

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 INTRODUCTION

This section summarizes the existing environmental conditions of the affected project area and the potential changes to those conditions due to implementation of the alternatives presented in Chapter 2. It also presents the scientific and analytical basis for comparison of alternatives. The individual discussions are organized by resource.

3.2 RECREATIONAL OPPORTUNITY

This section incorporates by reference the Recreation Specialist's Report (project record), which contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation. This section discusses the effect of each alternative on the amount and type of access-related recreation opportunities. The quantity and type of motorized access provided not only affects the opportunities for various motorized users but can also affect the use and enjoyment of the National Forest by those seeking a non-motorized experience.

The two significant NEPA issues for this project (described in Chapter 1) focus on the recreation resource:

Issue 1 (Motorized Access Opportunities)

- **Eliminating motorized use on established routes within the project area would reduce motorized access opportunities.** Route specific comments from the public indicated that the proposed reduction in trail segments open to OHVs would diminish the recreational experience by reducing or eliminating trail loop opportunities; would concentrate OHV use on a reduced number of trails; and increase damage to routes due to this concentrated OHV use.

Resource Indicators: Miles of trail segments by unit area and project area; number of miles of loop trail opportunities by alternative.

Issue 2 (Rider Safety)

- **With the proposed reduction in miles of trail segments, travel routes will be comprised of more NFS roads where full sized motor vehicles will be sharing the roads with smaller OHVs, raising a public concern about rider safety.** The safety concern is two pronged. NFS roads are used by full-sized motor vehicles whose operators may not be accustomed to sharing the road with smaller OHVs or who may not be aware of the dual use of the roads. The potential for collisions and injuries between OHVs and full sized vehicles could increase with these uses. Also, a reduction in the miles of trail segments open to OHV traffic increases the density of OHV users per trail, creating the potential for an increase in accidents and injuries.
- **Resource Indicators:** Miles of trail segments by unit area and project area; number of open NFS road and motorized trail intersections per mile of trail.

3.2.1 Affected Environment

The analysis area for direct, indirect, and cumulative effects is the project area, because the project effects to recreation would generally be confined to this area.

The public that recreates within the project area (e.g., approximately 189,628 acres in the western portion of the Idaho City RD) generally come from the surrounding communities. The project area is within an hour's drive for the 300,000 residents of the Treasure Valley, which includes Idaho's capital city of Boise and suburbs. Idaho City's cooler, forested environment provides relief from the heat of the lower-elevation Treasure Valley. Given its proximity and its mountainous setting, the District represents a "backyard playground" that is used heavily for day trips as well as weekend and short vacation visits. The project area includes an extensive network of roads and trails (section 1.2.2). During the snow-free season, there are many recreation activities within the project area including developed and dispersed camping, fishing, horseback riding, biking, hiking, motorcycle and ATV riding, scenic viewing and much more. Big-game hunting, while it occurs, is less popular than in other areas of the District, given the heavily roaded nature of the area.

This "backyard mountain escape" setting was articulated in a May 2006 Recreation Niche developed for the Forest (USDA Forest Service, 2006). The Recreation Niche includes "Destination Motorized" areas, which are strategically located areas that serve as important motorized trail destinations. Within "Destination Motorized" areas, the system of motorized routes are maintained and managed to provide motorized road and trail experiences including loop opportunities and links to a larger system of long distance opportunities. Quality double and single track opportunities exist to separate uses and minimize conflicts between user groups. "Destination Motorized" areas include motorized trail networks that combine high quality riding experiences with high quality scenic settings.

The Idaho City RD trail network is very popular with motorized users, in part because its trails offer a wide range of difficulty for both OHVs and motorcycles. Trails historically used during and after the "Idaho City 100" Endurance Event ("Enduro"), an annual, early June two-day off-road motorcycle race, range from easy to very difficult. In addition, the Idaho City trail network provides cooler, shaded routes in the hot summer and fall months for riders who typically use the lower-elevation, more open trails on the adjacent Mountain Home RD earlier in the year.

The mileage of designated road and trail available for use by two different types of vehicles (e.g., vehicles less than 50 inches wide, and motorcycles) was calculated to assess the opportunity for each type of motorized enthusiast that would be provided by each alternative (Table 3.1, Table 3.2 and Table 3.3). While these numbers provide an overall view of each alternative's effects, it is also recognized that to many motorized users, all travel management is route specific. It makes little to no difference to many individuals what the total mileage available might be, if the route they desire to use is not designated.

3.2.2 Environmental Consequences Specific to Alternative 1

Under the "no action" alternative, continued motorized use would continue on all currently designated routes within the project area, and those established but unauthorized routes in the "E" areas. In the "C" and "D" areas (units 9, 10 and 11), although motorized travel would continue on authorized NFS routes currently designated for motorized use, the historic motorized use on the established but unauthorized routes (approximately 44.5 miles) would no longer continue. Motorized wheeled-vehicle use off road to access campsites within 300 feet of

NFS roads open to motorized use, and/or within 100 feet of NFS trails open to motorized use, would continue. No seasonal closures would be imposed on existing authorized NFS trails in the project area.

Table 3.1 – Summary of Alternative 1 Motorized Routes by Unit Area.

Description*	Vehicle Class	Total	Motorized Trail By Unit Area (miles)										
			1	2	3	4	5	6	7	8	9	10	11
E Areas: Currently Estab Unauth Routes	50" or less wide	62.4	17.9	8.3	9.7	0.0	0.0	1.0	19.1	6.4	0.0	0.0	0.0
	Motorcycles only	64.7	0.0	3.1	17.9	0.0	0.0	10.1	22.3	11.3	0.0	0.0	0.0
	Total	127.1	17.9	11.4	27.6	0.0	0.0	11.1	41.4	17.7	0.0	0.0	0.0
C & D Areas: Estab Unauth Routes	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Existing Authorized NFS Trail System	50" or less wide	11.4	0.0	5.4	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Motorcycles only	56.8	0.0	0.0	4.9	0.0	8.1	38.8	0.9	0.0	4.1	0.0	0.0
	Total	68.2	0.0	0.0	10.3	0.0	14.1	38.8	0.9	0.0	4.1	0.0	0.0

*Notes: "E" areas include units 1-8; "C" and "D" areas include units 9-11. Table does not include miles of authorized NFS road (see section 1.2.2). No seasonal closures would be implemented under Alternative 1. Mileage of established but unauthorized routes is an estimate of known routes. No complete inventory exists and the number of miles of known routes is likely an underestimation of the actual miles of unauthorized routes within the project area.

The existing level of interaction between motorized and non-motorized users would generally continue to occur in "E" areas. In "C" and "D" areas, where historical use of existing but unauthorized routes would no longer occur, there would be fewer potential conflicts with non-motorized users. Many trail loops within the project area include segments of both motorized and non-motorized use. Non-motorized users are able to use all the motorized non-motorized trail loops if so desired, but would expect to encounter two-wheeled motorized trail users on the sections of two wheel motorized trail, affecting their non-motorized experience. On these combination loop trails the non-motorized users could expect a potential for noise and motor exhaust fumes as OHV vehicles pass.

Under Alternative 1, motorized access for hunters would be limited to designated roads and system trails. However, this change would likely result in minimal effect to motorized hunter access, given that the area is less popular for big-game hunting than other areas on the District.

Because Alternative 1 would not result in a designated system of motorized routes, Alternative 1 would not comply with the travel management rule.

3.2.2.1 Issue 1 (Motorized Access Opportunities)

Table 3.1 indicates that under Alternative 1, a total of approximately 127 miles of established but unauthorized routes in E areas would be available for motorized use, along with about 68 miles of existing NFS trail designated for motorized use. (The existing NFS road system, as described in section 1.2.2 would also be available.)

Trail loops are desirable because they enable the trail user to experience new terrain challenges, vistas, and views for the entire trip, without one-way out and back restriction. Under Alternative 1, established but unauthorized routes in “C” and “D” areas would not be available for motorized use. Because any loop opportunities from “E” areas would require connections to routes in “C” and “D” areas, Alternative 1 would not provide loop opportunities.

The number of trails available for OHV use would be the second highest with Alternative 1, compared with the remaining two alternatives.

3.2.2.2 Issue 2 (Rider Safety)

Due largely to the high density of trails and roads within the project area, the number of trail/road intersections under Alternative 1 would be highest of the three alternatives. With 195.3 miles of routes (miles of currently established unauthorized routes plus miles of existing authorized NFS trail system) and 225 intersections within the project area, the number of open NFS road and motorized trail intersections per mile of trail would be 1.2. Because this is the highest level of road and trail intersections of the three alternatives, this alternative would present the highest risk of collisions between OHVs and full-size vehicles, of the three alternatives.

3.2.3 Environmental Consequences Specific to Alternative 2

Under Alternative 2 (the proposed action), motorized wheeled-vehicle travel would be limited to a system of designated routes throughout the project area. Motorized wheeled-vehicle use off road to access dispersed campsites within 300 feet of NFS road and 100 feet of NFS trails designated for motorized use would continue, with exceptions as described in Design Features DC-1 and DC-2 (section 2.2).

Table 3.2 – Summary of Alternative 2 Motorized Routes by Unit Areas.

Description*	Vehicle Class	Total	Motorized Trail By Unit Area (miles)										
			1	2	3	4	5	6	7	8	9	10	11
E Areas: Currently Estab Unauth Routes that would be Designated	50" or less wide	28.0	4.5	2.3	5.6	0.0	0.0	0.0	13.0	2.6	0.0	0.0	0.0
	Motorcycles only	38.2	0.0	1.3	13.7	0.0	0.0	2.2	14.6	6.4	0.0	0.0	0.0
	Total	66.2	4.5	3.6	19.3	0.0	0.0	2.2	27.6	9.0	0.0	0.0	0.0
C & D Areas: Estab Unauth Routes	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Existing Authorized NFS Trail System	50" or less wide	11.4	0.0	5.4	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Motorcycles only	56.8	0.0	0.0	4.9	0.0	8.1	38.8	0.9	0.0	4.1	0.0	0.0
	Total	68.2	0.0	0.0	10.3	0.0	14.1	38.8	0.9	0.0	4.1	0.0	0.0

*Notes: “E” areas include units 1-8; “C” and “D” areas include units 9-11. A total of about 10 miles in the “E” areas would be seasonally closed (Sept 15 – June 15) under this alternative, leaving about 56 miles open during this season. The miles to be left open by unit area include 4.5 mi (unit area 1), 3.3 mi (2), 17.8 mi (3), 0.0 mi (4, 5), 2.2 mi (6), 18.9 mi (7), 9.1 mi (8), and 0.0 mi (9, 10, 11). Table does not include miles of authorized NFS road (see section 1.2.2). Mileage of established but unauthorized routes is an estimate of known routes. No complete inventory exists and the number of miles of known routes is likely an underestimation of the actual miles of unauthorized routes within the project area.

The level of interaction between motorized and non-motorized users would generally decrease in “E” areas, as motorized use would be allowed on fewer routes than under Alternative 1. As under Alternative 1, in “C” and “D” areas, where historical use of existing but unauthorized routes would no longer occur, there would be fewer potential conflicts with non-motorized users.

Under Alternative 2, motorized access for hunters would be limited to designated system roads and trails, and would be limited to fewer trails than under Alternative 1. However, this change would likely result in minimal effect, given that the area is less popular for big-game hunting than others across the District.

In general, Alternative 2 would result in the most change to motorized use, of the three alternatives. However, Alternative 2 would comply with the travel management rule, because it would result in a system of designated routes.

3.2.3.1 Issue 1 (Motorized Access Opportunities)

Table 3.2 indicates that under Alternative 2, a total of approximately 66 miles of established but unauthorized routes in “E” areas would be available for motorized use, along with about 68 miles of existing NFS trail designated for motorized use. (The existing NFS road system, as described in section 1.2.2 would also be available.) This would represent a decrease of about half of the miles of established but unauthorized routes in “E” areas, but no change from Alternative 1 in “C” and “D” areas. Under Alternative 2, established but unauthorized routes in “C” and “D” areas would not be available for motorized use. Because any loop opportunities from “E” areas would require connections to routes in “C” and “D” areas, Alternative 2 would not provide loop opportunities.

3.2.3.2 Issue 2 (Rider Safety)

Under Alternative 2, the density of road/trail intersections would be the lowest of the three alternatives. With 134.4 miles of routes (miles of established unauthorized routes that would be designated plus miles of existing authorized NFS trail system) and 86 intersections within the project area, the number of open NFS road and motorized trail intersections per mile of trail would be 0.6 – nearly half as many as under Alternative 1. With fewer trail/road intersections than Alternative 1, there would be less of a risk of collisions between OHVs and full-size vehicles.

3.2.4 Environmental Consequences Specific to Alternative 3

Alternative 3 was developed to address general concerns about the reduction in motorized recreation opportunity, and concerns about public safety resulting from the elimination of motorized travel on established, but unauthorized routes in Alternative 2 (Proposed Action). This alternative was formulated by adding specific motorized opportunities to the Proposed Action identified through public comment or agency knowledge. Only those routes determined to be both sustainable and manageable were included.

Like Alternative 2, Alternative 3 would limit motorized wheeled-vehicle travel to a system of designated routes throughout the project area. Motorized wheeled-vehicle use off road to access dispersed campsites within 300 feet of NFS road and 100 feet of NFS trails designated for motorized use would continue, with exceptions as described in Design Features DC-1 and DC-2 (section 2.2).

Table 3.3 shows the miles of routes available for motorized travel under Alternative 3. A total of 146.1 miles of established but currently unauthorized routes would be designated for motorized use under this alternative, including 112.1 miles in “E” areas and 34.0 miles in “C” and “D” areas.

Table 3.3 – Summary of Alternative 3 Motorized Routes by Unit Areas.

Description*	Vehicle Class	Total	Motorized Trail By Unit Area (miles)										
			1	2	3	4	5	6	7	8	9	10	11
E Areas: Currently Estab Unauth Routes that would be Designated	50" or less wide	71.6	4.5	10.3	6.5	21.5	0.0	1.0	22.5	5.3	0.0	0.0	0.0
	Motorcycles only	40.5	0.0	1.3	13.1	0.0	0.0	3.3	14.6	8.2	0.0	0.0	0.0
	Total	112.1	4.5	11.6	19.6	21.5	0.0	4.3	37.1	13.5	0.0	0.0	0.0
C & D Areas: Estab Unauth Routes that would be Designated	50" or less wide	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.6	0.0
	Motorcycles only	26.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.3	5.6	5.5
	Total	34.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.3	13.2	5.5
Existing Authorized NFS Trail System	50" or less wide	11.4	0.0	0.0	5.4	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
	Motorcycles only	56.8	0.0	0.0	4.9	0.0	8.1	38.8	0.9	0.0	4.1	0.0	0.0
	Total	68.2	0.0	0.0	10.3	0.0	14.1	38.8	0.0	0.0	4.1	0.0	0.0

* Notes: “E” areas include units 1-8; “C” and “D” areas include units 9-11. A total of about 59 miles would be seasonally closed (Sept 15 – June 15) under this alternative, leaving about 86.9 miles open during this season. The miles to be left open by unit area include 4.5 mi (unit area 1), 11.6 mi (2), 18.0 mi (3), 0.0 mi (4, 5), 4.3 mi (6), 26.1 mi (7), 13.5 mi (8), 0.0 mi (9), 8.0 mi (10) and 0.9 mi (11). Table does not include miles of authorized NFS road (see section 1.2.2). Mileage of established but unauthorized routes is an estimate of known routes. No complete inventory exists and the number of miles of known routes is likely an underestimation of the actual miles of unauthorized routes within the project area.

The level of interaction between motorized and non-motorized users would generally decrease in “E” areas, compared to Alternative 1, as motorized use would be allowed on fewer routes than under Alternative 1, but be higher than under Alternative 2, as nearly twice as many routes would be designated under Alternative 3 than under Alternative 2. In “C” and “D” areas, there would be increased potential conflicts with non-motorized users, as approximately 34 miles of motorized routes would be designated (compared with no miles under Alternatives 1 or 2).

Under Alternative 3, motorized access for hunters would be limited to designated roads and system trails, but more trails would be available for motorized hunting access than under Alternative 1 or 2. However, although the area is less popular than others across the District for big-game hunting, Alternative 3 would increase the potential for conflicts between hunters that use motorized access, and those that do not.

In general, Alternative 3 would result in the most substantial retention of motorized opportunities, of the three alternatives. In addition, Alternative 3 would comply with the travel management rule, because it would result in a system of designated routes.

3.2.4.1 Issue 1 (Motorized Access Opportunities)

Table 3.3 indicates that under Alternative 3, a total of approximately 112 miles of established but unauthorized routes in “E” areas would be designated and available for motorized use, along with about 34 miles in “C” and “D” areas. In addition, 68 miles of existing NFS designated trail would be available for motorized use. (The existing NFS road system, as described in section 1.2.2 would also be available.) This would represent a substantial increase of the miles of established but unauthorized routes in “E” areas, as compared with Alternative 2, with a slight decrease in the miles compared to Alternative 1. It would also represent a substantial increase in the miles of designated routes in the “C” and “D” areas, compared to Alternatives 1 or 2. Consequently, Alternative C would create a series of motorized trail loop opportunities, including Loops 1, 2 and 3, as described in Chapter 2.

3.2.4.2 Issue 2 (Rider Safety)

Under Alternative 3, the density of road/trail intersections would be less than Alternative 1 but greater than Alternative 2. With 214.3 miles of routes (miles of established unauthorized routes that would be designated plus miles of existing authorized NFS trail system) and 167 intersections within the project area, the number of open NFS road and motorized trail intersections per mile of trail would be 0.8, as compared to 1.2 under Alternative 1 and 0.6 under Alternative 2. This number of intersections would appear to present an increased risk of collisions between OHVs and full-sized vehicles, compared to Alternative 2. However, as shown in the maps in Appendix B, unlike Alternatives 1 or 2, Alternative 3 would create loop opportunities, such that users generally would be riding on trails developed for OHV and/or motorcycle use, rather than sharing roads with full-sized vehicles. Consequently, Alternative 3 would potentially provide safer conditions than Alternative 2.

3.2.5 Cumulative Effects

3.2.5.1 Analysis Area

As noted in section 3.1.1, the analysis area for cumulative effects is the 189,628-acre project area, because the project effects to recreation would generally be confined to this area. The project area contains an existing designated network of roads (see section 1.2.2) and about 68 miles of NFS trails designated for motorized use. In addition, there is an extensive network of routes that have been established by historic motorized use, including 45 miles of known routes within “C” and “D” areas.

3.2.5.2 Past, Present and Reasonably Foreseeable Actions Considered

Past and Present Actions: Past actions that potentially affect recreation within the project area include ongoing timber harvest, road use, grazing, mining and fires, as well as overall recreation use. In general, these actions are accounted for in the description of the existing condition. However, there are two additional actions that have shaped the existing condition:

- “Idaho City 100” Endurance Event (Enduro): An annual, early June two-day off-road motorcycle race of about 300 participants uses trail segments within the project area. This event encompasses roughly 100 miles of total trail, and is authorized under a special-use permit by the Idaho City RD. Three separate courses are used on a rotating basis, and each course incorporates trail segments on federal (USFS and BLM), State (Idaho Department of Lands) and private lands. Depending on which specific course is used in a given year, trail segments within units 3, 6, 7, 8, 9, 10, and 11 may be used.

- Forest “E” Travel Management Area Travel Management Decision and Associated Forest Order 0402-00-05

In July 2004, following environmental analysis and public comment, the Boise Forest Supervisor made a decision to allow the continued use of established two-track or single-track trails, while prohibiting “indiscriminate” cross country travel, in “E” areas across the Forest. This decision applies to units 1-8 as described in this EA.

Reasonably Foreseeable Actions: Reasonably foreseeable actions include the potential permitting of the “Idaho City 100” Endurance Event, as described above.

Cumulative Effects Specific to Alternative 1: Because Alternative 1 would result in no change to the number or types of established authorized motorized uses, no cumulative effects would be anticipated.

Cumulative Effects Specific to Alternative 2: Under Alternative 2, a total of approximately 66 miles of established but unauthorized routes in “E” areas would be available for motorized use, along with about 68 miles of existing NFS trail designated for motorized use. (The existing NFS road system, as described in section 1.2.2 would also be available.) Alternative 2 would result in fewer opportunities for motorized recreation than Alternative 1. When combined with the trail use authorized for the annual Enduro event, Alternative 2 would result in a negative cumulative effect on motorized use for the two days during which the Enduro is held each year. However, because this event is of such short duration, the cumulative impact would be considered immeasurable.

Cumulative Effects Specific to Alternative 3: Under Alternative 3, a total of approximately 112 miles of established but unauthorized routes in “E” areas would be designated and available for motorized use, along with about 34 miles in “C” and “D” areas. In addition, 68 miles of existing NFS designated trail would be available for motorized use. (The existing NFS road system, as described in section 1.2.2, would also be available.) Because Alternative 3 would result in more motorized recreation opportunities than Alternative 1 or 2, Alternative 3 would result in a beneficial cumulative effect to motorized recreation, even when the effects of the Enduro event (i.e, fewer opportunities for public motorized recreation during the two-day Enduro) are included.

3.3 RECREATION OPPORTUNITY SPECTRUM (ROS)

This section incorporates by reference the Recreation Specialist’s Report (project record).

The Recreation Opportunity Spectrum (ROS) consists of a classification system in which components of recreation settings and facilities, such as access, developed sites, activities, and experiences, are organized and arranged along a continuum or spectrum. The continuum ranges from very primitive settings and experiences to highly concentrated, urbanized ones. Each class is defined in terms of its specific combination of activities, setting, facilities, and experience opportunities.

The Recreation Opportunity Spectrum provides a framework for defining the types of outdoor recreation settings, opportunities, and experiences that exist or that might be able to be provided in a given area. It also provides a context and tool for estimating and describing recreation resources as well as effects to those resources from alternative management strategies and actions.

The following is a brief description of ROS classes within the project area.

Semi-Primitive Non-Motorized areas are at least 2,500 acres in size that provide a high probability of solitude, closeness to nature, challenge and risk in natural appearing environments with some or subtle evidence of others. Other user encounters should be generally low, with low levels of the sights and sounds of other users. Access is typically limited to non-motorized modes such as trails or cross-country, or some primitive roads. Vegetation alterations in this ROS to enhance forest health are few and widely dispersed. Management to control undesirable effects of insects, disease, and other pests, as well as management actions designed to maintain or improve the long-term health of the ecosystem, could occur. Prescribed fire could be used to attain a variety of resource objectives. Generally, snowmobile, ATV, and other OHV uses are inconsistent with this ROS class.

Semi-Primitive Motorized areas are at least 2,500 acres in size that provide for motorized recreation opportunities in semi-primitive settings. These areas generally present natural-appearing settings with usually only subtle or minor evidence of human-caused modifications to the landscape. With their more limited access, they offer a higher level of opportunities for solitude, remoteness, and risk, with little on-site controls and restrictions. Other user encounters should be generally low; however, the sounds of other users may be evident due to motorized uses.

Roaded Natural areas provide for a wide range of recreation activities that are generally focused along the primary and secondary travel routes in a natural-appearing, roaded, motorized setting. Recreation facilities are provided to facilitate recreation use. There may be a moderate to high degree of user interaction, as well as the sights and sounds of other users, depending upon the facilities provided. Although structures may be designed to accommodate numerous users, they generally convey a rustic theme and blend with the natural landscape. Opportunities for isolation, challenge, or risk are generally not very important, although opportunities for practicing outdoor skills may be important. Scenic values are often emphasized. A wide range of management activities and objectives may occur, generally being guided by the adopted visual quality objectives. Landscape modifications due to resource management activities, where evident, harmonize with the natural setting. Prescribed fire could be used to attain a variety of resource objectives. There may be a wide range of facilities and structures to support Forest uses such as campgrounds, visitor centers, telecommunication facilities, power lines, and administrative sites.

Roaded Modified areas provide for a range of recreation experiences that are consistent with substantially modified, motorized settings in which the sights and sounds of humans are readily evident and the interaction between users can be from low to high. Camping experiences are relatively primitive, with few on-site facilities provided. The area is very accessible using the numerous roads. Ample evidence of human activity includes roads, extensively logged timber stands, skid trails, and log landings. The general forest visitor has a low probability of experiencing solitude and risk, but a moderate chance of enjoying a sense of closeness to nature depending on the timing of their visit. The opportunities for challenge and risk are minimal.

3.3.1 Affected Environment

The project area includes portions of the Arrowrock Management Area (MA) 3, Boise Front/Bogus Basin MA 4, North Fork Boise River MA 7, Mores Creek MA 8, and Harris

Creek/Porter Creek MA 9. The ROS in these Management Areas (MAs) is dominated by Roaded Modified, Roaded Natural, and Semi-Primitive Motorized. The North Fork Boise River MA 7 includes two small slivers of Semi-Primitive Non-motorized ROS within the project area (Figure 3.1).

The analysis area for direct and indirect effects to ROS is the project area, since the potential effects to ROS would be confined to the project area.

3.3.2 Environmental Consequences Specific to Alternative A

Under this alternative, no changes to the current NFS transportation system would occur, and there would be no change in the recreation setting within the project area for any of the ROS classes discussed above.

3.3.3 Environmental Consequences Common to All Action Alternatives

Neither action alternatives would effect on the ROS classifications within the project area. Alternatives 2 and 3 propose only minor changes in routes open to motorized use. The limited changes in motorized route designation would not change the ROS classification in the area for the Roaded Modified, Roaded Natural, and Semi-Primitive Motorized ROS classes, because minor adjustments to motorized use are not determining factors in these ROS classes for this area. No proposed activities would impact areas with a Semi-Primitive Non-motorized ROS.

3.3.4 Cumulative Effects

The analysis area for cumulative effect is the Arrowrock MA 3, Boise Front/Bogus Basin MA 4, North Fork Boise River MA 7, Mores Creek MA 8, and Harris Creek/Porter Creek MA 9, because the MA is the unit for which cumulative effects to ROS are assessed. Because no direct or indirect effect to ROS would be anticipated under any alternative, no cumulative effects would be expected.

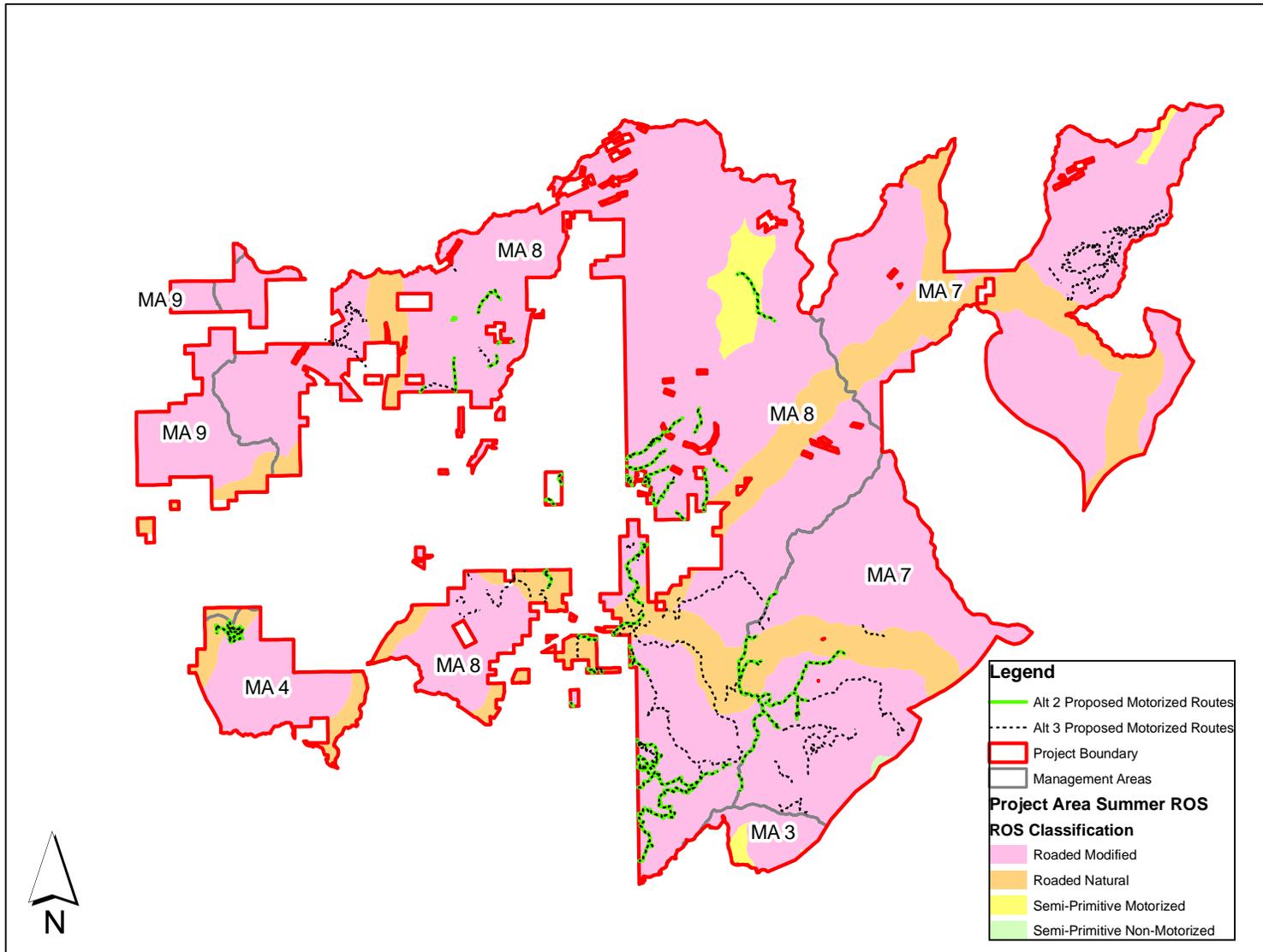


Figure 3.1 – Project Area Summer ROS Classification.

3.4 WILDLIFE

This section incorporates by reference the Terrestrial Wildlife Report and Wildlife Biological Assessment (BA) and Biological Evaluation (BE) for Threatened, Endangered, and Sensitive (TES) Species TES species (project record). These documents contain the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the District Wildlife Biologist relied upon to reach the conclusions in the EA.

The analysis area considered for effects to wildlife species and habitats encompasses the project area plus any known open NFS roads or motorized trails within three miles of the project area boundary on National Forest lands or on state or private owned lands. This analysis area description applies to all species considered in this analysis unless otherwise described.

Portions of the project area were visited specifically for this project and in conjunction with other analyses.

This section is organized to first summarize the effects of Alternatives 1, 2 and 3 on Threatened, Endangered and Forest Service sensitive wildlife species in a tabular form, followed by more detailed narratives of the affected environment and environmental consequences for these species. Subsequent sections describe the affected environment and environmental consequences for migratory birds, Rocky Mountain Elk, and mule deer.

3.4.1 Summary of Effects to TES Species

Table 3.4 summarizes the effects on federally listed and Forest Service sensitive species anticipated under Alternatives 1, 2 and 3, respectively. The analyses illustrated that there would be no change in the effects determination between the three alternatives for any species.

Table 3.4 – Summary of Effects on Federally Listed and Forest Service Sensitive Species.

Species	Effects Conclusion* ^			Rationale
	Alt 1	Alt 2	Alt 3	
Threatened & Endangered**				
Canada Lynx	NE	NE	NE	Absence of reproducing individuals precludes effects assoc with OHV use of proposed trails
Sensitive Species				
Gray Wolf	MII	MII	MII	Some potential for disturbance of individual wolves and risk of human-related mortality
Boreal Owl	NI	NI	NI	Habitat present; human disturbance generally does not affect reproductive success/habitat selection
Flammulated Owl	NI	NI	NI	Habitat present; human disturbance generally does not affect reproductive success/habitat selection
Northern Three-toed Woodpecker	NI	NI	NI	Habitat present; human disturbance generally does not affect reproductive success/habitat selection. Activities would not affect snag and down log habitat.
White-headed Woodpecker***	NI	NI	NI	Habitat present; human disturbance generally does not affect reproductive success/habitat selection
Mountain Quail	NI	NI	NI	Habitat present; human disturbance generally does not affect reproductive success/habitat selection
Wolverine	MII	MII	MII	Individuals might be displaced, but this is a low risk due to low relative densities of wolverine
Fisher	MII	MII	MII	Individuals might be displaced, but this is a low risk due to low relative densities of fisher
Columbia Spotted Frog	MII	MII	MII	Seasonal closures: help mitigate soil disturbance assoc w/trails within RCAs, stream crossings
Bald Eagle	NI	NI	NI	Absence of nesting, winter roost habitat; lack of potential for habitat modification and disturbance
Peregrine Falcon	NI	NI	NI	Absence of nesting, winter roost habitat; lack of potential for habitat modification and disturbance
Northern Goshawk	MII	MII	MII	Potential for human disturbance, but disturbance is ongoing. Anticipate goshawk pairs have already modified their behavior by selecting nest/fledgling sites free of that disturbance, or have developed tolerance for that disturbance
Greater Sage-grouse	NI	NI	NI	Absence of habitat; lack of potential for habitat modification and disturbance
Spotted Bat	NI	NI	NI	General absence of impacts to roost habitat; lack of potential for habitat modif/disturbance
Western Big-eared Bat	NI	NI	NI	General absence of impacts to roost habitat; lack of potential for habitat modif/disturbance
Great Gray Owl	NI	NI	NI	Habitat present; human disturb generally does not affect reprod success or habitat selection

*NE = No effect; NI = No Impact; NLAA = Not Likely to Adversely Affect; MII = May impact individuals but is not likely to cause a trend to Federal listing; ^ +/- /0 = {positive, negative, or immeasurable effect.

** There is no habitat within the area for three Threatened or Endangered species (yellow-billed cuckoo and northern and southern Idaho ground squirrel), so these species were not assessed in this analysis.

***White-headed woodpecker is also a Forest Management Indicator Species (MIS), as is pileated woodpecker.

3.4.2 Threatened, Endangered, and Sensitive Species

3.4.2.1 Threatened or Endangered Species (Threatened: Canada Lynx)

3.4.2.1.1 Background

On March 24, 2000, the US Fish and Wildlife Service published the Final Rule in the Federal Register identifying the Canada lynx as a Threatened species for populations existing in the lower contiguous 48 states (US Fish and Wildlife Service (USFWS) 2000). Concurrent with the listing of the Canada lynx in 2000, three documents were published relative to the conservation and recovery of Canada lynx: Ecology and Conservation of Lynx in the United States (Science Report - Ruggeiro et al. 1999), The Lynx Conservation Assessment and Strategy (LCAS - Ruediger et al. 2000), and the Canada Lynx Conservation Agreement – US Forest Service and US Fish and Wildlife Service (Conservation Agreement – USDA Forest Service 2000). The Conservation Agreement identifies that the LCAS will be used and referenced in all determination of effects for proposed federal actions. The LCAS forms the basis for the analysis of effects of the three alternatives on the Canada lynx and lynx habitat in the project area.

Beginning in 1999, six consecutive years of lynx survey, using the National Lynx Survey protocol was implemented on the Lowman and Cascade RDs (Nutt 2009). Areas selected for survey were based upon habitat assessment and the selection of the best possible habitat available on the Boise NF. In the six years of survey, only two detections of one individual were recorded. In 1999, two survey points detected a single lynx in the Bear Valley area of the Lowman RD approximately 30 linear miles north northeast of the project area. Subsequent surveys in the same area in 2000 and 2001 failed to detect that individual or any other individual lynx. Surveys through 2005 on the Cascade RD failed to detect lynx. No surveys were conducted in the project area, as it was determined habitat quality was relatively poor compared to areas surveyed (Nutt 2009).

3.4.2.1.2 Affected Environment

Two Lynx Analysis Units (LAUs) are within the project area: the Pilot Peak/Sunset LAU and the Jackson Peak LAU. The LAUs are located within the Northern Rockies region as described in the Final Rule (US Fish and Wildlife Service 2000) and the LCAS (Ruediger et al. 2000). Based the Revised Designation of Critical Habitat for the Canada lynx (US Fish and Wildlife Service 2009), both LAUs are outside of identified Critical Habitat for the conservation of Canada Lynx. Furthermore, based upon the Recovery Outline developed by the US Fish and Wildlife Service (US Fish and Wildlife Service 2005), both LAUs are located outside of Core, Secondary, and Periphery areas identified in the Northern Rockies region. As such, neither LAU is recognized as contributing persistent lynx populations (Core Areas), contributing occupied habitat without documented reproduction (Secondary Areas), or providing habitat occupied in concurrence with cycle population highs in Canada but otherwise does not contribute to long-term presence or reproduction that indicates colonization or sustained use by lynx (Peripheral Areas) (US Fish and Wildlife Service 2005).

Lynx are not known to occupy the two LAUs which partially occur within the project area. Two sightings of lynx are known for the project area and are located in the Pilot Peak/Sunset LAU, based upon the State of Idaho Conservation Data Center database (Idaho Department of Fish and Game 2009). The sightings are located along Highway 21, and were noted in 1993 and

1998. One sighting involved an individual seen; the second reported a track observed. Three additional sightings (in 1993, 1996 and 1997, respectively) were noted outside the project area, within 10 linear miles of the project area boundary. In all three cases, tracks were reported observed.

Summary data for each LAU provided in the *Biological Assessment: Effect of Ongoing Activities on Canada Lynx on the Boise National Forest* (BA) provides information on the current condition of these LAUs and lynx habitat within the Project Area (USDA Forest Service 2002). The Pilot Peak LAU is determined to be in compliance with the Lynx Conservation Assessment and Strategy (LCAS – Ruediger et al. 2000), as the three parameters, percent unsuitable, percent denning, and percent change by management are all within the identified thresholds. The Jackson Peak LAU is determined to not be in compliance with the LCAS, as the percent unsuitable habitat is above the identified threshold. The two remaining parameters are within identified thresholds (USDA Forest Service 2002). The percent unsuitable habitat threshold is not met due primarily to recent fire disturbance that resulted in large portions of the LAU reverting to early seral stand conditions that do not currently provide habitat.

The LCAS does not specifically identified motorized trails and roads as a specific threat to lynx and lynx habitat. Lynx do not appear to be susceptible to ATV, motorcycle, or full sized motor vehicle disturbance such that it is detrimental (Ruediger et al. 2002). Aubry et al. also found little evidence that roads result in significant disturbance of lynx across its range (1999). Further, Sunde et al, in studying hunted populations of Canada lynx in Norway, found lynx displayed a tolerance for human disturbance, and showed no indication of changes to daily movement patterns when disturbed so long as sufficient hiding cover and vegetation was present (1998). An exception may be the potential risk of disturbing denning lynx such that individuals were forced to move kittens to more secure, less disturbed areas due to human disturbance (Ruediger et al. 2002). Otherwise, there is no indication from research and literature that lynx actively avoid motorized roads or trails, with the exception of high traffic volumes (Ruediger et al. 2002).

However, the BA did assess the density of NFS roads in each LAU. A total of 1.5 miles/mile² in the Pilot Peak/Sunset LAU was identified, while the Jackson Peak LAU has 1.0 miles/mile² road density within lynx habitat (USDA Forest Service 2002). An additional 6.5 miles of NFS trail open to motor vehicles also occurs within potential lynx habitat. An assessment of known established but unauthorized routes in the project area identifies an additional 4.2 miles of routes. Based upon information provided for the LAU Baseline for the Pilot Peak/Sunset LAU, the density of roads and trails open to motor vehicle use would be at 1.7 miles/mile². This density remains below the recommended 2.0 miles/mile² density the LCAS identifies as an upper limit for desirable habitat conditions (Ruediger et al. 2000). No additional roads or trails open to motorized vehicles beyond those assessed for the BA are identified in Jackson Peak LAU.

3.4.2.1.3 Environmental Consequences Common to All Alternatives

All three alternatives proposed would result in the identification or designation of forest trails in one or both LAUs. Alternative 1 would maintain the existing miles of motorized access in potential/suitable lynx habitat while both Alternative 2 and 3 would reduce the motorized access in potential/suitable lynx habitat (Table 3.5). Alternative 1 would result in a total of 6.4 miles of trail open to motor vehicle use within potential/suitable habitat added to the existing transportation system. Alternative 2 would designate 2.2 miles of motorized trail within potential/suitable lynx habitat, while Alternative 3 would increase this amount by 0.2 miles for a total of 2.4 miles. Some of that habitat is isolated patches of denning habitat. As noted in the

below table, most of the trail segments proposed in each alternative within the respective LAUs are located outside potential/suitable lynx habitat.

Table 3.5 - Miles of Motorized Routes LAU by Alternative.

Alternative	Pilot Peak/Sunset		Jackson Peak	
	LAU	Potential/Suitable Habitat	LAU	Potential/Suitable Habitat
Alternative 1	25.1	6.4	0.0	0.0
Alternative 2	13.0	2.2	0.0	0.0
Alternative 3	13.2	2.2	21.5	0.2

Implementation of any of the three alternatives considered would not modify or alter existing suitable habitat or prevent suitable habitat from developing in either LAU.

The greatest potential for effects from the alternatives would be from the disturbance of denning lynx with kittens (Ruediger et al. 2002). In order for these effects to occur, reproducing individuals would need to be located within the affected LAU and occupy denning habitat adjacent to proposed trail segments. Based upon sightings and survey data compiled for the Boise NF and the description of critical habitat (Core, Secondary, and peripheral habitat areas, for which the project area is not included in) (USFWS 2005, USFWS 2009), it is unlikely that lynx are reproducing in the affected LAUs. There are no records of reproducing lynx in the considered LAUs, and the absence of designation of habitat in the respective LAUs as Core or Secondary habitat in the USFWS recovery outline and critical habitat designation would indicate such documentation does not exist nor is reproduction anticipated (USFWS 2005, USFWS 2009). In addition, no research indicates a sensitivity of lynx to roads and general motor vehicle traffic (with the exception noted of possible impacts to denning lynx with kittens) (Aubry et al. 1999).

Based upon the following factors:

- Likely absence of reproducing lynx population in LAUs associated with the project area (absence of recent sightings in the project area (Nutt 2009, Idaho Department of Fish and Game 2009), absence of critical habitat designation (USFWS 2005, USFWS 2009), and absence of documented reproduction (USFWS 2005), and
- Absence of documented impacts of non-snow season motor vehicle use associated with roads and motorized trails in the literature, with the possible exception of reproducing lynx with kittens in denning habitat (Aubry et al. 1999), and documented tolerance of human disturbance (Sunde et al. 1998),

no direct or indirect effects would be anticipated with any of the three alternatives.

3.4.2.1.4 Cumulative Effects

Analysis Area

The analysis area for cumulative effects to lynx contains portions of the project area that are within the Pilot Peak/Sunset and Jackson Peak Lynx Analysis Units (LAU). This area was selected as the cumulative effects analysis area because it represents potential suitable habitat that may be impacted cumulatively by activities proposed in the three alternatives considered.

Past, Present and Reasonably Foreseeable Actions Considered

Past and Present Actions: Past actions that potentially affect lynx within the project area include ongoing timber harvest, road use, grazing, mining and fires, as well as overall recreation use. In general, these actions are accounted for in the description of the existing condition. However, there are two additional actions that have shaped the existing condition:

- “Idaho City 100” Endurance Event (Enduro): An annual, early June two-day off-road motorcycle race of about 300 participants uses trail segments within the project area. This event encompasses roughly 100 miles of total trail, and is authorized under a special-use permit by the Idaho City RD. Three separate courses are used on a rotating basis, and each course incorporates trail segments on federal (USFS and BLM), State (Idaho Department of Lands) and private lands. Depending on which specific course is used in a given year, trail segments within units 3, 6, 7, 8, 9, 10, and 11 may be used.
- Forest “E” Travel Management Area Travel Management Decision and Associated Forest Order 0402-00-05
In July 2004, following environmental analysis and public comment, the Boise Forest Supervisor made a decision to allow the continued use of established two-track or single-track trails, while prohibiting “indiscriminate” cross country travel, in “E” areas across the Forest. This decision applies to units 1-8 as described in this EA.

Reasonably Foreseeable Actions: Reasonably foreseeable actions include the potential permitting of the “Idaho City 100” Endurance Event, as described above. Another reasonably foreseeable action is the travel analysis for the Emmett RD, for which a decision is anticipated later this summer. The project area for the Emmett RD Travel Management Project adjoins the northern boundary of unit area 2 of the Idaho City Travel Management project area.

Cumulative Effects Common to All Alternatives

Because no direct or indirect effects would be anticipated under any alternative, no cumulative effects on lynx or lynx habitats would be anticipated under any alternative.

3.4.2.2 Sensitive Species

Sensitive species are identified by the Regional Forester as such due to a current or predicted downward trend in population numbers or density, or a current or predicted downward trend in habitat capability that would reduce a species’ existing distribution. A total of 16 sensitive species were analyzed for the proposed project (Table 3.4). The effects are discussed first for the group of 11 species for which project-related human disturbance generally would not affect reproductive success. Following this discussion, each of the five remaining species (gray wolf, wolverine, fisher, northern goshawk, and Columbian spotted frogs) are discussed separately

3.4.2.3 Species for Which Project-Related Human Disturbance Generally Would Not Affect Reproductive Success or Habitat Selection

3.4.2.3.1 Affected Environment and Environmental Consequences

For five of the sensitive species (bald eagle, peregrine falcon, greater sage grouse, spotted bat, and western big-eared bat), there is little, if any, habitat within the project area. Under each of the three alternatives, there would be no effect to any of these species given the lack of habitat, and because none of the activities under any alternative would potentially modify or disturb habitat for these species.

For six of the sensitive species (boreal owl, flammulated owl, northern three-toed woodpecker, white-headed woodpecker, mountain quail, and great gray owl), habitat exists within the project area. However, there would be no effect to any of these species because human disturbance (such as that associated with this project's proposed activities) typically does not affect these species' reproductive success and habitat selection.

Because no direct or indirect effect to any of these species would be anticipated under any alternative, there would be no cumulative effect to any of the species under any of the alternatives.

3.4.2.4 Gray Wolf

3.4.2.4.1 Affected Environment

Gray wolves occur in the project area. Based upon Idaho Department of Fish and Game (IDFG) monitoring, at least five packs (Archie Mountain, Applejack, Calderwood, Thorn Creek, and Timberline) contain all or portions of their estimated territories within the project area. Two additional packs (Steel Mountain, Big Buck) may also spend time within the project area. All five primary packs were documented as reproducing packs in 2008, often with a minimum of two pups per pack (Nadeau et al. 2009).

Wolves are habitat generalists; in general, there are not specific habitat characteristics that determine habitat occupancy and use. Limiting factors are primarily prey abundance and availability, and disturbance (including mortality) associated with humans. Large ungulates, primarily Rocky Mountain elk and mule deer, are the primary prey sources for wolves in the project area, likely supplemented by small mammals. There is currently enough well-distributed prey to support existing packs.

Human-related mortality, including lethal control (in response to livestock depredation), poaching, and unintentional kill, are the primary mortality agents for the packs in the Project Area (Nadeau et al. 2009). IDFG reports that a total of three wolves, all in the Applejack pack, were killed in response to livestock depredation issues. Two wolves, both in the Archie Mountain pack, were confirmed killed by humans (Nadeau et al. 2009).

The gray wolf was de-listed by the US Fish and Wildlife Service, effective May 4, 2009 (Federal Register 2009); this decision is currently under litigation. At the time of de-listing, it was anticipated that the State of Idaho, through IDFG, would take over wolf management in the state. Through the approved wolf management plan (IDFG 2008a), hunting harvest is proposed and would be directed by the wolf management plan. For the purposes of this analysis, it is assumed that hunter harvest management will occur in the project area in the future.

Wolf packs may also be susceptible to human disturbance which may affect reproduction. In particular, den site disturbance during critical time periods (roughly two months in late spring, dependent upon time of whelping) can cause abandonment of den sites and the abandonment or movement of pups (Claar et al. 1999). Rendezvous sites (staging areas where older pups are left during hunting forays) are also susceptible to disturbance from motor vehicle disturbance (Claar et al. 1999). Disturbances to den and rendezvous sites during critical time periods may result in displacement and possible reproductive failure of that year's efforts. However, the data and research is inconclusive (Claar et al. 1999). Summary of research provided by Gaines et al. indicate that motor vehicle traffic may result in displacement of wolves from areas at moderate road densities (2003).

Two measures were used to evaluate existing disturbance and vulnerability of wolves within the project area: 1) area within ½ mile of NFS roads, NFS trails, and established but unauthorized routes in the project area open to motorized use; and 2) project area density of routes (NFS roads, NFS trails, and established but unauthorized routes open to motorized use). Table 3.6 summarizes these measures by the time period the routes are open to motorized use in the project area. Road densities are relatively high, when compared to densities research has indicated displacement and disturbance effects (1.0 miles/mile² as described in Gaines et al. 2003).¹

Table 3.6 – Summary Indicators for Existing Conditions for the Project Area.

Indicator	Time Period Routes Open for Motorized Use	
	June 15-September 15	September 15-June 15
Area within ½ mile NFS roads and trails, and estab but unauthorized routes open to motorized use (Acres and % Project Area)	172,816 (91%)	157,977 (83%)
Density of roads and trails open to motor vehicles (mi/mi ²)	2.9	2.4

3.4.2.4.2 Environmental Consequences Common to All Alternatives

Under all three alternatives, there is little potential for direct effects. The risk of collisions, while present, is very small, as the speeds traveled by OHVs on the trails proposed for designation would not be likely to result in collisions with individual gray wolves. In addition, indirect impacts (measured in disturbance and vulnerability to hunting mortality) would be indistinguishable from the impacts associated with the existing NFS roads and trails in the analysis area. However, Alternative 2 or 3 would eliminate motorized use of any existing but unauthorized route that would not be designated as a NFS trail (including those routes that likely exist but their number and length is currently unknown). This reduction would likely benefit this species, given the anticipated reduction in potential disturbance. The indicators (trail density and acres of habitat within ½ mile of trails open to motor vehicles) describe only a portion of the impacts that would occur in the project area with each alternative. The simultaneous use of NFS roads and trails open to motor vehicles, in addition to the trails proposed in each alternative, would add to the overall impact measured by these indicators. These impacts are described below under Cumulative Effects.

3.4.2.4.3 Cumulative Effects

Analysis Area

The analysis area for cumulative effects to gray wolf is the same as the analysis area for direct and indirect effects. This area was selected as the cumulative effects analysis area because this area encompasses the known summer habitat used by existing packs in the project area and vicinity.

Past, Present and Reasonably Foreseeable Actions Considered

Past, present and reasonably foreseeable future actions are the same as those discussed above for lynx.

Cumulative Effects Common to All Alternatives

¹ It is likely that more miles of established but unauthorized routes exist and are currently being used by motorized vehicles. However, no information on the location of those routes is available and therefore they were not incorporated or considered in this analysis.

Table 3.7 and Table 3.8 display each of the three alternatives relative to the indicators used to determine cumulative impact to gray wolves from actions associated with each alternative.

Table 3.7 - Gray Wolf Vulnerability Analysis (Acres and percent of project area within ½ mile of NFS roads and trails)

Alternative	June 15-September 15	September 15-June 15
Alternative 1	172,816 (91%)	157,977 (83%)
Alternative 2	168,645 (89%)	153,068 (81%)
Alternative 3	170,247 (90%)	154,243 (81%)

Note: Alternative 1 also includes established but unauthorized routes in "E" areas

Table 3.8 - Gray Wolf Disturbance Analysis (Density (mi/mi²) of NFS roads and trails within the project area)

Alternative	June 15-September 15	September 15-June 15
Alternative 1	2.9	2.4
Alternative 2	2.8	2.2
Alternative 3	3.0	2.2

Note: Alternative 1 also includes established but unauthorized routes in "E" areas

The differences between the cumulative effects of each alternative are relatively small. When assessing the area within ½ mile of a road or trail open to motor vehicles (Table 3.7), the difference is only 2 percent between the alternatives. Similarly, the differences between road and trail density (Table 3.8) is only 0.2 miles per square mile. However, the effect of Alternative 1 would likely be greater due to the unknown trail segments that would be allowed in units 1-8. Consequently, the differences between Alternative 1, and Alternatives 2 and 3 would likely be greater than those displayed above.

In summary, the high percentage of the project area within ½ mile of a road or trail open to motor vehicles (greater than 80 percent for each alternative between September 15 - June 15 [corresponds with anticipated hunting seasons]) would indicate vulnerability to hunting and poaching mortality. Alternatives 2 and 3, however, would reduce cumulative vulnerability (i.e., have a beneficial cumulative effect) when compared to Alternative 1.

The cumulative risk of disturbance during the denning period (late spring, corresponding with the period of September 15 to June 15) under Alternatives 2 and 3 would be identical, and would be less than Alternative 1. During the summer months, when disturbance of rendezvous sites would be of concern, Alternative 2 would have the lowest motorized road and trail densities, followed by Alternative 1, and then Alternative 3².

3.4.2.5 North American Wolverine

3.4.2.5.1 Affected Environment

Wolverine habitat in the project area is present and potentially abundant. As with wolves, wolverine is generally a habitat generalist. With the exception of specific habitat characteristics needed to support denning wolverines, most habitat types and conditions support wolverine, so long as sufficient prey is available. Human related disturbance is the

² Cumulative motorized road and trail densities, overall, would be high regardless of alternative for each time period, when compared to Gaines et al.'s summary information of a density 1.0 miles per square mile or greater resulting in wolf displacement response to motor vehicle disturbance (2003). This would indicate a high risk of adverse disturbances to reproductive efforts and the possible displacement or other adverse impacts to distribution of existing packs in the project area as a result of these high densities.

limiting factor on the distribution and use of habitat for the wolverine across its range and within the project area (Banci 1994). It is assumed that habitat otherwise is suitable in the project area.

There are limited sighting information exists for wolverine in the project area. State of Idaho data indicates 7 sightings over the past 30 years in and immediately adjacent to the project area. Consequently, wolverine would be considered rare in the project area.

Few studies have looked at the impact on motor vehicle use on wolverine. That which is available focuses primarily over-snow vehicle (OSV) impacts during winter months, particularly on denning females which are whelping young (Gaines et al 2003). Specific impacts of off-highway vehicles (OHV), other than over-snow vehicles, on wolverines have generally not been studied. However, given that habitats occupied by wolverine are generally inaccessible by OHVs, whether it is because of wilderness designation, difficult terrain, or otherwise, it suggests an assumption may be made that motor vehicle use, at least in part, may play a role in the displacement of individuals from otherwise functional habitat.

This analysis uses the acres of project area and individual unit areas within ½ mile of a road or trail open to motor vehicle use as an indicator for disturbance. This indicator helps display the amount of the project area subject to motorized vehicle use disturbance and thus assumed to be unsuitable or less suitable for wolverine use. Table 3.6 summarizes this measure by the time period the routes open to motorized use in the project area.

3.4.2.5.2 Environmental Consequences Common to All Alternatives

There is little potential for direct impacts of the actions proposed by the three alternatives. The risk of collisions, while present, is very small, as the speeds traveled by OHVs on the trails proposed are not likely to result in collisions with individual wolverine.

Indirect impacts (measured in disturbance associated with motor vehicle use) would be indistinguishable from the impacts associated with the existing NFS roads and trails in the analysis area. However, Alternative 2 or 3 would eliminate motorized use of any existing but unauthorized route that would not be designated as a NFS trail (including those routes that likely exist but their number and length is currently unknown). This reduction would likely benefit this species, given the anticipated reduction in potential disturbance. The indicator (acres of habitat within ½ mile of trails open to motor vehicles) describes only a portion of the impacts that would occur in the project area with each alternative. The simultaneous use of NFS roads and trails open to motor vehicles, in addition to the trails proposed in each alternative, would add to the overall impact measured by these indicators. These impacts are described below under Cumulative Effects.

3.4.2.5.3 Cumulative Effects

Analysis Area

The analysis area for cumulative effects to wolverine is the analysis area. This area was selected as the cumulative effects analysis area because of a lack of knowledge of individual wolverine occupancy and territory distribution in and around the project area. In absence of that information, the analysis area is selected to assess cumulative effects of the alternatives considered.

Past, Present and Reasonably Foreseeable Actions Considered

Past, present and reasonably foreseeable future actions are the same as those discussed above for lynx.

Cumulative Effects Common to All Alternatives

The cumulative impacts of each alternative would result in a relatively high level of cumulative disturbance potential for wolverine. At best, during the seasonal restriction period for Alternatives 2 and 3, 81 percent of the project area would be cumulatively impacted by motor vehicle disturbance. At worst, with Alternative 1 (which includes no seasonal closures), 91 percent of the Project Area would be cumulatively impacted by OHV use. Table 3.7 above (cumulative effects to gray wolves) summarizes the acres and percent of project area affected by NFS roads and trails and the trail segments proposed in each of the three alternatives. All three alternatives would result in displacement cumulative impacts to wolverine over much of the project area with little difference (2 percent or less) between alternatives. However, Alternatives 2 and 3 would reduce cumulative vulnerability (i.e., have a beneficial cumulative effect) when compared to Alternative 1.

3.4.2.6 Fisher**3.4.2.6.1 Affected Environment**

Habitat modeling by the Rocky Mountain Research Station, in support of their fisher population and distribution assessment for the Northern Rocky Mountains area, indicates potential fisher habitat is present in the project area (Schwartz et al. 2006). This habitat modeling indicated that there is about 5,649 acres of potential habitat within the project area. Powell and Zielinski describe fisher habitat as having several important components, including high canopy closures, complex lower canopy and forest floor vegetation, and high densities of down logs and snags (1994). Across the project area, habitat conditions most often meeting those conditions are located in the lower slopes and riparian areas. Habitat located in RCA areas (300 feet either side of perennial streams, 150 feet either side of intermittent streams), generally provides for fisher, given the presence of vegetation types capable of supporting appropriate habitat characteristics.

3.4.2.6.2 Environmental Consequences Common to All Alternatives

There is little potential for direct impacts of the actions proposed by the three alternatives proposed. The risk of collisions, while present, is very small, as the speeds traveled by OHVs on the trails proposed are not likely to result in collisions with individual fisher.

Indirect impacts (measured in vulnerability to trapping mortality) would be indistinguishable from the impacts associated with the existing NFS roads and trails in the analysis area, when considering and comparing only the trail segments proposed. The indicator (acres of RCA habitat within 300 feet of trails open to motor vehicles) describes only a portion of the impacts that would occur in the project area with each alternative. The simultaneous use of NFS roads and trails open to motor vehicles, in addition to the trails proposed in each alternative, would add to the overall impact measured by these indicators. These impacts are described below under Cumulative Effects.

3.4.2.6.3 Cumulative Effects**Analysis Area**

The analysis area for cumulative effects to fisher is the analysis area. This area was selected as the cumulative effects analysis area because it sufficiently covers any potential individuals and territories that may occur in the project areas as a whole.

Past, Present and Reasonably Foreseeable Actions Considered

Past, present and reasonably foreseeable future actions are the same as those discussed above for lynx.

Cumulative Effects Common to All Alternatives

In general, fisher habitat and associated habitat features are not adversely impacted directly or indirectly by activities proposed in the analyzed alternatives. However, incidental trapping of fisher while pursuing other furbearing mammals in managed trapping seasons might have the greatest potential for negatively affecting fisher in the project area³. Trapping is facilitated in the project area by motorized vehicle access, including NFS roads and trails, and trails which access RCA habitat. Potential fisher habitat in the project area that could be affected by trapping was assessed, using an assumption about trapping effort, reflected in distance of traps from motorized roads and trails (wildlife specialist report). Trapping for furbearers is open year around, although some species have limited time frames for which they can be pursued (IDFG 2008b). Table 3.9 below summarizes the potential fisher habitat that could be cumulatively impacted by alternative.

Table 3.9 - Fisher Vulnerability Analysis (Percent of potential fisher habitat within 300 feet of NFS roads and trails)

Alternative	June 15-September 15	September 15-June 15
	Potential Habitat	Potential Habitat
Alternative 1	39%	35%
Alternative 2	38%	34%
Alternative 3	39%	34%

Note: Alternative 1 also includes established but unauthorized routes in "E" areas

Because Alternative 1 also includes established but unauthorized routes in "E" areas (including existing but unknown routes), Alternative 1 could potentially affect more potential habitat than shown in Table 3.9. The actual percentage of potential habitat vulnerable to trapping efforts is not known.

Compared to Alternative 1, Alternatives 2 and 3 would reduce the cumulative level vulnerability of fisher to trapping, because fewer trails would be available for motorized travel. Of the two action alternatives, Alternative 2 would further reduce the cumulative vulnerability to trapping. However, the difference between alternatives is less than 40 acres (1 percent) of potential habitat that would be impacted.

There are no thresholds known that provide an indication of the risk to populations from inadvertent trapping mortality on fisher populations. It is unknown as to what impact on fisher populations each of the alternatives would have on existing fisher populations.

3.4.2.7 Northern Goshawk

3.4.2.7.1 Affected Environment

³ Powell and Zielinski identified incidental trapping of fisher as a potentially significant adverse impact to fisher populations (1994).

Habitat for the northern goshawk is known to occur within the project area based upon the assessment of potential vegetation types and structure conditions across the Boise NF (Nutt et al. 2008). In several areas, active northern goshawk nests are documented and monitored. However, a comprehensive assessment of habitat for northern goshawks in the project area was not conducted due to the lack of suitable vegetation data (beyond that previously cited) and the lack of any habitat modification that would occur with the implementation of any of the three alternatives considered. The primary agent of impact for northern goshawks would come in the form of motor vehicle disturbance, particularly during the time period from March 1 through September 30 (Gaines et al. 2003). During this time period, Gaines et al. found northern goshawks susceptible to nest and juvenile/fledgling abandonment as a result of disturbances. This would lead to failures of reproductive effort (2003). Citing several different sources, Gaines et al. identified sensitivity to disturbance from motor vehicle use within 400-500 meters (1,440-1800 feet) (2003).

It is assumed that nesting habitat northern goshawk habitat is distributed across the project area, based upon modeling parameters for goshawk habitat on the Boise NF (Nutt et al. 2008). It is also assumed that some segment of that habitat may be impacted by motor vehicle traffic associated with existing NFS roads and trails, as well as established but unauthorized routes in the project area. Because specific nest sites, nest stands, and post fledging areas are not known for the existing reproducing population in the project area, an accurate assessment of the number of pairs/nest sites/post fledging areas potentially impacted is not known.

The measure to evaluate this species is the acres in the project area within ½ miles of open motorized routes from March 1 - September 30. From June 15 - September 15, about 91 percent of the project area has a potential impact to northern goshawk vulnerability due to the largest amount of routes being open to motorized use. Seasonal closure of NFS roads and trails between September 15 and June 15 reduces the potential impact to northern goshawk vulnerability to 83 percent of the project area.⁴

3.4.2.7.2 Environmental Consequences Common to All Alternatives

There is little potential for direct impacts of the actions proposed by the three alternatives proposed. The risk of disturbance of individuals from OHV noise, while present, is very small. The impacts of such disturbances are also discountable, unless they result in a very specific incident of nest, nestling, or fledgling abandonment that then results in reproductive effort failure. Such impacts are not measurable.

Indirect impacts (measured in disturbance associated with motor vehicle use) would be indistinguishable from the impacts associated with the existing National Forest System roads and trails which occur in the analysis area when considering and comparing only the trail segments proposed. However, Alternative 2 or 3 would eliminate motorized use of any existing but unauthorized route that would not be designated as a NFS trail (including those routes that likely exist but their number and length is currently unknown). This reduction would likely benefit this species, given the anticipated reduction in potential disturbance. The indicator used (acres of habitat within ½ mile of trails open to motor vehicles) describe only a portion of the impacts that would occur in the project area with each alternative. The simultaneous use of NFS roads and trails open to motor vehicles, in addition to the trails designated in each alternative, would add to the overall impact measured by these indicators. These indicators are described below in the Cumulative Effects section

3.4.2.7.3 Cumulative Effects

Analysis Area

The analysis area for cumulative effects to goshawks is the analysis area. This area was selected as the cumulative effects analysis area because is of sufficient size and distribution to likely cover any occupied territories in the project area.

Past, Present and Reasonably Foreseeable Actions Considered

Past, present and reasonably foreseeable future actions are the same as those discussed above for lynx.

Cumulative Effects Common to All Alternatives

The cumulative effects for northern goshawk were assessed by evaluating the area within ½ mile of open NFS roads and trails and trail segments proposed in each of the alternatives. This measure serves as an indicator for potential cumulative disturbance to nesting and fledging northern goshawks and their offspring, and ultimately, as a relative indicator of cumulative impacts to reproductive success (wildlife specialist report). Table 3.10 summarizes the acres and percent of the project area impacted via this measure.

Table 3.10 - Goshawk Vulnerability Analysis (Acres and percent of Project Area within ½ mile of NFS roads and trails).

Alternative	March 1-June 15	June 15-September 15
Alternative 1	157,977 (83%)	172,816 (91%)
Alternative 2	153,068 (81%)	168,645 (89%)
Alternative 3	154,243 (81%)	170,247 (90%)

The two time frames correlate the seasonal closures currently enacted on the existing NFS road network, which would be implemented on trail segments designated under each alternative, with the critical time frame for reproducing northern goshawks. Those timeframes encompass sensitive nest establishment, nesting, incubation, nestling, and fledging stages of goshawk reproductive efforts when disturbance could lead to effort failure.

The difference between alternatives is only a few percentage points. Alternatives 2 and 3 cumulatively would affect slightly fewer acres, and thus a smaller percentage of the project area. In addition, Alternative 1 might underestimate the impacts due to the miles of unknown trail segments that, under current management, would potentially impact northern goshawk reproductive efforts. Again, the lack of information on those additional trail segments precludes specific information on those impacts. Consequently, Alternatives 2 or 3 would represent a beneficial cumulative impact, compared to Alternative 1.

However, this measure likely overestimates the effect of the alternatives on northern goshawk reproductive efforts (wildlife specialist report). A lack of knowledge of locations of nesting pairs and corresponding nest stands and post-fledging areas, coupled with the conservative estimate of distance from disturbance (1/2 mile), prevents an accurate accounting of actual impacts. Furthermore, most of the trail segments considered for each alternative have been used by OHV users over the previous 15-25 years, and would continue to be used. It is likely that northern goshawk pairs have already responded to that disturbance (represented by Alternative 1) and have either located to areas of no disturbance or have acclimated to that disturbance and are thus not impacted by that use. This would further reduce the cumulative impacts to reproductive efforts.

3.4.2.8 Columbia Spotted Frogs

3.4.2.8.1 Affected Environment

Comprehensive surveys are not available to describe the distribution and populations of Columbia spotted frogs in the project area. However, spotted frogs are assumed to occupy suitable habitat in the project area as it is available. Suitable habitat includes slow moving or standing water, with non-woody vegetation present to provide hiding cover (IDFG 2005), such as wet meadow habitats, beaver ponds, livestock or other ponds.

Potential impacts of the activities proposed in the three alternatives considered include the loss of quality habitat through direct disturbance and impacts of sediment input into stream habitats such that habitat becomes unsuitable. Two indicators were selected to measure potential risk for those impacts by alternative. The first, acres of RCA habitat exempt from the Travel Management Rule that would be open for off-road and off-trail motor vehicle use, would indicate potential habitat disturbance and loss. The second, the number of stream crossings by established but unauthorized route, would provide an indication of relative risk of sediment input to stream systems which may degrade habitat suitability. There are currently 24 miles of established but unauthorized routes in RCAs, about 7,563 acres of RCA acres that are currently allow off-road/trail use to access dispersed recreation sites, and 34 undeveloped route/stream crossings (Table 3.11). The RCA acres⁵ indicator likely overestimates the risk for impact substantially, because RCAs are typically designated as 300 feet either side of a perennial stream system, and 150 feet either side of an intermittent stream system. This substantially overestimates the habitat potential and potential for impact to spotted frog habitat, as habitat is likely focused at the stream edge and wet meadow components. However, the measure serves only an indicator for change between alternatives.

3.4.2.8.2 Environmental Consequences Specific to Alternative 1 (No Action)

Direct effects to individual Columbia spotted frogs are possible as a result of collisions with OHVs using the trail segments implemented under each alternative. The miles of trail within RCAs serves as an indicator for risk of such collisions. Alternative 1 would have the greatest risk for collisions with 24 miles of trail in RCA habitat. In addition, this alternative would maintain number of acres within RCAs where off-road/trail use to access dispersed campsites is allowed and the number undeveloped route/stream crossings (Table 3.11).

Table 3.11 – Indicators for Potential Impacts to Columbia Spotted Frog Habitat by Alternative

Alternative	Miles of Trail in RCA	RCA Acres*	Number of Stream Crossings
Alternative 1	24	7,563 acres	63
Alternative 2	14	7,222 acres	23
Alternative 3	16	7,222 acres	30

*Number of RCA acres where off-road/trail use is allowed to access dispersed campsites.

3.4.2.8.3 Environmental Consequence Specific to Alternatives 2 and 3

When compared to Alternative 1, Alternatives 2 and 3 would result in fewer impacts to RCA habitat via exempt off-road and off-trail motor vehicle use to access dispersed camp sites. Of particular note, both action alternatives would prevent impacts to wet meadow habitat along Little Ophir and Grimes Creeks, located in Unit Areas 2 and 3, by not allowing off-road motorized vehicle use to access dispersed campsites in these areas (Design Feature DC-1).

⁵ Number of RCA acres where off-road/trail use is allowed to access dispersed campsites. This use is currently allowed 300 feet off of NFS roads and 100 feet off of NFS trails.

Both meadow habitats likely provide habitat for spotted frogs. Both action alternatives would reduce the number of route miles in RCA, RCA acres where off-road use is allowed to access dispersed campsites, and the number of undeveloped route/stream crossings (Table 3.11).

3.4.2.8.4 Cumulative Effects

Analysis Area

The analysis area for cumulative effects to Columbia spotted frogs is the analysis area. This area was selected as the cumulative effects analysis area because it is of sufficient size to assess the cumulative impacts of existing populations of spotted frogs in the project area..

Past, Present and Reasonably Foreseeable Actions Considered

Past, present and reasonably foreseeable future actions are the same as those discussed above for lynx.

Cumulative Effects Common to All Alternatives

Both Alternatives 2 and 3 would reduce the cumulative impact to spotted frogs by reducing the indirect impacts through fewer trail crossings and fewer acres available to off-road and off-trail traffic. Alternative 2 would reduce those impacts more than Alternative 3.

3.4.3 Management Indicator Species (MIS)

3.4.3.1 Affected Environment

In the 2003 Forest Plan, pileated woodpecker and white-headed woodpecker were selected as terrestrial Management Indicator Species (MIS) for certain vegetation types, including those within this project area (USDA Forest Service 2003, p. E-3). The primary reason for selecting MIS is because their populations are believed to indicate the effects of management activities. By monitoring and assessing habitat conditions of MIS, managers can estimate effects on other species within similar habitats.

As documented most recently in the FY 2007 Forest Plan Monitoring and Evaluation Report for the Boise NF, the Forest annually surveys transects (500 points) for pileated woodpecker and white-headed woodpecker. The purpose of this monitoring is to collect data to help establish population trends for these two species over time.

3.4.3.2 Environmental Consequences

Under all alternatives, the habitats associated with pileated woodpecker and white-headed woodpecker would either not be affected by the proposed activities, or the proposed activities would occur during the day such that these primarily-nocturnal species would not be affected.

3.4.4 Migratory Birds

3.4.4.1 Affected Environment

Migratory bird habitat is distributed across the project area, as the diversity of forested, meadow, riparian, woody and shrub habitats throughout the project area provide for a diversity of species. It is assumed that habitat is well distributed and generally functioning for the

variety of migratory birds that are present in the project area. Two species in particular, the pygmy nuthatch and the lesser goldfinch, are identified by IDFG as species of greatest conservation need in the geographic region (Idaho Batholith) which includes the project area (IDFG 2005). They serve as indicators for impacts for migratory birds. Habitat for both species is present and distributed across the project area.

Pygmy nuthatches primarily inhabit ponderosa pine and ponderosa pine-dominated mixed conifer habitat. They are secondary cavity nesters, using old woodpecker excavations. The species shows a preference for mature forest types with an abundance of larger trees and snags, as well as structural diversity composed of intermediate-aged trees.

Lesser goldfinches use a variety of habitats, but tend towards more open habitats, including open forest, woodland edges, open fields and pastures, and areas of human habitation. Water is an important habitat component.

Gaines et al. identified concerns expressed in the literature for disturbance risks associated with general recreation use in migratory bird habitat (2003). With OHV traffic, there is the risk that reproductive efforts of migratory birds could be impacted, particularly close to the trails used by OHVs. In order to assess this risk of impact, an indicator of miles of trail is selected. This would provide a relative comparison of risk of OHV related disturbance impacts. Two seasonal time periods are considered in this analysis, as seasonal NFS road and trail closures to motor vehicle use would be implemented with each action alternative considered. The time frames are March 1 to June 15, and June 15 to July 15. Different time frames represent the sensitive time frame for breeding migratory birds as impacted by the seasonal closure periods (Sept 15-June 15). While most of the breeding effort takes place from March 1-June 15, some of the neotropical migrants, including non-sensitive raptors, carry juvenile and early fledgling stages into July, and those stages can also be sensitive to disturbances, including by OHVs. Currently in the project area there are 68 miles of authorized National Forest System trails, and 127 miles of established but unauthorized trails where use is allowed by the Forest Order 0402-00-05. Additionally, there are approximately 45 miles of unauthorized trails in unit areas 9-11 where motor vehicle use is not permitted, but it is known to occur.

3.4.4.1.2 Environmental Consequences Specific to Alternative 1 (No Action)

Alternative 1 would have the greatest risk for migratory bird disturbance, particularly between March 1 and June 15, which corresponds to the bulk of the breeding efforts. This alternative would maintain the 127 miles of established but unauthorized routes within the project area (Table 3.12). However, from June 15 - July 15, Alternative 2 would have less risk of impacts to migratory birds than Alternative 3.

Table 3.12 - Migratory Bird Disturbance - Miles of Trail by Alternative

Alternative	Miles of Trail by Time Period	
	June 15-July 15	March 1-June 15
Alternative 1	127	127
Alternative 2	56	66
Alternative 3	87	146

3.4.4.1.3 Environmental Consequences Common to All Action Alternatives

Table 3.8 summarizes the risk of impacts to breeding migratory birds. Risk of impacts to breeding migratory birds would be present in each of the action alternatives. From March 1 - June 15, the risk is greatest with Alternative 1, and the least with Alternative 2. From June 15

- July 15, the risk is greatest with Alternative 3, and the least with Alternative 2. The reason for the apparent discrepancy between time periods is due to the proposed designation of over 26 miles of trails in unit area 4 that would not be open to motor vehicle traffic under Alternatives 1 or 2, as well as seasonal closures.

3.4.4.1.4 Cumulative Effects

Analysis Area

The analysis area for cumulative effects to migratory birds is the analysis area. This area was selected as the cumulative effects analysis area because it is of sufficient size to measure the cumulative impacts to migratory birds from disturbance associated with motor vehicle use.

Past, Present and Reasonably Foreseeable Actions Considered

Past, present and reasonably foreseeable future actions are the same as those discussed above for lynx.

Cumulative Effects Common to All Alternatives

Alternative 1 would have the greatest potential for cumulative impacts to migratory birds during the March 1 – June 15 time period when most of the reproductive behavior and effort occurs, because 730 miles of NFS road and trail would be available for motorized use during this time period. Alternative 2 would result in the least level of impact (659 miles) followed by Alternative 3 (690 miles).

3.4.5 Big Game Wildlife Species

3.4.5.1 Affected Environment

3.4.5.1.1 Habitat Effectiveness

Little information is available to comprehensively assess the habitat effectiveness of the project area for Rocky Mountain elk and mule deer, as there is no comprehensive study looking at all or some of the components.⁶ However, given the biologist's professional knowledge of the vegetation and general condition of habitat and its distribution, this analysis assumed that all components of effective habitat, other than motorized roads and trails, are of quantity and distribution such that they meet habitat needs of elk and mule deer and are not limiting factors in populations and distribution of those populations.

Current management implements seasonal closures of NFS roads in the project area. From September 15 - June 15, 128 miles of Maintenance Level 2⁷ roads are closed with gates and are not open for motorized vehicle travel of any type. The purpose and intent of these closures, among other things, is to reduce big game hunting vulnerability in the fall and winter months and reduce disturbance of calving and fawning elk and mule deer during the spring months.

The motorized roads and trails component of habitat effectiveness is the one component affected by the alternatives proposed and will be the focus of this assessment.

⁶ The components include roads, special features, cover, scale of analysis, spatial relationships, domestic livestock and forage. The 2004 Crooked River Watershed Analysis (USDA Forest Service 2004) included part of the project area (i.e., portions of Unit Areas 4 and 5), but this analysis did not include a comprehensive assessment of big game habitat.

⁷ Maintenance Level 2 roads are those open for public or permitted use by high clearance vehicles (USDA Forest Service 2003).

3.4.5.1.2 Big Game Vulnerability

The project area lies entirely within IDFG Hunt Unit 39. Hunting seasons for Rocky Mountain elk and mule deer run from August 15 through November 30 on any given year. The bulk of the hunting activity, and where vulnerability is at its greatest, is during the mule deer and elk rifle seasons in October and November.

Two measures are considered in assessing the impact of motorized roads and trails on elk and mule deer vulnerability to hunting mortality: the density of open motorized roads and trails in the units and project area as a whole, and the acres of habitat within ½ mile of open motorized roads and trails in the units and project area as a whole during open rifle and archery hunting seasons. Because it is assumed that additional motorized trails existing within the “E” Travel Management Areas beyond what is currently documented, both measures have likely underestimated to an unknown degree the acres of habitat within ½ mile of open motorized roads and trails, as well as the density of open motorized roads and trails in each time period.

At least 91 percent and 83 percent of the project area is within ½ miles of open motorized roads and trails from August 15 - September 15, and from September 15 - November 30, respectively (Wildlife Specialist Report, project record). Consequently, substantial portions of the project areas are effectively not contributing to elk security during elk hunting seasons.

From August 15 - September 15, there is a motorized road and trail density of 2.9 miles per square mile, and from September 15 – November 30 (when seasonal closures are in place), the density is 2.4 miles per square mile. Christensen et al. (1993) and Lyon and Christensen (2002) identify relationships between specific road densities and elk vulnerability. As road densities increase, risk of mortality, percent mortality, hunter success, and other measures of vulnerability increases. Based on the varying road densities for each unit area (Wildlife Specialist Report, project record), there are likely reflects varying levels of vulnerability to hunting mortality throughout the project Area, with units 1, 10, and 11 having the least levels of risk, and units 2, 6, and 7 having the highest levels of risk.

3.4.5.1.3 Distribution and Access to Habitat

Rowland et al. (2000) and Wisdom et al. (2005a) documented the impacts of motor vehicle use on open roads on the disturbance and distribution of elk, and elk and mule deer, respectively. Both studies indicated that motor vehicle use of roads disturbed and displaced elk. They found that the level of disturbance reduces as the distance to open roads increases (Rowland et al. 2000), while the distribution (as a result of displacement) of elk increases as the distance from open roads increases (Wisdom et al. 2005a). Conversely, Wisdom et al found that deer did not have similar reactions to roads subject to motor vehicle use (2005a). This study notes that a) elk distribution maybe an overriding factor in mule deer distribution, and b) mule deer may be displaying other avoidance behaviors, such as the use of dense cover, rather than flight or changes in distribution in response to motor vehicle disturbance (Wisdom et al 2005a). Wisdom et al. (2005b) affirmed similar observations relative to ATV disturbances in and off-road recreation use study. Such findings are consistent with a larger body of study looking at similar issues summarized in Lyon and Christensen (2002).

Elk are subject to a relatively high level of disturbance over about 84 percent and 75 percent of the project area from June 15 - September 15 and from Sept 15 – June 15, respectively (Wildlife Specialist Report, project record). Based on the findings of Wisdom et al, it is assumed that the distribution of elk is likely concentrated in a relatively small percentage of the

project area. In regards to overall habitat effectiveness, the overall effectiveness of habitat for elk is likely poor, due to the impact of motorized use of open roads and trails. Conversely, habitat effectiveness for mule deer is likely high due to a relatively large portion of the project area available to them, and their relative resilience to motorized vehicle disturbance. Such conclusions are consistent with the findings of Rowland et al (2005).

3.4.5.1.4 Disturbance during Calving and Fawning

Elk calving and mule deer fawning habitat is available throughout the project area. This habitat includes a mosaic of thermal cover, succulent forage habitat, and water within a forested stand; hiding cover in the form of shrubs and down logs; gentle slopes less than 15 percent; and water within 1,000 feet (600 feet for mule deer) (Thomas 1979). Consequently, calving and fawning habitat is often associated with riparian areas, where often cover, succulent forage and water are readily available.

Disturbance of calving and fawning elk and mule deer may negatively affect reproductive success. These effects could result from abandonment of calves and fawns, and reduced nutritional condition as a result of disturbance related flight and avoidance movements and displacement to poorer habitat conditions, such as outside of riparian areas. Particularly for elk, disturbance by motor vehicles on roads and trails may have substantial disturbance and distribution impacts that may impact reproductive success (Wisdom et al 2005a and 2005b, Johnson et al. 2005).

As noted earlier, big game are subject to a relatively high level of disturbance over about 84 percent and 75 percent of the project area from June 15 - September 15 and from Sept 15 – June 15, respectively (Wildlife Specialist Report, project record). Such disturbance impacts correlate with the time frames of concern for affects to calving and fawning mule deer and elk, and early development of calves and fawns in preparation for the fall and winter seasons (May 1 through August 30). As noted with the assessment of overall disturbance and displacement of elk and mule deer, elk in much of the project area would be subject to disturbance and displacement effects during this time period. This could adversely impact the success of calving and early calf development, which in turn could impact overall population productivity (Johnson et al. 2005). Fawning mule deer and fawns, due to their different responses to motor vehicle disturbance, may be less impacted by roads and trails open to motor vehicles and the impacts to surrounding habitat.

3.4.5.2 Environmental Consequences Common to All Alternatives

There is little potential for direct impacts of the actions proposed by the three alternatives proposed. The risk of collisions, while present, is very small, as the speeds traveled by OHVs on the trails proposed are not likely to result in collisions with individual Rocky Mountain elk or mule deer.

Indirectly, the modification of habitat, such as foraging habitat, would also be discountable. The small footprint of the trail beds, which already exist, is small and likely immeasurable relative to the natural variation in vegetation habitat in the project area.

Indirect impacts as measured in vulnerability to hunting mortality, distribution and access to habitat, and disturbance during calving and fawning are indistinguishable from the impacts associated with the existing NFS roads and trails in the analysis area. However, Alternative 2 or 3 would eliminate motorized use of any existing but unauthorized route that would not be designated as a NFS trail (including those routes that likely exist but their number and length is

currently unknown). This reduction would likely result in a benefit to these species, given the anticipated reduction in potential disturbance, compared to Alternative 1. The indicators used describe only a portion of the impacts that would occur in the project area with each alternative. As noted above, the simultaneous use of NFS roads and trails open to motor vehicles in addition to the established but unauthorized proposed to be designated for motorized use in each alternative would add to the overall impact measured by these indicators. These impacts are described in the Cumulative Effects section below. Differences in the cumulative effects between alternatives reflect differences in the indirect effects of each alternative relative to those measures.

3.4.5.2.1 Cumulative Effects

Analysis Area

The analysis area for cumulative effects to elk and mule deer is the analysis area. This area was selected as the cumulative effects analysis area because it is large enough to assess the cumulative impacts to elk and mule deer habitat and populations.

Past, Present and Reasonably Foreseeable Actions Considered

Past, present and reasonably foreseeable future actions are the same as those discussed above for lynx.

Cumulative Effects Common to All Alternatives

Hunting vulnerability: Of the three alternatives, Alternative 2 would provide the greatest cumulative reduction in vulnerability to hunter related mortality. However, during September 15 – November 30, when vulnerability would be at its greatest due to the types of hunting seasons and the number of hunters participating, there would be no difference between Alternatives 2 and 3, because of the types of seasonal road and trail closures that would be implemented with each, coupled with the distribution of open trails and NFS roads that would be used by hunters during those hunting seasons.

Table 3.13 below summarizes the acres of habitat within ½ mile of mile of roads and trails open to hunters during the respective seasonal closure periods, which serves as an indicator to hunter vulnerability.

Table 3.13 - Elk and Deer Vulnerability Analysis (Percent of project area within ½ mile of NFS roads and trails).

Alternative	August 15-Sept 15	September 15-November 30
Alternative 1	91%	83%
Alternative 2	89%	81%
Alternative 3	90%	81%

Distribution and access to habitat: Alternatives 2 and 3 would result in greater effective habitat conditions for elk than Alternative 1, with little difference between Alternatives 2 and 3. The overall improvement to habitat effectiveness with either action alternative would be small and remain poor for elk. Mule deer would see little habitat effectiveness change under any of the alternatives.

Table 3.14 - Disturbance Assessment (Percent of project area at different distance bands from roads and trails open to motor vehicles).

Alternative	Distance Band (Meters)	Disturbance Level	June 15-Sept 15(%)	Sept 15-June 15 (%)
Alternative 1	0-600	High	84	75
	600-1200	Moderate	14	18
	1200-1800	Low	2	5
	Great than 1800	None	0*	2
Alternative 2	0-600	High	81	71
	600-1200	Moderate	15	20
	1200-1800	Low	3	6
	Great than 1800	None	1	3
Alternative 3	0-600	High	83	72
	600-1200	Moderate	13	19
	1200-1800	Low	3	6
	Great than 1800	None	1	3

Disturbance during calving and fawning: Alternatives 2 and 3 would provide for better calving conditions and reduce cumulative impacts to developing juveniles, relative to Alternative 1. However, the relative beneficial impact is small. Impacts to mule deer would be minimally different between alternatives. Table 3.14 describes the level of impact associated with motor vehicle disturbance under each alternative. As previously noted, most of the project area is cumulatively impacted by motor vehicle use (greater than 90 percent of the project area in a moderate or high disturbance level). Such levels of disturbance may negatively affect reproductive success for both mule deer and elk.

3.5 FISHERIES

This section incorporates by reference the Fisheries Specialist's Report and Biological Assessment for bull trout (project record). These documents contain the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the project fish biologist relied upon to reach the conclusions in the EA.

3.5.1 Analysis Area

The analysis area fisheries resources and watershed condition indicators includes the travel management project area on the Idaho City RD, unless otherwise noted. This includes 189,628 acres of the Idaho City RD and 31 6th hydrologic unit subwatersheds. This analysis area was chosen over the subwatershed scale because of the large scope of the project and the biological significance. Watershed Condition Indicators from the Appendix B (Forest Plan, 2003) were used to describe existing conditions and the anticipated effects within the analysis area.

3.5.2 Affected Environment

3.5.2.1 Fisheries Resources

Streams within the project Area on the Idaho City RD include habitat for several fish species. Rainbow/redband trout (*Oncorhynchus mykiss gairdneri*) are a species of concern. No Forest Service-designated sensitive species exist in the analysis area. Bull trout (*Salvelinus confluentus*) are a management indicator species (MIS) on the Boise National Forest and are listed as Threatened under the Endangered Species Act (ESA).

The analysis area for bull trout was limited to the portion of the area identified by the Boise National Forest Management Indicator Species Protocol as potential or occupied bull trout spawning/rearing habitat within the project area.

3.5.2.1.1 Fish Species Considered

Rainbow/Redband Trout (*Oncorhynchus mykiss gairdneri*)

Native redband trout of the Columbia River are a subspecies of rainbow trout. Redband trout inhabit a diverse array of habitat in rivers and streams, including small intermittent streams and are like other salmonids, are dependent on cold, clean water. Inland redband trout are generally associated with pool habitats as adults, but various life stages require a wide array of habitats for rearing, hiding, feeding, and resting. Most perennial streams within the project area provide habitat for rainbow/redband trout.

Westslope Cutthroat Trout (*Oncorhynchus clarki lewisi*)

No cutthroat trout are known to be native to major Snake River tributaries below Shoshone Falls, such as the Wood, Weiser, Boise, Payette, Owyhee, and Malheur rivers (Behnke 1992). Aquatic Survey Database (ASD) revealed no Westslope within the Project Area. Westslope cutthroat trout will not be considered further in this analysis of effects, and are dropped from further consideration.

Bull Trout (*Salvelinus confluentus*)

Bull trout were listed as threatened under the Endangered Species Act on June 10, 1998 (63 FR 31647). Bull trout have more specific habitat requirements than most other salmonids and require channel stability, clean substrate, cover, cold-water temperatures, and migratory corridors (Rieman and McIntyre 1993). Bull trout are typically found in cold streams and require colder water than other salmonids for incubation, juvenile rearing, and spawning. Spawning and rearing areas are often associated with cold-water springs, groundwater infiltration, and or the coldest streams in a subwatershed. Throughout their lives, bull trout require complex forms of cover, including large woody debris, undercut banks, boulders, and pools.

The Boise NF identified bull trout as a MIS during Forest Plan revision (Forest Plan, 2003). Since then, a MIS Protocol for bull trout has been developed on the Boise and Sawtooth NFs and is being implemented. The proposed monitoring fulfills the requirements for MIS Species while identifying potential spawning/rearing habitats and monitors those habitats for bull trout presence. The Boise and Sawtooth NFs MIS protocol identified potential bull trout spawning habitat and categorized the habitats into patch delineations defined as Strata 1 – Occupied habitat, Strata 2 – Suitable habitat and/or presence/absence data is greater than 7 years old, Strata 3 – Unsuitable habitat, and Strata 4 – Unknown. There is one Strata 1 bull trout patch and associated migratory habitat within the footprint of this project. However, there are no documented bull trout populations within the project area. Consequently, as documented in the Biological Assessment (BA) in the planning record, there would be “no effect” to bull trout under any alternative.

3.5.2.2 Watershed Condition Indicators (WCIs)

Watershed Condition Indicators (WCIs) are an integrated suite of aquatic (including biophysical components), riparian (including riparian associated vegetation species), and hydrologic (including uplands) condition measures that are intended to be used at a variety of scales. WCIs assist in determining the current condition of a watershed and should be used to

help design appropriate management actions, or to alter or mitigate proposed and/or ongoing actions, to move watersheds toward desired conditions. WCIs represent a diagnostic means to determine factors of current condition and assist in determining future conditions associated with implementation of management actions or natural restoration over time (Forest Plan, p. GL-40).

There are 26 WCIs outlined in the Forest Plan to characterize current soil, water, riparian and aquatic (SWRA) conditions and the effects of land management activities on the following biophysical and aquatic habitat pathways: bull trout local population characteristics, water quality, habitat access, habitat elements, channel conditions and dynamics, flow/hydrology, watershed conditions, and the integration of species and habitat conditions (Forest Plan, p. B-12 to B-21).

The Integration of Species and Habitat Conditions WCI is an integration of all of the biophysical and aquatic habitat conditions. The individual WCIs represent a starting point to describe the current and desired conditions for these conditions. This WCI synthesizes the information evaluated for the individual WCIs to determine the overall functionality of the analysis area. Therefore, the integration of species and habitat condition WCI is used to describe the existing biophysical and aquatic habitat existing conditions overall for the analysis area.

The WCIs were evaluated based on the proposed activities, project footprint, and professional judgment. Each WCI was evaluated to determine if it occurs within the analysis area or the footprint of the project. WCIs were evaluated⁸ and it was determined that all the WCIs, except for the Refugia (Bull Trout) WCI, are present within the analysis area and therefore were determined to be relevant and would be included in the environmental baseline analysis. This evaluation found that five WCIs including Sediment/Turbidity (Other Fishes), Streambank Conditions, Change in Drainage Network Increase, Riparian Conservation Areas, and Integration of Species and Habitat Conditions are relevant and influenced by the project and would be included in both the environmental baseline and effects analysis.

Environmental baseline functional ratings for the WCIs applicable to this project have been summarized for the analysis area. The environmental baseline table for the analysis area is available in the Fisheries Specialist Report in the Project Record.

- **WCIs Functioning Appropriately (FA):** Large Woody Debris, Pool Frequency, Off-channel Habitat, and Width/Max Depth Ratio
- **WCIs Functioning at Risk (FR):** Life History Diversity and Isolation, Temperature, Chemical Contaminants and Nutrients, Streambank Condition, Floodplain Connectivity, Change in Peak/Base Flows, Disturbance History, Riparian Conservation Areas, and Disturbance Regime.
- **WCIs Functioning at Unacceptable Risk (UR):** Subpopulation Size, Growth and Survival, Persistence and Genetic Integrity, Sediment/Turbidity (Bull Trout), Sediment/Turbidity (Other Fishes), Substrate Embeddedness (Bull Trout), Pool Quality,

⁸ Is the WCI present within the footprint of the project? • If no, the WCI is not applicable to the project. WCIs determined to be not applicable to the project are not included in the environmental baseline or projects effects analysis. • If yes, the WCI is relevant to the project. Relevance is then divided into relevant but not influenced by the project and relevant and influenced by the project. WCIs determined to be relevant but not influenced by the project would be included in the environmental baseline but not the project effects analysis. WCIs determined to be relevant and influenced by the project would be included in both the environmental baseline and project effects analysis.

Refugia, Change in Drainage Network Increase, Road Density and Location, and Integration of Species and Habitat.

The Integration of Species and Habitat conditions is currently functioning at unacceptable risk based on integration of the aquatic habitat and the biophysical conditions within the analysis area. Bull trout habitat within the project area is limited by the accessibility of spawning and rearing habitat. Only one of the 20 patches is identified as occupied by bull trout and six patches are identified as having potential spawning and rearing habitat. The remaining 13 patches are identified as unsuitable habitat. Habitat for other fishes within the project area have been impacted by land management activities including but not limited to physical barriers to upstream fish migration and elevated stream sediment levels as the result of forest roads. Road/Route densities, physical barriers, sediment/turbidity, and pool quality are limiting factors in the project area. The average NFS road density for all subwatersheds within the project area is 2.8 mile/miles². There are currently 24 miles of established but unauthorized routes within the RCAs. The current route density associated with established but unauthorized routes within the RCA is about 0.9 mile/miles². There are currently 64 undeveloped route/stream crossings (fords) associated with established but unauthorized routes in the project area. Stream channel fines (material less than 6 millimeters in diameter) within the project area average 48 percent surface fines and 49 percent surface fines within potential bull trout habitat. Less than 1 percent of the stream reaches surveyed within the project area had at least one large pool, i.e. a pool greater than 1 meter deep.

3.5.3 Environmental Consequences of Alternative 1

3.5.3.1 Fisheries Resources

Alternative 1 (no action alternative) does not proposed new management actions in the project area. This alternative would maintain about 127 miles of established but unauthorized routes open for motorized use in Unit Areas 1-8, 0.9 miles/mile² RCA route density, and 64 undeveloped route/stream crossings. Implementation of this alternative would pose the greatest risk to the fisheries resource based on the continued negative impacts in all three timeframes to the evaluated WCIs.

3.5.3.2 Watershed Condition Indicators

Alternative 1 (no action alternative) does not propose new management actions in the project area. All WCIs for this alternative were found to be maintained existing functionality or would not be influenced with implementation this project (Table 3.15). The analysis illustrates that the WCIs evaluated would continue to have negative impacts in all three timeframes. The Integration of the Species and Habitat WCI is used as a synthesis of the effects on the individual WCIs to summarize the overall functional status of the project area as a result of this alternative. The Integration of Species and Habitat WCI would continue to be function at unacceptable risk with implementation of this alternative since the existing aquatic habitat conditions would be maintained and the conditions for the WCIs evaluated would maintain a negative trend in all three timeframes. Detailed discussion of each of the WCIs evaluated for this project is available in the Fisheries Specialist Report in the Project Record.

3.5.4 Environmental Consequences of Alternative 2

3.5.4.1 Fisheries Resources

Alternative 2 (proposed action alternative) would improve fisheries resource conditions based on the reduction in both miles of routes within RCAs and associated stream crossings. Implementation of this alternative would result in designation for motorized use about 66 miles of trails, RCA route density of 0.5 miles/mile², a reduction to 23 undeveloped route/stream crossings and an immeasurable improve in all three timeframes to the evaluated WCIs. Sediment in spawning habitat, pools, and riffles may be decreased with this alternative since potential for sediment delivery to streams would be reduced based on 42 percent in RCA routes and 64 percent reduction in undeveloped route/stream crossing.

3.5.4.2 Watershed Condition Indicators

All WCIs for this alternative were found to maintain existing functionality or would not be influenced with implementation this project (Table 3.15). The analysis indicates that the WCIs evaluated would have immeasurable benefits in all three timeframes. The Integration of the Species and Habitat WCI is used as a synthesis of the effects on the individual WCIs to summarize the overall functional status of the project area as a result of this alternative. The Integration of Species and Habitat WCI would continue to be function at unacceptable risk with implementation of this alternative since the existing aquatic habitat conditions would be maintained and the conditions for the WCIs evaluated would be immeasurably improved. This alternative would benefit watershed conditions and processes based on the reduction in RCA route density to 0.5 miles/mile² and a decrease to 23 route/stream crossings. These changes would result in less sediment delivery to project area streams leading to improved watershed conditions and processes in the temporary, short-, and long- term timeframes. Detailed discussion of each of the WCIs evaluated for this project is available in the Fisheries Specialist Report in the Project Record.

3.5.5 Environmental Consequences of Alternative 3

3.5.5.1 Fisheries Resources

Alternative 3 would improve fisheries resource conditions based on the reduction in both miles of routes within RCAs and associated stream crossings. Implementation of this alternative would result in designation for motorized use about 146 miles of trails, RCA route density of 0.6 miles/mile², a reduction to 30 undeveloped route/stream crossings and an immeasurable improve in all three timeframes to the evaluated WCIs. Sediment in spawning habitat, pools, and riffles may be decreased with this alternative since potential for sediment delivery to streams would be reduced based on 35 percent in RCA routes and 53 percent reduction in undeveloped route/stream crossing.

3.5.5.2 Watershed Condition Indicators

All WCIs for this alternative were found to maintain existing functionality or would not be influenced with implementation this project (Table 3.15). The analysis indicates that the WCIs evaluated would have immeasurable benefits in all three timeframes. The Integration of the Species and Habitat WCI is used as a synthesis of the effects on the individual WCIs to summarize the overall functional status of the project area as a result of this alternative. The Integration of Species and Habitat WCI would continue to be function at unacceptable risk with implementation of this alternative since the existing aquatic habitat conditions would be maintained and the conditions for the WCIs evaluated would be immeasurably improved. This alternative would benefit watershed conditions and processes based on the reduction of

motorized routes to about 146 miles, reduction in RCA route density to 0.6 miles/mile² and a decrease to 30 route/stream crossings. These changes would result in less sediment delivery to project area streams leading to improved watershed conditions and processes in the temporary, short-, and long- term timeframes. Detailed discussion of each of the WCIs evaluated for this project is available in the Fisheries Specialist Report in the Project Record.

Table 3.15 – Summary of WCI Baseline Conditions and Effects.

Pathways Indicators ^a	Baseline Conditions ^b	Effects ^{c,d}	Action Alternatives		
			Alt. 1 ^e	Alt. 2 ^e	Alt. 3 ^e
			T/S/L Timeframe ⁺	T/S/L Timeframe ⁺	T/S/L Timeframe ⁺
Subpopulation Character					
Subpopulation size	UR	NI	None	None	None
Growth and Survival	UR	NI	None	None	None
Life History Diversity and Isolation	FR	NI	None	None	None
Persistence and Genetic Integrity	UR	NI	None	None	None
Water Quality					
Temperature	FR	NI	None	None	None
Sediment (bull trout spawning areas)	UR	NI	None	None	None
Sediment (other fishes)	UR	M	- / - / -	+* / +* / +*	+* / +* / +*
Chemical Contaminants/Nutrients	FR	NI	None	None	None
Habitat Access					
Physical Barriers	UR	NI	None	None	None
Habitat Elements					
Substrate Embeddedness (rearing areas)	Bull Trout = UR Other Fishes = FR	NI	None	None	None
Large Woody Debris	FA	NI	None	None	None
Pool Frequency and Quality	FA	NI	None	None	None
Large Pools	UR	NI	None	None	None
Off-Channel Habitat	FA	NI	None	None	None
Refugia	UR	NI	None	None	None
Channel Condition and Dynamics					
Width/Depth Ratio	FR	NI	None	None	None
Stream Bank Condition	FR	M	- / - / -	+* / +* / +*	+* / +* / +*
Floodplain Connectivity	FR	NI	None	None	None
Flow/Hydrology					
Changes in Peak/Base Flows	FR	NI	None	None	None
Drainage Network Increase	UR	M	- / - / -	+* / +* / +*	+* / +* / +*
Watershed Conditions					
Road Density and Location	UR	NI	None	None	None
Disturbance History	FR	NI	None	None	None
Riparian Conservation Areas	FR	M	- / - / -	+* / +* / +*	+* / +* / +*
Disturbance Regime	FR	NI	None	None	None
Integration of Species					
Integration of Species and Habitat Conditions	UR	M	- / - / -	+* / +* / +*	+* / +* / +*

- a. Matrix checklist adapted from USFWS and NMFS 1998
- b. Baseline conditions: FA = Functioning Acceptably, FR = Functioning at Risk, UR = Unacceptable Risk, and NA = not applicable for this project.
- c. This displays the potential effects of the action on habitats or individuals, and not on the status of the entire local population/watershed. I = Improve, M = Maintain, D = Degrade, NI = No Influence
- d. Evaluated against local criteria where appropriate and available
- e. * denotes immeasurable change
- + T = Temporary, S = Short-term, L = Long-term

3.5.6 Cumulative Effects

3.5.6.1 Watershed Condition Indicators and Fisheries Resources

There have been a variety of past and present activities that occurred which are included in the existing/baseline condition section of this document. This analysis does not try to individually quantify each activity separately; rather it is summarized in the existing condition. Past activities within the watershed, especially roads and mining activities, have likely increased sedimentation over natural levels. Sediment levels would remain elevated with implementation of the No Action Alternative and would likely be reduced with implementation of an Action Alternative.

There are several reasonably foreseeable future actions within the project area. This analysis does not try to quantify effects on these future actions because there is project specificity to analyze project specific impacts. Future projects will stand on their own merit with regard to cumulative effects.

While implementation of an Action Alternative would result in a localized incremental improvement in Watershed Condition Indicators and fish habitat, these effects would not be at a magnitude that would reflect a change in any watershed condition indicator. Since the effects associated with this project would not be measurable, there would be no cumulative effects associated with the WCIs and/or fisheries resources.

3.6 WATERSHED

This section incorporates by reference the Hydrologic Analysis report (project record). These documents contain the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the project hydrologist relied upon to reach the conclusions in the EA.

3.6.1 Affected Environment

The project area is about 189,628 acres. The analysis for watershed resources was completed at the unit area scale, as defined by the Hydrologic Analysis report in the project record, the findings of these analyses, unless otherwise stated, will be presented at the project area scale.

3.6.1.1 Water Quality

There are currently an estimated 240 miles of trails subject to Forest Service management across the project area. This includes about 68 miles of NFS trails and 172 miles of known established but unauthorized routes available for public use. For the water quality analysis, all known trails were considered since these existing routes may be causing impacts within the project area. In addition, it is assumed that there is additional but unknown mileage of established but unauthorized routes within the project area that may be causing resource damage. In the project area, there are 24 miles of routes within RCAs, RCA route densities are 0.9 miles/mile², and 64 undeveloped route/stream crossings or fords. Currently, off-road/trail motorized use is allowed 300 feet off of designated roads and 100 feet off of designated trails to access disperse campsites, i.e. exemption areas. There are approximately 42,636 acres in these exemption areas currently. The existing transportation system in the project area is described in Section 1.2.2 of this document.

Unauthorized routes are generally not properly designed nor maintained to Forest Service Standards. In addition, these routes do not have adequate drainage features or erosion

control devices which can lead to water and sediment concentrating on these routes during run off events and ultimately delivered to streams. Watershed impacts from unauthorized trails may include sediment delivery to streams from RCA routes, erosion due to un-maintained routes, undeveloped stream crossings, and/or off-road use within riparian areas.

3.6.1.1.1 Federal Clean Water Act

The federal Clean Water Act (CWA) requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nation's waters. States and tribes, pursuant to Section §303 of the CWA, are to adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the nation's waters whenever possible. Section §303(d) of the CWA establishes requirements for states and tribes to identify and prioritize water bodies that are water quality limited (i.e., water bodies that do not meet water quality standards). States and tribes must periodically publish a priority list (a "§303(d) list") of impaired waters. Currently this list must be published every two years. For waters identified on this list, states and tribes must develop a total maximum daily load (TMDL) for the pollutants, set at a level to achieve water quality standards. The United States Environmental Protection Agency (EPA) is the agency responsible for reviewing and approving TMDLs.

The Idaho Department of Environmental Quality (IDEQ) submits an "Integrated Report" (IDEQ 2008) to the EPA for approval every two years as required by the Federal Clean Water Act (CWA). The Integrated Report contains two sections: a list of Idaho's impaired waters, formerly the §303(d) list, and a condition report for all Idaho surface waters, formerly the 305(b) report. Impaired waters refer to the water bodies that do not meet the state's water quality standards or support beneficial uses. The report breaks these into two further categories: Section 4) Impaired or Threatened but not needing a TMDL and Section 5) TMDL needed. These sections together comprise the 303(d) listed streams. The Integrated Report provides a way to better identify and prioritize state water quality problems (IDEQ website <http://www.deq.state.id.us>).

In the project area Grimes Creek and its tributaries, Mores Creek and its tributaries, and some tributaries to French Creek, Crooked River, and Meadow Creek are all on Idaho's list of impaired waters (Integrated Report, Section 5, i.e. 303(d) list). Grimes Creek and Mores Creek and the tributary streams are listed for exceeding temperature and sediment standards. Crooked River, Meadow Creek, and French Creek are listed for exceeding sediment standards.

All unit areas in the project area except Unit area 5 and Unit area 8 contain 303(d) listed streams. A TMDL (Total Maximum Daily Load) is currently being developed for Mores Creek and Grimes Creek. Implementation strategies include: management agencies will make every effort to address, past, present, and future pollution problems. A successful management approach would achieve reductions based on BMP implementation. Activities which appear to be associated with nonpoint source pollution in Mores and Grimes Creeks include density of road and trail system crossings (IDEQ, 2009).

3.6.2 Environmental Consequence Specific to Alternative 1 (No Action)

3.6.2.1 Water Quality

Alternative 1 (no action) would pose a high probability of individually minor negative impacts to watershed resources that may lead to measurable degradation to hydrologic function and increased sediment delivery to streams. For this analysis, all known trails were considered since these existing routes may be causing water quality impacts within the project area. In addition, it is assumed that there is additional mileage of established but unauthorized routes within the project area that may be causing resource damage. This would be the result of the current 240 miles of routes (68 miles authorized NFS trails and 172 miles of established but unauthorized trails) within the project area. Of the 240 miles of routes, approximately 24 miles are within the RCAs and there are 64 undeveloped route/stream crossings. Unauthorized routes generally are not designed or maintained to Forest Service trail standards. Lack of drainage and erosion structure on a trail can lead to water concentrating on the trail, trail erosion, and ultimately sediment delivery to streams. Further, unauthorized routes have a higher likelihood for undeveloped stream crossings which could provide direct points of delivery for sediment delivery to streams. With this alternative all routes within would remain open year round which would increase the potential for use during the wet seasons and the resultant rutting of the trail tread. Trail ruts would concentrate flow and accelerate trail erosion during the wet periods consequently increasing the potential sediment delivery to streams.

3.6.3 Environmental Consequences Specific to Alternative 2 (Proposed Action)

3.6.3.1 Water Quality

Alternative 2 (proposed action) would designate about 134 miles of trail for motorized use. For this analysis, 68 miles of NFS trails and 66 miles of the established but authorized proposed to be designated for motorized use were considered since they may be causing water quality impacts within the project area. Motorized use would be eliminated on about 106 miles of trails, the all of which are established but unauthorized routes. This would be 44percent less than Alternative 1 and 37percent less than Alternative 3. The miles of trail in all units would be maintained or reduced. Established but unauthorized routes that would not be designated would be expected to re-vegetate in 3 to 5 years, effectively eliminating the probability of sediment production on these trails. Exemption areas would increase with implementation of this alternative from 42,638 to 43,120 acres. This alternative would reduce RCA route densities to 0.5 miles/mile² due to a reduction of about 10 miles of RCA routes. Overall RCA route densities would be reduced by 44 percent compared to Alternative 1 and 14 percent less than Alternative 3. There would also be a reduction from 64 to 23 route/stream crossings. In addition, there would be seasonal closures (9/15 – 6/15) of 10 miles of trails, a 44 percent reduction of routes located in RCAs and 64 percent fewer route/stream crossings during the wet season. These reductions would reduce sediment delivery to streams and therefore improve watershed conditions and processes in the short- and long-term once vegetation recovery occurs.

3.6.4 Environmental Consequences Specific to Alternative 3

3.6.4.1 Water Quality

Alternative 3 would designate about 214 miles of trail for motorized use. For this analysis, 68 miles of NFS trails and 66 miles of the established but authorized proposed to be designated for motorized use were considered since they may be causing water quality impacts within the project area. Motorized use would be eliminated on about 26 miles of trails, the all of which

are established but unauthorized routes. This would be 11 percent less than Alternative 1 and 37 percent more trails than Alternative 2. Established but unauthorized routes that would not be designated would be expected to re-vegetate in 3 to 5 years, effectively eliminating the probability of sediment production on these trails. Exemption areas would be reduced with implementation of this alternative from 42,638 to 44,999 acres. This alternative would reduce RCA route densities to 0.6 miles/mile² due to a reduction of about 8 miles of RCA routes. Overall RCA route densities would be reduced by 37 percent compared to Alternative 1 and 14 percent more than Alternative 2. There would also be a reduction from 64 to 30 route/stream crossings. In addition, there would be seasonal closures (9/15 – 6/15) of 59 miles of trails, a 37 percent reduction of routes located in RCAs, and 64 percent fewer route/stream crossings during the wet season. These reductions would reduce sediment delivery to streams and therefore improve watershed conditions and processes in the short- and long-term once vegetation recovery occurs.

3.6.5 Cumulative Effects

3.6.5.1 Past and Present Activities

In general, areas with better access (high trail and road densities) have poorer habitat and riparian conditions, altered streamflows and slope hydrology. Enduro trails due to the high intensity use during race years typically cause more erosion and soil disturbance than other trails. In many locations stream and riparian habitats have been largely altered from historic activities such as road construction, grazing, timber harvest, dredge, and placer mining, firewood cutting in riparian areas, and recreation.

3.6.5.2 Reasonably Foreseeable Activities

Reasonably foreseeable activities include the same activities as the past and present activities that are expected to continue.

3.6.5.3 Cumulative Effects Alternative 1

Alternative 1 has the greatest potential for negative cumulative impacts than Alternatives 2 and 3 because it does not restrict either motorized recreation on non-system routes or cross-country travel and had the highest acres of exempt areas open for dispersed camping access. This alternative could pose a probability of individually minor adverse impact to watershed resources that could cumulatively have the potential to cause degradation to hydrologic functions and increased sediment delivery to streams. This is due to the currently existing 240 total miles of trails, the 24 miles of trails within RCAs, and the 64 stream crossings.

3.6.5.4 Cumulative Effects Alternative 2

Overall, because of the reduction in trail miles this alternative would have less probability of sediment production or negative impacts to watershed resources from trails than Alternatives 1 and 3. These impacts would cumulatively have lower potential to cause measurable degradation to hydrologic functions than Alternatives 1 and 3 and therefore less probability of creating cumulative impacts.

3.6.5.5 Cumulative Effects Alternative 3

This alternative would reduce the probability of cumulative negative effects to watershed conditions and processes because of the reduction in both miles of trails within RCAs and associated stream crossings compared to Alternative 1 but would have a higher risk of cumulative effects than Alternative 2. Although each individual trail and stream crossing in an

RCA would pose a high probability of individually minor adverse impacts to watershed resources, these impacts would cumulatively have lower potential to cause degradation to hydrologic functions and increased sediment load in streams than Alternative 1.

3.7 SOIL RESOURCES

This section incorporates by reference the Hydrologic Analysis report (project record). These documents contain the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the project hydrologist relied upon to reach the conclusions in the EA.

3.7.1 Affected Environment

The project area is about 189,628 acres. The analysis for soil resources was completed at the unit area scale, as defined by the Hydrologic Analysis report in the project record, the findings of these analyses, unless otherwise stated, will be presented at the project area scale.

3.7.1.1 Detrimental Disturbance

The Boise National Forest soil productivity standard (SWST02) for detrimental disturbance (DD) states: (1) In an activity area where existing DD area is below 15 percent of the area, management activities shall leave the area in a condition of 15 percent or less detrimental disturbance following completion of activities; or (2) In an activity area where existing conditions of DD exceeds 15 percent of the area, management activities shall include mitigation and restoration so that DD levels area moved back toward 15 percent or less following completion of the activities (Forest Plan, p. III-21). The DD activity area is defined as the specific area where proposed actions may have detrimental soil impacts, such as harvest units within a timber sale area, an individual pasture unit within a grazing allotment, or a burn block within a prescribed burn project area (Forest Plan, p. GL-1). Detrimental soil disturbance was not estimated for current conditions or for the Action Alternatives. While detrimental disturbance does occur as a result of past logging, skid trails, dispersed recreation activities etc., there would be no management actions associated with the Action Alternatives that would increase or decrease the detrimental disturbance conditions. Therefore, no further discussion of DD is necessary.

3.7.1.2 Total Soil Resource Commitment

The Boise National Forest soil productivity standard (SWST03) for TSRC states (1) In an activity area where existing conditions of TSRC area below 5 percent of the area, management activities shall leave the area in a condition of 5 percent or less TSRC following completion of the activities; or (2) In an activity area where existing conditions of TSRC exceeds 5 percent of the area, management activities shall include mitigation and restoration so that TSRC levels area moved back toward 5 percent of less following completion of the activities (Forest Plan, p. III-21). TSRC is generally measured across an all-inclusive area such as a timber sale area, a prescribed burn area, or grazing allotment, where effects to soil commitment could occur or are occurring (Forest Plan, p. GL-1). Authorized and unauthorized roads and trails as well as 10 percent of the acres in exemption areas were considered TSRC for this analysis.

Existing TSRC within the analysis area is 3.1 percent or about 5,896.6 acres and currently meets Forest Plan standard SWST03.

3.7.1.3 Coarse Woody Debris

The potential influence on the amount and distribution of coarse woody debris (CWD) needed for long-term soil productivity would not likely be affected by this project. This is based on the lack of removal of and/or effect on the recruitment of CWD based on the proposed management actions associated with designating routes. Further discussion on CWD was determined to be unwarranted.

3.7.1.4 Landslide Prone

The Forest-wide Stability Index Mapping (SINMAP) computer model was used as an initial tool to determine landslide prone areas within the project area. SINMAP is a terrain stability GIS-based mapping model that uses existing landslide data, a 30-meter Digital Elevation Model (DEM) and an infinite plane slope stability model to identify areas of high landslide prone areas (Pack et al., 1998). This model was run for the entire Forest as part of the 2003 Boise NF Forest Plan Revision and resulted in a grid layer delineating four categories of slope stability hazard: stable, low, moderate and high. This forest-wide coverage is located in the Boise NF GIS library.

The project area has a substantial amount of moderate to high landslide prone areas as identified in the forest-wide stability index map coverage. The verification of landslide prone areas for this project was not warranted as there are no proposed management actions that have the potential for effecting landslide processes. There will be no further discussion of landslide prone areas.

3.7.2 Environmental Consequences Specific to Alternative 1 (No Action)

Under Alternative 1, the TSRC would remain at 3.1 percent and would meet Forest Plan Standard SWST03. The alteration of natural soil characteristics that results in immediate or prolonged loss of soil productivity and soil-hydrologic conditions, would continue due to the 240 miles of existing trails and the existing 42,636 acres of exempt areas (areas open to off-road vehicle travel to access dispersed camp sites). Off route use to access dispersed camping can reduce ground cover and cause soil compaction which can lead to a loss of productivity and hydrologic function.

3.7.3 Environmental Consequences Specific to Alternative 2 (Proposed Action)

Under Alternative 2, TSRC would be maintained at 3.1 percent, or 5,902 acres, as a result of a slight increase in TSRC acres associated with exemption areas and the reduction routes available for motorized use. Overall total soil resource commitment (TSRC) would be the same as Alternative 1 and 0.10 percent less than Alternative 3. Established but unauthorized trails that would not be designated for motorized use would be expected to re-vegetate in 3 to 5 years, but may take longer to recover from compaction. This alternative would meet Forest Plan standard SWST03.

3.7.4 Environmental Consequences Specific to Alternative 3

Under Alternative 3, TSRC would increase to 3.2 percent, or 6,148 acres, as a result of an increase in TSRC acres associated with exemption areas and the reduction in routes available for motorized use. Overall total soil resource commitment (TSRC) would be increase by 0.10 percent compared to Alternative 1 and Alternative 2. Established but unauthorized trails that would not be designated for motorized use would be expected to revegetate in 3 to 5 years, but may take longer to recover from compaction. This alternative would meet Forest Plan standard SWST03.

3.7.5 Cumulative Effects

The cumulative effects analysis for soil resources is based upon past, present, and foreseeable future projects within the analysis area. There has been a variety of land management activities within the analysis area in the past and that are currently ongoing. Existing soil resource conditions, attributed to past and present actions, are included in the existing soils resource conditions.

3.7.5.1 Past and Present Activities

Enduro trails due to the high intensity use during race years typically cause more erosion and soil disturbance than other trails.

3.7.5.2 Reasonably Foreseeable Activities

Reasonably foreseeable activities include the same activities as the past and present activities that are expected to continue. Activities other than new permanent roads and other activities that contribute to TSRC would probably not contribute to the cumulative effects of the proposed activities. Because no new permanent roads are proposed in the reasonably foreseeable future, there would be no cumulative effects.

3.7.5.3 Cumulative Effects Common to All Action Alternatives

With implementation of any of the alternatives, TSRC would meet Forest Plan Standard SWST03. Alternative 1 (no action) and Alternative 2 would maintain the existing TSRC percentage in the analysis area. Alternative 3 would increase the percentage of acres in the analysis area that are TSRC to 3.2 percent. The number of acres in a TSRC condition would increase with implementation of either action alternative

3.8 NON-NATIVE PLANTS

This section incorporates by reference the Botanical Specialist's Report and Biological Evaluation covering Listed, Proposed, Candidate, Sensitive, Forest Watch, and Non-native Plant Species. These documents contain the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the project botanist relied upon to reach the conclusions in the EA.

Non-native plants are defined as species that do not have their origin in the local area, and have not adapted to or evolved within that local environment (Forest Plan, p. II-18). This term encompasses both exotics and noxious weeds. "Exotic" refers to plants introduced from other places (typically other continents, while "noxious" refers to those plants designated by law as having detrimental affects on agriculture, commerce, or public health).

While thousands of plants have been introduced into the United States that are productively used for agricultural and horticultural purposes without problems, other non-native plants have become invasive. Invasive plants are those that have or are likely to spread into native flora or managed plant system, develop a self-sustaining population, and become dominant or disruptive to those systems (Idaho Weed Coordinating Committee, 2005)

Undesirable non-native plant species, especially those with invasive characteristics, pose a threat to natural ecosystems by competing with native plant species for resources, altering habitat for wildlife, changing fire cycles, affecting riparian and hydrologic systems, soil productivity and water quality, reducing useable forage for livestock, impacting forest

regeneration, affect tribal rights associated with native plant resources, and negatively affecting recreation experiences (USDA, 2003c).

3.8.1 Analysis Area

The analysis area for direct, indirect, and cumulative effects from non-native plants is the project area, unless otherwise noted, since the effects from non-native plants would be confined to that area.

3.8.2 Affected Environment

Almost 60 plant species are currently designated as “Idaho-Listed Noxious Weed” list (IDAPA 02.06.22, Noxious Weed Rules) by the director of Idaho State Department of Agriculture. The Boise NF maintains a list of noxious and non-native plants that have been found on the Forest or have the potential to invade. Twenty-five of these plants are on the current list for the Boise NF, with 19 species having been verified on the Idaho City RD. Numerous other invasive non-native plant species, while not meeting the State of Idaho’s definition of a “noxious weed,” have also invaded the Idaho City RD ecosystems and are contributing to the alteration of natural functions and management activities. Table 3.16 displays the noxious weeds and invasive non-native species known from the district and the project area, and the control strategies being used.

Mapped (from ICRD GIS database layer; Boise NF NRIS Invasive Species Database, GIS_Infested_Acres) populations of noxious weeds and invasive non-native species infect at least 2,700 acres on the Idaho City RD. Almost 400 acres (15 percent) of documented weed populations occur within the project area (Table 3.16). This includes nine species of “Idaho-listed” noxious weeds and a single non-native invasive. Additional noxious or invasive plant populations are known to or are likely to occur within the project area, but have not been mapped, documented, or detected. Acres of mapped weed infestation shown are presumed an underestimate of actual acreage of weed infestation, and do not describe the total area over which weeds may be spread.

Table 3.16 - Noxious Weeds and other Non-Native Invasive Plant Species on the Idaho City Ranger District and Project Area.

Common Name	Scientific Name	ICRD	Project Area	Mapped Infestation in Project Area (Acres)	Control Strategy
Noxious Weed List Boise National Forest					
Russian knapweed	<i>Acroptilon repens</i>	Yes	Maybe eradicated	-	Detection/Eradication
Jointed goatgrass	<i>Aegilops cylindrica</i>	Yes	No	-	Prevention/Detection/Eradication
Hoary Cress (White top)	<i>Cardaria draba</i>	Yes	No	0	Detection/Eradication/Suppression
Musk thistle ¹	<i>Carduus nutans</i>	Yes	Yes	41	Detection/Eradication
Diffuse knapweed ¹	<i>Centaurea diffusa</i>	Yes	Yes	2	Detection/Eradication/Suppression
Spotted knapweed ¹	<i>Centaurea maculosa</i>	Yes	Yes	73	Suppression/Eradication
Yellow star-thistle	<i>Centaurea solstitialis</i>	No	No	-	Prevention/Detection/Eradication
Rush skeletonweed ¹	<i>Chondrilla juncea</i>	Yes	Yes	245	Management/Suppression
Canada thistle ¹	<i>Cirsium arvense</i>	Yes	Yes	16	Detection/Eradication/Suppression

Common Name	Scientific Name	ICRD	Project Area	Mapped Infestation in Project Area (Acres)	Control Strategy
Poison hemlock ¹	<i>Conium maculatum</i>	Yes	Close by	0	Suppression
Field Bindweed	<i>Convolvulus arvensis</i>	Yes	Yes	-	Suppression
Leafy spurge ¹	<i>Euphorbia esula</i>	Yes	Yes, but maybe eradicated	1	Detection/Eradication/Suppression
Orange hawkweed	<i>Hieracium aurantiacum</i>	Yes	No	-	Detection/Eradication/Suppression
Black henbane	<i>Hyoscyamus niger</i>	No	No	-	Prevention/Detection
Dyer's woad	<i>Isatis tinctoria</i>	No	No	-	Prevention/Detection/Eradication
Perennial pepperweed	<i>Lepidium latifolium</i>	Yes	No	-	Detection/Eradication
Oxeye daisy	<i>Leucanthemum vulgare</i> (<i>Chrysanthemum leucanthemum</i>)	Yes	Yes	-	Detection/Eradication/Suppression
Dalmatian toadflax ¹	<i>Linaria genistifolia</i> ssp. <i>dalmatica</i>	Yes	Yes	1	Suppression/Management
Yellow toadflax ¹	<i>Linaria vulgaris</i>	Yes	Yes	1	Detection/Eradication
Purple loosestrife	<i>Lythrum salicaria</i>	Yes	Close by	-	Detection/Eradication
Scotch thistle	<i>Onopordum acanthium</i>	No	No	-	Prevention/Detection/Eradication
Japanese knotweed	<i>Polygonum cuspidatum</i>	Yes	Maybe	-	Control
Tansy ragwort ¹	<i>Senecio jacobaea</i>	Yes	Yes	1	Detection/Eradication
Buffalobur	<i>Solanum rostratum</i>	No	No	-	Prevention/Detection
Puncturevine	<i>Tribulus terrestris</i>	No	No	-	Prevention/Detection/Suppression
Other Non-native Plant Species					
Cheatgrass	<i>Bromus tectorum</i>	Yes	Yes	-	--
Sulfur cinquefoil	<i>Potentilla recta</i>	Yes	Yes	-	--
Bulbous bluegrass	<i>Poa bulbosa</i>	Yes	Yes	-	--
Bull thistle	<i>Cirsium vulgare</i>	Yes	Yes	-	--
St. Johnswort ¹	<i>Hypericum perforatum</i>	Yes	Yes	10	Management/Suppression

¹Mapped in ICRD database.

3.8.3 Environmental Consequences

Established roads and to a lesser extent trails are conduits for weed introduction and spread. Current Boise NF travel management policy allows off-road travel 300 feet from NFS roads and 100 feet from NFS trails to access dispersed recreation campsites. District data indicates that the majority (about 84 percent) of currently mapped weed populations in the project area occur within these travel corridors.

3.8.3.1 Environmental Consequence Specific to Alternative 1

Under Alternative 1 (No Action Alternative), public motorized travel would continue on about 127 miles of established but unauthorized routes and 68 miles of NFS trails. Off-road motorized use would continue to be allowed 300 feet off of NFS roads and 100 feet off of NFS trails to access dispersed campsites. Areas adjacent to established but unauthorized routes

may carry a greater inherent risk of noxious weed invasion than constructed and maintained NFS trails due to lack of maintenance to trail standards and areas of ground disturbance that are not corrected and/or rehabilitated. Additionally, there is a greater chance on established but unauthorized trails for noxious weed infestations to go undetected and untreated, because these routes are seldom traveled by Forest Service personnel or others that would recognize the potential problems. Undetected and untreated weed populations can spread at a rapid rate resulting in infestations that are more difficult and costly to treat when discovered.

Weed susceptibility models developed for the Southwest Idaho Ecogroup Forest Plan Revision (Forest Plan, 2003) have been intersected with the project area to predict estimated acre susceptible to noxious weed invasions. The model covers five species (diffuse knapweed, spotted knapweed, rush skeletonweed, leafy spurge, and yellow starthistle, four of which are or have been present in the project area (Table 3.16). Although this model only covers five species it can serve as a general indicator for other noxious weed species. Weed susceptibility modeling predicts that the majority of the project area is susceptible to noxious weed invasion. Inherent risk is predicted to be the greatest for leafy spurge and rush skeleton weed, relatively low for spotted knapweed, and almost non-existent for diffuse knapweed and star thistle (Table 3.17). The susceptibility model for this alternative indicates that about 28,566 acres would be at risk to noxious weed invasion.

Musk thistle and Canada thistle also occupy several acres within the project area. These species were not tracked by the susceptibility model but were included in the assessment done for the Interior Columbia Basin Study (USDA, 1997). The Cover Type Susceptibility to Invasion Index (Rice et. al, 1995) was developed for 25 exotic plant species in the interior Columbia Basin. This model used cover types (current vegetation) and precipitation zones to determine susceptibility to weed invasion. In this index, susceptibility to musk thistle was rated moderate to high for cover types that are present in the project area such as Interior Ponderosa Pine, Interior Douglas-fir, Mountain Big Sagebrush, Wheatgrass Bunchgrass, Chokecherry/Serviceberry/Rose, Cottonwood/Willow, and Engelmann Spruce/Subalpine Fir. Canada thistle susceptibility was rated similarly in these cover types.

Table 3.17 – Comparison Weed Susceptibility in Acres Directly Accessible to Motorized Vehicles by Species and Alternatives.

Acres at Risk of Weed Introduction Based On Susceptibility Model By Species						
Species	Alt 1		Alt 2		Alt 3	
	Acres at Risk	Area Accessible Motorized Vehicles (%)	Acres at Risk	Area Accessible Motorized Vehicles (%)	Acres at Risk	Area Accessible Motorized Vehicles (%)
Noxious Weeds All	28,566	67%	27,099	67%	27,099	67%
Diffuse Knapweed	43	<1%	40	<1%	40	<1%
Leafy Spurge	25,155	59%	23,863	59%	23,863	59%
Rush Skeletonweed	18,333	43%	17,392	43%	17,392	43%
Spotted Knapweed	6,822	16%	6,471	16%	6,471	16%
Yellow Starthistle	43	<1%	40	<1%	40	<1%

3.8.3.2 Environmental Consequences Specific to Alternative 2

Under Alternative 2 (Proposed Action), public motorized travel would designate for motorized use about 66 miles of the currently established but unauthorized routes and continue use on

68 miles of NFS trails. Motorized use would continue to be allowed 300 feet off of NFS roads and 100 feet off of NFS trails to access dispersed campsites except in the areas described in Design Feature DC-1 and DC-2 (Section 2.2). This alternative reduces the miles of routes by about 61 miles. The routes proposed to be designated for motorized use would be adopted into the NFS trail system and subsequently brought up to and maintained at Forest Service trail condition standards.

Using the weed susceptibility models described under Alternative 1, about 27,099 acres would be at risk to noxious weed invasion under Alternative 2. The risk of musk thistle and Canada thistle would be the same as under Alternative 1.

3.8.3.3 Environmental Consequences Specific to Alternative 3

Under Alternative 2 (Proposed Action), public motorized travel would designate for motorized use about 146 miles of established but unauthorized routes and continue use on 68 miles of NFS trails. Motorized use would continue to be allowed 300 feet off of NFS roads and 100 feet off of NFS trails to access dispersed campsites except in the areas described in Design Feature DC-1 and DC-2 (Section 2.2). This alternative increases the miles available for motorized use by about 19 miles. The routes proposed to be designated for motorized use would be adopted into the NFS trail system and subsequently brought up to and maintained at Forest Service trail condition standards. The potential for introduction and/or spread of non-native plant species grows with increased trail mileage. This risk of non-native species spread is greatest with this alternative since it has the most miles of routes. However, this risk would be alleviated in part, as adding these trails to the NFS system enables them to be included in the District's ongoing program for monitoring and treating noxious weeds.

Using the weed susceptibility models described under Alternative 1, about 27,099 acres would be at risk to noxious weed invasion under Alternative 3 – the same number as under Alternative 2. The risk of musk thistle and Canada thistle would be the same as under Alternatives 1 or 2.

3.8.4 Cumulative Effects

Past, Present and Reasonably Foreseeable Future Actions

Livestock Grazing: The analysis area intersects four livestock grazing allotments, primarily the North Fork Sheep and Goat Allotment, and the Boise Basin Sheep and Goat Allotment. Two smaller allotments, Crumley Cattle and Horse, and Porter Creek Cattle and Horse Allotments, occupy the northeastern corner of the project area. Livestock grazing and associated activities can affect weed presence and distribution. Overgrazing can leave bare soils vulnerable to weed invasion, and repeated use of an area can reduce reproductive capability of native species and therefore competitiveness with non-native species.

Road and Trail Maintenance: Road maintenance and trail maintenance activities are routine Forest activities and may contribute to the introduction and spread of weeds along travel routes. Weed seed, plant parts or contaminated soil may be attached to equipment and moved from infected to non-infected areas. Activities such as grading may move soil filled with weed seed from one location to another. Gravel pits/rock sources for road or trail work are frequently colonized by weeds, and when this material is moved, weeds can be spread.

Many road and trail maintenance activities also increase the amount of bare ground available for weed colonization.

Timber Harvest: Timber harvest activities are ongoing within the project area and are expected to continue into the foreseeable future. Weeds are often present on landings, skid trails and other routes where timber harvest activity has occurred in the past. Landings in particular are typically open, dry, harsh sites where the weeds flourish at the expense of the reseeded cover species.

Mineral Explorations: There are active mining claims throughout the Travel Management project area. Mining is a ground disturbing activity that typically removes vegetation, exposes mineral soil, and increases chances of weed infestation. Many old mine sites presently support weed populations.

Wildfire: Wildfires often result in bare ground that is rapidly colonized by weeds. Over half of the vegetation in the Travel Management area shows a moderate or high departure from historic conditions (Condition Class 2 and 3), and therefore at a greater risk for fire. Much of this area is also rated as highly susceptible to weed infestation. Where fires occur along travel routes or in other areas that motorized vehicles have access to, weed introduction and spread may be accelerated.

Enduro: See Cumulative Effects in Rare Plant in Section 3.11.6.

Cumulative Effects Common to All Alternatives

Under all alternatives, the risk of noxious weed spread has the potential to be increased when combined with the past, present and reasonably foreseeable future activities described above. The greatest risk of weed introduction or spread would be in Alternatives 1 or 3 (i.e., those with the greatest number of road/trail miles). However, contract provisions and Forest Plan standards (e.g., equipment washing, etc.) applied to the above-described activities help mitigate the spread of noxious weeds. In addition, any risk of noxious weed spread under all alternatives would be alleviated in part because adding these trails to the NFS system enables them to be included in the District's ongoing program for monitoring and treating noxious weeds. Consequently, no cumulative effects would be anticipated.

3.9 BOISE BASIN EXPERIMENTAL FOREST

3.9.1 Analysis Area

The Boise Basin Experimental Forest (BBEF) analysis area for direct, indirect, and cumulative effects is the 7,315 acre BBEF since the effects from this project would be confined to that area.

3.9.2 Affected Environment

The BBEF lies entirely within the project area. The Experimental Forest is broken up into three units, including the Headquarters, Bear Run, and Bannock-Pine units. Table 3.18 describes the area included in each of the three units.

Table 3.18 – Summary of Boise Basin Experimental Forest and Travel Management Units.

BBEF Unit	Travel Mgmt Unit	Acres
Headquarters	8, 11	767 acres
Bear Run	8	1,259 acres
Bannock-Pine	7, 10	5,289 acres
TOTAL		7,315 acres

The BBEF is administered by the USDA Forest Service Rocky Mountain Research Station (RMRS), headquartered in Fort Collins, Colorado. The Moscow Forestry Sciences Lab in Moscow, ID provides direct oversight of the Experimental Forest. The BBEF was established to conduct research in the ponderosa pine vegetation types. The Bannock Creek Research Natural Area (RNA) is contained within the Experimental Forest and is described below in section 3.10.

The BBEF lies within Forest Plan Management Area 8 (Mores Creek) and is assigned to Management Prescription Category (MPC) 2.4 (Boise Basin Experimental Forest) (Forest Plan, p. III-178 – 191). Six Forest Plan objectives, standards, and guidelines are identified for the BBEF (Forest Plan, p. III-186). General Objective 0808 and General Standard 0809 direct cooperation and coordination with the RMRS for all management and activities proposed and or implemented in the Experimental Forest. During the scoping of the proposed action, the RMRS at the Moscow Forestry Sciences Lab reviewed the proposed action and provided comment that supported the proposed action and the management of OHV recreation on the BBEF (planning record). The remaining four standards and guidelines for MPC 2.4 do not pertain to motor vehicle or OHV recreation management in the BBEF.

3.9.3 Environmental Consequences Specific to Alternative 1 (No Action)

Within the BBEF, Alternative 1 would maintain about 20 miles (37 trail segments) of established but unauthorized trails open to motor vehicle traffic. Trail segments would be located in each of the three BBEF units.

The trail segments which would remain open to motor vehicle traffic under this alternative would not affect BBEF management, as outlined by the standards and guidelines identified for MPC 2.4. Impacts to other resources, including rare and sensitive plants, watershed and soils, fisheries, non-native plants, and wildlife species and habitats, in the BBEF would be consistent with those impacts to the entire project area as described in each resource section of this analysis.

3.9.4 Environmental Consequences Common to All Action Alternatives

Alternative 2 would designate for motorized use and add to the NFS trail system about 8 miles (16 trail segments) open to motor vehicle traffic. Alternative 3 would designate for motorized use and add to the NFS trail system about 20 miles (37 trail segments). These trail segments are located in each of the three BBEF units.

The trail segments that would be designated open to motor vehicle traffic under this alternative would not affect BBEF management, as outlined by the standards and guidelines identified for MPC 2.4. Impacts to other resources, including rare and sensitive plants, watershed and soils, fisheries, non-native plants, and wildlife species and habitats, in the BBEF would be consistent with those impacts to the entire project area as described in each resource section of this analysis.

3.9.5 Cumulative Effects

3.9.5.1 Past, Present and Reasonably Foreseeable Actions Considered

Past, present and reasonably foreseeable actions include ongoing research activities associated with mixed conifer forests, including thinning.

3.9.5.2 Cumulative Effects Common to All Alternatives

Because no direct or indirect effects to the BBEF would occur under any alternative, no cumulative effect would be anticipated.

3.10 RESEARCH NATURAL AREA

3.10.1 Affected Environment

The entire 438-acre Bannock Creek Research Natural Area (RNA) and about 22 acres of the 876-acre North Fork Boise River RNA are within the project area. The North Fork Boise River RNA does not contain any NFS roads, NFS trails, or known established but unauthorized routes and no routes are proposed to be designated within the RNA. Therefore, the North Fork Boise River RNA will not be address any further since there would be no direct, indirect, or cumulative effects associated with this project.

The effects analysis area for RNA resource is the Bannock Creek RNA, unless otherwise noted, since the effects would be confined to that area.

The Bannock Creek RNA lies within the Boise Basin Experimental Forest. The experimental forest was established in the 1930s to conduct silvicultural and other related research in the ponderosa pine type. The Bannock Creek area was selected as an RNA to represent a mixed conifer vegetation community and designated in 1971. The RNA is dissected by Bannock Creek and its tributaries. Soils area formed from the granitic parent material of the Idaho Batholith and elevations range from 4,960 to 6,200 feet. .

Approximately 100 acres of the Bannock RNA is within Unit Area 7 (“E” Area) and about 338 acres is within Unit Area 10 (“C” Area). Currently one NFS road (NFS road 203) bisects the RNA, providing the main access to the RNA. This road is open to high clearance vehicles currently. Other roads in the area lie adjacent to or terminate at or just inside the RNA. In addition, several roads that were in or immediately adjacent to the RNA have been decommissioned and removed from the NFS transportation system. Currently there are less than 1.0 miles of established but unauthorized routes within the analysis area some of which are lie on decommissioned NFS roads.

3.10.2 Environmental Consequences Specific to Alternative 1 (No Action)

This alternative does not propose any new management activities although existing uses, including existing motorized recreational use would continue to occur in Unit Areas 1-8. In Unit Areas 9-10 (“C” and “D” areas), public motorized travel would continue on authorized NFS roads and trails currently designated for motorized use only. Implementation of this alternative would continue motorized use on about 0.1 miles of established of unauthorized routes within the portion of Bannock Creek RNA in Unit Area 7 (E Area) and the existing authorized NFS roads within the analysis area. This alternative would maintain the values for which the RNA was established.

3.10.3 Environmental Consequences Specific to Alternative 2 (Proposed Action)

Under this alternative, no routes are proposed to designated within or immediately adjacent to the Bannock Creek RNA. Motorized use would be expected to only continue on existing authorized NFS roads within the analysis area. This alternative would maintain the values for which the RNA was established.

3.10.4 Environmental Consequences Specific to Alternative 3

Under this alternative, about 0.1 miles of routes would be designated for motorized use within the Bannock Creek RNA. In addition, less than 1.0 miles of routes would be designated for motorized use immediately adjacent to the analysis area. Motorized use would be expected to only continue on designated NFS roads and trails within the analysis area. This alternative would maintain the values for which the RNA was established.

3.10.5 Cumulative Effects

Each alternative would maintain the values for which the RNA was established and therefore there would be no cumulative effects to the Bannock Creek RNA associated with implementation of any of the alternatives.

3.11 RARE AND SENSITIVE PLANTS

This section incorporates by reference the Botanical Specialist's Report and Biological Evaluation covering Listed, Proposed, Candidate, Sensitive, Forest Watch, and Non-native Plant Species. These documents contain the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the project botanist relied upon to reach the conclusions in the EA.

3.11.1 Analysis Area

The analysis area for direct, indirect, and cumulative effects to rare and sensitive plants is the project area plus a five mile buffer, unless otherwise noted, since the effects to this resource would be confined to that area.

3.11.2 Affected Environment

Information from field surveys for other projects within or in close proximity to the project area was considered in the analysis. Only rare plants, for which there are occurrences or potential habitat within the analysis area, will be discussed here. No effects or impacts to any other rare plants that the Boise NF considers in NEPA analysis are anticipated because of lack of suitable habitat within the analysis area.

There are 12 rare plant populations known within the boundaries of the project area, and an additional 15 documented occurrences within the analysis area (Table 3.19). Within the project boundaries are known occurrences of tall swamp onion (*Allium validum*), scalloped moonwort (*Botrychium crenulatum*), giant helleborine orchid (*Epipactis gigantea*) and Sacajawea's bitterroot (*Lewisia sacajaweanana*). Within the analysis area, additional populations of these plants and one not known in the project area, Idaho douglasia (*Douglasia idahoensis*), are found. Potential for other rare plant species exists in both upland and Riparian Conservation Areas (RCA) within the project area.

Table 3.19 – Habitat Suitability for U.S. Fish and Wildlife Service Listed/Proposed/Candidate, Sensitive, and Forest Watch Plant Species in the Analysis Area.

FWS Listed/ Proposed/ Candidate Species	Habitat Description	Documented Location in Surrounding 5 th Field HUC?	Potential Habitat In Project Area?
USFWS TEPC			
<i>Spiranthes diluvialis</i> # Ute lady's-tresses (Threatened)	Wetland and riparian habitat, including springs, wet meadows, and river meanders from 700-7000'. Usually open forb or shrub habitats adjacent to riverine systems where soil moisture is close to the surface.	No	Yes ²
Sensitive/Forest Watch Species	Habitat Description	Documented Location in Surrounding 5 th Field HUC?	Potential Habitat In Project Area?
Sensitive			
<i>Botrychium lineare</i> Slender moonwort	Wide variety of habitats including meadows and forested types. 3000-10000' + or - on BNF.	No	Yes ²
<i>Bryum calobryoides</i> Bryum moss	Low gradient wetlands, moist soil, or rocks at montane to subalpine elevations. 5000'+. Meadows to moist cliff sides.	No	Yes ²
<i>Douglasia idahoensis</i> Idaho douglasia/Idaho primrose	North and east facing slopes on open, subalpine ridges in whitebark pine and subalpine fir forests. 7200-9000'.	Yes ¹	Yes ¹
<i>Phacelia minutissima</i> Small/least phacelia	Sagebrush and aspen stands with late snow banks or seeps. Dense false hellebore patches, down slope from aspen, open understory. 5000-8200'	No	Yes ²
Forest Watch (Priority*)			
<i>Botrychium simplex</i> Least moonwort	Wide variety of habitats including meadows and forested types. 4000-6600' + or- on BNF	No	Yes ²
<i>Carex stramineiformis</i> Mt. Shasta sedge	Open, rocky, gravelly slopes, often near persistent snowbanks, near or above timberline. 6500-12000'+.	No	Yes ²
<i>Epipactis gigantea</i> Giant helleborine orchid	Springs and seeps, often thermal. 1700-6500'.	Yes ¹	Yes ¹
<i>Helodium blandowii</i> Blandow's helodium	Mats and hummocks in montane peatlands, fens, and bogs. Under sedges and shrubs in mires, or along streams in mires.	No	Yes ²
<i>Lewisia sacajawearia</i> Sacajawearia's bitterroot	Relatively sparse upper slopes and ridgetops, may have overstory. Fractured bedrock, granitic soils near late snowbanks. 5400-9500'.	Yes ¹	Yes ¹
<i>Sedum leibergii</i> Leiberg stonecrop	Cliffs and rocky slopes with W-NW aspect. Often with Douglas fir. 5000-9000'.	No	Yes ²
Forest Watch			
<i>Allium validum</i> Tall swamp onion	Mid to high elevation riparian areas, forested seeps, margins of streams in subalpine fir habitat, boggy subalpine lake edges. 5500'-8100'.	Yes ¹	Yes ¹

FWS Listed/ Proposed/ Candidate Species	Habitat Description	Documented Location in Surrounding 5 th Field HUC?	Potential Habitat In Project Area?
<i>Allotropa virgata</i> Sugarstick	Lodgepole pine stands with grouse huckleberry understory. Gentle to moderate slopes with SE to SW aspects. Soils coarse granitic. 5000-7000'	No	Yes ²
<i>Botrychium crenulatum</i> Scalloped moonwort	Moist meadows, creek banks, shrub- or tree-dominated wetlands, springy spots, and wet roadside areas. 3900 – 8200'.	Yes ¹	Yes ¹
<i>Carex flava</i> Yellow sedge	Moist to wet habitats, such as open meadows, fens, partially shaded shrub carrs, swamps, on lime-rich soils. Sea level to 6500'.	No	Yes ²
<i>Epilobium palustre</i> Marsh willowherb	Wet meadows, along streams, lake shores; imperfectly drained moist areas.	No	Yes ²
<i>Hierochloa odorata</i> Sweetgrass/Holy grass	Moist slopes, meadows and streambanks from the foothills to subalpine elevations.	No	Yes ²
<i>Sanicula graveolens</i> Sierra sanicle	Open or lightly wooded slopes or flats. Found on both granitics and basalts. 2000'-6500'.	No	Yes ²
<i>Schoenoplectus subterminalis</i> Water clubrush	Mat-forming, rhizomatous aquatic (can be terrestrial). Rivers, ponds, lakes, streams, bogs, standing water. Valleys, foothills, and montane; near sea level to 7,000 ft+	No	Yes ²
<i>Triantha occidentalis</i> <i>ssp. brevistyla</i> (<i>Tofieldia glutinosa</i> <i>ssp. brevistyla</i>) Sticky tofieldia	Wet meadows, streambanks, and peatlands, marshes. Sea level to 7900'. Alta., B.C.; Alaska, Idaho, Oreg., Wash.	No	Yes ²

YES¹- documented sites are found in the project or analysis area.

YES²- no documented sites are known from project area, but potential habitat/or populations may occur in project area.

* Priority Watch species are recommended for inclusion on the Sensitive species list.

Information for *Spiranthes diluvialis* is provided for the NEPA, Biological Evaluation & project files only, no consultation with USFWS required at this time (USDI, 2009)

3.11.3 Environmental Consequences Specific to Alternative 1 (No Action)

This alternative does not propose any new management activities although existing uses, including existing motorized recreational use would continue to occur.

Ten populations of rare plants could be directly impacted under Alternative 1 because they occur within the exemption areas, i.e. areas where off-road/trail motorized use is allowed to access dispersed campsites, that are currently open and would remain open 300 ft from NFS Roads and 100 ft from NFS trails. Two additional rare plant populations occur in the project area but are located on NFS roads currently closed to public access. Scalloped moonwort, tall swamp onion, and giant helleborine orchid (6/10 populations located in Alternative 1 exemption zones) are all species occupying riparian or otherwise wet habitats, these environments are particularly vulnerable to damage and soil disturbance. Under this alternative, there would be the greatest potential for negative impacts associated with exemption areas in Unit Areas 3, 6, and 7 in the areas around Pilot's Peak Lookout, Freeman Peak, Coulter Summit, Sunset Mountain, and Bald Mountain. Alternative 1 maintains the

existing 24 miles of RCA routes, RCA route density of 0.9 miles/mile², and 64 undeveloped route/stream crossings. Implementation of this alternative would continue current travel management practices therefore motorized use within RCAs would be expected continue and the potential for impacts to riparian rare plant/wetland species would be expected to continue. Risks to habitat or any undocumented populations of sugarstick (*Allotropa vibrata*) in the forested upland environments within the analysis area would be greatest with this alternative.

3.11.4 Environmental Consequences Specific to Alternative 2 (Proposed Action)

With implementation of this alternative, the potential for direct impacts to rare plant populations vary with location. Under this alternative, the exemption areas would continue 300 feet off of NFS roads and 100 feet off of NFS trails to access dispersed campsites except as described in Design Feature DC-1 and DC-2 (Section 2.2). There would be potential impacts to rare plant populations related to the off road/trail motorized use in exemption areas to access dispersed campsites. Alternative 2 would reduce RCA routes to 14 miles, RCA route density to 0.5 miles/mile², and undeveloped route/stream crossings to 23. This alternative would have the greatest reduction of impacts within RCAs. Reductions in effects would be related to decreased number of road/trail intersections with rare plant populations and reduced indirect impacts such as soil erosion, siltation, and water quality alteration. Risks to habitat or any undocumented populations of sugarstick (*Allotropa vibrata*) in the forested upland environments within the analysis area would be lowest with this alternative.

3.11.5 Environmental Consequences Specific to Alternative 3

With implementation of this alternative, the potential for direct impacts to rare plant populations vary with location. Under this alternative, the exemption areas would continue 300 feet off of NFS roads and 100 feet off of NFS trails to access dispersed campsites except as described in Design Feature DC-1 and DC-2 (Section 2.2). There would be potential impacts to rare plant populations related to the off road/trail motorized use in exemption areas to access dispersed campsites. Alternative 3 would reduce RCA routes to 16 miles, RCA route density to 0.6 miles/mile², and undeveloped route/stream crossings to 30. This alternative would reduce impacts within RCAs. This reduction in impacts would be related to decreased number of road/trail intersections with rare plant populations and reduced indirect impacts such as soil erosion, siltation, and water quality alteration. Risks to habitat or any undocumented populations of sugarstick (*Allotropa vibrata*) in the forested upland environments within the analysis area would be reduced with this alternative.

3.11.6 Cumulative Effects

Weeds and Weed Treatment: Invasive non-native plants are one of the greatest known threats to rare plants and potential habitat, and native vegetation. There have been numerous past introductions of weeds into the project area, and populations are established there. Weed introduction and spread has occurred in the past, is presently occurring, and will likely continue to occur as a result of motorized vehicle use on district roads and trails. In Alternative 1, many roads/trails are not maintained because they are not part of the FS system. These areas will receive less “official” traffic and weed populations may continue to be unnoticed, undocumented and untreated, and will likely spread further. In Alternatives 2 and 3, there are fewer miles and acres that will be exposed to vehicles as weed vectors, but an increase or concentration of activity may raise the likelihood of infestation. However, with regular maintenance and monitoring, weeds should be discovered and treated more quickly.

Weed treatments, either via herbicides, hand grubbing, or other means may negatively impact rare plants or suitable habitat.

Road and Trail Maintenance: Road maintenance can adversely affect plants occurring in the right of ways and adjacent borrow ditches. Habitat suitable for various rare plants is often created as a function of creating a cut slope through a wet or seepy area, because water pools at the base of the slope and forms small, linear wetlands. Side casting of dirt or rocks may bury nearby plants. Material cleaned from culverts or drains is typically pushed to the side of the road on top of roadside vegetation. Grading the road creates dirt berms on the sides, and may scrape vegetation away. These affects can also occur on a smaller scale with trail maintenance if mechanical equipment is used. Implementation of Alternatives 2 and 3 would mean additional maintenance for trails, with possible rerouting of some segments and disturbance of previously undisturbed vegetation.

Enduro Motorcycle Race: The annual Enduro motorcycle ride incorporates some unauthorized trails in the “C” and “D” areas within its three year route rotation. This activity is permitted separately from the Forest Travel Plan, and involves a separate decision. That decision allows use of unauthorized routes that are not part of the Boise NF transportation system. This use would continue as long as the annual permits are granted. Alternative 3 would bring certain “C” and “D” segments in to the official travel system, which would mean they would be brought up to Forest Service standards and be maintained. For Alternatives 1 and 2, the routes would remain unauthorized and closed for public travel outside their use in Enduro. Their condition would remain stable or may deteriorate, as the only maintenance they receive is done by the permittee after the race is over.

The continued existence and use of these trails may negatively impact rare plant habitat and undocumented populations of rare plants through habitat degradation or loss. Due to remoteness of some trails and difficulty of access, rare plant surveys have not been conducted across the Enduro routes. Although the Enduro trails are maintained after use, some of the routing or maintenance level would not be up to Forest Service standards. These trails are not regularly monitored for weeds, which may threaten both rare and common native plant habitat. Even though these trails are closed to the public except for the Enduro event, it is presumed that they do receive at least some illegal ridership.

It is presumed that the Enduro race contributes negatively to the cumulative effects for rare plants and native plant habitat. Under Alternatives 1 and 2 that contribution would remain the same, as none of the “C” or “D” area trails would be brought in to the system. Under Alternative 3, ridership and therefore chance of physical damage and weed introduction along routes would increase, but this would be offset by improvement in trail condition and increased monitoring for weeds.

3.12 CULTURAL RESOURCES

This section incorporates by reference the Cultural Resources Specialist Report (project record). This document contains the detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation.

3.12.1 Analysis Area

The analysis area for cultural resources is the project area since the effects to this resource would be confined to this area.

3.12.2 Affected Environment

The National Historic Preservation Act (NHPA) as amended requires federal agencies to consider the effects of their activities and programs on historic properties. Historic properties are significant cultural resource sites that are included in or eligible for inclusion in the National Register of Historic Places. The criteria for National Register eligibility is outlined in the U.S. Code of Federal Regulations (36 CFR Part 60).

Direct and indirect effects to historic properties from motorized vehicle use are determined by applying NHPA's criteria of effect. NHPA defines an adverse effect as one that diminishes the integrity of a historic or prehistoric site's location, design, setting, materials, workmanship, feeling, or association. Adverse effects include physical destruction, damage, or alteration to all or part of a site, and/or the introduction of visual, audible, or atmospheric elements that are out of character with the site, or alter its setting (36 CFR 800.5[a][2][i-vii]). Criteria of effect are only applied to those sites determined eligible for the National Register.

If an undertaking will not alter the characteristics of a historic property that make it eligible for listing on the National Register, then a "no effect" determination may be reached. "No adverse effect" determinations are applied when the Forest Service, in consultation with the SHPO, 1) determines that the effects do not meet the criteria of adverse effect, or 2) the undertaking is modified or conditions are imposed to avoid adverse effects. Should the Forest Service determine that an activity will have an adverse effect on a historic property, and SHPO concurs, the agency and SHPO will stipulate measures to resolve or mitigate the effect(s).

Direct, potentially adverse effects to historic properties from motorized vehicle use can include but are not limited to the displacement, damage, and destruction of artifacts, building remains, and associated landscape features. On the Idaho City RD for example, historic mining ditches are popular motorcycle trails. Cyclists ride on top of the berm or in the ditch itself. Over time, motorized use on these ditches can destroy the ditch by breaking down its features, and cause erosion on sites located down slope of the ditch.

Another direct, potentially adverse effect is the braiding that occurs from motorized vehicle use on river and creek terraces where historic properties are located, and on mining ditches.

Indirect, potentially adverse effects to historic properties include public use of these properties that may otherwise not occur if the area was inaccessible by motorized vehicle use. Although the MVUM is not intended to regulate or otherwise make decisions regarding the act of dispersed camping, off-road motorized vehicle use and dispersed camping are connected activities. Cultural resources inventories have documented unauthorized artifact collection, motorized vehicles, and campfire pit digging as activities associated with dispersed camping that have adverse effects to historic properties. These activities may be more likely to occur, or occur more intensively, if a historic property is easily accessible by motorized vehicle.

Cultural resources surveys and the historical record document the cultural sensitivity of lands included in the analysis area. About 14,000 acres of the Idaho City RD have been surveyed for cultural resources with approximately 8,300 of those acres in the analysis area. The surveys focused along drainages, ridges, and slopes of less than 20 percent. These surveys have documented over 400 cultural resource sites in the analysis area. Of those, 260 are historic properties eligible or potential eligible for listing on the National Register of Historic Places and 151 are not eligible under National register criteria.

For the purposes of this project, only those trails that would remain established but unauthorized routes under Alternative 1 and those proposed for designation (i.e. incorporation into) to the Forest Transportation System under Alternatives 2 and 3 were considered for the analysis. Cultural resources within 150 feet of these trails were considered as within the Area of Potential Effect (APE), as defined by the 36 CFR 800 regulations implementing NHPA Section 106. Using GIS, a 150-foot or roughly 45 meter buffer (for a total of 300 feet from center) was added to those trails to capture previously documented historic properties in the APE.

3.12.3 Environmental Consequences Common to All Alternatives

Under Alternative 1, no new management activities would occur, and motorized use would continue in Unit Areas 1-8 within the project area. The exemption allowing motorized use off-trail to access dispersed campsites would not be applied to the known established but unauthorized routes. Approximately 57 of the 127 miles were surveyed during previous cultural resource inventories. As a result, 13 historic properties have been identified in the area of potential effect for this action.

Alternative 2 would add about 66 miles of established but unauthorized routes to the NFS trail system for motorized vehicle use. The exemption allowing motorized use off trail to access dispersed recreation sites would be allowed, except as described in Design Feature DC-2 (Section 1.2.2). There are seven historic properties in the area of potential effect of these routes. Approximately 32 of the 66 miles were surveyed during previous cultural resource inventories. As a result, seven historic properties have been identified in the area of potential effect of the routes proposed for designation.

Alternative 3 would add about 146 miles of established but unauthorized to the NFS trail system for motorized vehicle use. The exemption allowing motorized use off trail to access dispersed recreation sites would be allowed, except as described in Design Feature DC-2 (Section 1.2.2). Approximately 73 of the 146 miles were surveyed during previous cultural resource inventories. As a result, 10 historic properties have been identified in the area of potential effect of the routes proposed for designation.

Under all of the action alternatives, a segment of the Historic Franer Ditch is proposed for designation and addition to the Forest transportation system. This segment, originally recorded intact in 1990, has since been destroyed by motor vehicle use. Franer Ditch is eligible for listing on the National Register of Historic Places. Motor vehicle use of this segment has resulted in an Adverse Effect to this historic property.

The Boise NF is preparing a report for the Idaho SHPO that documents the potential for adverse effects to historic properties from the alternatives under consideration. It is anticipated that SHPO will concur with the Boise NF's determination that implementation of any of the alternatives would result in No Adverse Effect to historic properties provided that a stipulation for monitoring is a condition of implementation. Management action would be required if monitoring documents the onset or occurrence of adverse effects to historic properties from motorized use. The decision notice will include a description of the monitoring requirements for the selected alternative.

In addition to the stipulation for monitoring, the No Adverse Effect determination is also contingent on SHPO concurrence that a segment of Franer Ditch proposed for designation to the Forest Transportation System no longer contributes to the site's National Register eligibility.

No Adverse Effect determinations are applied when the FS, in consultation with the SHPO, 1) determine that the effects do not meet the criteria of adverse effect, or 2) the undertaking is modified or conditions, are imposed to avoid adverse effects (36 CFR 800.5[b]). For the purposes of this project, the NHPA Section 106 “undertaking” would authorize existing use of established trails. Unless an adverse effect is known or anticipated, these types of undertakings are generally considered No Effect or No Adverse Effect actions. Under all of the alternatives, adverse effects to historic properties are not known or anticipated to occur if there is public compliance with and FS enforcement of the travel management rule, and monitoring of historic properties.

3.12.4 Cumulative Effects

The cumulative effects analysis for this project was based on past, present, and reasonably foreseeable future projects in Forest Plan Management Area (MA) 8 (Mores Creek) (Forest Plan, p. III-178). Management Area 8 encompasses the roughly 300 square mile area known as Boise Basin. The basin was the scene of a 1860s era gold rush, and as such is one of Idaho’s most archeologically sensitive areas. The basin is a logical geographic area for considering cumulative effects to historic properties in this travel management project area.

MA 8 consists of an estimated 196,200 acres, of which 55 percent are managed by the Forest Service, 22 percent are privately owned, 21 percent are State of Idaho lands, and 2 percent are BLM lands. In Idaho, the only historic preservation laws are those that involve federal lands or federally funded projects. Consequently, historic preservation laws designed to protect cultural resources apply to 57 percent of the land base in MA 8.

Generally, cultural resources must be 50 years of age or more to be considered historic places. Currently, sites predating the 1950s are the focus of cultural resources management on the Boise NF. They are increasingly imperiled by the passage of time, increased public use on Idaho’s national forests, and a range of activities on private, state, and federal lands in Boise Basin.

Cultural resources inventories for NHPA Section 106 compliance began in Boise Basin in the mid 1970s. Since that time, FS archeologists have conducted over 800 cultural resources inventories on the Idaho City RD. These investigations have consistently noted past and ongoing damage and destruction of sites in the area. Although by no means the only culprits, unauthorized artifact collection, road construction, logging, mining, fire, and recreation are the most consistently documented impact agents to historic properties on National Forest System lands in Boise Basin. These activities are expected to continue, with recreation in particular on an upward trend.

Although implementation of the travel management rule would provide greater protection for cultural resources (assuming public compliance with and Forest Service enforcement of the rule), it would not prevent ongoing, cumulative effects to historic properties adjacent to NFS routes where the 100-foot (trails) and 300-foot (roads) exemption applies. Roughly half of the 400 known cultural resources sites in MA 8 are located within the exemption areas on NFS routes. In the project area, approximately 100 of these sites are eligible for the National Register and are adjacent to NFS routes where the exemption applies. As previously stated, the Boise NF is not reconsidering the designation of these routes for this project. As a result, ongoing direct and indirect cumulative effects to historic properties along these roads will not be addressed as part of this project’s decision.

Cultural resources inventories have surveyed roughly 50 percent of the established but unauthorized routes proposed for designation. These surveys, in addition to the historical record, document Boise Basin as a sensitive area for archeological resources. There is a high likelihood that segments of existing but unauthorized routes not previously surveyed for cultural resources are located on historic properties eligible for inclusion in the National Register of Historic Places. Prior to a decision on this project, further evaluation will be undertaken to determine the likelihood of cumulative effects on historic properties.

3.13 INVENTORIED ROADLESS AREAS (IRAS)

The analysis area for effects to this resource included those portions of IRAs within the project area.

Appendix C of the FEIS (USDA Forest Service, 2003c) accompanying the 2003 Boise Forest Plan describes the existing condition of each IRA in terms of the following criteria:

- Capability – wilderness characteristics such as naturalness and opportunities for solitude or primitive recreation,
- Availability – the area’s known resources and existing uses, and
- Need – proximity to existing wilderness and public interest.

In 2005, the Forest Service developed a monitoring protocol for wilderness character (Landres et al., 2005) that replaces the wilderness attribute rating system. This protocol describes wilderness qualities as: Natural, Undeveloped, Untrammled, and Opportunities for Primitive Recreation, or Solitude. These qualities are very similar to the wilderness attributes described in the wilderness attribute rating system but more closely reflect the definition of wilderness and describe its essential qualities. Table 3.20 provides a crosswalk to align the wilderness qualities from the wilderness character monitoring protocol to the wilderness attributes from the older wilderness attribute rating system analyzed in this document.

Table 3.20 – Crosswalk of Wilderness Attributes.

Wilderness Qualities from Wilderness Character Monitoring Protocol	Wilderness Attributes from Wilderness Attribute Rating System
Untrammeled – This quality monitors modern human activities that directly control or manipulate the components or processes of ecological systems inside wilderness	Natural Integrity
Natural – This quality monitors both intended and unintended effects of modern people on ecological systems inside wilderness since the time the area was designated.	Natural Integrity Apparent Naturalness
Undeveloped – This quality monitors the presence of structures, construction, habitations, and other evidence of modern human presence or occupation	Apparent Naturalness Remoteness
Outstanding opportunities for solitude or a primitive and unconfined type of recreation – This quality monitors conditions that affect the opportunity for people to experience solitude or primitive, unconfined recreation in a wilderness setting	Solitude Opportunities for Primitive Recreation

The Forest Plan designates all six of these IRAs under Management Prescription Category (MPC) 4.1c – Undeveloped Recreation: Maintain Unroaded Character with Allowance for Restoration Activities.

This MPC applies to lands where dispersed recreation uses are the primary emphasis. Providing dispersed recreation opportunities in an unroaded landscape is the predominant objective. Both motorized and non-motorized recreation opportunities may be provided. Other resource uses are allowed provided they do not compromise Recreational Opportunity Spectrum (ROS) settings. The area has a predominantly natural-appearing environment, with slight evidence of the sights and sounds of people. Species habitat and recreational uses are generally compatible, although recreation uses may be adjusted to protect Threatened, Endangered, Potential, Candidate, and Sensitive (TEPCS) species (Forest Plan, p. III-87).

Of the three descriptive criteria for IRAs listed above, only capability and availability would be potentially affected by either action alternative. Therefore, only effects to those two criteria are evaluated in this analysis. Table 3.21 shows the size of each IRA and the amount within the project area.

Table 3.21 – Summary of Inventoried Roadless Areas within the Project Area

IRA Name	Total IRA Acres	Project Area Acres	% of Project Area	Routes within Project IRA Analysis Area	
				Type of Route	Miles
Wilson Peak	7,950	7,922	4%	NFS Trails (Vehicles 50" or Less in Width)	3.9
				Established but Unauthorized Routes	2.2
Breadwinner	20,475	2,656	1%	NFS Trails (Motorcycle Only)	0.6
				NFS Roads	0.2

IRA Name	Total IRA Acres	Project Area Acres	% of Project Area	Routes within Project IRA Analysis Area	
				Type of Route	Miles
Ten Mile/Black Warrior	118,774	859	<1%	No Known Motorized Routes within IRA Analysis Area.	0
Grimes Pass	13,283	428	<1%	NFS Roads	0.1
Hawley Mtn.	7,723	1,321	1%	No Known Motorized Routes within IRA Analysis Area.	0

In October 2008, the US Department of Agriculture adopted a state-specific, final rule establishing management direction for designating roadless areas in Idaho (36 CFR 294; 73 Federal Register 61456-61496). The final rule designates 250 Idaho Roadless Areas, including the six within the project area, and establishes five management themes that provide prohibitions with exceptions or conditioned permissions governing road construction, timber cutting and discretionary mineral development. The final rule also notes that decisions concerning the future management of existing roads or trails in Idaho Roadless Areas shall be made during the applicable travel management process (36 CFR 294.26(a))

3.13.1 Affected Environment

3.13.1.1 Wilson Peak IRA

About 7,922 acres of the 7,950-acre Wilson Peak IRA lie within the project area. Elevations range from approximately 5,000 to 7,837 feet above sea level.

3.13.1.1.1 Capability

The Wilson Peak IRA has a moderate to high capability rating for apparent naturalness, solitude, and opportunities for challenge and adventure. The natural integrity and appearance of this IRA is impacted by past forest management activities including salvage and green tree harvest. Currently designated routes within the IRA analysis area include approximately 3.9 mile of NFS trail open to motor vehicles less than or equal to 50" in width and 2.2 miles of known established but unauthorized routes within the Wilson Peak IRA analysis area.

There are opportunities for solitude and remoteness. Views to roads and other activities outside of the area occur in some locations. Opportunities for primitive recreation or challenging experiences are limited by the shape of the IRA in some areas.

3.13.1.1.2 Availability

The IRA provides a full range of uses, including recreation, fisheries, wildlife, water, and range. Recreation use is primarily big-game hunting, dispersed camping, and fishing.

3.13.1.2 Breadwinner IRA

Approximately 2,656 acres of the 20,475-acre Breadwinner IRA lies within the project area. Elevations range from 3,100 feet to approximately 6,000 feet above sea level.

3.13.1.2.1 Capability

The Breadwinner IRA moderate to high capability rating for apparent naturalness, solitude, and opportunities for challenge and adventure. Evidence of man's activity exists in the forms of historic placer mining. Opportunities for primitive recreation are moderate to high, with floating seven miles of the North Fork Boise River providing the best opportunity to enjoy a primitive experience. Currently there is approximately 0.2 miles of NFS road and 0.6 miles of NFS Trails open to motorcycle only in the Breadwinner IRA analysis area.

3.13.1.2.2 Availability

The IRA provides a full range of uses, including recreation, fisheries, wildlife, water, range, and timber. Motorized recreation use is the predominant recreational use, facilitating primarily big-game hunting, dispersed camping, and fishing.

3.13.1.3 Ten Mile/Black Warrior IRA

About 859 acres of the 118,774-acre Ten Mile/Black Warrior IRA lie within the project area. Elevations range from 4,700 to 8,930 feet.

3.13.1.3.1 Capability

The Ten Mile/Black Warrior IRA has a moderate to high capability rating for apparent naturalness, solitude, and opportunities for challenge and adventure. The IRA provides opportunities for solitude or primitive recreation however steep rugged terrain limits access. The area includes 76,500 acres of Recommended Wilderness. Currently there are no known motorized routes within the Ten Mile/Black Warrior IRA analysis area.

3.13.1.3.2 Availability

The IRA provides a wide range of uses, including wildlife viewing, big game hunting, fishing and hiking.

3.13.1.4 Grimes Pass IRA

About 428 acres of the 13,283-acre Grimes Pass IRA lie within the project area. Elevations range from approximately 3,500 to 7,000 feet above sea level.

3.13.1.4.1 Capability

The Grimes Pass IRA has a moderate capability rating for apparent naturalness, solitude, and opportunities for challenge and adventure. The IRA provides moderate opportunities for solitude or primitive recreation due to steep rugged terrain and limited access along the northern boundary. Currently, about 0.1 miles of NFS road occur within the Grimes Pass IRA analysis area.

3.13.1.4.2 Availability

The IRA provides a range of uses, including wildlife viewing, fishing, camping, big game hunting, and hiking. There are few recreational activities occurring in the area.

3.13.1.5 Hawley Mountain IRA

About 1,321 acres of the 7,723-acre Hawley Mountain IRA lie within the project area. Elevations range from 4,400 feet to 7,300 feet above sea level.

3.13.1.5.1 Capability

The Hawley Mountain IRA has a low to moderate capability rating for apparent naturalness, solitude, and opportunities for challenge and adventure. The IRA provides opportunities for solitude or primitive recreation due to limited access and steep rugged terrain. Currently there are no known motorized routes within the Hawley Mountain IRA analysis area.

3.13.1.5.2 Availability

The IRA provides a range of uses, including wildlife viewing, camping, big game hunting, and hiking. There are few recreational activities occurring in the area.

3.13.2 Environmental Consequences for Alternative 1

Under Alternative 1, motorized travel would continue on the 2.2 miles of established but unauthorized routes within the Wilson Peak IRA. The Breadwinner, Ten Mile/Black Warrior, Grimes Pass, and Hawley Mountain IRA within the project area do not currently have any known established but unauthorized routes. Alternative 1 would maintain intact the natural integrity and appearance of each IRA. This alternative would also maintain the existing opportunities for solitude and primitive recreation within the IRA analysis area based on continued use of the small amount of established but unauthorized route in the Wilson Peak IRA. However, the opportunities for solitude and primitive recreation may decrease slightly over time as use of established but unauthorized trails would increase commensurate with increased population growth. This alternative would have no potential to impact the existing quality of special features or need in the IRA analysis area. This alternative would maintain the capability and availability in this IRA because the ROS (Section 3.3.2), the existing miles of routes, and the known uses would be maintained.

3.13.3 Environmental Consequences Common to All Action Alternatives

Under either action alternative, 2.2 miles of existing motorized routes would be designated a trail open to vehicles 50" or less in width in the Wilson Peak IRA. The action alternative would maintain the natural integrity and appearance in the Wilson Peak IRA. This alternative would generally maintain the existing opportunities for solitude and primitive recreation within the IRA analysis area based the newly designated route in the Wilson Peak IRA. The action alternatives would have not impact the existing quality of special features or need in the IRA analysis area. This alternative would maintain the capability and availability in this IRA because the ROS (Section 3.3.3) and the known uses would be maintained.

The Breadwinner, Ten Mile/Black Warrior, Grimes Pass, and Hawley Mountain IRA within the project area do not currently have any known established but unauthorized routes. Under either action alternative, there would be no direct or indirect effects to the wilderness attributes in these IRAs since no new routes would be designated. The action alternative would not impact the existing quality of special features or need in these IRAs. Either action alternative would maintain the capability and availability in these IRAs because the ROS (Section 3.3.3), existing miles of routes and known uses would be maintained.

3.13.4 Cumulative Effects

The cumulative effects analysis area for the IRAs is the analysis area for direct and indirect effects because the measurable direct and indirect effects of the project on IRAs are restricted to that analysis area. Because the capability, availability, wilderness characteristics, the

quality of special features and uses within in the IRA analysis area would be maintained, no cumulative effects to the IRAs are expected.

3.14 RECOMMENDED WILDERNESS

The analysis area for this resource includes the portion (about 864 acres) of the Ten Mile/Black Warrior IRA that is recommended wilderness within the project area. There would be no direct, indirect, or cumulative effects to the Ten Mile/Black Warrior Recommended Wilderness with implementation of this project since there are currently no known motorized routes within the analysis area and this project does not propose to designate any motorized routes within this analysis area.