conditions, alone or in combination, have the potential to change the scenery and settings of the Forest. However, due to the scale of acres affected, they would not create a cumulative effect when considered together with any of the proposed trail construction.

3.13. Roadless and Unroaded and Undeveloped Areas

The information in this section is summarized from the *Roadless and Unroaded and Undeveloped Areas Specialist Report* prepared for this motorized travel plan (USDA 2008h). Please see that report for more detail on the affected environment and effects analysis.

3.13.1. Affected Environment

For purposes of this report, two categories of areas will be discussed. Inventoried Roadless Areas (IRAs) refer to those specific areas identified in the Roadless Area Conservation Final FEIS (USDA 2000c); Unroaded and Undeveloped Areas refer to an inventory conducted for plan revision of areas with unroaded and undeveloped characteristics.

3.13.1.1. Inventoried Roadless Areas

IRAs are those areas identified in a set of inventoried roadless area maps contained in the Forest Service Roadless Area Conservation, FEIS, Volume 2, dated November 2000, and any subsequent update or revision of those maps through the land management planning process (36 CFR 294.11).

In an increasingly developed and fragmented landscape, IRAs represent some of the largest and most extensive tracts of undeveloped land. To be classified as an IRA, areas must not contain constructed roads and generally must be at least 5,000 acres. Areas containing less than 5,000 acres can also be classified as IRAs if they do not contain constructed roads and meet one of the following criteria: (1) areas can be preserved due to physical terrain and natural conditions, (2) they are self-contained ecosystems, such as islands, that can be managed as an individual unit of wilderness, and; (3) they are contiguous to existing wilderness, primitive areas, recommended wilderness, or potential wilderness in other federal ownership. The definition for a constructed road is a road where there has been mechanical surface grading and cut and fill slopes are present along with drainage structures. Two-track roads are permissible within an IRA if there is no evidence of mechanical construction. However, on the Dixie, IRAs contain both constructed and two track roads since the inventory datasets only included system roads at that time.

There are 42 IRAs covering a total of approximately 771,960 acres, which represents approximately 43 percent of the analysis area for this EIS. Several of the IRAs are smaller than 5,000 acres, but are adjacent to larger tracts of wilderness, within other IRAs, or adjacent to potential wilderness on land administered by the BLM. The following table lists the IRAs on the Dixie National Forest by ranger district and the total acreage associated with each.

In addition to the absence of constructed roads, IRAs contain other important environmental values that warrant protection. These values include nine values or features identified in the Roadless Area Conservation Rule (RACR) that characterize IRAs, as well as seven attributes that characterize wilderness potential. Detailed information on the characteristics and attributes of each individual IRA will not be presented here. Rather, the characteristics and attributes are described in general in this section and any unique characteristics known to be present within a

specific IRA are discussed within the individual ranger district sections. Since IRAs cover such a large percentage of the land, it is assumed that they contain a full range of the physical and biological characteristics found on each ranger district.

Table 3-23. Inventoried Roadless Areas on the Dixie National Forest by Ranger District

IRA Name	Acres
Pine Valley Ranger District	
Atchinson	17,663
Bull Valley	10,919
Cave Canyon	5,661
Cedar Bench	8,919
Cottonwood	6,757
Cove Mountain	16,639
Dixie	109
Gum Hill	3,182
Headwaters/Pine Park Bench/Pine Park	10,952
Kane Mountain	8,016
Lost Peak	4,144
Mogotsu	16,771
Moody Wash	31,857
North Hills	24,499
Pine Valley Mountains	56,330
Rock Canyon	16,471
Stoddard Mountain	13,168
Pine Valley Total	252,051
Cedar City Ranger District	
Bear Valley Peak	7,436
Bunker Creek	7,473
Hancock	9,806
Lava Beds	14,940
Mineral Canyon	8,400
Cedar City Total	48,055
Powell Ranger District	
Casto Bluff	87,419
Deer Creek	39,795
Fishhook	12,954
Horse Valley	13,618
Red Canyon North	9,438
Red Canyon South	3,734
Powell Total	166,958
Escalante Ranger District	
Boulder Mtn/Boulder Top/Deer Lake	14,894
Box-Death Hollow	3,171
Hog Ranch	17,118
Jake Hollow	15,135
Long Neck Mesa/Steep Creek/Oak Creek – Steep Creek/Oak Creek	11,141
McGath Lake – Auger Hole	8,328
New Home Bench	10,505
Shakespeare Point	752

IRA Name	Acres
South Rim	1,371
Table Cliffs – Henderson Canyon	17,668
Escalante Total	100,083
Teasdale Portion of Fremont River Ranger District	
Capital Reef [sic]	763
Dark Valley	27,460
Happy Valley	14,447
Hay Lakes	22,126
Long Neck Mesa/Steep Creek/Oak Creek-Steep Creek/Oak Creek	44,305
Boulder Mtn/Boulder Top/Deer Lake	95,704
Teasdale Total	204,805
Forest-wide Total	171,952

3.13.1.1.1. Pine Valley Ranger District

There are 17 IRAs on the Pine Valley Ranger District covering a total of 251,911 acres. Several of the IRAs listed are less than 5,000 acres, but are included due to proximity with other potential wilderness areas. Lost Peak IRA is adjacent to BLM land that could be potential wilderness.

The Pine Valley Ranger District contains the largest amount of biological crusts and gypsiferous soils and these resources would be expected to occur on IRAs. Eight municipal watersheds covering 14,688 acres are partially located on the Pine Valley Mountains IRA. The watersheds are Central, Enterprise, Leeds, New Harmony, Pine Valley, Pintura, Sawyer Spring, and St. George. In addition, IRAs provide 20,036 acres of known or suitable habitat for threatened and endangered species including California condor (*Gymnogyps californianus*), Mexican spotted owl (*Strix occidentalis*), Mohave desert tortoise (*Gopherus agassizii*), and Utah prairie dog (*Cynomys parvidens*). The IRAs also provide 5,121 acres of suitable habitat for sensitive species including Bonneville cutthroat trout (*Onchorhynchus clarki utah*), flammulated owl (*Otus flammeolus*), peregrine falcon (*Falco peregrinus*), northern goshawk (*Accipiter gentilis*), pygmy rabbit (*Brachylagus idahoensis*), and sensitive bats.

3.13.1.1.2. Cedar City Ranger District

There are five IRAs on the Cedar City Ranger District covering a total of 48,847 acres. The Bunker Creek IRA includes 1,190 acres of the Parowan municipal watershed. IRAs on the Cedar City Ranger District provide 1,799 acres of known or suitable habitat for threatened and endangered species including California condor, Mexican spotted owl, and Utah prairie dog. IRAs on the Ranger District also provide 18,083 acres of suitable habitat for sensitive species including flammulated owl, greater sage grouse (*Centrocercus urophasianus*), peregrine falcon, northern goshawk, pygmy rabbit, and sensitive bats.

3.13.1.1.3. Powell Ranger District

There are six IRAs on the Powell Ranger District covering a total of 166,925 acres. The Red Canyon South IRA is less than 5,000 acres, but is included due to proximity with adjacent BLM land that could be potential wilderness. The Deer Creek IRA overlaps 5,303 acres of the Antimony municipal watershed. In addition, IRAs on the Ranger District provide 42,181 acres of

known or suitable habitat for threatened and endangered species including California condor, Mexican spotted owl, and Utah prairie dog. IRAs also provide 57,698 acres of suitable habitat for sensitive species including Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*), flammulated owl, greater sage grouse, peregrine falcon, northern goshawk, pygmy rabbit, and sensitive bats.

3.13.1.1.4. Escalante Ranger District

There are 10 IRAs on the Escalante Ranger District covering a total of 100,651 acres. As with the other Ranger Districts, several of the IRAs listed are less than 5,000 acres, but are included due to proximity with other IRAs and wilderness areas. The Box-Death Hollow IRA surrounds and is adjacent to the Box-Death Hollow Wilderness Area and the Shakespeare Point and South Rim IRAs are adjacent to the Table Cliffs – Henderson Canyon IRA. The Hog Ranch and McGath Lake – Auger Hole IRAs overlap with 1,006 acres of the Escalante municipal watershed and the New Home Bench IRA overlaps with 426 acres of the Boulder Town municipal watershed.

The Side Hollow Ponderosa Pine Provenance Study Area covers 4.5 acres within the New Home Bench IRA. The study area contains ponderosa pine (*Pinus ponderosa*) from various origins that are being used for genetic studies (USDA 2006d). In addition, IRAs on the ranger district provide 72,268 acres of known or suitable habitat for threatened and endangered species including California condor, Mexican spotted owl, and Utah prairie dog. IRAs also provide 81,563 acres of suitable habitat for sensitive species including Colorado River cutthroat trout, flammulated owl, peregrine falcon, northern goshawk, pygmy rabbit, and sensitive bats.

3.13.1.1.5. Teasdale Portion of the Fremont River Ranger District

There are six IRAs on the Teasdale portion of the Fremont River Ranger District totaling approximately 204,805 acres. Inventoried Roadless Areas make up 81 percent of National Forest Lands on this unit.

3.13.1.2. Unroaded and Undeveloped Areas

Beginning in 2000, the Dixie and Fishlake National Forests began a joint effort to revise their Forest Plans. Part of this revision included consideration of areas suitable for wilderness recommendation, which was conducted according to the direction in the “Intermountain Region Planning Desk Guide: A Protocol for Identifying and Evaluating Areas for Potential Wilderness” (USDA 2004b). The base map for this was from a 1983 inventory. This inventory only included known classified system roads and thus identified areas as unroaded/undeveloped that currently contain numerous constructed roads and trails. As part of plan revision, a re-evaluation using the current road inventory from this motorized travel planning process will be necessary to fully understand the character of these areas.

The Forest Plan Revision Team involved the public in the development of the Unroaded and Undeveloped Inventory. One of the Topical Working Groups formed for the revision effort was focused specifically on the Undeveloped Area Inventory and Evaluation. This Working Group met from 2003 through 2005, and formally presented the results of their meetings to both the Dixie and Fishlake Forest Supervisors. In order to gain additional public input on undeveloped areas, the Forest Supervisors hosted four public workshops in 2004 to gather input on the

inventory and evaluation. Additional informational and working sessions were also held with county commissioners on the topic from 2004 through 2006 (USDA 2008bb).

After the update to the Draft Dixie Undeveloped Area Evaluation was released in 2004, the Forests began an evaluation of the suitability of the areas for wilderness recommendation. This evaluation considered capability, availability, and need. In 2006, further updates were made to the inventory and evaluation, most specifically regarding area acreages (USDA 2006d).

There is no policy, law, or directive guiding the management of unroaded/undeveloped areas that lie outside of IRAs or wilderness. Of the 1,056,221 acres of unroaded area inventoried, only about 29 percent falls outside an IRA or wilderness. Currently, the only guidance for these areas is general forest or management area direction. It is the intent of the Dixie National Forest to manage these unroaded/undeveloped areas for multiple resource benefits while maintaining their undeveloped character to the extent possible.

3.13.2. Effects Analysis

This section describes the effects of alternatives relative to motorized road and trail access on the wilderness attributes and the roadless characteristics identified above. Roadless areas can be affected by the construction or reconstruction of roads or motorized trails within the roadless areas. However, identification as an inventoried roadless area in and of itself does not prohibit motorized uses or construction of non-motorized trails or motorized trails. Wilderness character would be affected by construction of roads or trails, since wilderness is in part defined by its roadless and non-motorized character.

In addition to some restrictions on timber harvest and road construction activities identified in the RACR, there is a lack of perceived need to expand roads and motorized trails into IRAs and a public sensitivity to impacting roadless areas with new roads or motorized trails. See the *Roadless Specialist Report* for tables comparing motorized access by IRA (USDA 2008h). Under Alternatives B, C and D, no roads within IRAs are proposed to be added to the system with the exception of those routes needed for public water access and that fit the criteria in RACR.

3.13.2.1. Alternative A

3.13.2.1.1. Direct and Indirect Effects

With the exception of Long Neck, Henderson Canyon, and Lava Beds, most IRAs did not rate high for wilderness potential due to the presence of historic roads, evidence of past human disturbance, and lack of screening from lower valleys. The IRAs' wilderness potential would not be altered by changing the amount of designated roads or trails within them. These areas would still rate medium to low due to other factors.

Implementation of Alternative A would retain 404.8 miles of road and trails open to the public for motorized access within IRAs. Use of remote areas is likely to increase as visitors increase and users become more familiar with undiscovered areas noted as open on the MVUM.

3.13.2.1.2. Cumulative Effects

Alternative A would not change the number of roads or motorized trails already present. However, the ability to continue cross-country travel in some areas would likely result in additional user-created routes. Activities associated with motorized access would continue with increase uses in some areas over the long-term. An increase in motorized use has the potential to reduce the "apparent naturalness" of these areas.

There are over 450,000 acres open to cross-country travel within IRAs. The impact of this would vary by IRA since the percent available within an IRA ranges from less than 1 percent to 100 percent (USDA 2008h, Appendix C).

3.13.2.2. Alternative B

3.13.2.2.1. Direct and Indirect Effects

Implementation of this alternative would retain 71.4 miles of roads and trails open to public motorized access. Due to the persistence of roads and trails in this environment, visitors would see little change in the short-term in roadless characteristics. This alternative would result in a reduction of motorized access and thus would reduce the potential for impacts to wilderness characteristics.

The prohibition on cross-country travel would likely provide the greatest potential for reducing the risk of new unauthorized routes.

3.13.2.2.2. Cumulative Effects

The demand for semi-primitive motorized and non-motorized opportunities would continue to grow. This alternative offers the greatest reduction in motorized access and thus would tend to provide an increase in areas available for non-motorized opportunities.

3.13.2.3. Alternative C

3.13.2.3.1. Direct and Indirect Effects

This alternative would retain 99.3 miles of motorized access open to the public within IRAs. Cross-country travel would be prohibited. This alternative would not adversely affect the existing roadless values or wildness potential. Effects would be similar to those in Alternative B.

3.13.2.3.2. Cumulative Effects

The demand for semi-primitive motorized and non-motorized opportunities would continue to grow. Although not to the extent as Alternative B, this alternative offers a reduction in motorized access over Alternative A, and thus would tend to provide an increase in areas available for non-motorized opportunities.

3.13.2.4. Alternative D

3.13.2.4.1. Direct and Indirect Effects

Implementation of this alternative would retain 204.2 miles of public access within IRAs. Cross-country travel would be prohibited. This alternative is more selective within IRAs and would show a greater decrease in available routes in some IRAs than in others. The existing roadless values or wilderness potential would not be adversely affected.

3.13.2.4.2. Cumulative Effects

Wilderness characteristics would benefit more in some IRAs in the long-term than in others. Roadless characteristics would improve but not to the extent as in Alternative B or C.

3.13.2.5. Alternative E

3.13.2.5.1. Direct and Indirect Effects

Implementation of this alternative would retain almost 490 miles of public access within IRAs. This alternative would have similar affects as Alternative A, with the exception of some benefit with the prohibition of cross-country travel. The existing roadless values and wilderness potential would not be adversely impacted.

3.13.2.5.2. Cumulative Effects

The designation of non-system routes, and the subsequent inclusion of those routes on the MVUM, could increase the use of some areas. Thus this alternative has the potential to impact the apparent naturalness not currently known to most visitors.

The following tables display the miles of motorized routes within each IRA (Table 3-24), and each unroaded and undeveloped area (Table 3-25). Much more detailed information on motorized routes, including a breakdown of each route type by alternative, is located in the appendices in the *Roadless and Unroaded and Undeveloped Areas Specialist Report* (USDA 2008h).

Table 3-24. Miles of Motorized Routes by Inventoried Roadless Area

IRA	Alternative				
	A	B	C	D	E
Atchison	4	<1	2	2	4
Bear Valley Peak	5	4	4	4	5
Boulder Mtn/Boulder Top/Deer Lake	48	25	26	35	48
Box-Death Hollow	1	0	1	1	1
Bull Valley	17	4	4	11	18
Bunker Creek	3	2	2	2	3
Capital Reef*	1	<1	<1	<1	1
Casto Bluff	63	12	17	18	66
Cave Canyon	3	<1	1	1	3
Cedar Bench	6	0	0	1	6
Cottonwood	3	<1	<1	2	3
Cove Mountain	17	2	3	3	17
Dark Valley	44	11	14	20	44
Deer Creek	10	1	1	6	16
Fishhook	10	2	2	2	10
Gum Hill	1	<1	<1	<1	1
Hancock	0	0	0	0	0
Happy Valley	14	8	8	8	14
Hay Lakes	46	12	12	24	46
Headwaters/Pine Park Bench/Pine Park	2	0	1	<1	2
Hog Ranch	12	3	5	9	12
Horse Valley	12	1	2	9	12
Jake Hollow	14	1	5	6	14
Kane Mountain	5	<1	<1	1	5
Lava Beds	1	1	1	1	1
Long Neck Mesa/Steep Creek/Oak Creek-Steep Creek/Oak Creek	31	16	18	19	32
Lost Peak	<1	<1	<1	<1	<1
McGath Lake-Auger Hole	1	<1	<1	1	1
Mineral Canyon	3	<1	<1	<1	3
Mogotsu	6	3	4	4	6
Moody Wash	18	11	11	13	18
New Home Bench	24	21	21	22	24
North Hills	25	7	8	8	25
Pine Valley Mountains	3	<1	2	1	3
Red Canyon North	12	5	6	6	12
Red Canyon South	4	1	1	4	4
Rock Canyon	8	5	4	5	8
Shakespeare Point	<1	0	0	0	<1
South Rim	1	<1	1	1	1
Stoddard Mountain	7	2	2	2	7
Table Cliffs-Henderson Canyon	5	2	2	3	5

All miles rounded to the nearest 1 mile. Miles composed of Maintenance Level 1, 2, 3, 4, 5, and unauthorized roads, and seasonal Maintenance Level 2 roads, and motorized trails. For a more detailed breakdown by IRA, including totals by maintenance level, totals of motorized trails, totals of non-motorized trails, and unauthorized routes, see the Appendix A of the *Roadless and Unroaded and Undeveloped Specialist Report* (USDA 2008h).

Table 3-25. Miles of Motorized Routes by Unroaded and Undeveloped Area

IRA	Alternative				
	A	B	C	D	E
Antimony	33	9	7	11	34
Ashdown	2	2	2	2	2
Atchison	16	6	<1	11	17
Barker	8	<1	<1	2	8
Bear Valley Peak	4	2	2	2	4
Big Hollow	<1	0	0	0	<1
Birch Creek	1	1	1	1	1
Blind Springs	6	<1	<1	1	1
Boulder Creek	14	10	9	11	13
Box-Death Hollow	3	<1	<1	<1	3
Bull Valley	15	1	1	9	17
Bunker Creek	7	3	3	3	7
Canaan Mountain	3	2	2	2	3
Casto Bluff	26	4	7	6	29
Cave Canyon	5	0	1	2	5
Cedar Bench	8	0	0	2	8
Cottonwood	8	<1	<1	5	8
Cove Mountain	14	2	5	5	14
Deep Creek	10	2	2	7	15
Dry Lake	15	10	11	14	15
Fishhook	5	0	<1	0	5
Hancock	<1	<1	<1	<1	<1
Happy Valley	7	4	4	4	7
Heaps Canyon	5	2	2	2	5
Henderson Canyon	1	0	0	0	1
Hog Ranch	1	0	1	0	1
Horse Valley	8	<1	1	1	8
Jake Hollow	12	3	7	7	12
Kane Mountain	6	1	1	1	6
Lava Beds #1	<1	<1	<1	<1	<1
Lava Beds #2	1	0	0	0	1
Little Creek Peak	11	5	6	6	11
Long Neck	11	5	5	7	11
Lost Peak	<1	0	<1	<1	<1
Lower Hoodle	20	0	<1	3	20
Mineral Canyon	3	<1	1	<1	3
Moody Wash/Mogotsu	36	18	19	21	36
North Boulder	34	16	16	22	34
North Hills	25	7	8	9	25
Oak Creek	6	1	1	1	6
Pacer Lake	26	19	22	22	26
Pine Park	12	6	3	6	12
Pine Valley Mountain	33	12	19	10	32
Pretty Tree Bench	2	2	2	2	2
Red Canyon North	12	5	5	5	12
Red Canyon South	<1	0	0	0	<1
Shakespeare Point	<1	0	0	0	<1
Stoddard Mount	7	2	2	2	7
Wagon Box	7	0	1	1	7
West Boulder	5	3	3	3	7

All miles rounded to the nearest 1 mile. Miles composed of Maintenance Level 1, 2, 3, 4, 5, and unauthorized roads, and seasonal Maintenance Level 2 roads, and motorized trails. For a more detailed breakdown by unroaded and undeveloped area, including totals by maintenance level, totals

of motorized trails, totals of non-motorized trails, and unauthorized routes, see the Appendix B of the *Roadless and Unroaded and Undeveloped Specialist Report* (USDA 2008h).

3.13.2.6. Cumulative Effects Common to All Alternatives

Alternative B, C, or D would not add cumulatively to impacts on roadless characteristics or wilderness values. Alternative E may provide the potential for increased use within some areas. Foreseeable activities that would impact roadless characteristics or wilderness potential of IRAs or unroaded areas include oil and gas development and utility construction. In the event that oil or gas production is initiated, the roads and associated infrastructure are not likely to occur with in an IRA while the RACR is in place. However, with so much of the Forest falling within IRAs, a development could potentially occur adjacent to an IRA and within an existing unroaded and undeveloped area. The apparent naturalness of the area adjacent to the development would be impacted.

With the population growth and development increasing on private inholdings and around the Forest, there is a potential for continued utility construction that may cross IRAs and could potentially impact wilderness capability for a limited area.

Activities like grazing, wildfire and suppression activities, prescribed fire, and non-motorized recreation may occur within or adjacent to IRAs but would not adversely impact the roadless character or wilderness potential.

3.14. Cultural Resources

The information in this section is summarized from the *Cultural Resources Specialist Report* prepared for this motorized travel plan (USDA 2008b). Please see that report for more detail on the affected environment and effects analysis.

3.14.1. Affected Environment

The cultural resources of the Dixie National Forest represents a wide diversity of site types, cultural groups, time periods, and even resources (including paleontological resources). A limited number of sites have been identified for public use, though they are currently in various stages of formal designation. These include the Spanish Trail designated by Congress as a National Historic Trail in 2002, and the Hell's Backbone Bridge. Several administrative sites, including the Podunk, Cowpuncher, and Aquarius guard stations, have been designated for use under the Forest Service Rustic Cabin Rental program. Lower and Upper Enterprise Reservoir Dams, Leeds Creek Kiln, and several other sites are in the process of being designated.

Two sites on the Forest and one adjacent with features on the Forest have been listed on the National Register of Historic Places: Long Flat Archaeological Site, designated in 1978; the Mountain Meadows Massacre District, designated in 1975; and Historic Iron Town, designated in 1978. Many other sites on the Forest are potentially eligible for nomination to the National Register.

By 2006, less than 8 percent of the Forest had been inventoried for cultural resources. Approximately 2,000 cultural resource sites have been recorded and evaluated. Only a very few of these have been investigated scientifically. Because most of the cultural resources on the Dixie National Forest have not been inventoried or evaluated and very few have been scientifically investigated, the knowledge of past cultures occupations is inferred from other better-studied regions adjacent to the Forest. A majority of the sites are in fair to good condition because of their current isolation, but this isolation is becoming reduced as increased access to these isolated areas grows.

Archaeological resources, historical sites, and paleontological resources are valuable for scientific, public interpretive, and educational uses. American Indian groups consider sites and areas to be sacred and important to the ongoing existence of their culture. Cultural resource site locations are not disclosed in this document. In order to protect and preserve cultural resources, detailed descriptions and locations are exempt from disclosure under the Freedom of Information Act as stated in Forest Service Policy (FSH 6209.13, section 11.12) in accordance with the Archaeological Resource Protection Act of 1979 (16 USC 170hh) and the National Historic Preservation Act of 1966 (16 USC 470w-3). Identification and records are supplied to the Utah State Historic Preservation Officer to concur with the Forest Service's Determination of Eligibility and Effects.

Cultural resources, including paleontological resources, are non-renewable resources. As such, federal regulations have been passed which prohibit destruction of these resources and obligate the federal land managing agencies to protect and manage these resources. The Antiquities Act of 1906, the Historic Sites Act of 1935, the National Historic Preservation Act of 1966

(amended in 1992), the Archaeological Resource Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1990 are the most important regulations concerning the protection of the cultural resources on federal land.

The primary threats to cultural resources on the Forest are vandalism, collection of surface artifacts and fossils, OHV use, erosion, and livestock use. Intentional vandalism occurring on the Forest includes sites damaged or destroyed by illegal excavations, collection of artifacts and fossils off the surface, destruction of sites by people using metal detectors (followed by digging to remove artifacts), and destruction or removal of rock art. Unintentional vandalism to the resources occurs from driving off-road across sites; touching, chalking, paint balling, or marking rock art sites; creating trails, both non- motorized and motorized, across or near sites with fragile features, removal of features or objects that are part of sites, and dispersed camping on sites. The Dixie National Forest will continue to aggressively investigate and prosecute all intentional vandalism and continue to provide education to the public about the protection and preservation of heritage resources on the Forest.

3.14.1.1. Resources of Traditional Importance to American Indians

American Indian groups, either currently or historically lived in or adjacent to the Dixie National Forest and have cultural ties to the area. American Indians consider Traditional Cultural Properties (TCPs), power places, sacred sites, and many natural resources to be linked to parts of an ecosystem. If a site is within a group's traditional territory, the members of the group often assume it as part of their heritage.

Individuals from adjacent American Indian tribes continue to utilize areas within the Dixie National Forest visiting sites and gathering and using resources from the area. Some have ties to natural features, ancient villages, campsites, rock art, and burial sites that they consider sacred. There are no Treaty Rights within the boundaries of the Forest with any of the Tribal groups adjacent to the Forest.

Tribal groups have been contacted and initial consultation has resulted in identification of some resource areas, spiritual locations, and sites important to their cultures. Consultation with the Utah State Historic Preservation Office (SHPO) on this project is in process.

3.14.2. Effects Analysis

3.14.2.1. Direct and Indirect Effects

3.14.2.1.1. Effects Common to All Alternatives

Under Section 106 of the National Historic Preservation Act of 1966, federal agencies must take into account the affect their actions would have on cultural resources and TCPs. Before implementing any travel plan, areas of high probability within areas proposed for ground disturbance and/or reclassification of routes never surveyed will be surveyed and evaluated by an archaeologist in an effort to locate and record any archaeological or historical sites or TCPs. Survey methods will include pedestrian transects and visual assessments of the project Area of Potential Effects for all site-specific undertakings.

Each site identified is evaluated for inclusion on the National Register of Historic Places. Those sites found to exhibit the characteristics for inclusion on the Register are identified as Historic Properties and actions undertaken near or adjacent to them must identify what affect they will have. These effects are identified as “no effect,” “no adverse effect,” or “adverse effect.” Mitigation measures must be undertaken for those actions that will pose a no adverse effect or adverse effect. These mitigations can range from fencing, rerouting, burying the site, and full scale excavation, and are identified on a site-by-site basis. A Programmatic Agreement between the Advisory Council on Historic Preservation, the Utah SHPO, and the Dixie National Forest will outline how the surveys, evaluations, and mitigations will be implemented.

The following assumptions are made for cultural resources within the Forest under all alternatives:

1. All laws for the management and protection of cultural resources will be followed,
2. Section 106 inventories and mitigation will be conducted for all proposed projects, as required by the National Historic Preservation Act, under those alternatives that involve ground disturbing activities,
3. The cultural resources on the Forest will continue to be monitored for vandalism and protected or stabilized, as necessary, and
4. All surface disturbing activities include mitigation to reduce impacts to cultural resources.

3.14.2.1.2. Alternative A

Use of motorized routes and areas open to cross-country travel in this alternative would result in continued and increasing impacts to cultural resources. Sites and paleontological resources would continue to be impacted intentionally or unintentionally by visitors and natural processes. TCPs would still be accessible by Tribal members and groups, but this alternative would also allow for continued access damage and vandalism to these TCPs by other visitors using motorized and mechanized vehicles. Access for research would be easier and more cost-effective under this alternative.

3.14.2.1.3. Alternative B

Under Alternative B fewer roads would be open for use as this alternative emphasizes protection for natural, paleontological, and cultural resources. Cross-country travel would be prohibited forest-wide. Sites would continue to be impacted intentionally or unintentionally by visitors and natural processes. Most TCPs would still be accessible by Tribal members and groups, though this alternative would also allow for continued access damage and vandalism to these TCPs and sites by other visitors using motorized and mechanized vehicles using existing roads.

3.14.2.1.4. Alternative C

The types of impacts under Alternative C would be the same as those described under Alternative A. Impacts would be more intense than under Alternatives B due to the increase of miles of roads that would be open to motorized public travel. Impacts would be less intense than under Alternatives A, D, and E due to fewer miles of roads that would be open. Cross-country travel would be prohibited forest-wide.

More unauthorized routes, including routes that must remain open for access to private property, permitted use, and administrative access, would be added to the system. Sites and

paleontological resources would continue to be impacted intentionally or unintentionally by visitors and natural processes. Most TCPs would still be accessible by Tribal members and groups, but this alternative would also allow for continued access damage and vandalism to these TCPs by other visitors using motorized and mechanized vehicles on existing routes.

3.14.2.1.5. Alternative D

With the exception of Alternatives A and E, the greatest access for all motorized and mechanized vehicles users, including the OHV community, would be provided under Alternative D. Sites would continue to be impacted intentionally or unintentionally by all ranges of visitors and natural processes. TCPs would still be accessible by Tribal members and groups, but this alternative would also allow for continued access damage and vandalism to these TCPs by other visitors using motorized and mechanized vehicles. Access for research would be easier and more cost-effective under this alternative. Cross-country travel would be eliminated across the entire Forest, which would provide more protection than under Alternative A.

Two proposed motorized trails comprising 1.26 miles would be developed and built under this alternative. The locations of both of the proposed motorized trails have been surveyed. There would be no adverse effects to historic properties. Review and concurrence from the Utah SHPO would be conducted on these routes prior to construction.

3.14.2.1.6. Alternative E

This alternative provides for the most motorized access on designated routes. Under this alternative all non-system or unauthorized routes would be added to the system unless addressed otherwise through previous and pending decisions. These additions would be designated as open to public motorized travel. Cross-country travel would be prohibited forest-wide. Sites and paleontological resources would continue to be impacted intentionally or unintentionally by visitors and natural processes. TCPs would still be accessible by Tribal members and groups, but this alternative would also allow for continued access damage and vandalism to these TCPs by other visitors using motorized and mechanized vehicles. Access for research would be easier and more cost-effective under this alternative.

Two proposed motorized trails comprising 1.26 miles would be developed and built under this alternative. The locations of both of the proposed motorized trails have been surveyed. There would be no adverse effects to historic properties. Review and concurrence from the Utah SHPO would be conducted on these routes prior to construction

3.14.2.2. Cumulative Effects

The increase in regional population and popularity of the Dixie National Forest is correlated to an increase in damage to archaeological and historical resources from visitation, including that caused by vandalism. As the popularity of OHVs and recreation activities increases, the increase of impacts to all cultural resources on the Forest is now at a critical stage. As cultural resources are nonrenewable, it is critical that we preserve and protect those remaining resources. Public education and information is vital in efforts to preserving the past. Education must be expanded beyond the local level to reach those who visit the Forest from regional urban areas.

Archaeological resources, historical sites, and paleontological resources within the Forest would continue to be impacted by natural process. The agency and other development projects conducted by non-agency groups would continue to be conducted in the foreseeable future. Prior to any activities either conducted by the Forest Service or outside groups under special use permits, all ground-disturbing activities would have cultural resource surveys conducted prior to their implementation as outlined in law governing the protection of these resources.

3.15. Transportation

The information in this section is summarized from the *Transportation Specialist Report* prepared for this motorized travel plan (USDA 2008l). Please see that report for more detail on the affected environment and effects analysis.

3.15.1. Affected Environment

Transportation facilities provide important access to the Forest for a variety of uses including timber harvest, livestock grazing, mining, and recreation. The Dixie National Forest Motorized Travel Plan will affect future access for forest management and public activities.

In 1996 the Dixie National Forest began inventorying all motorized routes on the Forest. This effort resulted in a Global Positioning System (GPS) motorized route inventory that was completed in summer 2005. This inventory provides the base data layer for this travel planning project. This section addresses roads and the road system. Motorized trails are not addressed in this analysis or in any of the mileages portrayed in any of the tables in this section.

Table 3-26. Total Miles of Road on the Forest

Area	Current System Miles	Current Non-System Miles	Total
Cedar City	1,011	393	1,404
Escalante	794	333	1127
Pine Valley	468	198	666
Powell	805	455	1260
Teasdale	348	104	452
Forest-wide	3,426	1483	4,909

Includes miles from previous and pending decisions.

3.15.1.1. Road Operation and Maintenance

There are five maintenance categories of Forest Service System roads. The following descriptions are from FSH 7709.58, 10.

Level 1

Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period must exceed one year. Basic custodial maintenance is performed to keep damage to adjacent resources to an acceptable level and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are "prohibit" and "eliminate."

Roads receiving Level 1 maintenance may be of any type, class, or construction standard, and may be managed at any other maintenance level during the time they are open for

traffic. However, while being maintained at Level 1, they are closed to vehicular traffic, but may be open and suitable for non-motorized uses.

Level 2
Assigned to roads open for use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level. Appropriate traffic management strategies are either to (1) discourage or prohibit passenger cars or (2) accept or discourage high clearance vehicles.

Level 3
Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities.

Roads in this maintenance level are typically low speed, single lane with turnouts and spot surfacing. Some roads may be fully surfaced with either native or processed material. Appropriate traffic management strategies are either "encourage" or "accept." "Discourage" or "prohibit" strategies may be employed for certain classes of vehicles or users.

Level 4
Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane. Some roads may be paved and/or dust abated. The most appropriate traffic management strategy is "encourage." However, the "prohibit" strategy may apply to specific classes of vehicles or users at certain times.

Level 5
Assigned to roads that provide a high degree of user comfort and convenience. These roads are normally double lane, paved facilities. Some may be aggregate surfaced and dust abated. The appropriate traffic management strategy is "encourage."

The maintenance categories vary the frequency and intensity of all maintenance activities. Road maintenance standards are set by the road's maintenance level and are described in the Forest Service's Road Preconstruction Handbook (FSH 7709.58,10). The following table summarizes the maintenance levels of the current system.

Table 3-27. Miles of Road by Operational Maintenance Level

Area	Miles by Operational Maintenance Level					Total
	1	2	3	4	5	
Cedar City	84	753	140	19	15	1,011
Escalante	226	423	145	0	0	794
Pine Valley	9	364	87	8	0	468
Powell	27	694	75	9	0	805
Teasdale	27	291	29	1	0	348
Forest-wide	373	2,525	476	37	15	3,426

The Forest performs road maintenance on the Forest road system as funding allows. On the Dixie National Forest it is estimated that approximately 25 percent of the road system miles

receives some annual maintenance, including maintenance done by the counties. Higher standard "passenger car" roads (Levels 3, 4, and 5) receive more maintenance than lower standard roads (Levels 1 and 2) due to the differences in the amount of use. Priorities are based on environmental concerns and the need to implement Forest projects. The Forest also cooperates with local counties to perform maintenance or improvements on primary Forest access roads.

Maintenance figures for years 2004 through 2007 are displayed in the following tables. All figures include county maintenance.

Table 3-28. Maintenance Figures for Fiscal Year 2004

Dixie National Forest FY 2004 1	Total System Miles (End of FY) 2	Roads Receiving Maintenance (Miles) 3
Maintenance Level 1	377.05	10.00
Maintenance Level 2	2,385.48	315.00
Maintenance Level 3	595.90	405.00
Maintenance Level 4	94.46	40.00
Maintenance Level 5	16.46	16.00
Total Miles	**3,469.35**	**786.00**
% of Road Miles Receiving Maintenance		**23%**
Approximate Annual Cost Per Mile		**$256.00**
Total Cost		**$201,216.00**

Table 3-29. Maintenance Figures for Fiscal Year 2005

Dixie National Forest FY 2005 1	Total System Miles (End of FY) 2	Roads Receiving Maintenance (Miles) 3
Maintenance Level 1	359.13	0.00
Maintenance Level 2	2355.64	220.00
Maintenance Level 3	593.63	403.00
Maintenance Level 4	87.17	60.00
Maintenance Level 5	16.46	16.00
Total Miles	**3,412.03**	**699.00**
% of Road Miles Receiving Maintenance		**20%**
Approximate Annual Cost Per Mile		**$267.00**
Total Cost		**$186,633.00**

Table 3-30. Maintenance Figures for Fiscal Year 2006

Dixie National Forest FY 2006 1	Total System Miles (End of FY) 2	Roads Receiving Maintenance (Miles) 3
Maintenance Level 1	362.00	0.00
Maintenance Level 2	2334.52	398
Maintenance Level 3	593.63	474
Maintenance Level 4	87.17	87
Maintenance Level 5	16.46	15
Total Miles	**3,393.78**	**974**
% of Road Miles Receiving Maintenance		**28%**
Approximate Annual Cost Per Mile		**$300.00**
Total Cost		**$292,200.00**

Table 3-31. Maintenance Figures for Fiscal Year 2007

Dixie National Forest FY 2007 1	Total System Miles (End of FY) 2	Roads Receiving Maintenance (Miles) 3
Maintenance Level 1	370.50	0
Maintenance Level 2	2522.60	447.00
Maintenance Level 3	474.70	295
Maintenance Level 4	37.20	37
Maintenance Level 5	14.80	15
Total Miles	**3,421.80**	**794**
% of Road Miles Receiving Maintenance		**23%**
Approximate Annual Cost Per Mile		**$350.00**
Total Cost		**$277,900.00**

For a discussion of trail maintenance, see the *Trail Maintenance* section within the *Recreation* section on page 3-103.

3.15.2. Effects Analysis

3.15.2.1. Direct and Indirect Effects

3.15.2.1.1. Effects Common to All Alternatives

All alternatives maintain primary access to major sites and facilities. Alternatives B, C, and D reduce the miles of designated roads, which reduces overall motorized access to the Forest. However, even under Alternative B, which has the lowest miles of designated roads, access to private property, most permitted activities, and forest administrative uses should remain intact.

1. All Operational Maintenance Level 3, 4, and 5 roads (all of which are addressed in the *Roads Analysis Report for the Dixie and Fishlake National Forests* [USDA 2003b]) would

remain open as recommended in the *Roads Analysis Report*. These roads provide important access for Forest management activities and form the backbone of the Forest Transportation System.

2. The existing public access to and through the Forest provided by county and state roads would remain the same for all alternatives. The Forest would continue to work with adjacent counties and private landowners to maintain and improve public access to the Forest as opportunity allows; this coordination would not be dependent on which alternative is selected.
3. Private land access would be provided within National Forest boundaries as required by Section 1323(a) of the Alaska National Interest Lands Conservation Act of 1980. Routes on private land within NFS lands are not the jurisdiction of the Forest Service and would remain open to the public through rights-of-way or easements obtained for purposes of public access. Routes without rights-of-way or easements may not be open to public access, depending on landowner permission.
4. The travel plan does not restrict responses to emergency events to protect human life, property values, structures, or forest resources. These activities would be coordinated through an authorized official.
5. Permitted activities, such as livestock operations, mineral development, and access to special use developments, are authorized through the permit process and operation plan. Some routes are not designated for public use and are depicted as administrative use on the maps of the alternative. In all cases, these permitted uses are non-recreational, intended to allow maintenance of utilities, water improvements, etc., and/or to haul materials needed for the permitted operations. Permit holders and agency officials are allowed motorized access only for official purposes.
6. Pursuant to 36 CFR 212.50 of the final Travel Rule, a number of previous and pending administrative decisions that allow, restrict, or prohibit motor vehicle use on National Forest System roads, trails, or areas have been incorporated as previously designated into this travel planning project.

3.15.2.1.2. Alternative A

Approximately 61 percent (1,150,113 acres) of the Forest currently open seasonally or year-long to motorized, wheeled cross-country travel would remain open. Cross-country travel would remain prohibited on 39 percent, or 735,943 acres, of the Forest. Site-specific planning and enforcement of OHV regulations would occur at current levels. The motorized network of unauthorized routes would continue to grow (USDA 2008l).

This alternative consists of management and restrictions for travel routes and areas as depicted on the 2005 Dixie National Forest Travel Map (USDA 2005a). The Travel Map uses the following designations:

- **L1 and L2 Limited Areas.** Areas available for motorized use subject to certain user restrictions. L1 Use is limited to routes of travel shown on the map. L2 Opportunities and restrictions vary in these areas. Cross-country travel is limited to snowmobile use with 12 inches of snow.
    - **Area Described.** All National Forest System lands located within the boundaries of the Dixie National Forest as it relates to open, restricted, or closed areas, roads, trails as designated on the ground and/or shown on the Dixie National Forest Travel Map.
- **L3 (Duck/Swains Area).** L3 – Special closure area. See attached closure order pertaining to this area.

- **Closure Described.** Any road or trail not designated as open to motorized travel in Area L3 on the Dixie National Forest Travel Map (Open Roads and ATV Trails).
- **Closed Area.** Areas closed to all motorized use. Trails shown in closed areas are for non-motorized use only.
- **Exemptions.** Pursuant to 36 CFR 261.50(e), the following persons are exempt from this Order:
    1. Persons with a permit specifically exempting them from the effect of this Order.
    2. Any Federal, State, or local officer or member or an organized rescue or firefighting force in the performance of an official duty.
- **Other National Forest Lands.** These areas are open to cross-country travel on the current Dixie Travel Map.

3.15.2.1.3. Effects Common to All Action Alternatives (Alternatives B, C, D, and E)

1. Closing the Forest to motorized cross-country travel would reduce the potential for direct and indirect off-route interactions and impacts with other land uses. This would have the effect of reducing actual and potential cumulative impacts to nearly all other resource values and uses on the Forest.
2. The installation of barriers as part of road closure efforts is not expected to generate enough site disturbance to adversely affect biological or physical resource values. In fact, physical barriers are expected to reduce resource impacts and use conflicts by improving compliance with the travel plan.
3. The existing condition of the Forest illustrates the existence of a large number of unauthorized roads (roads not currently part of the National Forest System of roads). While some of these unauthorized routes were user-created through public recreational use, the majority were created over the course of decades by the Forest Service to facilitate range, timber, and special use activities. In some cases these routes have acquired recreational value. This travel plan considers the uses and impacts of unauthorized routes and proposes to add some of them to the system. The miles of route proposed for addition to the system varies by action alternative.
4. Road operation and maintenance activities are not anticipate to change much between the alternatives. Currently, approximately 25 percent of the road system receives annual maintenance. Generally the roads that are receiving this limited annual maintenance would remain open and would continue to receive annual maintenance as funding allows. Many of these roads are the Level 3, 4, and 5 roads noted above on page 3-138 under *Effects Common to All Alternatives*. The lower standard, Level 2, lesser-used roads only receive maintenance to reduce environmental effects and to provide for safety. Currently less than 20 percent of Maintenance Level 2 roads are maintained forest-wide. This number is not expected to increase dramatically unless National direction changes.
5. Routes that are not designated for public or administrative use in this decision would be closed and decommissioned from the National Forest System. If a route is proposed to be closed, the closure method would be the same for all alternatives that recommend that particular closure (USDA 2008l, Appendix A). Some routes proposed for closure would be decommissioned (ripped and seeded) and others would be allowed to revegetate naturally. Some routes proposed for closure are already brushed in (re-vegetating naturally), a process that would be left alone to continue. For roads that are proposed for decommissioning, there would be a one-time cost to accomplish those activities, as detailed in the following tables. Additionally, portions of some routes may require relocation or improvement to meet Forest Service standards; these route sections have been identified through the route evaluation and analysis process.

Authorization of some of the actual road relocation work may require supplemental analysis and, in some cases, a subsequent decision made according to National Environmental Policy Act provisions.

6. There would be impacts in the administration of adding unauthorized routes to the system in that system route numbers and linear events[4] would need to be assigned to each unauthorized route in the Forest's Infra Database. The number of routes in the current 2 percent random sample of Level 2 routes requiring Condition Surveys each year would increase slightly. Signing requirements would increase by adding these unauthorized routes to the Forest Transportation System.

Table 3-32. Decommissioning Costs

Equipment Costs					
Quantity	**Equipment**	**Equipment Rate**	**Labor Rate**	**Total Rate**	**Total Hourly Rate**
1	D-7 Dozer	$133.40	$36.19	$169.59	$169.59

Scarifying Costs			
Equipment	**Estimated Time per Mile**	**Costs**	
	Hours	**Hourly Cost**	**Cost per Mile**
Dozer	16.00	$169.59	$2,713.44

Earthen Barrier			
Equipment	**Estimated Time per Barrier**	**Costs**	
	Hours	**Hourly Cost**	**Cost per Mile**
Dozer	1.00	$169.59	$169.59

Table 3-33. Miles Proposed for Decommissioning by Alternative

Type	Alternative				
	A	**B**	**C**	**D**	**E**
System Miles	0	62	48	31	5
Unauthorized Miles	0	39	32	12	7
Total Miles	0	101	80	43	12

6. Motorized Mixed Use Analysis. NFS roads are designed primarily for use by highway-legal vehicles (motor vehicles that are licensed or certified for general operation on public roads within the State) such as a passenger car or log truck. Some NFS roads also provide recreational access for ATVs and other non-highway-legal OHVs. For the purpose of this document, motorized mixed use is defined as designation of a NFS road for use by both highway-legal and non-highway-legal motor vehicles. Designating NFS roads for motorized mixed use involves safety and engineering considerations.

   The Dixie National Forest's *Draft Engineering Analysis of Motorized Mixed-use on Forest System Roads* demonstrates consideration of the effects on public safety and conflicts

[4] Linear events describe attributes for a road. Linear events include surface type, jurisdiction, and primary maintainer.

among different classes of motor vehicle uses on National Forest system lands and/or neighboring federal lands (USDA 2007b). The Forest is not proposing to authorize motorized mixed use where it is not currently authorized. The analysis includes Mixed Use Analysis Reports and Judgments. The Forest used the direction found in national guidelines and handbooks in preparing the analysis (USDA 2004a, 2005b).

3.15.2.1.4. Alternative B

Under Alternative B, 34 miles of unauthorized routes would be added to the Forest Transportation System, to include routes that must remain open for private property, permitted uses, or administrative access. The remaining 1,424 miles of unauthorized roads would be closed. In this alternative 1,501 miles of motorized system routes would remain open for public access and 1,913 miles of motorized system routes would be closed to the public and removed from the Forest Transportation System. Alternative B retains the fewest miles of motorized routes of all of the action alternatives.

Under Alternative B, 34 miles of unauthorized routes would be added to the Forest Transportation System, including routes that must remain open for private property, permitted uses, or administrative access. The remaining miles of unauthorized routes would be closed. In this alternative 1,913 miles of motorized system routes would be closed to the public. The remaining miles of system routes would remain open for public access. Alternative B retains the fewest miles of motorized routes of all of the action alternatives.

3.15.2.1.5. Alternative C

Under this alternative, 55 miles of unauthorized routes would be added to the system, to include routes that must remain open for private property, permitted uses, or administrative access. The remaining 1,390 miles of unauthorized roads would be closed. In Alternative C 1,670 miles of motorized system routes would remain open for public access and 1,650 miles of motorized system routes would be closed to the public and removed from the Forest Transportation System. Motorized access for recreation and administrative and permitted uses is allowed to a higher degree than under Alternative B.

Under this alternative, 55 miles of unauthorized routes would be added to the system, including routes that must remain open for private property, permitted uses, or administrative access. The remaining miles of unauthorized routes would be closed. In Alternative C 1,650 miles of motorized system routes would be closed to the public. The remaining miles of system routes would remain open for public access. Motorized access for recreation and administrative and permitted uses is allowed to a higher degree than under Alternative B.

3.15.2.1.6. Alternative D

This alternative generally allows for a higher level of motorized access than does Alternative C. Under Alternative D, 151 miles of unauthorized routes would be added to the system (1,301 unauthorized miles would be closed), including routes that must remain open for private property, permitted uses, or administrative access. In this alternative 2,290 miles of motorized system routes would be open for public access and 1,195 miles of motorized system routes would be closed to the public and removed from the Forest Transportation System. Motorized access for recreation and administrative and permitted uses is allowed to a higher degree than under Alternatives B and C. This alternative generally allows for a higher level of motorized access than does Alternative C.

Under Alternative D, 151 miles of unauthorized routes would be added to the system including routes that must remain open for private property, permitted uses, or administrative access. The remaining miles of unauthorized roads would be closed. In this alternative 1,195 miles of motorized system routes would be closed to the public. The remaining miles of system routes would remain open for public access. Motorized access for recreation and administrative and permitted uses is allowed to a higher degree than under Alternatives B and C.

3.15.2.1.7. Alternative E

This alternative provides the most motorized access by designating all system routes as open to public motorized use, with the exception of routes already designated through a specific previous decision. All non-system or unauthorized routes would also be designated as open to public motorized travel and therefore added to the Forest Transportation System. Trails that are currently designated as non-motorized would not be designated for motorized travel under this alternative.

Alternative E designates 1,253 miles of unauthorized routes to the system of routes for motorized travel (those remaining unauthorized routes were identified for closure through previous decisions, which are excluded from analysis as described earlier in this report) , and includes routes that must remain open for private property, permitted uses, or administrative access. Under Alternative E 3,074 miles of motorized system routes would be left open for public access and 557 miles of motorized system routes would be closed to the public and removed from the Forest Transportation System.

This alternative provides the most motorized access by designating all system routes as open to public motorized use, with the exception of routes already designated through a specific previous decision. All non-system or unauthorized routes would also be designated as open to public motorized travel and therefore added to the Forest Transportation System. Trails that are currently designated as non-motorized would not be designated for motorized travel under this alternative.

Alternative E designates 1,253 miles of unauthorized routes to the system of routes for motorized travel (those remaining unauthorized routes were identified for closure through previous decisions, which are excluded from analysis as described earlier in this report), and includes routes that must remain open for private property, permitted uses, or administrative access. Under Alternative E, 557 miles of motorized system routes would be closed to the public. The remaining miles of system routes would remain open for public access.

Table 3-34. Road Mileage Comparison by Alternative

Category	Alternative				
	A	B	C	D	E
System Open	2,922	1,501	1,670	2,290	3,074
System Closed	691	1,913	1,650	1,195	557
Current Decommissioned	(154)	(154)	(154)	(154)	(154)
Current Converted to Trails	(37)	(37)	(37)	(37)	(37)
Total System	3,422	3,223	3,129	3,294	3,440
Difference from Current Condition	0	(199)	(293)	(128)	18
Unauthorized Open	1,111	34	55	151	1,253
Unauthorized Closed	372	1,424	1,390	1,301	233
Total Unauthorized	1,483	1,458	1,445	1,452	1,486
Difference from Current Condition	0	(25)	(38)	(31)	3
Total Miles (Total System + Total Unauthorized)	4,905	4,681	4,574	4,746	4,926
Difference from Current Condition	0	(224)	(331)	(177)	21

3.15.2.1.8. Administrative Routes

Administrative routes are routes that are (or were) typically built by the Forest to remove timber from various areas. Once the timber has been removed and other administrative activities completed, the routes are closed. When closed, these roads must be physically closed with barricades, berms, gates, or other closure devices. Closures of these roads must exceed one year. When opened, these roads may be maintained at any other maintenance level. Maintenance on these roads is only performed for the purposes of drainage control and minimizing erosion.

Table 3-35. Administrative Miles Summary by Alternative

Measure	Alternative				
	A	B	C	D	E
Miles of Administrative Roads (Maintenance Level 1)	631	959	1,037	962	399

3.15.2.1.9. Seasonal Closures

Some roads on the Escalante Ranger District are currently closed seasonally. These seasonally-designated roads are closed to minimize wildlife disturbance or to protect the road surface from wheeled vehicles when conditions are wet and muddy. There are additional routes in each alternative recommended for seasonal closure. These closures would continue to affect fall and spring motorized access for activities like hunting and gathering of forest products.

Table 3-36. Miles of Road with Seasonal Closures by Alternative

Area	Miles by Alternative				
	A	B	C	D	E
Cedar City	0	0	4	9	0
Escalante	87	36	44	64	36
Pine Valley	0	0	1	0	0
Powell	0	0	0	2	0
Teasdale	0	2	4	0	0
Forest-wide	87	38	53	75	36

3.15.2.2. Cumulative Effects

- **Utilities.** Current and historic access for utilities considered as part of the existing condition is ongoing and would continue under all alternatives. Maintenance and access to utilities would continue to require a special use permit with Forest Supervisor approval. There would be no effects to transportation from reasonably foreseeable utility projects.
- **Oil and gas.** Current and historic access for oil and gas considered as part of the existing condition is ongoing and would continue under all alternatives. The Reasonably Foreseeable Development Scenarios (RFDSs) for future oil and gas exploration and development on both the Dixie and Fishlake National Forests predict miles of new road construction and road maintenance, which could impact the Forest Transportation System. These impacts would be the same under all alternatives.
- **Minerals.** Current and historic access for locatable mineral-related exploration and development considered as part of the existing condition is ongoing and would continue under all alternatives. Work associated with locatable minerals (e.g., cinders, sand, and gravel) would continue to require a permit with District Ranger approval. There would be no effects to transportation from reasonably foreseeable mineral projects.
- **Recreation.** Current and historic access for developed recreation considered as part of the existing condition is ongoing and would continue under all alternatives. There are no effects to transportation from reasonably foreseeable developed recreation projects.
- **Vegetation treatments.** Current access for vegetation treatments considered as part of the existing condition is ongoing and would continue under all alternatives. The collection of forest products, such as firewood and Christmas tree removal, would continue to require a permit with District Ranger approval. Effects to transportation from reasonably foreseeable vegetation treatment might occur if permanent routes need to be constructed or if temporary roads are not closed. However, this would be covered under separate NEPA evaluation.
- **Land exchanges.** Current and historic access for land exchanges considered as part of the existing condition is ongoing and would continue under all alternatives. There would be no effects to transportation from reasonably foreseeable land exchanges.
- **Easements.** Current and historic easements considered as part of the existing condition are ongoing and would continue under all alternatives. There may be an effect to transportation from reasonably foreseeable easements because the Forest would be required to administer the terms and conditions of each easement for compliance; these would be the same across all alternatives.
- **Special uses.** Current and historic access for special uses considered as part of the existing condition is ongoing and would continue under all alternatives. Special uses

would continue to require a permit with Forest Supervisor approval. There would be no effects to transportation from reasonably foreseeable special uses.

- **Livestock grazing.** Current and historic access for livestock grazing considered as part of the existing condition is ongoing and would continue under all alternatives. Livestock grazing would continue to require a permit with District Ranger approval. There would be no effects to transportation from reasonably foreseeable livestock grazing.

3.16. Short-term Uses and Long-term Productivity

NEPA requires consideration of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR 1502.16). As declared by Congress, this includes using all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101).

This chapter and the specialist reports prepared for this project provide the required disclosure of effects from anticipated use associated with the current travel plan (Alternative A) and the travel plans proposed in Alternatives B, C, D, and E.

As detailed in this chapter, Alternative A allows the most short-term use of Forest resources, but it would also result in the greatest impact to long-term productivity. The action alternatives provide varying amounts of motorized opportunities, and they have varying impacts to the short-term uses of the Forest. All action alternatives reduce the existing and potential impacts to long-term productive from those of the existing condition.

3.17. Unavoidable Adverse Effects

Effects on the environment that might result from implementation of any of the alternatives are analyzed in this chapter. Impacts from roads and trails cannot be eliminated, though they can be minimized. Under any alternative, unavoidable adverse effects could include:

- Temporary disturbance to wildlife from human activity on designated routes or areas,
- Adverse effects to water quality and associated biota from existence of and travel on designated routes or areas in riparian influence zones, and
- Impacts to soil productivity, including accelerated erosion and sediment delivery, from existence of and travel on designated routes or areas.

3.18. Irreversible and Irretrievable Commitments of Resources

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

With the exception of the two motorized trails proposed for construction in Alternatives D and E, all routes analyzed in this project currently exist on the ground. Road and trail corridors are irretrievable commitments of resources as they can be closed or decommissioned in the future, and the roadbed can be allowed to reclaim naturally or be obliterated and actively reclaimed through management actions.

Soils. All proposed motorized trails represent a total resource commitment; the total commitment for Alternatives D and E is 0.8 acres. Route T34070 is not suited for new motorized trails. Route U24028A is suitable for new construction with proper design features to minimize effects to the soil resource.

Noxious Weeds. Areas of the Forest that contain infestations of noxious weeds would be irretrievably lost to other uses until noxious weed abatement is successful. In some cases, these infestations, if left uncontrolled, could reduce biodiversity. No irretrievable effects have been identified for noxious weeds.

Cultural Resources. Irreversible commitment of resources refers to the loss of future options and applies primarily to the effects of the use of nonrenewable resources such as cultural, paleontological, and traditional ceremonial areas. An irretrievable commitment of resources involves the loss of use of these resources over a period of time due to actions in the areas of these resources such as in the case of traditional ceremonial sites used by the Native Americans. As the population gets older, access to an area where they currently are or have in the past gathered resources for traditional use or access to ceremonial areas is important to them and total closure of roads accessing these resources would constitute an irreversible commitment. Traditional access has changed over the years as the people began to have access to motorized vehicles. Loss of access to these areas of traditional gathering of natural resources is irretrievable but the locations of new natural resources would make it reversible. As ceremonial locations are tired to specific sites and actions associated with these ceremonies can not for the most part be moved to a new location so loss of access to these locations would make it irreversible.

Authorized mitigation of cultural sites prior to disturbance and unauthorized collecting and vandalism would result in an irreversible commitment of the resource. Authorized and unauthorized collection of fossils would result in an irreversible commitment of the resource. Erosion of the soil in the immediate area of these resources caused by unauthorized OHV use would cause irretrievable commitment of the resources. Restoration of unauthorized OHV use near these resources would reverse the commitment to these resources.

3.19. Other Required Disclosures

3.19.1. Forest Plan Consistency

The Motor Vehicle Use Map (MVUM) published after release of the decision will function as the new Travel Map for the Dixie National Forest. As noted on page IV-3 of the Forest Plan, "Review the travel map annually and revise as necessary. The most current revisions will become a part of the management direction for the Forest Plan." The MVUM meets this requirement and will become part of the management direction of the Forest Plan.

In general, all alternatives are compliant with the Forest Plan with the exception of the areas noted below. More detail on each resource area's review of Forest Plan consistency can be found in the specialist reports.

3.19.1.1. Water Resources

Implementation of Alternative A would not be consistent with the Forest Plan goals and objectives, desired future conditions, and standards and guidelines related to the water resource. This is because Alternative A allows cross-country travel on 61 percent of the Forest, which would allow future travel within the 100-foot protection zone.

3.19.1.2. Road Density

Guideline 1 in the Forest Plan under Transportation System Management states, "Road densities should not exceed 2 miles per square mile of wildlife habitat. The higher the road density, the more wildlife habitat effectiveness is decreased" (USDA 1986, p IV-50). In 1998, the Dixie Forest Supervisor provided direction on interpreting and using the two miles per square mile open road density guideline on the Forest. The following question and answer are taken from his memo.

> **Question #5:** How do we apply the guideline to areas currently having more than two miles/square mile?
>
> **Answer:** Where there is an existing condition of open, motorized travelway density greater than the two miles/square mile guideline, the new project should strive to reduce or achieve this guideline. Compliance with the Forest Plan is assumed if habitat effectiveness on the project area remains constant or is increased, even if open, motorized travel density exceeds two miles/square mile (USDA 1998, p 2).

The *Wildlife Specialist Report* analyzed the effects of the alternatives on open motorized road density (OMRD) by WMU for both mule deer (beginning on page 3-55) and Rocky Mountain elk (beginning on page 3-64) (USDA 2008n). The information summarized below refers to OMRDs aggregated for all seasonal ranges. For break downs by seasonal range, see the sections referenced above in this paragraph.

3.19.1.2.1. Mule Deer

Project area (NFS lands in WMU):

- **Alternative A.** The Zion and Paunsaugunt WMUs would have OMRDs exceeding 2 miles/square mile; all other WMUs would have OMRDs below 2 miles/square mile.
- **Alternatives B and C.** The Zion WMU would have an OMRD in excess of 2 miles/per square mile; all other WMUs would be below 2 miles/square mile.
- **Alternative D.** The Zion and Paunsaugunt WMUs would have OMRDs exceeding 2 miles/square mile; all other WMUs would have OMRDs below 2 miles/square mile.
- **Alternative E.** The Zion, Panguitch Lake, and Paunsaugunt WMUs would have OMRDs exceeding 2 miles/square mile; all other WMUs would have OMRDs below 2 miles/square mile.

Cumulative effects area (entire WMU regardless of land ownership):

- **Alternatives A, B, C, and D.** All WMUs would have OMRDs lower than 2 miles/square mile.
- **Alternative E.** The Panguitch Lake WMU would exceed 2 miles/square mile; all other WMUs would have OMRDs below 2 miles/square mile.

3.19.1.2.2. Rocky Mountain Elk

Project area (NFS lands in WMU):

- **Alternative A.** The Zion and Paunsaugunt WMUs would have OMRDs exceeding 2 miles/square mile; all other WMUs would have OMRDs below 2 miles/square mile.
- **Alternatives B and C.** The Zion WMU would have OMRDs exceeding 2 miles/square mile; all other WMUs would have OMRDs below 2 miles/square mile.
- **Alternative D.** The Zion and Paunsaugunt WMUs would have OMRDs exceeding 2 miles/square mile; all other WMUs would have OMRDs below 2 miles/square mile.
- **Alternative E.** The Zion, Panguitch Lake, and Paunsaugunt WMUs would have OMRDs exceeding 2 miles/square mile; all other WMUs would have OMRDs below 2 miles/square mile.

Cumulative effects area (entire WMU regardless of land ownership):

- **Alternatives A, B, C, and D.** All WMUs would have OMRDs lower than 2 miles/square mile.
- **Alternative E.** The Panguitch Lake and Paunsaugunt WMUs would exceed 2 miles/square mile; all other WMUs would have OMRDs below 2 miles/square mile.

3.19.1.3. Northern Goshawk

In 2000 the Forest Plan was amended to add direction for management activities that could affect northern goshawk habitat (USDA 2000e). In addition to adding goals and objectives and standards and guidelines, the amendment provided programmatic mitigation measures for potential environmental effects that may result from future projects and activities.

As discussed in the *Wildlife* section under northern goshawk, direct and indirect effects of Alternative E beginning on page 3-48, Alternative E would not meet the Forest Plan guidelines for planning of the transportation system to minimize and mitigate habitat loss within known northern goshawk PFAs (USDA 2000e, guideline Tc, page CC-24, and guideline X, page CC-

25). This is due to the magnitude of the population negatively affected by the conversion of routes in this alternative. This alternative also counters the Forest Plan direction to maintain habitat for viable populations of MIS, which includes the northern goshawk (USDA 1986).

Effects to goshawk under Alternatives B, C, and D, as described on page 3-48, would be mitigated through the re-designation of PFAs to increase the amount of suitable habitat and the classification of alternate nest areas within their boundaries. These measures are also described in Chapter 2 of this DEIS under *Mitigation Measures*.

3.19.1.4. Cross-country Travel

Cross-country travel is currently allowed on 61 percent of the Forest (USDA 2005a). All of the action alternatives would require an amendment to the Forest Plan in order to comply with the Travel Rule, which prohibits motor vehicle use off designated roads, trails, and areas (36 CFR 212.50 (a)). The amendment would revise all references to cross-country travel to reflect the prohibition on cross-country motorized travel.

3.19.1.5. Scenery Integrity

In 2000 the Forest Plan was amended to move from the Visual Management System to the Scenery Management System. As part of the amendment, the Forest was mapped for **Concern Levels**, which describe the current condition of the scenic resources, and **Scenic Integrity Objectives**, which describe the objectives for management or desired future conditions.

Two motorized trails comprising 1.26 miles are proposed for construction in the Brian Head area on the Cedar City Ranger District in Alternatives D and E. Both of these trails would reduce the Scenic Integrity Objectives of their surrounding areas from High to Moderate, but would still meet the identified Concern Levels as identified in the Forest Plan. As such, the resulting drop in Scenic Integrity Objectives in these two alternatives would be within the parameters of the Forest Plan amendment and no further amendment would be needed. See the *Scenery* section beginning on page 3-113 for more information on the effects of the two trails on scenery and on the 2000 amendment.

3.19.1.6. Inventoried Roadless Areas

Implementation of any of the alternatives would be consistent with the Dixie National Forest's Forest Plan. Every alternative except Alternative A, the No Action Alternative, where cross-county travel is allowed, would reduce the risk of additional impacts to roadless and unroaded and undeveloped characteristics. Alternative E would require approval from the Regional Forester to designate additional system routes within IRAs while the RACR is in place, but no Forest Plan amendment would be required.

3.19.2. Compliance with Laws and Other Direction

3.19.2.1. Endangered Species Act

The Endangered Species Act of 1973 requires that actions of federal agencies do not jeopardize or adversely modify critical habitat of federally-listed species. No critical habitat for any listed aquatic species would be impacted with implementation of any of the alternatives. No critical habitat for any listed terrestrial species would be impacted with implementation of any of the action alternatives (Alternatives B, C, D, and E).

3.19.2.2. Clean Water Act

The Clean Water Act requires each state to implement its own water quality standards. The State of Utah's Water Quality Antidegradation Policy requires maintenance of water quality to protect existing instream Beneficial Uses on streams designated as Category 1 High Quality Waters. All surface waters geographically located within the outer boundaries of the Dixie National Forest, whether on private or public lands, are designated as High Quality Waters (Category 1). This means they will be maintained at existing high quality. New point sources will not be allowed, and non-point sources will be controlled to the extent feasible through implementation of Best Management Practices (BMPs) or regulatory programs (UAC 2008b).

The State of Utah and the Forest Service have agreed through a 1993 Memorandum of Understanding to use the standards and guidelines in the Dixie National Forest's Forest Plan and FSH 2509.22 Soil and Water Conservation Practices (SWCPs) as the BMPs. The use of SWCPs as the BMPs meets the water quality protection elements of the Utah Nonpoint Source Management Plan.

Increased contributions to any 303d listed stream is not anticipated in any alternative except Alternative A, where cross-country travel would allow additional impacts to wetlands, floodplains, and stream channels. The Beneficial Uses and High Quality of water in the streams draining the analysis area would be maintained to the extent feasible during and following project implementation through the proper implementation of Best Management Practices (the Soil and Water Conservation Practices) as described within the project-specific design features.

3.19.2.3. Executive Order 11644 of February 8, 1972

Use of Off-road Vehicles on the Public Lands
As amended by Executive Order 11989 of May 24, 1977.

Executive Order (EO) 11644, as amended, provides provide direction for federal agencies to establish policies and procedures to control and direct the use of OHVs on public lands to: 1) protect the resource of those lands; 2) promote the safety of all users of those lands; and 3) minimize conflicts among various users of those lands. In response, the Forest Service developed regulations at 36 CFR 216, 219, and 295. Under these regulations OHV use can be restricted or prohibited to minimize: 1) damage to soil, watershed, vegetation, or other resources of the public lands; 2) harm to wildlife or wildlife habitats; or 3) conflicts between the use of OHVs and other types of recreation.

Travel planning is an allocation process based on social and resource concerns. The Dixie National Forest has restricted motorized travel to designated routes in some areas of the Forest since the late 1970s. Additionally, the Forest issues a Travel Map that defines travel opportunities and restrictions on Forest roads and trails. The Dixie Travel Map is reissued whenever substantial changes have been made, with the most recent version dated 2005 (USDA 2005a).

Each of the action alternatives analyzed in this EIS makes substantial improvements in reducing redundant routes and minimizing resource impacts and use conflicts as required by 36 CFR 212.55 and EO 11644.

3.19.2.4. Executive Order 11988 of May 24, 1977

Floodplain Management

This order requires the Forest Service to provide leadership and to take action to (1) minimize adverse impacts associated with occupancy and modification of floodplains and reduce risks of flood loss, (2) minimize impacts of floods on human safety, health, and welfare, and (3) restore and preserve the natural and beneficial values served by floodplains.

Hydrology: The Forest Service is proposing to reduce or maintain the number of roads within the riparian influence zone in every alternative except Alternative A, where cross-county travel would allow for additional impacts to floodplains.

Aquatic Biota: None of the alternatives would result in an increase in impacts within floodplain areas. Alternative A would result in a continuation of the current motorized travel management strategy across the Forest. All action alternatives would result in a decrease of impacts within floodplain areas, primarily through the elimination of open cross-country travel on the Forest. Thus, all alternatives ultimately comply with the intent of Executive Order 11988.

3.19.2.5. Executive Order 11990 of May 24, 1977

Protection of Wetlands

This order requires the Forest Service to take action to minimize destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands.

Hydrology: The Forest Service is proposing to reduce or maintain the number of roads within the riparian influence zone in Alternatives B, C, and D. In Alternatives A and E, road density in the riparian influence zones would either increase or remain the same. In Alternative A, cross-country travel would allow for additional impacts to wetlands, while in Alternative E, road density in riparian influence zones would increase.

Aquatic Biota: None of the alternatives would result in an increase in impacts within wetland and riparian areas. Alternative A would result in a continuation of the current motorized travel management strategy. All action alternatives would result in a decrease of impacts within

wetland and riparian areas, primarily through the elimination of open cross-country travel on the Forest. Thus, all alternatives ultimately comply with the intent of Executive Order 11990.

3.19.2.6. Executive Order 12898 of February 11, 1994

Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations

Executive Order 12898 directs the agency to identify and address, "...as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...." In its outreach and scoping (public involvement) processes, the forest did not identify any potentially disproportionately high and adverse human-health or environmental effects to minority or low-income populations.

The Dixie National Forest is located within six counties: Garfield, Iron, Kane, Piute, Washington, and Wayne. Within these counties, the largest minority groups are Native Americans and Hispanics of any race. Their percentage of the total populations of these counties in 2000 is shown in the table below.

Table 3-37. Native American and Hispanic Populations by County

County	American Indian and Alaska Native Population (% of Total)	Hispanic (of any Race) Population (% of Total)
Garfield	1.8	2.9
Iron	2.2	4.1
Kane	1.6	2.3
Piute	1.2	4.5
Washington	1.5	5.2
Wayne	0.4	2.0

Source: Utah Governor's Office of Planning and Budget 2003.

The Native American Tribes bordering the Dixie are the Navajo, Hopi, Southern Utah Paiute, and Kaibab Paiute. The Forest consulted with the Tribes through letters during the scoping period. The alternatives have been analyzed for their effect on the human and natural environment, and specifically on their effect to cultural resources. See the *Cultural Resources* section of this chapter beginning on page 3-130 and the *Cultural Resources Specialist Report* (USDA 2008b) for more information.

Low-income populations are present in the six counties. The following information is from the Utah Governor's Office of Planning and Budget (GOPB 2003).

- As of 1999, 8.1 percent of Garfield County's population was in poverty (the federally established poverty threshold in 1999 for a family of four was $16,895). Garfield County's economy in the past was based on lumber, farming, and cattle. Now much of the economy is based on tourism, spurred in part by the establishment of Grand Staircase-Escalante National Monument. Slow job growth and relatively high unemployment are constant concerns.

- Iron County had a 19.2 percent poverty rate in 1999. It has a more balanced and broadly based economy than many other southern Utah counties. Cedar City, the largest community, is a regional trade center and supplier of services. It is also home to Southern Utah University, the Utah Shakespearean Festival, and other festivals. Proximity to national parks and monuments is also an important element in Cedar City's economy.
- Kane County had a 7.9 percent poverty rate in 1999. Recreation and tourism, based primarily on Lake Powell and national parks and monuments, have long been a substantial part of the county's economy.
- Piute County had a 16.2 percent poverty rate in 1999. Agriculture is the primary employer in the county, although government employment also plays an important role. Tourism has not played as large a role as in the surrounding counties, but many businesses rely on some tourist trade to remain viable.
- Washington County had a poverty rate of 11.2 percent in 1999. Washington is the most urbanized county in southern Utah. While it began as an agricultural area, tourism and winter residences began to change the region's character in the 1960s. As St. George grew into an urban area, trade, transportation, and utilities became the largest sectors of the county's economy.
- Wayne County had a 15.4 percent poverty rate in 1999. Agriculture was the dominant industry into the 1980s. Since then, agriculture's economic role has declined, and the tourism and education sectors (e.g., youth wilderness therapy programs) have grown significantly.

3.19.2.7. Executive Order 13186 of January 10, 2001

Responsibilities of Federal Agencies To Protect Migratory Birds

Executive Order 13186 directs federal agencies to protect migratory birds by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practical, adverse impacts on migratory birds resources when conducting agency actions. The Migratory Bird Treaty Act prohibits the taking of migratory birds, their parts, nests, eggs, and nestlings.

On August 1, 2007, the National Forests in Utah formalized an updated state-wide strategy for addressing migratory birds in Forest Service planning and project documents (MacWhorter 2007). A total of 201 species of migratory birds have breeding habitat on the Dixie National Forest. The six bird species selected for this analysis were derived from a compilation of species included in the Utah Partners in Flight Conservation Strategy (Parrish et al. 2002, p 52), the Utah Comprehensive Wildlife Conservation Strategy (Gorell et al. 2005, pp 74-95), and the U.S. FWS' Birds of Conservation Concern bird lists (USDA 2008n, Appendix C).

For this analysis, the black-rosy finch, black-throated gray warbler, Brewer's sparrow, broad-tailed hummingbird, gray vireo, and yellow-billed cuckoo were selected as representative migratory priority species to analyze the effects of road impacts on potentially suitable habitats. The discussion on these species is located in the *Wildlife* section, which begins on page 3-31.

3.19.2.8. Executive Order 13443 of August 16, 2007

Facilitation of Hunting Heritage and Wildlife Conservation

This order directs federal agencies that have programs and activities that have a measurable effect on public land management, outdoor recreation, and wildlife management to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat.

This DEIS and the associated specialist reports have considered the management of wildlife habitats (*Wildlife* and *Aquatic Biota* reports), trends in and effects on hunting opportunities, and economic and recreational values of hunting (*Social and Economic* and *Recreation and Scenery* reports). Resource specialists have considered the programs and plans of other state and federal wildlife agencies, have worked collaboratively with them in their professional roles, and have coordinated with them in development of this travel management plan. These other agencies have been kept abreast of this travel management plan (see Chapter 4: Consultation and Coordination).

3.19.2.9. Roadless Area Conservation Rule

The Forest Service identified IRAs nationwide as part of its 1972-1985 Roadless Area Review and Evaluation process. The purpose of the process was to identify all lands exhibiting wilderness characteristics, which could be considered for inclusion in the National Wilderness Preservation System. All the IRAs in the nation were reviewed again by the Forest Service in 1999 under the Roadless Area Conservation Initiative. The initiative recognized the value of large tracts of land not yet fragmented by roads and sought to protect these areas from increasing development pressure. In November 2000, the Forest Service issued the Final EIS for the proposed Roadless Area Conservation Rule (RACR), which was published in the Federal Register on January 21, 2001 (66 FR 3244).

The RACR currently applies to Forest Service actions in all IRAs. RACR prohibits a Forest Service responsible official from approving road construction and reconstruction and the cutting, sale, or removal of timber in IRAs except when the responsible official determines certain circumstances apply. The rule also does not apply in the following circumstances:

1. A road is needed to protect public health and safety in cases of an imminent threat of flood, fire, or other catastrophic event that, without intervention, would cause the loss of life or property.
2. A road is needed to conduct a response action under the Comprehensive Environmental Response, Compensation, and Liability Act or to conduct a natural resource restoration action under the Act, Section 311 of the Clean Water Act, or the Oil Pollution Act.
3. A road is needed pursuant to reserved or outstanding rights, or as provided for by statute or treaty.
4. Road realignment is needed to prevent irreparable resource damage that arises from the design, location, use, or deterioration of a classified road and that cannot be mitigated by road maintenance. Road realignment may occur under this paragraph only if the road is deemed essential for public or private access, natural resource management, or public health and safety.

5. Road reconstruction is needed to implement a road safety improvement project on a classified road determined to be hazardous on the basis of accident experience or accident potential on that road.
6. The Secretary of Agriculture determines that a Federal Aid Highway project, authorized pursuant to Title 23 of the United States Code, is in the public interest or is consistent with the purposes for which the land was reserved or acquired and no other reasonable and prudent alternative exists.
7. A road is needed in conjunction with the continuation, extension, or renewal of a mineral lease on lands that are under lease by the Secretary of the Interior as of January 12, 2001 or for a new lease issued immediately upon expiration of an existing lease. Such road construction or reconstruction must be conducted in a manner that minimizes effects on surface resources, prevents unnecessary or unreasonable surface disturbance, and complies with all applicable lease requirements, land and resource management plan direction, regulations, and laws. Roads constructed or reconstructed pursuant to this paragraph must be obliterated when no longer needed for the purposes of the lease or upon termination or expiration of the lease, whichever is sooner.

Several groups and states have filed lawsuits challenging the 2001 RACR. As a result of ruling on February 6, 2007, the 2001 RACR currently governs the management of IRAs on NFS lands.

3.20. Resources Not Discussed in Detail

3.20.1. Air Quality

As required by the Clean Air Act, the Environmental Protection Agency (EPA) has established health-based National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. NAAQS have been set for the following six principal pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM), ozone (O_3), and sulfur dioxide (SO_2).

The State of Utah Department of Environmental Quality, Division of Air Quality, monitors the levels of these pollutants. When pollutants are above specified levels, an area is described as a non-attainment area; when below specified levels, an area is described as an attainment area. The Dixie National Forest is in attainment for all NAAQS pollutants (UDAQ 2006).

In addition to NAAQS, federal Prevention of Significant Deterioration regulations, added to the Clean Air Act by amendment in 1977, limit the degradation of air quality in any area that is in attainment. All areas are in one of three classes: Class I, II, or III. Class I areas include wilderness areas meeting specific criteria and all national parks over 6,000 acres in size. Class III designation is for industrial areas. All other areas are considered Class II. The Dixie National Forest is a Class II area for air quality, while neighboring Bryce Canyon, Capitol Reef, and Zion national parks are Class I areas (UAC 2008a).

Motorized vehicle use on the Forest can contribute to air pollution through particulate matter (fugitive dust from travel on unpaved surfaces) and emission of carbon monoxide. All action alternatives would reduce fugitive dust sources through a reduction in the miles and/or areas open to motorized travel (while Alternative E would increase the miles of designated routes, the elimination of cross-country travel on 61 percent of the Forest would still result in a decrease in potential fugitive dust sources). The amount of carbon monoxide emitted from recreational motorized vehicle use or administrative motorized vehicle use in implementing the travel plan is not expected to vary significantly between alternatives. Even under Alternative A there would be no increase in impacts to air quality over the existing condition where the Dixie National Forest is in attainment.

Attainment of air quality standards would likely continue under all alternatives. Implementation of any of the alternatives is not expected to negatively affect air quality or affect the Forest's Class II classification or the Class I designation of any of the national parks in southern Utah.

Chapter 4: Consultation and Coordination

Chapter 4: Consultation and Coordination

4.1. Preparers and Contributors

Table 4-1. Interdisciplinary Team Members

Name and Unit	Qualifications	Team Role/Responsibility
Lydia Allen, Cedar City and Pine Valley RDs	West Zone Wildlife Biologist	Route evaluation, Wildlife Specialist Report
LeeAnn Beekman, Supervisor's Office	GIS Specialist	GIS data management, mapping
David Bolsover, Supervisor's Office	Writer/Editor	Project Record, Environmental Justice (March 2005 – May 2007)
Steven Brazier, Supervisor's Office	Forest Fisheries Biologist	Route evaluation, Aquatic Biota Specialist Report
Chris Butler, Cedar City and Pine Valley RDs	West Zone Hydrologist	Route evaluation, Hydrology Specialist Report
Andi Falsetto, Supervisor's Office	Writer/Editor, Forest Plan Revision Team	Team Leader; Writer/Editor (July 2007 – present)
Kirk Flannigan, Pine Valley RD	Recreation, Special Uses, and Wilderness	Recreation and Scenery Specialist Report, Special Uses Specialist Report (September 2007 – present)
Bill Goodman, Escalante and Powell RDs	East Zone Hydrologist	Route evaluation, Hydrology Specialist Report
Keith Harris, Supervisor's Office	NEPA Coordinator	Roadless and Unroaded and Undeveloped Specialist Report, project oversight
Marian Jacklin, Supervisor's Office	Forest Archaeologist	Route evaluation, Cultural Resources Specialist Report
Rich Jaros, Supervisor's Office	Soil and Water Program Manager	Soils Specialist Report
Lew Jump, Contractor	Vegetation Specialist	Vegetation and Fire and Fuels Specialist Report
Matt Lee, Supervisor's Office	GIS Specialist	GIS data management, mapping
Susan Leslie, Supervisor's Office	Civil Engineering Technician	Route evaluation, Transportation Specialist Report, Data Management
Noelle Meier, Supervisor's Office	Forest Landscape Architect/ Recreation Program Manager	Team Leader; route evaluation, Recreation and Scenery Specialist Report; Social and Economic Specialist Report (March 2004 – June 2007)
Gretchen Merrill, Supervisor's Office	Public Service Staff Officer	Project oversight
Brian Monroe, Cedar City RD	Range Management Specialist	Rare Plants Specialist Report
Laurie Parry, Supervisor's Office	GIS Specialist	GIS data management, mapping
Ron Riggs, Powell RD	Civil Engineering Technician	Route evaluation, Transportation Specialist Report (July 2004 – July 2007)

Name and Unit	Qualifications	Team Role/Responsibility
Kathy Slack, Supervisor's Office	Forest Realty Specialist/ Special Uses	Route evaluation
Lucretia Smith, T.E.A.M.S.	GIS Group Leader, Range Specialist	Livestock Grazing Specialist Report, Noxious Weeds Specialist Report, Rare Plants Specialist Report, Data Management

Table 4-2. Forest Leadership Team Members

Name	Position and Unit
Joseph G. Black (retired)	Forest Engineer, Dixie National Forest
Kenton Call	Public Affairs Officer, Dixie National Forest
Davida Carnahan	Public Affairs Officer, Fishlake National Forest
Mary Erickson (transferred)	Forest Supervisor, Fishlake National Forest
Dayle Flanigan	Cedar City District Ranger, Dixie National Forest
Diane Freeman	Acting Forest Supervisor, Fishlake National Forest
Glen Heaton	Administrative Officer, Dixie and Fishlake National Forests
Bevan Killpack	Pine Valley District Ranger, Dixie National Forest
Gina Lampman	Escalante District Ranger, Dixie National Forest
Rob MacWhorter	Forest Supervisor, Dixie National Forest
Gretchen Merrill	Public Service Staff Officer, Dixie National Forest
Donna Owens	Powell District Ranger, Dixie National Forest
Max Reid	Public Service Staff Officer, Fishlake National Forest
Fran Reynolds (transferred)	Public Affairs Officer, Dixie National Forest
Kurtis Robins	Fremont River District Ranger, Fishlake National Forest
Bob Russell (retired)	Forest Supervisor, Dixie National Forest
Kevin Schulkoski	Ecosystem Staff Officer, Dixie National Forest

Most all ranger district and Supervisor's Office employees assisted in the Roads Analysis process, district-level route evaluation, reviews of alternatives, review of specialist reports, and/or provided general support to the project.

Table 4-3. Employees Providing Project Support

Name and Unit	Position
Keith Adams, Escalante RD	Assistant Fire Management Officer
Dave Bell, Fremont River RD	Recreation Specialist
Evan Boshell, Powell RD	Range Management
Joni Brazier, Cedar City RD	Hydrologist
Cindy Calbaum, Escalante RD	Recreation Specialist/Wilderness
Bryan Carter (transferred), Cedar City RD	Recreation Technician/OHV Manager
Alton Chappell, Fremont River RD	Recreation
Gregg Christensen, Powell RD	Zone Fuels Specialist
Daniel Condie, Cedar City RD	Range Management
Garry Domis (transferred), Cedar City RD	Silviculturist
Dirk Durfey, Escalante RD	Range
Phil Eisenhauer, Supervisor's Office	Forest Silviculturist
Robert Fillmore (retired), Fremont River RD	Timber Sale Administrator
Nick Glidden, Supervisor's Office	Forest Wilderness, Trails, and Dispersed Recreation Specialist

Name and Unit	Position
Chett Hatch, Powell RD	Assistant Fire Management Officer
Bill Hipp, Pine Valley RD	Recreation Manager
Randy Houston, Cedar City RD	Recreation Technician
Frank Jones, Pine Valley RD	Range Management
Dave Keefe, Escalante RD	Supervisory Forester
Mark Loewen, Supervisor's Office	Vegetation Specialist
Mark Madsen, Supervisor's Office	Forest Botanist
Amanda McAdams, Dixie and Fishlake NFs	Fire Ecologist
Dan Misciagna, Pine Valley RD	Recreation
Max Molyneux (retired), Supervisor's Office	Forest Landscape Architect
Wayne Monger, Pine Valley RD	Fire Prevention Technician
Ron Mortensen, Escalante RD	Range Management
Andrew Orlemann, Escalante RD	Lands/Special Uses, NEPA Coordinator
Colby Peterson, Cedar City RD	Forester
Justin Peterson, Powell RD	Range/Recreation
Joe Rechsteiner, Powell RD	Recreation Specialist
Ron Rodriguez, Dixie and Fishlake NFs	Wildlife Biologist
Randy Russell, Pine Valley RD	Range Management
Pam Salmond, Supervisor's Office	Office Automation Assistant
Jake Schoppe, Powell RD	Wildlife Biologist
Cindy Sidles, Pine Valley RD	Fuels Specialist
Boyd Smith, Powell RD	Resource Clerk
Bryant Sorensen (retired), Supervisor's Office	Transportation Engineer
Joanne Stenten, Fremont River RD	Wildlife Biologist
David Tait, Fishlake National Forest	Forest Botanist
Kent Traveller (retired), Cedar City RD	Recreation Manager
Vicki Tyler, (transferred)Supervisor's Office	Writer/Editor
Charlie Vaughn, Washington Office	Law Enforcement (Special Agent)
Kevin Wheeler, Cedar City RD	Forestry Technician
Nate Yorgason, Cedar City and Pine Valley RDs	West Zone Wildlife Biologist
Lisa Young, Escalante RD	Wildlife Biologist

Advanced Resource Solutions, Inc., was contracted to provide technical support for the route evaluation process. The individuals listed in the following table worked with the Interdisciplinary Team in the route evaluation process.

Table 4-4. ARS, Inc. Employees

Name	Position
Nate Holland	Planner
David Kiel	GIS/Software Specialist
Ren Scammon	Planner/Software Specialist
Les Weeks	Land Use/Recreation Planner

4.2. Distribution of the Environmental Impact Statement

Hard copies of the DEIS are available for review at all Dixie National Forest offices and the Supervisor's Office and Fremont River Ranger District on the Fishlake National Forest.

Dixie National Forest
Supervisor's Office and
Cedar City Ranger District
1789 N Wedgewood Lane
Cedar City, Utah 84720

Escalante Ranger District
755 W Main Street
Escalante, Utah 84726

Pine Valley Ranger District
196 E Tabernacle Street, Suite 40
St. George, Utah 84770

Powell Ranger District
225 E Center Street
Panguitch, Utah 84759

Fishlake National Forest
Supervisor's Office
115 E 900 N
Richfield, Utah 84701

Fremont River Ranger District
138 S Main Street
Loa, Utah 84747

Copies are also available for review at the following libraries:

- Cedar City Public Library
- Garfield County Bookmobile Library
- Garfield County Bookmobile Library, Escalante Branch
- Kanab City Library
- Kane County Bookmobile Library
- Panguitch City Library
- Parowan Public Library
- Piute County Bookmobile Library
- Washington County Library
- Washington County Library, Enterprise Branch
- Washington County Library, Hurricane Valley Branch
- Washington County Library, New Harmony Branch
- Washington County Library, Santa Clara Branch
- Washington County Library, Springdale Branch
- Wayne County Bookmobile Library

This section lists those individuals and organizations who received hard copies or CDs of this DEIS by the date this document was prepared for printing. We will continue to provide hard copies and CDs to those who request them. This DEIS is also available online on the Dixie National Forest's website at http://www.fs.fed.us/r4/dixie/projects/MTP.

Federal Officials

Congressman Rob Bishop
Congressman Chris Cannon
Congressman Jim Matheson

Senator Bob Bennett
Senator Orrin G. Hatch

Tribes

Chemehuevi Tribe
Havasupai Tribe
Hopi Tribe
Hualapai Tribe
Indian Peak Band of Paiutes
Kaibab Paiute Tribe
Kanosh Band of Paiutes
Koosharem Band of Paiutes
Las Vegas Paiute Tribe
Moapa Band of Paiute
Moapa Tribe
Navajo Nation Forestry
Navajo Nation Traditional Cultural Program
Paiute Indian Tribe
San Juan Paiute
Shivwits Band of Paiutes

Federal Agencies

Bureau of Land Management
- Arizona Strip Field Office
- Cedar City Field Office
- Kanab Field Office
- Richfield Field Office
- St. George Field Office

Federal Aviation Administration, Northwest Mountain Region
Forest Service
- Fishlake National Forest
- Manti-La Sal National Forest
- Kaibab National Forest, North Kaibab Ranger District

National Park Service
- Capitol Reef National Park
- Cedar Breaks National Monument

Natural Resources Conservation Service, Loa Service Center
U.S. Army Engineer Division, South Pacific
U.S. Coast Guard, Environmental Management
U.S. Department of Energy, Office of NEPA Policy and Compliance
U.S. Department of the Interior, Office of Environmental Policy and Compliance
U.S. Environmental Protection Agency
- Office of Federal Activities, NEPA Compliance Division
- EIS Review Coordinator

U.S. Fish and Wildlife Service, Utah Field Office
USDA National Agricultural Library

Utah State Agencies

Governor's Office of Planning and Budget, Resource Development Coordinating Committee
Utah Department of Natural Resources
    Division of Water Quality
    Division of Wildlife Resources
Utah Department of Transportation
Piute Soil Conservation District

County, City, and Other Local Agencies

Five County Association of Governments
Six County Association of Governments
Garfield County
Iron County
Kane County
Piute County
Washington County
Wayne County
Escalante City
Panguitch City

Organizations and Businesses

Armstrong Oil & Gas Inc.
Back Country Horsemen of Utah, Southwest Chapter
Boulder Community Alliance
Brian Head OHV Association
Burton Livestock
Campfire Wood Products
Evans Beefmasters
Garkane Energy
Grand Canyon Trust
Grand Canyon Wildlands Council
Magotsu Water Company
Mammoth Creek Home Owners Association
Moqui Motel
Off-Road Business Association
Outlaw Trail
Pintura Irrigation Company
Rim Tours
Ruby's Inn
Sand Rock Ridge Riders ATV Club
Second Nature Entrada
Slick Rock Ranch
Standard Energy Corporation
Sunset Cliffs Inc.
Swains Creek Pines Lot Owners Association
The Wilderness Society
Tri-State ATV Club
Utah Environmental Congress
Utah Snowmobile Association

Wasatch Mountain Club
White Sage Ranch
Wildlands CPR

Individuals

Chad and Susann Beach
Belles Family
Michael A. L. Bissuett
Peggy Bogart
Jim Bohlander
Craig Booth
Leo and Yoli Bounds
Bryan Carter
Jim Case
Charles Chappell
Kent Coats
Kathleen A. Engberg
John Forsyth
Barbara Fullman
James and Susan Gibbs
Stan Grunewald
Nancy Harrison-Williams
Jana Hassett
Terry Kelly
Therese Meyer
Todd R. Minchey
Charles S. Peterson
Jim Pettis
Karl Pohlmann
Ronald M. Roth
Mike Russell
Rex B. Smith
Richard Spotts
Rita Martin Squillante
Daniel Stoy
Brian Swanson
J. Kent Taylor
Dave and Dorothy Uherka
Roy P. Urie
Keith Watts
Earl Wengreen

Appendix A: Data Tables and Designation Key

Appendix A: Data Tables and Designation Key

The tables in this appendix display route data broken out by ranger district. This is the same data displayed in the aggregated forest-wide tables in Chapter 2. All mileages are rounded to the nearest 1 mile. The designation key, including crosswalks to the open and closed summary and the Motor Vehicle Use Map (MVUM) designations, is located on page A-9.

Table A-1. Route Designation by Alternative – Cedar City Ranger District

Designation	Miles by Alternative				
	A	B	C	D	E
Administrative	231	331	317	287	202
Closed Classified	78	250	198	149	67
Closed Unauthorized	210	368	340	312	127
Existing Motorized Trail	46	46	46	46	46
Existing Non-motorized Trail	143	142	142	143	135
Existing Highway	67	67	67	67	67
Not Closed (Unauthorized)	182	0	0	0	0
Open – Street Legal	28	49	18	61	18
Open to All	724	414	511	606	1,046
Proposed Admin/Permittee ATV Only	0	0	0	0	0
Proposed Motorized Trail	1	32	46	13	1
Proposed Motorized Trail Construction	0	0	0	1	1
Proposed Non-motorized Trail	0	9	18	9	0
Seasonal	0	0	4	9	0
Total	**1,708**	**1,708**	**1,708**	**1,708**	**1,709**

Differences between totals by alternative due to minor mapping discrepancies in GIS.

Table A-2. Route Designation by Alternative – Escalante Ranger District

Designation	Miles by Alternative				
	A	B	C	D	E
Administrative	305	236	285	408	169
Closed Classified	19	256	196	65	17
Closed Unauthorized	62	266	249	213	72
Existing Motorized Trail	21	25	16	27	18
Existing Non-motorized Trail	134	132	132	133	133
Existing Highway	28	28	28	28	28
Not Closed (Unauthorized)	184	0	0	0	0
Open – Street Legal	1	1	2	1	0
Open to All	517	304	317	358	885
Proposed Admin/Permittee ATV Only	0	0	0	0	0
Proposed Motorized Trail	5	28	29	21	6
Proposed Motorized Trail Construction	0	0	0	0	0
Proposed Non-motorized Trail	1	53	66	47	1
Seasonal	87	36	44	64	36
Total	**1,364**	**1,364**	**1,364**	**1,364**	**1,364**

Table A-3. Route Designation by Alternative – Pine Valley Ranger District

Designation	Miles by Alternative				
	A	B	C	D	E
Administrative	15	183	160	55	5
Closed Classified	4	78	36	35	3
Closed Unauthorized	5	174	159	131	0
Existing Motorized Trail	0	0	0	0	0
Existing Non-motorized Trail	203	203	203	203	202
Existing Highway	18	18	18	18	18
Not Closed (Unauthorized)	193	0	0	0	0
Open – Street Legal	0	0	0	0	0
Open to All	482	215	254	456	692
Proposed Admin/Permittee ATV Only	0	0	0	0	0
Proposed Motorized Trail	0	10	69	12	0
Proposed Motorized Trail Construction	0	0	0	0	0
Proposed Non-motorized Trail	0	39	20	9	0
Seasonal	0	0	1	0	0
Total	**920**	**920**	**920**	**920**	**922**

Differences between totals by alternative due to minor mapping discrepancies in GIS.

Table A-4. Route Designation by Alternative – Powell Ranger District

Designation	Miles by Alternative				
	A	B	C	D	E
Administrative	50	137	196	171	22
Closed Classified	11	259	152	93	2
Closed Unauthorized	65	429	403	334	8
Existing Motorized Trail	9	9	9	9	9
Existing Non-motorized Trail	208	209	208	208	204
Existing Highway	8	8	8	8	8
Not Closed (Unauthorized)	377	0	0	0	0
Open – Street Legal	0	0	0	0	0
Open to All	693	339	372	563	1,169
Proposed Admin/Permittee ATV Only	0	0	0	0	0
Proposed Motorized Trail	0	13	42	15	0
Proposed Motorized Trail Construction	0	0	0	0	0
Proposed Non-motorized Trail	0	18	32	18	0
Seasonal	0	0	0	2	0
Total	**1,420**	**1,420**	**1,420**	**1,420**	**1,420**

Table A-5. Route Designation by Alternative – Teasdale Portion of the Fremont River Ranger District

Designation	Miles by Alternative				
	A	B	C	D	E
Administrative	30	72	79	41	2
Closed Classified	92	200	175	118	90
Closed Unauthorized	12	99	97	83	6
Existing Motorized Trail	21	21	18	21	17
Existing Non-motorized Trail	132	136	131	134	130
Existing Highway	18	18	18	18	18
Not Closed (Unauthorized)	87	0	0	0	0
Open – Street Legal	3	3	3	3	3
Open to All	352	172	194	301	479
Proposed Admin/Permittee ATV Only	0	0	0	0	0
Proposed Motorized Trail	0	9	17	23	2
Proposed Motorized Trail Construction	0	0	0	0	0
Proposed Non-motorized Trail	2	15	13	5	2
Seasonal	0	2	4	0	0
Total	**748**	**748**	**748**	**748**	**748**

Table A-6. Summary of Routes Open and Closed to the Public

Area	Designation	Alternative									
		A		B		C		D		E	
		Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Cedar City	Open to Public	1,171	75%	608	39%	710	45%	794	51%	1,178	75%
	Closed to Public	394	25%	948	61%	855	55%	749	49%	396	25%
	Total	1,565	100%	1,556	100%	1,565	100%	1,543	100%	1,574	100%
Escalante	Open to Public	844	69%	422	36%	437	37%	499	42%	969	79%
	Closed To Public	385	31%	758	64%	730	63%	685	58%	258	21%
	Total	1,229	100%	1,180	100%	1,167	100%	1,184	100%	1,227	100%
Pine Valley	Open to Public	693	97%	243	36%	342	49%	487	69%	712	99%
	Closed to Public	24	3%	435	64%	355	51%	221	31%	8	1%
	Total	717	100%	678	100%	697	100%	708	100%	720	100%
Powell	Open to Public	1,086	90%	368	31%	430	36%	596	50%	1,185	97%
	Closed to Public	126	10%	825	69%	750	64%	598	50%	31	3%
	Total	1,212	100%	1,193	100%	1,180	100%	1,194	100%	1,216	100%
Teasdale	Open to Public	481	78%	226	38%	254	42%	366	60%	519	84%
	Closed to Public	134	22%	371	62%	350	58%	243	40%	97	16%
	Total	615	100%	597	100%	604	100%	609	100%	616	100%
Forest-wide	**Open to Public**	**4,275**	**80%**	**1,867**	**36%**	**2,173**	**42%**	**2,742**	**52%**	**4,563**	**85%**
	Closed to Public	**1,063**	**20%**	**3,337**	**64%**	**3,040**	**58%**	**2,496**	**48%**	**790**	**15%**
	Total	**5,338**	**100%**	**5,204**	**100%**	**5,213**	**100%**	**5,238**	**100%**	**5,353**	**100%**

Differences between totals by alternative due to minor mapping discrepancies in GIS.

Table A-7. Disposition of Unauthorized Routes by Alternative – Cedar City Ranger District

Designation	Alternative									
	A		B		C		D		E	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Closed as "unauthorized"	210	53%	369	94%	341	87%	313	79%	128	32%
Added as "administrative"	<1	<1%	12	3%	26	7%	39	10%	<1	<1%
Added as "open to all"	2	0%	3	<1%	11	3%	25	6%	266	67%
Added as "open to full size vehicles only"	0	0%	4	1%	1	<1%	5	1%	0	0%
Added as "seasonal"	0	0%	0	0%	<1	<1%	1	<1%	0	0%
Added as "proposed motorized trail"	0	0%	3	<1%	11	3%	9	2%	1	<1%
Added as "proposed non-motorized trail"	1	<1%	4	1%	4	<1%	3	<1%	0	0%
Not closed (unauthorized)*	182	46%	0	0%	0	0%	0	0%	0	0%
Total	395	100%	394	100%	394	100%	395	100%	395	100%

Differences between totals by alternative due to minor mapping discrepancies in GIS.
* Only applicable to Alternative A. These are unauthorized routes in the 61% of Forest open to cross-country travel.

Table A-8. Disposition of Unauthorized Routes by Alternative – Escalante Ranger District

Designation	Alternative									
	A		B		C		D		E	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Closed as "unauthorized"	62	19%	265	80%	248	75%	212	64%	72	22%
Added as "administrative"	13	4%	34	10%	50	15%	78	24%	13	4%
Added as "open to all"	72	22%	6	2%	7	2%	11	3%	247	74%
Added as "open to full size vehicles only"	0	0%	<1	<1%	0	0%	0	0%	0	0%
Added as "seasonal"	0	0%	0	0%	0	0%	0	0%	0	0%
Added as "proposed motorized trail"	0	0%	6	2%	8	2%	11	3%	1	<1%
Added as "proposed non-motorized trail"	0	0%	19	6%	19	6%	18	6%	0	0%
Not closed (unauthorized)*	183	55%	0	0%	0	0%	0	0%	0	0%
Total	330	100%	330	100%	333	100%	330	100%	333	100%

Differences between totals by alternative due to minor mapping discrepancies in GIS.
* Only applicable to Alternative A. These are unauthorized routes in the 61% of Forest open to cross-country travel.

Table A-9. Disposition of Unauthorized Routes by Alternative – Pine Valley Ranger District

Designation	Alternative									
	A		B		C		D		E	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Closed as "unauthorized"	5	3%	174	88%	159	80%	131	66%	<1	<1%
Added as "administrative"	0	0%	17	9%	28	14%	19	10%	2	1%
Added as "open to all"	<1	<1%	5	2%	5	3%	37	19%	196	98%
Added as "open to full size vehicles only"	0	0%	0	0%	0	0%	0	0%	0	0%
Added as "seasonal"	0	0%	0	0%	1	0%	0	0%	0	0%
Added as "proposed motorized trail"	0	0%	0	0%	1	0%	6	3%	2	1%
Added as "proposed non-motorized trail"	0	0%	3	1%	5	3%	4	2%	0	0%
Not closed (unauthorized)*	193	97%	0	0%	0	0%	0	0%	0	0%
Total	198	100%	198	100%	198	100%	198	100%	200	100%

Differences between totals by alternative due to minor mapping discrepancies in GIS.
* Only applicable to Alternative A. These are unauthorized routes in the 61% of Forest open to cross-country travel.

Table A-10. Disposition of Unauthorized Routes by Alternative – Powell Ranger District

Designation	Alternative									
	A		B		C		D		E	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Closed as "unauthorized"	65	14%	429	94%	402	89%	334	74%	8	2%
Added as "administrative"	5	1%	18	4%	40	9%	84	18%	5	1%
Added as "open to all"	7	2%	3	1%	6	1%	25	6%	442	97%
Added as "open to full size vehicles only"	0	0%	0	0%	0	0%	0	0%	0	0%
Added as "seasonal"	0	0%	0	0%	0	0%	0	0%	0	0%
Added as "proposed motorized trail"	0	0%	0	0%	1	<1%	7	1%	0	0%
Added as "proposed non-motorized trail"	0	0%	5	1%	5	1%	5	1%	0	0%
Not closed (unauthorized)*	377	83%	0	0%	0	0%	0	0%	0	0%
Total	454	100%	454	100%	454	100%	454	100%	455	100%

Differences between totals by alternative due to minor mapping discrepancies in GIS.
* Only applicable to Alternative A. These are unauthorized routes in the 61% of Forest open to cross-country travel.

Table A-11. Disposition of Unauthorized Routes by Alternative – Teasdale Portion of the Fremont River Ranger District

Designation	Alternative									
	A		B		C		D		E	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Closed as "unauthorized"	12	11%	98	98%	94	94%	82	82%	6	6%
Added as "administrative"	0	0%	1	1%	3	3%	8	8%	0	0%
Added as "open to all"	5	5%	1	1%	1	1%	5	5%	98	94%
Added as "open to full size vehicles only"	0	0%	0	0%	0	0%	0	0%	0	0%
Added as "seasonal"	0	0%	<1	<1%	<1	<1%	0	0%	0	0%
Added as "proposed motorized trail"	0	0%	0	0%	1	1%	4	4%	0	0%
Added as "proposed non-motorized trail"	0	0%	<1	<1%	<1	<1%	<1	<1%	0	0%
Not closed (unauthorized)*	87	84%	0	0%	0	0%	0	0%	0	0%
Total	104	100%	100	100%	100	100%	100	100%	104	100%

Differences between totals by alternative due to minor mapping discrepancies in GIS.
* Only applicable to Alternative A. These are unauthorized routes in the 61% of Forest open to cross-country travel.

Table A-12. Designation Key: Route Designation Descriptions and Crosswalks

Designation	Description	Crosswalk to Open and Closed Summary	Crosswalk to MVUM Designations
Administrative	Maintenance Level 1 routes	Closed to the public	N/A
Closed Classified	Classified routes to be decommissioned from the system	Closed to the public	N/A
Closed Unauthorized	Unauthorized routes to be closed to the public (not added to the system)	Closed to the public	N/A
Existing Motorized Trail*	Motorized trails currently on the system	Open to the public	Trails Open to Vehicles 50" or Less in Width
Existing Non-motorized Trail*	Non-motorized trails currently on the system	Open to the public	N/A
Existing Highway*	Highways currently on the system	Open to the public	Other Public Roads
Not Closed (Unauthorized)	Unauthorized routes in the 61% of the Forest currently open to cross-country travel. Only applicable to Alternative A, the No Action Alternative.	Alt. A - Open to the public Alts. B-E - *Not included in either category*	N/A**
Open – Street Legal	Open to all street legal vehicles; no ATVs permitted	Open to the public	Roads Open to Highway Legal Vehicles Only
Open to All	Open to all motorized vehicles	Open to the public	Roads Open to All Vehicles
Proposed Admin/Permittee ATV Only	Proposed as admin ATV only and permittee ATV only	Closed to the public	N/A
Proposed Motorized Trail	Either a classified road or an unauthorized route proposed to be added to the system as a motorized trail	Open to the public	Trails Open to Vehicles 50" or Less in Width
Proposed Motorized Trail Construction	Proposed new motorized trail construction	Open to the public	Trails Open to Vehicles 50" or Less in Width
Proposed Non-motorized Trail	An unauthorized route proposed to be added to the system as a non-motorized trail	*Not included in either category*	N/A
Seasonal	Seasonal closures for wildlife concerns; open to the public after closure season. All are unique routes; no duplicates of previous categories	Open to the public	Seasonal Designation

* Miles are the same across all alternatives.

** Under Alternative A, those unauthorized routes in the 61% of the Forest currently open to cross-country travel would not be added to the Forest Transportation System and would therefore not appear on the MVUM as routes. However, but again only in Alternative A, those areas currently open to cross-country travel would be shown as "Open to Cross-country Travel" on the MVUM and unauthorized routes within those areas would be available for public use.

N/A: Not applicable as the MVUM only shows those routes open for public motorized use.

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References

A & A Research. 1994. Dixie National Forest customer satisfaction and communication workbook: summary of findings by Dr. E. B. Eiselein. Kalispell, MT.

Adelman, B. J. E., T. A. Heberlein, and T. M. Bonnicksen. 1982. Social psychological explanations for the persistence of a conflict between paddling canoeists and motorcraft users in the Boundary Waters Canoe Area. Leisure Sciences 5(1): 45-61.

Alaska National Interest Lands Conservation Act. U.S. Public Law 96-487. December 2.

Belt, George H., Jay O'Laughlin, and Troy Merrill. 1992. Design of forest riparian buffer strips for the protection of water quality: analysis of scientific literature. Idaho Forest, Wildlife and Range Policy Analysis Group report No. 8. June.

Campbell, Robert B. 2006. Rare plants, management indicator plant species, invasive species. Specialist report for off highway vehicle (OHV) access management and route designation project, Fishlake National Forest. December 5. Richfield, UT.

EPA. *See* U.S. Environmental Protection Agency.

Forman, T. T. and L. E. Alexander. 1998. Roads and their major ecological effects. Annual Review of Ecology and Systematics. 29:207-231.

Forman, T. T. and X. Deblinger. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. Conservation Biology. 14:18-30.

Forman, T. T. and D. Sperling. 2003. Road ecology. Science and solutions. Island Press, Washington, D.C.

Furniss, M. J., T. D. Roelofs, and C. S. Yee. 1991. Road construction and maintenance. American Fisheries Society special publication 19:297-324.

Gelbard, Jonathan L. and Jayne Belnap. 2003. Roads as conduits for exotic plant invasions in a semiarid landscape. Conservation Biology 17(2):420-432.

Gibbons, S. and E. J. Ruddell. 1995. The effect of goal orientation and place dependence on select goal interference among winter backcountry users. Leisure Sciences, 17, 171-183.

GOBP. *See* Utah Governor's Office of Planning and Budget.

Gorell, J. V., M. E. Andersen, K. D. Bunnell, M. F. Canning, A. G. Clark, D. E. Dolse, and F. P. Howe. 2005. Utah comprehensive wildlife conservation strategy. Utah Division of Wildlife Resources, Salt Lake City, UT.

Gucinski, Herman, Michael J. Furniss, Robert R. Ziemer, and Martha H. Brookes, Editors. 2001. Forest roads: a synthesis of scientific information. General technical report PNW-GTR-509. May.

Hammitt, W. E. and D. N. Cole. 1998. Wildland recreation: ecology and management (2nd ed.). New York: John Wiley & Sons, Inc.

Hendee, J. C. and C. P. Dawson. 2002. Wilderness management: stewardship and protection of resources and values (3rd ed.). Colorado: Fulcrum.

Jackson, E. L. and R. A. G. Wong. 1982. Perceived conflict between urban cross-country skiers and snowmobilers in Alberta. Journal of Leisure Research 14(1): 47-62.

Jaros, Rich. 2005. Rendezvous salvage timber sale soils monitoring project. Dixie National Forest.

———. 2007a. Barney Top resource management project soils monitoring. Dixie National Forest.

———. 2007b. Bunker timber sale soils monitoring. Dixie National Forest.

Jump, Lewis. 2008. Vegetation and fire and fuels specialist report: motorized travel plan. Prepared for the Dixie National Forest.

Luce, Charles H. and Thomas A. Black. 2001. Spatial and temporal patterns in erosion from forest roads.

MacWhorter, Robert G. 2007. Letter to U.S. Fish and Wildlife Service regarding migratory bird treaty act on the national forests in Utah. Representing all forest supervisors in Utah. August 1.

Madsen, Mark. 2004. Dixie National Forest rare plant list. Dixie National Forest internal document (taxa with confirmed presence on the Dixie National Forest). February.

Magill, A. W. 1976. The message of vandalism. IN: Vandalism and outdoor recreation: symposium proceedings. USDA Forest Service. General Technical Report PSW-17, 50-54.

Manning, R. E. 1999. Studies in outdoor recreation: search and research for satisfaction (2nd ed.). Corvallis: Oregon State University Press.

McGurk, B. J. and D. R. Fong. 1995. Equivalent roaded area as a measure of cumulative effect of logging. Environmental management; vol. 19, no. 4: pp. 602-621.

Parrish, J. R., F. Howe, and R. Norvell. 2002. Utah Partners in Flight avian conservation strategy. Version 2.0. UDWR publication number 99-40. Utah Partners in Flight Program, Utah Division of Wildlife Resources, Salt Lake City, UT.

PLAE, Inc. 1993. Universal access to outdoor recreation: a design guide. PLAE, Inc. Berkeley, CA.

Ramthun, R. 1995. Factors in user group conflict between hikers and mountain bikers. Leisure Sciences 17(3): 159-169.

Rasker, Alexander, and Holmes. 2003. The changing economy of the west: employment and personal income trends, by region, state, and industry. Sonoran Institute.

Rodriguez, Ron L. 2004a. Dixie National Forest management indicator species monitoring summary, 1986-2002. Cedar City, UT. January.

———. 2004b. Life history and analysis of endangered, threatened, candidate, sensitive, and management indicator species of Dixie National Forest. Cedar City, UT. Revised February.

Satterlund, Donald R. 1972. Wildland watershed management. Pp 273-289.

State of Utah. 2005. 2005 baseline projections. Utah Governor's Office of Planning and Budget.

———. 2006. Notes on the economy 2006: economic summary. Utah Governor's Office of Planning and Budget.

Sullivan, A. P., P. M. Uphus, C. I. Roos, and P. B. Mink. 2002: Inadvertent vandalism: the hidden challenge for heritage resource management. NPS Cultural Resource Management. Volume 25, No. 2.

Switalski, T. A., J. A. Bissonette, T. H. DeLuca, C. H. Luce, and M. A. Madej. 2004. Benefits and impacts of road removal.

Thomas, J. W., H. Black Jr., R. J. Scherzinger, and R. J. Pedersen. 1979. Deer and elk. IN: Thomas, J. W., ed. Wildlife habitats in managed forests – the Blue Mountains of Oregon and Washington. USDA Agriculture Handbook 553. Washington, DC.

Thomas J .W., D. A. Leckenby, M. Henjum, R. J. Pedersen, and L. D. Bryant. 1988. Habitat effectiveness index for elk on Blue Mountain winter ranges. USDA Pacific Northwest Research Station general technical report PNW-GTR-218.

Trombulak, S. C., and C. A. Frissell. 2000. Review of ecological effects of roads on terrestrial and aquatic communities. Conservation Biology. Vol. 14, No. 1. pp 18-30.

UAC. *See* Utah Administrative Code.

UDAQ. *See* Utah Department of Environmental Quality. Division of Air Quality.

UDWR. *See* Utah Department of Natural Resources. Division of Wildlife Resources.

U.S. Census Bureau. *See* U.S. Department of Commerce. U.S. Census Bureau.

USDA. *See* U.S. Department of Agriculture. Forest Service.

U.S. Department of Agriculture. Forest Service. 1986. Land and resource management plan for the Dixie National Forest. As amended.

———. 1995. Landscape aesthetics: a handbook for scenery management. Agriculture Handbook No. 701. Washington, DC.

———. 1996. Road closure and obliteration in the Forest Service. EM-7700-9677 1205.

———. 1998. Implementing the DNF two miles/square mile open road density guideline. Memo to district rangers and staff. Signed by Hugh C. Thompson, Forest Supervisor. February 3.

———. 1999. Soil survey of the Dixie National Forest. Prepared by Jim Bayer.

———. 2000a. Decision notice and finding of no significant impact for noxious weed management on the Dixie National Forest

———. 2000b. Environmental assessment for noxious weed management on the Dixie National Forest.

———. 2000c. Forest Service roadless area conservation final environmental impact statement. November.

———. 2000d. Scenery management system. Amendment to the Dixie National Forest land and resource management plan.

———. 2000e. Utah northern goshawk project decision notice and finding of no significant impacts. Intermountain Region. March.

———. 2001. Forest transportation system analysis; roadless area protection; notice. Federal Register vol. 66, no. 245, pp 65796-65801. 20 December.

———. 2003a. Intermountain Region proposed, endangered, threatened, and sensitive species: known/suspected distribution by forest. December. Technical edits July 2004.

———. 2003b. Roads analysis report for the Dixie and Fishlake National Forests.

———. 2004a. Forest Service handbook 7709.59, chapter 50 supplement 7709.59-2004-1. Traffic studies and other road operation considerations.

———. 2004b. Intermountain Region planning desk guide: a protocol for identifying and evaluating areas for potential wilderness.

———. 2004c. National visitor use monitoring results: June 2004. Dixie National Forest..

———. 2004d. Dispersed campsite inventory, Dixie National Forest.

———. 2005a. Dixie National Forest travel map.

———. 2005b. Guidelines for engineering analysis of motorized mixed use on National Forest System roads. EM-7700-30, 23 pp.

U.S. Department of Agriculture. Forest Service. 2005c. Motor vehicle route and area designation guide. National OHV implementation team. Version 111705.

———. 2006a. 2006 grazing statistical report, Dixie National Forest.

———. 2006b Dixie National Forest motorized travel plan: notice of intent to prepare an environmental impact statement. Federal Register vol. 71, no. 241, pp 75477-75480. 15 December.

———. 2006c. Dixie National Forest motorized travel plan roads analysis report, supplemental to the forest-wide roads analysis.

———. 2006d. October 2006 comprehensive evaluation report: unroaded and undeveloped inventory and evaluation. Dixie and Fishlake National Forests.

———. 2007a. Cumulative effects summary for the motorized travel plan. December.

———. 2007b. Draft engineering analysis of motorized mixed-use on forest system roads. Dixie National Forest.

———. 2007c. Timber suitability – Dixie and Fishlake National Forests. Prepared by Mark Loewen. Version 3.1. May 23.

———. 2008a. Aquatic biota specialist report: motorized travel plan. Prepared by Steve Brazier.

———. 2008b. Cultural resources specialist report: motorized travel plan. Prepared by Marian Jacklin.

———. 2008bb. Draft collaboration and process report. Dixie and Fishlake National Forests proposed forest plan. Unpublished draft. January 8.

———. 2008c. Hydrology specialist report: motorized travel plan. Prepared by Bill Goodman and Chris Butler.

———. 2008d. Livestock grazing specialist report: motorized travel plan. Prepared by Lucretia Smith.

———. 2008e. Noxious weeds specialist report: motorized travel plan. Prepared by Lucretia Smith.

———. 2008f. Rare plants specialist report: motorized travel plan. Prepared by Lucretia Smith and Brian Monroe.

———. 2008g. Recreation and scenery specialist report: motorized travel plan. Prepared by Kirk Flannigan.

———. 2008h. Roadless and unroaded and undeveloped areas specialist report: motorized travel plan. Prepared by Keith Harris.

U.S. Department of Agriculture. Forest Service. 2008i. Social and economic specialist report: motorized travel plan. Prepared by Noelle Meier and C. Kenton Call.

———. 2008j. Soils specialist report: motorized travel plan. Prepared by Rich Jaros.

———. 2008k. Special uses specialist report: motorized travel plan. Prepared by Kirk Flannigan.

———. 2008l. Transportation specialist report: motorized travel plan. Prepared by Susan Leslie.

———. 2008m. Tropic to Hatch 138kV transmission line project. Dixie National Forest, UT. Notice of intent to prepare an environmental impact statement. Federal Register vol. 73, no. 35, pp 9517-9521. February 21.

———. 2008n Wildlife specialist report: motorized travel plan. Prepared by Lydia Allen.

U.S. Department of Commerce. U.S. Census Bureau. 2005a. 100 fastest growing counties.

———. 2005b. 2002 economic census: summary statistics by 2002 NAICS, Beaver County, AZ. Last revised November 7.

———. 2005c. 2002 economic census: summary statistics by 2002 NAICS, Clark County, NV. Last revised October 7.

———. 2005d. 2002 economic census: summary statistics by 2002 NAICS, Coconino County, AZ. Last revised October 7.

———. 2005e. 2002 economic census: summary statistics by 2002 NAICS, Lincoln County, NV. Last revised October 7.

———. 2005f. 2002 economic census: summary statistics by 2002 NAICS, Millard County, AZ. Last revised November 7.

———. 2005g. 2002 economic census: summary statistics by 2002 NAICS, Mohave County, AZ. Last revised October 7.

———. 2005h. 2002 economic census: summary statistics by 2002 NAICS, Sevier County, AZ. Last revised November 7.

U.S. Department of the Interior. U.S. Fish and Wildlife Service. 1993. Last Chance townsendia recovery plan. Region 6.

———. 1994. Desert tortoise (Mojave population) recovery plan. June.

———. 2005. Dixie National Forest TE species concurrence letter. Region 6.

USDI. *See* U.S. Department of the Interior.

U.S. Environmental Protection Agency. 2008. Enviromapper for envirofacts. Mapping result: regulated sites. Accessed 11 March.

Utah Administrative Code. 2008a. Rule R307-405. Permits: major sources in attainment or unclassified areas (PSD). As in effect on February 1, 2008.

Utah Administrative Code. 2008b. Rule R317-2. Standards of quality for waters of the State. As in effect on March 1, 2008. http://www.rules.utah.gov/publicat/code/r317/r317-002.htm.

Utah Department of Environmental Quality. Division of Air Quality. 2006. State of Utah national ambient air quality standards: areas of non-attainment and maintenance (updated July 2006). Map.

Utah Department of Natural Resources. Division of Wildlife Resources. 2006. Utah sensitive species list. October 17. http://dwrcdc.nr.utah.gov/ucdc/ViewReports/SSL101706.pdf.

———. 2007. Deer and elk herd status. Dated March 29, 2007 from T. Bonzo. Utah Division of Wildlife Resources. Cedar City, UT.

———. 2008. Utah big game guidebook 2008: a proclamation of the Utah Wildlife Board.

Utah Governor's Office of Planning and Budget. 2003. People and the forests: social-economic assessment tools and data for forest plan revision. December.

Van Gosen, Brad. 2008. Personal communication, U.S. Geological Survey, Denver Office. January.

Wisdom, M. J., R. S. Hothausen, 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. R. Eames. 2000. Source habitats for terrestrial vertebrates of focus in the Interior Columbia Basin: broad-scale trends and management implications. Volume. 1—Overview. Portland, OR: US Department of Agriculture, Forest Service, Pacific Northwest Research Stations. General technical report PNW-GTR-486.

Acronyms

ATV	All-terrain Vehicle
BBS	Breeding Bird Survey
BCT	Bonneville cutthroat trout
BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRCT	Colorado River cutthroat trout
DEIS	Draft Environmental Impact Statement
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FLPMA	Federal Land Policy and Management Act
FSH	Forest Service Handbook
FSM	Forest Service Manual
FWS	[U.S.] Fish and Wildlife Service
GIS	Geographic Information System
GPS	Global Positioning System
HUC	Hydrologic Unit Code
IRA	Inventoried Roadless Area
MIS	Management Indicator Species
ML	Maintenance Level
MMBF	Million Board Feet
MTP	Motorized Travel Plan
MVUM	Motor Vehicle Use Map
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NF	National Forest
NFMA	National Forest Management Act
NFS	National Forest System
NOI	Notice of Intent
OMRD	Open Motorized Road Density
OHV	Off-highway Vehicle
PFA	Post Fledgling Area (Goshawk)
R4	Region 4 (Intermountain Region)
RACR	Roadless Area Conservation Rule
RAP	Roads Analysis Process
RD	Ranger District
RIZ	Riparian Influence Zone
ROS	Recreation Opportunity Spectrum
SHPO	State Historic Preservation Office
SIO	Scenic Integrity Objective
TAP	Travel Analysis Process
TCP	Traditional Cultural Property
UDEQ	Utah Department of Environmental Quality
UDWR	Utah Department of Wildlife Resources
USC	U.S. Code
USDA	U.S. Department of Agriculture
SHPO	State Historic Preservation Office
WMU	Wildlife Management Unit

Glossary

100-year flood
A flood event of such magnitude it occurs, on average, every 100 years (this equates to a 1 percent probability of occurring in any given year).

adaptive management
A type of natural resource management that implies making decisions as part of an on-going process. Monitoring the results of actions will provide flow of information that may indicate the need to change a course of action. Scientific findings and the needs of society may also indicate the need to adapt resource management to new information.

administrative road
Authorized vehicle use of otherwise closed roads and/or areas to carry out Forest management activities. Includes but is not limited to access for prescribed burning, fish and wildlife habitat improvement, and timber sales. Also includes use by permittees as authorized by permit to conduct authorized activities.

affected environment
The natural, physical, and human-related environment that is sensitive to changes from the alternatives.

air quality
The composition of air with respect to quantities of pollution therein; used most frequently in connection with standards of maximum acceptable pollutant concentrations.

all-terrain vehicle (ATV)
See *off-highway vehicle*.

allotment (grazing)
An area designated for the use of a certain number and kind of livestock for a prescribed period of time according to an Allotment Management Plan.

analysis area
The geographic area defining the scope of analysis for the project. Sometimes for a particular resource, the analysis area may have to be larger when effects have potential to extend beyond the boundaries of the proposal.

annual maintenance
Maintenance performed to maintain serviceability or repair failures during the year in which they occur.

aquatic nuisance species
Aquatic and terrestrial organisms and plant species that have been introduced into new ecosystems throughout the U.S. and the world and are having harmful impacts on the natural resources in these ecosystems and the human use of these resources (Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, amended by National Invasive Species Act of 1996).

archaeological site
Any site that is attributed to prehistoric American Indian cultures. A site is any location of use or occupation by human beings. In this part of the country, including the areas of the Dixie and Fishlake National Forests, this generally refers to sites dated to pre-1700.

arterial road
A forest road that provides service to large land areas and usually connects with other arterial roads or public highways (FSH 7709.54 – Forest Transportation Terminology Handbook, no longer in print).

beneficial uses
Water uses necessary for the survival or well-being of humans, plants, or wildlife.

Best Management Practices (BMPs)
A practice or combination of practices that are the most effective and practical means of achieving resource protection objectives during resource management activities.

big game
Those species of large mammals normally managed as a sport hunting resource..

capability
The potential of an area of land to produce resources, supply goods and services, and allow resource uses. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils, and geology, as well as the application of management practices such as protection from insects and disease.

closed road
See *administrative road*, *decommission*, and *obliteration*.

collector road
A forest road that serves smaller land areas than does an arterial road. Usually connects forest arterial roads to local forest roads (FSH – 7709.54 – Forest Transportation Terminology Handbook, no longer in print).

Code of Federal Regulations (CFR)
A codification of the general and permanent rules published in the Federal Register by the Executive departments and agencies of the federal government.

community
A group of one or more populations of plants and/or animals in a common spatial arrangement; an ecological term used in a broad sense to include groups of various sizes and degrees of integration.

conifer
Any of a group of needle and cone bearing evergreen.

cover
The present vegetation and litter of an area.

cross-country travel
Traveling across the countryside (as fields and woods) rather than by roads or trails. Travel off of designated roads or trails.

cultural resources
The physical remains of human activity (artifacts, ruins, burial mounds, petroglyphs, etc.) having scientific, prehistoric, or social values.

cultural site
Any location that includes prehistoric and/or historic evidence of human use, or that has important sociocultural value.

cumulative effect
The impact on the environment that results from the incremental impact of the action when added to other actions over time and space. Individual impacts can either amplify or negate each other depending on the location, timing, and types of interactions involved. Individually minor but collectively significant actions can result from cumulative effects.

cumulative effects area
An area with a mapable boundary where individual impacts can accumulate and result in cumulative effects. Cumulative effects areas are often different for each resource or plant and animal species, and often require consideration of more than one spatial temporal scale.

deciding official
The Forest Service employee who has the authority to select and carry out a specific planning action. For this project, the Forest Supervisor on the Dixie National Forest is the deciding officer for the Cedar City, Escalante, Pine Valley, and Powell Ranger Districts, and the Forest Supervisor on the Fishlake National Forest is the deciding officer for the Teasdale portion of the Fremont River Ranger District.

decommission
To deactivate or dismantle a road; the denial of use, elimination of travelway functionality, and removal of the road from the forest transportation system; and the return of the road corridor to resource production by natural or designed means.

deferred maintenance
Maintenance that was not performed when it should have been or when it was scheduled, and therefore was put off or delayed for a future period.

designated road, trail, or area
A National Forest System road, a National Forest System trail, or an area on National Forest System lands that is designated for motor vehicle use pursuant to § 212.51 on a motor vehicle use map (36 CFR 212.1).

direct effects
Effects on the environment that occur at the same time and place as the initial cause of action.

developed recreation
Recreation that requires facilities and results in the concentrated use of an area (e.g., campgrounds or ski resorts).

dispersed campsite
Temporary undeveloped campsites that are typically created and maintained by forest users. Existing temporary campsites can be distinguished by evidence of rock fire rings, old tent sites, and tracks from earlier vehicle accesses. On the Dixie National Forest, motorized vehicles are used to access most of these sites.

dispersed recreation
Recreation that occurs outside a developed setting (e.g., hunting, scenic driving, or backpacking).

disturbance
Any event that alters the structure, composition, or function of an ecosystem, including grazing, human trampling, logging, foraging by wildlife ungulates, wind, flood, insects, disease, and fire.

diversity
The relative distribution and abundance of different plant and animal communities and species within an area.

ecosystem
A naturally occurring, self-maintained system of varied living and non-living interacting parts that are organized into biophysical and human dimension components.

effects
Environmental consequences (the scientific and analytical basis for comparison of alternatives) because of a proposed action. Effects may be either direct, which are caused by the action and occur at the same time and place, or indirect, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable of cumulative.

endangered species
". . . [A]ny species which is in danger of extinction throughout all or a significant portion of its range . . . " which is designated by the Secretary of the Interior or the Secretary of Commerce (Endangered Species Act of 1973 Sec. 3(6)).

environment
The aggregate of physical, biological, economic, and social factors affecting organisms in an area.

environmental impact statement (EIS)
A detailed statement prepared by the responsible official when a major federal action that significantly affects the quality of the human environment is described, alternatives to the proposed action provided, and effects analyzed.

erosion
Detachment or movement of soil or rock fragments by water, wind, ice, or gravity. Accelerated erosion is much more rapid than normal, natural, or geologic erosion, primarily because of the influence of activities of people, animals, or natural catastrophes..

existing route
A road or trail that currently exists on the ground but that may or may not be designated as open to motorized use. Includes constructed roads and trails maintained by the Forest Service or cooperating agencies. Constructed roads and trails are often characterized by a road or trail

prism with cut and fill slopes or through-fills. An existing route may also be an evident two-track and single-track route with regular use that has resulted from continuous passage of motorized vehicles over a period of years where perennial vegetation is devoid or scarce.

Federal Register
A daily publication that reports Presidential and Federal agency documents.

floodplain
The lowland and relatively flat areas adjoining inland and coastal waters including, at a minimum, that area subject to a 1 percent or greater chance of flooding in any given year.

forage
Plant material (usually grasses, forbs, and brush) that is available for animal consumption.

forbs
Broadleaf ground vegetation with little or no woody material.

forest highway
A forest road under the jurisdiction of, and maintained by, a public authority and open to public travel (23 USC Section 101 (a)).

Forest Plan
Shortened name for a unit's Land and Resource Management Plan. Provides strategic guidance to management activities on National Forest System lands.

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 (36 CFR 212.1).

Forest Service Handbook (FSH)
The principal source of specialized guidance and instruction for carrying out the direction issued in the Forest Service Manual (FSM). Specialists and technicians are the primary audience of handbook direction.

Forest Service Manual (FSM)
Contains legal authorities, objectives, policies, responsibilities, instructions, and guidance needed on a continuing basis by Forest Service line officers and primary staff in more than one unit to plan and execute assigned programs and activities.

four threats
Management issues identified by the Chief of the Forest Service as the greatest threats to the Nation's forests and grasslands. The four key threats are hazardous fuels, invasive species, loss of open space, and unmanaged recreation. These program areas are currently receiving the highest priority and funding emphasis in the Forest Service. See http://www.fs.fed.us/projects/four-threats/ for more information.

fragmentation
The process by which aquatic or terrestrial habitats are increasingly subdivided into smaller units, resulting in their increased insularity as well as losses of total habitat area.

game species
Any species of wildlife or fish for which seasons and bag limits have been prescribed, and that are normally harvested under state or federal laws, codes, or regulations.

geographic areas
Sub-divisions of the forest defined by topographic, climatic, and geologic features or special habitats or uses that provide a sense of place.

grazing
The consumption of native forage by livestock or wildlife.

ground cover
The material covering the land surface. Ground cover can include live vegetation, standing dead vegetation, litter, cryptograms, and rock.

habitat
The place where a plant or animal lives and grows.

historic
After the introduction of written records. In this part of the country, including the areas of the Dixie and Fishlake National Forests, this generally refers to sites or uses of areas or landscapes dated from 1700 to the present.

historical site
Any site that is 50 years of age or older that is attributed to any historical cultures, including American Indian or European immigrant cultures. A site is any location of use or occupation by human beings. In this part of the country, including the areas of the Dixie and Fishlake National Forests, this generally refers to sites dated from 1700 to the present.

Hydrologic Unit Code
The U.S. is divided and sub-divided into successively smaller hydrologic units which are classified into four levels: regions, sub-regions, accounting units, and cataloging units. The hydrologic units are arranged within each other, from the smallest (cataloging units) to the largest (regions). Each hydrologic unit is identified by a unique hydrologic unit code (HUC) consisting of two to eight digits based on the four levels of classification in the hydrologic unit system (http://water.usgs.gov/GIS/huc.html).

Indian Tribe
Any American Indian group in the U.S. that the Secretary of the Interior recognizes as possessing tribal status.

indirect effects
Secondary effects that occur in locations other than the location of the initial action or significantly later in time.

interdisciplinary team
A group of resources professionals with different expertise that collaborates to develop and evaluate resource management decisions.

invasive species
An alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Includes both native and non-native forest and rangeland pests.

irretrievable impact or commitment
The elimination of a resource, its productivity, and/or its utility for the life of the project.

irreversible impact
The start of a chemical, biological, and/or physical process that could not be stopped. As a result, the resource or its productivity and/or its utility would be consumed, committed, or lost forever.

invasive plants
Nonnative aquatic and terrestrial species that have the capacity to dominate, overwhelm, and replace native vegetation. A species is considered invasive if it is nonnative to the ecosystem under consideration, and if its introduction causes or is likely to cause economic or environmental harm or harm to human health. Noxious weeds are a subset of invasive plants.

landscape
The aspect of the land that is characteristic of a particular region or area.

jurisdiction
The legal right to control or regulate use of a transportation facility. Jurisdiction requires authority, but not necessarily ownership. The authority to construct or maintain a road may be derived from fee title, an easement, or some other similar method (FSM 7705 – Transportation System).

leasable minerals
Minerals subject to exploration and development under leases, permits, and licenses under various mineral leasing acts. Leasable minerals include oil, gas, coal, and geothermal resources. The Forest Service determines which lands are available for leasing and under what conditions, while the Bureau of Land Management (BLM) determines whether or not to offer the lease.

lek
A specific location where male grouse congregate and strut to attract and breed with female grouse. Most male grouse return to the same lek every year.

local road
A forest road that connects terminal facilities with forest collector, forest arterial, or public highways. Usually forest local roads are single purpose transportation facilities (FSH 7709.54 – Forest Transportation Terminology Handbook, no longer in print).

locatable minerals
Minerals subject to appropriation under the General Mining Law of 1872. Locatable minerals include gold, silver, copper, gypsum, uranium, and other hard rock minerals. The BLM is responsible for subsurface rights, while the Forest Service is responsible for the surface rights. By agreement with the BLM, the Forest Service administers locatable mining activities on National Forest System lands.

maintenance
The upkeep of the entire forest development transportation facility including surface and shoulders, parking and side areas, structures, and such traffic-control devices as are necessary for its safe and efficient utilization (36 CFR 212.2 (i)).

Maintenance Level
See *Operational Maintenance Level*.

management direction
A statement of multiple use and other goals and objectives, along with the associated management prescriptions and standards and guidelines to direct resource management.

Management Indicator Species
A species of wildlife, fish, or plant whose health and vigor are believed to accurately reflect the health and vigor of other species having similar habitat and protection needs to those of the selected indicator species.

mineral materials
Minerals that are sold instead of leased or located. Mineral materials include common varieties of sand, gravel, clay, and decorative stone. The Forest Service has sole discretion over mineral minerals. Also referred to as common variety minerals or salable minerals.

mitigation
Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

mixed traffic
A National Forest System road designated for use by both highway-legal and non-highway-legal motor vehicles.

monitoring
The process of collecting information to evaluate if objectives and anticipated results of a management action are being realized or if implementation is proceeding as planned.

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 designed solely for use by a mobility-impaired person for locomotion, and that is suitable for use in an indoor pedestrian area (36 CFR 212.1).

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 (36 CFR 212.1).

motorized mixed use
Designation of a National Forest System road for use by both highway-legal and non-highway legal motor vehicles (EM-7700-30 – Guidelines for Engineering Analysis of Motorized Mixed Use on National Forest System Roads).

multiple use
According to the Multiple-Use Sustained-Yield Act of 1960, the management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

National Environmental Policy Act of 1969 (NEPA)
An act mandating an environmental analysis and public disclosure of federal actions.

National Forest Management Act (NFMA)
A law passed in 1976 as amendments to the Forest and Rangeland Renewable Resources Planning Act that requires the preparation of regional and forest plans and the preparation of regulations to guide that development.

National Forest System
All National Forest land reserved or withdrawn from the public domain of the U.S.; all National Forest lands acquired through purchase, exchange, donation, or other means; the National Grasslands and land utilization projects administered under Title III of the Bankhead-Jones Farm Tenant Act; and other lands, waters, or interests therein that are administered by the Forest Service or are designated for administration through the Forest Service as a part of the system (36 CFR 212.1).

National Forest System road
A forest road other than a road that has been authorized by a legally documented right-of-way held by a state, county, or other local public road authority (36 CFR 212.1). Previously referred to as a classified road.

National Forest System trail
A forest trail other than a trail that has been authorized by a legally documented right-of-way held by a state, county, or other local public road authority (36 CFR 212.1).

National Register of Historic Places
A register of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture. The register was established by the National Historic Preservation Act of 1966 and is maintained by the Secretary of the Interior.

native species
With respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

NEPA process
An interdisciplinary and environmental effects disclosure process, mandated by the National Environmental Policy Act, which concentrates decision making around issues, concerns, alternatives, and the effects of alternatives on the environment.

nest area (for northern goshawk)
The nest tree and stand(s) surrounding the nest that contain prey handling areas, perches, and roosts.

new road construction
An activity that results in the addition of forest classified or temporary road miles (36 CFR 212.1, FSM 7705 – Transportation System).

No Action Alternative
An alternative required by regulations implementing the NEPA (40 CFR 1502.14). The No Action Alternative provides a baseline for estimating the effects of other alternatives.

non-motorized travel
Modes of travel that include hiking, equestrian, and mountain bikes and exclude all motorized use.

noxious weed
Any plant or plant product that can directly or indirectly injure or cause damage to crops (including nursery stock or plant products), livestock, poultry, or other interests of agriculture, irrigation, navigation, the natural resources of the U.S., the public health, or the environment (Plant Protection Act 2000).

Objective Maintenance Level
The maintenance level to be assigned at a future date considering future road management objectives, traffic needs, budget constraints, and environmental concerns. The objective maintenance level may be the same as, or higher or lower than, the operational maintenance level (FSH 7709.58 Sec 12.3 – Transportation System Maintenance Handbook).

obliteration
To unbuild, decommission, deactivate, or dismantle a road; the denial of use, elimination of travelway functionality, and removal of the road from the forest development road system; return of the road corridor to resource production by natural designed means.

Off-highway vehicle (OHV)/off-road vehicle (ORV)
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 (36 CFR 212.1). Vehicle types include but are not limited to sport utility vehicles, jeeps, ATVs, mini-bikes, amphibious vehicles, over-snow vehicles, off-highway motorcycles, go-carts, motorized trail bikes, and dune buggies. Wheelchairs that are designed solely for use by a mobility-impaired person for travel are not included in this definition.

open to the public
Except during scheduled periods, extreme weather conditions, or emergencies, a route open to the general public for use with a standard passenger auto without restrictive gates or prohibitive signs or regulations, other than general traffic control or restrictions based on size, weight, or class of registration (23 CFR 660).

Operational Maintenance Level
The maintenance level currently assigned to a road considering today's needs, road condition, budget constraints, and environmental concerns. It defines the level to which the road is

currently being maintained (FSH 7709.58 Sec 12.3 – Transportation System Maintenance Handbook).

overland travel
See *cross-country travel*.

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 (36 CFR 212.1).

paleontological resources
Any evidence of fossilized remains of multicellular invertebrate and vertebrate animals and multicellular plants, including imprints thereof. Organic remains primarily collected for use as fuel such as coal and oil are paleontological resources, but are excluded from the prohibitions under the rule (36 CFR 261.2).

permittee
An individual who has been granted a permit for a specific activity such as livestock grazing or an outfitter and guide operation.

population
A community of individuals that share a common gene pool.

Post-fledgling Area (for northern goshawk)
An area of concentrated use by the goshawk family after the young leave the nest.

prehistoric
Prior to written records being kept. As with archaeological sites, in this part of the country, including the areas of the Dixie and Fishlake National Forests, this generally refers to sites or uses of areas or landscapes dated to pre-1700.

prescribed fire
See *wildland fire*.

private road
A road under private ownership authorized by easement to a private party or a road which provides access pursuant to a reserved or private right (FS 643 – Roads Analysis – Informing Decisions About Managing The National Forest Transportation System, August 1999).

project area
The spatial boundary that envelops the proposed actions and alternatives.

project file
An assemblage of documents that contain all the information developed or used during project development and environmental analysis. This information may be summarized and incorporated by reference in the environmental impact statement.

Public Forest Service Road
A designated public road under Forest Service jurisdiction that meets the definition of 23 USC Section 101.

range/rangeland
Land that supports vegetation that provides forage for grazing and browsing animals.

Ranger District
An administrative subdivision of a national forest, supervised by a district ranger who reports to the forest supervisor.

Record of Decision
A concise public document disclosing the decision made following preparation of an EIS and the rationale use to reach that decision.

Recreation Opportunity Spectrum (ROS)
A framework for stratifying and defining classes of outdoor recreation based on environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences are arranged along a continuum or spectrum divided into seven classes: Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Roaded Modified, Rural, and Urban. Neither the Dixie or Fishlake National Forest contain any Roaded Modified, Rural, or Urban ROS classes.

recreation residence
A residence on National Forest System lands generally located in an established tract and built for recreation purposes with agency approval. These residences are authorized by special use permit.

Research Natural Area
"Research Natural Areas are part of a national network of ecological areas designated in perpetuity for research and education and/or to maintain biological diversity on National Forest System lands. Research Natural Areas are principally for nonmanipulative research, observation, and study. They also may assist in implementing provisions of special acts, such as the Endangered Species Act of 1973 and the monitoring provisions of the National Forest Management Act of 1976" (FSM 4063).

responsible official
The official with the authority and responsibility to oversee the planning process and to approve plans, plan amendments, and plan revisions (36 CFR 219.16).

right-of-way
An accurately located strip of land with defined width, beginning of point, and point of ending. It is the area within which the user has the authority to conduct operations approved or granted by the landowner in an authorizing document, such as a permit, easement, lease, license, or Memorandum of Understanding.

riparian
Related to, living, or located in conjunction with a wetland, on the bank of a river or stream, or at the edge of a lake or tidewater.

road
A motor vehicle route over 50 inches wide, unless identified and managed as a trail. A road may be a system road, unauthorized road, or temporary road.

road construction or reconstruction
Supervising, inspecting, actual building, and incurrence of all costs incidental to the construction or reconstruction of a road (36 CFR 212.1).

Road Maintenance Level
Roads assigned to maintenance levels 2-5 are either constant service roads or intermittent service roads during the time they are open to traffic. Maintenance levels 1-5 (operational and objective) are described below.

1. Level 1: Assigned to intermittent service roads during the time they are closed to vehicular traffic. The closure period must exceed one year. Basic custodial maintenance is performed to keep damage to adjacent resources to an acceptable level and to perpetuate the road to facilitate future management activities. Emphasis is normally given to maintaining drainage facilities and runoff patterns. Planned road deterioration may occur at this level. Appropriate traffic management strategies are "prohibit" and "eliminate." Roads receiving level 1 maintenance may be of any type, class, or construction standard, and may be managed at any other maintenance level during the time they are open for traffic. However, while being maintained at level 1, they are closed to vehicular traffic, but may be open and suitable for non-motorized uses.
2. Level 2: Assigned to roads open for use by high clearance vehicles. Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level. Appropriate traffic management strategies are either to (1) discourage or prohibit passenger cars, or (2) accept or discourage high clearance vehicles.
3. Level 3: Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Roads in this maintenance level are typically low speed, single lane with turnouts and spot surfacing. Some roads may be fully surfaced with either native or processed material. Appropriate traffic management strategies are either "encourage" or "accept." "Discourage" or "prohibit" strategies may be employed for certain classes of vehicles or users.
4. Level 4: Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced; however, some roads may be single lane. Some roads may be paved and/or dust abated. The most appropriate traffic management strategy is "encourage." However, the "prohibit" strategy may apply to specific classes of vehicles or users at certain times.
5. Level 5: Assigned to roads that provide a high degree of user comfort and convenience. These roads are normally double lane, paved facilities. Some may be aggregate surfaced and dust abated. The appropriate traffic management strategy is "encourage" (FSH 7709.58, 10).

Road Management Objective
Defines the intended purpose of an individual road based on management area direction and access management objectives. Road management objectives contain design criteria, operation criteria, and maintenance criteria (FSH 7709.55 Sec 33 – Transportation Planning Handbook).

route
A generic term that includes roads and trails as defined in this glossary.

R.S. 2477
Revised Statute 2477 is legislation that allows counties to assert that they have access rights on roads and/or trails that existed prior to the establishment of the Forest.

scale
Geographic extent (e.g., regional, sub-regional, or landscape).

Scenic Integrity
A measure of the degree to which a landscape is visually perceived to be complete. Scenic integrity is used to describe an existing situation, standard for management, or desired future condition. The highest scenic integrity ratings are given to those landscapes that have little or no deviation from the character valued by constituents for its aesthetic appeal. Scenic Integrity ranges from Very High to Unacceptably Low, as defined below. There are no areas mapped as either Very Low or Unacceptably Low on the Dixie National Forest. All definitions are from *Landscape Aesthetics: A Handbook for Scenery Management* (USDA 1995).

Very High
Landscapes where the valued landscape character "is" intact with only minute if any deviations. The existing landscape character and sense of place is expressed at the highest possible level.

High
Landscapes where the valued landscape character "appears" intact. Deviations may be present but must repeat the form, line, color, texture, and pattern common to the landscape character so completely and at such scale that they are not evident.

Moderate
Landscapes where the valued landscape character "appears slightly altered." Noticeable deviations must remain visually subordinate to the landscape character being viewed.

Low
Landscapes where the valued landscape character "appears moderately altered." Deviations begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.

Very Low
Landscapes where the valued landscape character "appears heavily altered." Deviations may strongly dominate the valued landscape character. They may not borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside the landscape being viewed. However, deviations must be shaped and blended with the natural terrain (landforms) so that elements such as unnatural edges, roads, landings, and structures do not dominate the composition.

Unacceptably Low
Landscapes where the valued landscape character being viewed appears extremely altered. Deviations are extremely dominant and borrow little of any form, line, color, texture, pattern, or scale from the landscape character. Landscapes at this level of integrity need rehabilitation. This level should only be used to inventory existing integrity. It must not be used as a management objective.

scoping
The procedures by which the Forest Service determines the extent of analysis necessary for a proposed action, i.e., the range of actions, alternatives, and impacts to be addressed, identification of significant issues related to a proposed action, and establishing the depth of environmental analyses, data, and task assignments needed.

seasonal closure
A route or area closed part of the year. The season of closure is defined by the reason for the closure (e.g., winter range, snow, etc.).

Section 106 compliance
The requirement of Section 106 of the National Historic Preservation Act that any project funded, licensed, permitted, or assisted by the federal government be reviewed for impacts to historic properties and that the State Historic Preservation Officer and the Advisory Council of Historic Preservations be allowed to comment on a project.

sediment
Any material carried in suspension by water that will ultimately settle to the bottom. Sediment has two main sources: from the channel area itself and from disturbed sites.

Sensitive species
Those species identified by the Regional Forester for which population viability is a concern as evidenced by significant current or predicted downward trends in population numbers or density, or habitat capability that would reduce a species' existing distribution.

snag
A standing dead tree.

special use permit
A permit issued under established laws and regulations to an individual, organization, or company for occupancy or use of National Forest System lands for some special purpose.

species
A unit of classification of plants and animals consisting of the largest and most inclusive array of sexually reproducing and cross-fertilizing individuals, which share a common gene pool.

stand
A contiguous group of trees sufficiently uniform in age class distribution, composition, and structure, and growing on a site of sufficiently uniform quality to be a distinguishable unit.

summer range
A range, usually at higher elevation, used by deer and elk during summer. A summer range is usually much more extensive than a winter range.

summer home
See *recreation residence*.

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 System road or trail and that is not included in a Forest Transportation Atlas (36 CFR 212.1). These routes are not considered necessary for long-term access, recreational use, or resource management.

Threatened species
". . . [A]ny species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" which is designated by the Secretary of the Interior or the Secretary of Commerce (Endangered Species Act of 1973 Sec. 3(19)).

Traditional Cultural Property
A location or community that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that are rooted in that community's history, and are important in maintaining the continuing cultural identity of the community. Properties can include buildings, structures, and sites; groups of buildings, structures or sites forming historic districts; landscapes; and individual objects (36 CFR 60.4).

trail
A route 50 inches or less in width or a route over 50 inches wide that is identified and managed as a trail. A trail may be authorized, unauthorized, or temporary.

Tribe
Term used to designate a federally-recognized group of American Indians and their governing body. Tribes may be comprised of more than one Band.

unauthorized road or trail
A road or trail that is not a Forest System road or trail or a temporary road or trail and that is not included in a Forest Transportation Atlas (36 CFR 212.1). The term "unclassified" was used in some of the earlier project file documentation that predated the Travel Rule.

undesignated roads and trails
Roads and trails that have not yet gone through site-specific travel planning to determine if they should be open, closed, or restricted to motorized vehicle use, or roads and trails that have gone through travel planning and determined that motorized vehicle use is not appropriate and is not allowed.

watershed
A land area that contributes all its water to one drainage system, basin, stream, or river. Watersheds can be described at multiple scales.

wetland
An area that is either permanently inundated with water or has seasonally high water tables that support vegetation requiring these conditions for growth and reproduction.

wilderness
As defined by the Wilderness Act of 1964, "an area where earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain. An area of

wilderness is further defined to mean in this Act an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value" (16 USC 1131).

wilderness area
An area designated by Congress as part of the National Wilderness Preservation System, according to the criteria established in the Wilderness Act of 1964.

wildland fire
Any non-structure fire that occurs in the wildland. There are three types of wildland fire: wildfire, wildland fire use, and prescribed fire.

> **wildfire**
> An unplanned, unwanted wildland fire, including unauthorized human-caused fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out.
>
> **wildland fire use**
> The application of the appropriate management response to naturally-ignited wildland fires to accomplish specific resource management objectives.
>
> **prescribed fire**
> Any fire ignited by management actions to meet specified objectives.

winter range
A range, usually at lower elevation, used by migratory deer and elk during the winter months; usually better defined and smaller than summer ranges.

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