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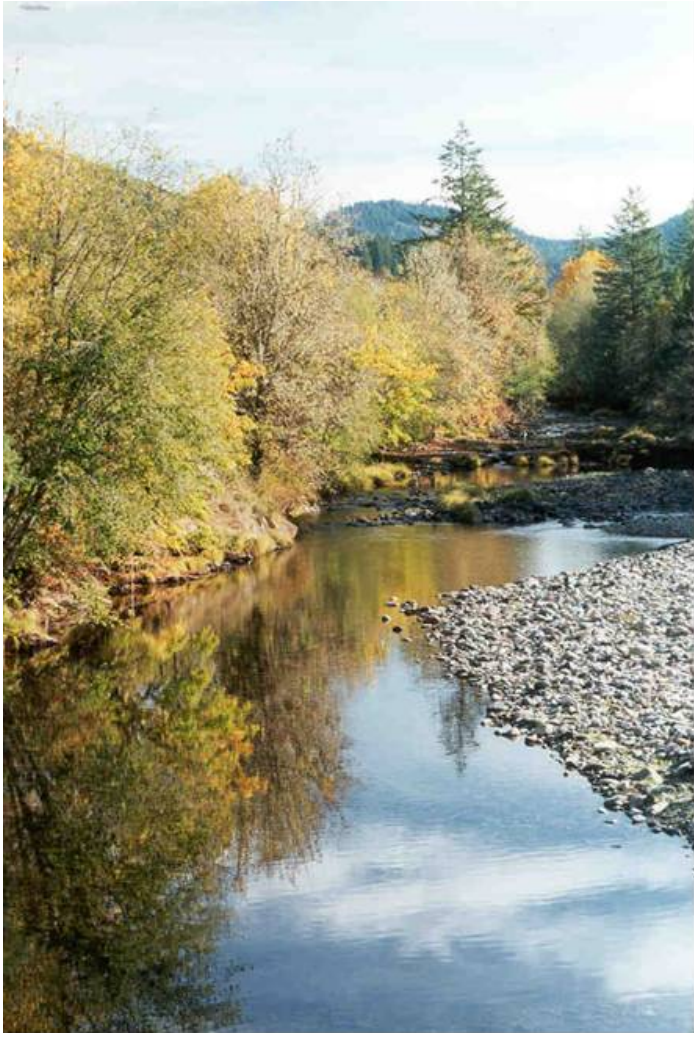
Environmental Assessment for Rujada Camp Vegetation and Infrastructure Management Plan

Umpqua National Forest



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ENVIRONMENTAL ASSESSMENT

Rujada Camp Vegetation and Infrastructure Management Plan

COTTAGE GROVE RANGER DISTRICT
UMPQUA NATIONAL FOREST
LANE COUNTY, OREGON
January 30, 2004

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ABSTRACT

The purpose of this Environmental Assessment (EA) is to document an environmental analysis necessary to lead to the decision to approve the Rujada Camp Vegetation and Infrastructure Management Plan project as proposed for Rujada Camp. The Plan proposes selective tree removal and a range of infrastructure expansion at Rujada Camp, an existing developed recreation site located in the Layng Creek 6th field watershed of the Cottage Grove Ranger District. Three alternatives were analyzed. The alternatives include (1), the no-action alternative; (2), a proposed action alternative with selective tree removal and maximum camp capacity development; and (3), a proposed action alternative with selective tree removal and a lower level of camp capacity development.

The environmental policies and procedures specified in the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations (40 CFR, Chapter V) were used in developing this Environmental Assessment.

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Chapter 1 – Purpose and Need for Action

Background

Discussion on the vegetative health of the timber stand and also the overcrowding conditions occurring at Rujada Camp has occurred since the 1990's. In 1999 resource specialists began preliminary field reviews to determine the need of various projects. On January 20, 2000 a project Initiation letter from District Ranger, Deborah G. Schmidt, was written identifying the formation of an Interdisciplinary Team (IDT) of resource specialists on the Cottage Grove Ranger District to complete an Environmental Assessment for the Rujada Vegetative and Infrastructure Management Plan. IDT meetings began in February of 2000 and additional field reconnaissance work began in the summer of 2000.

IDT meetings were held in the office and/or in the field during the calendar year of 2000 on the following dates: February 3, March 2, March 21, May 1, June 26, July 12, July 18, October 19, November 29, and December 29. During this time, issues were developed; alternatives were developed and analyzed, resource specialists submitted specialist reports addressing the alternatives, and a draft EA was partially completed. A draft EA was competed and on July 19, 2001 the IDT met to review the EA and suggest changes or edits.

The original timeline was to complete the EA December 30, 2000 however due to workload and transfer of the EA writer, the project was delayed. Due to lack of personnel and funding the EA was temporarily postponed until May 28, 2003. On this date the original IDT members and key resource specialists reconvened at a field meeting to review and complete the project. The draft Environmental Assessment and supporting documentation were reviewed to determine what steps were necessary for completing the project. Revisions to Chapters 1 and 2 were made to update the proposed action with current existing conditions and specialists reviewed and revised reports to be incorporated in the final EA.

Introduction

This Environmental Assessment (EA) was developed under the implementing regulations of the National Environmental Policy Act (NEPA) and addresses a proposal for vegetation management and facility expansion of Rujada Camp, including the camping and picnic areas, located in Section 31 of Township 21 South, Range 1 East, W.M., on the Cottage Grove Ranger District of the Umpqua National Forest – See Figure 1, Vicinity Map, and Figure 2, Rujada Camp Site Map. Rujada Camp is approximately 9 acres in size and includes a 6-acre, eleven-unit, plus host unit, camping area and an adjoining 3-acre day use picnic area, each with associated site facilities. Rujada Camp in its entirety is also located within the Layng Creek Riparian Reserve.

Rujada Camp is an existing developed recreation site administered at a standard service level where public safety and infrastructure improvements are authorized and directed by the 1990 Umpqua National Forest Land and Resource Management Plan (LRMP), as amended. As authorized under NEPA, the Forest Service has determined that the degree to which this action (Rujada Camp Vegetation and Infrastructure Management Plan) could affect various natural resources warrants the preparation of an EA. One function of analysis documented in this EA will be to provide evidence of whether significant environmental effects may occur, requiring the need for an Environmental Impact Statement.

Action Being Analyzed

Rujada Camp Vegetation and Infrastructure Project is the proposed implementation of the Rujada Camp Vegetative Management Plan, proposing to apply a silvicultural treatment of selective tree removal/improvement thinning. This treatment will reduce the stand stocking levels to promote

tree health and resiliency to insects, disease, and recreational use. The Rujada Camp Vegetation and Infrastructure Project also propose the expansion and upgrading of Rujada Camp through the creation of additional camp sites and other improvements. The project as proposed would use existing roads for access and project implementation.

The Umpqua National Forest, Cottage Grove Ranger District, proposes to fulfill all legally mandated environmental analysis and statement requirements, including the establishment of mitigation activities to minimize potential adverse effects on National Forest System natural resources and existing recreation opportunities.

Purpose and Need

The Purpose and underlying Need for action is to promote timber stand health and vegetative diversity in an effort to reduce insect and disease related mortality; to develop stand resiliency to noxious weeds and recreational use; and to increase user capacity by providing for additional recreational improvements and expansion for the increasing recreational use occurring in Rujada Camp.

Currently, the timber stand in Rujada Camp is densely stocked and tree health and vigor is declining. There is a need to perform selective tree removal of trees from 4-inches diameter at breast height (DBH) and larger. Performing this treatment should: 1) improve tree health by reducing competition for nutrients and sunlight, 2) promote species and structural diversity, 3) reduce mortality from insect and disease, and 4) promote understory vegetation development.

Existing recreation facilities are at times inadequate to meet the demands of increasing recreation use that typically occurs during weekends and holidays. Additional campsites are needed to prevent overcrowding of existing campsites that often results in resource damage. Increased developed capacity will also minimize the risk of camping in adjacent undeveloped dispersed sites.

Actions proposed within the project area, meet ACS objectives, address issues identified through public scoping, and improve recreational experiences.

Management Direction

This analysis is tiered to the 1990, Record of Decision (ROD) for the Umpqua National Forest Land and Resource Management Plan (LRMP) and Final Environmental Impact Statement, as amended by the 1994, Record of Decision for the Pacific Northwest Forest Plan.

According to the Umpqua National Forest LRMP (pg. IV-11), the Forest goals for Recreation are "to provide a broad spectrum of dispersed and developed recreation opportunities to all segments of society." Forest objectives are listed in the LRMP, page IV-11 and include objectives to manage Rujada Camp under the Standards and Guidelines assigned by the Recreation Opportunity Spectrum (ROS) development level of roaded-natural.

Multiple-use resource management Standards and Guidelines for Recreation are listed in their entirety in the LRMP, chapter IV, page 12. A few Standards and Guidelines that are more applicable to the Rujada Camp Vegetative and Infrastructure Project include the following:

- "Sites will be administered and maintained to provide visitor safety, sanitation, and protection of facility and site resources."

- "Consider the needs of elderly and physically challenged users in all construction or reconstruction of developed sites in accordance with Forest Service Manual (FSM) direction."

The Umpqua National Forest LRMP identifies Rujada Camp Vegetation and Infrastructure Project as being located within Management Area 10, assigned as emphasis for timber production. However, existing developed recreation sites within this management area, such as Rujada Camp, are addressed in the Umpqua National Forest (LRMP IV-156) under Prescription A4-III, Existing Developed Sites at Standard-Service Level. This prescription applies to areas such as Rujada "where physical improvements have been developed and cleanup and maintenance will be provided at regularly scheduled intervals to provide user comforts as well as to meet health and safety needs." A few applicable Resource directions under this prescription include (LRMP, IV – 156):

- Vegetation management guidelines under Timber do not allow for regularly scheduled timber harvests. "Commercial salvage sales are encouraged to provide for hazard tree removal. Vegetative Management Plans will be prepared for sites where timber stands are susceptible to catastrophic insect or disease situations." No commercial or personal-use firewood cutting is allowed, although gathering of firewood is allowed for onsite recreational use.

- "Manage for wildlife and fish concerns compatible with developed recreation."

The Northwest Forest Plan Record of Decision (ROD) identifies the project area as an Administratively Withdrawn Developed Recreation Site located within a Riparian Reserve allocation and surrounded by adjacent matrix allocation lands. Riparian Reserves are lands along all streams, lakes, ponds, wetlands, unstable and potentially unstable areas that are subject to special Standards and Guidelines under the Northwest Forest Plan designed to conserve aquatic and riparian-dependent species. Standards and Guidelines apply to activities in Riparian Reserves that may otherwise retard or prevent attainment of Aquatic Conservation Strategy (ACS) objectives. Rujada Camp Recreation Site is located in the 6th field watershed of the Layng Creek drainage, a tributary to Row River, and is not designated as a Key Watershed under the Northwest Forest Plan.

The riparian width along fish bearing streams, such as Layng Creek, is 400 feet on each side having a total width of 800 feet. In developed recreation sites within Riparian Reserves, trees are to be felled when they pose a safety risk. Felled trees are to be kept on site when needed to meet coarse woody debris objectives (ROD, C-37).

Standards & Guidelines for timber management in Riparian Reserves permit the salvage harvest of timber and fuel-wood cutting to attain ACS objectives where catastrophic events such as fire, flooding, volcanic, wind, or insect damage results in degraded riparian conditions. The salvaging of trees is allowed only when a Watershed Analysis determines that present and future coarse woody debris needs are met and other ACS objectives are not adversely affected. The purpose is to restore the physical integrity of the aquatic system, including shorelines, banks, and bottom configurations. Silvicultural practices may be applied to Riparian Reserves to control stocking, reestablish and manage stands, and acquire desired vegetation characteristics needed to attain ACS objectives (C-31 and 32).

The Layng Creek Watershed Analysis (WA) was conducted for the Layng Creek 6th field watershed in October of 1995. This document provides a basis for recommendations, including watershed, transportation, aquatic biota, vegetation management, botany, fire management,

wildlife, societal (recreation) and minerals opportunities. Item #7 of the Societal Recommendations (page 121) recommends that Rujada Campground be maintained and operated as the "most developed campground on the district". The Layng Creek WA also indicates that "the majority (58%) of the Riparian Reserves in Layng Creek are in a pole/sapling stage" and recommends "thinning to promote larger diameter trees that may help achieve ACS objectives and provide commodities at the same time" (Chapter 5, page 89). The Layng Creek Watershed Analysis is incorporated by reference to this analysis.

Dispersed and developed recreation practices within Riparian Reserves must be consistent with the Aquatic Conservation Strategy (ACS) objectives and follow Watershed Analysis (WA) recommendations. Recreational activities that retard or prevent attainment of ACS objectives must be adjusted, relocated, or eliminated. Adjustment measures include, but are not limited to, education, use limitations, increased maintenance, and specific site closures.

The Endangered Species Act, National Environmental Policy Act, Wild and Scenic Rivers Act, National Forest Management Act, Clean Water Act and Organic Act also apply to the selection of alternatives for the approval of vegetative manipulation and site improvement and recreation facility expansion.

Decision to Be Made Based on This Analysis

Based on the analysis documented in this environmental assessment, District Ranger Deborah G. Schmidt, Cottage Grove Ranger District, will make the following decisions:

Should the Rujada Camp Vegetation and Management Project proposing selective tree removal and infrastructure expansion in the Layng Creek 6th field watershed be approved as proposed, or should it be modified to further minimize adverse impacts to natural resources, or should there be no change in current management and existing condition?

What management requirements, mitigation measures, and monitoring are necessary to achieve vegetative and recreation resource goals and objectives?

Can a finding be made that the project "attains" or "does not prevent attainment" of the Aquatic Conservation Strategy objectives as described in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl (Pacific Northwest Forest Plan and ROD)?

Planning Process

The environmental policies and procedures specified in Forest Service Handbook (FSH) 1909.15 were used in developing this Environmental Assessment. Following these policies and procedures insures compliance with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality (CEQ) regulations (40 CFR, Chapter V).

The immediate area that site disturbing activity will occur will be considered the Rujada Camp Planning Area and will be used as the scope of analysis in order to evaluate many of the effects of the proposed activities.

Issues Associated with the Proposed Action

Scoping

The critical process of issue identification is termed scoping (40 CFR 1501.7). Scoping is done internally among agency staff and those involved in developing a proposed action, and externally

among interested members of the public. Public involvement in the scoping process is required by NEPA regulations [40 CFR 1501.7 (a) (1) and 1506.6]. The public involvement process was initiated by publishing the Rujada Camp Vegetation and Infrastructure Management Plan proposal in the quarterly Schedule of Proposed Actions (SOPA), in the Umpqua National Forest newsletter and sending a copy of the proposed action to publics that requested it. This proposal was first published in the April 1, 1999 SOPA and has been published in each SOPA since then. To date, 7 requests for information were received and to date no relevant issues have been received from the public.

In addition to the SOPA publication, flyers/handouts listing potential projects, along with a map of the campground, were distributed to Rujada Camp visitors during the 1999 and 2000 recreation seasons to solicit public input for this project. As the result of this solicitation, 19 comments were received. Information was also released to the local media and displayed at the 1999 and 2000 Cottage Grove Ranger District open houses.

Throughout the scoping and planning process, a total of 12 Inter-disciplinary Team meetings were conducted either at the Cottage Grove Ranger Station or in the field at Rujada Camp. Recreation, Botany, Heritage, Visual, Fisheries/Hydrology, Fire, Timber, and Wildlife Resources were scoped for concerns and issues. Specialist involvement and public comments to the proposed action were used to identify potential issues related to this project. During this scoping process concerns with the Proposed Action were acknowledged and many of the concerns could be resolved through management requirements, mitigation and recommendations. The IDT and the responsible official determined which concerns or issues were relevant to the project proposal and alternatives to the proposed action and criteria for measuring each alternative were then developed from the relevant issues.

The following relevant issues have been identified and are tracked through alternative descriptions in Section 2, and Environmental Effects in Section 3 of this EA.

Effects on Current Recreational Experiences

User demand for overnight camping at Rujada frequently exceeds site capacity. Modifying existing campsites to improve parking and use of existing site amenities by a variety of recreational users and creating additional campsites within the current boundaries of the camping area may affect overall recreational experience by increasing user capacity, impacting user privacy, and affecting available common space within the camping area. Modifications might influence the frequency of RV visits, thus having an effect on the tent camping atmosphere of the campground.

Effects on Riparian Reserve and Water Quality

Rujada Campground is within a Riparian Reserve and the Layng Creek Watershed. Layng Creek is on DEQ 303(d) list for exceeding State Standards for temperature. Selective tree removal, site alterations and development must be consistent with ACS (Aquatic Conservation Strategy) objectives. Removing live vegetation and increasing user capacity may affect the riparian reserve and may affect water quality through sedimentation.

Other Concerns

Concerns identified during the scoping process that were not significant to the proposed action, not resolved by the Forest Plan, or were beyond the scope of this project are listed here. Alternatives to specifically address these issues were not developed.

Wildlife

- What will be done with the trees that are going to be felled for safety and/or selective removal reasons and will additional wildlife trees be left in their place?
- How will the downed woody mitigation be achieved?
- How will lack of snags for wildlife habitat be mitigated?

Botany and Noxious Weeds

Many noxious weeds and other nonnative plants occur adjacent to the forest boundary on private land and along roadways on the forest. Small pockets of Himalayan blackberry are located within the campground. The introduction of noxious weeds and other invasive weed species are a result of vehicle travel and ground disturbing activities. Scot's Broom and Himalayan blackberry are the two species of concern in this area.

Noxious and invasive plant seeds germinate following ground disturbing activities. Seed sources that border the campground have been identified, and the presence of dormant seeds within the stand is believed to be moderate to high.

There is a need to control noxious weeds within the Rujada Camp area, along with prevention of new weed introductions to the site.

- How will new noxious weed invasions and spreading of seeds from adjacent private land be prevented?
- How will disturbed soils be re-vegetated and with what species?

Heritage Resources

- What is the historic significance of the remaining Civilian Conservation Corp (CCC) Camp Registry Booth that exists within Rujada Camp picnic area and the creek access steps and how will they be protected?

Vegetative Condition

- How will the desired vegetation condition as described in the Silvicultural Prescription and the Rujada Camp Vegetative Management Plan and the supporting EA be achieved and with what effects?

Chapter 2 – Alternatives Including the Proposed Action

This chapter is the heart of the environmental assessment (40 CRF 1502.14). It contains detailed descriptions of the proposed action and alternatives to the proposed action including mitigating measures, management requirements, best management practices, and monitoring requirements. This chapter also describes the process used to formulate alternatives and any alternatives eliminated from detailed study.

Formulation of Alternatives

The Interdisciplinary Team used issues identified through the scoping process as the main basis for alternative development. The IDT developed a reasonable range of alternatives that respond differently to the issues. A no action alternative was developed as a benchmark for comparison of effects.

Alternatives Eliminated From Detailed Study

During the IDT process in the year 2000, several projects were discussed but were eliminated from further consideration. In addressing public comments during the scoping process, the Interdisciplinary Team considered a proposal to construct a volleyball court. This action was eliminated from detailed analysis due to the associated loss of groundcover and uncertainty of Aquatic Conservation Strategy (ACS) compliance.

Another proposed action to restore the open field in the day use area was discussed in addressing the Record of Decision (ROD) Standards and Guidelines for ACS objectives. This proposal was eliminated due to disadvantages associated with the disturbance of soils and providing a seed bed for noxious weeds. The area is also heavily used for group recreation activities and its elimination would have a significant impact on established recreation uses and activities.

The IDT also considered an action to construct a pond or series of small ponds for wildlife habitat enhancement behind existing camp site #6. Factors that contributed to this action being dropped from further study include minimal benefits to wildlife due to human disturbance, no anticipated reduction of water flow, and recurring maintenance needs to address sediment buildup in the pond(s).

The IDT discussed the proposal to “thin from below” (releasing dominant and co-dominant trees through the partial removal of lower crown classes that are competing for the same space, light, and nutrients) the area of the surrounding south hillside between the campground and road #2232-433. The IDT and the District Ranger met and discussed this opportunity. This hillside is also within the Riparian Reserve and the IDT and ranger decided there was no benefit to the riparian habitat if it were to be thinned. Therefore the project proposal was to be kept within the immediate area of Rujada Camp.

IDT discussion on the administration and maintenance of approximately 300 feet of road #2232-433, between the campground host site and the forest boundary, occurred. This portion of the road exists and is designated as a portion of the Swordfern Trail which is being maintained as a hiker trail accessing the western end of the loop trail and also to access a trail leading to Layng Creek. A preference for reducing trail (road) width was presented and a decision to place downed logs strategically along the creek edge of the trail to encourage a reduction in road width was made. This action was dropped from further analysis as it does not require an NEPA decision.

Several other recreation site maintenance items were originally part of the Proposed Action of this EA. However, these items are considered routine administrative maintenance that do not

individually or cumulatively have a significant effect on the quality of the human environment and, therefore, may be categorically excluded from documentation in an EA or an EIS. Scoping of these projects did not reveal any extraordinary circumstances. These maintenance items include the following:

- Modify or reconstruct existing campsites (leveling and grading camp unit road spurs, replacing unit facilities, etc.)
- Reconstruct existing trails.
- Replacing existing potable water system and distribution line.
- Replacing host site gray-water pit and sumps.
- Sign replacement and installation.

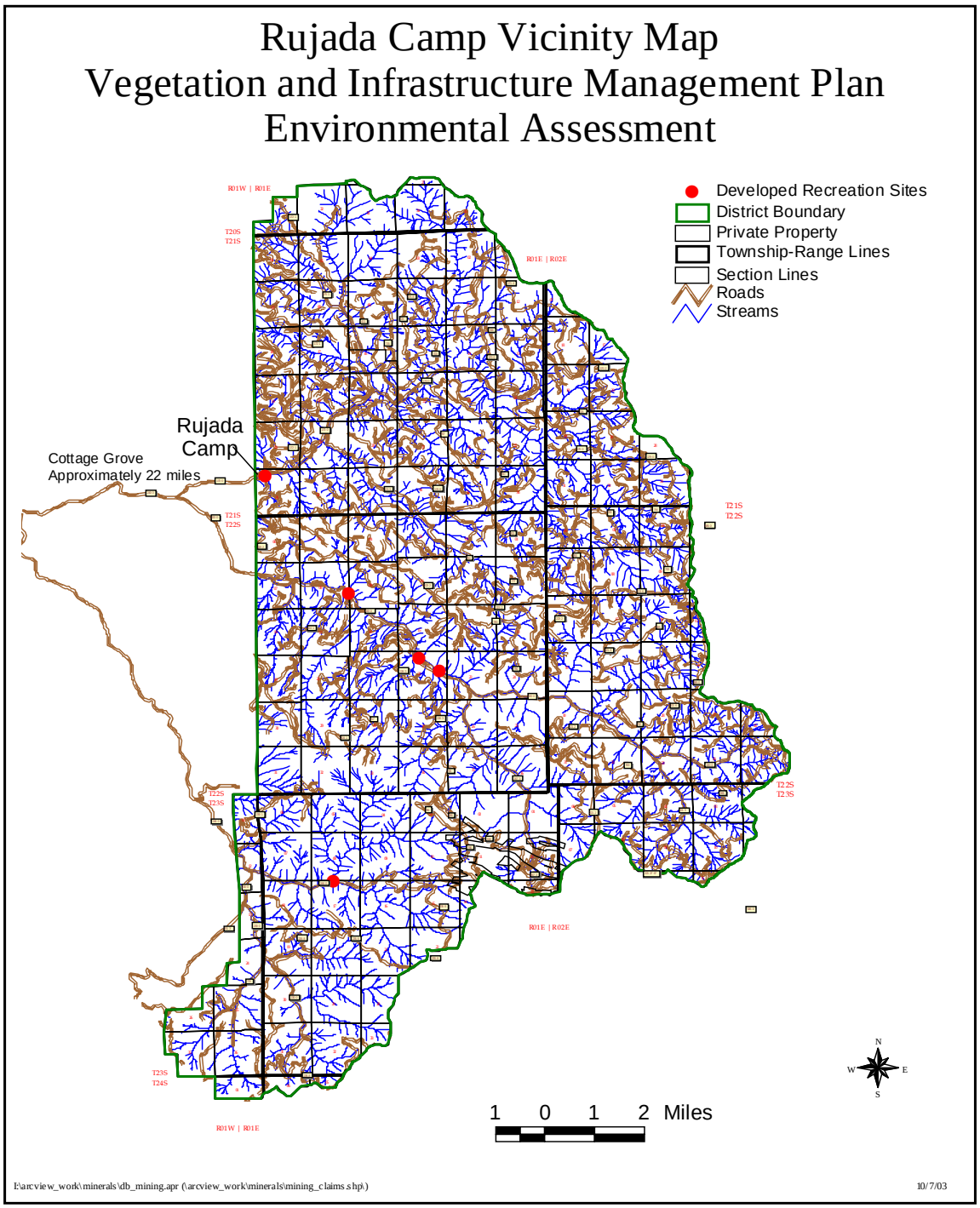


Figure 1 – Vicinity Map

Alternatives Considered

The IDT considered three alternatives: Alternative 1 (no action), Alternative 2 (proposed action), and Alternative 3. The description of the alternatives follows the format below.

- Vicinity Map of the Cottage Grove Ranger District and Rujada Campground
- A narrative describing the proposed activities.
- A map displaying proposed activity areas.

Alternative 1 – No Action

This alternative is required in all analyses to establish a baseline of information and to disclose what the consequences are if the proposal is not implemented. This alternative does not meet the purpose and need for this project.

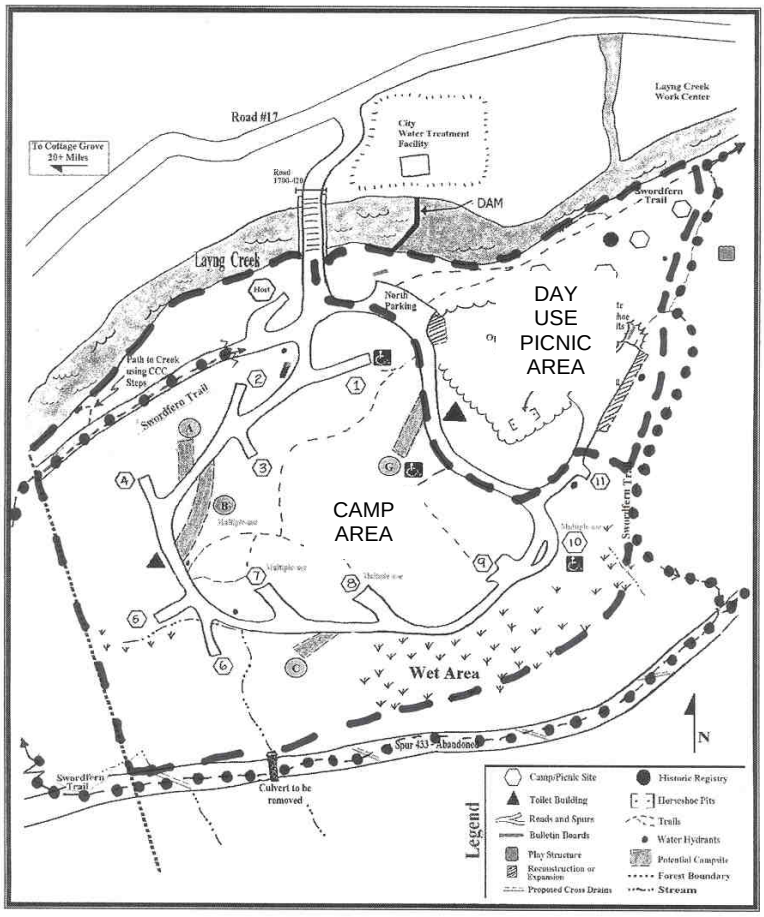
This alternative calls for no change in the current management of the stand and no improvements to increase overnight camp user capacity. Expected declining health of the stand will continue to create hazard trees which will need to be felled and utilized as downed wood and/or firewood. The number of camp sites will remain the same and no new sites will be developed. Maintenance and improvements to existing facilities will be made as needed.

This alternative serves as a benchmark, enabling the responsible official and IDT to compare the magnitude of effects of the action alternatives. This alternative would not meet the need for action described in Chapter One.

Alternative 2 – Proposed Action Maximizing Camp Capacity

Alternative 2 would perform individual tree selection removal on the existing timber stand as described in silvicultural treatment of the Rujada Camp Vegetative Management Plan and to develop the maximum number of seven new and additional camp sites. To achieve management objectives, this alternative has the following proposed action components:

- Selective tree removal will be applied to approximately 9 acres encompassing the camping unit and day use areas as described in the Rujada Camp Vegetative Management Plan (Refer to following map inset of from the Rujada Camp Vegetative Management Plan, Appendix A, Map 2). Tree removal will not occur between to Layng Creek and the Swordfern Trail and also the wet area located in the southeast portion of the camp area.



- This stand contains a developed recreation site, located in Riparian Reserve, where Douglas-fir bark beetle activity and associated tree mortality has resulted in the loss of groups of trees, including some of the oldest and largest trees in the area. Selective removal of predominantly Douglas-fir trees in the 4-inch and larger diameter at breast height (DBH) size classes, based on criteria outlined in the silvicultural prescription of the Rujada Camp Vegetation Management Plan (Appendix A). Retention of large trees will be emphasized. Stand stocking will be reduced from a basal area of 220 ft^2 per acre to approximately 180 ft^2 per acre. An estimated 100 conifer trees will be removed from the various size classes. This treatment will be used to reduce tree mortality and to initiate multiple canopy layers in this stand. Felled trees will be utilized to meet coarse woody debris recommendations of 360 linear feet per acre, as required in the Layng Creek Watershed Analysis (LCWA, 130). To minimize further bark beetle attacks, the felled trees will be removed from the camp and picnic areas, temporarily stored at the nearby Layng Creek Work Center, and returned to Rujada Camp at a later date.

To achieve the 360 linear feet of downed wood per acre, Rujada Camp (9 acres) will need a minimum of 3,240 linear feet in the 20” diameter size class. A total of approximately 2,000 linear feet exists either on site at Rujada Camp or at the work center nearby, ready to be replaced within Rujada Camp (Chapter 1, Affected Environment, Wildlife, Section B. Woody Debris). These existing downed logs were dead trees that were previously removed as hazard trees from Rujada Camp and are scheduled to be replaced in Rujada Camp as down wood. Of the existing 2,000 linear feet, many of the logs average 10” in diameter and therefore, 2 logs will be combined to achieve the equivalent objective of 20” diameter down wood logs. Therefore, of the 2,000 linear feet of 8-12” trees, an equivalent estimate of 1,000 linear feet of 20” diameter class is considered to exist on site.

To achieve the minimum downed wood objective of 360 linear feet per acre (3,240 linear feet) in the 20” diameter class, an additional 2,240 linear feet of 20” diameter or equivalent diameter downed wood will be replaced within Rujada Camp. The proposed action identifies selective removal of approximately 100 trees or 10,000 linear feet of trees within Rujada Camp. Of these 100 trees, approximately 7 trees are 20” in diameter or larger size class (approximately 700 linear feet) and are potentially available for instream placement. The remaining 9,300 linear feet of logs average 10 inches in diameter which equates to 4,650 linear feet of 20” diameter logs. From these equivalent 4,650 linear feet of 20” logs, a minimum of 2,240 linear feet of 20” or equivalent diameter wood will be returned to Rujada Camp to meet the minimum downed wood objective.

After meeting the minimum downed wood objective within Rujada Camp, approximately 4820 linear feet of 10” logs will remain available for other riparian restoration and downed wood requirements in the Layng Creek watershed. Remaining small material would be available for firewood use. No trees will be disposed of through a commercial timber sale.

Recreation and infrastructure projects identified to improve recreational experiences, accommodate user demand, and address safety concerns include:

- Develop seven new campsites within the existing campground boundary (campsites A thru G). Site B will be a Multiple-use site, available for larger groups, camper-trailers, and RV users. Electrical and wastewater hookups will not be provided.

- Expand the north day use parking area an additional 35 x 30 foot area and straighten the southern parking area boundary by an additional 5 to 10 feet of width.

- Reconstruct the access trail that utilizes steps constructed by the Civilian Conservation Corps (CCC) to a Layng Creek swim hole, located downstream of the camp host site.
- Construct a climbing /play structure in a closed picnic site, adjacent to the Swordfern Trail utilizing wooden or other rustic style materials.
- Reconstruct and relocate horseshoe pits from open grassy field to adjacent picnic area.
- Remove a culvert in road #2232-433 on the hillside south of the campground boundary.

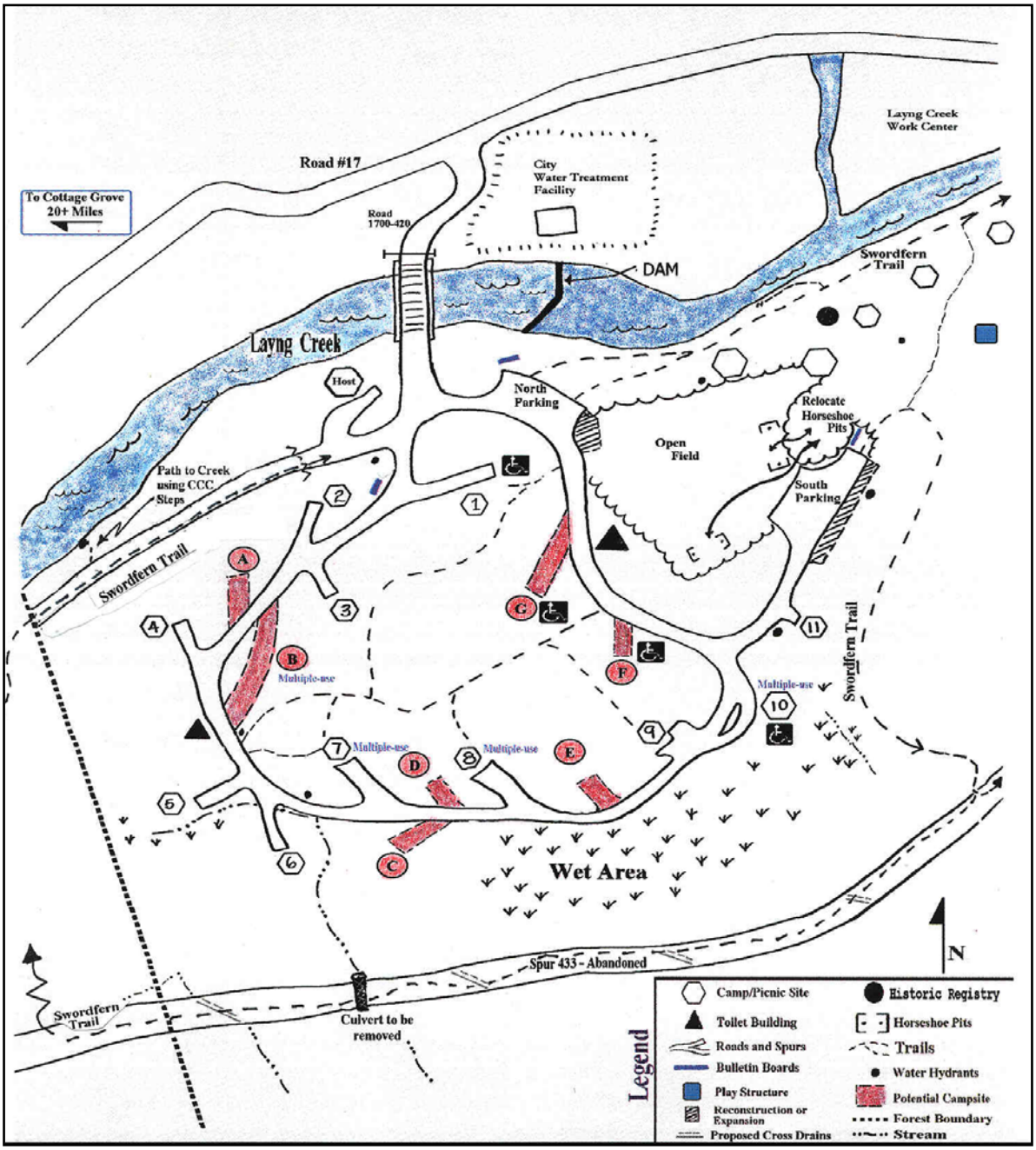


Figure 2 – Alternative 2 Map

Alternative 3 – Proposed Action

Based on issues, concerns, recommendations and mitigation, this action represents a reduced level of proposed infrastructure development for Rujada Camp. Instead of seven, four new

campsites will be developed within the existing campground boundary (campsites A, B, C, and G). Site B will be a Multiple-use site, available for larger groups, camper-trailers, and RV users. Electrical and wastewater hookups will not be provided.

All other proposed actions included in Alternative 2 will remain unchanged as proposed under this alternative.

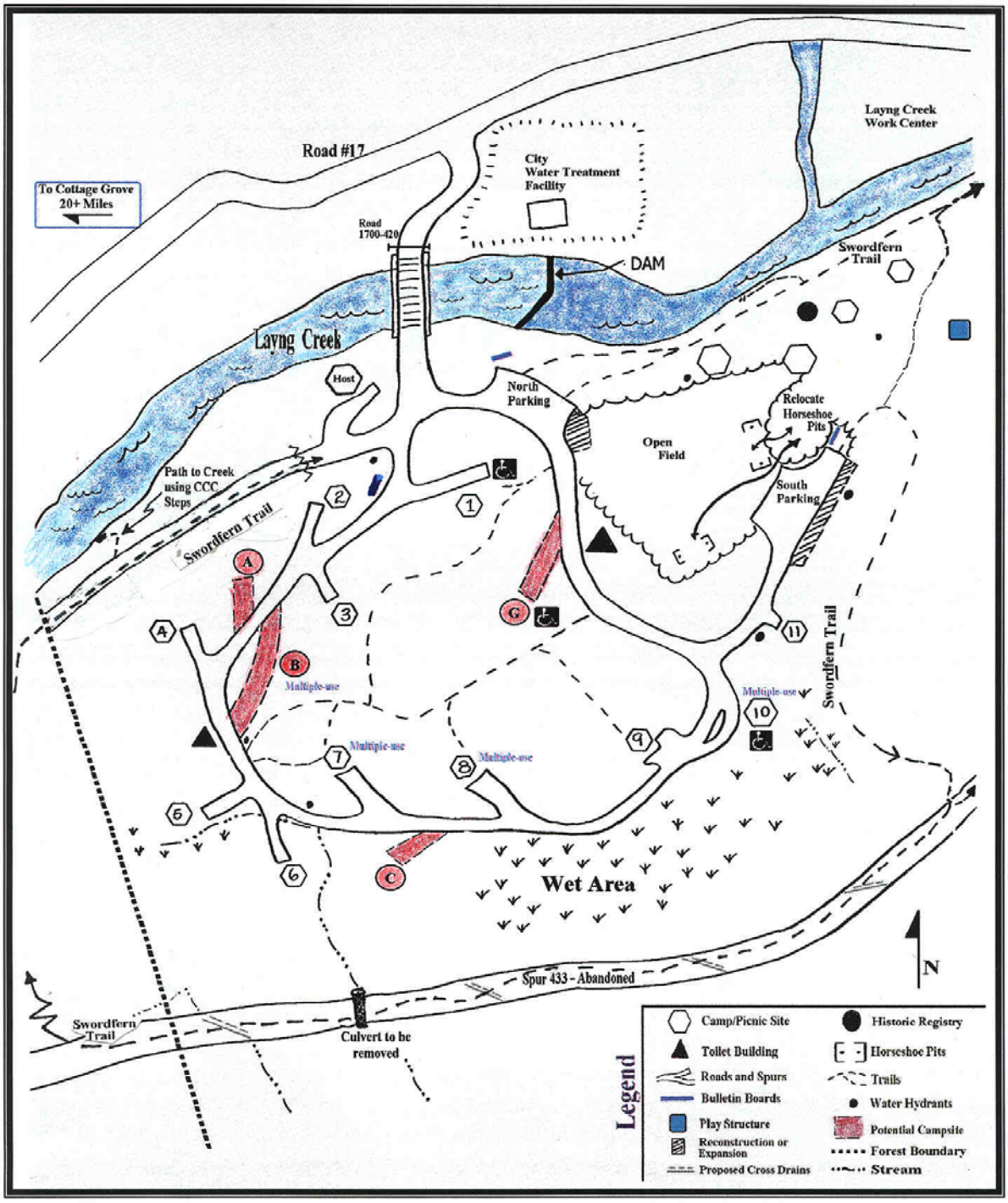


Figure 3 – Alternative 3 Map

Alternative Comparisons Table

This table displays features and effects of the alternatives considered in detail in comparative fashion. Conclusions displayed in this table are supported by discussion in Section Three.

Table 1 – Alternative Comparisons Table

Issues and Concerns	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
Vegetative Condition	220 basal area Continued bark beetle mortality.	180 basal area Treatment to reduce bark beetle attacks and tree mortality.	Same as Alternative 2.
Effects on Recreational Experience (Issue 1)	11 camp units 75 overnight PAOT's[1] 2 camp unit /acre 6.5 acres of common space 45% sites accommodates tents/RV's 18% sites accessible	18 camp units 115 overnight PAOT's 3 camp units/acre 6.2 acres of common space 60% site accommodates tents/RV's 22% sites accessible	15 camp units 100 overnight PAOT's 2.67 camp units/acre 6.3 acres of common space 60% site accommodates tents/RV's 20% sites accessible
Effects on Riparian Reserve (Issue 2)	Negative cumulative affect resulting from 1) exceeding site capacity and increases in dispersed camping in adjacent Riparian Reserves and 2) potential loss of diseased trees and shade along Layng Creek.	Positive cumulative effect due to less risk from campers utilizing adjacent Riparian Reserves and decreased risk of bark beetles moving into trees adjacent to Layng Creek.	Same as Alternative 2.
Effects on Water Quality (temperature) (Issue 2)	Layng Creek on 303(d) list for temperature. Temperatures may increase due to potential loss of trees and shade immediately along Layng Creek.	No trees will be removed along Layng Creek therefore no direct effect on shade and temp. Improving stand health may decrease risk of beetles infesting streamside trees resulting in hazard trees that will need to be felled, thereby negatively affecting shade and temperature.	Same as Alternative 2.
Effects on Sedimentation	Current impacts are low. High potential failure of culvert on above road resulting in moderate sedimentation impacts.	Short-term impacts from removal of culvert are expected however long–term benefits are eliminating risk of culvert failure, slide and sedimentation.	Same as Alternative 2.
Effects of falling hazard trees for safety reasons	Cutting of hazard trees would continue to occur as directed in Developed Site maintenance. Expected loss of 10-20 hazard trees annually.	Cutting of hazard trees would continue to occur as directed in Developed Site maintenance. Improved stand health will reduce expected tree mortality thereby reducing number of hazard trees needing to be felled.	Same as Alternative 2.
Effects on	Less than 3 small snags per	Small (short) snags may	Same as Alternative 2

[1] PAOT = "Persons at one time", a measurable value related to capacity of a site or facility.

Issues and Concerns	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3
wildlife snags and Coarse, down wood debris	acre and approximately 2000 linear feet of downed woody remain on site. Using 20" diameter logs, this translates to approx. 1000 linear feet or 111 linear feet per acre.	increase slightly. Downed woody of approx. 20" in diameter will increase to 3240 linear feet or 360 linear feet per acre.	
Effects on Botanical TES Species	No effect.	No anticipated effects.	Same as Alternative 2.
Effects on control and prevention of Noxious weeds	Lack of mitigation on larger patches of blackberry would allow spread of noxious weeds. Weeds would continue to spread without proper mitigation.	Construction of proposed site B will eradicate one substantial patch of blackberry. Ongoing maintenance/weed removal will continue to occur.	Same as Alternative 2.
Effects on Historical significance of CCC structure and trails	Log registry and one set of steps/trail will be maintained. There is no effect on significant heritage resources.	Log registry and one set of steps/trail will be maintained 2nd set of steps/trail will be reconstructed in like or similar kind to maintain historical character.	Same as Alternative 2.

Chapter 3 – Affected Environment and Effects

This Section briefly describes the components and scope of the human environment that may be affected by the implementation of the alternatives outlined in Section Two. It then discloses the potential effects (direct, indirect, and cumulative) of implementing each alternative. It presents the scientific and analytic basis for the comparison of alternatives.

Unavoidable adverse impacts, irreversible/irretrievable commitment of resources, and short term use versus long term productivity are also briefly discussed. All discussions will be tiered to the 1990 Umpqua National Forest Final Environmental Impact Statement and the 1994 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.

As the result of potential effects of an action alternative, each resource area may have mitigations, requirements and/or management recommendations. These mitigations, requirements and/or management recommendations are available for review in each of the individual Resource Specialist Reports located in Appendices A-K. These requirements will be implemented to meet laws, regulations, policies and recommendations. All are applied to reduce potential adverse environmental impacts that could result from implementing the alternatives.

Silviculture

How will the desired vegetation condition as described in the Silvicultural Prescription and the Rujada Camp Vegetative Management Plan and the supporting EA be achieved and with what effects?

Affected Environment

Rujada Camp encompasses approximately 9 acres in the lower Layng Creek Municipal Watershed, below the city municipal water intake. The planning area lies within the riparian reserve for Layng Creek. Several small stream channels flow into the stand, and a wet area has developed along the southern part of the area.

The planning area is characterized by western hemlock plant associations, though Douglas-fir is the dominant species. Harvest activities in the area began between 1913 and the mid 1920's, leaving seed trees for regeneration and larger trees for the campground. The seed trees were later salvaged.

Data from a 1999 timber stand exam indicated tree density at 277 trees per acre, and a basal area of 220 square feet. Currently the tree density is approximately the same although there are about 35 trees which have been removed since 1999 due to mortality from bark beetles. The openings created around Campsite #7 have quickly been occupied by other trees and shrubs. Stand health and vigor is on the decline, and bark beetle activity has leveled off, however, the beetles have recently killed some of the older Douglas-fir trees in the stand. This trend is expected to continue without management activities which addresses stand density.

The proposed action is to create stand conditions that will produce a stand capable of withstanding insect and disease attack. Improvements to develop noxious weed and public use resiliency, and increase the number of campsites are also proposed. To accomplish this, individual tree selection (an improvement cut) is proposed for trees in the 4-inch and larger DBH size classes. An improvement cut is conducted to release trees that will improve the composition, form and/or growth of the residual stand.

Environmental Effects

Concern: Stand Health

Alternative 1 (No Action)

Indirect: Random tree mortality from bark beetles will continue and likely result in the death of additional large overstory and intermediate Douglas-fir trees. Openings in the canopy reduce shading to the forest floor and can promote the establishment and growth of noxious weeds. Continued loss of canopy cover could alter the microclimate in certain areas, changing species composition, and structure.

Alternative 2 & 3

Direct Effects: Selective tree removal will promote growth and development of the residual trees and promote greater resilience to bark beetle attacks. Reducing the number of Douglas-fir trees will reduce the host species for Phellinus weirii. However, this root disease will likely remain in the stand for another fifty years.

Indirect Effects: An increase in understory growth will occur following thinning. This increase in understory growth will decrease as the canopy closes over time. Planting of Oregon ash, bigleaf maple, and western redcedar in areas of greater soil moisture will increase species diversity.

Improving species diversity will help to maintain an adequately stocked timber stand should any additional Douglas-fir trees succumb to root disease or bark beetle attacks. The planting of red cedar which is a shade tolerant species in addition to the western hemlock already occupying the stand can help in development of multiple canopy layers.

Recreation

Issue 1. Impacts on Current Recreational Experiences
User demand for overnight camping at Rujada frequently exceeds site capacity. Modifying existing campsites to improve parking and use of existing site amenities by a variety of recreational users and creating additional campsites within the current boundaries of the camping area may affect overall recreational experience by increasing user capacity, impacting user privacy, and affecting available common space within the camping area. Modifications might influence the frequency of RV visits, thus having an impact on the tent camping atmosphere of the campground.

Affected Environment

The Rujada Camp Vegetation & Infrastructure Management Plan is located within the boundaries of the of the existing Rujada Campground and day use picnic area, a developed recreation site in the Layng Creek watershed (below the city water supply intake). The campground is bordered by Layng Creek to the north; Umpqua National Forest boundary and private property to the west; and the Swordfern loop trail to the east and south.

Generally recreation is not encouraged in the Layng Creek watershed above the water intake because of the potential adverse effects on the municipal water supply. Specifically, most of the Layng Creek watershed is closed to overnight camping and swimming and therefore recreation opportunities are limited to a few day use hiking trails, fishing, hunting, biking, and driving. Overnight camping opportunities within this watershed are exclusively limited to Rujada Campground.

Rujada Campground has a historic tie to the development of the Cottage Grove Ranger District and also to the Civilian Conservation Corp (CCC) of the 1930's. Rujada Campground and picnic area have been located at this site since the 1930's when the neighboring CCC camp across Layng Creek constructed a few sites to accommodate visiting families and friends during a holiday or

weekend. During this era the CCC constructed 10 log tables and stone fireplaces, a bathhouse, and a log registry booth for visitors. The log registry booth in the Rujada picnic area is one of a few remaining indicators of this history. Rujada became a popular Sunday outing for the rural communities along the Row River and Cottage Grove. Over the years, improvements and reconstruction have occurred. In 1972 a major reconstruction project improved the road, installed a water system, constructed the flush toilet building, and installed electricity to the restroom and camp host site. During this time tent camping was the most common and only form of camping. Since then, an increasing number of campers, small trailers and RV's have been using these tent campsites.

Rujada Campground is inventoried and managed as a "family campground". The campground and picnic area total approximately 9 acres with 6 acres used for the overnight camp and 3 acres for the day use picnic area. The campground and picnic area is situated within a dense stand of second growth timber. The area was extensively logged in the 1910-20's so the timber stand is predominantly 70-80 year old Douglas fir and scattered big-leaf maple hardwoods. The stand provides year-round shading of most of the camp sites however a few pockets of trees have been removed as hazard trees as the result of a bark beetle population that is attacking the Douglas firs. Being on the north slope of a hillside and well shaded, the site remains cool and damp throughout the spring and most of the summer. One of the most common complaints about Rujada is it is "too cool and damp for too long". Overnight use is under the Fee Demo Program where fees go directly into the operations and maintenance of the campground. The adjacent picnic area provides for day use activities including a group reservation area and a 1-acre open field.

The campground has a density of approximately 2 camp units per acre which includes a host camp unit and 11 overnight camp units. The picnic area includes 2 group sites and 3 individual sites. Based on parking capacity and site capacity of PAOTS (persons at one time), the public capacity of Rujada Campground is 75 PAOTS and the capacity of the picnic area is 69 PAOTS. Existing facilities at each camp unit typically include a table, ground level fire pit, and a graveled tent pad. Picnic sites include a table and pedestal grill. Potable water is provided throughout the campground and picnic area. A men's and women's flush toilet building with electricity and a unisex vault toilet are provided. Other facilities for the general public include waste water receptacles, garbage cans, signage, traffic control barriers, graveled access road and spurs, native surface access trails throughout the site, open playfield, 2 horseshoe pits, and a 1.9 mile loop trail. Unlike the camp units the host unit has electrical and water hookups, phone service, and a gray and black water sump is scheduled for installation in the winter of 2003-04.

Approximately 2.5 acres or 28% of total area of Rujada Camp is in some form of developed state (i.e. area cleared for roads, camp/picnic units, trails, etc.) and so approximately 6.5 acres or 72% of the total area is considered to be undeveloped common space or areas which are open and useable by all users. These undeveloped common areas are predominantly in a timbered state.

Primary recreation activities within Rujada include camping, picnicking, hiking, unsupervised swimming and water play, some fishing, biking through the campground, individual and team sports in the open field, and horseshoes. Day use reservations are taken for the group picnic tables for the purpose of reunions, weddings, or other large group gatherings.

Of the 11 campsites, three (site #7, 8, 10) are considered to be multi-family due only to the additional parking space on the campsite spurs. Unlike a fully serviceable group site, these group sites have only one table and one tent pad. Two of the sites (#9, #10) have pull-through parking however grades of one deter level parking for trailers or RV's. Six of the 11 sites can accommodate trailers or RV's up to 30' in length or several vehicles can park at these sites at one time. Some of these camp spurs could accommodate longer vehicles however the width and tight curve radius of the campground loop access road limits accessibility for larger vehicles.

According to annual visitor use records, seasonal overnight use at Rujada Campground averages over 150% on weekends and holidays and 20-30% during the week. The camp host records daily visitor counts and annual use records are recorded through the Forest Service Infrastructure (INFRA) database system. Use at Rujada is predominantly local residents (30%) and visitors from the Eugene-Springfield area (45%). Many of the customers return to Rujada and enjoy the solitude of the campground and the privacy of many of the campsites. The dense vegetation provides screening between many of the campsites (sites # 5-9). There are also several sites (#1-4, 10, and 11) that have less screening and are more visible from other sites and the access road. Other people prefer these less private sites because of the increased sense of security or the ability to see friends or family nearby. The distance between several (5) of the camp units exceeds 100 feet.

Accessibility around the campground and picnic area for physically challenged persons is limited to the restrooms and to portions of the picnic area and 2 campsites (#1, 10). Fairly level grades, compacted surfaces, and limited physical barriers allow for a moderate level of difficulty for accessibility. Improved access to the creek is limited however visitors attempt to access a popular swim hole by using an undeveloped scramble trail to the waters edge.

Effects of Alternatives

Alternative 1 – No Action

The existing 11 campsites and picnic area will remain status quo. No additional campsites would be constructed. The level of facility development would remain the same. General maintenance, repair, and/or replacement of existing facilities will continue on an as needed basis.

Recreation Effects of Alternative 1 on Issue 1, Impacts on Recreational Experiences

Direct Effects

- Retains 11 camp units with a capacity of 75 PAOT's and having a site density of 2 units/acres.
- Retains 2-group picnic and 3 individual picnic units for a total of 69 PAOT capacities.
- Retains 3.7 camp units per toilet.
- Site retains approx. 2.5 acres or 28% of total area in a developed state (area cleared for roads, camp/picnic units, trails, etc.) and approx. 6.5 acres or 72% of total area in common space (areas useable by all users) in an undeveloped and predominantly timbered state.
- Retains existing site screening of 64% of the camp units (7 of the 11 sites are fully screened from the interior of other camp sites (sites # 4-9, 11)).
- Retains an average of 45% of the sites that can accommodate RV users as well as tent campers.
- Retains limited accessibility to existing sites #2 and #10 (18% of the sites).

Indirect Effects

- Anticipate continued increase in recreation use above the current seasonal overnight use average of 150% on weekends and holidays, 20-30% weekdays.
- Continued overcrowding of existing sites on weekends and holidays.
- Increased degradation and enlargement of existing camp units due to overcrowding of existing sites.

- Limits access and availability of sites for RV and trailer campers.
- Hazard tree removal will continue to decrease screening until natural shrub growth fills in.

Cumulative Effects

- Other known activities occurring in Rujada Camp include ongoing miscellaneous repair, maintenance, and/or replacement of existing facilities to support current levels of use. Alteration of the Rujada Dam to improve the aquatic system is expected to occur. No timber sales, road construction or other management activities are planned to occur within Rujada Camp in the foreseeable future. Therefore, cumulative effects on the recreation experience from these activities are expected to be negligible.

Recreation Effects of Alternative 1 on Issue 2, Riparian Reserve & Water Quality:

Direct Effects

- Visitors will continue to utilize Layng Creek and Rujada Camp for its recreational values.
- Based on historic records, continued projected loss of approx. 10-20 large and small trees per year due to beetle kill and hazard tree removal in random locations throughout campground.
- Downed woody from felled hazard trees will increase in the Riparian Reserve at a pace consistent with tree mortality.
- Continued falling of the dead and dying trees will decrease the canopy thereby affecting canopy closure/density along Layng Creek and throughout the campground.

Indirect Effects

- Beetle kill may progress to adjacent tree canopy along Layng Creek thereby reducing shading canopy over Layng Creek and Rujada Camp.
- Overcrowding at campground may contribute to illegal camp activities upstream of the water intake as well as increased activity along Layng Creek and Brice Creek.

Cumulative Effects

- Alteration of Rujada Dam will decrease summer levels of the pool upstream of the dam and may decrease the number of and frequency of swimming and wading in this specific area resulting in an increased use in the lower pool area accessed by the steps that are proposed to be replaced. Numbers of swimmers is not expected to change but only to relocate to nearby swim holes.

Alternative 2 – Proposed Action

Perform selective tree removal; construct 7 additional campsites (A-G) within the existing camp loop thereby increasing capacity to 18 camp units, reconstruct or modify 7 existing campsites (# 1, 5, 6, 7, 9, 10, and 11) within the existing camp loop. Provide additional facilities including: enlarging front and rear picnic/trailhead parking areas; play structure; and reconstruct trail and steps to creek.

Recreation Effects of Alternative 2 on Issue 1, Recreation Experiences:

Direct Effects

- An additional 7 campsites will immediately increase the capacity from 11 to 18 individual campsites. Total PAOT capacity for overnight use will increase from 75 to 115 PAOTS due to the increased number of sites and the availability of 4 multiple family sites. Camp unit site density will increase from 2 units/acre to 3 units/acre (FS recommendation for a low-density forest campground is 3 units/acre).

- Picnic site capacity will remain the same however additional parking will better balance with the capacity for large groups.
- Increases demand on toilet facilities to 6 camp units per toilet, the maximum as recommended by the FS. However, the addition of 7 new campsites in addition to the use of the picnic area would increase the need for an additional toilet building.
- Provides 2.8 acres in a developed state, or an increase of 0.27 acres or 3% (0.2 acres new camp units and 0.07 acres for new camp spurs)). Common space area decreases to 6.2 acres, a decrease of 0.27 acres or 3% of timbered or vegetated area.
- Screening between sites (both existing and new sites) will decrease due to selective tree removal and the addition of 7 camp units. Natural growth of the shrub layer and native plantings can improve screening however 3 of the 7 sites (D, E, and F) would not be screened without dense plantings or regeneration. The closeness of the new sites would not maintain the recommended 100 feet between camp units.
- Site upgrades to 3 existing sites and the addition of 1 new multi-family site and 6 single-family sites will serve the needs of tent campers as well as increase the availability of RV and trailer campsites (without hookups) from 45% to 60%.
- Minor improvements and reconstruction of existing sites #1 and #10 and the construction of site G and F will increase the availability of accessible sites to 22%.
- Construction of a play structure for children will increase the recreation opportunities for families.

Indirect Effects

- Improvements and increased capacity will provide for an increased number of visitors, which may indirectly affect the recreation experience of some visitors.
- A slight decrease in common area space and the anticipated increased capacity and use of the area will increase the density of people and possibly the perception of remoteness or seclusion of camp units.
- Site improvements to meet the needs of RV users may alter the use patterns of the campground.
- Hookups will not be provided which typically minimizes the lengths of stay for RV campers. Road improvements including road realignment and widths are not proposed which are also limiting factors for large RV's.
- Constructing a play structure for children will provide a climbing structure which may indirectly influence the occurrence of children climbing on downed logs and trees. The play structure will also provide an additional recreation activity to lessen the available time for children to do harm to the facilities and the forest.
- An increase in revenue will be available which will provide additional funding for maintenance and repair of facilities.
- Cost of operations will increase however maintenance costs should decrease due to repair and upgrading of facilities.

Cumulative Effects

- Increased levels of use and density of users will increase the need for additional maintenance and repair costs. Increased revenue will offset these increased costs.

Recreation Effects of Alternative 2 on Issue 2, Riparian Reserve & Water Quality

All of the proposed activities are within the Riparian Reserve however they are also within the presently developed administrative area of the campground and picnic area. A 75-100 foot area along Layng Creek will remain an undeveloped portion of the campground and no selective tree removal will occur within this area which will minimize the effect to the water quality of the stream.

Direct Effects

- Native vegetation plantings for screening and natural growth will minimize exposed soil and erosion.

Indirect Effects

- Additional camp sites will most likely increase the number of visitors to the area which may have an indirect impact on the Riparian Reserve in the immediate vicinity of Rujada due to the increased density of recreation users.

- Selective tree removal will improve the health of the stand that may lessen the vulnerability to random beetle attack and tree mortality. Numbers of hazard trees will decline.

- Selective tree removal/falling will significantly increase downed woody in the Riparian Reserve.

Cumulative Effects

- Alteration of the Rujada Dam to improve the aquatic system is expected to occur in the foreseeable future. Increased levels of use from additional camp units proposed in this alternative and declining use at the dam swim hole will increase the amount of use and the density of users to the lower swim hole. This may have a negligible effect on the water quality immediately downstream of the lower swim hole.

Alternative 3

Perform selective tree removal; construct 4 additional campsites (A, B, C and G) and reconstruct or modify 7 existing campsites (# 1, 5, 6, 7, 9, 10, and 11) within the existing camp loop. Provide additional facilities including: enlarging front and rear picnic/trailhead parking areas; play structure; and reconstructing trail and steps to Layng Creek.

Recreation Effects of Alternative 3 on Issue 1, Recreation Experiences

Direct Effects

- An additional 4 campsites will immediately increase the capacity from 11 to 15 individual campsites. Total PAOT capacity for overnight use will increase from 75 to 100 PAOTS due to the increased number of sites and the availability of 4 multiple family sites. Camp unit site density will increase from 2 units/acre to 2.67 units/acre (below the FS recommendation of 3 units/acre for a low-density forest campground).

- Picnic area capacity will remain the same however additional parking will better balance with the capacity for large groups.

- Increases demand on toilet facilities to 5 camp units per toilet (FS recommendation is 5-6 camp units per toilet).

- Provides 2.7 acres in a developed state, or an increase of 0.17 acres or 2% (0.12 acres new camp units and 0.05 acres for new camp spurs)). Common space area decreases to 6.3 acres, a decrease of 0.17 acres or 2% of timbered or vegetated state area.

- Screening between sites (both existing and new sites) will decrease due to selective tree removal and the addition of 4 camp units however natural growth of the shrub layer and

native plantings can increase screening for 14 of the 15 sites (an increase from 64% to 93%).

- Site upgrades to 3 existing sites and the addition of 1 new multi-family site will serve the needs of tent campers as well as increase the availability for RV and trailer vehicles (without hookups) from 45% to 60%.
- Minor improvements and reconstruction of existing sites #1 and #10 and the construction of site G will increase the availability of accessible sites to 20%, the recommended minimum.
- Construction of a play structure for children will increase the recreation opportunities for families.

Indirect and Cumulative Effects

- Similar but proportionately lesser effects as Alternative 2 can be expected with this alternative.

Effects of Alternative 3 on Issue 2, Riparian Reserve & Water Quality

- Direct, Indirect and Cumulative Effects: Similar but proportionately lesser effects as Alternative 2 can be expected with this alternative.

Aquatics and Fisheries

Issue 2 – Impacts on Riparian Reserve and Water Quality

Rujada Campground is within a Riparian Reserve and the Layng Creek Watershed. Layng Creek is on DEQ 303(d) list for exceeding State Standards for temperature. Selective tree removal, site alterations and development must be consistent with ACS (Aquatic Conservation Strategy) objectives. Removing live vegetation and increasing user capacity may impact the riparian reserve and may impact water quality through sedimentation.

Affected Environment

Rujada Camp is located within the Layng Creek Watershed. Current hydrologic conditions, aquatic habitat and water quality are described in the Layng Creek Watershed Analysis (1995) on pages 57-65. In summary, Layng Creek supports a population of cutthroat trout (*Oncorhynchus clarki*), at least two species of sculpin (cottus sp.), longnose dace (*Rhinichthys cataractae*) and/or speckled dace (*Rhinichthys osculus*). Layng Creek is in the Upper Row (5th field) Watershed.

Layng Creek is the municipal water source for the City of Cottage Grove. However, Rujada Camp is located approximately 0.5 miles below the municipal intake and is the only designated campground within the watershed. In order to lessen water contamination concerns, especially bacterial concerns, overnight camping and swimming is prohibited in areas above the water intake.

Riparian condition is poor throughout the watershed with much of the habitat in an early seral condition (USDA, 1995). The riparian trees within Rujada Camp are considered to be at a late seral condition (average tree is 80 years old with some greater), however the campground/picnic area and the water treatment facility across from Rujada Camp have created openings within the riparian areas.

Large woody material is lacking throughout Layng Creek. Much of the large wood was salvaged from the stream channel following the 1964 flood event. This has resulted in a channel that has downcut to bedrock in areas, limiting gravel and cobble deposition. The large woody material helps retain substrate. A well functioning channel would meander through these depositional areas. Layng Creek has lost much of its meander pattern and is now wider and shallower. The

gravel and cobble substrate is needed for spawning habitat and also provides habitat for macroinvertebrates, which fish feed on.

Earthflow terrain is common within the Layng Creek Watershed. These are areas of deep soils prone to erosion. Slides within these areas naturally occur, however impacts, such as road use and construction, particularly along mid slope or valley bottom roads, can accelerate these processes. Earthflow terrain is a fine sediment source. If too much fine sediment enters the stream channel it can embed cobble and gravel substrate. If this occurs spawning and macroinvertebrate habitat is lost (Castro, 1995). This is due to the lack of percolation through the substrate. Well oxygenated water can not reach trout eggs or macroinvertebrates. In essence when the substrate is embedded, the eggs and macroinvertebrates can suffocate.

Layng Creek is listed on Oregon Department of Environmental Quality (DEQ) 303(d) Water Quality Limited Stream List for having temperature concerns (DEQ, 2002). The State standard calls for the maximum 7day averages to be less than 64 degrees F. The USDA Forest Service has been monitoring stream temperatures in Layng Creek and has confirmed that the stream exceeds State standards, especially in the lower reaches, where Rujada Camp is located.

Camping within the National Forest is an increasing trend. Most of this camping occurs within Riparian Reserves, close to stream channels. People camp in either organized developed sites or at dispersed sites. The dispersed sites are typically road pull off areas adjacent to streams. These areas were not developed through a planning process. They were developed by frequent use of forest users and because of the lack of planning, tend to have erosion concerns and negatively impact the riparian habitat. Rujada Camp is a developed site within the Riparian Reserve.

Many of the trees within Rujada Camp average 80 years old. The Layng Creek Watershed Analysis (USDA, 1995) indicated that trees of this age and older were lacking within the watershed. The camping sites have been developed and maintained so that larger trees are retained. There is an open field within the camp that is used as a baseball field. Open fields that are maintained as grass fields would not be found in this area under natural situations.

The southern part of the campground is very wet. Streams and seeps drain off the hillside south of the campground. Drainage is poor in this area. The stream is diverted from the hillside down to the ditch along the road and adjacent to into Camp Site 5.

From the campground, there are a couple of trails down to Layng Creek. These trails are native material surfacing and are subject to erosion during the wetter times of the year.

Effects of the Alternatives

Alternative 1 – No Action

Issue 2: Water quality, specifically temperature increases in Layng Creek.

Direct and Indirect Effects:

Bark beetle infested trees within the campground will not be removed. This may result in an increase of bug kill to other trees in the area. If trees closer to the stream were killed, shade would be reduced, and there would be a high likelihood that temperatures to Layng Creek would be negatively affected.

Cumulative Effects

Layng Creek is currently listed on DEQ's 2002 Final Water Quality limited 303(d) list for exceeding State temperature standards. Past practices that removed streamside trees, such as commercial timber harvest and road building, have resulted in warmer stream temperatures (Beschta et al., 1987). Riparian areas throughout the Layng Creek Watershed are now being managed in ways that will maintain or enhance current conditions. As more riparian areas are enhanced, and managed for shade along streams, the temperatures are expected to improve.

However roads adjacent to stream channels within the Layng Creek watershed will continue to maintain the current condition of not helping to provide shade.

If the bark beetle infests trees adjacent to the stream channel, the riparian along this reach of Layng Creek will be degraded. This will have a negative impact to temperature and will not aid in the goal of trying to get Layng Creek removed from DEQ's 303(d) list.

Concern: The amount of people camping in the area is increasing. Camping often occurs within riparian reserves. The high amount of use can negatively impact riparian and aquatic habitat.

Cumulative Effects

There will be no increase to campsites within Rujada Campground. Less vegetation will be disturbed within the campground. However, Rujada Campground will continue to fill up quickly during the summer weekends. This may result in more pressure on dispersed sites within adjacent watersheds, such as Brice and Sharps Creek. It may also increase chances of illegal camping in Layng Creek above the municipal intake. Existing fire rings have been observed in areas adjacent to streams within Layng Creek, this indicates there is currently some level of illegal use. This will result in a negative cumulative effect to the riparian areas.

Concern: An increase in fine sedimentation to the stream channels.

Cumulative effects

As discussed in the Affected Environment section, earthflow terrain is common within Layng Creek, resulting in a cumulative concern within the watershed for fine sediment to embed macroinvertebrate and spawning habitat. A culvert remains in road 2232-433, which is a closed and abandoned road. This culvert needs to be removed to eliminate the potential of a washout situation during a major rain event. This alternative will not remove this culvert. There is a high potential for the culvert to fail and washout increasing downstream cumulative sedimentation concerns.

The trail to the water from road 2232-433 has some erosion concerns. This alternative will not change this condition. The trail will continue to erode during wetter times of the year causing cumulative sedimentation concerns to Layng Creek.

Other recent or future planned projects within the Layng Creek Watershed include the Blim Thin Timber Sale, Layng Creek Artificial Structure Removal Project and the Deception Slide Revegetation Project. The Layng Creek Artificial Removal/Modification Project includes the removal of Dinner Dam, which was implemented in August 2003, the removal of several cemented pump chances within stream channels and the modification of Rujada Dam, which is located at the Rujada Campground. The Rujada Dam along with the pump chances will be removed and/or modified the summer of 2004. The Rujada Dam will be notched and boulders will be placed in front of the cement structure. This will improve conditions for resident cutthroat trout to migrate above and below this structure. At the same time the visitors to the campground will still have a pool that is safe for children to play in.

Each of these projects were analyzed to determine potential fine sediment input into Layng Creek. There will be short term impacts (1-5 years), particularly from all of the artificial structure removal/modification projects. However, from a long term cumulative impact the fine sediment concern within Layng Creek will decrease after several large rain events flush out the sediment that has been stored behind the structures and the revegetation project at Deception Slide begins to stabilize and reduce erosion concerns.

The amount of increased sedimentation to Layng Creek as a result from this alternative is difficult to measure. Impacts are expected to be low. Moderate impacts can occur if the culvert on the 2232-433 road fails. The risk of this road failing are low to moderate.

Alternative 2 – Proposed Action Maximizing Camping Capacity

Issue 2: Water quality, specifically temperature increases in Layng Creek.

Direct and indirect effects

The stand around the campsites will be thinned and bark beetle infested trees will be removed from, and later returned, to the Riparian Reserve. This stand is far enough away from Layng Creek that it will not affect shade to the stream channel. This silviculture treatment will have long term (10-80+ years) direct benefit, by removing these trees there will be less future bug kill, resulting in less overall trees to be removed. Since the area is within a campground, all dead and dying trees will need to be felled as hazard trees. The bug kill is not expected to spread to trees adjacent to the stream channel. There will be no effects to water temperature in Layng Creek.

Concern: The amount of people camping in the area is increasing. Camping often occurs within riparian reserves. The high amount of use can negatively impact riparian and aquatic habitat.

Cumulative effects

There will be an increase of seven campsites within Rujada Campground. The campground will fill up at a slower rate. The extra sites will help take the pressure off of dispersed sites within Brice and Sharps Creek and will help reduce problems from people illegally camping in Layng Creek if they find Rujada Campground full. This will have a positive cumulative effect to riparian areas.

Concern: An increase in fine sedimentation to the stream channels.

Cumulative effects

The trail to the water from road 2232-433 has some erosion concerns. This trail will be hardened to reduce these concerns. This alternative will remove the culvert on the 2232-433 road. This culvert will be accessed by temporarily opening the road from above. Short-term (1-3 years) impacts from sedimentation may occur, however the long term (1-100+ years) benefits of having the culvert removed and preventing a larger slide that would produce much more sedimentation, is preferred. Refer to the cumulative effects discussion under Alternative 1 for a more details. Downstream cumulative effect concerns of fine sedimentation will be reduced under this alternative.

Alternative 3

Concern: The amount of people camping in the area is increasing. Camping often occurs within riparian reserves. The high amount of use can negatively impact riparian and aquatic habitat.

Cumulative effects

There will be an increase of four campsites within Rujada Campground. Although this Alternative will have 3 less sites available, the effects are similar to those in Alternative 2.

All temperature and sedimentation direct, indirect and cumulative effects are similar to Alternative 2.

Wildlife

- What will be done with the trees that are going to be felled for safety and/or selective removal reasons and will additional wildlife trees be left in their place?
- How will the downed woody mitigation be achieved?
- How will lack of snags for wildlife habitat be mitigated?

Affected Environment

Rujada Camp is a 9-acre recreational site located on public land managed by the Umpqua National Forest in Township 21 S., Range 1 E., Sec. 31, W.M., within Lane County Oregon. The existing condition of the campground is the result of past management practices. Down coarse woody debris is lacking in most of the campground due to dead or dying trees being designated as hazards and removed and in part to firewood gathering. Campsites were constructed, cleared and maintained resulting in several small openings. A large opening (1 acre) was created and is dominated by grass. Rujada Camp is a portion of a large block of regeneration harvest (3,200 ac.) resulting from the railroad logging that began in 1912. The stand is approximately 80 years old and is dominated by even aged Douglas-fir trees. There are a few remaining large trees within the campground; no snags have been retained. Since 1999, hazard tree removal has been performed following the *Project Design Criteria for Hazard Tree Removal and Recreation Site Maintenance* according to the *Programmatic Agreement with the USDI Fish and Wildlife Service and the USDA Forest Service*. As the result, there are a few down trees within the camp area and three log piles exist from beetle killed trees over the past years. In these three piles there are approximately 66 down pieces (27' in length), ranging from 5 to 35 inches in diameter for a total approximate length of 2,027 feet.

The disturbance activity associated with recreation at Rujada Camp limits the ability for the area to function as wildlife habitat. Species that are sensitive to human disturbance likely avoid the area.

Affected Environment and Effects of the Alternatives

A. Riparian Habitat

Riparian corridors along streams and wet depressions are important habitat areas for many species of plants and animals. Wildlife use is extensive in riparian zones because of the three essential survival elements found there: food, cover, and water. Of all the mammals that occur in Western Oregon, 89% utilize riparian zones or wetlands. There are 1.5 times more small mammals found in riparian habitats than in uplands. Riparian habitats are utilized by 72% of the raptor species in Western Oregon for their primary foraging and nesting sites (Brown 1985). Many bats and birds exclusively forage in riparian areas, and there are a large number of aquatic species including invertebrates, fish, and herptiles that are totally dependent on the riparian zone. Extremes in climate are moderated in riparian areas, producing a microclimate more compatible to plants and animals year round

Rujada Camp is an Administratively Withdrawn Area within the Riparian Reserve of the Matrix land allocation. Site alterations must be consistent with ACS (Aquatic Conservation Strategy) objectives.

The Riparian Reserves are portions of the watershed where riparian dependent resources receive primary emphasis and where special standards and guidelines provide protection to aquatic resources along with riparian dependent terrestrial organisms. Under the Aquatic Conservation Strategy, Riparian Reserves are used to maintain and restore riparian structures and function of streams, confer benefits to riparian-dependent and associated species other than fish, enhance habitat conservation for organism that are dependent on transitional zone between upslope and riparian areas, improve travel and dispersal corridors for many terrestrial animals and plants, and provide for greater connectivity of the watershed. Riparian Reserves allows for the recruitment and retention of down woody material that is valuable for wildlife, fish habitat and stream complexity.

For existing recreation facilities Riparian Reserve standard guidelines state (ROD page C-34, RM-1), "evaluate and mitigate impacts to ensure that these do not prevent, and to the extent practicable contribute to, attainment of Aquatic Conservation Strategy objectives." (ROD page C-34, RM-2) "Adjust dispersed and developed recreation practices that retard or prevent attainment

of Aquatic Conservation Strategy objectives. Where adjustment measures are not effective, eliminate the practice or occupancy".

The proposed actions listed below in alternatives 2 and 3 were designed to contribute to the attainment of Aquatic Conservation Strategy objectives or comply with standard and guidelines for recreation management within Riparian Reserves

Tree removal: Structural diversity is an important component of riparian reserves. Part of that diversity is the development of snags and down wood from tree mortality created from suppression competition, insect and disease. These are natural process that plays an important part in a functioning forest ecosystem. Where riparian areas are wide and flat and intersect with wet areas, fire was generally excluded; suppression, disease, and insects determine tree density and structural diversity on sites such as Rujada Camp. Realizing that snags pose a hazard to campers and that the silvicultural prescription is designed to impede these natural processes of coarse wood development, in order to assist in obtaining Riparian Reserve and ACS objectives, down woody material and cavity structures will be provided within the campground. Down wood will be signed and protected by the camp host on site. A target of 360 feet per acre of down wood with a diameter of 20 inches will be managed in and adjacent to the 9-acre campground.

The development of 4 to 7 new camp sites provide opportunities to increase recreational activities within the designated campground and assist in relieving pressures of unauthorized and dispersed camping with riparian habitat elsewhere on the District. In recent years it has been documented that the campground generally reaches full capacity (150%) on the weekends and holidays (District recreation files INFRA database), campers are turned away and are forced to seek opportunities elsewhere, likely to unauthorized or other dispersed campsites within the riparian habitat. Providing additional campsites at Rujada Campground may reduce potential impacts to riparian habitat elsewhere on the District. There are advantages to consolidating campers in developed campgrounds: Restrooms are provided; garbage is managed and removed; riparian vegetation can be managed and protected from disturbance with physical barriers (barrier logs and large boulders) and with camp host enforcement; and disturbance to wildlife and associated habitat can be minimized within the riparian reserves system from the concentration of campers in one location.

The proposed activities listed below are also consistent with Riparian Reserve standard and guidelines and ACS objectives. These proposed projects should enhance riparian habitat or protect riparian aquatic and terrestrial resources.

- The reconstruction of the access trail to Layng Creek will assist in reducing sediment delivery.
- Removal of the culvert located on the hillside south of the campground boundary will eliminate the potential of a washout situation during a major rain event.

B. Woody Debris

Large woody material is lacking; snags and down wood have been removed from the campground area, because they are deemed as hazards. Recently some down trees have been retained within the campground and three piles of logs (range from 5"to35" diameter, average 10-12" diameter) have been returned to the campground that were removed as dead/hazard trees. Currently there are approximately 66 down pieces, for a total approximate length of 2,027 feet. Surrounding stands have been managed: originally with a regeneration harvest and then commercial thin, reducing opportunities for creation of snags and down wood from natural processes such as disease, insects and suppression mortality. Some small diameter snags (less than 3 per acre) have developed in the last few years within the adjacent stands.

Retention of the majority of all decay classes of large down wood and snags are important as habitat for over 100 wildlife species including arthropod, salamanders, reptiles, birds and small

mammals, as well as many species of vascular plants, fungi, liverworts, mosses and lichens. Woody debris provides micro-climates that may function as transitional islands for the maintenance and eventual recovery of some late-successional organisms. They also contribute to the genetic interchange and diversity between the different ages of the forest. Woody debris also provides a long lasting exchange of nutrients to the soil, contributing to soil productivity.

Action Alternatives will impact the development of snags. The silvicultural prescription is designed to reduce tree mortality within the area and will fell trees that may be potential snags. However when snags develop they are generally felled because of hazard concerns. Recommendation from Layng Creek Watershed Analysis states all riparian reserves should be allowed to have full potential snag and down wood habitat to help accommodate for loss of habitat on adjacent managed forested lands. The loss of this habitat within 9-acres of riparian reserve is expected to be minimal if conditions are allowed to improve within the watershed elsewhere

Coarse woody debris should be retained at the minimum recommendation for managed Matrix lands, 360 liner feet per acre with a 20 inch or greater diameter. Down wood (logs) that was removed from the campground resulting from earlier bark beetle kill will be returned and placed within the campground to mitigate the loss of habitat. If down wood is not available at 20 inch diameter, then smaller logs can be stacked together to function as larger woody debris. Most Trees felled during the thinning operation will be retained on site to accomplish the minimum down wood requirement.

C. Survey and Manage

The Forest Plan requires protection and the implementation of management recommendations for Survey and Manage species. These species were identified because of viability concerns when implementing the 1994 Forest Plan. Survey and Manage species standards and guidelines provide additional benefits to amphibians, mammals, bryophytes, mollusks, vascular plants, fungi, lichens, and arthropod. Some species require a survey prior to ground disturbing activities and to manage known sites. Standard survey protocols were conducted.

1. Great Gray Owl

Affected Environment

There is no affected environment for the Great Gray Owl within or near the project area.

Great gray owls (Strix nebulosa) generally nest in forested habitat that contain structural features that allow for large nest platforms (large broken snags) with good canopy cover (greater than 60% cover) within 1,000 feet of natural meadows greater than 10-acres in size. The potential nest stands would be above 3,000 feet in elevation (R6 Survey Protocol for the Great Gray Owl, April 1995). Surveys are required for ground disturbing activities, which would impact these nest sites. Active nest sites are to be protected by a 1-mile buffer and foraging habitat (meadows) is to be protected with a 300 ft. no-harvest buffer (ROD C-2 1).

Environmental Consequences

Alternative 1, Alternatives 2 and 3

Direct, Indirect and Cumulative Effects

There is no potential nesting and foraging habitat within or near the project area. All alternatives will have no direct, indirect or cumulative effects to this species.

2. Red Tree Vole

Affected Environment

The affected environment for the red tree vole is the 9-acre Rujada Camp. The red tree vole is an arboreal rodent that appears to prefer late-successional Douglas-fir habitat but have been found in young (pole sized) stands. The vole lives and feeds almost exclusively in the crowns of Douglas-fir trees. Their diet consists almost entirely from the first and second year Douglas-fir needles. It is very strongly associated with this species of tree, which provides it with all its resources needs. When eating, the voles remove and discard the outer resin ducts of the needle, which is also used as nest material. A mature vole is about seven inches long, three of which is tail. Their fur is reddish in color and the tail is dark brown.

Protocol surveys (version 2.0) were conducted; red tree voles were not located in the project area. There will be no required management recommendations implemented.

Environmental Consequences

Alternative 1, Alternatives 2 and 3

Direct, Indirect and Cumulative Effects

All alternatives will have no impact to the viability of this species.

3. Mollusks

Affected Environment

The affected environment for this mollusk is the 9-acre Rujada Camp. There are four terrestrial species (*Prophysaon coeruleum, Prophysaon dubium, Pristiloma arcticum crateris* and *Megomphix hemphilli*), and no aquatic species are expected to occur on this District and in the project planning area. Field surveys were conducted using the survey protocol version 2.0 (10/29/97). Ground disturbing activities being implemented after fiscal year 1999 require surveys if they have the potential to impact these species or their habitat *Prophysaon coeruleum, Megomphix hemphilli, Prophysaon dubium* were potential inhabitants of the project area. No species were located in the project area during surveys.

Revisions that occurred as of January 15, 2001 to the 1994 ROD removed two mollusk species from the survey and manage list: *Prophysaon coeruleum* and *Prophysaon coeruleum*. Additionally, no ground disturbing surveys or management of known sites will be required for *Megomphix hemphilli*.

Environmental Consequences

Alternative 1, Alternatives 2 and 3

Direct, Indirect and Cumulative Effects

All alternatives will have no impact to the viability of these mollusk species.

D. Management Indicator Species (MIS)

Management indicator species have been designated on the Forest to track and evaluate the effects of forestland management activities on all wildlife species that occur on the Forest. The MIS for the Umpqua National Forest include the spotted owl, pileated woodpecker, pine marten, bald eagle, peregrine falcon, Roosevelt elk, blacktail deer, and one group of cavity nesters. The habitats for the indicator species that are present on the Cottage Grove District are addressed in the balance of this report and in the Biological Assessment.

1. Big Game (Blacktail Deer Roosevelt Elk)

Affected Environment

Disturbance associated with recreational activities within the Rujada Camp result in unsuitable habitat conditions for blacktail deer. However, they may on occasion visit the campground area. There are no Roosevelt elk within or adjacent to Rujada Camp.

Environmental Consequences

Alternative 1, Alternatives 2 and 3

Direct, Indirect and Cumulative Effects

All proposed alternatives would have no effect to this species and would contribute to no additional cumulative effects.

2. Pine Marten

Affected Environment

The 9-acre Rujada Camp is within the historical home range of the pine marten. Pine marten have been documented within the watershed. Pine marten is considered a species associated with late-successional forests. Late-successional forests provide large trees and large snags (structural components of old-growth) that function as habitat for these species and their associated prey base. Current conditions of late-successional habitat within the 42,164-acre watershed is 35%. Pine marten may use these stands as foraging habitat, however disturbance associated with recreational activities generally results in unsuitable habitat conditions.

ROD Standards & Guidelines and Layng Creek Watershed Analysis provide guidance for retention of late-seral forest on approximately 50% of the Layng Creek watershed. Connective corridors and landscape design that have been recommended in the Layng Creek Watershed Analysis report will facilitate the interaction of these species with associated habitat and prey species within the watershed. Additionally, the FSEIS provides habitat to maintain viable populations of late-successional species (pine marten) within the range of the Northern Spotted Owl on federally managed forests. The FSEIS allocates large blocks of Late Successional Reserves and other Administratively Withdrawn Areas as habitat for these old-growth dependent species.

Environmental Consequences

No Action Alternative 1, Action Alternatives 2 and 3

Direct & Indirect Effects

- The effects of disturbance to this mustelid and their prey from recreational activities will likely be similar between all alternatives. Avoidance of the campground will occur during the months of June to October.

- The effects to coarse wood habitat (snags and down wood) will likely result in similar outcomes in all alternatives. Habitat will be degraded from the removal of hazard trees/snag (No Action) or by capturing the tree mortality in the thinning operation (Action Alternatives). Down wood will continue to be managed and left on site where feasible.

- The Action Alternatives will remove native vegetation to establish new tent sites. This is a minor alteration of habitat and will have no measurable effect to this mustelid.

Cumulative Effects

- The campground will continue to be a source for disturbance from recreational activities during the summer months. Additionally the City of Cottage Grove water treatment facility, located adjacent to Layng Creek and Rujada Camp, is another source of disturbance throughout the year. The facility is usually visited at least once a day and

there is constant noise from pumps, generators, or other human activities. Coarse wood will be retained on site where feasible in the future.

3. Cavity Nesters/Pileated Woodpecker

Affected Environment

Most snag habitat has been removed within the 9-acre Rujada Camp, because they are deemed as hazards. Recently some down trees have been retained within the campground and three piles of logs (range from 5”to35” diameter, average 10-12” diameter) have been returned to the campground that were removed as dead/hazard trees. These down trees may provide for foraging habitat, nesting sites are limited without the snags. Surrounding stands have also been managed: originally with a regeneration harvest and then commercial thin, reducing opportunities for creation of snags and down wood from natural processes such as disease, insects and suppression mortality. Some small diameter snags (less than 3 per acre) have developed in the last few years within the adjacent stands.

Environmental Effects

Alternative 1, Alternatives 2 and 3

Direct Effects

- The effects between alternatives will likely result in no measurable deference. Any adverse effects will result from disturbance and the loss of snag habitat. There is a potential for an increase in disturbance with the increase in camp sites. However, the additional sites are within the existing campground area, resulting in camp sites that are closer together, which does not necessary equate to additional disturbance effects within the 9-acre campground. The current level of disturbance (No Action Alternative) likely exceeds any thresholds for species that are sensitive to disturbance.

- Snags are known roost sites and provide a critical habitat function. Snags that become a hazard to campers will be fallen in the future as they have been in the past (the No Action Alternative). Generally the trees that are marked to be felled (the Action Alternatives) will die from suppression mortality and will be removed as a hazard before they could function as habitat. Therefore the impacts result in the same outcome over time between alternatives. All Alternatives will reduce snag or potential snag habitat and will likely have impacts to these species.

Cumulative Effects

- Cumulatively all snags count when resources are low. More than 70% of the watershed has had natural snags levels impacted from timber harvest. 100% of the watershed has been subjected to fire suppression; overall there is a significant reduction in snag habitat compared with historical levels. The trend is for habitat condition to improve with the protection of riparian habitat elsewhere in the watershed.

E. Threatened and Endangered and Sensitive Species Biological Evaluation

Activities considered in this project require a Biological Evaluation to be completed (FSM 2672.4). The intent of the Biological Evaluation process is to conduct and document activities necessary to ensure that the proposed management actions will not jeopardize the continued viability or cause adverse modification of habitat for: A) Species listed or proposed to be listed as threatened or endangered by the USDI-Fish and Wildlife Service. B) Species listed as sensitive by USDA-Forest Service Region 6.

The Biological Evaluation is a 4-step process. Evaluation of impacts on a given species may be complete at the end of Step #1 or may extend through Step #4.

The following table 1 summarizes the species suspected to occur in the analysis area and the results of surveys preformed in the area.

Table 2 – Summary of Biological Evaluation Process

SPECIES	STEP 1 Pre-field Review – Habitat Present?	STEP 2 Reconnaissance Assessment – Species Located?	STEP 3 Risk – Conflict?	STEP 4 Biological Investigation - Required
Rhyacottiton cascades	YES	NO		
Clemmys marmorala marmorala	YES	YES	YES	YES
Strix occidentails	YES	YES	YES	YES
Falco peregrinus	NO			
Haliaeetus leucocephalus	NO			
Histrionicus histrionicus	YES	NO		
Corynorhinus townsendi	YES	NO		
Myotis thysanodes vespertinus	YES	NO		
Sorex pacificus cascadensis	YES	YES	YES	YES
Gulo gulo luteus	YES	NO		
Martes pennanti pacifica	YES	NO		

1. Birds

a. Northern Bald Eagle (Haliaeetus leucocephalus) Status: Threatened

Affected Environment

There is no affected environment for the Northern Bald Eagle within the Layng Creek watershed. The Northern Bald Eagle is not a potential inhabitant of the project area. This raptor prefers large bodies of water supporting fish populations or flocks of waterfowl in combination with mature or old growth forest habitat for nesting and roosting. They are strongly affiliated with these habitat features although they may be observed over any terrestrial or aquatic area. There is no winter roost or nesting sites within the watershed.

Environmental Consequences

Alternative 1, Alternatives 2 and 3

Direct, Indirect and Cumulative Effects

All proposed alternatives would have no effect to this listed species. There are no cumulative effects because there is no winter roost or nesting sites within the watershed and no measurable impacts to the aquatic environment. No consultation will be required under ESA Section 7.

b. American Peregrine Falcon (Falco peregrinus anatum) Status: Sensitive

Affected Environment

The affected environment for the peregrine falcon is a cliff or rock bluff (at least 100 feet high) with suitable ledges that provide nesting habitat (free from predators) and areas (generally riparian habitat) with abundant bird populations for foraging (Pagel, J. E. 1995). This habitat type

is not present within or near the area (more than five miles) of the Rujada Camp. Quality cliff habitat is a limiting factor for this bird of prey; habitat does exist within the watershed, however peregrine falcons have not been observed nesting within the drainage at this time. They feed almost exclusively on other birds that are caught in flight.

Environmental Consequences

Alternative 1, Alternatives 2 and 3

Direct, Indirect and Cumulative Effects

All proposed alternatives would have no effect to this species and would contribute to no additional cumulative effects. The nearest known peregrine nest site is more than 7 miles away. Peregrine generally forage within a seven-mile radius of their nest site.

c. Harlequin Duck (Histrionicus histrionicus) Status: Sensitive

Affected Environment

The Harlequin duck is a potential inhabitant of the project area. The affected environment for the harlequin duck is Layng Creek and the adjacent riparian habitat. This species may occur along any fish-bearing or large Class III stream that supports an adequate forage base and is relatively free from human disturbance. Harlequins are sea ducks that inhabit rocky ocean shorelines; they migrate to utilize turbulent, mountain streams during the breeding season (Bengtson, 1996). Their preferred stream habitat is large, rocky, swift streams or rivers, generally with many down trees, out-washed root wads, and similar debris along the edges of the stream course. Little is known about the breeding habitat requirements, but based on the few available records; nest locations appear to be on the ground under overhanging vegetation, rocks or stream debris. Harlequin ducks begin to appear in mountain streams between March and April. Nesting occurs from May to early June. The males return to the coast after the egg clutch is completed. The female and brood will remain in the stream/river system until late September. The species feeds mainly on animal matter including mollusks, crustaceans, insects and fishes (Thompson, J., R. Goggans, P. Greenlee and S. Dowlan, 1993). Disturbance from timber harvest, road use, and recreation activities limits habitat suitability for this species along Layng Creek. A member of the Eugene Audubon Society documented one harlequin duck within the adjacent lower Brice Creek system during the summer of 2000. There are no known breeding ducks within the watershed, but it is assumed that they may occupy suitable habitat within the watershed during the spring and summer months on any given year.

Environmental Consequences

Alternative 1

Direct Effects

There will be no additional direct, indirect effects. Disturbance from recreation activities within and near the stream habitat will continue as in the past years.

Alternative 1, 2 and 3

Direct and Indirect Effects

The level of disturbance from addition of 4 to 7 new camp sites and the play structure within the 9-acre Rujada Camp will result in no measurable differences between No Action and Action alternatives.

If implemented outside of nesting and rearing season (April to September), these action items will have no measurable impacts to Harlequin Ducks:

- Removal of the culvert located on the hillside south of the campground boundary.
- Improving accessibility by hardening access trails.

- The clearing associated with the relocation of the horseshoe pits within the riparian vegetation.
- Tree removal.

Cumulative Effects

All alternatives will create similar levels of disturbance from recreational activities which will likely preclude opportunities for this species to occupy this portion (approximate tenth mile) of Layng Creek. Additionally the City of Cottage Grove water treatment facility, located adjacent to Layng Creek and Rujada Camp, is another source of disturbance throughout the year. The facility is usually visited at least once a day and there is constant noise from the pumps and generators.

There will be another project within suitable stream habitat adjacent to the Rujada Camp. The project will remove a portion of a dam that reaches across Layng Creek, enhancing connectivity for aquatic species. This project will enhance habitat for harlequin ducks.

The trend is for improvement with current land management standards and guidelines and this species is expected to benefit from protection of riparian habitat designed for both aquatic and terrestrial species.

d. Northern Spotted Owl (Strix occidentalis caurina) Status: Threatened

The northern spotted owl utilizes mature forests for both nesting and foraging and is considered to be an old growth obligate species. Land management activities to maintain adequate habitat for this species are guided by the Draft Recovery Plan for the Spotted Owl and the Northwest Forest Plan (NFP). Key elements in these conservation strategies are Late Successional Reserves (LSR's), designated Critical Habitat Units (CHU's).

The following definitions were used to prepare this analysis:

> Suitable Habitat - Nesting/roosting/foraging (NRF) habitat that is capable of supporting a reproductive pair of spotted owls. The location and extent of existing suitable habitat comes from Forest GIS mapping.
>
> Dispersal Habitat - Forested areas which can support individuals as they disperse across the landscape, but lack the large diameter trees needed as nesting sites. These stands may provide for some foraging as well as roosting and protection from predators. Under 4,500 feet in elevation, stands with overstory at least 11 inches in diameter and 40% canopy closure qualify as dispersal habitat. Over 4,500 feet, stands with overstory sizes above 9 inches are considered dispersal habitat.
>
> Unsuitable Habitat - Those areas which are capable of developing into either suitable or dispersal habitat but which do not currently meet the definition of either.

These habitat types can be impacted in the following ways:

> Habitat Removal - When a stand of suitable or dispersal habitat is converted to unsuitable habitat.
>
> Habitat Degradation - When components of suitable or dispersal habitat are removed from a stand, but the stand is expected to continue to function in the same habitat classification.
>
> Habitat Downgraded - When suitable habitat is altered sufficiently such that it is expected to function as dispersal habitat after treatment.

Management activities may also have an effect to nesting owls resulting from disturbance. If these activities are above ambient noise levels and are reoccurring and frequent, or of long

duration, they may alter breeding and reproductive activities. At an interagency meeting (6/8/98) with both Fish and Wildlife Service and Forest Service biologists, standardized dates and effect determinations for such activities were discussed. Disturbance activities within 0.25 miles of spotted owl activity centers or suitable, unsurveyed habitat conducted between March 1 and July 16 were determined to cause effects likely to adversely affect the owl, while disturbance activities conducted from July 16 to September 30 were determined to result in effects not likely to adversely affect owls. Activities conducted after September 30th but prior to March 1 were determined to have no effect resulting from disturbance to owls. This distance was extended to 0.5 miles for aircraft activities and 1.0 mile for blasting.

Affected Environment

The affected environment for the spotted owl is the home range distance of 1.2 mile from Rujada Camp. The Northern Spotted Owl is strongly associated with old-growth habitat. The habitat within in the 9-acre campground can best be described as degraded dispersal/foraging habitat. Past management practices for Rujada Camp have resulted in conditions that are not conducive for associated spotted owl or their prey base. Down coarse woody debris is absent in most of the campground due to firewood gathering and that dead or dying trees were designated as hazards and removed. Campers are a source of constant disturbance to wildlife during the summer months. Additionally, the approximately 80 year old stand has limited species and structural diversity, features characteristic of high quality spotted owl habitat.

Rujada Camp is located on the western District boundary; the adjacent private land would best be described as establishment with stand ages ranging form 0-40 years of age for several square miles. Adjacent Forest Service land is a large bock of regeneration harvest (3,200 ac.) resulting from the railroad logging that began in the 1912. A large portion of this area has been commercially thinned and functions as degraded foraging habitat. The adjacent forested lands on the Cottage Grove District are managed as Matrix allocation, generally resulting in degraded or unsuitable spotted owl habitat.

There are no known owl activity centers within 1.2 miles of Rujada Camp. The Dinner Creek pair is within 1.5 miles of the campground and currently has habitat conditions of 46% suitable nesting, roosting and foraging (NRF) habitat within their home range. The Curran Creek pair is within 2.5 miles of the campground and currently has habitat conditions of 34% suitable nesting, roosting and foraging (NRF) habitat within their home range. In addition, dispersal habitat conditions for these owls are greater than 50% per Quarter Township. The selective removal of trees and the construction of new campsites within the campground will not result in any change in habitat conditions within any known owl home range. The removal of trees and the development of new campsites will further degrade existing dispersal/foraging habitat within the 9-acre campground. However, it is unlikely that owl utilize this area because of existing conditions. No owls have ever been documented within or in close proximity to the campground.

Environmental Consequences

Alternative 1

Direct Effects

The No Action Alternative would have no effect to spotted owl habitat. The campgrounds will continue under current management. Habitat will continue to be degraded from the falling of hazard trees/snags and recreational disturbance.

Cumulative Effects

There are no known additional cumulative effects to this species or habitat within the home range of 1.2 miles of the Rujada Campground. In general habitat conditions are expected to improve (greater than 60% suitable habitat) within 100 years to support a viable pair of spotted owls.

Action Alternatives 2 and 3

Direct Effects

- There will be no effect to suitable nesting habitat.
- The trees felled during the selective tree removal process and the development of 4 to 7 new camp sites within the current degraded dispersal/foraging habitat will result in little or no effect to current or future habitat conditions within the 9-acre camp site. Trees that will be felled would have likely died from suppression mortality (snags) in the future and would have been fallen because they would have been deemed as hazards. Canopy closures will remain greater than 40% providing for dispersal habitat. There may be effects to foraging habitat from the felling of trees and a reduction in canopy closure, however conditions currently provide few opportunities for prey species and these conditions are expected to continue in the future. Disturbance from recreation will continue at a similar level as it has in the past throughout the summer months.
- The surrounding area was last surveyed for spotted owls in May and July of 1998; the northern spotted owl pairs were relocated in both historical locations described above. However because of the extended time from the last surveys, a seasonal restriction will be applied to avoid disturbance to nesting and rearing owls. **All activities associated with the removal of trees and the use of heavy equipment for construction (listed below) within the campsite. The seasonal restriction is from March 1 to September 30.**

    1. Tree felling.
    2. The development of 4 to 7 new campsites.
    3. Removal of the culvert located on the hillside south of the campground boundary.

- Habitat will be degraded but still will function as dispersal habitat. Dispersal habitat conditions for these owls are greater than 50% per Quarter Township. There should be no change in dispersal habitat conditions.
- The proposed project is not within Critical Habitat for the spotted owl as designated by the U.S. Fish and Wildlife Service. There will be no effect to Critical Habitat.
- Known Owl Activity Centers are greater than 1 mile from proposed disturbance. There will not be a disturbance effect to known nesting owl sites.

Cumulative Effects

There are no known additional adverse cumulative effects that will occur in the near future. Habitat conditions are expected to improve under current land management. Past timber harvest activities have resulted in poor habitat conditions within the Layng Creek watershed. Of the seventeen known owl pairs that reside in the watershed, only four pair have suitable habitat conditions (greater than 60% suitable habitat within their home range) to be considered a viable pair.

The proposed project was determined to be a May Affect Not Likely to Adversely Affect to the northern spotted owl or its habitat. With the seasonal restriction in place and outside of known northern spotted owl pair home ranges, it is not expected that this project will lead to an “incidental take” of any spotted owls. However the proposed action alternatives will result in additional degrading of dispersal/foraging habitat. Any may or adverse effects on federally listed species require initiation of consultation procedures under ESA Section 7. Consultation with the US Fish and Wildlife Service will occur in November 2003.

2. Mammals

a. Pacific Western Big-eared Bat (Corynorhinus townsendi townsendi) Status: Sensitive

b. Pacific Fringe-tailed Bat (Myotis thysanodes vespertinus) Status: Sensitive

Affected Environment

The affected environment for these bat species is the 9-acre Rujada Camp. The Big-eared and Fringe-tailed bat are a possible inhabitant of the project area. These bats are somewhat rare in Oregon, but have been documented on the District. Population densities are not known, and there is no information on their reproductive success. These bats form nursery colonies in cavities, open caves, adits, bridges, tunnels or buildings they prefer structures with two openings for ventilation. The bats congregate in late spring and summer months at historical nursery sites. Roost sites are a critical resource for bats and availability may play a major role in determining population size (Barclay, Robert M.R. and Brigham Mark R. 1996). Human disturbance and reduction of adequate roost sites can lead to reduced body fitness, resulting in lack of reproductive success or death. No nursery or roosting sites were located within the proposed project site.

Environmental Consequences

Alternative 1, Alternatives 2 and 3

Direct, Indirect Effects

No nursery sites were located within the proposed project site; there will be no impacts to nursery sites.

The effects between alternatives will likely result in no measurable deference. Any adverse effects will result from disturbance and the loss of snag habitat. There is a potential for an increase in disturbance with the increase in camp sites. However, the additional sites are within the existing campground area, resulting in camp sites that are closer together, which does not necessary equate to additional disturbance effects within the 9-acre campground. The current level of disturbance (No Action Alternative) likely exceeds any thresholds for species that are sensitive to disturbance.

Snags are known roost sites and provide a critical habitat function. Snags that become a hazard to campers will be fallen in the future as they have been in the past (the No Action Alternative). Generally the trees that are marked to be felled (the Action Alternatives) will die from suppression mortality and will be removed as hazards before they could function as habitat. Therefore the impacts result in the same outcome over time between alternatives. All Alternatives will reduce snag or potential snag habitat and will likely have impacts to these species.

Cumulative Effects

Cumulatively all snags count when resources are low. There is no information on the impacts of the loss of this habitat feature (snags) and the effects to populations of bats. Arnett (2001 unpublished) data shows a strong correlation between an increased number of snags and an increased number of bats. The trend for these bats is not known within the watershed. More than 70% of the watershed has had natural snags levels impacted from timber harvest. 100% of the watershed has been subjected to fire suppression, overall there is a significant reduction in snag habitat compared to historical levels. The trend is for habitat condition to improve with the protection of riparian habitat elsewhere in the watershed.

c. Pacific Shrew (Sorex pacificus cascadensis) Status: Sensitive

Affected Environment

The affected environment is the 9-acre Rujada Camp. The Pacific shrews are generally found in wet areas along forest streams flowing through red alder and salmonberry. These marshy areas are abundant with fallen trees. Although, the shrew can be found around fallen trees in moist conifer forest (Maser, 1998), as well. They seem to be strongly associated with riparian stream habitat and are seldom evident elsewhere. Shelter is important to them, and they are seldom found far

from protective cover, such as log and vegetative thickets (Maser, 1998). Pacific shrews are carnivorous, eating small reptiles, snails, slugs, earthworms, insects, centipedes and millipedes (Maser, 1998). Pacific shrews are assummed to occupy sites because of the marsh and riparian habitat within and adjacent to the campground (but with a very low likelihood). A determination of presence requires trapping, which likely leads to death. Therefore, no trapping occured.

Environmental Consequences

No Action Alternative 1, Action Alternatives 2 and 3

Direct & Indirect Effects

Historically the Rujada Camp area likely provided suitable habitat for shrews. The current condition however has likely excluded the use by Pacific Shrews: Cover has been removed or reduced from activities as firewood gathering and hazard tree removal. Human recreational activities and pets (dogs) that occupy the site from June to October have made habitat conditions unfavorable. The action alternatives propose to create new sites within the current 9-acre campground area, resulting in additional reduction of vegetation within the 9-acre site. However, there will likely be no additional measurable adverse effects between the No Action and the Action Alternatives to the quality of habitat for shrews. All alternatives will result in a similar level of disturbance from recreational activities and continued impacts to coarse wood cover.

Cumulative effects

The trend for this species is for improvement with current land management standards and guidelines that protect riparian habitat designed for both aquatic and terrestrial species. There are no known actions that will further degrade habitat condition at or near the campground.

d. California Wolverine (Gulo gulo luteus) Status: Sensitive

e. Pacific Fisher (Martes pennanti pacifica) Status: Sensitive

Affected Environment

Riparian habitat is an important foraging area for fisher and wolverine (GTR-245). The 9-acre area of Rujada Camp would be described as foraging habitat. There is no information on population trends within the watershed. In Oregon, they are considered rare with most sightings in the Cascades. One wolverine was documented in 1990 at the Quartz Creek rock pit after Oregon Department Fish & Wildlife interviewed hunters who reported the observation. Human intrusion may limit their presence on the Cottage Grove Ranger District**.** These species are forest carnivore associated with boreal forest (Banci, V. 1994). Aubry and Houston suggest fisher habitat would be enhanced by retaining old growth and second-growth conifer forests, minimizing fragmentation, maintaining a high degree of forest floor structural diversity, preserving large snags and live trees with dead tops, maintaining continuous canopies in riparian zones, protecting swamps and forest wetlands (1992). Both species are sensitive to human disturbance. Habitat conditions are generally poor within the watershed, due to past management activities that created an abundance of young timber stands that lack coarse wood.

Environmental Consequences

No Action Alternative 1, Action Alternatives 2 and 3

Direct & Indirect Effects

The effects of disturbance to these mustelids and their prey from recreational activities will likely be similar between all alternatives. Avoidance of the campground will occur during the months of June to October.

The effects to coarse wood habitat (snags and down wood) will likely result in similar outcomes in all alternatives. Habitat will be degraded from the removal of hazard trees/snags (No Action) or by capturing the tree mortality in the thinning operation (Action Alternatives). Down wood will continue to be managed and left on site where feasible.

The Action Alternatives will remove native vegetation to establish new tent sites. This is a minor alteration of habitat and will have no measurable effect to these mustelids.

Cumulative Effects

The campground will continue to be a source of disturbance from recreational activities during the summer months. Additionally the City of Cottage Grove water treatment facility, located adjacent to Lanyg Creek and Rujada Camp, is another source of disturbance throughout the year. The facility is usually visited at least once a day and there is constant noise from pumps, generators, or other human activities. Coarse wood will be retained on site where feasible in the future.

3. Herptiles

a. Cascade Torrent Salamander (Rhyacottiton variegates) Status: Sensitive

Affected Environment

There is no affected environment for the Cascade Torrent Salamander. This species is an aquatic salamander found in or very close to clear cold (usually 46-55 ºF), seeps, spring seepage, streams; and especially in streams with gravel-dominated substrates and low sedimentation (Jennings, Hayes 1994). They have been reported from near sea level to 1,469 meter elevation (Marshall, D. B., M. W. Chilcote, and H. Weeks. 1996). Typically, they occur in the splash zone where rocks are covered by a thin film of water. Large roaring streams are seemly avoided.

Environmental Consequences

Alternative 1, Alternatives 2 and 3

Direct, Indirect and Cumulative Effects

Rudaja Camp has no such habitat; all alternatives will have no impact to this species or habitat.

b. Northwestern Pond Turtle (Clemmys marmorata marmorata) Status: Sensitive

Affected Environment

The affected environment for the northwest pond turtle is Layng Creek and adjacent terrestrial habitat within the Rujada Camp. The species originally ranged from northern Baja California to the Puget Sound of Washington (Nussbaum, Brodie, Storm 1983). It is now rare north of Eugene, Oregon and has been extirpated from some of its southern range. Western pond turtles are closely associated with aquatic or wetland habitats (streams, rivers, lakes, ponds) below 6,000 feet in elevation (Nussbaum, Brodie, Storm 1983). They often utilize large, deep pools within streams and rivers with little or no current. Large amounts of emergent logs, vegetation or rock are needed for basking or cover. Shallow water areas serve as microhabitat for neonates and juveniles (Nussbaum, Brodie, Storm 1983). Turtles feed on invertebrates, but also scavenge on dying fish and carcasses. Breeding occurs from May to September and eggs are laid from May to July (Nussbaum, Brodie, Storm 1983). Nests can occur as far as 0.5 miles from water and are usually found on gentle slopes in dry, well-drained soils with significant clay/silt content. Preferred nest sites are in or along open areas dominated by grass/forbs or shrub habitat with sunny southerly exposures. Clutches of 5-13 eggs are laid from late May to August. Eggs hatch in about twelve weeks, but hatchlings are thought to over-winter in the nest, and emerge the following spring. Adults have been known to over winter in the forest at distances up to 5 km. from water (Nussbaum, Brodie, Storm 1983).

One turtle was captured in 1989 just east of the campground crossing the Layng Creek Road. Two turtles were witnessed (1993) basking in a pool ¼ mile upstream from the campground in Layng Creek. Several incidental surveys have been conducted over the past six years without success in detecting additional pond turtles.

No turtles were located within the proposed project area. Habitat conditions do not appear to be suitable for nesting, however the campground provides suitable over-wintering habitat.

Environmental Consequences

Alternative 1, Alternatives 2 and 3

Direct Effects

The northwest pond turtle could disperse through the area and they occupy Layng Creek. Recreational activities that create disturbance in the campground and within the adjacent Layng Creek will likely result in displacement of turtles within the stream habitat (one tenth of mile) adjacent to the campground during the summer months.

Cumulative Effects

There will be one other project within suitable stream habitat adjacent to the Rujada Camp. The project will remove a portion of a dam that reaches across Layng Creek, enhancing connectivity for aquatic species. This project will enhance habitat for pond turtles. There will be short term (6 months) impacts to riparian vegetation and in stream disturbance (approximately 2 days) from the excavator while removing a portion of the dam. The campground will continue to be a source of disturbance from recreational activities during the summer months. Additionally the City of Cottage Grove water treatment facility, located adjacent to Layng Creek and Rujada Camp, is another source of disturbance throughout the year. The facility is usually visited at least once a day and there is constant noise from pumps, generators, or other human activities. With current land management standards and guidelines this species is expected to benefit from protection of riparian habitat designed for both aquatic and terrestrial species within federally managed lands.

Alternatives 2 and 3

Direct Effects

The northwest pond turtle could disperse through the area and occupy Layng Creek. Disturbance from recreational activities within the campground and the adjacent Layng Creek will likely result in displacement of turtles within the stream habitat (one-tenth of mile) during the summer months.

Injury may occur if turtles are dispersing or over-wintering at the site during the felling of trees and the construction of proposed camp sites.

The construction of additional camp sites and the removal of trees are not expected to have a measurable impact to the quality of wintering habitat.

Cumulative Effects

There will be one other project within suitable stream habitat adjacent to the Rujada Camp. The project will remove a portion of a dam that reaches across Layng Creek, enhancing connectivity for aquatic species. This project will enhance habitat for pond turtles. There will be short term (6 months) impacts to riparian vegetation and instream disturbance (approximately 2 days) from the excavator while removing a portion of the dam. The campground will continue to be a source for disturbance from recreational activities during the summer months. Additionally the City of Cottage Grove water treatment facility, located adjacent to Layng Creek and Rujada Camp, is another source of disturbance throughout the year. The facility is usually visited at least once a day and there is constant noise from the pumps, generators, or other human activities. With current land management standard and guidelines this species is expected to benefit from protection of riparian habitat designed for both aquatic and terrestrial species within federally managed lands.

Botany and Noxious Weeds

- How will new noxious weed invasions and spreading of seeds from adjacent private land be prevented?

- How will disturbed soils be re-vegetated and with what species?

Affected Environment

Rujada Camp lies within the riparian reserve of Layng Creek. Layng Creek watershed is located on the western slope of the Cascade Range and is the municipal watershed for the community of Cottage Grove. The camp is located on a bench immediately downstream of the water treatment facility and the District work center. Historic activities have modified the riparian plant communities by introducing a variety of artificial openings and non-native plant species.

The project area is shaded by a closed canopy of mixed forest dominated by Douglas-fir and big-leaf maple, with occasional western red-cedar and Pacific yew. The understory is shrubby with vine maple, salal, and swordfern. Drainage patterns around and through the camp have formed pockets of moister areas that support vigorous populations of native perennial forbs as well as non-native weedy species. One perennially wet area near campsite 10 is dominated by moist community species including salmonberry, lady fern, spreading wood fern, and skunk cabbage.

Threatened, Endangered and Sensitive Plants – Biological Evaluation

Activities considered in this project require a Biological Evaluation to be completed (FSM 2672.4). The intent of the Biological Evaluation process is to conduct and document activities necessary to ensure that the proposed management actions "will not jeopardize the continued viability or cause adverse modification of habitat" for: A) Species listed or proposed to be listed as threatened or endangered by the USDI-Fish and Wildlife Service, and B) Species listed as sensitive by USDA-Forest Service Region 6.

The Biological Evaluation is a four-step process summarized in the table below. Evaluation of impacts on a given species may be completed at the end of Step #1 or may extend through Step #4. A 'NO' response to the query eliminates the need for further evaluation of that species. The review process for this project included a Prefield Review for Threatened, Endangered, and Sensitive (TES) plants and field reconnaissance.

This assessment examines the potential effects to plant resources that may result from implementation of actions or activities associated with the Rujada Camp Vegetation and Infrastructure Management Plan. The Prefield Review process included examination of file records from Cottage Grove Ranger District. In addition, there was an on-site review of the analysis area by the District Botanist and Biological Technicians on staff. The following table summarizes the species suspected to occur in the analysis area and the results of surveys performed in the area.

Table 3.1 – Sensitive Plant Species

SENSITIVE PLANT SPECIES	Step #1 Prefield Review (Habitat Present?)	Step #2 Field Survey (Species Located?)	Step #3 Risk (Conflict?)	Step #4 Biological Investigation (Required?)
Arabis suffratescens var. horizontalis	NO			
Arnica viscosa	NO			
Asplenium septentrionale	NO			
Aster vialis	YES	NO		
Botrychium lanceolatum	NO			
Botrychium minganense	YES	NO		
Botrychium pumicola	NO			
Calamagrostis breweri	NO			
Calochortus umpquaensis	NO			
Carex crawfordii	YES	NO		
Carex serratodens	YES	NO		
Cimicifuga elata	NO			
Collomia mazama	NO			

Cypripedium fasciculatum	YES	NO		
Frasera umpquaensis	NO			
Fritillaria glauca	NO			
Gentiana newberryi var. newberryi	NO			
Hazardia whitneyi var. discoidea	NO			
Illiamna latibracteata	YES	NO		
Isopyrum stipitatum	NO			
Kalmiopsis fragrans	NO			
Lewisia columbiana var. columbiana	NO			
Lewisia leana	NO			
Lupinus sulphureus ssp. kincaidii	YES	NO		
Montia howellii	YES	NO		
Ophioglossum pusilum	YES	NO		
Pellaea andromedaefolia	NO			
Perideridia erythrorhiza	YES	NO		
Polystichum californicum	NO			
Romanzoffia thompsonii	NO			
Wolffia borealis	NO			
Wolffia columbiana	NO			

There are 32 sensitive, threatened, and endangered plant species suspected or documented on the Umpqua National Forest. Only one sensitive species, *Romanzoffia thompsonii*, has been documented on the Cottage Grove Ranger District.

A. Threatened and Endangered Plants

Many threatened and endangered plant species are restricted to specific habitat types and elevations. As determined by the prefield review, suspected habitat is present within the Rujada Camp project area for *Aster vialis* and *Lupinus sulphureus* ssp. *kinkaidii*. Both species are listed as threatened.

Surveys were completed by district botanical personnel using complete or intuitive control survey protocols. Field surveys for these species were accomplished during the appropriate survey period. No additional surveys will be required. Surveys conducted in the analysis area found no Threatened or Endangered species, therefore proposed activities will have no impact on these species.

B. Sensitive Plants

Many sensitive plant species are restricted to specific habitat types and elevations. As determined by the prefield review, suspected habitat is present within the Rujada Camp project area for six sensitive plant species.

Surveys were completed by district botanical personnel using complete or intuitive control survey protocols. Field surveys for these species were accomplished during the appropriate survey period. No sensitive plant species were located in the proposed treatment area; no additional surveys will be required.

Environmental Consequences

No threatened, endangered or sensitive plants were found during surveys, therefore the Biological rating for this project is No Impact.

In the event that a sensitive or threatened plant population is discovered after the project is implemented, project modifications may result.

Survey and Manage Species

The Northwest Forest Plan requires protection of certain vascular and non-vascular plant, lichen, and fungi species that may not be protected by other standards and guidelines. Based on management needs of individual species, four survey strategies or 'components' were defined in the Northwest Forest Plan Standards and Guidelines in 1994. In February 2001, a new Record of Decision was implemented in which the four components were replaced with six categories). Survey and Manage listed species were reorganized into those six categories. Pre-disturbance survey and protection requirements were increased for some species, while others were dropped from the management list entirely.

Table 3.2 – Survey and Manage

Relative Rarity	Pre-Disturbance Surveys Practical	Pre-Disturbance Surveys Not Practical	Status Undetermined
Rare	**Category A** • Manage All Known Sites • Pre-Disturbance Surveys	**Category B** • Manage All Known Sites • N/A	**Category E** • Manage All Known Sites • N/A
Uncommon	**Category C** • Manage High-Priority Sites • Pre-Disturbance Surveys	**Category D** • Manage High-Priority Sites • N/A	**Category F** • N/A • N/A

During prefield review, it was determined that suspected habitat occurred for 13 Survey and Manage botanical species. Botanical technicians performed a combination of complete and intuitive control field surveys in June and July of 2000 (see table below). The level of intensity varied depending upon the habitat encountered. In areas of suitable habitat (i.e. specific substrates, microclimates, hardwood gaps), intensive surveys were performed. Complete vascular and non-vascular plant species lists were composed for the area. Unknown species were collected and identified in the laboratory using microscopic techniques. Voucher specimens were obtained for species of interest and are kept on file at the District Office. References included the "Guide for the Identification of Rare, Threatened or Sensitive Bryophytes in the Range of the Northern Spotted Owl, Western Washington, Western Oregon, and Northwestern California" (Christy and Wagner 1996), "Mosses of the Pacific Northwest" (Lawton 1971) and "Macrolichens of the Pacific Northwest" (McCune and Geiser, 1997).

The bryophyte communities of Rujada Camp are rather limited in diversity due to several factors. The highly disturbed, compacted soils of the campground do not support bryophyte communities typically found on a shaded forest floor. In addition, there are only traces of decaying wood to provide substrate for log-dwelling bryophytes. There were no Survey and Manage bryophytes found during the surveys.

A population of the Category A lichen *Ramalina thrausta* is located in the riparian reserve along the Swordfern trail. This species is an epiphytic lichen associated with cool, moist riparian forests with high humidity. Category A lichens must be protected from actions that would adversely affect populations. The main threats to the population would be removal of colonized substrate (trees and shrubs) and alteration of microclimate through reduction of canopy closure or declining air quality due to campfire smoke. Located about ¼ mile from the planning area, the actual extent of the population is unknown as it occupies the canopy and is not visible from the ground.

There were no S&M vascular species found during field surveys.

Surveys were performed by qualified technicians and botanists at the appropriate time of the year for detection and identification of species.

Table 3.3 – Survey and Manage Botanical Species Survey Summary

SURVEY & MANAGE SPECIES	Type of species	Category	Habitat Present?	Species Located?
Bridgeoporus nobilissimus	Fungus	A	**N**	
Botrychium minganense	plant	A	**Y**	**N**
Botrychium montanum	plant	A	**Y**	**N**
Bryoria tortuosa	lichen	A	**Y**	**N**
Coptis asplenifolia	plant	A	**N**	
Coptis trifolia	plant	A	**N**	
Corydalis aquae-gelidae	plant	A	**N**	
Cypripedium fasciculatum	plant	A	**Y**	**N**
Cypripedium montanum	plant	A	**Y**	**N**
Eucephalus vialis (=Aster vialis)	plant	A	**Y**	**N**
Galium kamtschaticum	plant	A	**N**	**N**
Leptogium burnetiae var. hirsutum	lichen	A	**Y**	**N**
Platanthera orbiculata	plant	A	**N**	
Platismatia lacunosa	Lichen	A	**Y**	**N**
Pseudocyphellaria rainierensis	lichen	A	**Y**	**N**
Ramalina thrausta	lichen	A	**Y**	**Y**
Schistostega pennata	bryophyte	A	**Y**	**N**
Tetraphis geniculata	bryophyte	A	**Y**	**N**

Noxious Weeds and Other Invasive Non-Native Species

Many non-native weedy species occur within the planning area, especially near and within the open grass field and adjacent to the western boundary of the project area. Non-native grasses dominate the field and provide a seed source for the surrounding area. Other invasive non-native plants included spotted cats-ear (*Hypochaeris radicata)*, English lawn daisy (*Bellis perennis)*, and the noxious weeds St. John's wort (*Hypericum perforatum*) and Himalayan blackberry (*Rubus discolor*). A large population of Scot's Broom (*Cytisus scoparius*) along the western boundary of the planning area poses a threat to the campground. The size and density of this infestation will continue to provide seed for future invasions of this area, unless the landowner takes aggressive control measures.

Table 3.4 – Umpqua National Forest Noxious Weed List

Common Name	Species	Umpqua Rating	Oregon Rating	
False Brome	*Brachypodium sylvaticum*	A	B	
Italian Thistle	*Carduus pycnocephalus*	A	B	
Wooly Distaff Thistle	*Carthamus lanatus*	D	A	**State Rating System:**
Diffuse Knapweed	*Centaurea diffusa*	A	B	**A** - Weeds of known economic importance occurring in small enough infestations to make eradication or containment possible; or which are not known to occur, but presence in neighboring states makes future occurrence in Oregon seem imminent.
Spotted Knapweed	*Centaurea maculosa*	A	B	
Meadow Knapweed	*Centaurea x pratensis*	B	B	
Russian Knapweed	*Centaurea repens*	D	B	
Bull Thistle	*Cirsium vulgare*	B	B	
Canadian Thistle	*Cirsium arvense*	B	B	
Rush Skeletonweed	*Chondrilla juncea*	A	B	
Scotch Broom	*Cytisus scoparius*	A	B	
Striated or Portuguese Broom	*Cytisus striatus*	A	B	**B** - Weeds of economic importance. Regionally

French Broom	*Genista monspessulana*	A	B
English Ivy	*Hedera helix*	A	B
St. John's wort	*Hypericum perforatum*	B	B
Yellow Toadflax	*Linaria vulgaris*	A	B
Purple Loosestrife	*Lythrum salicaria*	D	B
Japanese Knotweed	*Polygonum cuspidatum*	A	B
Giant Knotweed	*Polygonum sachalinense*	A	B
Sulphur Cinquefoil	*Potentilla recta*	A	B
Himalayan Blackberry	*Rubus discolor*	A	B
Tansy Ragwort	*Senecio jacobaea*	B	B
Milk Thistle	*Silybum marianum*	D	B
Spanish Broom	*Spartium junceum*	D	B
Medusahead Rye	*Taeniatherum caput-medusae*	B	B
Common Tansy	*Tanacetum vulgare*	A	not listed
Puncture-vine	*Tribulus terrestris*	D	B
Gorse	*Ulex europaeus*	A	B

abundant, but may have limited distribution in some counties. Biologic control is preferred method.

UNF Rating System
A- Limited distribution on the Forest. Subject to intensive control or eradication where feasible.

B- Too widely distributed on the forest to be efficiently treated by currently available intensive control methods. Subject to intensive control methods where feasible.
D - Not known to occur on the forest. Infestations would be elevated to the A list and subject to intensive control methods .

Effects of the Alternatives

Alternative 1 – No Action

Direct and Indirect Effects

There would be no direct effects to TES and S&M species.

There is potential for long term effects to the population of *Ramalina thrausta* if stand health declines. If stand health does not improve there is a greater potential for beetle activity affect the trees along the creek that provide canopy cover for the population of Ramalina thrausta. It is not known if a loss of a group of trees close to the population would result in microclimate changes that would adversely affect the population.

If this alternative were selected, the existing patches of Himalayan blackberry at proposed new campsite locations would remain subject to periodic weed management activities. However, it is unlikely that the larger patches would be eradicated due to the vegetation and soil disturbance that would be required to grub out all underground roots and stems of the colony.

Cumulative Effects

There are no anticipated cumulative effects under this alternative.

Alternative 2 – Proposed Action

Direct and Indirect Effects

There are no anticipated effects to TES species, as none were located within the Plan area.

Thinning within the planning area is not anticipated to directly affect the *Ramalina thrausta* population because it is located far enough from the project area that microclimate would not be affected by project actions.

Thinning activities are expected to reduce mortality from Douglas-fir bark beetle within the stand. This would indirectly reduce future risk of microclimate changes due to tree mortality within the *Ramalina thrausta* habitat.

Ground disturbance such as compaction and topsoil displacement usually temporarily sets back native herbaceous communities and promotes the spread of weedy non-native plants. Soil and vegetation disturbance would occur during tree cutting and log removal. Creation of new campsites and parking areas would permanently remove native vegetation and would create areas of disturbed soils that would be at risk for invasion by noxious weeds. However, application of management requirements would mitigate these risks.

Creation of campsite B would involve the removal of some native shrubs, however, this action would also allow aggressive grubbing and complete eradication of a thicket of Himalayan blackberry.

Cumulative Effects

No cumulative impacts to TES or S&M species are anticipated.

Tree removal activities associated with the Rujada Campground Bark Beetle Infestation Treatment occurred in December of 2000. These activities exposed new soil creating potential seed beds for noxious weed invasion. In addition, planned modification of the Rujada dam would also cause some soil disturbances along the banks of Layng Creek. Exposed soils would be at risk of weed invasion. However, mitigating actions would be required to minimize the risk of weed spreading into new areas around the campground.

Alternative 3

Direct and Indirect Effects

Effects for this alternative would be essentially the same as described in Alternative 2; however, creation of additional campsites would disturb more existing vegetation and soils.

Cumulative Effects

Effects for this alternative would be essentially the same as described in Alternative 2.

Heritage

What is the historic significance of the remaining Civilian Conservation Corp (CCC) Camp Registry Booth that exists within Rujada Camp picnic area and the creek access steps and how will they be protected?

Affected Environment

The Rujada Camp Vegetation & Infrastructure Management Plan is located within the boundaries of the of the existing Rujada Campground and day use picnic area, a developed recreation site in the Layng Creek watershed (below the city water supply intake). Rujada Camp is bordered by Layng Creek to the north; Umpqua National Forest boundary and private property to the west; and the Swordfern loop trail to the east and south.

Records indicate there are no confirmed prehistoric isolates or recorded prehistoric in the project area. The nearest known prehistoric site is a lithic scatter, temporary # 1501A9, recently located (February 2002) approximately 5 miles to the northwest. Several isolates have been located approximately 2 miles to the north.

Rujada Camp has a historic tie to the development of the Cottage Grove Ranger District and also to the Civilian Conservation Corp (CCC) of the 1930's. Rujada Campground and picnic area have been located at this site since the 1930's when the neighboring CCC camp across Layng Creek constructed a few sites to accommodate visiting families and friends during a holiday or weekend. During this era the CCC constructed 10 log tables and stone fireplaces, a bathhouse, and a log registry booth for visitors. Rujada became a popular Sunday outing for the rural communities along the Row River and Cottage Grove. Over the years, improvements and reconstruction have occurred. In 1972 a major reconstruction project improved the road, installed

a water system, constructed the flush toilet building, and installed electricity to the restroom and camp host site.

Known historic sites within Rujada Camp relate to the CCC development of the campground and picnic area and include the folowing:

- partially reconstructed Log Registry structure
- 2 sets of flagstone/concrete steps accessing the banks of Layng Creek
- 2 concrete pads or foundations (one in picnic area and one at site #10)
- Rujada Dam

Effects of the Alternatives

Alternative 1 – No Action

Direct Effects

The Log Registry and one set of flagstone steps will continue to be maintained in like kind. The other items (2 concrete pads or foundations, and set of steps accessing the creek near site 4) will continue to deteriorate due to lack of maintenance and/or use.

Indirect Effects

Opportunities to evaluate and interpret the historic features of Rujada Camp will decrease due to the inevitable deterioration of 3 of the 6 remaining historical features.

Cumulative Effects

No timber sales, road construction or other management activities are planned to occur within Rujada Camp in the foreseeable future however alteration of the Rujada Dam, a historical feature, to improve the aquatic system is expected to occur in the near future. This dam is in a state of disrepair and the proposed alteration will not remove the feature to the extent that it is no longer available for viewing and interpretation. Therefore there is negligible effect on the remaining historical features.

Alternative 2 – Proposed Action

Direct Effects

Alternative 2 will only directly affect the 2nd set of flagstone steps due to the proposed repair. The Log Registry and one set of flagstone steps will continue to be maintained. The concrete pads or foundations will remain status quo and will continue to deteriorate due to lack of maintenance and/or use.

Indirect Effects

Opportunities to evaluate and interpret several (3) of the historic features of Rujada Camp (Log Registry, 2 sets of steps to the creek) will remain.

Cumulative Effects

Same as No Action alternative

Alternative 3

Direct, Indirect and Cumulative Effects

Same as Alternative 2

Visual Resources

Affected Environment

The Rujada Camp Vegetation & Infrastructure Management Plan is located within the boundaries of the of the existing Rujada Campground and day use picnic area, a developed recreation site in the Layng Creek watershed (below the city water supply intake). The campground is bordered by Layng Creek to the north; Umpqua National Forest boundary and private property to the west; and the Swordfern loop trail to the east and south.

Several aspects related to the visual quality of any specific area are taken into account by a visual resource inventory. For an in depth description of each aspect of the visual resource inventory system, refer to the National Forest Landscape Management Volume 2, Chapter 1.

The visual inventory system incorporates several descriptive aspects of any one area. One aspect is the distance zone, ranging from foreground, middle ground, and background, from which an area can be viewed from specific primary points of observation or primary high use areas such as a prominent point of observation such as Fairview Peak or Hardesty Mountain, or from a high use road or water body. Another aspect is the sensitivity level, or the peoples' concern for scenic quality. Sensitivity levels range from the highest, to average, and to the lowest sensitivity concern. These sensitivity levels are generally related to specific travel routes and use areas. The last aspect is the variety class which describes the physical features of the terrain which can range from distinctive, to common, and to minimal. The primary indicator in scenery management is the visual quality objective (VQO) for each site-specific area. This category describes the degree of acceptable alteration of the natural landscape.

Rujada Camp is not visible from any primary observation point or high use areas, but is partially visible from road #17, however in itself, Rujada Camp is considered a primary high use area and therefore Rujada Camp and the surrounding area has a VQO of partial retention. The sensitivity level is two (average) and based on the physical features of the land, this area falls within a variety classification of B (common).

Effects of the Alternatives

Alternative 1 – No Action

The existing 11 campsites and picnic area will remain status quo. No additional campsites would be constructed. The level of facility development would remain the same. General maintenance, repair, and/or replacement of existing facilities will continue on an as needed basis.

Effects of Alternative 1 on the Visual Resource

Direct Effects

- Retains 9.5% of the camp area (0.57 acres) in a cleared state for 11 camp units (0.32 acres in camp units + 0.25 acres in camp spurs).
- Retains 64% of existing sites are completely or partially screened from other sites and from access road.
- Retains a densely stocked or closely spaced Douglas-fir timber stand with limited vegetative and visual diversity.

Indirect Effects

Continued falling of dead and dying hazard trees will create random openings where individual trees and pockets of trees are removed. These openings may create unattractive cleared pockets where the existing shrub layer will quickly fill in.

Cumulative Effects

Other known activities occurring in Rujada Camp include ongoing miscellaneous repair, maintenance, and/or replacement of existing facilities to support current levels of use. No timber sales, road construction or other management activities are planned to occur within Rujada Camp in the foreseeable future. Alteration of the Rujada Dam to improve the aquatic system is expected to occur which will alter the concrete dam appearance from a uniform horizontal dam to a less uniform or closer to natural appearing falls, straight top. Therefore, cumulative effects on the visual resource from these activities are minimal.

Alternative 2 – Proposed Action

Perform selective tree removal; construct 7 additional campsites (A-G) within the existing camp loop thereby increasing capacity to 18 camp units. Provide additional facilities including: enlarging front and rear picnic/trailhead parking areas; constructing a play structure; relocate horseshoes pits, reconstruct trail and steps to creek, and remove culvert from upper abandoned road.

Effects of Alternative 2 on the Visual Resource

Direct Effects

Any alteration to the landscape will have an effect on the visual resource of the area. The degree of effect varies considerably as it is related to many variables including the type of proposed activity; the shape of the alteration; the viewing angle and duration of the view; viewing distance; uniqueness of the landscape; number and types of viewers; and the capacity of each landscape to absorb alteration without loosing its visual character.

This action alternative proposes selective tree removal within the 9 acres of Rujada Camp. No created openings 0.5 acres or larger (suggested range of opening size in acres), as defined by the Visual Quality Objectives for Partial Retention, are proposed and therefore this alternative will not exceed the Visual Quality Objectives for partial retention. However, the selective removal of less healthy or stressed and crowded trees will have an effect on the overall visual character of the forested camp area. Spacing between trees will increase thereby allowing for improved growing conditions of the more vigorous trees. Shrub layers will increase.

The creation of seven additional campsites will cause for an increase from 9.5% to 14% of the camp area being cleared for camp units (0.2 acres) and camp spurs (0.07 acres) or a total increase from 0.57 acres to 0.84 acres. The few trees removed for these new camp sites are part of the selective tree removal.

Indirect Effects

Screening between camp units would decrease until shrub layers filled in. Sense of seclusion from other campers may decrease.

More site development results in greater density of users which may be perceived as approaching more rural ROS development than the inventoried “roaded-natural” management objectives.

Cumulative Effects

Cumulative effects on the visual resource from the known future activities detailed in Alternative 1and from this proposed action are expected to be similar and are minimal.

Alternative 3

Perform selective tree removal; construct 4 additional campsites (A, B, C and G) within the existing camp loop thereby increasing capacity to 15 camp units. Provide additional facilities including: enlarging front and rear picnic/trailhead parking areas; constructing a play structure; relocate horseshoes pits, reconstruct trail and steps to creek, and remove culvert from upper abandoned road.

Effects of Alternative 3 on the Visual Resource

Direct Effects

This action alternative proposes the same selective tree removal within the 9 acres of Rujada Camp and therefore the direct effects from this alternative are the same as Alternative 2.

The creation of four additional campsites will result in an increase from 9.5% to 12% of the camp area being cleared for camp units (0.12 acres) and camp spurs (0.05 acres) or a total increase from 0.57 acres to 0.74 acres. The few trees removed for these new camp sites are part of the selective tree removal.

Indirect Effects

Indirect effects are similar to Alternative #2 however are proportionately less due to the decreased number of new sites being proposed for construction. Sense of seclusion from other campers may decrease but will be short term due to lush understory of shrubs and the further spacing of adjacent campsites.

Cumulative Effects

Cumulative effects on the visual resource from these activities are the same as Alternative 2 and are minimal.

Fuels and Fire

Affected Environment

Rujada Campground is located against the western Cottage Grove District boundary within the Layng Creek Watershed. It is positioned at the bottom of a northwest-facing slope, at 1200 feet elevation. The fire regime of the watershed is defined as moderate, in terms of severity. Moderate severity is characterized by infrequent fires (25-100 years) that are generally partial stand replacement, but with significant areas of both low and high intensity. This regime is characteristic of the Western hemlock plant associations (Agee, Fire Ecology of Pacific Northwest Forests, 1993).

The mean fire return interval for the entire Layng Creek Watershed is 26 years; the natural fire rotation is just over 71 years. The natural fire rotation is the amount of time it takes for an area equivalent to the acres of the area under study to burn. Excluding slash burns following harvest activities in and around the campground site since the early 1900's, the only natural ignition (found during fire history studies) was a mixed severity fire (predominantly partial stand replacement) that occurred in the 1690's. Prior to that, evidence suggests stand replacement fires occurred sometime within the 1447 to 1550 time period. Since then, no evidence of stand replacement has been found.

Tree species in the area include Douglas-fir, western hemlock, western red cedar, yew, chinquapin, big leaf maple and red alder. Shrub/brush species include rhododendron, dwarf Oregon grape, salal, vine maple and sword fern. Understory and shrub layers vary from light to moderate in density. The site is best described as timber fuel model eight, which is characterized by low surface fuel loadings and slow burning ground fires.

The centerline of a military training route (IR-346) enters the forest approximately 2 miles north of the Rujada Campground at T21S-R1E-19. The route's width extends four nautical miles both north and south of the centerline. Air speed is subsonic above 360 knots ground speed and allows pilots to operate under visual flight rules (VFR) as low as 200 feet above ground level (AGL) during the day and 800 AGL at night. Navy aircraft may operate between 500 AGL and the Minimum Obstruction Altitude regardless of weather, both day and night.

It is essential that any activities associated with this project that may at any time extend above tree top level be first discussed with the District Aviation Officer (Bev Reed) in order to identify and mitigate any risks to the project or the military.

Effects of the Alternatives

After harvest activities the site will more closely resemble fuel model ten, in which surface fuel loadings are heavier and fire intensities are correspondingly higher.

However, given the long return interval, low elevation and moist riparian characteristics, it is unlikely that natural ignition would occur or be sustained in all but the most extreme weather conditions. Human caused fire is more likely due to the use the campground receives but the site's characteristics, along with ready access from Layng Creek Road and the abundant water supply of nearby Layng Creek makes such an event unlikely as well. Therefore, the fuels objectives for this project are tailored to the concerns and ideas discussed elsewhere in this environmental assessment, rather than to address fire risk.

Alternative 1 – No Action

The direct (up to ten years) effect of harvest activities will be a temporary increase in fuel loadings, and a slightly increased risk of human caused fires.

Campers would rapidly utilize concentrations of fuels that would contribute to fire spread or intensity, however, so the increased risk would be resolved within one or two camping seasons.

Indirect and cumulative effects (11+ years post-harvest) will include:

- Added nutrients and materials to the litter layer from fuels less than three inches in diameter,
- A loss of the contribution the three to five inch fuels would otherwise make to the forest floor (an assumption that campers will utilize much of it for firewood), and
- An increase in coarse woody debris greater than six inches.

All Action Alternatives

One direct effect, from an air quality standpoint, would be a short-term production of smoke and particulates that would be confined to the local area immediately up and down wind of the campground. Other direct effects would depend on pile locations. Heat stresses to or mortality of native vegetation, ground cover and trees are possible if piles are constructed too close to these resources. Piles that are constructed over bare soil and that burn for extended periods of time will sterilize soils directly underneath.

Indirect effects of the action alternatives would be the same as those for the no action alternative, except that three to five inch fuels would be lost by pile burning as well as by camper utilization.

Transportation

Affected Environment

The transportation routes in the Rujada Camp include roads 1700 420 with a bridge, Road 2232-433, Weyerhaeuser Road and bridge and the Swordfern Trail # 1404.

Road 1700-420: This system provides access from Road 1700 through the campground to each site and the day use area. The system includes a bridge constructed in 1953 across Layng Creek. This road has been used to haul short logs from the area. This system was resurfaced in 2000 with a 2-inch lift of crushed aggregate.

Road 2232-433: This system was constructed in the 1940's and junctions with road 2232 near Rujada Point and 1700-420 in the campground. The original road was over 2.5 miles long. A proposal in the late 70's to abandon the lower segment of the road and use it as part of the Swordfern Trail Loop was approved. The lower segment began at a point where Road 433 intersects Trail 1404, from this point the road becomes the trail and continues in a westerly direction and crosses into private. The Forest Service acquired a 26' right-of-way in 1980 through the private land. The system trail then loops around and ties to Road 1700-420 in the campground near the host site. This segment of road from MP 1.9 to the private land in section 36 has several culverts. The trail has recently (2003) been reconstructed and reestablished through the private lands on which there is right-of-way to the Forest Service.

Road 2232-433 has been closed for 15 years to vehicle traffic. Very little erosion has occurred over this period. Two culverts need to be cleaned and the water bars maintained. A small slide crossed the road in two places during the storms of 1997. Water is presently crossing through the road either in culverts or the natural drainage.

On the trail section of the 433 road above the campground, a segment of ground has slumped and eroded the small stream into Layng Creek. This also occurred in 1997 and damaged a small section of the Swordfern trail that was later repaired by a Boy Scout Troop. The repair included a footbridge constructed on site using materials that came down with the slide. Vegetation has now been reestablished on the slide area.

Effects of the Alternatives

Alternative 1

Direct and Indirect Effects

No change in the above affected transportation environment.

Cumulative Effects

Other future projects include the replacement of the water distribution line, installation of a septic line from the host site to the existing septic tank, and replace the existing septic tank. These projects will utilize the access roads through the camp and picnic areas. This will cause for trenching down the center of the road which will have the least impact on the area vegetation.

Alternative 2

Direct and Indirect Effects

Existing access roads and camp unit spurs will be utilized to remove trees and replace as downed woody. Heavy equipment traffic may affect the gravel surfacing, pumping soil up through the road surfacing, particularly if scheduled during the wet season.

Construction of an additional 7 camp units will require construction of 7 camp unit spurs thereby increasing the need for additional road surfacing and maintenance. These additional spurs will also be used to access the proposed tree falling and removal.

Cumulative Effects

Same as Alternative 1

Alternative 3

Direct and Indirect Effects

Similar to Alternative 2 however the construction of 4 camp unit spurs instead of 7 will have less of an increase in additional road surfacing and maintenance.

Cumulative Effects

Same as Alternative 1

Effects on Other Components of the Human Environment

Potential Effects to Inventoried Roadless and Wilderness Areas

Roadless area management became a national issue in 1972 when the Forest Service initiated a review of certain areas of National Forest System Lands (NFSL) greater than 5,000 acres to determine their suitability for inclusion in the National Wilderness Preservation System. This planning process was called Roadless Area Review and Evaluation (RARE). This initial process (sometimes referred to as RARE I) identified lands meeting certain criteria for wilderness lands.

In 1980, during the RARE II review process, no roadless areas were identified within the Rujada Camp planning area. Therefore there is no effect to Inventoried Roadless Areas in any of the alternatives.

There are no wilderness areas with the planning area. Therefore there is no effect to wilderness areas.

Potential Effects to wetlands and floodplains

Effects to the wet area along the south side of the camp area will be limited to the addition or placement of downed woody material. Therefore, there will be no significant or negative effects to wetlands or floodplains with any alternative.

Potential Effects to prime farm lands, range lands, or park lands

No prime farm lands, range lands, or park lands exist within the watershed.

Potential Effects to local employment and economies

If an action alternative is implemented, there may be some benefit to local employment and economics through potential contracts for camp unit construction and/or tree falling. Increased camp capacity and recreation improvements may increase the potential for out of area tourists visiting the area, staying longer, and using supplies and services in the nearby communities.

Potential Effects to consumers, civil rights, minority groups, and women

There would be no impact to consumers, civil rights, minority groups or women with implementation of any of the alternatives.

Finding Of No Significant Impact in Regard to Cultural Resources, Park Lands, Farmlands, Wetlands, Wild and Scenic Rivers, or Ecologically Critical Areas

The supporting documentation located in the Analysis File section of this document provides sufficient information to determine that this project will not affect any known unique characteristics of the geographic area such as cultural resources, park lands, farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

Chapter 4 – List of Preparers

The following individuals participated in the formulation and analysis of the alternatives and the subsequent preparation of this Environmental Assessment.

Interdisciplinary Team

The following individuals are the core members of the Rujada interdisciplinary team:

Cindy Pack	Recreation Planner
Jim Wamsley	Small Sales Technician
Jessie Scott	Forester

Resource Specialists, Contacts, and Preparers

The following individuals performed the analysis of the proposed action:

Laura Blecker	Landscape Architect
Don Goheen	Pathologist Entomologist
Don Morrison	Soil Scientist
Jerry Astrella	Sale Admin/Planner
Ron Barber	NEPA/Planner
Laurie Bernstein	Fish Biologist
Rob Cox	Wildlife Biologist
Ken Kimberling	District Engineer (retired 2002)
Melissa Kirkland	District Botanist
Terry Fairbanks	District Silviculturist
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Agencies and Persons Consulted

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Rick Colvin	USDI Bureau of Land Management, South Valley
Richard Meyers	Cottage Grove City Manager

Chapter 5

List of Agencies, Persons who Participated During the EA Scoping Process and to Whom Copies of the EA are Sent for Comment

Linda L. Warner (email)

John Talberth, Forest Guardians/Forest Conservation Council,

Nicole Czarnomski, Oregon Natural Resources Council

Dona Griffith, Cottage Grove

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Ronald S. Yokum, Attorney at Law

Paul Campbell, Cottage Grove

Numerous anonymous comments solicited and received from persons visiting and recreating at Rujada Camp and Picnic areas. Copies of their comments are included in Appendix M of this document.

Chapter 6 – References

List of References used by resource specialists that worked on this project.

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