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Environmental Assessment

Huckleberry Flats OHV Trail Expansion

Nonsignificant Forest Plan Amendment No. 48

**Middle Fork Ranger District
Willamette National Forest
Lane County, Oregon**

Legal Location: T19S, R4E Sections 31-34; T20S, R3E Sections 1, 12, 25; T20S, R4E Sections 4-10, 15-21, 30, W.M.

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Environmental Assessment

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Summary

The Willamette National Forest proposes to increase the existing Huckleberry Flats OHV (Off-Highway Vehicle) Trail system by approximately 30 miles to a total of approximately 63 miles. The project area is located in T19S, R4E Sections 31-34; T20S, R3E Sections 1, 12, 25; T20S, R4E Sections 4-10, 15-21, 30, Willamette Meridian, surveyed, within the Middle Fork Ranger District, Willamette National Forest, Oregon. The area, about eight miles northwest of Oakridge, is accessible via Forest Service Road 1928.

This proposed action is needed in order to provide an enhanced motorized recreational opportunity to a growing segment of recreationists within and adjacent to the currently managed, maintained and monitored Huckleberry Flats OHV Trail area. If implemented, this proposal would result in a reduction of trail wear and promote user compliance by focusing use on a clearly designated trail system.

A Nonsignificant Forest Plan Amendment affecting two Big Game Habitat Emphasis (BGEA) areas is included in this proposal. The Nonsignificant Forest Plan Amendment would change the BGEA (within the boundaries of which the trail expansion is proposed to occur) from a “Moderate” emphasis to a “Low” emphasis. An adjacent BGEA, not affected by the proposed expansion, would be changed from a “Moderate” to a “High” emphasis. The proposed action, while enhancing recreation, may impact natural resource and wildlife values.

Alternative 1- Proposed Action: This alternative proposes to add approximately 30 miles to the trail system. These additions would be integrated into the existing 33 mile OHV trail system that was designated for motorized use in 1989. The existing system utilizes old railroad grades, haul and skid road surfaces resulting from harvest activities occurring in the 1920-1940’s and again in the 1960’s and 1980’s. Of the proposed 30 additional miles, about 15 miles of low-standard system roads and another 12 miles of existing skidroads and skidtrails would be designated as OHV trail. About three miles of new trail would be built to link trail segments into loop opportunities.

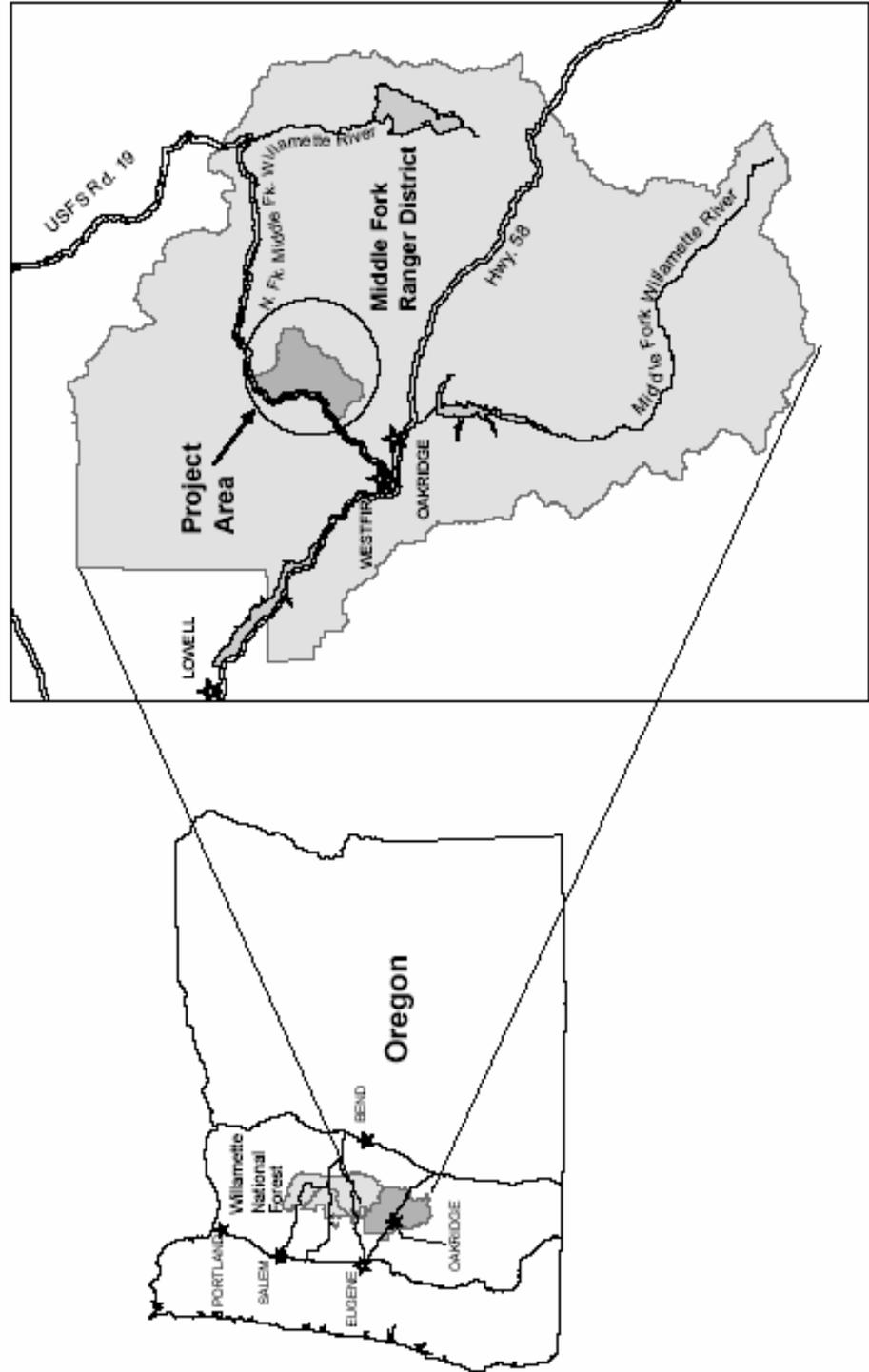
The existing trail system is encompassed within an approximate 2,850 acre area. The planning area for this proposal occupies approximately 4,300 acres, an increase of approximately 1,450 acres. All proposed additions lie within, and east of, the existing trail system. Forest System Roads 1928.702 (west of 1928) and 1928.732 (east of 1928) are the southern boundaries of this alternative. There would be no new development southward toward privately held property. Use would be restricted to designated trails within the planning area. Cross-country travel would be prohibited.

In summary, analyses of the Proposed Action show that:

- **Recreation** – Implementation of the Proposed Action would increase trail mileage by 97%, creating a “full day” riding experience, reducing wear on existing trails, and increasing management options for temporary trail closures for resource protection and during other management activities without negatively affecting the recreation experience.
- **Big Game Habitat** – With the implementation of the proposed Nonsignificant Forest Plan Amendment, meeting S&Gs for big game management would be attainable.
- **Threatened, Endangered and Sensitive Species** – This project will not remove, modify or degrade habitat for any T,E & S species.
- **Survey and Manage Species** – The construction and subsequent use of the trail would have no impact on the Crater Lake tightcoil snail (the only S&M species present in the project area) if mitigation measures listed in Chapter 2 are implemented.
- **Soils** – The Proposed Action, in combination with the existing condition, will not cause detrimental soil conditions in the activity to exceed the Forest Plan S&G of 20%.
- **Water Quality and Fisheries** – No actions proposed in this alternative would be expected to contribute to measurable changes in water quality or fisheries habitat.
- **Vegetation** – The Proposed Action would not contribute toward Federal Listing or cause a loss of viability to vascular or non-vascular sensitive populations or species. No adverse effects to intact special habitats are anticipated as a result of project implementation. The risk of spreading invasive weeds from cross-country travel, different land ownerships and distant areas would be reduced by route enforcement and public education.

Alternative 2 - No Action: Huckleberry Flats OHV Trail system would remain unchanged. There would be no conversion or designation of the existing road and spur system to OHV trails or any new construction of trails. The Nonsignificant Forest Plan Amendment would not be signed and implemented if the no-action alternative is selected.

Vicinity Map



Chapter 1 – Purpose and Need

Document Structure

The Forest Service has prepared this Environmental Assessment in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives. The document is organized into four parts:

Chapter 1 – Purpose and Need: The section includes information on the history of the project proposal, the purpose of and need for the project, and the agency’s proposal for achieving that purpose and need. This section also details how the Forest Service informed the public of the proposal and how the public responded.

Chapter 2 – Alternatives, including the Proposed Action: This section provides a more detailed description of the agency’s proposed action as well as alternative methods for achieving the stated purpose. These alternatives were developed based on significant issues raised by the public and other agencies. This discussion also includes possible mitigation measures. Finally, this section provides a summary table of the environmental consequences associated with each alternative.

Chapter 3 – Environmental Consequences: This section describes the environmental effects of implementing the proposed action and other alternatives. This analysis is organized by resource issues. Within each section, the affected environment is described first, followed by the effects of the alternatives.

Chapter 4 – Consultation and Coordination: This section provides a list of preparers and agencies consulted during the development of the environmental assessment.

Appendices: The appendices provide more detailed information to support the analyses presented in the environmental assessment.

Analysis File: Additional documentation, including more detailed analyses of project-area resources, may be found in the project planning record located at the Middle Fork Ranger District Office in Westfir, Oregon.

Background

Located on what is commonly known as Huckleberry Flats on the Middle Fork Ranger District of the Willamette National Forest the approximately 4,300 acre project planning area currently contains about 33 miles of off-road vehicles (OHV) trails, and a parking lot for about 35 vehicles

with associated informational and regulatory signs, a vault toilet building, loading ramps, and a day use picnic areas with tables.

By the late 1960's, local (Oakridge/Westfir area) motorcyclists were utilizing the web of existing haul roads, skid trails and yarding corridors as a trail system. In 1989 trails in the area were designated as Huckleberry Flats Motorcycle Trail No. 4381. This area was deemed suitable for OHV recreation due largely to its relatively gentle terrain, established use by OHV riders, the presence of soil types that were not especially erosive, and the perception that the second growth forests in the area were not especially important as wildlife habitat. By 1997 all terrain vehicles (ATVs) began to use the trail. Considering the origin of the trails as predominately log-haul routes and skid trails, the tread width generally accommodated the wider (up to 50" wide, three and four-wheeled) ATVs, without tread modification.

The Huckleberry Flats OHV Trail system currently occupies about 2,850 acres and is one of two designated OHV areas located on the Willamette National Forest. The Santiam Pass area, located on the McKenzie River Ranger District, is of comparable size to the Huckleberry Flats site, and is being analyzed for formal designation as a managed OHV trail system.

The trail system is actively managed for water quality, fisheries, and soils protection through regular maintenance of tread and drainage structures, installation and maintenance of bridges, culverts and puncheons that protect stream crossings and wet areas, and distribution of public education materials. Native vegetation and terrain almost completely inhibit cross-country travel limiting soil erosion and the spread of noxious weeds.

The Middle Fork District Roads Analysis (February 19, 2004) data compiled for the North Fork area identifies 32.2 miles of Forest Service system roads within the proposed project area with potential for incorporation into the existing 33 mile trail system. In addition, there are numerous operator spur roads, skid roads, logging corridors, etc. in the project area that have potential for conversion into OHV trails. This existing network of disturbed ground within the planning area provides an array of choices from which to develop additional, desirable trail loops to integrate into the existing designated trail. Placement of trails on previously undisturbed ground and inclusion of shared-use National Forest Roads would be held to the minimum necessary to create viable loops and connections between loops. Routes would be designed to increase available mileage in all three skill level categories—easy, more difficult and most difficult—for Class I and Class III vehicles. There are no trails for Class II vehicles currently designated or planned within this trail system (see definitions of vehicle class on page 4).

Use at Huckleberry Flats is seasonal and weather dependant. Typically, there are about 68 weekend days per year when the area is used. OHV use of the Huckleberry Flats area generally occurs during the spring, summer and fall months. Less use occurs in the winter and early spring months since the Huckleberry Flats area typically holds a fairly wet and sloppy (though transient) snow pack from November to March. Use is discouraged when tread is saturated. The trail system

is not typically used heavily during late summer months because, most years, the area is closed during that time because of seasonal wildfire concerns by Forest Ordered public use restrictions. If not officially use-restricted in mid-to-late summer, trails become so dusty that there is marked decline in user interest. Overall use of the area is more or less evenly split between ATV riders and motorcycle riders. The proportion of ATVs and motorcycles fluctuate seasonally with trail conditions. Typically, ATV use decreases with very dry conditions and motorcycle use decreases during the winter months.

Use of this area has increased considerably since its designation in 1989 and continues to incrementally increase as other popular, traditional riding areas (both public and private) are closed. Use levels are now at about 2,500 person days per year. Tread wear is evident in places and this condition will likely increase if future use trends progress as they have in the recent past.

The trail system is closely monitored to prioritize maintenance activities. Trails are maintained regularly for resource protection, safety and in order to maintain a high quality recreation experience. The Best Management Practices (BMP) and mitigating measures listed on pages 25-27 are an integral part of the current management standard for the existing trail system and will continue to be in the future.

Facilities have been developed at the trailhead to provide for sanitation (CXT vault toilet), traffic control (fencing, signing, guard rail), user education (information kiosks, maps, reference to information on the Willamette National Forest webpage), parking and unloading/loading, and picnicking.

The Oregon State Parks and Recreation Department-administered ATV Grant Allocation Grant Fund and the Recreation Trails Program grants have been sources of ongoing and significant funding for trail system maintenance and operations since 2000. Grants from these two funding sources have been leveraged with volunteer labor and, when/where appropriate, federal trust fund receipts generated by timber sales within the trail system area. In addition to funding maintenance labor and equipment (for both tread and facilities), these sources have also provided funding for resource protection (bridges, puncheons), and motorized-user education (maps, compliance monitoring i.e., sound tests, presence of required permits, compliance with the Oregon Revised Statutes related to motor vehicle operators and equipment). The expectation is to seek and acquire continued financial and user/volunteer support from these sources. Other outside sources with which to fund development and operations of this recreation opportunity would also be developed.

This OHV area was designated as trail to comply with Willamette National Forest Land and Management Plan (USDA, 1990) standards and guidelines (FW-001, page IV-47) to provide for a wide range of developed and dispersed recreation opportunities.

An environmental analysis for commercial thinning in this area (Niner Project EA) is being developed concurrently with this proposal. The Huckleberry Flats OHV analyses include cumulative effects of the Niner Project impacts.

The Oregon Revised Statutes that govern motorized use on Forest Service lands in Oregon define three categories of OHVs:

- Class I – (quads, 3-wheelers) Three or four-wheeled vehicles 50”wide or less, weighing 800 pounds (dry weight) or less and having a saddle or seat
- Class II – (Jeeps, sand rails, SUVs, etc.) Vehicles more than 50” wide and weighing more than 800 pounds (dry weight)
- Class III – (motorcycles) Vehicles on two tires, weighing less than 800 pounds (dry weight)

Purpose and Need for Action

The purposes of this project are to provide an enhanced motorized recreation experience, reduce tread wear and better provide for the increased use this area has seen. This action by the Forest Service is intended to meet the purpose and need stated as direction in the Willamette National Forest Plan’s Forest-Wide Standards and Guidelines (FW-024 Off Road Vehicle Recreation) to provide a “diversity of off-road vehicle recreational opportunities across the Forest where consistent with the criteria specified in FSM 2355.12.” by focusing and consolidating use in an area where facilities can and do sustain use. These criteria require that:

- The use is compatible with established land management and resource objectives
- The use is consistent with the capability and suitability of the resources
- There is a demonstrated demand which cannot be better satisfied elsewhere

This action is needed because of the steady increase in use that has occurred at this facility since its designation in 1989. This gradual, but steady, increase is due to the general desirability and accessibility of this area, the accelerated growth in sales of OHVs, and diminishing number of quality riding opportunities in the southern Willamette Valley. The upward trend in OHV user demand in the last decade, coupled with a reduction in access to traditional riding areas significantly increases the potential for illicit OHV use on public lands. A national effort to better manage OHV use through a system of designated routes (the Travel Management Rule, 36 CFR, Parts 212, 251, 261, 295) is expected to increase the need for designated OHV trail systems on the National Forests.

Implementation of this proposal would occur in phases that would add about ten miles of trail per year. Fully implemented, this proposal would not raise the number of miles beyond those considered to be a “day ride” nor change the character of the experience. The gradual integration of new trail into the existing system is not expected to trigger a sustained, substantial increase in use.

Designated trail systems that provide a quality riding experience in terms of available mileage, range of technical challenge and multi-season availability become tools to the land manager and enhance the ability to manage and direct use to a monitored and managed area. An expanded Huckleberry Flats OHV Trail system will be better equipped to accommodate a modest increase in users that may be displaced by the implemented Travel Management Rule. The presence of additional trails will provide the flexibility to temporarily close selected trails for resource protection without having a significant reduction in user satisfaction.

Nationally, as well as in the Oakridge/Westfir community, OHV use has grown rapidly since the early 1970's. The "local" area now includes Eugene and Springfield. Use closely reflects the national average of nearly one person in five participating in OHV use as shown in the National Survey on Recreation and the Environment, USDA, June 2005. At 33 miles, Huckleberry Flats OHV Trail currently falls short of the 50 miles that is commonly held by the OHV riding community as a minimum "day ride", yet it is used as such. This has resulted in increased impacts to the trail system as riders traverse the trail multiple times during a visit to achieve a full day recreational experience.

Commercial enterprises for competitive motorcycle riding (for which the Willamette NF does not provide opportunity) exist in the Willamette Valley, but as private and other public lands become less available, users desiring a trail ride increasingly turn to non-wilderness National Forest lands for their recreational experience.

Huckleberry Flats enjoys a very high user approval rate among both motorcycle and ATV riders. However, members of the OHV community frequently have stated that availability of additional miles would be very desirable to add variety, reduce the need to make multiple trips over the same trail, and generally enhance their outdoor recreation experience. (See "Public Comments" in the project file). The current economic environment, particularly fuel costs, is expected to further increase use of Huckleberry Flats as recreationists increasingly seek riding opportunities closer to home.

This action responds to the motorized recreation goals and objectives outlined in the Willamette National Forest Plan (July, 1990), and helps move the project area towards desired condition of providing recreation opportunities, as described on pages IV-4 and IV-9 in that plan. In past years considerable OHV use was occurring in the upper end of the Lookout Point Reservoir when water levels were low. OHV use of this area was eliminated several years ago to protect various environmental components. When this use was terminated, unmanaged OHV use began to occur in other upland areas with incompatible slopes and soil types, promoting erosion and sedimentation. There is a need to provide additional trail opportunities to absorb the displaced use generated by such closures.

The best site for providing an additional monitored and maintained family-oriented motorized recreational opportunity on the Middle Fork District is at Huckleberry Flats.

- Supporting facilities (parking, toilet, information center, etc.) are established in a central location and can support the potential increase in use with little modification.
- Huckleberry Flats OHV Trail system is currently recognized by the OHV community as a family-friendly area—a user niche we want to promote.
- The existing network of disturbed ground originating from past management practices, found nowhere else on the Middle Fork District in such concentration, provides an array of development opportunities that can be integrated into the current system.
- Administratively, it will be most efficient to monitor and maintain a single site rather than multiple sites.

Huckleberry Flats OHV is known and promoted as a family-friendly riding area. Regular maintenance, one-way trails, good signing, a high proportion of easy and moderate trails, warm-up and “kiddie” areas, picnic tables and traffic controls are features that promote a family atmosphere. Loop trail opportunities are considered crucial to a high quality, safe OHV experience. Within a family-oriented system, those loops need to be of variable lengths and levels of difficulty to accommodate variable skill levels. (Where a single very long loop may be appropriate and enjoyable for skilled adults, it would not be as suitable for a family group of varying ages and riding skills.) This proposal would provide multiple loop choices.

There is a need to amend the Forest Plan because OHV trails and their use are not compatible with the area’s current big game habitat classifications and standards (see the Wildlife Resources section of the following Environmental Consequences discussion for a full discussion of this situation). The Huckleberry BGEA has had the highest concentrated OHV use on the Middle Fork Ranger District for the last 16 (or more) years. This area is not suitable, either as it exists or as it would be if this proposal is implemented, for management as a medium emphasis BGEA because it presents a conflict with current big game management for a BGEA, primarily in terms of the density of travel ways open to motor vehicle use. The amount of open roads, whether they be used by passenger vehicles or OHVs, is problematic in an area managed for big game values because motorized vehicles can result in reduction of the use of otherwise suitable habitat by big game, particularly if the open road/trail system is dense enough that no refugia from the sight and sound of vehicles is available.

At the same time, the adjoining South Christy BGEA, which has no developed OHV use, offers a much higher potential for successfully managing big game forage and disturbance issues. Oregon Department of Fish and Wildlife (ODFW) provided input to the proposal to change the emphasis of these Big Game Emphasis Areas.

Proposed Action

The Middle Fork Ranger District proposes to increase the existing OHV Trail system by (approximately) 30 miles. When implemented, Huckleberry Flats OHV Trail will provide a total of (approximately) 63 miles of trail, as illustrated in Figure 2 – Proposed Alternative 1 (page 20).

This proposal includes a trail segment that will provide an alternative route to a mixed-use road (the north end of FSR 1928.700 that accesses a gravel pit) where higher vehicle speeds may occur. New trail segments that provide connectivity between trails are also proposed to facilitate the predominating one-way traffic flow and provide for a range of skill levels. When fully implemented, the majority of the proposed roads designated as trails, as earmarked in the District Roads Analysis for potential OHV use, would not allow use by other than Class I and III motorized traffic (as defined on page 3 of this document). Closures would consist of mechanically narrowing tread to accommodate vehicles 50" or less in width, installing berms or boulders, or by other methods of traffic exclusion.

-This proposal would increase the area covered by the trail system from 2,800 acres to 4,300 acres. The majority of the new trails would be built to accommodate vehicles up to 50" wide, as the existing trails have been. A minimal amount of single track trail, approximately three miles, will be created due to the difficulty of long-term maintenance. Single track trail offers a tread width suitable for motorcycles but not three or four-wheeled ATVs.

The Proposed Action would designate about 15 miles of low-standard roads within the planning area to be used as OHV trails (See Table 1, below). An additional 12 (approximate) miles of tread would be built on existing skid roads and skid trails impacted by previous timber harvest activities. Three non-contiguous miles of trail construction on previously undisturbed ground, in approximately seven locations, would be necessary to connect trails together to provide desirable loop opportunities. These additions would be integrated into the existing designated OHV trail system which was designated for motorized use in 1989. The existing system utilized old railroad grades, haul and skid road surfaces resulting from harvest activities that occurred 1920-1940's and again in the 1960's and 1980's. The Proposed Action does not include additional trailheads other associated facilities.

All proposed additions lie within, and/or east of, the existing trail system. Forest System Roads 1928.702 (west of 1928) and 1928.732 (east of 1928) define the southern boundary of this alternative. There would be no new development southward toward privately held property.

A Nonsignificant Forest Plan Amendment is included in the Proposed Action. The Forest Plan Amendment would: 1) change the designation of the Huckleberry BGEA (Big Game Emphasis Area) from Medium Emphasis to Low Emphasis and 2) change the designation of the adjoining South Christy BGEA from Medium Emphasis to High Emphasis to increase the quality of habitat management there to compensate for the reduction in habitat quality within the Huckleberry area.

Table 1 – Proposed Designated OHV Trails-- Alternative 1

Road Number	Miles
1928017	.63
1928021	.10
1928050	.11
1928188	.01
1928240	.41
1928254	.15
1928275	.25
1928700	1.01
1928704	1.96
1928705	.21
1928708	.67
1928710	1.27
1928712	.95
1928713	.51
1928715	.82
1928716	.28
1928717	.56
1928719	.11
1928721	.93
1928723	.44
1928728	.38
1928729	.41
1928730	.67
1928731	.38

Road Number	Miles
1928732	.12
1928735	.44
1928736	.18
1928739	.25
1928740	.57
1928741	.24
1928246	.08
Total Miles	15.19

Decision Framework

The decision framework refers to the nature of the decision that will be made by the Willamette National Forest Supervisor based on the analysis contained in this document. Based on the response to this EA following the 30-day comment period and the analysis disclosed in the EA, The Responsible Official will make a decision and document it in a Decision Notice.

At the conclusion of the public review and comment period, the Willamette National Forest Supervisor will decide whether or not to implement management of the Huckleberry Flats OHV expansion as proposed. The Forest Supervisor's decision will also determine if the Forest Plan should be amended to change the BGEA management level and whether the decision constitutes a significant impact on the human environment. Implementation of the decision is anticipated in the summer of 2007.

Selection of an alternative to implement will be based on the analysis contained in the Environmental Assessment. Factors on which this decision is based include how the alternatives meet the purpose of and need for action, respond to the significant issues, affect the environmental components, comply with the Forest Plan, and respond to public comments.

Management Direction

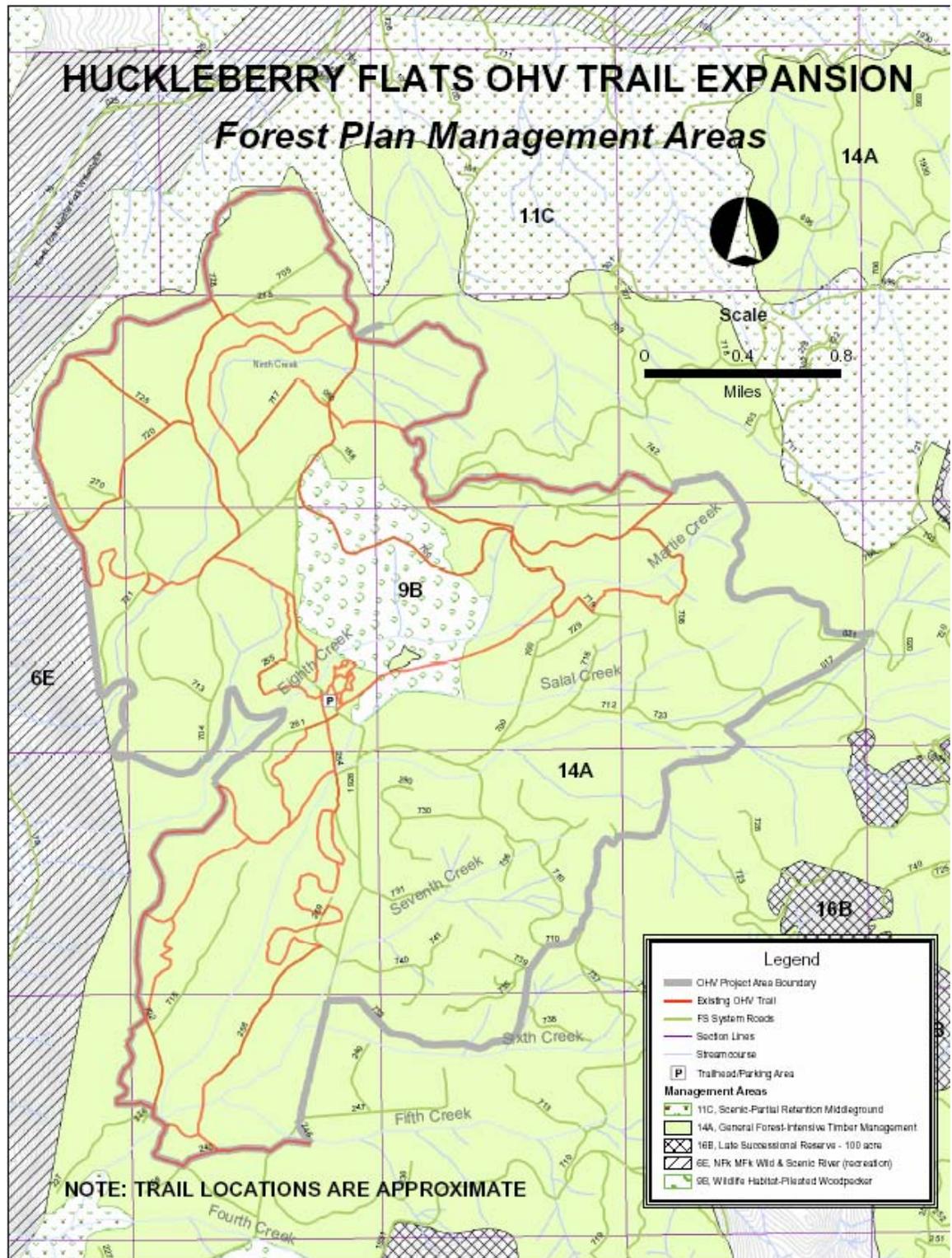
Management direction is derived from the Willamette National Forest Land and Resource Management Plan (Forest Plan). The proposed project is located entirely within the Management Area 14a, General Forest, which primarily provides for timber harvest but also allows for the provision of public use and enjoyment. There is also a Pileated Woodpecker Management Area (MA-9B) in the project area. Both of these are overlaid with a Riparian Reserves system which protects and creates a corridor network along all streams. Figure 1 – Map of Forest Plan

Management Areas for OHV Expansion Project displays the location of the management areas in the project vicinity.

MA14a-01 specifically addresses recreation management: Area management practices should result in a physical setting that meets or exceeds the Recreation Opportunity Spectrum (ROS) class of Roaded Modified.

This proposal responds to Forest Plan standards and guidelines FW-015 (provide for a broad range of dispersed recreational opportunities...including semi primitive motorized , roaded natural and roaded modified Recreation Opportunity Spectrum opportunities ...page IV-48) and FW-024 (a diversity of off-road vehicle recreational opportunities should be provided where the use is compatible with resource objectives and there is a demonstrated demand which cannot be better satisfied elsewhere, page IV-50).

Figure 1. Map of Forest Plan Management Areas for OHV Expansion Project Area



Note: Within the 4,300 acre planning area are 2,650 acres of Riparian Reserves (MA-15). Within those 2,650 acres, there are 1.3 acres of trail proposed.

Big Game Management Direction (Forest Plan Guidance for Big Game Emphasis Areas)

Deer and elk standards and guidelines have been developed in cooperation with the Oregon Department of Fish and Wildlife. Habitat conditions will be maintained or enhanced within each emphasis area to meet habitat effectiveness objectives and support the potential populations of deer and elk. Habitat effectiveness objectives are assigned to each emphasis rating. However, the standards and guidelines will provide a process for changing the habitat effectiveness objectives of individual emphasis areas (Forest Plan, p. 34).

Forest Plan S&G FW-121...Fish and wildlife habitat resources on the Forest, in particular the habitat of management indicator species, shall be managed in cooperation with State and Federal fish and wildlife agencies. At the Forest level, fish and wildlife habitat shall be managed to maintain viable populations of all existing native and desired non-native plant and animal species. Distribution of habitat shall provide for species viability and maintenance of populations throughout their historic range on the Forest

Forest Plan S&G FW-135...Districts should evaluate and implement projects that establish increasing trends in habitat effectiveness with the exception of low emphasis areas.

Forest Plan S&G FW-153... For Low emphasis areas, the habitat effectiveness objective for each variable should be within the range of $> .2$ to 1.0. Where existing habitat conditions result in values below this range, an increasing trend should be established through project implementation.

Tiering and Incorporation by Reference

This EA is tiered to the Final Environmental Impact Statement (FEIS) for the Land and Resource Management Plan –Willamette National Forest (USDA, 1990) and the Final Supplemental Environmental Impact Statement on the Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl (USDA, USDI, 1994). The Willamette National Forest Land and Resource Management Plan (USDA, 1990) as amended by the Record of Decision for Amendments to Forest Service And Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl and S&Gs for Management of Habitat for Late-Successional and Old-Growth Forest Related Species within the Range of the Northern Spotted Owl (USDA, 1994) are incorporated by reference.

The Willamette National Forest Road Analysis Report (USDA, 2003) and the Middle Fork Ranger District Supplemental Road Analysis (USDA, 2004) is incorporated by reference. The Forest Road Analysis Report provided recommendations for key roads to be kept open and maintained and for non key roads that should be considered for closure. The District Supplemental Road Analysis Report provides specific road and closure recommendations for

roads within the project area. Copies of these documents are available at the Middle Fork Ranger District office in Westfir, Oregon.

Also incorporated by reference is the Niner Project EA (USDA, 2007) specifically Appendix B, Cumulative Effects Analysis. The Niner Project area closely overlaps with the area potentially affected by the Huckleberry OHV proposal and the past, present, and reasonably foreseeable future actions discussed in the Niner EA are also applicable to this proposal.

Public Involvement

The Forest Service publishes a Schedule of Proposed Actions (SOPA) four times a year to inform the public of proposed actions on the National Forest. The SOPA briefly describes each proposed action and provides the public an opportunity to comment prior to the execution of the project. This proposal was listed in the SOPA Proposed Actions starting in January 2004. The proposal was provided to the public and other agencies for comment scoping which began February 18, 2005. Scoping letters were sent to 92 individuals and organizations on the Middle Fork Ranger District mailing list. Native American Tribes located in Oregon, other public agencies, environmental interest groups, user groups, and individuals who had independently expressed interest in increased motorized recreation opportunities were included on the list. In addition, as part of the public involvement process, the Forest Service hosted a field trip December 15, 2004 for representatives of Cascadia Wildlands Project and Oregon Natural Resources Council (now Oregon Wild) in the area of the proposed trail expansion.

To date 25 written responses to this proposal have been received. Twenty-two were in support of the Proposed Action, Alternative 1. One comment supported an alternative that proposed a seasonal closure but which was not further evaluated, as explained below. Two strongly urged that caution be taken to protect natural resources and sufficiently mitigate environmental impacts. Following are examples of comments received from the public:

- “While ONRC understands the Forest Service’s interest in providing access to public lands for all users, we feel that expanding OHV trails in this area could be detrimental to the health of nearby streams....Please make sure that whatever trails you plan on adding to the existing system stay out of riparian areas and that sufficient steps are taken to protect water quality and prevent the spread of invasive weeds.”
- “I would think that water quality would be the major issue driving the environmental analysis.”
- “I am greatly in favor of the proposed additions to the riding area as outlined in Alternative #1.30+ miles of trails is marginal for a riding area intended to serve as a day trip.
- “I reviewed the expansion proposal and was very pleased to see what is (proposed to be) included....Please do this, it will enhance the enjoyment of the trail system.”

- “I am very pleased with the Preferred Alternative (No.1) plan for the expansion of Huckleberry Flats OHV area. The need for expansion of the system is long overdue...”
- “I would like to provide positive comments on the proposal to expand the trail system available to us in the Huckleberry Flats riding area...I am happy to see included in the considerations topics such as increased environmental impacts due to overuse.... “
- “Please accept my letter in support of Alternative 1. Additional mileage is needed to keep up with the growing OHV population...OHV use is truly a family affair, and with increased mileage, the recreations experience at Huckleberry will be greatly improved.”
- “As an avid OHV enthusiast, it is important to have a quality OHV riding area close to home....I prefer Alternative 1 as it provides the most recreational opportunity with an increase in trail mileage...”
- “I have ridden Huckleberry Flats several times with family and friends. I am in favor of Alternative #1...I have never had a conflict with any other users...”

Copies of the letters and emails can be found in the Public Involvement section of the Analysis File.

Using the comments from the public and other agencies, including US Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA), and the Oregon Department of Fish and Wildlife (ODFW), the interdisciplinary team developed a list of issues to address.

Issues

Issues are points of concern about environmental effects that may occur as a result of implementing the proposed action. They are generated by the public, other agencies, organizations, and Forest Service resource specialists and are in response to the proposed action. The Forest Service separated the issues into two groups: significant and nonsignificant issues. Significant issues were defined as those directly or indirectly caused by implementing the proposed action. nonsignificant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, “...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)...” All issues, significant and nonsignificant, are addressed in this document

Significant Issues

#1- User satisfaction has declined and trail wear has increased because available the trail mileage is less than a typical “day ride”.

Evaluation Criteria: Number of miles of trail that are available for OHV use at the Huckleberry Flats OHV Trail system.

Through ongoing public input processes motorized recreationists have expressed a need to have available to them trail systems that are of adequate length to provide a quality experience without repetitive use of the same trail. Fifty trail miles is considered a minimum “day ride” by the OHV community. Providing fewer miles within a trail system accelerates amount of wear by increasing the visits and maintenance to any given segment of trail. Conversely, an adequate number of miles equate to a more diverse recreational experience, reduced tread wear through better dispersion of use and greater flexibility to direct and manage use through temporary closures which better protect resources and reduce maintenance costs.

Although the draw of additional trails and new experiences will likely cause a modest increase in use, facility availability will become a management tool to contain and control levels of use. Although the parking lot may be reorganized to optimize available space, there is no significant parking lot expansion proposed, thus capacity, nor the associated trail use, would be expected to increase substantially. Dispersed parking/camp sites in the area (generally old log landings) are limited and not particularly desirable. All information and amenities would continue to be available ~~only~~ at the single existing trailhead, where access to trail loops originate.

#2 - Big game disturbance due to road and OHV trail density

Evaluation Criteria: Habitat Effectiveness Indices =

A substantial portion of the proposed project area is considered to be winter range for big game. Due to the current road density, the project area does not currently meet the Forest Standards and Guides for management of a Moderate Big Game Emphasis Area (BGEA). Implementation of the Proposed Action would increase road density, lowering habitat effectiveness.

#3 - Detrimental soil disturbance

Evaluation Criteria: Percent soil compaction in the activity area.

FW-081 stipulates that detrimental soil conditions—which include compaction and displacement—will not exceed 20% of the activity area. Past management activities in the project area have resulted in varying degrees of detrimental soil disturbance. Soil disturbed during recreational use and the ensuing maintenance create the potential for erosion and compaction. Unmitigated erosion may result in sedimentation of nearby streams affecting water quality and fisheries. Soil productivity is compromised by compaction, potentially reducing site productivity.

Summary of Effects Related to the Nonsignificant Issues

The following issues were determined to be nonsignificant relative to this project:

Water Quality

Water quality changes, including increases in stream temperatures, peak flows, suspended sediments and turbidity, are not expected to occur because there would be very minor disturbance within riparian areas and utilization of Best Management Practices that would mitigate sediment input into streams. This is an important, but mitigable concern.

Fisheries Habitat

Habitat for protected fish species will not be affected because it is not present in the planning area. The very low percentage of flow into the North Fork of the Middle Fork of the Willamette (North Fork) from tributary streams flowing through the planning area is not expected to impact any protected fish species that may use the main stem of the North Fork.

Invasive Plants

Invasive species and noxious weed populations would not be expected to increase as a result of the proposed action. Noxious weeds are already present in the planning area. A very low percentage of off-road vehicles come to the area unwashed. OHVs typically arrive in trucks and trailers that travel to the trailhead on established paved and graveled roads and park in a graveled lot. Within the existing trail system cross-country use, which would be the most likely method of undesirable seed dispersal, has been extremely rare due to the presence of dense vegetation. The vegetative cover throughout the areas proposed for expansion is equally dense and will effectively curtail cross-country travel. Very compacted tread and regular mechanical tread maintenance result in a very harsh environment for plant propagation. In combination, these factors lower the risk of introducing or spreading noxious weeds and invasive species into and throughout the area. Current (and continuing) user education and the expected establishment of a monitoring plan further reduce risk of invasive species and noxious weed spread and have contributed to the determination that this is nonsignificant issue for the Proposed Action.

Heritage Resources

Heritage resources could be affected by trail expansion, but no heritage resources were found in the areas of potential effect, therefore eliminating cultural resource protection as a significant issue. However, any new discovery during the course of implementation would be reported and construction or maintenance operations and trail use would cease until an assessment of the site could be made. A report documenting the project review has been submitted to the State Historical Preservation Office (SHPO).

Hazardous Fuels

No hazardous fuels would be created by trail construction. Because the majority of proposed trails are located on old haul roads and skid roads, very few, if any, trees larger than 7" are expected to be cut. In areas where brushing is required, severed material would be removed from the tread and dispersed or chipped. Fuels produced by future management activities would be expected to be removed from the trail system per contract provisions associated with the activity.

Any felled hazard trees associated with trail construction or maintenance would be cleared from the tread (if necessary) and remain on site.

Excessive increase in recreational use

This proposal could cause the use of this area to increase. This proposal would not lead to a significant increase in use because it would not make the area large enough to provide a typical multiple day experience, nor does it increase the area available for parking. Designation and construction of new trails would be expected to occur over a period of about three years. Such a gradual integration of new trails into the existing system would further be expected to reduce the draw that a riding area of this size might experience if it were all newly designated. Although riders seem to have preferences for the types of landscapes they utilize (forested, desert, sand, etc.), this expansion would not include any terrain or physical features unlike what is found in the existing system. Therefore, even as riders do value variety in their experiences, it is unrealistic to believe that Huckleberry would suddenly hold a wide appeal for a new/additional segment of motorized users.

Chapter 2 - Alternatives, including the Proposed Action

This chapter describes and compares the alternatives considered for the Huckleberry Flats OHV Expansion project. It includes a description and map of each alternative considered. This section also presents the alternatives in comparative form, sharply defining the differences between each alternative and providing a clear basis for choice among options by the decision maker and the public.

Although it is typical to have multiple action alternatives to assess, it was determined that only one action alternative was suitable for this project. Please refer to the “Alternatives Considered But Not Fully Evaluated” section below for a description of those actions that could potentially provide additional motorized off-road recreation opportunity but were not considered feasible.

Alternatives

Alternative 1 – Proposed Action

This alternative would increase the existing Huckleberry Flats OHV Trail system by 30 miles, to a total of approximately 63 miles. The increase includes several trail types (road conversions, new construction, double and single-track) and surfaces (native surface and crushed rock).

Of the proposed 30 miles of additional trail, approximately 15 miles of low-standard roads would become designated OHV trail. The majority (approximately 10 miles) of roads designated as trail will be removed from the Forest Roads inventory and be closed to all motorized traffic except Class I and III OHVs. An additional 12 miles of trail would be constructed on existing skid roads impacted by past timber harvest activities. The remaining non-contiguous three miles of proposed trail would be located on ground not obviously impacted by past timber harvest methods and will serve as links to form trail loops.

The majority of new trail construction would be accomplished with a small trail dozer, or other equipment with similar capabilities. Finished tread would be about 50” wide, constructed to bare soil and incorporate rolling dips or fabricated water bars to facilitate drainage. Terrain where trails are proposed to be constructed on soils not compacted by previous management activities is typical of the area. (depicted in Figure 2, as “New Trail Construction”). That is to say that some segments would be located on generally flat terrain and others would be on gentle grades. No new trails, either on existing impacted soils or on soils not previously impacted, are expected to require the cutting of merchantable timber. Disturbance to ground covering (predominately salal, Oregon grape, etc.) and understory species (predominately vine maple, rhododendron, etc.) would be limited to the trail prism except where rolling dip outlets are constructed to facilitate tread drainage. Typically outlets are about 18” wide and average about 12’ in length. Within riparian areas Best Management Practices (BMP) would be utilized to protect water quality.

Trails would be suitable for both Class I and Class III vehicles. Initially, approximately three miles of trail will be reserved for exclusive Class III use. Methods by which Class III single-track trail and Class I quad-width trail are typically maintained are different from each other. Single-track maintenance is dependent on manual manipulation of the tread (with hand tools); quad-width tread lends itself to motorized “heavy” equipment such as small excavators and trail dozers. If manual maintenance becomes unfeasible due to lack of effectiveness and/or high costs, mechanical maintenance methods would be adopted. Mechanical maintenance may cause the widening of the tread to accommodate Class I vehicles, as well as Class III vehicles. Reasonable effort, utilizing new techniques and technologies, would be made to sustain affected single-track trail as far into the future as possible.

Bridges designed to accommodate Class I and III vehicles and to exclude larger Class II vehicles would be installed at three perennial stream crossings. Two streams that flow intermittently would be protected by culvert installation. In areas where an intermittent flow is not evident but where drainage may be poor during the wet season, tread would be hardened and protected with rocky material or puncheons. Trail design would minimize the number of areas where this treatment will be necessary.

Approximately 0.2 mile of the existing trail No.120 that crosses an unnamed stream would be closed upon completion of a rerouted section of trail. The existing bridge is aging and the southern approach to the bridge has become increasingly difficult to maintain. The closure of this section, pending the completion of replacement trail, is the only proposed change to the existing trail system.

Huckleberry Flats would remain classified and managed as a day-use OHV area. Although the fringes of the current trailhead parking lot may be improved to better accommodate the larger recreation vehicles that are becoming more common, no significant expansion of the existing trailhead is proposed because of its location between two perennial streams. No additional trailheads are proposed because the proximity of the existing trailhead within the footprint of the expanded trail would not change a great deal. There are few suitable dispersed campsites available that are sized to accommodate the typical trail user’s vehicles, effectively limiting dispersed camping.

No timber harvest is proposed as part of the expansion. Because this alternative would utilize existing low-standard roads and skid roads, the need to cut large trees is limited. Dead or dying trees that present a hazard to trail users would be felled and left in place. The density of the vegetation in the area is a key component in traffic control and effectively curtails motorized use off of the designated trail. Clearing of rhododendron, vine maple and other understory species (salal, Oregon grape, etc.) would occur only as necessary to meet trail clearing standards and to address safety issues such as sight distance. To promote user safety, managers will coordinate

closures during any future commercial harvest activities that may take place within the trail system area.

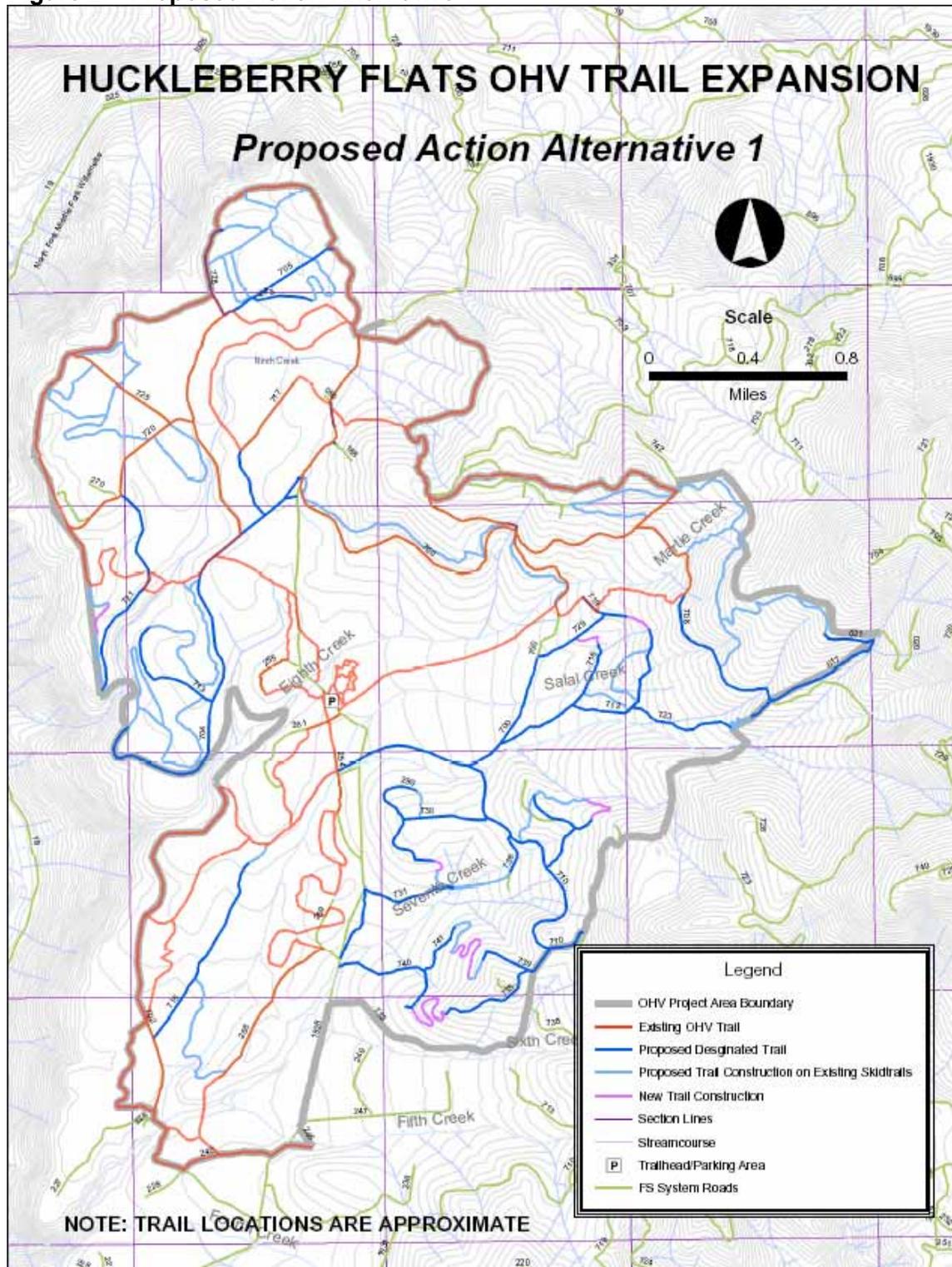
This system will continue to be available for motorized-use only in order to minimize conflict between user groups and promote forest visitor safety. New trails will be (primarily) one-way and integrated into the existing one-way trail system. Exceptions to the one-way trail scheme will be made where very low-traffic volume mixed-use roads are designated as trail, as is the case within the existing system. The new trails will be signed with standard regulatory, cautionary and informational signs.

It is not the intent of the proposed action to take extraordinary measures to mitigate natural occurrences. This means that snow will not be plowed to permit access and there will be no dust abatement for user convenience. In the case of flood events it will be management's option to close any or all of the entire trail system until conditions improve.

This alternative also includes a proposed Nonsignificant Forest Plan Amendment. To ameliorate conflicts in management of resource objectives (recreation and wildlife), discussions with Oregon Department of Fish and Wildlife (ODFW) were initiated to explore options for providing for big game security and management in the Huckleberry area and adjacent areas of the North Fork of the Middle Fork Willamette River. Efforts to resolve this apparent conflict shifted to seeking opportunities in adjacent BGEAs to maintain or increase overall elk emphasis thresholds in those adjacent areas. Results of discussions have led to the option of pursuing a Nonsignificant Forest Plan Amendment to change the Big Game Emphasis Area (BGEA) designation of this area from Moderate to Low while increasing the emphasis for elk in an adjacent BGEA (Castillo, 8/25/05).

Such a change in BGEA management levels results no net change in overall big game emphasis management on the district.

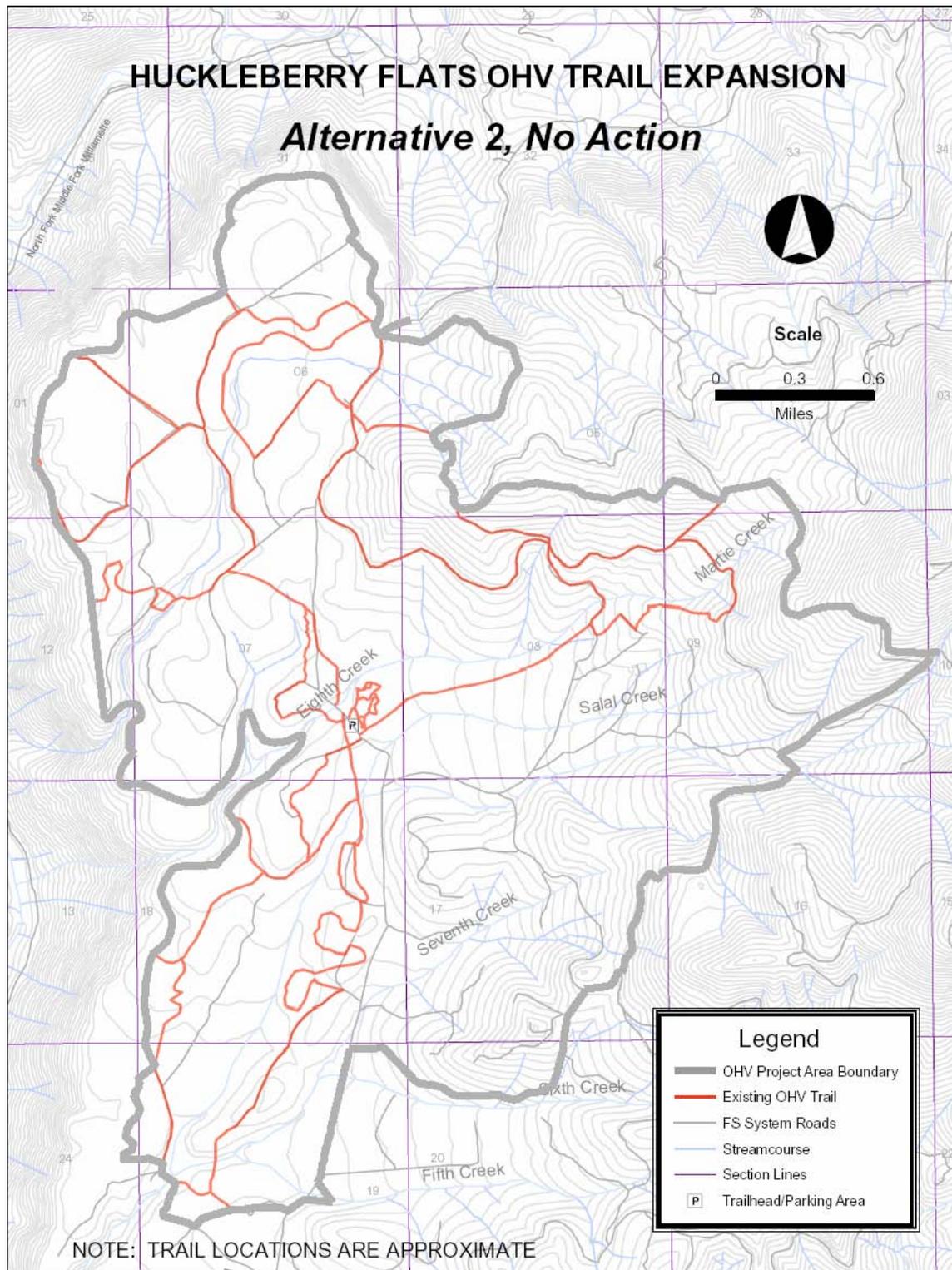
Figure 2 – Proposed Action Alternative 1



Alternative 2 - No Action

Under the No Action alternative, current management plans would continue to guide management of the project area. Existing activity would continue. No additional OHV trails would be designated or constructed within or adjacent to the current, existing trail system to accomplish project goals. No Forest Plan Amendment would be necessary because there will be no change in the current condition, particularly in the density of the transportation system and the level of disturbance big game is subject to. Maintenance and resource monitoring would continue at present levels.

Figure 3 – Proposed No Action Alternative 2



Alternatives Considered But Not Fully Evaluated

A variety of alternatives were initially considered but, for the reasons stated below, only one action alternative, Alternative 1, was found to be feasible considered in detail.

Seasonal Restriction Alternative. This alternative is essentially the same in design and mileage as the Proposed Action but includes a seasonal restriction (December 15 - June 1) on OHV use within the area during those months. The restriction is intended to protect big game as they utilize this area as winter range and while calving.

The entire trail system is currently open year-round without management restrictions. Most years use is curtailed by snowfall in amounts that effectively make the trail system partially to wholly unavailable to wheeled vehicles. This trail is not open to, nor suitable for, snowmobile use. The period of natural snow-related closure is variable--typically from late December through February—and often into late March. Riding prohibitions may also be imposed during periods of high fire danger. Typically, fire restrictions prohibiting OHV use begins in the month of August and extends until the first significant precipitation, often in October. Seasonal closures due primarily to natural weather patterns, combine to reduce OHV recreational opportunity at this site by about 10-12 weeks in a typical year, a 19-23% reduction. Further restricting OHV activities from March through May, an additional 13 weeks, would result in reducing trail availability an additional 25%, to a total of 56-60% of the year.

Reducing, rather than increasing, OHV opportunity does not meet the purpose and need for this proposed action and, therefore, was not further considered.

OHV Trail System Relocation Alternative. Creating a new OHV area on the Middle Fork Ranger District (MFRD) to address the purpose and need was not fully considered. Huckleberry Flats OHV Trail typifies a western-Oregon, wooded, trail-ride experience and is recognized by users as a family-friendly riding area with good access from the southern Willamette Valley. The topography, existing infrastructure, history of management provides the following advantages for the current location.

- Since the designation of Huckleberry Flats as a motorized trail system, a considerable financial investment has been made in facilities, tread construction, and development of maintenance methods and devices that mitigate resource issues.
- Access for trail grooming equipment is good. The network of low-standard system roads in the project area provides good access points for maintenance/construction equipment.
- The network of existing impacted haul roads, skid roads and logging corridors provide an array of potential choices for trail extensions and designations of new loop opportunities while impacting only a minimal amount of previously undisturbed soils.
- Dense vegetation throughout the project area discourages cross-country travel.

- The area is within a 75 minute commute from the Eugene/Springfield area. One of the issues addressed in the State of Oregon's Trails Plan stresses the desirability for motorized recreation in close proximity to population centers.
- The area is widely recognized as a motorized recreation destination and holds little appeal for non-motorized forest visitors.
- The gentle terrain and limited number of perennial stream crossings make this area more suitable than other alternatives which would have greater environmental concerns.

Other areas on the Middle Fork District with the potential to provide an equal quality of experience around a centralized trailhead with facilities, an equal or better level of maintenance accessibility and public access, and the economically feasible development of a motorized trail system of the same quality, present essentially the same natural resource issues that must be addressed at the existing Huckleberry Flats location, though they may be more difficult to mitigate. Relocating this recreation opportunity elsewhere on the District would require the abandonment and decommissioning of the current trail system and a substantial economic investment to develop a replacement system. Therefore, this alternative was not further considered.

Extended Area Alternative: This alternative would link the current trail system into a network of undesignated existing multiple-use trails. The undesignated trails extend south of Forest Road 1928.702 for about 1.5 miles to the rural residential area of Camp Six. The trails themselves are residual from past harvest, share many characteristics of the OHV system and would physically lend themselves to inclusion into the existing system.

The OHV trail system visitors from outside the Oakridge/Westfir community are generally unaware of the existence of these undesignated trails. There is a variety of existing use by local (Oakridge/Westfir area) residents: hikers, bicycles, equestrian, hunters, and Class I and III OHVs. Landowners with property directly adjacent to National Forest land occasionally contact the Middle Fork District office to report or inquire about the legality of motorized use on the trails citing noise, trespass and risk of fire as their concerns.

A proposed commercial thinning project includes harvest subdivisions in the area between Camp Six and FSR 1928.702. It is unlikely that the timber sale contract will contain provisions to protect or keep open an undesignated trail system.

In order to minimize conflict between local landowners and individuals seeking a diversity of recreational experiences and OHV use within this corridor, this alternative was not fully developed.

Mitigation Common to All Alternatives

In response to public comments on the proposal, mitigation measures were developed to ease some of the potential negative impacts the action alternative may cause. The mitigation measures would be applied to the action alternative.

The Proposed Action incorporates the implementation of Best Management Practices (BMP) to eliminate or minimize the potential effects of management actions on soil and water resources. Potential adverse impacts to water quality and stream channel condition are mitigated in part by designation of Riparian Reserves, erosion control requirements and road drainage improvements as they are for the existing trail system.

Appendix H of the Willamette National Forest Land and Resource Management Plan (USDA 1990) describes how BMPs are the primary mechanism that enables achievement of water quality standards. BMPs are selected and tailored for site specific conditions.

WILDLIFE

- This project would implement construction or trail improvement activities outside the nesting season for protection of the spotted owl. In those areas where a seasonal restriction is not imposed for disturbance to the spotted owl (3/1-7/15), avoid construction operations until OHV use starts to increase in the spring, anticipated to be approximately May 1 to protect other avian species.
- This project would minimize cutting/felling of larger diameter conifers and hardwoods (>7" DBH). Understory vegetation would be maintained as feasible yet still providing safe sight distances for OHV users.
- This project would maintain logs and other down woody debris in Crater Lake tightcoil snail habitat.
- Activities that would lower the water table or divert the flow of surface water in Crater Lake tightcoil snail habitat (within 10 meters of permanent water) would be avoided.
- This project would limit activities that would cause soil compaction and mortality in Crater Lake tightcoil snail habitat by closing Crater Lake tightcoil snail habitat to OHV use, protecting Crater Lake tightcoil snail habitat from heavy equipment, assemble bridges offsite to the degree possible and limiting construction season to late summer and early fall.

SOILS/WATER/FISHERIES

- Minimize placement of trails in locations that will lead to the degradation of water quality.
- Drain dips (water bars) would be excavated to create a reverse grade for at least 10 feet on the trail grades that exceed 10 percent, and space them at least every 200 feet.
- Where drain dips are impractical, flexible water bars would be installed. These diverters would be constructed of rubber belting with minimum dimensions of 3/8 inches thick by 9

inch wide extended diagonally across the entire trail tread. The flexible water bar would be buried in the tread such that only 3.5 inches of the belt is exposed, for functionality and rider safety.

- Tread hardening systems (e.g. pre-cast concrete paving blocks or angular 3 inch diameter quarry rock), or materials or treatments that will achieve the same goal of protecting the tread would be installed wherever tread grade is less than 2 percent and water tends to pool.
- New trail segments would not be constructed directly up steep slopes. Sustained grades would not exceed 12 percent, and the maximum trail grade of any trail segment would not exceed 30 percent. This would reduce the capacity of the trail to capture runoff.
- Install wooden puncheons (an artificial tread elevated above the ground) across wet or swampy areas. The elevated wooden tread would have wooden rails (wheel guards) attached to the side of the tread, where necessary, to discourage riders from straying from the puncheon's tread and into the wetland.
- Any project activity, such as bridge construction, that must occur within fish bearing streams would comply with Oregon Department of Fish and Wildlife seasonal restrictions on in-stream work activities and meet BMPs. In the Dartmouth Creek and the Eight Creek sub-watersheds, in-stream work would occur only between July 1 and October 15 to protect resident fish populations.
- Full suspension of bridge stringers would be required when constructing bridges over perennial stream channels. All new culverts on intermittent streams would be installed when the stream is dry.
- All fuel-powered vehicles and tools would be refueled at least 75 feet from any live stream.
- During on-site bridge construction, no chemical preservatives will be applied directly over live streams. An impermeable surface (e.g. 4 mil plastic drop cloth) would be placed on the ground directly beneath any wood surface treated with chemical wood preservative. Absorbent material would be placed down slope on the impermeable surface to insure no preservative contaminates the soil.
- All new trail construction would be built between over-story trees to avoid removal of any significant portion of the vegetation providing shade to live streams.
- All construction occurring on railroad beds and skid roads designated for conversion to trail would be restricted to those disturbed, compacted sites.
- Downed wood cleared to create the trail tread would remain onsite and positioned to discourage OHV users from straying off the designated trail tread.
- Improvement of the parking lot would not be done when soils are saturated or runoff occurs to minimize erosion and sedimentation.
- All existing large woody debris would be retained within riparian reserves to maintain channel stability, provide nutrients and food to aquatic plants and insects, and provide terrestrial buffering to retard sediment-rich runoff from entering the stream network.

INVASIVE PLANTS

- Cleaning of OHV vehicles prior to entering the OHV use area would be promoted through public education. Vehicle cleaning practices would significantly reduce risk of weed spread.
- Weed-free aggregate material would be used, when available, for trail construction/reconstruction.
- Work areas would be revegetated with native species following disturbance. This could be California brome, California fescue and blue wildrye in openings and the forested understory; desired herbaceous species such as big deervetch (*Lotus crassifolius*) in openings; blue wildrye in culvert replacements, and in closed road beds. A supplement, or substitute for the native species mentioned above may be used. Approved non-native, non-invasive species such as annual ryegrass may be substituted.
- Trail and road systems and disturbed areas would be monitored for new localized populations for three years following any work.
- Appropriate site(s) for vehicle cleaning site would be determined if necessary. Monitor any sites for noxious weed infestations for three years following treatment to ensure weeds are eradicated and do not spread from this site.
- Monitor roads and trails to document any false brome spread.
- Prior to beginning new construction on previously undisturbed sites (approximately non-contiguous miles), site specific surveys will be completed.
- All activities will comply with the USDA Forest Service Pacific Northwest Region 6 Weed EIS.

CULTURAL RESOURCES

- If any cultural sites are found during any proposed activity, the activity would be discontinued pending site specific mitigation as recommended by the staff archaeologist.

Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Table 1. Huckleberry Flats OHV Trail Expansion Comparison of Alternatives

Issues/evaluation criteria	Alternative 1 PROPOSED ACTION	Alternative 2 NO ACTION
RECREATION		
Number of miles of trail that are available for OHV use at a designated trail system	63	33
WILDLIFE		
Big game habitat effectiveness index (HEi)	(managed as “Low”) .29	(managed as “Moderate”) .32
SOILS		
% of area with detrimental soil conditions	16.7%	16.5%
WATER QUALITY & FISHERIES		
Change in water temperature/degrees	None	None
Change in peak flow (as determined by change in ARP)	None	None
Increase in suspended sediment and turbidity/pounds of potential sediment from trail stream crossings in activity area per significant storm event	159 lbs. (about 2 cubic feet)	0
Acres of new disturbance in riparian vegetation within 100’ of streams	1.3	0

Chapter 3 – Affected Environment and Environmental Consequences

This section summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It also presents the scientific and analytical basis for comparison of alternatives presented in the chart above.

The cumulative effects discussed in this chapter include an analysis and a concise description of the identifiable present effects of past actions to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the proposed action may have a continuing, additive and significant relationship to those effects. The cumulative effects of the proposed action in this analysis are primarily based on the aggregate effects of the past, present and reasonably foreseeable future actions. Individual effects of past actions have not been listed or analyzed and are not necessary to describe the cumulative effects of this proposal (CEQ Memorandum, Guidance on the Consideration of Past Actions in Cumulative Effects Analysis, June 24, 2005).

The proposed project is in the same physical location as the Niner Project. The Niner Project EA, including Appendix B, Cumulative Effects Analysis is incorporated by reference in this document as the listing, description, and discussion of past, present, and reasonably foreseeable future actions are similar for this proposal. The effects of the approved Niner Project are considered in the cumulative effects analysis of this document as foreseeable future actions.

Recreation – *Significant Issue*

Significant Issue #1: There is an opportunity to provide for more user satisfaction and less trail wear by increasing the mileage of trails available.

Evaluation Criteria: Number of miles of trail that are available for OHV use at a designated riding area.

This section contains the analysis relating to the recreational issues and evaluation criteria developed by the project's interdisciplinary analysis team, the overall effects upon recreational resources, and a general overview of the recreational reasons for this proposal to expand the Huckleberry Flats OHV

Current Condition

Use of this area has slowly but steadily increased especially as other traditional areas were closed. Use levels are now at about 2500 person days per year, up from about 500 visits per year in 1989. There are about 68 weekend days per year when the area is used. The OHV trails are located on existing low-standards roads, and trails that were created specifically for OHVs. Some tread wear

is evident and this condition will likely increase if future use trend progress as they have in the recent past.

This OHV area was classified as part of the trail system. The Huckleberry Flats area was identified as an area within which to provide OHV recreational opportunities due to:

- its extensive road and skid trail system resulting from past widespread forest harvest activities (which occurred in the 1930's, 1940's and again in the 1960's and 1980's)
- its relatively gentle terrain
- the fact that portions of the area were already used by OHV riders
- the presence of soil types that were not especially erosive
- the perception that the second growth forests in the area were not especially important as wildlife habitat
- the ease with which water quality could be protected by mitigation

Direct/Indirect Effects on Recreation

Effects of Alternative 1 - Proposed Action

This proposed action would increase the trails available for OHV use by about 30 miles (about a 97 percent increase over existing trail mileage), providing for more user satisfaction in that an entire day can be spent at the area without the need to use any trail more than once. This will reduce the wear on a given trail (except those from those immediately adjacent to the parking area) by about fifty percent, and also provide for certain trail segments to be closed for a rest rotation without negatively affecting the OHV experience.

The capacity of this area in terms of visitors per day is essentially controlled by the size of the parking area. If users repeatedly came to use the area and found no place to park their vehicles and trailers, they would likely look for other OHV riding opportunities elsewhere at some point. Since this alternative would not provide additional parking spaces, nor would provide facilities for overnight use, use is predicted to increase at about 2.5 % per year until it reaches capacity.

It is not the intent of the proposed action to take extraordinary measures to mitigate natural occurrences

Effects of Alternative 2 - No Action

This alternative would not provide additional trail mileage in this area. User satisfaction would remain the same as today and possibly decline as use of the area gradually increases over time. Trail tread would continue wearing at current rates increasing the amount of maintenance required and potentially requiring some trails to be closed to use to avoid unsafe conditions or resource damage.

Implementation of the No Action alternative would not provide for multiple day use without the need to ride a substantial portion of the trail system more than once per day. The capacity of this

area in terms of visitors per day is essentially controlled by the size of the parking area. Since this alternative would not provide for additional parking spaces, use is predicted to increase at the same rate it has over the last decade, about 2.5 percent per year (based upon the continuing, state-wide increase in OHV popularity [OPRD, 2003]) until the limited number of existing trails become worn enough to require closure, at which time the use of the areas could decline.

Cumulative Effects on Recreation

The analysis of cumulative effects on motorized recreation considered OHV opportunities available to user populations traveling from the southern Willamette Valley for an OHV experience. Analysis considered the availability of opportunities on both private and public lands available to OHV use within the State Highway 58 corridor and on the Middle Fork Ranger District.

Alternatives 1 – Proposed Action and Alternative 2 – No Action

The affect of the Proposed Action alternative has much in common with the cumulative effects of the No Action Alternative.

The US Army Corps of Engineers prohibition, about four years ago, of OHV use in the upper end of the Lookout Point Reservoir during low-water periods probably increased the use of the Huckleberry Flats area somewhat, although the Reservoir area provided a qualitatively different OHV experience in that the activities there were in a flat, open environment and tended to be more in the form of circular race courses rather than the linear trail experiences in a forested setting provided at Huckleberry Flats.

There are no specific proposed future actions within or near the Middle Fork Ranger District in response to anticipated National Travel Management Rule (TMR, as discussed above) that would significantly affect, positively or negatively, the use of the Huckleberry Flats OHV area. At this time there is not a large amount of use in other areas on the Middle Fork District that would be displaced by the new TMR. However, at about 63 miles, Huckleberry Flats may be considered for use by “displaced” OHV riders from areas where use of low-standard forest system roads are much more prevalent and the characteristics of the road offer a more trail-like experience (i.e. the Deschutes NF). Some degree of increased use may occur as users seek replacement riding opportunities. Providing a designated, managed system to accommodate use may result in fewer adverse impacts elsewhere in the National Forest from displaced use. =

Other than the initial designation of the existing OHV trails, there have been two other federal actions over the last 20 years which have affected OHV opportunities within or in the vicinity of the Middle Fork Ranger District. The 1984 Oregon Wilderness Bill removed several popular trail biking opportunities, in particular the Six Lakes basin in the Waldo Wilderness Area. It was this decision that had some bearing in the use of the Huckleberry Flats area for OHVs in the first place

The Niner Project area overlaps most of the OHV project area and, during harvest activities, is a future action that will affect the number of miles of the trail system is available for OHV use. Implementation of the Niner projects will require that portions of the OHV trail system be closed to recreational use during harvest activities to ensure public safety. While it is unlikely that the entire 33 mile trail system would be affected at the same time, it is quite likely that the reduced number of miles available, and the days of opportunity to use them, would temporarily decrease the availability of some trail segments (for not generally more than two weeks at a time) causing an altered recreational experience. That is to say, there is a point where a diminished number of trail miles are not worth the travel time and expense to the user to be considered a viable recreational experience, hence a reduction in days available and a corresponding decline in user satisfaction.

The implementation of the Niner projects in this area, expected to take place over a ten-year period, is not expected to trigger any increase in user days and, in fact, may cause a temporary decrease in rider interest until the natural characteristics of the treated areas rebound, i.e. vegetation recovers and slash treatments are complete.

Implementation of the proposed action, essentially doubling trail mileage, would provide enough trails to most likely preserve the recreational experience at least at current levels during implementation of the Niner projects, and for short-term trail closures to mitigate resource and safety issues and perform routine maintenance, without significantly degrading the recreational experience

When implemented, collection of Knudsen/Vandenburg Act funding will present opportunities with which to improve, maintain and mitigate resource issues within the trail system.

Wildlife

The proposed Nonsignificant Forest Plan Amendment is addressed in this section.

Big Game Management Direction (Forest Plan Guidance for Big Game Emphasis Areas)

Deer and elk standards and guidelines have been developed in cooperation with the Oregon Department of Fish and Wildlife. Habitat conditions will be maintained or enhanced within each emphasis area to meet habitat effectiveness objectives and support the potential populations of deer and elk. Habitat effectiveness objectives are assigned to each emphasis rating by using the HEIWEST model (Wisdom 1986). However, the standards and guidelines will provide a process for changing the habitat effectiveness objectives of individual emphasis areas (Forest Plan, p. 34).

- Forest Plan S&G FW-121...Fish and wildlife habitat resources on the Forest, in particular the habitat of management indicator species, shall be managed in cooperation with State and Federal fish and wildlife agencies. At the Forest level, fish and wildlife habitat shall be managed to maintain viable populations of all existing native and desired non-native plant

and animal species. Distribution of habitat shall provide for species viability and maintenance of populations throughout their historic range on the Forest

- Forest Plan S&G FW-135...Districts should evaluate and implement projects that establish increasing trends in habitat effectiveness with the exception of low emphasis areas.
- Forest Plan S&G FW-153... For Low emphasis areas, the habitat effectiveness objective for each variable should be within the range of > .2 to 1.0. Where existing habitat conditions result in values below this range, an increasing trend should be established through project implementation.

Big Game Habitat – *Significant Issue*

Significant Issue #2 – Habitat Effectiveness index

Evaluation Criteria: Habitat Effectiveness Indices

The proposed Huckleberry OHV expansion project occurs within the Huckleberry Big Game Emphasis Area (BGEA), which is currently managed at the moderate emphasis level for big game management as established by the Forest Land Plan (USDA Plan 1990), FW 150-151.

A substantial portion of the project planning area is considered to be winter range for big game. During reconnaissance of the area, signs of big game use were noted throughout the area. The Oregon Department of Fish and Wildlife (ODFW) considers this area one of above average elk usage due to its gentle topography and the fact that it lies within the transitional snow elevation zone. During wintertime aerial reconnaissance flights over the area to evaluate herd numbers, it was noted that even with the OHV trails and recreation use, elk were still using the area. When the current Forest Plan was developed in the late 80's, the USFS and ODFW worked in concert to develop Forest Plan Standards and Guidelines for big game management on forest lands.

The potential for conflict between big game and recreational off-road vehicle users has evolved in the area since the 1960's, well before development of the Forest Plan. As the Proposed Action developed and funding for analysis of this expansion project became available, it became apparent that the ability to meet Forest Plan Standards and Guidelines (S&G) for Moderate Big Game Emphasis Areas in this area may be compromised, causing concern for both the ODFW and the Forest Service. Options that would have mitigated some of the impacts and conflicts are listed below but were not considered due to being unfeasible to implement:

- Significantly reduce or eliminate OHV use in the Huckleberry Flats area. This solution is not practical as OHV use has become fairly well entrenched in this area since the 1970's. In 1989, the trails in the area became designated as the Huckleberry Flats Motorcycle Trail No. 4381. The area continues to be promoted and marketed as a destination OHV use area with an orientation toward family use.
- Implement seasonal restrictions on OHV use in the area to reduce or eliminate disturbance and harassment to big game during the critical winter and spring seasons. Management of the

OHV area through policing and law enforcement would take a significant commitment of enforcement personnel to ensure public compliance with any type of seasonal restriction. It was determined that this would be an ineffective approach in attempting to meet S&G's for big game by implementing seasonal restrictions that would be difficult to enforce.

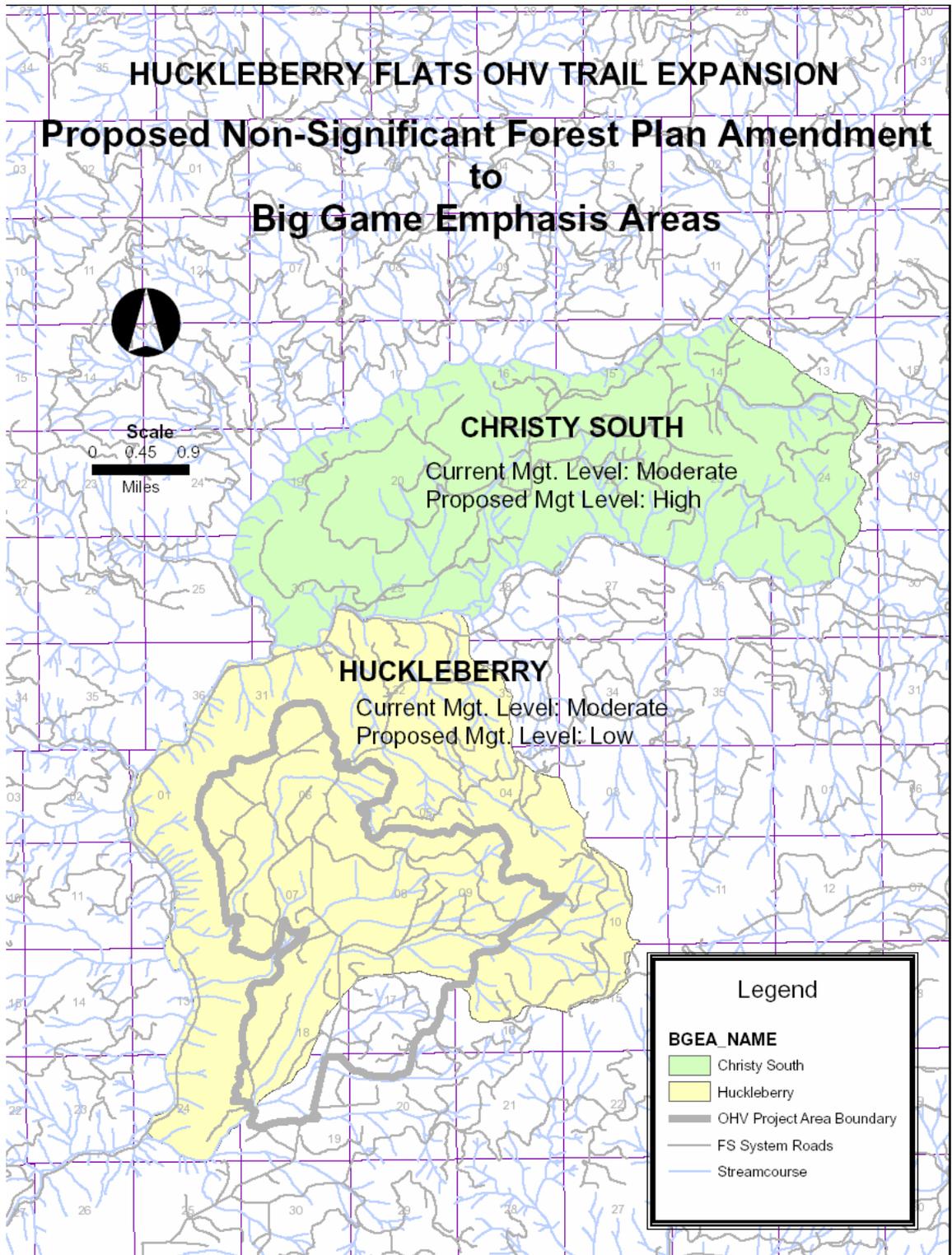
It should be noted that should the Proposed Action be implemented, big game use would continue in the Huckleberry Flats OHV area. As timber harvest and other activities are implemented in this Forest Plan 14A allocation, big game use patterns may change from what was occurring historically and especially pre-OHV use in the area.

OHV use of the Huckleberry Flats area generally occurs during the spring, summer and fall months. This is when utilization of habitat by big game use would be reduced. In the winter months, as OHV use is curtailed due to weather conditions, big game typically increase their presence and use in the area in that they would have more security from disturbance. This may provide opportunities for big game to utilize habitat when OHV use is at its lowest. In addition, during the higher use OHV season, deer and elk may tend to utilize habitat in the area during the portion of the day when OHV use does not occur.

Proposed Forest Plan Amendment

Reflecting interests and input from ODFW, the preferred solution in addressing concerns in meeting S&Gs for big game in the Huckleberry Moderate BGEA includes 1) a shift in emphasis from moderate to low in the Huckleberry Flats BGEA and 2) a shift in emphasis from moderate to high in the Christy South BGEA, immediately to the north of the Huckleberry BGEA. Figure 4 depicts the geographical relationship of the two BGEAs that would be managed differently if the Forest Plan is amended.

Figure 4. BGEAs addressed in Proposed Nonsignificant Forest Plan Amendment



Current Condition of the BGEAs: The Forest Plan S&G is in () for each habitat value

TABLE 2. HUCKLEBERRY- Moderate Emphasis- 9050 Acres – Current Condition (Including implementation of Niner Project)

HEf- Forage Value (.4)	HEs-Size and Spacing (.4)	HEc- Cover Quality (.4)	HEr- Road Density (.4)	HEi- Overall Habitat Index (.5)
.18	.76	.53	.15	.32
HUCKLEBERRY BGEA HE values (managed as “Low”) w/ Implementation of the Huckleberry OHV (Proposed Action)				
HEf- Forage Value (.2)	HEs-Size and Spacing (.2)	HEc- Cover Quality (.2)	HEr- Road Density (.2)	HEi- Overall Habitat Index (.2)
.18	.76	.53	.10	.29

TABLE 3. CHRISTY SOUTH - Moderate Emphasis- 7098 Acres – Current Condition

HEf- Forage Value (.2)	HEs-Size and Spacing (.4)	HEc- Cover Quality (.4)	HEr- Road Density (.4)	HEi- Overall Habitat Index (.5)
.43	.78	.58	.42	.53
Forest Plan values below are for a High BGEA and figures in parentheses reflect the differences or percent change between a Moderate Emphasis and High Emphasis and the direction for future goals.				
HEf- Forage Value (.5)	HEs-Size and Spacing (.5)	HEc- Cover Quality (.5)	HEr- Road Density (.5)	HEi- Overall Habitat Index (.6)
.43 =	.78 =	.58	.42 =	.53 =

The Forest Plan S&G is in () for each habitat value. Huckleberry BGEA:

This emphasis area is currently below S&G’s for habitat forage value (HEf) and Habitat road density (HEr). Individual effectiveness values and for habitat patch size and spacing (HEs) and cover quality (HEc) are currently above the Forest Plan S & Gs. Because of the low HEf and HEr values the overall Habitat Effectiveness Index (HEi) falls below current S & Gs for a moderate level BGEA. With the presence of the current and proposed OHV trails network, the future proposed Niner Thinning Project and the overall HEi value, it would be difficult to reach overall management goals of a moderate emphasis area in the future. If this BGEA was changed to a Low Emphasis, as supported by ODFW (W. Castillo, 2005) the overall HEi value can be attained with current and foreseeable future management activities within or adjacent to this area.

Huckleberry BGEA:

The proposed Huckleberry OHV expansion project encompasses the entire Huckleberry Big Game Emphasis Area (BGEA). Huckleberry BGEA is designated as a moderate level emphasis area by the Willamette National Forest Management Plan. Recent analysis of the Habitat Effectiveness Index (HEI) (Wisdom et al. 1986) for the Huckleberry BGEA indicates that current individual values for forage quality (HEf) and open road density (HEr) are below Forest Plan Standards and Guides (S&Gs). Individual effectiveness values and for habitat patch size and spacing (HEs) and cover quality (HEc) are currently above the Forest Plan S &Gs. Because of the low HEf and HEr values the overall Habitat Effectiveness Index (HEI) also falls below current S &Gs for a moderate level BGEA.

Some District watershed analysis (USDA 1995) and other documents (ODFW 2003, Cook 2002) have included discussion that identified a projected downward trend in HEI due to the loss of forage habitat as it is converted to cover habitat based on effects from shifts in management practices under the Northwest Forest Plan (USDA, USDI 1994). In addition, the ever increasing popularity of OHV use in National Forest is also contributing to this overall decline (Wisdom 2005).

With the presence of the current and proposed OHV trails network, the future proposed Niner Project and the overall HEI value; it will be difficult, if not impossible to reach overall management goals of a moderate emphasis area in the future. If this BGEA is changed to a Low Emphasis, as support by ODFW (W. Castillo, 2005) the overall HEI value can be attained and maintained with existing current and potential foreseeable management activities within this or adjacent areas.

This area is comprised of fairly gentle terrain, conducive to use by deer and elk. Opportunities should continue to be identified in this emphasis area to provide security and foraging opportunities to meet, at a minimum the low emphasis HEI for deer and elk. The current moderate BGEA emphasis is to provide big game security and foraging opportunities in Huckleberry BGEA and these goals should continue in the Huckleberry Flats area. The area will continue to be utilized by big game, especially during the winter months as OHV use significantly decreases.

The area will continue to provide opportunities for use by big game, especially if the proposed Niner thinning project is implemented. The Niner Project proposes some road closures in a portion of the Huckleberry area and that in combination with the proposed thinning could potentially increase forage for big game.

Christy South BGEA:

This emphasis area has the potential to meet S&G's for a High Emphasis Area in that there are opportunities for road closures and forage enhancement due to current active timber sales in the area where contractual modifications and KV opportunities can improve conditions over time. The current condition for the South Christy BGEA, at the current Moderate emphasis level, is displayed in TABLE 2. The goals for the unit, if changed to High emphasis BGEA, are in parentheses.

This BGEA has large areas of gentle terrain which includes the Christy Flats area, making it comparable to the Huckleberry BGEA.

Forage enhancement and management options are generally much greater on gentler topography than on steeper slopes. Christy South has amounts of winter range which is also comparable to the Huckleberry Flats area.

Winter range is a key issue in this area which is near extensive summer range, including wilderness areas to the east and Alpine ridge to the north and west.

Christy South, generally contains more south aspects than Huckleberry which are preferred by elk, especially in the winter range portion.

Christy South has some active timber sales which may create additional options for funding of forage enhancement and road closures.

The Christy South area is buffered from the OHV area users by being across the North Fork of the Willamette River and the paved Aufderheide Drive.

The district has been approved for grant funding in FY06 and FY07 through the Rocky Mountain Elk Foundation to enhance forage conditions in the Christy South BGEA.

In letter dated August 8th, 2005, ODFW indicated support for a Non Significant Forest Plan Amendment to reduce big game emphasis from Moderate to Low in the Huckleberry BGEA in exchange for raising the emphasis from Moderate to High in the Christy South BGEA and implementing projects to enhance forage and reduce road disturbance impacts in that area.

Evaluation of the significance of the proposed Forest Plan Amendment

The Forest Plan Amendment would 1) change the management emphasis of the Huckleberry BGEA from a moderate to a low level and 2) change the management emphasis of the Christy South BGEA from a moderate to a high level. The following four factors are to be considered when analyzing the significance of this proposed amendment (as per FSH 1909.12). It should be mentioned that this proposal is a "trade" in management emphasis acres although there is a difference of about 2,000 acres (less in Christy South than Huckleberry) between the two BGEA's.

The following evaluation puts in to context to the level of significance of this amendment.

- Timing- the later in the planning period, the less likely it is to be significant. This proposal is occurring approximately 16 years after signing of the Forest Plan so is far into the current planning cycle and is therefore not considered to be a significant change.
- Location and Size- the proposal is to shift emphasis for two BGEA's. The total acreage involved in this change would occur is 16,148. This is less than 1% of the entire Willamette National Forest planning area (over 1.6 million acres). This is a very small percentage and should not have any type of significant impact on assumptions made or continued implementation of S&G's in the Forest Plan.
- Goals, Objectives and Outputs- Shifting emphasis would have a minor impact on the ability to provide goods and services as originally projected in the Forest Plan. The difference centers around the Christy South BGEA as there may be some potential management shifts in designing projects to meet a higher HEi value for this area. This could mean emphasis on slight increases in closing roads to meet high emphasis S&G's and provide for big game security. In addition, there may be more emphasis in providing forage for big game to meet an increased S&G expectation as well as maintaining cover conditions for big game in the winter range portion of the area. It is not anticipated that this will be a noticeable or significant shift in output of goods and services or the abundance of elk within the North Fork watershed.

Management Prescription

This change would only be applied to all future decisions that are made on actions that could impact big game and it's habitat within these two BGEA's (specific situations on the Middle Fork Ranger District).

The change would:

- Reduce the area of moderate big game emphasis across the forest by 16,148 acres
- Increase the area of low big game emphasis across the forest by 9050 acres
- Increase the area of high big game emphasis across the forest by 7098 acres

Discussions with ODFW were initiated to explore other options for providing for big game security and management in the Huckleberry area and adjacent areas of the North Fork of the Middle Fork Willamette River. Efforts to resolve this conflict shifted to looking for adjacent BGEA opportunities to maintain or increase overall elk emphasis thresholds in adjacent areas. Results of discussions have led to the current proposal to implement a Nonsignificant Forest Plan Amendment to change the (BGEA) designation from Moderate to Low while increasing the emphasis for elk in an adjacent BGEA, resulting in no net change in overall big game emphasis management on the district. This strategy would make S&G compliance more realistic and attainable based on other forest use in these areas.

Big game use will continue, to a certain degree in the Huckleberry Flats OHV area. By creating openings in the South Christy area, we hope to create a shift in elk usage to the high quality areas in South Christy BGEA. As timber harvest and other activities are implemented in this Forest Plan 14A allocation, big game use patterns will likely fluctuate somewhat from their historical usage, especially in the Huckleberry area prior to OHV use of this area. As opportunities arise consider enhancing security and providing more forage for big game in the Huckleberry BGEA, by OHV user dollars and state funding sources. South Christy BGEA will change as it is shifted to high, thereby, establishing goals within this unit to maximize habitat conditions for big game. The agency will consider future activities to enhance forage opportunities in the South Christy BGEA. These objectives follow the most current literature and recent finding in Wisdom, et.al. (2005) Effects of Off-Road Recreation on Mule Deer and Elk.” In that study, Wisdom et al (2005) found that elk avoid roads open to motorized traffic, and their avoidance increases as the rate of traffic increases. In addition, Wisdom (2005) found that mule deer avoid elk and thus, can be displaced into areas least used by elk, such as areas near roads with the most traffic. Furthermore, it was noted that when elk were unable to avoid roads and trails, they increased their movement rates, which can increase energy expenditures. Therefore, higher movement rates could reduce the animal’s fat reserves and undermine general animal condition and thus effect the overall winter survival rates (Wisdom et al 2005).

Direct/Indirect Effects on Big Game Habitat

Alternative 1 - The Proposed Action

Implementation of the proposed action would potentially lead to less big game use within the project area.

With the proposed Forest Plan amendment, meeting S&G’s for big game management would be attainable for the low emphasis in the Huckleberry BGEA. In addition, the proposed increase in emphasis from moderate to high in the Christy South BGEA would lead to the need for additional habitat improvement work in this area to benefit big game. The potential exists for the Christy South BGEA to move toward or exceed S&G’s for high emphasis by 1) utilizing an active road closure strategy consistent with the Middle Fork Ranger District Roads Analysis and, 2) increasing foraging opportunities by modifying current contracts in the Christy Flats area and by using KV funds to enhance forage through seeding, created openings and natural meadow maintenance.

The trails proposed for addition to the current OHV system may have an effect on big game use in the planning area due to ongoing or increased disturbance and disturbance over a large area. With the proposed change in big game emphasis for the area from moderate to low, S&G’s should be attainable for big game management in the Huckleberry BGEA. The significance of the change of emphasis seems to be low, based on the evaluation criteria used. Activities to

ameliorate short-term disturbances could include road closures, forage enhancement, native shrub plantings and created/maintained openings.

More pressure on habitat in adjacent areas may occur if OHV use is displaced from the Huckleberry Flats area. It is unclear how this may affect population levels and reproductive opportunities but OHV use could continue to alter fall courtship and breeding opportunities as well as spring calving opportunities in the area.

With the proposed amendment, meeting S&G's for big game management would be attainable for the low emphasis in the Huckleberry BGEA.

Alternative 2 - No Action

OHV use would continue in the area as it has and continue to gradually increase. It would continue to be identified and promoted as a developed OHV use area. Big game would continue to utilize the area but their use patterns would continue to be altered due to current human use of the area. The effect of the no action proposal is similar to the action alternative but potential big game displacement may not be as extensive with no increase in trail development.

Cumulative Effects on Big Game Habitat

Huckleberry Big Game Effectiveness Area is the area of analysis for cumulative effects on big game habitat.

Alternative 1 - The Proposed Action and Alternative 2 - No Action

Past, present and reasonably foreseeable future activities in the OHV planning area:

Past Activities- The existing Hei values presented in the Table 2 are nearly all a result of past management activities. Timber harvest has occurred in the area including extensive railroad clearcut harvest and road construction in the 1920's and 1930's. Some more recent regeneration harvest has occurred but the acreage has not been significant, although it has been beneficial for big game in providing foraging opportunities. Past activities in this BGEA have included sanctioned and developed OHV use of the area since the 1970's.

Present and reasonably foreseeable future activities- Current OHV use is anticipated to continue in the Huckleberry Flats area. In addition, the Niner Project (2007) is a large commercial thinning project that is within and adjacent to the OHV planning area. The Niner Project will thin approximately 2,000-3,000 acres of 60-80 year old stands that remain from the railroad logging that occurred earlier in the century. It is estimated that implementation of contracts from the Niner Project decision would occur over the next 10 years. This would also include some road closure activities as well seeding, fertilization and conifer under planting of newly created openings.

The cumulative effects from the above listed actions in conjunction with the proposed OHV expansion would continue to affect big game use of the area.

Open road densities within the project area are projected to increase with implementation of the Huckleberry OHV project. Were the Niner Project and OHV expansion to be fully implemented, the HEr would remain at about the 0.2 level. The habitat values displayed in Table 2 include a HEf value of .18 for the Huckleberry BGEA, reflecting implementation of the Niner Project.

The Wisdom model (1986) was designed to reflect habitat changes with an emphasis on regeneration harvest as the primary stand treatment. In recent years, the district has elected to focus on commercial thinning. Thinned stands still provide a forage value after harvest that is not reflected accurately by model outputs; it is believed that the model value is lower than what is truly provided in the field. Although these stands may not be used as much immediately after harvest, eventually the stands will recover in 5-10 years where they will provide increasing security from understory development and increased opportunities for big game use. The Wisdom model was developed to evaluate landscape areas where quality forage areas were provided primarily by clearcutting and associated post-harvest burning and fertilization. With the dramatic decline in regeneration timber harvest under the Northwest Forest Plan, there has been a corresponding decline in high-quality elk forage habitat. This trend, coupled with recent studies, has increased the importance of providing forage habitat for elk on the Forest. A drawback of the Wisdom model is that forage is evaluated based on the average value of defined forage areas and does not consider the amount of forage provided. Areas that do not provide meaningful forage are not considered in the forage effectiveness calculations. Consequently, providing substantial acres of temporarily improved elk and deer forage conditions by commercial thinning may result in a lower forage score in the Wisdom model if these acres lower the average value for forage areas in the landscape. Published research support the idea that increasing the amount of available forage by commercial thinning should improve the overall habitat conditions for elk and deer within the analysis area regardless of the average forage value derived from the Wisdom model.

The proposed Niner thinning project may provide increased foraging opportunities for big game but may also reduce security for the short term. These stands proposed for thinning currently have developed some multi-storied conditions that provide thermal as well as hiding opportunities. Thinning would reduce these conditions in some stands in the short term. As these stands develop over time, thermal and hiding conditions would recover. If the Nonsignificant Forest Plan amendment is implemented and the emphasis is reduced to low for the area, S&G's for big game management can be met in the Huckleberry Flats area. With the proposed forest plan amendment, meeting S&G's for big game management should be attainable for the low emphasis in the Huckleberry BGEA.

Without the proposed Forest Plan amendment, compliance with S&G's for big game management if this remains a moderate emphasis area would be difficult. Open road and trail densities would remain well above target levels in this moderate emphasis area. To meet Forest Plan S&G's, other actions/options would need to be considered to reduce use and road/trail densities to comply with these S&G's.

The cumulative effects of the No Action Alternative 2 are similar to the action alternative but effects may not be as great due to the current condition and no increase in trail development.

Management Indicator Species

The Management Indicator Species (MIS; listed of page III-69 of the Forest Plan FEIS) expected to occur within the analysis area include:

Deer and Elk

See the analysis above.

Northern Spotted Owl

See the analysis below.

Resident fish

See the analysis in the Fisheries section, below.

American marten

Direct/Indirect/Cumulative Effects on American marten

Alternative 1 - The Proposed Action and Alternative 2 – No Action

American marten habitat is not being significantly altered by this action. The opportunities for the marten and other forest carnivores are limited by the elevation and habitat type that occurs within the OHV area due to past extensive harvest. Large diameter trees, multiple canopy structure and significant amounts of down wood are not present in the area.

Lack of quality habitat, combined with current OHV use (which will continue under the no action alternative) discourages what low potential there is for use of the area by forest carnivores.

Pileated Woodpecker and other Primary Cavity Excavators (PCE):

Direct/Indirect/Cumulative Effects on PCE species

The OHV project area is the area of analysis for the cumulative effects of OHV use on the PCE species.

Alternative 1 - The Proposed Action and Alternative 2 – No Action

Neither the Proposed Action nor the No Action alternative would modify habitat for these species except for possible treatment of incidental hazard trees and snags to provide for safe use of the OHV area.

This small amount of potential habitat modification to mitigate for safety should not have an impact on PCE populations within the planning area and the lower portion of the North Fork of the Middle Fork watershed.

Survey and Manage Species (S&M) and Other 2001 Record of Decision (ROD) Species

Pre-disturbance surveys and management of known sites required by protocol standards to comply with the 2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines. The entire analysis area has been surveyed for TE&S habitat by aerial photo interpretation, and, on-the-ground reconnaissance. Surveys completed are described on the following pages by species. (FSM 2672.43, 1992) (indicated under "Survey Completed" by a No*).

Table 4: Initial Screening for Effects Determination

	STEP 1	STEP 2	STEP 3
	<i>PreField Review</i>	<i>Field Recon.</i>	<i>Conflict Determination</i>
	Habitat Present?	Species Survey?	Species Present?
Spotted Owl <i>Strix occidentalis caurina</i>	Y	Y	Y Seasonal Restrictions for implementation Mar 1-July 15 th adjacent to NRF Habitat
Bald Eagle <i>Haliaeetus leucocephalus</i>	N		
Canada Lynx <i>Lynx canadensis</i>	N		
Least Bittern <i>Ixobrychus exilis</i>	N		
Bufflehead <i>Bucephala albeola</i>	N		
Harlequin Duck <i>Histrionicus histrionicus</i>	N		
American Peregrine Falcon <i>Falcon peregrinus anatum</i>	N		
Yellow Rail <i>Coturnicops noveboracensis</i>	N		
Black Swift <i>Cypseloides niger</i>	N		
Tricolored Blackbird <i>Agelaius tricolor</i>	N		
Baird's Shrew <i>Sorex bairdii permiliensis</i>	Y	N	A*
Pacific Shrew <i>Sorex pacificus cascadenis</i>	Y	N	A*
California wolverine <i>Gulo gulo</i>	N		
Pacific Fisher <i>Martes pennanti</i>	Y	N	A*
Pacific Fringe-tailed Bat	N		

	STEP 1	STEP 2	STEP 3
	<i>PreField Review</i>	<i>Field Recon.</i>	<i>Conflict Determination</i>
	Habitat Present?	Species Survey?	Species Present?
<i>M. thysanodes vespertinu</i>			
OR Slender Salamander <i>Batrachoseps wrighti</i>	Y	N	A*
Cascade Torrent Salamander <i>Rhyacotriton cascadae</i>	N		
Foothill Yellow-legged Frog <i>Rana boyllii</i>	N		
Oregon Spotted Frog <i>Rana pretiosa</i>	N		
Northwestern Pond Turtle <i>C. marmorata marmorata</i>	N		
Mardon Skipper <i>Polites mardon</i>	N		

*A = Presence assumed.

A discussion of the affects of the proposed project alternatives on TE & S species follows. All species on the R-6 List for the Middle Fork Ranger District were considered. If during the pre-field analysis a determination was made that the species or their specific habitat requirements do not exist in this analysis area, they are not discussed below. References for this determination are listed at the end of this document.

Crater Lake Tightcoil snail (*Pristoloma arcticum crateris*)

Direct/Indirect/Cumulative Effects on Crater Lake Tightcoil

The area of analysis for the cumulative effects of OHV use on Survey and Manage Species is the OHV project area.

Alternative 1 - The Proposed Action and Alternative 2 – No Action

The Crater Lake Tightcoil, a mollusk, was thought to exist primarily south of the Middle Fork Ranger District. This snail prefers habitats such as wet meadows, seeps, and springs associated with coniferous forest above and elevation of 2,000 feet. They can be found associated with large downed wood, big leaf maple and moss mats near perennially wet areas.

Surveys were conducted for this species in the spring of 2005 on five proposed OHV trail bridge stream crossings. The specimens found during these surveys included one specimen of *Pristiloma arcticum crateris*. Consultation with the taxa specialist for the species occurred to determine the extent of the known site protection necessary.

The construction and subsequent use of the trail and bridge would have no impact on Crater Lake tightcoil snails if the mitigation measures addressed in Chapter 2 are implemented. All ground disturbing activities should occur in late summer or early fall when the mollusks are dormant, thereby lessening the chance of direct mortality.

Therefore, neither the Proposed Action nor the No Action alternative would have an impact on this snail and would not likely contribute to a trend towards federal listing or a loss of viability to the population or the species.

Northern spotted owl - (*Strix occidentalis*)

Activities specifically related to northern spotted owls are covered under the programmatic Biological Opinion for Disturbance on the Willamette Province by USFWS BO # 1-7-05-I 666.

In general, owl activity is expected to occur primarily in the interior of older timber stands. These habitats provide the structural characteristics required by the owls for food, cover, nest sites, and protection from weather and predation. Nearly the entire planning area was clearcut harvested in the 1920's through the 1940's. This area is a patchwork of thinned and un-thinned stands approximately 80 years of age. Habitat within the Huckleberry OHV planning area is comprised almost entirely of stands that are suitable foraging habitat, dispersal habitat or are too young to provide dispersal conditions. Stands with suitable nest structure do not exist within the project area. Nesting, Roosting, Foraging (NRF) habitat does occur to the east of the planning area as the ground steepens and where logging did not occur.

This project would not remove, modify or degrade habitat for northern spotted owls.

Historical spotted owl surveys in the Huckleberry Flats area have located known activity centers which are found in some of the older forested habitat on the fringes of the OHV planning area. Generally, these stands within the project area will not provide suitable nesting habitat for many years to come. The Huckleberry OHV planning area was surveyed for spotted owls in 2004 and 2005. Although a survey to a 2-year protocol was not accomplished, 5 of 6 visits were completed to protocol and no owls were discovered. The survey, though not completed to protocol, does provide enough information to indicate that owls are not utilizing the foraging and dispersal habitat for nesting activities.

Few studies have investigated that reflect the potential impacts on northern spotted owls from recreational activity and specifically to off-road vehicles (OHV). Portions of the project area that were not thinned are currently dispersal and potentially foraging habitat. The OHV trail expansion would convert old skid trails to trails resulting in limited, short-term occurrences of disturbance during the brushing phases of this project.

Direct Effects on the Northern spotted owl

Alternative 1- Proposed Action

Implementation of this alternative would have an effect on spotted owl use of the adjacent stands. Although habitat would not be modified, owls may be reluctant to utilize these stands as OHV use increases in the future.

An increase in OHV trail development and use of the Huckleberry Flats area is proposed under this alternative. As in the no action alternative, a large portion of the OHV planning area is considered to be some foraging habitat with a large component of dispersal habitat that may be starting to transition into providing foraging opportunities. It is estimated that spotted owls do utilize some of the older stands in the planning area that meet the definition of foraging habitat. These stands have a canopy closures and a dead/down wood components that are conducive to providing habitat for prey species of the owl. It is not known how much of an effect the proposed increase in OHV use would have on foraging owls and the utilization of these stands for foraging. OHV use is limited to day activity whereas a significant portion of the owl's foraging activities occur around dusk to well after dark. This could minimize the conflict between foraging use of these older stands. Over time, as populations increase in adjacent metropolitan areas, OHV use would likely increase proportionately.

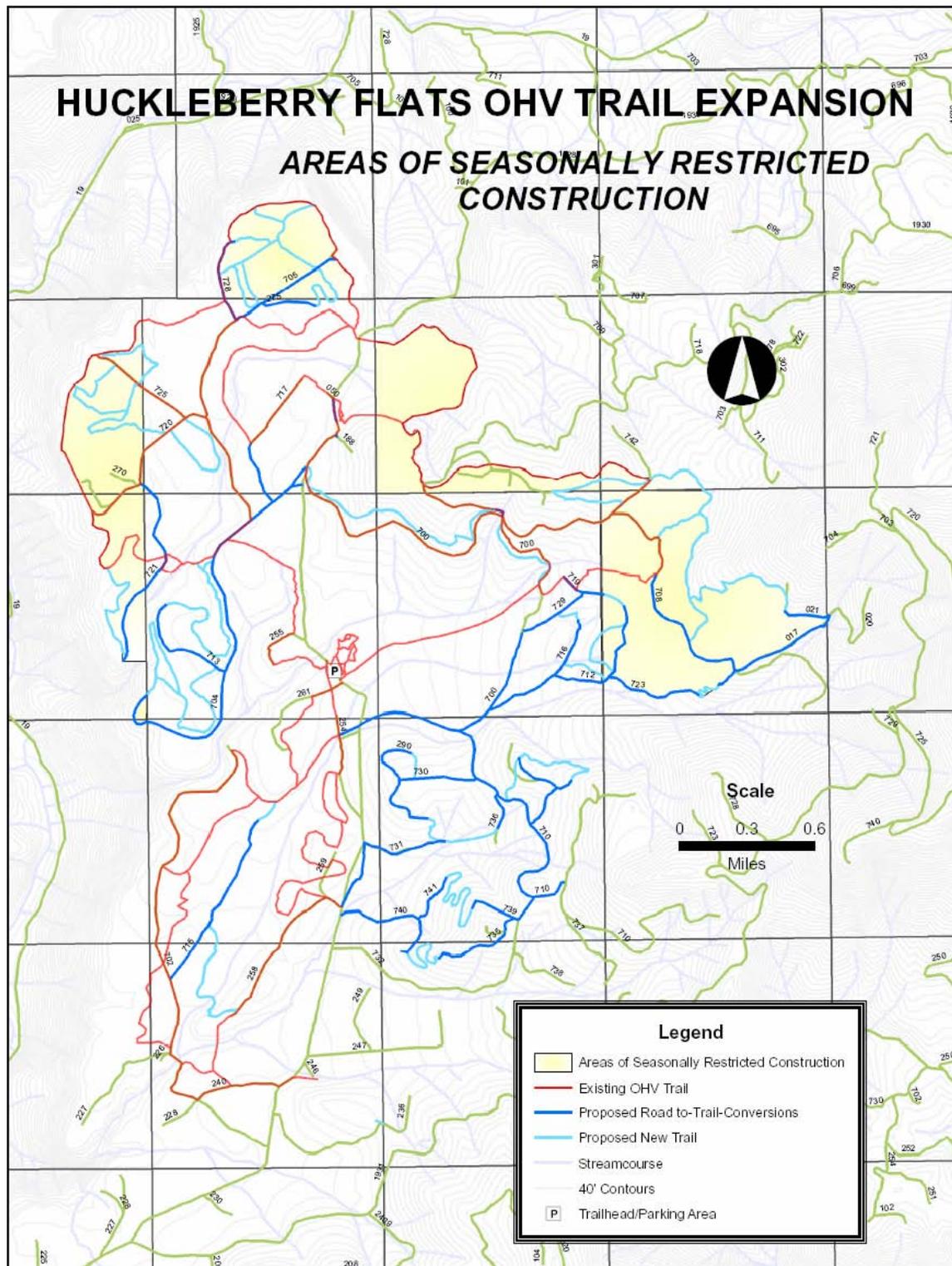
Older forest stands that may provide a nesting component do occur to the east, north and south of the planning area. To minimize disturbance to potential nesting owls in adjacent nesting habitat, brushing and other above ambient noise associated with this project would be seasonally restricted between March 1st-July 15th if the activity is in close proximity to unsurveyed NRF habitat (see Figure 5). It is assumed that spotted owl foraging activity occurs during "off peak hours" and foraging behavior would not be affected by implementation of the action alternative. No other seasonal restrictions for northern spotted owls would be required. For ease of identifying areas where operational restrictions are required, an assessment was made of adjacent habitat and the proposed trail expansion areas. This assessment was done on a legal boundary (section line) basis to determine where areas could be lifted from operational restrictions. Areas where operations (use of any mechanized equipment for trail construction and maintenance) can proceed based on being the minimum distance away from suitable nesting habitat to avoid disruption/disturbance to potential nesting owls in unsurveyed habitat are:

T20S R4E Sections 6,7,8,17,18,19, and 20. Areas outside of these sections are under a seasonal restriction for trail construction and improvement from March 1-July 15.

As stated in the Terrestrial Fauna Biological Analysis/Biological Evaluation for the Huckleberry Flats OHV Trail Expansion Project (Quintana/Lunstrum, 2006), the USFWS Biological Opinion (BO # 1-7-05-I 666) indicates the implementation of activities in the Proposed Action results in a determination of May Affect, Not Likely to Adversely Affect.

It has also been determined, as indicated in those same documents, that there will be No Effect due to Habitat Modification for this project.

Figure 5. Seasonally Restricted Trail Construction Areas



Alternative 2- No Action:

Management of the OHV area would continue as-is within the current trail footprint. No habitat modification or disturbance due to construction activities would occur.

Indirect/Cumulative Effects on the Northern spotted owl

The analysis area is comprised of the existing Huckleberry Flats OHV trail system and immediately adjacent areas, specifically located in: T19S, R4E Sections 31-34; T20S, R3E Sections 1, 12, 25; T20S, R4E Sections 4-10, 15-21, 30, Willamette Meridian. Areas to be considered for development are primarily within a General Forest land management designation (MA-14a) although some will occur within the riparian reserve land allocation.

Alternative 1- Proposed Action

As current OHV use continues into the future, and gradually increases (see the Recreation effects sections below), the Huckleberry Flats area may not be effectively utilized by owls as the stands develop into foraging habitat. With the proposed Niner Project in the same area, thinning in current dispersal and foraging stands would also have an effect on the owl's effective utilization of these stands. This may be short-term as these stands would develop, canopy closures will increase and eventually (5-10 years) will return to suitable dispersal habitat. As these stands continue to develop and provide increasing foraging opportunities over time, it is unclear how under-utilized these stands will be for foraging owls with the anticipated increased OHV use of the Huckleberry Flats area. Possibly in some of the more remote portions of the OHV trail system owls may be opportunistic and effectively forage in the stands during the evening/night hours when OHV use is curtailed. No other disturbance activities are reasonably foreseeable from continued OHV use.

Expansion of the OHV area would not have a significant effect on owls other than modifying foraging behavior due to noise disturbance.

Alternative 2- No Action

As current OHV use continues into the future, the Huckleberry Flats area may not be effectively utilized by owls as the stands develop into foraging habitat. With the proposed Niner Project in the same area, thinning in current dispersal and foraging stands will also have an effect on the owl's effective utilization of these stands. This may be short term as these stands will develop, canopy closures will increase and eventually (5-10 years) will return to its functionality as suitable dispersal or foraging habitat. As these stands continue to develop and provide increasing foraging opportunities over time, it is unclear how under-utilized these stands will be for foraging owls with the anticipated increased OHV use of the Huckleberry Flats area. Possibly in some of the more remote portions of the OHV trail system, owls may be opportunistic and effectively forage in the stands during the evening/night hours when OHV use is curtailed

Other Sensitive Species

FISHER (*Martes pennanti*)

Cumulative Effects on the Fisher

The effects of past, present, and expected human use and management activities combine to influence the potential for fishers to occupy habitat in or near the project area. Recreational activities associated with roads, trails, and campgrounds; along with habitat management associated with timber harvest activity in the upcoming Niner Project can be considered in reducing the availability of habitat for fishers. The increasing trend in recreational use throughout this area may negatively influence occupancy of otherwise suitable habitat for the fisher.

It is determined that this project may impact individuals or their habitat, but the action will not likely contribute to a trend towards Federal listing or loss of viability to the population or species.

Baird's Shrew (*Sorex bairdii permiliensis*)

Pacific Shrew (*Sorex pacificus cascadenis*)

Federal – R6 -Sensitive

Direct and Indirect Effects on Baird's Shrew and Pacific Shrew

There are no known locations in the project area for this species. However, there is potential habitat for the species because this project will occur within coniferous forest, with dry and marshy areas. The trail routes avoid wet areas so there would be no impacts to the habitat for the Pacific shrew. Due to past management activities in the project area, there is little large down woody material and few existing large trees to provide large down material with in the future. No direct affects will occur to this species as all moist areas will be avoid for trail reconstruction and brushing efforts. In addition, any large diameter trees that fall across the trails will be moved off the trails, but maintained on-site for future shrew habitat structures.

There will be no impact to either shrew or their habitat, resulting from this project.

Oregon Slender Salamander (*Batrachoseps wrighti*)

Direct and Indirect Effects on the Oregon Slender Salamander:

No direct affects will occur to this species as all moist areas will be avoid for trail reconstruction and brushing efforts. In addition, any large diameter trees that fall across the trails will be moved, but maintained the on-site for future salamander habitat structures.

There will be no impact to Oregon slender salamander habitat.

Migratory Birds

Direct effects on Migratory Birds

Alternative 1 – Proposed Action and Alternative 2 - No Action

As mentioned in the proposed action, the only habitat manipulation that would occur in understory vegetation is where limited tree and brush cutting would take place to provide clearing limits for trail tread construction. New tread construction and clearing is planned on about 3 miles of new construction. This is considered to be minor amounts compared to existing amounts of vegetation that currently occur in the planning area. The impact to vegetation that may be utilized by some migratory bird species would be minor and should not affect overall bird species use of the stands within the planning area. As there is being no construction clearing planned in the No Action alternative, there will be no affect on migratory bird habitat.

Slight impacts to migratory birds may occur due to some understory habitat (i.e. rhododendron, vine maple) removal with the trail prism, utilized by some migratory species for foraging and nesting opportunities.

Indirect/Cumulative effects on Migratory Birds

The analysis area is comprised of the existing Huckleberry Flats OHV trail system and immediately adjacent areas, specifically located in: T19S, R4E Sections 31-34; T20S, R3E Sections 1, 12, 25; T20S, R4E Sections 4-10, 15-21, 30, Willamette Meridian.

Alternative 1 – Proposed Action and Alternative 2 - No Action

Effects to migratory birds would increase with the proposed Niner Thinning Project that would occur in stands over the next 10 years. This may have an impact on nesting activity and use within these stands on a short term basis.

The proposed Niner thinning project would occur within and surrounding this project area. This would likely increase short-term disturbance for big game and migratory birds, however it would be likely create some potential benefits by creating openings, dead and down materials, and enhancing available forage.

Soils

Significant Issue #3 - Detrimental soil disturbance

Evaluation Criteria: Percent of activity area with detrimental soil conditions.

Detrimental Soil Conditions – Significant Issue

Forest wide Standards and Guideline FW-079 states that land management activities shall be planned and conducted to maintain or enhance soil productivity and stability. FW-081 states that the total area of cumulative detrimental soils conditions should not exceed 20% of the total acreage within the activity area. Detrimental soil conditions are defined as the total area of cumulative detrimental soil impacts. Detrimental conditions should not exceed 20% of the total acreage within the activity area.

Soil compaction is defined as a detrimental soil condition when there is an increase in soil bulk density of 15% or more and/or by a reduction of macro-pore space of 50% over the undisturbed soils. Soil displacement is a detrimental soil condition and defined as an area at least 5 feet wide where 50% of the topsoil has been removed. FW-082 states that past, present, and future activities shall be considered when evaluating soil conditions. Roads are considered a part of the activity area where soil productivity has been reduced or removed due to the amount of soil compaction and lack of the site to produce vegetation (measure of soil productivity).

The Land Management Plan for the Willamette National Forest (USDA, 1990) requires that the potential for cumulative effects of proposed projects on beneficial uses and stream channel conditions be considered in project design (FW-093). This direction states that this assessment should consider the effects of management practices on riparian conditions, mass movements, and hydrologic recovery.

Additionally, FW-93 states the need to assess cumulative watershed effects of a proposed action. FW-92, states that water quality will be protected (minimizing soil erosion) with Best Management Practices described in the Best Management Practices mitigation for the Huckleberry Flats OHV Trail Expansion Project area.

Detrimental soil conditions are addressed because soil quality and water quality are maintained when ecosystems are managed without permanent impairment to land productivity. Such management results in maintenance or improvement of soil and water quality. Standards for detrimental soil conditions have been set to meet the direction in the National Forest Management Act of 1976 and other legal mandates. Soil and water quality are maintained when soil compaction, displacement, burning, erosion, loss of organic matter and altered soil moisture regimes are maintained within defined standards. The design of the project should not exceed detrimental soil conditions on more than 20 percent of an activity area (including adjacent roads), as specified in Forest Wide standard and guideline FW-081. The activity area for this analysis is the entire project area, since the trails run throughout the proposed project area. Soil compaction, soil displacement, loss of organic matter, and soil erosion were evaluated as these are the effects resulting from OHV management activities.

Soil Compaction

According to the North Fork watershed analysis, the soils occurring in the project area are susceptible to compaction, and that very little compaction of soil occurred prior to the beginning of timber harvest and road building (USDA, 1995). The first logging occurred around the 1920s. Railroad logging was the main method initially used to move logs which also utilized high lead cable yarding to the railroad system. In the 1960s an extensive road system was built to accommodate log hauling by trucks and the seed trees left by the original logging were removed using ground based machinery. It is estimated that some 14,000 acres of the lower half of the North Fork watershed were harvested using tractor yarding or ground impacting harvest methods.

Much of the OHV Project Area was logged by railroad and tractor logging. The soil compaction portion of detrimental soil conditions has been identified by photo interpretation and field survey

Soils for the OHV Project Area are primarily found on a remnant lava flow with subsequent fine textured ash fall events layered on top. The surface has been subject to many years of erosion creating the current shape of the lands. The soils information comes from the Willamette National Forest Soil Resource Inventory (SRI) prepared by Legard and Meyers, 1973 (updated 1992). Soils were mapped as land types and landtype complexes (several land types mapped as one mapping unit) which characterize the soils, vegetation, landform (topography), and geology. The basic SRI data provides information to determine the effects on soil and water resources and evaluate the capabilities of soil for various uses. Field reconnaissance and surveys were completed to verify current conditions such as existing soil disturbance (field surveys), observations of effects to the soil (field visits), current effective ground cover (field observations), and soil erosion potential (field observations). The following table displays some statistics and characteristics of soils found in the project area.

Table 5. Soils of the OHV Project Area

Soil Resource Inventory Mapping Unit	Acres Project Area	% Project Area	*Natural Land Stability	*Expected Mass Movement From Mgmt.	*Surface And Subsurface Soil Erosion Potential	*Sediment Yield Potential	*Expected Sediment Size
14	2988.56	68.87	S	Un	M-H	M	SI, CL
23	792.39	18.27	S-MS	Un	M	M	SI, CL
25	8.86	0.20	U-VU	I	M-H	M-H	SI, CL
201	197.11	4.54	S	I	H-SE	L-M	SA, SI
212	308.74	7.11	S	I	SE-H	M	SA, SI
235	15.99	0.37	S-U	I	M-H	M-H	SI, CL
602	21.42	0.49	S	I	SE-H	L-M	SA, SI
610U	0.42	0.01	S	I	SE-H	L	SA, SI
616	4339.64	0.14	S	I	SE-M	L-M	SA, SI
Total	4339.64	100.00					

*Notes: Natural land stability – S=stable, VS=very stable, MS=moderately stable, U=unstable, VU=very unstable

Expected mass movement from mgmt. – Un=unchanged, I=increased.

Sediment yield potential – L=low, M=moderate, H=high, SE=severe.

Surface and sub-surface soil erosion potential - L=low, M=moderate, H=high, SE=severe (soil erosion potential is rated on bare soil conditions).

Sediment Yield Potential – L=low, M=moderate, H=high.

Expected sediment size – SA=sand, SI=silt, CL=clay.

Soil Erosion

Approximately 87% of the OHV Project Area has soils with a potential surface and sub-surface erosion rating of low to moderate. In general, the soil erosion potential would be a low concern

for the majority of the project area. Soil erosion potential is fairly low in the OHV Project Area because the trail system is primarily located on the flat to moderate slopes atop an old remnant lava flow. Where there is greater topographic relief, the erosion potential increases. Refer to the project file for a map displaying the land types found in the project area and Table 3 (in that document), which summarizes the potential for soil erosion throughout the project area.

Field surveys of the existing trails identified soil erosion on trails with steep gradients and long sustained grade lengths. Best Management Practices such as water bars, elevated stream crossings, and trail location are effective in minimizing soil erosion as exhibited on the existing trail system. Most of the trail erosion is deposited on the tread within the water bars on the trail, or at the outlet of the water bars. The places along the trail with the greatest potential for soil erosion to enter the streams as sediment would be at the trail stream crossings (such as trail bridges or stream culverts).

No land stability problems have been observed along any existing OHV trails or roads nor has any existing OHV trail drainage contributed to any off-trail land stability problems. Land stability problems from trail construction have been avoided by locating trails away from existing unstable land areas and directing trail drainage away from any unstable land areas.

Most of the soils in the project area are covered with vegetation and a protective layer of organic matter. The exposed bare soils appear as a result of the existing OHV trails, some old skid roads, and abandoned temporary roads. The system roads are gravel throughout the project area, and that provides erosion protection for the sub-grade soil materials. Soil erosion has been observed in the existing OHV trails. Those eroded trails have some of the following characteristics: trail grades where the distance between water bars is long; more trail use may have occurred during wetter times of the year; trail grades become steeper when approaching many stream crossings; and widening wherever existing native surface roads become or intersect with the OHV trails.

It is only at the stream crossings that a substantial risk of water quality degradation exists. Use of the trails during wet conditions leads to rutting, but water bars at approaches to crossings, and elevating the crossings slightly above ground level reduces the delivery rate of eroded exposed soils to streams occupied by fish. Standard maintenance of the trail network would mitigate for the mobility of exposed soils within the trail tread.

The Road Watershed Erosion Prediction Project (Elliot, 2000) was used as a model to predict potential soil erosion (sedimentation and resulting turbidity) at the trail stream crossings (bridge or culvert sites). The Watershed Erosion Prediction Project (WEPP) model uses the specified characteristics of climate, soil texture, local topography, road traffic patterns, road design, road design characteristics, and adjacent buffer characteristics to predict soil erosion amounts. Erosion values displayed in Table 6 are intended to be an index of potential erosion rather than actual amounts of erosion that would reach the streams. Quoting from Elliot, the soil erosion values listed in Table 6 of this document are “only intended for comparison values and should not be

considered actual predicted amounts”. The standard method for mitigating the effects of landscape management is the use of “Best Management Practices (BMPs)”, a set of measures designed to reduce the impact of management activities. The specific sets of BMPs that are applied during project implementation are chosen because they reduce the magnitude of resource impacts that result from management activities

Table 6. OHV Project Area WEPP Analysis for Potential Soil Erosion at Trail Stream Crossings.

	Potential Soil Erosion with BMPs as mitigation (lbs. per significant storm event)
Proposed Trail Stream Crossings (Action Alternative)	159 (Approximately 2 cubic feet)
Existing Trail Stream Crossings (No Action Alternative)	456
Total	615

Note: Water bars (as mitigation) are currently in place for the existing trail stream crossings. = Mitigation is planned for all new stream trail crossings (bridges and culverts).

Severely Burned Soil (fire intensity)

Severely burned soils (top layer of mineral soils is significantly changed in color, usually to a reddish color) are considered to be a detrimental soil condition. Preliminary field investigations have determined that there are no areas displaying any severely burned conditions.

Activity Area

The activity area becomes the entire project area when calculating both the project and cumulative detrimental soil conditions. The existing transportation system, past harvest impacts, and trail area (estimated at 5 feet for OHV trail tread width) are considered a part of the cumulative detrimental soil condition calculations. Length of OHV trails and this standard width were used to calculate the percent of area with detrimental soil conditions. All existing roads are considered a part of the transportation system for the area. For the OHV Project Area, permanent roads and OHV trails and parking make up the current detrimental soil condition of approximately 3.4%. The combined past timber management (approximately 12.7%) and road detrimental conditions make up approximately 16.1% of the project area.

Direct and Indirect Effects on Soils

Alternative 1 – Proposed Action

New trail construction will contribute an additional 0.2% detrimental soil conditions to the existing of the planning area.

Alternative 2 – No Action

There would be no new detrimental soil conditions since none of the proposed ground-disturbing management activities would occur.

Table 7 displays the OHV Project Area detrimental soil conditions by alternative for that which is currently existing (roads, past timber harvest, and existing OHV trails and parking), new OHV trails and parking, and cumulative total

Table 7. OHV Project Area Detrimental Soil Conditions by Alternatives

Alternative	1) Existing Roads (%)	2) Past Timber Harvest (%)	3) Existing OHV Trails	4) New OHV Trails	5) Proposed Niner thinning project activities	6) Total (%) Cumulative Detrimental Soil Conditions
No Action	3.4	12.7	0.4	0.0	.7	17.2
Action Alternative 1	3.4	12.7	0.4	0.2	.7	17.4

- 1) Road calculations are only for those roads within the activity area (project area).
- 2) Harvest systems were primarily tractor yarding and cable yarding (one-end suspension). Fuels treatment was generally grapple piling and burning =2%.
- 3) Existing trails = OHV trails already in place.
- 4) New trails = New (proposed) trail construction and parking area improvement on previously impacted lands such as existing skid roads.
- 5) Proposed Niner timber thinning project of approximately 3,500 acres (estimated to add an additional 0.7)
- 6) Total cumulative detrimental soil condition is for the activity area (project area).

Cumulative Effects on Soils

For the cumulative effects, the past harvest methods used to remove logs, site preparation of slash piling and burning and all roads were considered, and the activity area is comprised of the entire project area. See Appendix B of the Niner Project Environmental Assessment for a complete list of past, present and future projects that accumulate on the Huckleberry Flats OHV Expansion project.

Detrimental soil conditions for the past timber harvest were determined by a combination of air photo interpretation and field monitoring by sampling several past harvest units. Several field visits revealed that air photo interpretation did not accurately reflect the detrimental soil

conditions on the ground. It was determined that an intensive grid sampling would be completed on several areas of past harvest to determine how much adjustment should be made to the estimates of detrimental soil conditions derived from air photo interpretation. The field monitoring of past harvest produced an adjustment factor from an intensive grid monitoring of the past timber harvest by logging system. The adjustment factor was then applied to the air photo interpretation detrimental soil conditions to produce a more accurate reflection of true ground conditions.

Alternative 1 – Proposed Action

The sum of new trail tread area would be less than nine acres, or less than 0.2 percent of the OHV Project Area (4,339 acres). The cumulative detrimental soil conditions would include the existing roads, past timber harvest, and existing OHV trails (16.5%), new OHV trails (0.2%), and a proposed the Niner timber thinning project of approximately 3,500 acres (estimated to add an additional 0.7%, [USDA, Huckleberry Flats OHV Trail Expansion Project Fisheries and Watershed Report, page 26]), totaling 17.4% of the project area.

Soil productivity would be reduced only on the network of new trail treads if the proposed action is implemented and it would only be these new trail treads within the OHV Project Area that would incur an increase in detrimental soil conditions. Organic matter removed to establish trail tread would be scattered onto the adjacent forest floor, maintaining soil productivity.

Alternative 2 – No Action

There would be no anticipated cumulative detrimental soil conditions above the existing roads, past timber harvest, and existing OHV trails (16.5% of the planning area) for the No Action alternative.

Water Quality and Fisheries

Water Quality

Water quality impacts are the only measurable way to estimate project effects on the fisheries resources. The Fisheries discussion below provides background on the fisheries environment within and adjacent to the project area. The Direct, Indirect, and Cumulative Effects section addresses effects to both water quality and fisheries.

Pursuant to Memoranda of Agreement with the U.S. Forest Service and the Bureau of Land Management, water quality standards are to be met through the development and implementation of water quality restoration plans, Best Management Practices (BMPs) and aquatic conservation strategies. Implementation of these plans, practices and strategies has been deemed to be in compliance with water quality rules (OAR 340-041-0028(12) (g)).

The state of Oregon has established water quality standards set out in Chapter 340, Division 41 of the Oregon Administrative Rules. Water bodies that do not meet state water quality standards are

termed “water quality limited” and are placed on a list in accordance with Section 303(d) of the Federal Clean Water Act (303(d) list). The main stem of the North Fork of the Middle Fork of the Willamette River (hereafter referred to as the North Fork) within and downstream of the project boundary is designated as water quality limited on the 303(d) list for high summer water temperatures. No other stream segments or parameters are currently designated by the Oregon State Department of Environmental Quality as water quality limited on the 303(d) list within the project area.

Stream Temperature - On March 2, 2004, the U.S. Environmental Protection Agency announced approval of a revised Oregon Water Quality Standards for temperature. Under the new standard, the North Fork is considered “core cold water habitat” and the applicable standard states that the seven-day-average maximum temperature may not exceed 16.0°C (60.8°F) (OAR 340-041-0028(4)(b)).

Stream temperatures vary throughout the year and in the North Fork watershed typically reach their maximum in July or August. Stream temperature data collected in the North Fork downstream and within the project area indicates that the North Fork consistently does not meet the state water quality standard for temperature during the summer season. This is likely due to past riparian harvest within the watershed that has reduced the shade available to perennial streams (USDA, 1995). The North Fork flowing through the Dartmouth Creek and Eighth Creek sub-watersheds has been listed by the Oregon Department of Environmental Quality (DEQ) as “water quality limited” (303(d) list) due to high temperatures during the summer season.

The most recent available stream temperature data for the North Fork was recorded during the summers of 2003 and 2004. Near the river’s mouth in 2004, off federally managed land in the Dartmouth Creek sub-watershed, the seven-day average maximum for the lowest measured site on the North Fork was recorded at 22.27°C (72.08°F).

The portion of the North Fork flowing through the Eighth Creek sub-watershed is also listed as water quality limited by DEQ during the summer due to high water temperatures. During 2004, the seven day average of the maximum temperature stream temperatures during the summer (measured near the FS Road 1919 bridge) was 19.01°C (66.22°F). Temperatures taken during the field survey of Huckleberry Creek in August 1998 remained below 14 0C. Similar results were obtained from nearby fish-bearing streams atop the plateau that were surveyed in 2003 (USDA 2004). The sum of all summer stream flow provides less than six percent of the total stream flow within the North Fork (USDA, 1998). Taken together, the temperatures of the tributaries and the very small percentage of North Fork stream flow that all of these tributaries provide indicate that these small streams are not likely significant contributors to moderation of thermal loading in the North Fork.

The temperature of water is an expression of the heat energy per unit volume (Boyd and Sturdevant, 1997). Important factors that affect stream temperatures include climate, riparian

vegetation, quantity of water, channel form, and channel structure. The most important source of energy contributing to stream heating is from direct solar radiation (USDA/USDI 2005). As a source of stream water heating, energy from the air is conducted to the stream at a very slow rate (Boyd and Sturdevant, 1997). Vegetation adjacent to streams that shade the channel can reduce the potential for direct solar radiation to increase water temperature. Streams that carry large quantities of water are more resistant to heating and cooling. The shape of the channel also influences the susceptibility of the channel to heating. Channels that are deep and narrow are less susceptible to increases in temperature than shallow wide channels.

The effect of vegetation on stream shade is a function of the sun angle, vegetation height, stream orientation, and side slope. As the sun changes its position over the course of a day, the shade provided by vegetation will change. When the sun is in its highest position in the sky, vegetation closest to the stream is providing the greatest amount of shade. When the sun is at a lower angle, vegetation further from the stream begins to provide shade to the stream. At some point, however, the shade from one tree falls on another tree and so those trees further from the stream do not provide additional shade to the stream.

During the summer season, the daily period of greatest radiation occurs between 10:00 am and 2:00 pm. This period of time provides 58 percent of the total daily solar radiation. Because the sun is at a relatively high angle during this portion of the day, only those trees closest to the stream channel are capable of providing shade to the channel. The effective shade zone is composed of primary and secondary shade trees. Secondary shade trees contribute to stream shading only when the sun is lower in the sky. Primary shade trees provide shade throughout the day. Within the project area boundary, it is estimated that the primary shade tree distance is approximately 40 feet beyond each bank.

Stream Peak Flow - The vegetative condition of an area as it relates to management effects on snow accumulation and melt is termed hydrologic recovery. The Aggregate Recovery Percent (ARP) methodology can be used to quantify hydrologic recovery. For planning purposes, the Willamette National Forest Land and Resource Management Plan describes the sensitivity of planning sub-drainages based on the overall slope of the sub-drainage and the percent of the area in the transient snow zone. The area of planning sub-drainages is smaller than the 6th-field sub-watersheds; that is, all sub-watersheds are further divided into planning sub-drainages. Each planning sub-drainage was assigned a mid-point ARP value as a reference for assessment purposes. The mid-point ARP values provide a relative measure of drainage sensitivity. These may be viewed as thresholds of concern below which there would be a greater risk of increased peak flows and associated adverse effects such as stream bank or streambed erosion.

The North Fork Watershed Analysis states that the Eight Creek and the Huckleberry Planning Sub-drainages were above this assigned mid-point ARP values at the time of the assessment (USDA 1995, Appendix E). Analysis of hydrologic recovery indicates that the planning sub-

drainages in the Dartmouth Creek and Eighth Creek sub-watersheds are currently above mid-point ARP levels and would remain above mid-point values even after commercial thinning harvest entries proposed to occur in 2009. This analysis indicates a relatively low risk of increased peak flows occurring as a result of proposed activities within the analysis area that would reach a magnitude sufficient to cause undesirable effects (See Table 4).

Turbidity - Oregon's turbidity standard was first adopted by the DEQ in the 1970's and last revised in 1990. The current standard states:

OAR 340-41-(Basin)(2)(C): "No more than a ten percent cumulative increase in natural stream turbidities shall be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity. However, limited duration activities necessary to address an emergency or to accommodate essential dredging, construction or other legitimate activities and which cause the standard to be exceeded may be authorized provided all practicable turbidity control techniques have been applied..."

Riparian Vegetation

There are a total of 2,650 acres of riparian reserve within the project area and 1.3 acres are within 100 feet of stream channels. The majority of the trees in the riparian reserves are less than 60 years old. There is also a dense understory of shrubs composed primarily of vine maple and salal.

Fisheries

A Biological Assessment (BA) was prepared in accordance with the following guidance and direction:

- Analytical Process (AP) for Development of Biological Assessments for Consultation on Federal Actions Affecting Fish Proposed or Listed Under the Endangered Species Act Within the Northwest Forest Plan Area (Interagency Guidelines, November 2004),
- Endangered Species Act of 1973 (as amended),
- 50 CFR § 402.12 (Interagency Cooperation, Biological Assessments),
- Endangered Species Consultation Handbook (USFWS and NMFS, March 1998),
- Streamlined Consultation Procedures for Section 7 of the Endangered Species Act (FS, NMFS, BLM, & USFWS, July 1999), and
- Magnuson-Stevens Fishery Conservation and Management Act (§ 305(b)) and its implementing regulations (50CFR § 600).

The North Fork River provides habitat for Willamette Spring Chinook salmon (*Oncorhynchus tshawytscha*) as well as many other species of fish, including rainbow trout (*Oncorhynchus mykiss*), cutthroat trout (*Oncorhynchus clarkii*), mountain whitefish (*Prosopium williamsoni*), and several species of sculpin (*Cottus rhotheus*, *Cottus beldingi*, and *Cottus confusus*).

Adult Chinook salmon have been trucked and released some 12 miles upstream of the project area. Due to downstream migration from occupied habitat above Hills Creek Dam, bull trout

(*Salvelinus confluentus*) now have access to the North Fork. However, there is no confirmation of their presence in the watershed. Stream temperatures above levels preferred by migrating adult salmon exist for several weeks each summer (Zustiak, 2005). These elevated temperatures create a seasonal thermal barrier that may delay the entry of adult Chinook into the river as they seek to find resting pools near preferred spawning sites upstream of the reaches adjacent to the OHV Project Area.

Impacts on Huckleberry Flats have the potential to translate the effects to habitats within the North Fork via the drainage network of native streams and road ditches. A survey of the North Fork was completed in 1998 on segments (reaches) of the river immediately down slope from the OHV Project Area (USDA, 1998). These surveys indicate a stream with high quality rearing habitat for juvenile Chinook salmon and for resident fish species in the form of a large mountain stream composed of long riffles interspersed by consistently deep pools. The streambed has a gentle slope and a streambed dominated by cobbles, but there is very little large woody debris providing resistance to flow during storm events, or side channel habitats available as winter refugia. The low amount of in-stream wood is a result of past management that included riparian harvest that reduced wood recruitment and stream clean-out that removed existing in-stream wood to prevent flood damage to downstream property (USDA, 1995). The reaches below the OHV Project Area likely provide moderate spawning opportunities for Chinook, but the dominant spawning areas occur upstream in the less constrained, broader alluvial-dominant reaches (Larson, 2005).

Several of the tributaries to the North Fork are found within the OHV Project Area atop Huckleberry Flats. Many of the perennial streams within the OHV Project Area support resident populations of cutthroat trout (*Oncorhynchus clarkii*) and/or Eastern brook trout (*Salvelinus fontinalis*); no other fish species are known to inhabit these stream reaches. The presence of fish in the streams atop Huckleberry Flats is unusual given the steep slope of these streams (greater than 20 percent) as they flow off the plateau and cascade more than a quarter mile to the valley floor of the North Fork. There are likely to be several migration barriers within these cascading stream reaches, suggesting that the fish populations atop the plateau are genetically isolated. Several formal stream surveys have recently been completed atop Huckleberry Flats, but only Huckleberry Creek has surveyed within the OHV Project Area (USDA, 1998). While Huckleberry Creek is the largest stream, the unsurveyed fish-bearing streams within the OHV Project Area likely have very similar habitat conditions due to the ecological conditions that all of these streams share: geology, relief, aspect, pattern of precipitation, and history of land management.

On the plateau's gentle terrain, these streams can be characterized as narrow, shallow, slightly entrenched and meandering channels lacking defined valleys. Flow is sluggish with marsh-like conditions becoming common, and the streambed is fine textured, with sand dominant. Their banks are rated as highly stable, with small conifers providing nearly 100 percent shade to the

stream. There is little off-channel habitat, and large woody debris plays a minor structural role in habitat formation.

The existing Huckleberry Flats OHV trail system includes four trail bridges across fish-bearing streams. One culvert in a Forest Service road that also serves as part of the trail network passes water for a fish-bearing stream. In addition, six culverts that are part of the FS road system and pass water for fish-bearing streams are immediately adjacent to the OHV trail network; and these road segments are commonly used by OHV riders to expand the diversity of their riding experience.

The engineering and installation of stream crossings for OHV trails, as well as the level of trail maintenance at these crossings, largely determines the degree of impact to fish habitat condition from increased peak flows and the transport of fine-grained sediment into occupied habitats. Small amounts of airborne dust generated by OHV users during dry conditions enter occupied habitats—either directly or transported via stream flow from an upstream entry point. The magnitude of this effect is likely immeasurable.

Wet season delivery of fine sediments is a far greater risk to fish. Trail segments intersecting streams are the vectors for this effect as trail rutting can function as its own tributary channel to the actual stream (Murdough, 2006). The trail-as-channel effect can be substantially reduced through the use of water bars to deflect run-off from the trail tread back onto a permeable forest soil, re-grading the tread surface to reduce the concentration of flow in ruts, hardening tread surfaces on trails intersecting with streams, and creating settling sumps near stream crossings that allow waterborne fine sediments traveling atop the trail tread to precipitate into a small basin, rather than be deposited within the active floodplain of the stream.

Beneficial Uses of the Streams

The Oregon Department of Environmental Quality has identified beneficial uses for Willamette River tributaries in Oregon Administrative Rules 340-41-340, Table 340A

Beneficial uses within the North Fork watershed include:

Public Domestic Water Supply for the City of Westfir

Potential Anadromous Fish Passage

Salmonid Fish Rearing

Salmonid Fish Spawning

Resident Fish and Aquatic Life

Recreational Fishing

Water Contact Recreation

Aesthetic Quality

Direct and Indirect Effects on Fisheries and Water Quality

Alternative 1 – Proposed Action

Stream Temperature

The Proposed Action alternative may cause a slight, but immeasurable change in sunlight reaching the streams at the new trail crossings. Temperatures in the North Fork are expected to continue to lower as the riparian forest matures in those areas previously harvested.

Changes to stream temperature due to OHV trail construction is largely a function of the removal of riparian vegetation at stream crossings. These effects are minimized by the capacity to construct each stream crossing with minimal disturbance of the riparian overstory trees. Given the tread width and the present spacing of the trees creating the primary shade zone, the trail can be sited around dominant canopy trees to preserve their contribution to shade. This flexibility would reduce the potential for increased sunlight reaching the stream to the very minor percentage of shade saplings, shrubs, and herbaceous plants provide to the water surface. It is highly likely that the bridge itself would compensate for this small reduction in the shade supplied by riparian vegetation since a trail bridge provides near total shade to the water surface beneath the bridge.

Peak Stream Flow

Alternative 1 would retain nearly all trees and shrubs; there would be no direct or indirect effects on peak flows from a change in vegetative condition. Because this alternative would have a small effect on stand canopy closure, no measurable change in ARP values would be anticipated. Since the majority of proposed actions would occur on land already impacted by past management activities, the increased compacted surface area resulting in reduced infiltration capacity would be limited to the native forest area where there is new trail construction, totaling 1.9 acres (i.e., less than 0.2% of the project area). Such a small change to the OHV Project Area represents a low risk of increasing peak stream flows. Implementation of BMPs would further insure that no adverse effects on stream flows would occur. The connected action of falling hazard trees in the future would not have a measurable effect on stand canopy closure and would not likely have a measurable effect on stream flow.

Turbidity and Suspended Sediment

Under this alternative, for comparison purposes, modeling of potential soil erosion at trail stream crossings (potential sediment delivery points at bridges and culverts) resulted in an estimated 159 lbs of potential sediment. (See Table 6. OHV Project Area WEPP Analysis for Potential Soil Erosion at Trail Stream Crossings, in the Fisheries and Watershed Report.)

The WEPP model predicts erosion potential of recently disturbed soils. Generally, erosion is diminished as effective ground covers are reestablished either by natural means (vegetation) or mechanical techniques (gravel placement). Because trail tread is routinely (though not

consistently) disturbed by use and maintenance activities, soils within the travel way are not expected to fully regain an effective ground cover. Under these circumstances potential for sediment delivery to stream courses, as predicted by the WEPP model, is quantified relative to frequency and intensity of storm events. Soil erosion associated with parking area improvements would be mitigated by covering the bare soil with gravel and maintaining distance and vegetative cover between any streams. Land stability problems which could produce in stream sedimentation are unlikely to occur with proper trail location and by installing water bars to direct drainage away from any potentially unstable areas. Implementation of BMPs would be expected to result in minimal delivery of sediment to streams from management activities under either of the Action alternatives. Since sediment delivery to streams would be minimal, no adverse impacts to fisheries or other beneficial uses from a potential increase in turbidity would be expected to occur.

Riparian vegetation

Changes to stream temperature due to OHV trail construction is largely a function of the removal of riparian vegetation at stream crossings. These effects are minimized by the capacity to construct each stream crossing with minimal disturbance of the riparian overstory trees. Given the tread width and the present spacing of the trees creating the primary shade zone, the trail can be sited around dominant canopy trees to preserve their contribution to shade. This flexibility would reduce the potential for increased sunlight reaching the stream to the very minor percentage of shade saplings, shrubs, and herbaceous plants provide to the water surface. It is highly likely that the bridge timbers would compensate for this small reduction in the shade supplied by riparian vegetation since a trail bridge provides near total shade to the water surface beneath the bridge.

Alternative 2– No Action

Stream Temperature

Under this alternative, no additional management actions would occur, so there would be no effect on stream temperatures.

Peak Stream Flow

Under this alternative no proposed management actions would occur, so there would be no direct or indirect effects to peak stream flow. No changes in peak stream flow (as quantified by the ARP methodology) due to proposed management actions associated with this project would occur.

Turbidity and Suspended Sediment

No proposed management actions would occur, and as a result, there would be no management-related sediment from proposed OHV Project Area activities. The soil erosion rate would be unchanged due to the existing vegetation, micro-topography, and existing BMPs (primarily

existing trail water bars). The micro-topography (slope roughness) of the soils' surface plays as the key role as to whether the soil would actually reach and enter a stream as sedimentation. Field surveys reveal micro-topography, the engineered configuration of the existing trail network, and a standard schedule of trail maintenance would continue to impede soil erosion from directly entering the stream channels within the OHV Project Area.

Riparian Vegetation

Under the No Action Alternative, no changes to the existing riparian vegetation would occur.

Cumulative Effects on Fisheries and Water Quality

The cumulative effects of this project are based on the analysis of past, present and future projects in the eastern portions of Dartmouth and Eighth Creek sub-watersheds on the Huckleberry Flats plateau, the eastern valley slopes of the NFMF Willamette River through these sub-watersheds, and include all the wetted channel of NFMF Willamette River through these same sub-watersheds. See Appendix B of the Niner Project Environmental Assessment for a complete list of past, present and future projects in the Huckleberry Flats OHV Expansion project area.

Alternative 1- Proposed Action

Stream Temperature

Although it is likely that past riparian forest harvest within the North Fork watershed have contributed to an increase in water temperature in the North Fork, no actions proposed in this alternative or other actions likely to occur in the future would be expected to contribute toward a rise in water temperatures or a degradation of fisheries habitat.

Peak Stream Flow

Although past management actions within the North Fork watershed have caused to an increase in peak flows, no actions proposed in this alternative or other reasonably foreseeable actions likely to occur in the future would be expected to cause a cumulative effect on peak flows.

Turbidity and Suspended Sediment

There would likely be an increase in the amount of fine sediment delivered to streams, but in amounts so small that the change would be undetectable. Implementation of BMPs would reduce the potential for the Proposed Action alternative to result in a measurable increase in sediment and turbidity in the streams within the OHV Project Area. As discussed in the Fisheries section (above), with no measurable change occurring in the tributaries, it is unreasonable to expect measurable changes in the NFMF water quality or fisheries habitat. (See Fisheries Biological Assessment, Table 7, in the project analysis file) for a complete list of past projects considered in this analysis.)

Riparian Vegetation

Only minor changes to the existing riparian vegetation would occur if the Proposed Action was implemented. These changes would be unlikely to result in any short or long-term adverse environmental effects.

Alternative 2– No Action

Stream Temperature

Under this alternative, no additional management actions would occur, so there would be no effect on stream temperatures.

Peak Stream Flow

Under this alternative no proposed actions would occur, so there would be no direct or indirect effects to peak stream flow. No changes in peak stream flow (as quantified by the ARP methodology) due to proposed management actions associated with this project would occur.

Turbidity and Suspended Sediment

No proposed management actions would occur, and as a result, there would be no management-related sediment from proposed OHV Project Area activities. The soil erosion rate would be unchanged due to the existing vegetation, micro-topography, and existing BMPs (primarily existing trail water bars). The micro-topography (slope roughness) of the soils' surface plays as the key role as to whether the soil would actually reach and enter a stream as sedimentation. Field surveys reveal micro-topography, the engineered configuration of the existing trail network, and a standard schedule of trail maintenance would continue to impede soil erosion from directly entering the stream channels within the OHV Project Area.

Riparian Vegetation

Under the No Action Alternative, no changes to the existing riparian vegetation would occur.

Vegetation

The Huckleberry Flats OHV planning area is dominated by young stands of Douglas-fir created by past even-aged harvest in the late 1920's and 30's. Small amounts, in the range of several hundred acres, of mature forest patches exist in the higher and steeper elevations in the eastern portion of the planning area. There is also a patch of younger (about 100 years old) but native forest just north of the OHV staging area that was not affected by the last century harvest because it was too young at the time.

Due in large part to the generally uniform topography and soils, this mid-elevation project area does not contain a particularly diverse set of vegetation. Forests in the area, regardless of age, can be more or less characterized by the Western hemlock/dwarf Oregon grape or Western hemlock/dwarf Oregon grape-salal plant associations (as per USDA, 2002). These similar plant associations are some of the most common in the western Oregon Cascades and are typified as

being warm, well-drained and moderately productive. These forest types are typically dominated by Douglas-fir but can have considerable amounts of western hemlock and western red cedar in the understory and sometimes as co-dominant in the overstory. There typically is a sparse to moderate shrub layer dominated by Oregon grape and salal, and these low shrubs are usually dense enough to limit the amount and diversity of herbaceous ground vegetation. Taller shrub species such as vine maple, red huckleberry, and sometimes Pacific rhododendron can be very dense in younger stands that contain either sparse canopies or small canopy gaps.

While the area is dominated by usually dense coniferous forest, there are small amounts of various non-forested and hardwood dominated special habitats scattered throughout the planning area. Most of these special habitats can be considered some type of wetland; these typically occur along the many low gradient streams that cross the area. These small wetland habitats range from small grass or sedge dominated marshes, skunk cabbage patches, to red alder and/or western red cedar swamps. There are also a very few dry and open non-forested habitats as more fully discussed below in the sensitive plant section.

The young forests in this area are relatively dense with a more or less closed canopy, despite the fact that most have been thinned in the past. While there is an overall lack of late-successional forest structure in these stands (such as large live trees and snags) due to past harvest, most of these stands contain abundant amounts of large down wood because of the low merchantability standards at the time the area was harvested. These structures and substrates, along with a widely variable coniferous overstory density resulting from the more or less natural reforestation that occurred (which allows a number of hardwood tree and shrub species to persist) make the forests in the planning area more diverse than one might expect considering their management history. Additional acreage in the planning area is proposed to be thinned by the ongoing Niner project. This thinning should serve in part to maintain or enhance the diversity of ground vegetation in and adjacent to the planning area.

Vascular and Non-vascular Plants including Survey and Manage Species

Current Conditions

Habitat exists in the project area for 31 of the 72 botanical species listed as sensitive on the Willamette National Forest. Habitat also exists for six Survey and Manage species, five of which are also listed as sensitive. There are no known occurrences for sensitive and survey and manage species within the project area or within close proximity except for the occurrence of one sensitive vascular plant, Tall bugbane (*Cimicifuga elata*), which is 1.75 miles outside the Huckleberry Flats OHV project area.

One site (June 2001) of Sierra cliffbrake (*Pellaea brachyptera*), a fern in the Maidenhair fern family, is located in a non-forested habitat adjacent to a segment of an existing Huckleberry Flats OHV trail (old 742 spur road). The habitat is a dry, steep open south-facing rock garden on a hill top that becomes desiccated in summer. Though considered common elsewhere in Oregon, this is the only documented site of this species in Lane County, and is on the Lane County Rare and

Endangered plant list. It is included in the Willamette National Forest botany Species of Concern database in order to track its status on the forest.

Direct and Indirect Effects on Vascular and Nonvascular Botanical Species Including Survey and Manage Species

Alternatives 1 - Proposed Action

Vascular Plants

The Special Habitat on FS land where the tall bugbane population resides is buffered with a 300 foot no cut prescription in the Niner Project EA. The proposed Huckleberry Flats OHV project would not affect this area because it is 1.75 miles away from the tall bugbane population. No direct or indirect impacts to this portion of the population are anticipated in Alternatives A or B. No information about protection of the population growing on private land is available at this time. Proposed actions associated with the Huckleberry OHV project would not affect the Sierra cliffbrake population. This population should however be monitored periodically to document and mitigate if necessary, any damage that might occur from OHV activities off of designated routes.

Lichens and Bryophytes

Indirect effects to survey and manage and sensitive species and their habitats vary. Changes in hydrology, including water temperature and sediment may affect aquatic lichens found on submerged rocks in clear, cold streams (USDA, USDI 2003). Persistence of the other lichen species may be threatened by host tree, shrub (substrate) removal, wind throw, changes in microsite conditions, changes in epiphyte ecology and competition in more open stands, and by dispersal limitations in more widely spaced stands (USDA, USDI 2003). Conversion of existing road prisms to approximately 50" tread width, and installing berms or boulders etc., would slightly reduce the amount of open road prism, allowing more vegetation to grow in over time. New trail construction will impact some small conifers and understory shrubs that may develop into nonvascular substrate in the future. They will need to be cut and moved aside to provide adequate clearing width for trail tread. Mature larger diameter trees that may currently function as substrate would be not removed during new trail construction.

There is some potential for undiscovered sensitive vascular, lichen and bryophyte species to occur within the geographic area. However, it is unlikely there would be direct impacts from activities associated with the project to undiscovered locations, should they occur within the project area; most activities are confined to previously disturbed areas, which is not considered high potential habitat for most of the botanical species of concern.

Fungi

Under the proposed alternative, there could be direct effects to fungi, but severity and amount of habitat disturbance should be minor. Two studies have shown that fungal species richness

declines in forest openings (Durall, et al, 1999, Kranabetter and Wylie 1998). Therefore, in the short term, the proposed action may reduce habitat for sensitive mycorrhizal fungi in newly disturbed areas. Areas of proposed new trail construction will impact small conifers and understory shrubs that will need to be cut and removed to provide adequate clearing width for trail tread. Removal of any potential mycorrhizal species host trees during new trail construction would result in the disruption of mycelial networks (Kranabetter and Wylie, 1998; Amaranthus and Perry, 1994). It is likely that individual sites of fungi may be negatively affected in the short term by host tree removal, physical disturbance, soil compaction, and disruption of mycelial networks if the fungi are present (Kranabetter and Wylie 1998, Amaranthus and Perry 1994).

Alternative 2 – No Action

No new trails would be developed and roads would not be designated as trail. No direct effects are anticipated under this alternative.

Cumulative Effects on Vascular and Nonvascular Botanical Species, Including Survey and Manage Species

The area analyzed for cumulative effects to botanical resources was the Huckleberry Flats area and includes the Niner Project planning area which has a history of timber harvest, road construction, fire suppression, and off highway vehicle (OHV) recreation. Most of the area is managed as MA-14 General Forest by the Willamette National Forest Land Management Plan.

Alternative 1 – Proposed Action and Alternative 2 – No Action

This allocation provides merchantable timber products, social and recreational opportunities. The Huckleberry Flats OHV area was intensely harvested from the 1920's through the 1940's. Commercial thinning activities took place in much of the area in the 1980's. These forests likely contained multiple populations of survey and manage and sensitive botanical species. Fungal diversity declines with clear-cutting and fire (Byrd, et al 2000, Bruns, et al 2002) and stands were typically burned after harvest. Other habitat disturbing activities have been limited to recreation such as OHV use, and road maintenance that affect smaller localized areas. It is assumed that there has been some recovery of mycorrhizal diversity in stands over 20 years of age and that clearcut activity has the most severe effects on mycorrhizal diversity within the planning area by harvesting the host species they depend upon.

No evidence of Survey and Manage vascular and non-vascular species was discovered during botanical review of the project. Since there are no documented occurrences within direct proximity to the project area, neither alternative would have a cumulative effect to sensitive vascular, lichen and bryophyte species. Therefore actions associated with this decision will generally have minor short term negative impacts, beneficial impacts, or no impact on habitat for vascular and nonvascular botanical species. Project activities are not expected to result in adverse effects to species Survey and Manage botanical species. Based on results of pre-field review and

survey of the Huckleberry Flats OHV project area, activities associated with this project are determined to be consistent with the requirements of the January 2001 ROD and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines.

Because no surveys were completed to determine presence of populations and effects on ephemeral fungi, the proposed action was given a May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Loss of Viability for the Population or Species rating (MIIH) for ephemeral fungi.

The rest of the species were given a No Impact (NI) conclusion because either no populations were found, or in the case of tall bugbane, the population and associated special habitat is sufficiently distanced from the impacts of project activities. The proposed action would not contribute towards Federal Listing or cause a loss of viability to vascular, lichen and bryophyte sensitive populations or species.

Table 8: Sensitive Plants Summary of Effects Determination by Alternative

Species	Alternative A – Proposed Action	Alternative B- No Action
<i>Bridgeoporus nobillissimus</i>	NI	NI
<i>Cimicifuga elata</i>	NI	NI
<i>Eucephalis(Aster) vialis</i>	NI	NI
<i>Iliamna latibracteata</i>	NI	NI
<i>Leptogium burnetiae</i> var. <i>hirsutum</i>	NI	NI
<i>Leptogium cyanescens</i>	NI	NI
<i>Montia howellii</i>	NI	NI
Mycorrhizal Fungi	MIIH	NI
<i>Nephroma occultum</i>	NI	NI
<i>Pannaria rubiginosa</i>	NI	NI
<i>Peltigera neckeri</i>	NI	NI
<i>Peltigera pacifica</i>	NI	NI
<i>Pseudocyphellaria rainierensis</i>	NI	NI
<i>Ramalina pollinaria</i>	NI	NI
Saprophytic on Litter fungi	MIIH	NI
Saprophytic on wood fungi	MIIH	NI
<i>Usnea longissima</i>	NI	NI

Key to Abbreviations in Table 8

NI=No Impact

MIH=May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Loss of Viability for the Population or Species

Invasive Plants

An invasive plant is defined as “a non-native plant whose introduction does or is likely to cause economic or environmental harm or harm to human health” (Executive Order 13122). An estimated 420,000 acres of Forest Service lands in Region 6 are infested with invasive plants (USDA 2004). Invasive non-native plants, including noxious weeds, are a threat to native plant communities. These species thrive in a new environment because they arrive without the complement of predators, disease, and other ecosystem components found in their native region of the world. Most of these species take advantage of disturbance gaps such as logged units, roads, rock quarries, burned areas, the areas surrounding human structures, and trails. Weed seeds and other propagules can be introduced into an area by a variety of agents, most notably wind, highway and off-road vehicles, and construction equipment. They can also disperse by way of water, animals, and humans. Once established, these populations serve as a seed source for further dispersal, generally along road and trail corridors. Weeds also directly compete with sensitive species like tall bugbane should they invade habitat. For example, blackberries pose a direct threat by competing with plants growing in the same habitat.

Current Conditions

The project area has not been comprehensively surveyed for invasive plants, though select areas of the overlapping and adjacent Niner Project area have received inventory work in relation to analysis done for that project. It is possible that more infestations occur than are currently documented. Established weed infestations in the Huckleberry Flats OHV area that pose the most serious threat to native vegetation are Scot’s broom (*Cytisus scoparius*), Himalayan blackberry (*Rubus discolor*), evergreen blackberry (*Rubus laciniatus*), and everlasting peavine (*Lathyrus latifolius*). Lower priority established species including reed canarygrass (*Phalaris arundinacea*), tansy ragwort (*Senecio vulgaris*), oxeye daisy (*Leucanthemum vulgare*), St. John’s-wort (*Hypericum perforatum*), Canada and Bull thistle (*Cirsium arvense* and *C. vulgare*) are also present in the project area. Slender false brome (*Brachypodium sylvaticum*) is classified as a New Invader on the Middle Fork District and is found nearby in the watershed.

Scot’s broom is a well-established, widespread woody shrub in the legume family up to ten feet tall that favors roadsides and early seral plantations. It is long-lived, early seral colonizer which does not grow well in forested areas and becomes shaded out when forest canopy closes. It is scattered along several roads in the Huckleberry Flats area. Flowers are showy, yellow and abundant; the seeds of this plant can persist in the soil for decades and germinate if the soil is disturbed.

Slender false brome is a highly invasive perennial grass that has the capability to dominate the forest floor to the exclusion of native species. It has been reported to competitively exclude other species in the understory of coniferous forests it invades, even inhibiting establishment of tree seedlings by sequestering much-needed soil moisture (Kaye, T.N. 2001). It has broad ecological amplitude that allows it to succeed in heavy shade or in openings, such as meadows and roadsides. It does not appear to have forage value for big game and so receives little or no grazing pressure. Slender false-brome is found along Road 19 above Road 1912, and streamside along the North Fork of the Middle Fork Willamette River southwest of the proposed Niner project units 11-14 which lie on north-facing slopes below the project area. This highly invasive grass could invade into forested stands adjacent to Road 19, and could eventually spread up into the Huckleberry Flats area.

Himalayan and evergreen blackberries are robust evergreen shrubs that prefer open areas and roadsides but can also persist and spread under the forest canopy. Both species are spread by birds and other animals that eat the berries and both species spread vegetatively by tip-rooting. These species are found along the roads and trails within or adjacent to forested stands.

Everlasting peavine is a rhizomatous deep-rooted legume that climbs or forms a thick viney mat. Flowers are pink to deep purple. It grows best in full sunlight, thus is not uncommon along roadsides and in disturbed areas. It has been used as a wildlife cover and erosion control plant.

Reed canarygrass is found at scattered locations on near roads in wet areas. This is a tall (2-7 foot stems), perennial rhizomatous grass with a deep root system. It is aggressive and especially well suited to invade aquatic ecosystems, particularly wet meadows, riparian areas, and lakeside habitat.

Tansy ragwort is a widespread tap-rooted biennial or short-lived perennial. Stems are 1-6 feet tall, with yellow flowers at the top of the plant. This plant is toxic to livestock; containing several alkaloids that causes irreversible liver damage. The plant occurs in scattered locations in the project area in openings and along roads and trails.

Oxeye daisy is an established rhizomatous perennial in the sunflower family found nearly throughout the forest in open meadows and disturbed areas such as roads and landings. Flower heads are solitary at the ends of plant stems with white ray and yellow disk flowers.

St. John'-wort or Klamath weed is another well established non-native perennial herb that reproduces by seed or short runners. It produces compounds that cause skin irritations and illness in light haired animals in strong sunlight (photo dermatitis) and is usually avoided by grazing animals, which help to give it a competitive edge. This rhizomatous plant is very difficult to remove from meadows as it easily breaks at the soil surface when pulled. It is probably one of the biggest threats to the higher elevation native meadow/prairie systems near the project area.

Canada and bull thistle are abundant in open areas throughout the forest. Canada thistle is a colony forming perennial with deep, extensive horizontal roots and forms both male and female flowers on separate plants. Canada thistle is very difficult to control or remove; breaking up roots only increases the plants, as the fragments will re-grow to form new plants. Bull thistle is an early successional stouter biennial or perennial that reproduces by seed and establishes well in open disturbed sites, but declines as other vegetation dominates.

The following Table 9 summarizes known weed species locations relative to roads and stands that were botanically surveyed in the Niner analysis area. This list is not a complete inventory of the Huckleberry Flats OHV project area, as not all areas were surveyed for noxious weeds.

Table 9 Noxious Weed Locations Identified in the Huckleberry OHV Area

Stand/acres	Species	Location	Control measures
8001517	St. John's-wort, oxeye daisy, Canada thistle, tansy ragwort	1928 along roadside	hand-pull
80015009	St. John's-wort, oxeye daisy	1928-700 along roadside	hand-pull
8002125	St. John's-wort	in stand	hand-pull
8008325	St. John's-wort, oxeye daisy, tansy ragwort	dry openings especially larger one at north end of stand	hand-pull
8001282	St. John's-wort	1928 roadside St. John's-wort	hand-pull
8001516	St. John's-wort	within stand	hand-pull
8002004	bull thistle, St. John's-wort	OHV trails and openings	hand-pull
8001739	Rubus laciniatus	OHV trails and openings	manually grub out blackberry
8002116	St. John's-wort, bull thistle, tansy ragwort	OHV trails and openings	hand-pull
8001263	St. John's-wort, oxeye daisy, bull and Canada thistle,	OHV trails and openings	hand-pull
8001682	oxeye daisy, Canada thistle, St. John's-wort	OHV trails and openings	hand-pull
8001544	velvet grass, oxeye daisy, Canada thistle, tansy ragwort	OHV trails and openings	hand-pull
800 2371	St. John's-wort, tansy ragwort, Himalayan blackberry, everlasting peavine, Scot's broom	patch of blackberry and everlasting pea vine on 728 Rd	hand-pull tansy and St. John's-wort/grub blackberry and peavine/cutback Scot's broom
8001501	Scot's broom, St.-John's wort, tansy ragwort, evergreen blackberry	scotch broom abundant on 736 Rd, blackberry at junction of 730/710	Scot's broom cutback/grub blackberry/ hand-pull tansy and St. John's-wort
8001924	Scot's broom, St.-John's wort, tansy ragwort, evergreen blackberry	blackberry patch near 710 junction	Scot's broom cutback/grub blackberry/ hand-pull tansy and St. John's-wort
8001928 (former Buzzard unit 4 a/b)	Scot's broom, St.-John's wort, tansy ragwort, evergreen blackberry	blackberry patches along 710 Rd.	scotch broom cutback/grub blackberry/ hand-pull tansy and St. John's-wort
8002329	Scot's broom, St.-John's wort, tansy ragwort, evergreen blackberry, Canada thistle	scotch broom on Eagle Butte on old landing site mp .2 mp .5 , others along roadsides	Scot's broom cutback/grub blackberry/ hand-pull tansy, thistle and St. John's-wort
8002329	Scot's broom, St.-John's wort, tansy ragwort,	same as previous	Scot's broom, blackberry/ hand-pull tansy, thistle and

Stand/acres	Species	Location	Control measures
	evergreen blackberry, Canada thistle		St. John's-wort
8002323 (former Buzzard 11a/b/c/d)	Tansy ragwort, slender false brome (several sites on road 19 southwest of units, upstream of road 1912)	along Forest Road 19	hand-pull both species, potentially chemically treat false brome if manual measures prove unsuccessful
8001872 (former Buzzard 12a/b; 13/13b; 14)	Tansy ragwort, slender false brome (several sites on road 19 southwest of units, upstream of road 1912)	along Forest Road 19	hand-pull both species, potentially chemically treat false brome if manual measures prove unsuccessful
8002385/8002528 (former Buzzard 15/15c)	St. John's-wort, tansy ragwort	along 1928	hand-pull
8002385	St. John's-wort, tansy ragwort	along 1928	hand-pull
800224	St. John's-wort, tansy ragwort	along roadsides	hand-pull
8002243	St. John's-wort, tansy ragwort	along roadsides	hand-pull
121	Himalayan blackberry, Scot's broom, St. John's-wort, tansy ragwort, oxeye daisy, bull thistle	along roadsides	hand-pull tansy and St. John's-wort, oxeye daisy, bull thistle /grub blackberry/ cutback Scot's broom

Direct and Indirect Effects of Invasive Plants

Alternative 1 - Proposed Action

In the proposed action, the areas that would be permanently disturbed would be at risk for invasion by noxious weeds. These areas are disproportionately subject to ground disturbance and exposure to vehicles that may bring seed in, and are highly vulnerable to invasion by species highly adapted to such habitat. The majority of existing weed populations in the project area are located along transportation routes. Roads and trails are well documented as vectors of weeds and where new populations could easily establish. OHV activities increase the risk of noxious weed introduction through potential contamination from un-cleaned off-road vehicles due to transfer of seed or vegetative material caught on undercarriages, entrapped in tire tread, or caught on mud, soil or clothing worn by riders. The frequency and extent of contribution of weed spread from OHV use has not been quantified.

Upon establishment, some invasive species, as is the case with slender false brome, may then be able to move away from the open roadside and into adjacent forested land. Slender false-brome (*Brachypodium sylvaticum*) has been reported to competitively exclude other species in the understory of coniferous forests it invades, even inhibiting establishment of tree seedlings by sequestering much-needed soil moisture (Kaye, T.N. 2001). This grass is of particular concern to this project area as it has recently (spring of 2006) been reported to be growing in the watershed west of and below the project area along Forest Road 19 above Road 1912, and along the banks of the North Fork of the Middle Fork Willamette River. There is a risk that this grass will

eventually invade into adjacent areas. The location on FS Road 19 where slender false brome resides is within a proposed Niner project 170' no harvest buffer along the North Fork of the Middle Fork Willamette River. The road position within the buffer is variable with respect to unit boundaries, and distance could be as little as 20-30 feet between the road prism and units in some locations. These riparian buffers would help to isolate the slender false brome sites; the maintenance of a denser canopy adjacent to the road sites would help to limit this species from spreading into thinned stands by reducing travel potential through the more densely vegetated barrier. According to the Niner EA helicopter logging is proposed in these units. Limiting mechanical disturbance would also help to prevent facilitating spread the existing weed seed bank into the forested stands, if no other mechanized logging occurs in proximity to slender false brome locations. Currently there are no existing or planned OHV trail routes in close proximity to documented slender false brome locations.

A combination of soil disturbance and transport of seed constitutes the direct effects of new OHV trail construction on weed introduction and persistence. Alternative 1 has a slightly higher risk of increasing weeds at certain localized sites than Alternative 2, because it proposes construction of three miles of new trail where new soil disturbance could provide new seed beds, and concentrate potential weed spread in higher use areas. Conversely, conversion of current roadbed areas to OHV trail reduces some of the amount of open travel corridor to weed invasion and establishment, and changes and limits use to only class I and III vehicles. Generally speaking, risk of invasive plant growth would decrease in areas where roads and landings are closed, rehabilitated, and seeded with desirable species.

Implementation of the proposed action would reduce the potential for and amount of unauthorized cross-country travel and user-created trail development by the designation and administration of additional established routes into the national system. A consequence of unrestricted off route travel is a greater risk of weed spread in more remote areas that would be more difficult to monitor and treat. Established routes would be subject to increased localized risk of infestation. However, containment of areas of disturbance would provide better opportunity for monitoring weed populations. A reduction in the amount of and potential for disturbed ground would in turn reduce the amount of and potential for weed spread.

Alternative 2– No Action

The no action alternative will not change the threat of spread or persistence of existing invasive plant populations the project area. It is unknown whether invasive species are increasing, decreasing or stable because there is no available data on rates of weed spread on federal or non-federal lands in the watershed. Long-term data collection and monitoring of weed populations has not been done on road systems in the project area. Because no additional trails will be built, there would be no new ground opened that would provide a seed bed for invasive species. However, conversion of some of the existing roads to trail would not occur, thus reduction in width of

existing openings would also not occur. Any new invader populations found would be prioritized and treated under the WNF IWMP regardless of whether the proposed action occurred or not. For the most part, most of the established populations of weeds in the Huckleberry Flats area, such as blackberries, would remain growing unchecked and left largely unmanaged, unless other projects provided funding for larger scale treatments.

Cumulative Effects of Invasive Plants

The area analyzed for cumulative effects of invasive plants on botanical resources was the Huckleberry Flats area and includes the Niner Project planning area.

Alternative 1- Proposed Action:

Weeds most often travel along road systems, where they spread via many activities, not just those associated with OHV use. Vehicle or equipment use of any kind has the potential to spread seeds and plant material from site to site. Ground disturbance of any kind accompanied by increased solar exposure provides a likely seedbed for invasive plants. Past actions that created habitat for weeds within the project area include clear-cut and shelterwood harvesting. Road maintenance activities, on an as needed basis depending upon level of use, perpetuate habitat for noxious weeds. No new permanent roads are proposed currently or in the foreseeable future. It is unknown whether any new roads or trails are planned for private land. Road management activities associated with the Niner Project thinning prescriptions include 6.3 miles of temporary spur road construction. Other activities include approximately 45 acres of soil restoration treatments, and various fuel treatments.

The potential for OHV spread of noxious weeds to and from different land ownerships and distant areas through contaminated equipment is a related cumulative effect. The risk is reduced by route enforcement and monitoring, and good cleaning practice education and self-policing by trail users.

Alternative 2- No Action

No project activities would take place. Weeds are spread through a combination of human and wildlife activities, and natural events including wind and rain. Foreseeable activities within the project area are expected to be similar to past and current activities. Human activities that could bring noxious weed seeds onto and within federal and non-federal lands in the watershed such as recreational use (stock use, off road vehicle traffic, etc.), motor vehicle use, road construction and maintenance, forest product collection, and agriculture would all continue to occur regardless of whether or not the action alternative occurs. Incremental measures of weed infestations, whether by human or natural disturbances, cannot be accurately predicted because of all the variables involved in vectoring weeds.

Under current conditions, there is a threat of invasive plant spread through ongoing management actions. Affected acres can be quantified; however, the rates of spread and densities of noxious

weeds in the watershed cannot be reliably predicted with any accuracy. OHV use is expected to grow as the number of forest users increases. Implementation of Best Management Practices (BMPs) that are incorporated into project design can help reduce the potential direct, indirect and cumulative effects on the spread of invasive weeds. The Proposed Action incorporates all the standards associated with the 2005 Forest Plan amendment for invasive plants and the corresponding mitigation measures identified in Chapter 2. See “Mitigating Measures Common to all Alternatives”.

Monitoring noxious weeds would be accomplished through the WNF Integrated Weed Management Program, through annual review and visits to known sites that have been recorded in the forest noxious weed program GIS layer/database

Special Habitats

“Special habitats” are non-forested areas including, meadows, ponds, caves, rock gardens, talus and cliffs. These sites are important reservoirs of biodiversity and provide habitat for a wide variety of plants, fungi, and animals, many of which are not found in forested areas. In fact, while special habitats cover only about 5% of the area in the Cascades Range, 85% of native flowering plants are found in these areas (*Hickman 1976*). In addition, special habitats provide habitat for many species currently on the Region 6 Sensitive Species List.

Current Conditions

Many of the stands in the Huckleberry Flats area contain naturally occurring features that are designated as special habitats as illustrated in Table 10, below. Hardwood inclusions, scattered small wetlands and drier non-forested openings are the most common special habitats in the area. These areas provide habitat for various plant communities and contribute species diversity to the area, which is otherwise fairly uniform.

Table 10: Special Habitats Inventoried and Associated OHV Project Stands

Stand/Unit No.	Special Habitats
80015009	wet hardwood opening dominating stand, small drier opening southeastern portion below road
8008325	numerous small dry openings, seasonally inundated pool with emergent Carex/Juncus/moss community at the north end (currently typed as RT in Shab layer-need to change to seasonal pond?)
8001282	dense hardwood and shrub wetland openings, seasonally inundated wetland pockets, western redcedar cedar swamps
8002004	natural blue wildrye (<i>Elymus glaucus</i>) mesic meadow – conifer and bracken fern encroachment
8001294	large wet hardwood shrub dominated communities western and eastern ends, uncommon wet soil moss (<i>Hookeria lucens</i>) in shady wet draw
8001263	numerous dry openings dominated by bracken fern (<i>Pteridium aquilinum</i>), small seasonal wet opening near south stand boundary
8001682	small dry opening along Huckleberry Creek, wet pockets associated with creeks
8001544	numerous wet to dry pockets/openings
121	wetland opening
8001872 (former Buzzard units 11a/b, 12, 13, 14)	rock outcrop, talus
8006807	dry meadow/rock outcrop

Direct/Indirect and Cumulative Effects – Special Habitats

The area analyzed for cumulative effects on botanical resources within Special Habitats was the Huckleberry Flats area and includes the Huckleberry Flats OHV Trail Expansion project area.

Alternative 1 – Proposed Action and Alternative 2 – No Action

Unique natural features such as meadow openings, talus slopes, ponds, etc., that are designated as special habitats (SHabs) in the Huckleberry Flats area, with no or little previous history of habitat alterations caused by past management activities, are excluded from new physical disturbance. Some of the existing openings that occur within or in the vicinity of the project area thought to be the result of, or influenced by soil compaction from past use as roads, old logging corridors and staging areas, may not be considered as optimal functional habitat for many native plants. Some parts of these areas may be in proximity of, or used as OHV trails. They contain mixes of native and non-native plants, and presently some of these openings are considered marginal or non-functional habitat for many TES and Survey and Manage botanical species. The invasive plants most frequently inhabiting these areas are blackberries (*Rubus* spp.), oxeye daisy (*Leucanthemum vulgare*), tansy ragwort (*Senecio jacobea*), St John’s-wort (*Hypericum perforatum*), bull and

Canada thistles (*Cirsium* spp.) and several other common weedy grasses and herbaceous species. These disturbed areas are sources for weed spread onto and along designated trails, and into other intact special habitats. These areas would be directly enhanced through soil restoration activities, native species seeding and weed control efforts associated with the Niner Project and

St John's-wort is a serious competitor in dry meadows, and is already present and increasing in density in the dry rock garden/meadow opening that harbours the Concern species Sierra cliffbrake. Some weeds such as blackberries and false brome do not necessarily need high amounts of sunlight to persist, as do most other early successional weed species and may easily grow under tree canopies adjacent to trails. These plants may dramatically increase over time should they be allowed to increase or invade in the Huckleberry Flats area, and eventually become the most competitive weed species in SHabs and along trail routes.

No SHabs occur in direct proximity to planned new trail locations. SHabs should be sufficiently buffered from planned routes to protect microclimates and minimize direct invasive weed introduction via trail activities. No direct adverse effects on intact special habitats are anticipated as a result of implementation of the action alternative. Indirect or cumulative effects to SHabs associated with project activities, could occur through ground disturbances that would contribute to, or promote and vector invasive plant spread within the Huckleberry Flats area.

Monitoring Plan

Based upon the issues identified during the scoping process and used in the design of the alternatives, the following conditions are recommended to be used as a guide for monitoring key components of the project, should the action alternative be selected for implementation. The following items should strongly be considered for review should this project or any portion thereof be selected for formal monitoring in the Willamette National Forest monitoring program.

Recreation Opportunity (Purpose and Need and Significant Issue)

Does the project meet the intent of enhancing a motorized recreation day-use area by providing more trail miles and reduce wear on original trail system?

- Monitor user satisfaction of opportunity provided through surveys, invitation to comment, and other means of information gathering.
- Monitor use trends to predict future issues
- Monitor maintenance level on original trail system

Big Game Habitat (Purpose and Need and Significant Issue)

Does the project meet the Forest-wide S&Gs Fs-135-138, FW-152 and 153 for deer and elk management?

Detrimental Soil Conditions (Purpose and Need and Significant Issue)

Did the project meet the Forest-wide S&G FW-081 on detrimental soil conditions?

- Monitor of trail detrimental soil conditions relative to new construction
- Monitor of erosion barriers preventing soil movement into stream courses

Water Quality, Fisheries and Soil Erosion (Issue)

Did the project meet the Forest-wide S&G FW-086 on soil movement and S&G FS-088 water quality?

- Monitor implementation of the Best Management Practices for minimizing soil movement into streams and riparian areas.
- Monitor implementation of the Best Management Practices for compliance with state and federal requirements for protection of water resources and fisheries.

Invasive Plants (Issue)

- Monitor availability of trail user education relative to invasive species
- Monitor of newly disturbed soils for invasive plant starts for at least the first three years following trail construction.

Other Disclosure

Incomplete and Unavailable Information

As seen in the above environmental effects discussions, there are no quantified estimates of exactly how various species would be affected by the action alternatives in terms of population numbers or impacts to individuals. There is incomplete information regarding absolute population levels of some fish and terrestrial wildlife species, and such information is essentially unavailable because most censusing techniques are both very expensive and unlikely to generate sufficiently accurate results. In the case of fish populations, the only methods for accurately estimating the number of individuals present in a large and fast moving river are destructive (as in the use of poisons) or may cause injury or death to individuals (as in electro-shocking). Censusing for various small animals often can only be done by trapping which still does not give absolute number of individuals and traps can also cause mortality. In fact, populations can vary from year to year, and a thorough censusing effort may take more than one year to complete. In the face of this unavailable information, various indices have been used to estimate effects upon species. Often worse case scenarios analysis is used (in the case of soil erosion and the resultant

probability of stream sedimentation) to estimate harm to a species under the most unfavorable conditions.

As alluded to above, a worst case scenario has been used to estimate the amount of soil erosion that may occur. Such erosion is only likely to occur if a large storm occurs before ground vegetation is established. There is a lack of absolute predictive ability for adverse weather conditions that could cause soil erosion. Even if the weather that will be experienced while there is bare ground could be predicted, the exact amount of soil movement which could get into the stream system and create water turbidity and subsequent stream channel sedimentation cannot be predicted due to the high variability of slope roughness and residual organic material remaining on the slopes.

Resident animals within the planning area could be affected by the creation of additional OHV trails. Which, and how many, animals may be affected is not determinable because many animals move from one year to the next and this analysis and accomplishment of the proposed actions would take several years., The locations of vulnerable animals at the time of the disturbance will not be known.

Irreversible and Irrecoverable Commitments of Resources

Some irreversible and irretrievable commitments of resources would result from the proposed actions contained in all action alternatives. Some erosion or soil compaction would result from construction of new OHV trails, but the likelihood of storm-based erosion would be minimized through the mitigating measures presented above in the Alternatives section. Some soil movement and stream sedimentation could result if a large storm event occurs immediately after trail construction. Soil loss in this worst case scenario would be irreversible, but if rainfall caused only soil displacement (e. g., soil is mobilized but moves only to fill in depressions on the slope) there would be no irreversible effects.

Unavoidable and Adverse Effects

Unavoidable adverse effects from the action alternative would include some soil movement, the potential for sediment entering the stream system should there be a large storm before stabilization of new trail surfaces, and soil compaction from trail use.

Cultural Resources

The areas proposed for ground-disturbing activities have been surveyed and evaluated for the presence of cultural resources. Several areas containing these resources have been identified. The action alternative was either designed to avoid or exclude these areas from any trail development. The proposed action would have no adverse effects to cultural resources (See Project Review for Heritage Resources from State Historic Preservation Officer (SHPO) in the

Analysis File). If any cultural sites are found during any proposed activity, the activity would be discontinued, the site evaluated for significance and appropriate mitigation measures applied.

Farmland, Rangeland, and Forestland Effects

No farmland or rangeland is found in the project area, though the entire project area and a much larger area adjacent to it were grazed around the turn of the 20th century. Effects on forest land are displayed in this document for all alternatives, and are generally consistent with the management direction contained in the Willamette National Forest Land Management Plan (USDA, 1990) as amended by the Northwest Forest Plan (USAD/USDI, 1994), though if any of the proposed actions are implemented, the activities areas would not be growing a much merchantable tree volume of these stands currently have.

Consumers, Civil Rights, Minority Groups, and Women

Implementation of any alternative may not by itself have any effects upon consumers but, in combination with other recreational active is occurring in the Middle Fork District, may have an effect on the local economy, especially upon the communities of Lowell, Oakridge, and Westfir,.

The Willamette National Forest Plan FEIS (USDA, 1990a) addresses social and economic effects on pages IV-119 to 128.

Implementation of this project proposal has not been planned to either favor or discriminate against any social or ethnic group. Contracting procedures used to implement whatever decision may come from this analysis would ensure that contracts used to implement proposed actions would be advertised and awarded in a manner that gives proper consideration to minority and women-owned business groups and meet Equal Employment Opportunity requirements. Due to these considerations, there would be no direct, indirect or cumulative effects to consumers or minority groups should, any of the action alternatives be implemented.

Irreversible and irretrievable commitments as stated above are also discussed in a general sense in the Willamette Forest Plan FEIS (USDA 1990b) on page IV-178

Short-term and Long-term Effects

The short-term effects of the proposed actions are to impact resources in the planning area within thresholds established in the Willamette National Forest Plan as amended by the Northwest Forest Plan, as described in detail above. These would include a short-term degradation of the scenic conditions of the area (specifically in reference to the Young's Rock Trail) and a potential short-term increase in turbidity within the Middle Fork river should a large storm event occur before ground vegetation recovers. The action alternatives also have the long-term effect (as long as the prescribed maintenance underburning is applied) of providing some amount of open, grassy forest that would serve to maintain the original diversity in this watershed, which includes the

provision of a permanent big game forage source. No long-term adverse resource impacts are anticipated.

Chapter 4 - Consultation and Coordination

The Forest Service consulted the following individuals, Federal, State, and local agencies, tribes and non-Forest Service persons during the development of this environmental assessment:

ID TEAM MEMBERS:

Tim Bailey	Recreation Planner
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Al Johnson	Hydrologist
David Murdough	Soil Scientist
Bill Pack	Engineer
Mike Sheehan	Fisheries Biologist
B. Thomas/K. McMahan	Botanist
Stacey Smith	Ranger District Recreation Staff
C. Winkler/C. Lindberg	Archaeologist
Wendy Zustiak	Team Leader

FEDERAL, STATE, AND LOCAL AGENCIES:

US Fish and Wildlife Service
Oregon Department of Fish and Wildlife
Oregon Parks and Recreation, ATV Program

TRIBES:

Confederated Tribes of the Grand Ronde
Confederated Tribes of the Siletz
Confederated Tribes of the Warm Springs
Klamath Tribe

OTHERS:

Oregon Natural Resources Council
Cascadia Wildlands Project
Emerald Valley Trail Riders Association
Blue Ribbon Coalition
Forest Service Employees for Environmental Ethics

References Cited

- Amaranthus, M.P. and D.A. Perry. 1994. The functioning of ectomycorrhizal fungi in the field: linkages in space and time. Plant and Soil 159: 133-140.
- Boyd, M. and D. Sturdevant. 1997. The Scientific Basis for Oregon's Stream Temperature Standard: Common Questions and Straight Answers. Oregon Department of Environmental Quality. February 21, 1997.
- Byrd, K.B., V.T. Parker, D. R. Vogler, and K. W. Cullings. 2000. The influence of clear-cutting on ectomycorrhizal fungus diversity in a lodgepole pine (*Pinus contorta*) stand, Yellowstone National Park, Wyoming, and Gallatin National Forest, Montana. Canadian Journal of Botany 78: 149-156.
- Castillo, W. 2005 . A letter to Middle Fork District Ranger from ODFW, dated August 8, 2005
- Cook, J. G., L. L. Irwin, L. D. Bryant, R. A. Riggs, and J. W. Thomas. 1998. Relations of forest cover and condition of elk: a test of the thermal cover hypothesis in summer and winter. Wildlife Monographs 141.
- Cook, J. G., B. K Johnson, R. C. Cook, R. A. Riggs, T. Delcurto, L. D. Bryant, and L. L. Irwin. 2004. Effects of summer-autumn nutrition and parturition date on reproduction and survival of elk. Wildlife Monographs 155.
- Durall, D.M., M.D. Jones, E.F. Wright, P. Kroeger and K.D. Coates. 1999. Species richness of ectomycorrhizal fungi in cutblocks of different sizes in the Interior Cedar-Hemlock forests of northwestern British Columbia: sporocarps and ectomycorrhizae. Canadian Journal of Forestry 29: 1322-1332.
- Elliot, 2000. Watershed Erosion Prediction Project (WEPP). Forest Service WEPP interfaces for disturbed forestland range runoff, erosion, and sediment delivery. Agricultural Research Service, National Soil Erosion Research Laboratory. <http://forest.moscowfsl.wsu.edu/fswepp/>. Moscow, Idaho.
- Hickman 1976 in the report, not in the bot report cite list
- Kaye, T.N. 2001. *Brachypodium sylvaticum* (Poaceae) in the Pacific Northwest. Botanical Electronic News No. 277.
- Kranabetter, J.M. and T. Wylie. 1998. Ectomycorrhizal community structure across forest openings on naturally regenerated western hemlock seedlings. Canadian Journal of Botany 78: 189-196.
- Larson, D. 2005. Mike Sheehan, Fisheries Biologist, personal communications with Doug Larson, Middle Fork Ranger District, Willamette National Forest, Fisheries Biologist.
- Mediated Agreement (1988) in bot report but not in cite list
- Murdough, D. 2006. Mike Sheehan, Fisheries Biologist personal communications with David Murdough, Middle Fork Ranger District, Willamette National Forest, Soil Scientist.
- OAR. Oregon Administrative Rules, Chapter 340, Division 41. Oregon Department of Environmental Quality
- OPRD, 2003. Oregon Statewide Comprehensive Outdoor Recreation Plan, 2003-2007. Oregon Parks and Recreation Department, Salem, Oregon. January, 2003.

Parker, K. L., M. P. Gillingham, T. A. Hanley, and C. T. Robbins. 1999. Energy and protein balance of free-ranging black-tailed deer in a natural forest environment. *Wildlife Monographs* 143.

Terrestrial Fauna Biological Analysis/Biological Evaluation for the Huckleberry Flats OHV Trail Expansion Project (Quintana/Lunstrum, 2006)

USDA Forest Service, Willamette National Forest, Middle Fork Ranger District 2007. Appendix B, Niner Project Environmental Assessment, prepared by Gary Marsh.

USDA, 1973. Willamette National Forest, Soil Resource Inventory (SRI) prepared by Legard and Meyers, 1973 (updated 1992).

USDA Forest Service 1990. Willamette National Forest Land and Resource Management Plan. Willamette National Forest, United States Department of Agriculture Forest Service. Eugene, Oregon, 1990

USDA Forest Service. 1990. Forest Service Manual: FSM Off-Road Vehicle Use Management, 2355.12 - Analysis of Management Situation

U.S. Department of Agriculture, U.S. Department of the Interior.

1994a. Final Supplemental Environmental Impact Statement on Management of Habitat for Late-successional and Old-growth Forest Related Species Within the Range of the Northern Spotted Owl.

1994b. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl.

USDA, 1995. North Fork of the Middle Fork of the Willamette River Watershed Analysis. Willamette National Forest, Oakridge Ranger District, Oregon.

USDA Forest Service. 1996. Willamette National Forest Special Habitat Management Guide. Dimling Lippert, J. and McCain C.

USDA Forest Service 1998. Lower North Fork of the Middle Fork Willamette River, Level II Hankin and Reeves Stream Survey. Willamette National Forest, Middle Fork Ranger District, Westfir, OR.

USDA, Forest Service, 1998. Forest Service Manual. R-6 Supplement No. 2500.98-1. effective August 24, 1998.

USDA Forest Service, February 2, 1999. Invasive Species Executive Order 13112. Washington DC: Federal Register. 64 (25)

U.S. Department of Agriculture, Forest Service. 1999. Integrated Weed Management Plan, Willamette National Forest.

USDA Forest Service. 2001. Guide to Noxious Weed Prevention Practices.

USDA Forest Service 2004. Middle Fork District Supplemental Roads Analysis, Westfir, OR 97492

USDA 2004. Noxious Weed Control and Eradication Act. Public Law 108-412.

USDA Forest Service, USDI Bureau of Land Management. 2004. Record of Decision to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines in Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. March 2004

USDA Forest Service 2005. Willamette National Forest Noxious Weed Prevention Guidelines, Willamette National Forest.

U.S. Department of Agriculture, Forest Service PNW Region, 2005. Final EIS for Pacific Northwest Region Invasive Plant Program, Preventing and Managing Invasive Plants

USDA Forest Service. 2005 Travel Management Rule, 36CFR, Parts 212, 251, 261, 295

USDA June 2005. National Survey on Recreation and the Environment

USDA/USDI, 2005. Northwest Forest Plan Temperature TMDL Implementation Strategies – Evaluation of the Northwest Forest Plan Aquatic Conservation Strategy and Associated Tools to achieve and maintain stream temperature water quality standards. USDA Forest Service and USDI Bureau of Land Management. 52p.

Wisdom, M. J., L. R. Bright, C. G. Carey, W. W. Hines, R. J. Pedersen, D. A. Smithey, J. W. Thomas, and G. W. Witmer. 1986. A model to evaluate elk habitat in western Washington. Publication No. R6-F&WL-216-1986. USDA Forest Service, Pacific Northwest Region, Portland, OR.

Wisdom, M.J., A.A. Ager, H.K. Preisler, N.J. Cimon, and B.K. Johnson. 2005. Effects of off-road recreation on mule deer and elk. Pages 67-80 *in* Wisdom, M.J., Technical Editor, The Starkey Project: a synthesis of long-term studies of elk and mule deer. Reprinted from the 2004 Transactions of the North American wildlife and Natural Resource Conference, Alliance Communications Group, Lawrence, Kansas, USA

Zustiak, W. 2005. Mike Sheehan, Fisheries Biologist, personal communications with Wendy Zustiak, Middle Fork Ranger District, Willamette National Forest, Hydrology Technician

Appendices

Appendix A - Legal and Policy Requirements, and other NEPA Decisions

The action alternatives all comply with the following legal and policy requirements as follows:

Federal Laws and Policies:

The National Historic Preservation Act of 1966---All areas proposed for ground-disturbing activities have been surveyed for the presence of cultural resources. All surveyed and inventoried cultural resource sites in the project area will be protected by avoidance. See the Project Review Form Heritage Resources document in the Analysis File for more information.

The National Environmental Policy Act (NEPA), 1969---NEPA establishes the format and content requirements of environmental analysis and documentation such as the Huckleberry Flats OHV Trail Expansion Project analysis. The entire process of preparing an environmental assessment was undertaken to comply with NEPA requirements, as codified by 40 CFR 1501 and the Forest Service Handbook 1909.15, Chapter 40.

The Endangered Species Act, December 1973, as amended ---There are three species of animals listed as threatened under this Act that occur or utilize habitat within or adjacent to the project area. These are Chinook salmon, bull trout, and the northern spotted owl. There are no plants listed as threatened or endangered that have been found to occur in the area (see the project's Botany Biological Evaluation, [McMahan, 2006], in the Analysis File).Field surveys for all listed endangered, threatened, or sensitive species has been conducted to determine possible effects of any proposed activities in the planning area. Discussions of the effects on these species can be found in the Environmental Consequences section of this document under Water Quality/Fish Habitat, and Wildlife. More in depth discussions of habitat conditions, survey techniques and project effects are contained in the Fisheries Biological Evaluation (Sheehan, 2005) the Fisheries and Watershed Report (Murdough, et. al.,2005), and the Terrestrial Faunal Biological Evaluation (Quintana 2006) contained in the Analysis File for this project.

The National Forest Management Act (NFMA), 1976----All alternatives were developed to be in full compliance with NFMA via compliance with the Willamette National Forest Land and Resource Management Plan, as amended, with the exceptions as discussed below and in Section III. F. of this document which will require a Nonsignificant Forest Plan amendment to exempt this project from several trail and scenic management standards and guidelines. This EA contains numerous references as to how this project complies with Forest Plan and Northwest Forest Plan standards and guidelines, usually parenthetically. See also the discussion below regarding compliance with FSH 1909.

The Clean Water Act, as amended in 1977 and 1982---The alternatives all meet and conform to the Clean Water Act, Amended 1982. This Act establishes a non-degradation policy for all

federally proposed projects. None of the action alternatives would degrade water quality below standards set by the State of Oregon. This is accomplished through project design and planning, application and monitoring of Best Management Practices (BMPs; see the mitigating measures discussed above), and adherence to the Northwest Forest Plan's Aquatic Conservation Strategy Objectives (See the Fisheries and Watershed Report (Murdough et. al., 2006) and the water quality discussion in this EA under Issue #3). This project is in compliance with the Total Maximum Daily Load Implementation Plan (USDA/USDI, 2005), in that the action alternatives would retain riparian buffers to avoid increases in water temperature

Clean Air Act as Amended in 1990---The action alternatives are designed to meet the National Ambient Air Quality Standards, as per direction from the Oregon Smoke Management Act, since no burning is proposed.

Consistency with the Forest Plan: This proposal is in compliance with the Forest-wide and Management Area standards and guidelines presented in Chapter IV of the Forest Plan, as cited throughout this EA and the documents within the Analysis File (see also the detailed discussion below under Other NEPA Decision documents), aside from exceptions as discussed in Alternatives section of this document.

Factors of Significance for Forest Plan Amendment:

Implementation of the action alternative includes a Nonsignificant Forest Plan Amendment to provide for compliance with big game habitat conditions standards and guidelines by reclassifying the Big Game Management Area the project occurs within to a low emphasis area and changing the emphasis of the Christy South BGEA to a high emphasis area to compensate for the reduced quality of habitat that the project area would provide. Such a Forest Plan amendment has been determined to be nonsignificant based upon the following factors specified in FSH 1909.12.

Timing – The Forest Plan was approved in 1990 so it is now over 15 years old. It is currently scheduled for a revision to be completed in 2011. Given the upcoming revision, the import of these changes would be small. While it is not possible to predict what issues will or will not be considered in the upcoming Forest Plan revision, it is likely that all allocations will be reviewed from possible changes

Location and size – This exemption from certain standards and guidelines would be applied only to the two BGES mentioned above, which are equivalent to approximately one percent of the Willamette National Forest.

Goals, objectives, and outputs – This amendment would not have any effect upon the production of goods and services projected by the Forest Plan. Given the small percentage of the Willamette National Forest that this project represents, there would be virtually no effect at the Forest level.

Executive Orders

#11988 – Floodplain Management, and #11990 – Protection of Wetlands: These orders direct Federal Agencies to avoid, to the extent possible, both short-terms and long-term adverse impacts associated with the modification of floodplains and wetlands. None of the alternatives presented above have specific actions that adversely affect floodplains. Proposed activities comply with these orders and USDA Departmental Regulation 9500-3. See the discussions above regarding fisheries, soils, and watershed effects for more information.

#12898, Environmental Justice: The Huckleberry Flats OHV Trail Expansion Project is located about 6 miles north of the Cities of Oakridge, and Westfir, and about 43 miles southeast of the City of Lowell, in Lane County, Oregon. These communities have minority populations of 7%, less than 1%, and 8%, respectively. Lane County, in its entirety, has a minority population of 9%, (U.S. Census Bureau, 2000).

Approximately 11.5% of the population of the City of Lowell is at or below poverty level; approximately 14.5% of the population of the City of Oakridge is at or below the poverty level, while 12.2% of the City of Westfir's population is at or below poverty level, (U. S. Census Bureau, 2000). According to information from the Oregon Economic and Community Development Department (OECDD), Lane County, (excluding areas within the city limits of Eugene, Springfield, Coburg and Dunes City), is rated 1.30, (threshold 1.20), on the distressed area index.(OECDD, 2002). These Cities, as well as much of Lane County, have experienced a significant decline in timber-based jobs over the past decade, contributing to factors used to determine distressed community status.

Implementation of any alternative is not expected to impose a disproportionately high or adverse effect to those populations.

Subsistence and cultural use levels are difficult to quantify and differential patterns of subsistence consumption are unknown at this time. However, the Forest provides access to firewood, Christmas trees, mushrooms and other consumables through a personal-use permit system. Middle Fork Ranger District records indicate the following for 2002: permits were sold for 829 cords of firewood; 2,057 Christmas tree permits were sold; and 490 personal-use mushroom permits were sold. All action alternatives would provide for continued or restoration of historic cultural use by Native Americans.

Road closures may impact subsistence in the immediate project area, but these impacts would be mitigated by the availability of other access routes throughout the area.

The Willamette National Forest has Memorandums of Understanding (MOU) with the Confederated Tribes of the Grand Ronde, the Confederated Tribes of Warm Springs, and the Confederated Tribes of Siletz. These MOUs provide a mechanism for regularly scheduled consultations on proposed activities. Beyond this, the Forest notifies and consults with tribal governments in a manner consistent with the government-to-government relationship on any matters that ripen outside of the meeting schedule. The Willamette National Forest does not

currently have an MOU with the Klamath Tribe, but the tribe has been consulted regarding this proposal. Several tribal organizations with the State of Oregon which have historic interests in this area have been contacted in reference to this planning effort. Several (in particular the Grand Ronde Tribe) have visited the project area and have expressed interest in and support of this project.

#12962 – Aquatic Systems and Recreational Fisheries: This Order was made to conserve, restore, and enhance aquatic systems to provide for increased recreational fishing opportunities. It requires Federal agencies to evaluate and document the effects of federally funded actions on these resources and opportunities. There is potential for sediment input into streams from the proposed actions, as discussion above in details in the water quality sections. These effects would be short-term and would not threaten fish species or population levels. Mitigating measures have been applied in all action alternatives to minimize the potential of detrimental effects to fish species. These measures include provision of untreated riparian buffers along all stream classes, provision of various erosion control structures along OHV trails, and restriction of trail maintenance work to dry periods. These mitigating measures are consistent with current management guidelines including the Forest Plan Standards and Guidelines (USDA, 1990a, pages IV-59 to 65), the Aquatic Conservation Strategy Objectives contained in the Northwest Forest Plan (USDA/USDI, 1994, page B-11) at the watershed level, and the Federal Clean Water Act. Implementation of required and standard Best Management Practices (USDA, 1988) would ensure protection of aquatic resources and fishing opportunities under all alternatives

#13007 – Indian Sacred Sites and #13084 – Consultation and Coordination with Indian Tribal Governments: The Confederated Tribes of the Grand Ronde, the Confederated Tribes of Warm Springs, the Klamath Tribe, The Cow Creek Band of the Umpqua Tribe of Indians, and the Confederated Tribes of Siletz were notified of the project during scoping of issues and development of alternatives as part of the Public Participation process. No specific sacred sites have been identified that would be affected by the proposed actions. No impacts, as outlined in the Indian Religious Freedom Act, are anticipated in terms of American Indian social, economic, or subsistence rights. The proposed actions would serve to restore a vegetation assemblage that is important to local tribal groups and may provide future subsistence gathering opportunities.

#13112 – Invasive Species: This Order requires Federal Agencies whose actions may affect the status of invasive species to prevent the introduction of invasive species, detect and respond rapidly to and control populations of such species, and provide for restoration of native species and habitat conditions in ecosystems that have been invaded, as well as other various requirements. The proposed actions all carry mitigating measures to assure invasive species do not move into the area as discussed above under the Vegetation effects section.

#13186 – Migratory Birds: This Executive Order, entitled “responsibilities of Federal Agencies to Protect Migratory Birds, requires that environmental analysis of Federal actions evaluate the effects of actions on migratory birds, with emphasis on species of concern.

The primary effect of the proposed actions would be noise disturbances. Such effects are addressed in the Wildlife effects discussion above, as well as in the Terrestrial Wildlife report and Biological evaluation contained in the project’s Analysis File (Quintana, 2005). When taken in the context of the watershed, the effects of any proposed actions are negligible.

State Laws:

Oregon State Best Management Practices (BMPs). State BMPs are employed to maintain water quality (see the Cumulative Effects Report, page 24 - 27 and the Mitigation measures listed in Chapter II of this EA and USDA, 1988c).

Consultation with the Oregon State Historic Preservation Officer (SHPO). SHPO has been consulted concerning proposed activities in the Huckleberry Flats OHV Trail Expansion Project Area. The Advisory Council on Historic Preservation (ACHP) has been consulted about measures to protect significant archeological sites from adverse affects (see the Project Review for Heritage Resources Form in the Analysis File).

The Oregon State Water Quality Regulations (DEQ, 2004). These regulations dictate how water resources are to be managed and protected; see the Fisheries/Watershed Report (Murdough and Sheehan, 2005) in the project Analysis File.

Other NEPA Decision Documents:

The Willamette National Forest Land and Resource Management Plan (USDA, 1990a; as amended by USDA/USDI, 1994) played a major role in determining the Purpose and Need and in the development of all the alternatives. As mentioned above, the action alternatives comply with all aspects, standards, and guidelines of the Forest Plan aside from exceptions as discussed in section III. F. of this document which will require a Nonsignificant Forest Plan amendment to reclassify two Big Game Emphasis Areas. Rationale for compliance with these requirements can be found in the Wildlife Effects section above, and the Terrestrial Wildlife Report (Quintana, 2005) contained in the project’s Analysis File, and in the above discussion on compliance with Federal Laws and Policies in this section. This analysis is tiered to the Final Environmental Impact statement for the Forest Plan (USDA, 1990b).

Programmatic Analyses:

The Watershed Analysis for the North Fork of the Middle Fork of the Willamette River (USDA, 1995); identified the needed activities and mitigation measures to comply with the Aquatic Conservation Strategy Objectives).

The Willamette National Forest Road Analysis Report (USDA, 2003) and the Middle Fork District Supplemental Road Analysis (USDA 2004) recommended which system roads should remain open to facilitate management and public use and which should be closed to reduce maintenance costs and resources risk. The Forest Road Analysis provides decision makers with information needed to identify and manage a minimum road system that is safe and responsive to public needs and desires, is affordable and efficient, has minimal adverse effect upon ecological processes and ecological health and productivity of the land, and is in balance with available funding for needed management actions. It provided recommendations for key roads that should remain open and well maintained as well as recommendations of roads that should be considered for closure.

The District road analysis evaluated each road segment on the District relating to terrestrial, aquatic, administrative, and public use factors. Based upon that rating system, road closure recommendations for the Districts road system were made in the Middle Fork District Supplemental Road Analysis.

Appendix B – Cumulative Effects of this Project

The Forest Service Handbook (FSH 1909.15 Chapter 10 15.1) requires consideration of cumulative impacts in an environmental analysis. Cumulative effects are defined as the impacts on the environment resulting from incremental effects of the action when added to other past, present, or reasonably foreseeable future actions. Reasonably foreseeable future actions are those for which effects can be accurately estimated, typically actions that have been formally proposed, and have a specific locations and acreage associated with them. These actions may take place after the effects considered in this analysis occur. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

In some cases there are no accumulating effects on a particular resource from past or future actions because the effect on a given resource are so ephemeral (for example smoke produced by prescribed burning) that it is gone before the next action produces a similar effect. In other cases, there have not been any past nor reasonably foreseeable future actions that had or may have a similar effect to the actions under consideration. Council of Environmental Quality guidelines (Cannaughton, 2005) for cumulative effects analyses do not require a cataloging or exhaustive listing of individual past actions.

The above alternative effects narratives include cumulative effects from past actions specific to each issue and/or environmental component. Each cumulative effects analysis for each resource or environmental component has been done for a different area to best characterize the effects on a given resource. For example, the effects on big game were done for the Big Game Emphasis Area defined by the Forest Plan, while fisheries or watershed issues were analyzed at the Watershed level. Regardless of the resource, past actions that have been accounted for in these cumulative effects analyses primarily comprise past even-aged harvest and associated road construction as it is these activities that typically have had direct and relatively long-lasting effects on fisheries and wildlife habitat, and water quality. In addition, and specific to the fisheries resources, the construction of the Lookout Point and Dexter dams and reservoirs were also taken into account in assessing the cumulative effects on fish populations. All the cumulative effects analysis areas that have been used in this analysis are within the Fifth-field watersheds that comprise the lower portions of the North Fork river drainage. The following information is provided to give an idea of what past activities have occurred with these watersheds, and which were used in calculating cumulative effects of past actions for the various cumulative effects analyses.

The North Fork watershed contains a total of about 158,000 acres, or 247 square miles. Within this area, about 39,000 acres (or 25%) have been harvested with even-aged, regeneration harvest techniques since forest management activities began about 60 years ago. A total of about 570 miles of road has been constructed in this area, primarily to facilitate the harvest activity. This equates to an average road density of 2.3 miles per square mile. Any future action proposed in

this planning area would be in compliance with Forest Plan standards and guidelines designed to keep cumulative effects from preventing the achievement of desired future conditions.

The most recent project that will accumulate effects within the trail expansion project area is the Niner Thinning Project, 2007. To summarize, the Niner Thinning Project will:

- commercial thin 50mmbf of timber on 3,328 acres
- 50% of those acres will be tractor yarded; 37% skyline yarded and 13% helicopter yarded
- 217 acres of landings and skid trails will be tilled
- 14 acres of roads will be closed and an additional 7 acres of roads will be partially closed and restored

Refer to Appendix B in that document for a list of past, present and foreseeable activities in the North Fork of the Middle Fork River watershed.