Camp Rilea Training Site

Clatsop County, Oregon

Preliminary Draft
Revised Integrated Natural Resources Management Plan and Environmental Assessment

For Calendar Years 2007–2011

September 2006

Prepared for
The Oregon Military Department
Oregon Army National Guard

REVISED INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
CAMP RILEA, CLATSOP COUNTY, OREGON
2007 - 2011

This Integrated Natural Resources Management Plan (INRMP) meets the requirements for such plans listed in the Sikes Act (16 U.S.C. 670a et seq.) and Sikes Act Improvement Amendments, Army Regulation 200-3, applicable Department of Defense directives, National Guard Bureau (NGB) guidance (March 2005) with NGB INRMP template dated 10 January 2005. The INRMP also complies with all applicable state and federal regulatory requirements. The INRMP sets appropriate and adequate guidelines for conserving and protecting the natural resources to the maximum extent practicable, without unduly limiting or restricting training activities and opportunities of the Camp Rilea Training Site.

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REVISED INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
CAMP RILEA, OREGON
2007 – 2011
ANNUAL REVIEW AND COORDINATION

Having performed the annual review and coordination of the Integrated Natural Resources Management Plan (INRMP) for Camp Rilea, Oregon, I hereby agree with those aspects of the Plan that are within the scope of authority of the Oregon Army National Guard concerning conservation, protection and management of all natural resources. The INRMP Master Update List shown in Section 6 has been completed for all future annual changes to the INRMP.

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REVISED INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN
CAMP RILEA, OREGON

Lead Agency:	National Guard Bureau, Oregon Military Department
Participating Agencies:	U.S. Fish and Wildlife Service; Oregon Department of Fish and Wildlife
Title of Proposed Action:	Revise the Existing Integrated Natural Resources Management Plan for Camp Rilea, Oregon
Affected Jurisdictions:	Clatsop County
Designation:	Revised Integrated Natural Resources Management Plan, 2007-2011

ABSTRACT

Camp Rilea is a 1,750-acre state-owned military training area located on the Pacific Coast in northwestern Oregon, about six miles south of Astoria. The Oregon Army National Guard (ORARNG) is proposing to implement an updated Integrated Natural Resources Management Plan (INRMP) that would enable the ORARNG to effectively manage the natural resources at the camp and to support the military mission from calendar years 2007 to 2011. Activities that may affect natural resources on Camp Rilea are regulated primarily by the *Sikes Act*, 16 U.S.C. 670a, and the supplemental *Sikes Act Improvement Amendments (SAIA) of 1997*. Other pertinent regulations include the *National Environmental Protection Act (NEPA)* and various federal laws and Executive Orders that address specific environmental resources. The *Sikes Act* provides for conservation programs on government lands, including military installations and requires a cooperative plan for wildlife conservation and rehabilitation. The *SAIA of 1997* provides language clarifying and strengthening the requirements for preparing INRMPs in cooperation with the U.S. Fish and Wildlife Service (USFWS) and Oregon Department of Fish and Wildlife (ODFW).

This INRMP Update has been prepared in accordance with Army Regulation 200-3, applicable Department of Defense (DoD) directives, and NGB guidance of March 2005. The document addresses the interrelationships among the natural resources (including soils, wildlife, vegetative communities, and outdoor recreation) and the military mission. Without effective and proactive natural resources management, components of the military mission could be jeopardized. This updated plan provides a flexible program to balance natural resources stewardship and military needs. The INRMP update identifies a number of goals and objectives for specific natural resources at Camp Rilea that the ORARNG would implement, including: to identify and maintain the carrying capacity of training areas for military training; ensure no net loss of mission training lands and training opportunities; ensure compliance with all federal, state, and local environmental laws and regulations; minimize adverse impacts to natural ecosystems, communities, and resources; identify sustainable long-term uses of the natural resources at the camp; control the spread of nonnative species, especially nuisance species that restrict training and adversely impact wildlife habitat; limit the amount of soil erosion and restore actively eroding areas; and increase natural biodiversity (native ecosystems, communities, and species).

Specific management strategies are proposed to meet the specific goals and objectives. The updated INRMP contains baseline information that supports compliance with regulatory and planning processes. To fulfill the requirements of the NEPA of 1969, an environmental assessment (EA) has been prepared to assess possible impacts from implementing the INRMP and from taking no action. The EA has been integrated into this document as an appendix. No significant adverse environmental impacts have been identified from implementing this updated INRMP.

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ACRONYMS AND ABBREVIATIONS

AERTA	US Army Environmental Requirements and Technology Assessments
AGI	OMD Installation Division
AGI-ENV	OMD Environmental Branch
AR	Army Regulation
ARNG	Army National Guard
ASL	above sea level
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFMO	Construction and Facilities Management Office
CFR	Code of Federal Regulations
CPQC	Combat Pistol Qualification Course
CSWCD	Clatsop Soil and Water Conservation District
CWPP	Community Wildfire Protection Plan
DA	Department of the Army
dB	decibel
dBA	"A-weighted" decibel scale
dBC	"C-weighted decibel scale
DCSOPS	Deputy Chief of Staff Operations and Training
DEQ	Department of Environmental Quality
DNL	day-night average noise level
DoD	Department of Defense
DoDD	Department of Defense Directive
DoDI	Department of Defense Instruction
DSL	Department of State Lands
EA	Environmental Assessment
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
EPAS	Environmental Performance Assessment System
EQT	Environmental Quality Technology
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
GIS	Geographic Information System
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
IPM	Integrated Pest Management
IRT	Individual Readiness Training
ISBC	Infantry Squad Battle Course
ISCP	Installation Spill Contingency Plan
ISO	International Organization for Standardization
ITAM	Integrated Training Area Management

IWFMP	Integrated Wildland Fire Management Plan
LAW	Light Anti-Tank Weapon
LRAM	Land Restoration and Maintenance
MILES	Multiple Integrated Laser Engagement System
MOUT	Military Operations in Urban Terrain
MRF	Modified Record Fire
NAAQS	National Ambient Air Quality Standards
NBC	Nuclear, Biological, Chemical
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NGB-ARE	National Guard Bureau - Environmental Programs Division
NGB-ART	National Guard Bureau – Training Division
NRHP	National Register of Historic Places
NRS	Natural Resources Specialist
NWCG	National Wildfire Coordinating Group
ODEQ	Oregon Department of Environmental Quality
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OMD	Oregon Military Department
ONHIC	Oregon Natural Heritage Information Center
ORANG	Oregon Air National Guard
ORARNG	Oregon Army National Guard
ORS	Oregon Revised Statutes
OSB	Oregon Silverspot Butterfly
OSU	Oregon State University
PAO	Public Affairs Office
PM	particulate matter
RCRA	Resource Conservation and Recovery Act
RFMSS	Range Facility Management Support System
RTLA	Range and Training Land Assessments
SAIA	Sikes Act Improvement Amendments
SETS	Squad Engagement Training System
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SONMP	Statewide Operational noise Management Plan
SOP	Standard Operating Procedure
TAG	The Adjutant General
TRI	Training Requirements Integration
TNC	The Nature Conservancy
TY	training year
USAEC	U.S. Army Environmental Center
USACE	U.S. Army Corps of Engineers

USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USNVCS	U.S. National Vegetation Classification System
UTES	Unit Training Equipment Site
VA	Veterans Administration

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EXECUTIVE SUMMARY

INTRODUCTION

Camp Rilea is a 1,750-acre state-owned military training area located on the Pacific Coast in northwestern Oregon. The camp was created in 1927 through the purchase of private farmland by the OMD, who continues to own and manage the training area. The camp contains a wide variety of ecosystems, ranging from natural beaches to forests dominated by introduced pine trees. Camp Rilea is classified by the National Guard Bureau (NGB) to be a major training area. It offers maneuver, and specialized training opportunities in a realistic field settings. Classrooms and the necessary support facilities are also provided. The camp also has a land use agreement to use over 200,000 acres of private forestland and over 140,000 acres of public forestland located to the east for infantry maneuver and field training exercises. However, this plan does not address the use or management of those lands.

As required by the Sikes Act, as amended, (16 USC 670a *et. seq*.), the OMD prepared and implemented an Integrated Natural Resources Management Plan (INRMP) for Camp Rilea for 2001 to 2005. The ORARNG is proposing to implement an updated INRMP for natural resources management at the camp and support the military mission from 2007 to 2011. To meet the requirements of the Sikes Act, as amended, this INRMP will be updated on a regular basis and no less frequently than every five years. The INRMP provides an adaptive management program to balance natural resources stewardship and military needs.

The primary mission of Camp Rilea is to provide high-quality training opportunities, appropriate to the installation, for ORARNG soldiers and other military organizations. The INRMP directly supports the mission of Camp Rilea by aiming to develop, achieve, and maintain sustainable, high-quality environmental conditions that provide realistic training opportunities as required by ORARNG units and other military users.

To fulfill the requirements of the National Environmental Policy Act (NEPA) of 1969 (42 USC 4321 *et. seq*.), an environmental assessment (EA) has been prepared to assess possible impacts from implementing the updated INRMP. The EA is provided as Appendix A.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of updating the INRMP is to guide the ORARNG in managing the natural resources at Camp Rilea for calendar years 2007 to 2011 and to provide a solid foundation for the program beyond 2011. The 2007 - 2011 Revised INRMP is designed to be a programmatic document that helps Camp Rilea ensure the sustainability of the military mission while maintaining the integrity of its ecosystems. This revision of the INRMP also is required to meet the requirements of the November 1, 2004, Assistant Under Secretary of Defense memorandum, entitled “Implementation of Sikes Act Improvement Amendments: Supplemental Guidance concerning INRMP Reviews.”

PUBLIC INVOLVEMENT, AGENCY COORDINATION, AND TRIBAL CONSULTATION

Coordination with appropriate federal, state, and tribal governments was conducted in preparing this 2007 - 2011 INRMP. A comprehensive listing of individuals and agencies contacted is provided in Appendix B. A sample of the scoping letter and copies of all letters/responses received are also contained in Appendix B.

A 30-day public comment period was provided for public review of the draft updated INRMP. The ORARNG solicited public comments on the draft 2007 - 2011 INRMP through notices in local newspapers and by direct distribution to interested parties. Representatives from federal and state resource management agencies, and tribal governments were invited to review the draft INRMP.

MANAGEMENT GOALS AND OBJECTIVES

Natural resources management goals and objectives are described in Section 5. Section 5 also lists specific projects that will be implemented to achieve those goals and objectives.

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

To reduce duplication of effort and to streamline the decision-making process, Army guidelines recommend that an INRMP and its associated NEPA analysis and documentation be prepared concurrently. In accordance with NEPA, the ORARNG has identified a proposed action and alternatives for evaluation. The proposed action is Alternative 1, to implement the 2007 - 2011 INRMP for Camp Rilea. This proposal would meet the ORARNG's underlying need to train soldiers in a realistic setting that is in compliance with environmental regulations and policies. Alternative 2 is the no action alternative, which would mean a continuation with current management measures. The Environmental Assessment (EA) is Appendix A.

IMPLEMENTATION OF THE INRMP AND MILITARY MISSION

Implementation of the 2007 - 2011 INRMP would not result in adverse effects to the military mission.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

SECTION 1
INTRODUCTION

This INRMP was developed in an interdisciplinary manner, prepared by specialists in natural resources management, environmental science, environmental planning, geographic information systems (GIS), and NEPA. Contributors to this Updated INRMP are listed in Section 7, List of INRMP Preparers and Reviewers.

1.1 LOCATION AND LAND USE

Camp Rilea is a 1,750-acre state-owned military training area located on the Pacific Coast in northwestern Oregon, about six miles south of Astoria (Figure 1.1-1). The camp is located on the western margin of the Clatsop Plains an aggrading shoreline. In fact, in 1805, the Lewis and Clark expedition documented that the western third of the Camp was still part of the Pacific Ocean. The Clatsop Plains were at least seasonally inhabited by the Clatsop Tribe. By 1840, Euro-American pioneers began settling on the plains. The camp was created in 1927 through the purchase of private farmland by the OMD, who continues to own and manage the training area. By World War II most of the facilities and structures located in the cantonment were in place, and many still date from that period. A more complete history of the area and camp can be obtained from cultural resource and archaeological survey reports for the Camp and the ORARNG's Integrated Cultural Resources Management Plan (Caywood and Mighetto 1994, Cherry 1977, ORARNG 2002, and Sulimano *et al* 2000).

The camp contains a wide variety of ecosystems, ranging from natural beaches to forests dominated by introduced pine trees. Camp Rilea is classified by NGB as a major training area and offers classroom, maneuver, and specialized training opportunities in realistic field settings, with most of the necessary support facilities. The camp also has a land use agreement to use over 200,000 acres of private forestland and over 140,000 acres of public forestland located to the east for infantry maneuver/field training exercises. However, this plan does not address the use or management of those lands.

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1.2 CURRENT AND PROPOSED TRAINING ACTIVITIES

1.2.1 Current Military Training Activities

Units of the ORARNG, National Guard units from other states, the active U.S. Army, and other branches of the U.S. military conduct training activities at the camp. Most military training is done by engineer and infantry units. In addition, there is some use by other public agencies and nonmilitary groups, such as the state police. Military training typically occurs at squad (5-10 soldiers), platoon (15-45 soldiers), company (90-150 soldiers), or battalion (500-1000 soldiers) levels, and usually lasts either two days (e.g., weekend drills) or two weeks (annual training). The two types of training that are most common and relevant to natural resources management are live-fire exercises and field exercises. Live-fire exercises include all training which uses live ammunition or ordnance (e.g., firing rifles, hand grenades, and demolitions). Because of potential threats to public and soldier safety, live-fire exercises are tightly controlled and occur only at designated locations (i.e., the weapons firing ranges). Field exercises involve a much wider variety of activities such as vehicle maneuvers, land navigation, aviation operations, bivouacking, construction of fortifications and obstacles, and deploying equipment and weapons. This type of training can take place in all training areas outside of the cantonment area. It is common to have several units engaged in different training activities simultaneously.

Camp Rilea has been divided into 13 different training areas (Figure 1.2.1-1), primarily for the purpose of controlling the physical location of soldiers in the field. This is necessary for ensuring their safety and to meet management and training objectives. Training Areas range in size from 49 to 174 acres. Except for tracked vehicle operations, which are allowed only on designated tracked vehicle routes, all types of field training are allowed in any of the 13 training areas, as long as the standard operating procedures are followed. For example, digging and bivouacking are allowed only at preapproved sites. Training Areas 6 and 13 are the designated areas for engineer training that disturbs the soil. Therefore, engineer units are given priority over other units for these areas. All other training areas have not been designated for certain types of training. In general, the training areas have been managed as all-purpose training areas to support whatever training is requested (within reason). This has meant providing roads, trails, open areas, and wooded areas, and minimizing hazards in all of them.

Military units that train at Camp Rilea are scheduled and tracked using the Range Facility Management Support System (RFMSS). Information on training activities, dates, number of soldiers that participated, ranges/training areas used, equipment used, and bivouac/command center locations is recorded.

Information on the use of Camp Rilea by various organizations and civilians from 2000 through 2005 is presented in Table 1.2.1.1. These numbers include

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soldiers training in the adjacent forestland.

Table 1.2.1-1 Camp Rilea Existing Training Data
(Person-days of use by organization)

Organization	2000	2001	2002	2003	2004	2005	TOTALS
Army National Guard	68779	73205	35587	34064	45516	37221	294372
Air National Guard	10629	20307	26533	6291	9962	6227	79949
OR State Defense Force	0	0	0	0	0	314	314
US Army	270	13672	6252	7853	2902	12704	43653
US Army Reserves	0	1106	310	1227	599	1876	5118
US Air Force	167	0	0	45	0	0	212
US Marine Corps	196	0	0	150	666	1943	2955
US Navy	4062	355	240	255	160	432	5504
Mixed Forces Commands	0	0	400	0	0	0	400
Foreign Armed Forces	0	0	840	0	504	0	1344
US Department of Homeland Security	0	0	0	0	0	164	164
Civilian Law Enforcement	0	0	0	0	0	13843	13843
Civilians	45269	29237	31741	23101	40498	32452	202298
TOTALS	129372	137882	101903	72986	100807	107176	650126

1.2.2 Future Military Training Activities

No significant changes to the types or levels of training conducted by the ORARNG at Camp Rilea are being proposed. Any changes to training activities that have the potential to affect human health or the environment will be evaluated in accordance with the Army's NEPA regulations, found in Title 32, Part 651 of the Code of Federal Regulations (CFR) (32 CFR 651). ORARNG infantry platoons and companies are expected to account for the vast majority of users, but ORARNG engineer units also may use the camp for field training.

1.2.3 Facilities

Existing Facilities

Most camp facilities can be grouped into two categories: the cantonment area, and the adjacent training areas/ranges. The approximately 272-acre cantonment area consists of housing, a simulation center, administrative buildings, and supporting structures/infrastructure. There are over 120 buildings, including billets, barracks, huts, classrooms, mess halls, warehouses, latrines, staff

residences, offices, a medical clinic, and an armory. A Unit Training Equipment Site (UTES) for the issue, storage, repair, and maintenance of military equipment and vehicles is located in the northeast corner of the cantonment area along with an Oregon Air National Guard station. The Camp's wastewater treatment plant is located in the southeast corner of the cantonment area. Paved roads and all utilities run throughout the cantonment area.

The adjacent training areas include the following facilities for training exercises:

- Military Operations in Urban Terrain (MOUT) site;
- Multiple Integrated Laser Engagement System (MILES) course;
- Rappel Tower;
- Hand Grenade Range;
- Pistol Range;
- Rifle Known Distance/Zero I Range;
- Rifle/Machine Gun/Zero II Range;
- Rifle/Machine Gun/Zero III Range;
- Claymore Mine Range;
- Demolitions Training Range;
- Modified Record Fire (MRF) Range;
- Infantry Squad Battle Course;
- LAW (Light Anti-Tank Weapon)/M-203 Range;
- Confidence Obstacle Course;
- Day/night land navigation compass course;
- Nuclear, Biological, Chemical (NBC) Chamber;
- Squad Engagement Training System (SETS) Building;
- Theater-Specific Individual Readiness Training (IRT) Lanes (Checkpoints Charlie and Saudi).

In addition, there are designated engineer dig areas, air assault/helicopter landing/drop zones, beach amphibious assault zones, and engineer bridging sites. The remainder of the camp can be considered as undeveloped maneuver training areas with little or no facilities other than access roads.

Future Facility Plans

There will likely be many changes to the cantonment area to upgrade facilities and provide new training opportunities. Additional replacement latrines, huts, and classrooms will be built. However, cantonment developments will be addressed in the updated camp master plan, and are not part of this management plan. This section will discuss proposed developments in the training areas around the cantonment area.

The OMD/ORARNG intends to greatly expand the field training opportunities that are offered at Camp Rilea over the next five years. The following projects have been proposed:

- Enhancement of Infantry Squad Battle Course (ISBC) to a Platoon Live-Fire Battle Course (Training Areas 5,6,7,9, and 10)
  This would involve constructing a new range tower, shoot house, fighting positions, bunkers, safety fence, and foot bridges; installing bleachers, sand tables, barber poles, a flag pole, new targets, lights, and a public address system; altering and moving the firing line; and ground leveling as necessary. The course would contain the ISBC and M-203/LAW Range within it and allow for these types of training as well.

- Pistol Range Upgrade
  Existing targets need to be automated, with new targets added. The range tower should be rebuilt, to include lights, heating system, insulation, shelving, and a sound system.

- MOUT Expansion
  Four new buildings are needed to complete the different types that should be offered. Construction of a tunnel system with the correct diameter is also needed. Lights, targets, a tower, and a public address system are proposed. A classroom/assembly building and two storage buildings have already been built. If funding can be secured, a fully-enclosed, live-fire shoothouse also would be added to the MOUT site.

- Construction of new Combat Pistol Qualification Course (CPQC)
  This would involve constructing a new 25 meter range with pop-up and specialized targets. It would be located south of the existing grenade impact range.

- Construction of Police Situation Bins (Training Area 4 or 5)
  This would involve creating four earthen embayments of about 3,000 square feet each. Officers of state and local law enforcement agencies would use them to simulate enforcement situations they could encounter on the job. The exact location for this facility has not yet been identified.

- Reconstruction of NBC Chamber

The existing NBC Chamber would be rebuilt with new exterior walls, roof, and other needed improvements.

- Improvement of Slusher Lake Bridging Site
  This would involve construction of concrete footings and laying additional gravel to protect the lake bank and support engineer bridging operations at the three designated points.

Other planned improvements are: a new wooden Fast Rope Tower by the rappel tower; new fencing around the Demolitions Training Range; repairing fencing on the north boundary and other locations as necessary; installing culverts at all beach access roads to facilitate drainage and keep roads open (pending completion of a drainage study); and new gravel for selected roads to improve and maintain all-weather use.

1.3 PURPOSE AND NEED OF THE INRMP

1.3.1 Purpose of the INRMP

The INRMP will guide natural resource management at Camp Rilea for the years 2007–2011 and ensure compatibility with military training and other activities. The OMD expects the level of training and other uses of Camp Rilea over the term of this plan to remain much the same as during past years. However, the use of Camp Rilea may increase or decrease as ORARNG units are deployed or return from long-term active duty deployments, such as those in Iraq and Afghanistan and other organizations outside of the ORARNG decide to conduct training or other activities on Camp Rilea or elsewhere.

This INRMP is an integral part of Camp Rilea's overall land management process. Continued implementation of the INRMP will help ensure that Camp Rilea lands continue to support present and future mission requirements while preserving, improving, and enhancing ecosystem integrity. Over the long term, implementation of this and future INRMP updates will help guide the OMD in maintaining and improving the sustainability and biological diversity of terrestrial and aquatic ecosystems at Camp Rilea while supporting sustainable economies, human use, and the environment required for realistic military training operations.

1.3.2 Need for the INRMP

The INRMP for Camp Rilea is required by the Sikes Act, as amended. An EA is required to identify and evaluate all potential environmental impacts resulting from the implementation of this updated INRMP. The need for this INRMP is fourfold:

- It must be prepared in accordance with the provisions of the Natural Resources Management on Military Lands Act of 1960 (commonly known as the Sikes Act) and the Sikes Act Improvement Act of 1997. Department of Defense (DoD) Policy (DoD Instruction 4715.3, Environmental Conservation Program) and National Guard Bureau (NGB) guidance contained in NGB All States Memorandum P00-0039

and the November 1, 2004 memorandum from the Assistant Under Secretary of Defense entitled "Implementation of Sikes Act Improvement Amendments: Supplemental Guidance concerning INRMP Reviews," commonly referred to as the DoD Supplemental Guidance.

- It supports the military mission and sustains the integrity of natural resources. An essential element of the military mission is to train military personnel as they would be expected to perform under actual combat or emergency conditions. The military mission requires healthy and viable natural resources to provide realistic environmental conditions and to minimize the potential for hazardous situations. These healthy and viable resources provide "cover" or concealment (camouflage) needed for soldiers' survival in combat.

- It is needed to document previously completed and current natural resources surveys, inventories, and monitoring programs for Camp Rilea.

- It is needed to implement an adaptive ecosystem management framework as part of the NGB's guidance on natural resources management. This approach takes a long-term view of human activities, including military training needs, human uses, and biological resources as part of the same environment.

The following authorities for the requirements for an INRMP are cited:

- Army Regulation 200-3, Environmental Quality, Natural Resources-Land, Forest and Wildlife Management, Last Modified 20 March 2000.
- Sikes Act Reauthorization Act of 2003.
- DoD Directive (DoDD) 4700.4, Natural Resources Management Program, January 1989.
- DoD Instruction (DoDI) 4715.3, Environmental Conservation Program, 3 May 1996.
- Conserving Biodiversity on Military Lands - A Handbook for Natural Resources Managers, 1996.
- Guide to Integrated Natural Resources Management, April 1997.
- Deputy Under Secretary of Defense, Sikes Act Policy Memorandum, 10 Oct 2002.
- Deputy Under Secretary of Defense, Implementation of Sikes Act Improvement Act Amendments: Supplemental Guidance concerning INRMP Reviews, 1 November 2004.

- Guidance on Preparing Environmental Documentation for Army National Guard Actions in compliance with the National Environmental Policy Act of 1969, March 2002.

1.4 Environmental Management System (EMS)

The ORARNG is developing and implementing an environmental management system that is intended to comply with EO13148. The ORARNG is currently developing a single, statewide eMS that will cover all ORARNG facilities. In accordance with Army and NGB requirements, it is expected that the ORARNG system will be ISO 14001-compliant by December, 2009.

Annual reviews of the INRMP and revisions made to the INRMP at no less than every five years are important parts of the environmental management system process. Annually, natural resources conditions are reviewed along with INRMP projects slated to be conducted (see table 6.6-1) to determine whether specific projects are needed, have been funded, and confirm implementation schedules. Projects listed for the past year, and earlier in some cases, are reviewed to determine whether those projects were implemented, were effective, or need to be rescheduled or repeated. Five-year revisions of the INRMP permit the ORARNG to re-focus its longer-term natural resource management efforts based on the results of implementing earlier projects and current natural resources conditions.

1.5 SUSTAINABLE RANGE PROGRAM

As part of the Army's commitment to environmental stewardship, the Sustainable Range Program promotes environmental stewardship through the development & transfer of management tools and solutions for sustainable, ready, compliant, and realistic training ranges.

Many diverse projects make up the Sustainable Range Program. All are aimed at managing Army testing and training ranges in the best manner possible to preserve air and water quality and prevent erosion while keeping the ranges open and ready for testing and training. All of the U.S. Army Environmental Center (USAEC) Sustainable Range projects map back to the Army's Environmental Quality Technology (EQT) Program, which ensures the requirements for work, are validated.

The Army executes the EQT Program to find those critical solutions that meet Army unique requirements. The overarching database that contains and describes the Army's environmental requirements is the US Army Environmental Requirements and Technology Assessments (AERTA) (*DENIX account and password required*). This database is considered a "Living Document" as the needs and environmental requirements of the U.S. Army constantly evolve.

Extensive information on the Sustainable Range Program can be found in the following web page: http://aec.army.mil/usaec/technology/rangexxi00.html.

1.6 RESPONSIBLE AND INTERESTED PARTIES

Successful natural resources management for Camp Rilea and the implementation of this INRMP requires a cooperative effort among the parties directly responsible for using and maintaining the training site. A brief description of the parties directly responsible for implementing the INRMP and of other interested parties is provided below.

1.6.1 National Guard Bureau

The National Guard Bureau – Army Environmental Programs Division (NGB-ARE) is responsible for reviewing and approving the INRMP and advising the OMD before formal submission to Federally recognized Indian Tribes, the U.S. Fish and Wildlife Service (USFWS), the Oregon Department of Fish and Wildlife (ODFW), the State Historic Preservation Office (SHPO), and other federal and state agencies. NGB-ARE ensures operational readiness by promoting environmental quality and an environmental ethic throughout the Army National Guard (ARNG), and is responsible for tracking projects, providing technical assistance, quality assurance of written materials, and funding to support the programs.

The National Guard Bureau – Army Training Division (NGB-ART) also participates by funding certain projects through the Integrated Training Area Management (ITAM) program.

1.6.2 ORARNG

The Adjutant General (TAG) for the state of Oregon is responsible for the operation and maintenance of Camp Rilea, which includes implementation of this INRMP. TAG ensures that all installation land users are aware of and comply with procedures, requirements, or applicable laws and regulations that accomplish the goals and objectives of the INRMP. TAG also ensures coordination of projects and actions between environmental, training, and engineering staffs.

The Deputy Chief of Staff, Operations (DCSOPS) has the primary responsibility for scheduling military training and safety of all personnel while training exercises are being conducted. Secondary to scheduling is maintaining a high-quality training environment.

The Adjutant General – Installations Division, Environmental Branch (AGI-ENV) for Oregon is responsible for characterizing the natural and cultural resources of the training sites; identifying compliance, protection, and stewardship needs; and advising other OMD staff and ORARNG unit personnel on the best ways to comply with federal and state environmental laws and regulations. AGI-ENV provides technical assistance to training site personnel including: developing projects, securing permits, conducting field studies, providing environmental awareness materials, locating and mapping natural and cultural resources, preparing plans, and revising the INRMP every five years. AGI-ENV also coordinates the Integrated Training Area Management (ITAM) program and oversees the NEPA process for the ORARNG.

Camp Rilea has a full-time operations staff of about 30 people. In addition, there are full-time staffs assigned to the Unit Training Equipment Site (UTES), the ORARNG Readiness Center, an Oregon Air National Guard (ORANG) facility, and a Veterans Administration (VA) clinic. Camp Rilea staff has intimate knowledge of all aspects of the training site, including training scheduling (and conflicts), locations of training facilities, impairments or problems with human-made structures or natural functions, and needs for improvement or maintenance of the training land. Along with AGI-ENV and J-3, Camp Rilea staff will ensure that:

- Land Restoration and Maintenance (LRAM) projects are identified and executed;
- Vegetative cover is maintained on highly erodible soils;
- Wetlands, listed species, and other important cultural and natural resources are protected from construction and training activities;
- Integrated pest management actions are implemented as planned; and
- Environmental awareness materials are distributed to Camp Rilea users.

The Adjutant General – Installations Division (AGI) provides a full range of engineering disciplines for all facilities under the jurisdiction of the OMD, including Camp Rilea. AGI is responsible for master planning and construction projects, and provides assistance with the design of construction projects, such as roads and erosion control projects. AGI-ENV is an integral branch with AGI providing environmental oversight to project planning, construction, and operations.

The AGI-ENV is expected to maintain updated lists of resources at Camp Rilea, act as the proponent of this INRMP, initiate annual reviews, as required by DoD policy, and initiate revisions to ensure the plan remains current. It also is expected to provide expertise in the development and production of environmental awareness materials for distribution to training site managers and troop commanders, and functions as a liaison with the public in public meetings and community educational events. The Public Affairs Office (PAO) provides expertise in these matters at the request of AGI-ENV.

The Staff Judge Advocate is expected to advise TAG, the AGI Director, Operations, and AGI-ENV on laws and regulations that affect training land use and environmental compliance. Depending on the issue, this responsibility may be shared with the State Attorney General, as mandated by state law.

1.6.3 Other Federal Agencies

Federal agencies other than the DoD and the NGB also have interests in the integrity of the natural resources at Camp Rilea. The involvement of these agencies is based on regulatory authority, their designation as participating agencies or providers of technical assistance, as required by federal legislation and regulation. These agencies and their roles and responsibilities are described below.

Because Camp Rilea is adjacent to the Pacific Ocean and near the Columbia River, both the USFWS and the National Oceanic and Atmospheric Administration (NOAA) have provided technical assistance on known and potentially occurring sensitive species and wildlife habitat management issues. These agencies were provided letters of coordination for initiating this INRMP process. These agencies are the federal agencies for issues regarding fish and wildlife management and are the regulatory authority for the Endangered Species Act (ESA) of 1973 (16 USC 1531– 1534) and the Migratory Bird Treaty Act of 1918 (16 USC 703–711).

1.6.4 Tribal Governments

Camp Rilea is located in an area traditionally occupied and used by the Clatsop tribe. Most Clatsops now are members of the Confederated Tribes of Grande Ronde and the Confederated Tribes of Siletz. The Confederated Tribes of Grande Ronde and the Confederated Tribes of Siletz were formally invited to participate in the planning process through written correspondence by TAG to their respective Tribal Chairs and resource management staff.

1.6.5 State Agencies

The ODFW is the primary state agency responsible for managing fish and wildlife. Cooperation between the ORARNG and ODFW generally involves compliance issues concerning Oregon's Endangered Species Act, the Migratory Bird Treaty Act, and other State fish and wildlife laws and regulations. The ODFW was sent a coordination letter notifying them of the ORARNG's intent to initiate the INRMP process.

Other federal, State, and local agencies who received letters notifying them of ORARNG's intent to update the INRMP are listed below:

- Oregon Water Resources Department
- Natural Resources Conservation Service, St. Helens Service Center
- Oregon Department of Agriculture
- Oregon Parks and Recreation Department, State Historic Preservation Office
- Oregon Parks and Recreation Department, Planning Manager
- Clatsop County Planning Department
- Clatsop Soil and Water Conservation District
- Columbia River Estuary Study Taskforce
- Clatsop County Sheriff's Office, Emergency Services Coordinator
- Oregon State University, Department of Botany and Plant Pathology
- Oregon Department of Forestry
- Oregon Department of State Lands (Field Operations)
- Oregon Department of State Lands (Policy & Planning)

SECTION 2
SIKES ACT AND NEPA COMPLIANCE

Army facilities, including ARNG installations, are subject to numerous regulations affecting use and management of natural resources, including federal laws, EOs, and Army regulations. Table 2-1 lists applicable laws, regulations, and policies, and Appendix C (Federal Requirements and Other Guidelines) discusses the most important of these.

2.1 SIKES ACT (16 USC 670a – 670o)

The Sikes Act, as amended, directs the Secretary of Defense to carry out a program for conserving and rehabilitating natural resources on military installations. The Sikes Act requires the following ten elements:

- Fish and wildlife management, land management, forest management, and fish and wildlife oriented recreation;
- Fish and wildlife habitat enhancement or modification;
- Wetland protection, enhancement, and restoration, where necessary for support of fish and wildlife;
- Integration of, and consistency among, the various activities conducted under the plan;
- Establishment of specific natural resource management goals and objectives and time frames for proposed action;
- Sustained use by the public of natural resources to the extent such use is not inconsistent with the needs of fish and wildlife resources management;
- Public access to the military installation that is necessary or appropriate, subject to requirements necessary to ensure safety and military security;
- Enforcement of applicable natural resource laws and regulations;
- No net loss in the capability of military installation lands to support the military mission of the installation; and
- Such other activities as the Secretary of the military department determines appropriate.

Table 2-1
Natural Resource Laws and Regulations and their Expected Influence on Natural Resources Management at Camp Rilea

Law or Regulation	Influence		Not Applicable
	Direct	Indirect	
Abandoned Shipwreck Act of 1987 (43 USC 2101 - 2106)			√
American Indian Religious Freedom Act of 1978, as amended (42 USC 1996 - 1996a)	√		
Anadromous Fish Conservation Act of 1965, as amended (16 USC 757a - 757f)			√
Antiquities Act of 1906 (16 USC 431 - 433)		√	
Archaeological and Historic Resources Management (DoDD 4710-1)		√	
Archaeological and Historic Preservation Act (Moss-Bennett Act) of 1974 (16 USC 469 - 469c)		√	
Archaeological Resources Protection Act of 1979 (16 USC 470aa - 470mm)		√	
Bald Eagle Protection Act of 1940, as amended (16 USC 668 - 668d)	√		
Clean Air Act of 1955, as amended (42 USC 7401 - 7671q)	√		
Clean Water Act (Federal Water Pollution Control Act) of 1972, as amended (33 USC 1251 - 1387)	√		
Coastal Zone Management Act of 1972 (16 USC 1451 - 1465)		√	
Curation of Federally Owned and Administered Archaeological Collections (36 CFR 79)		√	
Department of Defense Annotated American Indian and Alaska Native Policy (October 27, 1999)	√		
Determination of Eligibility for Inclusion in the National Register of Historic Places (36 CFR 63)		√	
Emergency Wetlands Resources Act of 1986, as amended (16 USC 3901 - 3932)		√	
Endangered Species Act of 1973 (16 USC 1531 - 1534)	√		
Environmental Protection and Enhancement: Subpart H Historic Preservation (32 CFR 650)		√	
Erosion Protection Act, PL 86-645, as amended (33 USC §§ 426 - 426-3)	√		
Estuary Protection Act of 1968 (16 USC 1221 - 1226)			√
Executive Order 13007, Indian Sacred Sites, May 29, 1996 (61 Federal Register 26,771)	√		
Executive Order 11593, Protection and Enhancement of the Cultural Environment, May 13, 1971 (36 Federal Register 8921)	√		
Executive Order 11514, Protection and Enhancement of Environmental Quality, March 7, 1970 (35 Federal Register 4247), as amended by EO 11541 and EO 11991.	√		
Executive Order 11990, Protection of Wetlands, May 24, 1977 (42 Federal Register 26961)	√		
Executive Order 12962, Recreational Fisheries, June 7, 1995 (60 Federal Register 30769)	√		
Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, January 4, 1979 (44 Federal Register 1957)			√
Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, November 6, 2000 (65 Federal Register 67249)	√		
Executive Order 11988, Floodplain Management, as amended by EO 12148, May 24, 1977 (42 Federal Register 26951)		√	

1 Table 2-1 (Continued)
2

Law or Regulation	Influence		Not Applicable
	Direct	Indirect	
Executive Order 11644, Use of Off-road Vehicles on Public Lands, February 8, 1972 (37 Federal Register 2877), as amended by EO 12608	√		
Executive Order 13112, Invasive Species, February 3, 1999 (64 Federal Register 6183)	√		
Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, January 10, 2001 (66 Federal Register 3853)	√		
Farmland Protection Policy Act of 1981, as amended (7 USC 4201 - 4209)			√
Federal Cave Resources Protection Act of 1988, as amended (16 USC 4301 - 4310)	√		
Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 USC 136 - 136y)	√		
Federal Land Policy and Management Act of 1976, as amended (43 USC 1701 - 1785)	√		
Federal Noxious Weed Act of 1974, as amended (7 USC 2801 - 2814)	√		
Fish and Wildlife Conservation Act of 1980 (16 USC 2901 - 2912)		√	
Fish and Wildlife Coordination Act of 1934, as amended (16 USC 661 - 666c)		√	
Food, Agricultural, Conservation, and Trade Act of 1990 (Pesticide Recordkeeping), as amended (7 USC 136i-136l)	√		
Forest Rangeland Renewable Resource Planning Act of 1974 (16 USC 1600 - 1614)		√	
Historic Preservation Certificates (36 CFR 67)		√	
Historic Sites Act of 1935, as amended (16 USC 461 - 467)		√	
Historic Preservation (Army Regulation 200-4)	√		
Hunting and Fishing Permits (32 CFR 552.19)			√
Lacey Act, (18 U.S.C. 42-44); Lacey Act Amendment, 1981, as amended			√
Marine Mammal Protection Act of 1972 (16 USC 1361 - 1421h)		√	
Migratory Bird Treaty Act of 1918, as amended (16 USC 703 - 712)		√	
Multiple-Use Sustained Yield Act of 1960, (16 USC 528 - 531)			√
National Environmental Policy Act of 1969 (42 USC 4321 - 4370d)	√		
National Historic Landmarks Program (36 CFR 65)		√	
National Historic Preservation Act of 1966, as amended (16 USC 470 - 470x-6)		√	
National Register of Historic Places (36 CFR 60)		√	
Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 - 3013)		√	
Native American Graves Protection and Repatriation Act Regulations (43 CFR 10)		√	
North American Wetlands Conservation Act (16 USC 4401 - 4414)			√

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Table 2-1 (Continued)

Law or Regulation	Influence		Not Applicable
	Direct	Indirect	
Outleasing for Grazing and Agriculture on Military Lands (10 USC 2667)			√
Preservation of American Antiquities (Antiquities Act regulations) (43 CFR 3)		√	
Protection of Archaeological Resources: Department of Defense Uniform Regulations (32 CFR 229)	√		
Protection of Historic and Cultural Properties (36 CFR 800)		√	
Rivers and Harbors Appropriations Act of 1899, as amended (33 USC 401 - 403)			√
Safe Drinking Water Act of 1974, as amended (42 USC 300f - 300j-26)		√	
Salmon and Steelhead Conservation and Enhancement Act of 1980, (16 USC 3301 - 3345)		√	
The Secretary of Interior's Standards for Historic Preservation Projects (36 CFR 68)		√	
Sikes Act and Sikes Act Improvement Amendments, as amended (16 USC 670a – 670o)	√		
Soil and Water Resources Conservation Act of 1977, as amended (16 USC 2001 - 2009)		√	
Taylor Grazing Act of 1934 (43 USC 315 - 315o-2)			√
Timber Sales on Military Lands (10 USC 2665)			√
Waiver of Federal Agency Responsibility under Section 110 of the National Historic Preservation Act (36 CFR 78)			√
Water Resources Planning Act, as amended (42 USC 1962 - 1962d-20)		√	
Watershed Protection and Flood Prevention Act, (16 USC 1001 - 1011, 33 USC 701)		√	
Wild and Scenic Rivers Act of 1968, as amended (16 USC 1271 - 1287)			√
Source: Modified from US Army 1997.			

This updated INRMP is based on the requirements of the Sikes Act. The INRMP has been developed to meet the intent of the Sikes Act and the NEPA. To this end, the ORARNG intends to provide for:

- Conservation and rehabilitation of natural resources affected by military activities on Camp Rilea;
- Sustainable multipurpose use of the natural resources, subject to public and military personnel safety requirements; and
- Public access to the military training site to use natural resources, subject to military use and security constraints.

The Sikes Act provides a mechanism whereby the DoD, the USFWS, and the states can cooperate to manage fish, wildlife, and other natural resources on military installations. The ORARNG has coordinated its actions with these agencies and entities in regard to natural resources and military training, and will continue to do so.

2.2 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (42 USC 4321 - 4370D)

Under NEPA, federal agencies must consider the potential environmental consequences of proposed actions. The spirit and intent of NEPA is to protect and enhance the environment through well-informed federal decisions based on sound science. NEPA is premised on the assumption that providing timely information to the decision maker and the public concerning the potential environmental consequences of proposed actions will improve the quality of federal decisions. Thus, the NEPA process includes the systematic interdisciplinary evaluation of potential environmental consequences expected to result from implementing a proposed action. This document includes an EA to fulfill NEPA requirements.

2.2.1 NEPA/INRMP Integration

This INRMP integrates the requirements of the Sikes Act and NEPA. The EA for implementation of this INRMP is provided in Appendix A. The EA identifies and evaluates all potential impacts resulting from implementation of the proposed INRMP projects.

2.2.2 Description of the Proposed Action

The proposed action is to implement a revised INRMP for the years 2007 to 2011, consistent with the military use of Camp Rilea and the goals and objectives established in the Sikes Act (as amended). This INRMP updates the existing 2001 INRMP. As with the existing INRMP, the goal of this revised INRMP is to carry out an adaptive ecosystem-based management program that provides for conservation and enhancement of natural resources in a manner that is consistent with the military mission. In addition the adaptive management program integrates and coordinates all natural resources management activities, and provides for sustainable multipurpose uses of natural resources. And it allows for public access for use of natural resources subject to military use and security constraints. The management objectives are to integrate management plans as practicable and consistent with the military mission and established land uses.

Achieving the proposed action would comply with federal regulations and military requirements that mandate protection of natural resources managed by the Army. The proposed action focuses on a five-year planning period, which is consistent with the time frame mandated by the Sikes Act and DoDI.

2.2.3 Alternatives

In order to identify the full range of possible impacts that could result from implementing the updated INRMP, two alternative means of achieving a natural resource program at Camp Rilea for the next five years have been identified. These alternatives consist of conducting the projects in the INRMP for 2007 -2011, as proposed in this document, or continuing to conduct natural resource management activities identified in the existing 2001 INRMP. The preferred alternative is to enable an adaptive ecosystem approach to meet multiple objectives, as outlined in Section 5. The EA provides an assessment of potential impacts resulting from this alternative.

Alternative 1: Implementation of the revised 2007 INRMP. Under this alternative, Camp Rilea would carry out the INRMP approach outlined in Section 5, focusing on sustaining military readiness, promoting environmental stewardship, and conserving biodiversity. Under this alternative, all management issues important to the realization of the military mission, legal compliance, and ecological health are given a high priority; therefore, all management categories are emphasized. An adaptive management strategy would be instituted to conduct additional research, to monitor management actions, to reassess the function of management tools, and to revise the management plan accordingly. The preferred alternative is to enable an ecosystem approach to meet multiple objectives, as outlined in Section 5. The EA provides an assessment of potential impacts resulting from this alternative

Alternative 2: Continued Implementation of the 2001 INRMP (No Action Alternative). The No Action Alternative is the continued implementation of the existing 2001 INRMP. Inclusion of a No Action Alternative is prescribed by the Council on Environmental Quality (CEQ) regulations and serves as a benchmark against which proposed federal actions are evaluated.

Alternatives Considered but Eliminated. The 2001 INRMP identified goals, objectives, and projects to sustain military readiness, promote environmental stewardship, and conserve biodiversity. These were reevaluated and some of the goals, objectives and projects were changed or deleted for the 2007 INRMP. Some new goals, objectives and projects were introduced in the 2007 INRMP. Preparation and full implementation of the INRMP is an Army requirement. As such, other alternatives, including partial implementation of the initial 2001 INRMP, were considered but were dismissed as not feasible, impracticable, or precluded by legal insufficiency.

2.2.4 Scope of Analysis

The potential environmental impacts associated with the proposed action are required to be assessed in compliance with NEPA and CEQ regulations. The EA for the updated INRMP identifies, documents, and evaluates the effects of executing the INRMP at Camp Rilea. The scope of the INRMP (goals, objectives, and the proposed projects) would guide the facility in achieving the following:

- Meeting the training requirements and objectives of the military mission at Camp Rilea;
- Guiding the natural resources management program at Camp Rilea in accordance with ARNG and ORARNG regulations; and
- Meeting legal and policy requirements, including those associated with NEPA, which are consistent with currently accepted natural resources management philosophies.

In order to meet compliance with NEPA and CEQ regulations, an interdisciplinary team of environmental scientists, biologists, geographers, engineers, archaeologists, historians, planners, and military technicians gathered to develop the INRMP and the EA. The team identified the affected environment, analyzed the proposed action against existing conditions, and determined the potential beneficial and adverse effects associated with the proposal.

SECTION 3
EXISTING ENVIRONMENTAL CONDITIONS

3.1 LAND USE

The area adjacent to the camp primarily is rural residential (zoned residential agriculture), except for the ocean to the west. Residential areas of the city of Warrenton start at the Camp's northern boundary. Approximately 300 households are within one mile of the camp boundaries. With some subdivision of property occurring, the nearby residential population is expected to grow, although this should be limited by land use restrictions. Most of Camp Rilea is zoned by Clatsop County as a military reserve; some of the land is listed as open space, parks and recreation. Surface waters and wetlands are in the Lake and Wetlands Zone. Appendix C contains the county regulations for land use in these three zones.

Beyond the residences and other properties next to the Camp's eastern boundary is U.S. Highway 101, the major coastal transportation route. East of the highway, past the rural residential lands and agricultural areas, is over 350,000 acres of commercial forest land, owned by private timber companies and the State of Oregon. Camp Rilea has permission to use much of this forest land for certain training activities.

3.2 ECOLOGICAL SETTING AND CLIMATE

Camp Rilea is located within the Coastal Lowlands ecoregion. Ecoregions are areas of similarity in ecosystems and in the type, quality, and quantity of environmental resources (Pater, et al., 1998). This is an area of estuarine marshes, freshwater lakes, black-water streams, marine terraces, and sand dunes. These ecosystems still characterize the landscape of the camp.

The climate is considered marine temperate, and is dominated by the proximity to the Pacific Ocean. Winters are wet and cool, with summers drier and warmer. Average annual precipitation is 60 to 85 inches. More than 50 percent of this falls from November through March. The mean high temperature is 58.4 degrees F and the mean low temperature is 43.4 degrees F. The frost free period is 200-240 days.

3.3 GEOLOGICAL RESOURCES

3.3.1 Geology and Topography

The Coastal Lowlands ecoregion is composed of Quaternary marine and non-marine terrace deposits, beach, and dune sands (Pater, et al., 1998). The Clatsop Plains geographical area (which includes Camp Rilea) is believed to consist of an ancient terrace of marine and estuarine sedimentary rocks overlain by a sand dune complex built from Columbia River derived sediments (Cherry, 1977; Tasa and Connolly, 1994). This dune complex can be described as a series of ridge foredunes running parallel to the coastline, separated by nearly flat interdune areas, which are often swales (Flitcroft, 1998; Tasa and Connolly, 1994).

Deposition and outbuilding on this accreting coastline and vegetative stabilization created this topography. The dunes range in height from about 5 to 30 meters (15 to 90 feet) above sea level (ASL) and from about 75 to 125 meters in width.

Camp Rilea has five dune ridges and five interdune areas, oriented north-south. Wetland or open water is present in all the interdune areas, except where fill material has been placed. Elevations range from about 30 meters ASL to sea level (Figure 3.3.1-1). Slopes are mostly gentle, only rarely exceeding 10 percent.

The dune topography presents challenges for many land uses. Active coastal dunes are unstable, and inactive dunes can become unstable if vegetative cover is removed. This can lead to large movements of sand as discussed further below.

3.4 SOILS

3.4.1 Soils Description and Classification

Camp Rilea has six soil components within its boundaries, counting beaches and dunes, with two subdivided into various slope classes (U.S. Soil Conservation Service, 1988). Figure 3.4.1-1 shows the eight soil mapping units, and Table 3.4.1-1 provides area and other data.

Table 3.4.1-1 Soils Data

MAP UNIT NAME	SYMBOL	ACRES	EROSION RISK
Beaches	4	136.6	severe, wind and water
Dune Land	15	230.8	severe, wind and water
Gearhart fine sandy loam, 15-30 percent slopes	19D	99.3	water slight, wind moderate
Gearhart fine sandy loam, 3-15 percent slopes	19C	111.1	water slight, wind moderate
Heceta-Waldport fine sands, 0-15 percent slopes	24C	155.1	water slight, wind severe
Waldport fine sand, 15-30 percent slopes	70D	560.1	water slight, wind severe
Waldport fine sand, 3-15 percent slopes	70C	372.8	water slight, wind severe
Warrenton loamy fine sand, 0-3 percent slopes	72A	42.1	slight, wind and water

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2 Figure 3.3.1-1

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1 Figure 3.4.1-1

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As can be seen, individual soil mapping units tend to run north-south in rectangular bands similar to the dune topography. Beaches occur farthest west and are made up of sand and course rock fragments, with little slope. East of this is the dune land component, an area of fine sand with a slope range of 3 to 30 percent. Next in line is Heceta-Waldport fine sands. Heceta soils are very deep and poorly drained, with slopes of 0 to 3 percent. They tend to form in interdunal depressions. Waldport soils are also very deep, but excessively drained, and form on stabilized sand dunes. Slope is 3 to 15 percent (for this component). In this mapping unit, Heceta soils account for 50 percent of the area and Waldport 35 percent. To the east of this mix is a wide area of Waldport fine sand in two mapping units: 3 to 15 percent slopes and 15 to 30 percent slopes. Finally, along the eastern edge are the Gearhart and Warrenton soils. The former is a very deep fine sandy loam of stabilized sand dunes, somewhat excessively drained, in two slope classes: 3 to 15 percent and 15 to 30 percent. Warrenton is a loamy fine sand with little slope (0-3 percent), very deep and poorly drained, which forms in interdunal depressions.

Erosion Potential

According to the soil survey, the beaches and dune land soils have severe erosion potential from both wind and water. All other soils have slight erosion potential from water. Concerning potential wind erosion, the Waldport series has a severe erosion potential; Gearhart and Heceta-Waldport have moderate erosion potential; and Warrenton has slight erosion potential.

Using the revised universal soil loss equation, potential soil loss and erodibility indices were calculated for each soil mapping unit by the Natural Resources Conservation Service. This data is presented in Appendix H. Potential soil loss is an estimate of the tons per acre per year that would be eroded away by running water if the soil is devoid of vegetative cover. Therefore, it is a worst-case scenario. The erodibility index is a measure of the maintenance of soil productivity over time, derived by factoring soil depth into the equation. Since the camp is not engaged in commercial agricultural or forestry, potential soil loss is more relevant and is depicted in Figure 3.4.1-2 by soil mapping unit. As can be seen, the fine sandy soils with the steepest slope classes and the dune land have the highest potential soil loss.

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2 Figure 3.4.1-2

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3.5 WATER RESOURCES

3.5.1 Groundwater

The Quaternary marine and nonmarine deposits and dune sands contain the principal aquifer of the area. This Clatsop Plains sand-dune aquifer is a complete local flow system recharged almost entirely by infiltrating precipitation (Sweet, Edwards, and Associates, 1981). Groundwater movement within the system is down-gradient from recharge to discharge zones. In the western half of the camp, lateral groundwater movement is towards the ocean. Conversely, the eastern portion of the southern half moves to Sunset Lake, while the eastern portion of the northern half moves to Neacoxie Creek (Frank, 1968). The entire camp can be considered a recharge area. The water table ranges in elevation from sea level to about 20 feet (Frank, 1968). Groundwater meets the surface at Slusher Lake, which rises and falls with the water table.

The aquifer is the primary water source for most people living on the Clatsop Plains. Fortunately, water quality of this aquifer is good. Much of Camp Rilea sits above the downstream end of the Clatsop Plains aquifer, close to where it begins its submarine discharge. Nevertheless, Clatsop County has designated the entire area north of Slusher Lake and north of the cantonment area all the way to the northern camp boundary as an Aquifer Reserve Overlay District. Construction of sewage disposal systems, overapplication of fertilizers, inadequately protected oil and gas storage facilities, and other activities which would degrade groundwater quality as a drinking water source are prohibited in this area.

Management Implications

Because maintenance of groundwater quality is a high priority, there is a need to guard against contamination. This also extends to surface waters because soils are very permeable and groundwater is at shallow depths in the area.

3.5.2 Surface Water

There are two lakes on Camp Rilea: Slusher Lake and Sunset Lake (Figure 3.5.2-1). Slusher Lake is a 23 acre triangle-shaped body of water totally within the camp boundaries. Depth averages five feet (maximum is seven feet) and volume averages 80 acre-feet (Sanderson, et al., 1973). There is no inflow or outflow, except when heavy rains cause the lake to rise and flow north over Slusher Lake Road into forested wetlands. Sunset Lake (sometimes also called Neacoxie Lake) is long (over three miles) and narrow (50-700 feet), and about 110 acres in size (Sanderson, et al., 1973). Only about 15 acres of the lake is within the camp boundaries. Maximum depth is 20 feet and volume averages 975 acre-feet. The lake discharges south into Neacoxie Creek. Sunset Lake has been included on the 1998 and 2003 ODEQ lists of water bodies that do not meet water quality standards (the “303(d)” lists) because of the growth of aquatic weeds. ODEQ has adopted, and EPA has approved Total Maximum Daily Loads (TMDLs) for some water quality criteria and water quality management plans for those affected water bodies, but a plan addressing noxious aquatic vegetation affecting coastal lakes, such as Sunset Lake, has not yet been developed.

There is one stream flowing through the camp, Neacoxie Creek (Figure 3.5.2-1). The hydrology of this creek is confusing given past drainage alterations and the stream's very low gradient. A recent hydrology review indicates that Neacoxie Creek originates in the Coffenbury Lake area and flows south, dividing into two forks near the northern boundary of the camp. The East Fork continues south past the entrance to the camp, on under Highway 101, and into the Skipanon River northwest of Cullaby Lake. The West Fork has virtually no flow, but extends south through the eastern edge of Camp Rilea towards Sunset Lake, stopping about 3,000 feet north of the lake. The intervening dry area was filled in the 1930's or 1940's, probably by the ORARNG. Water ponds in the filled area every winter and there is probably subsurface flow to Sunset Lake. The West Fork outflows from Sunset Lake and continues south for 3.5 miles where it flows into Necanicum Bay.

Although the surface drainage is obscure and poorly understood, most of the camp seems to be within the Skipanon River Watershed and drains south and east to that stream. The southern third of Camp Rilea, which includes the two lakes, is in the Necanicum River Watershed and drains south to Neacoxie Creek, a tributary of the Necanicum. According to the Clatsop County Planning Department, there are no 100-year floodplains within the camp. Most of the camp is classified as Flood Zone C (areas with minimal flooding).

3.6 Coastal Zone

Camp Rilea has three miles of beach frontage. The beach itself, seaward of the statutory vegetation line specified in ORS 390.770, is a public resource managed by the Oregon Parks and Recreation Department, and is not part of the camp. Therefore, beach management beyond the statutory vegetation line is not part of this plan.

The camp is wholly within the coastal shore lands, a near-ocean planning zone defined by the Oregon Department of Land Conservation and Development (ODLCD). Land use is regulated in the coastal shore lands by Clatsop County under its coastal zone management program, its Land and Water Development and Use Ordinance, and in accordance with the applicable statewide planning goals. To protect the dunes and coastal resources, Clatsop County has created a Beaches and Dunes Overlay District, which covers the entire camp property. Regulations for this district are in Appendix C. Clatsop County also regulates activities that affect vegetative cover of the coastal dunes. Actions involving sand

1 Figure 3.5.2-1

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removal, dune grading, dune breaching, and that have the potential to cause erosion require approval of the County.

The Oregon coast is at risk for a tsunami event, which is an unusually large ocean wave. Tsunamis typically result from seismic activity. Distant tsunamis could strike the Oregon coast from earthquakes far out to sea, or local tsunamis could result from an earthquake along the nearby Cascadia subduction zone fault system. Geologic evidence indicates that past earthquakes of large magnitudes on this fault system have created large waves up to 40 feet in height that have periodically inundated coastal areas (Fiedorowicz, 1997). The recurrence interval suggests that an event such as this could occur anytime in the next 300 years. In response to this threat, the state Department of Geology and Mineral Industries has developed maps showing tsunami risk zones, based largely on topography. There are four zones along the coast ranging from extreme to low risk, with risk declining as you move inland. The first three zones would need to be evacuated if an off-shore earthquake occurred. Figure 3.6-1 presents the tsunami risk zones for Camp Rilea. (The zones for the southern third of the camp were developed by the OMD based on the 20, 30, and 40 foot contours.) Most coastal communities have developed evacuation plans. Camp Rilea has not because only undeveloped training areas are present in the three zones requiring evacuation.

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3.7 VEGETATION

3.7.1 Pre-Settlement Vegetation and Post Settlement Changes

The first written accounts describing the vegetation of the Clatsop Plains came from the journals of the Lewis and Clark expedition. Visiting in 1805, they found the area to be open, rangy prairie and boggy with many large trees (Flitcroft, 1998). The trees were probably mostly Sitka spruce and alder. The former is considered to be the climax tree species of the forest (Sundberg, 1999). Research on the natural process of coastal sand dune construction indicates that forested areas would be expected to develop in the more stable areas away from the accreting, active dunes, where disturbance was too frequent. However, large expanses of native grasses predominated, probably maintained through annual burning by Native Americans. Near the ocean, sand deposition, wind, and salt spray would have limited the vegetation to dunegrasses and other dune-adapted herbaceous plants.

Sketches and descriptions from Lewis and subsequent research indicate that the ocean shoreline was much further to the east in 1805, approximately parallel with the western edge of Slusher Lake (Cherry, 1977). Thus, the western third of Camp Rilea did not exist at that time. Much of the remainder was probably part of the near ocean area and covered by open beach and dunegrass. Further inland, vegetative cover likely changed to native grasses, except along the drainages where trees and shrubs would be expected.

The pre-settlement vegetation and natural dune-building process began to change with Euro-American settlement in the 1840s. Settlers built homesteads, drained bogs, and began farming and grazing livestock on the plains (Flitcroft, 1998). By the 1880s the new land use, particularly overgrazing, had created an environment much less stable than under natural conditions thus creating a problem of moving sand dunes (Flitcroft, 1998). Jetties constructed at the mouth of the Columbia River in the late 19th century exacerbated the problem, by altering the historic sediment distribution and deposition patterns which vastly increased deposition south of the river. In reaction to this dune instability problem, a massive dunes stabilization project was launched in the 1930s. The Civilian Conservation Corps was brought in to plant millions of grass, shrub, and tree starts. The three main species used were European beachgrass, Scots broom, and shore pine. Over 3,000 acres of moving sands were successfully stabilized with these nonnative vegetation communities. These nonnative often invasive species and vegetative communities still exist today.

The actual changes in vegetation communities at Camp Rilea from 1939 to 1996 have been documented (Flitcroft, 1998). Flitcroft examined aerial photographs from 1939, 1958, 1971, and 1996 and presented a chronological series showing how the vegetation evolved over time. Vegetation classes were mapped and acreages calculated for each of the four years. Figure 3.7.1-1 presents a graph showing the trends in grouped vegetation communities. Basically, the camp evolved from an area covered mostly by unvegetated sand and dunegrasses (over 1,450 acres in 1939), to one dominated by shrub and wooded communities (over

1,100 acres in 1971 and over 1,400 acres in 1996). Although this mimics the expected successional trend for a natural dune system, the existing communities are not natural and it is unclear whether they can or should be maintained.

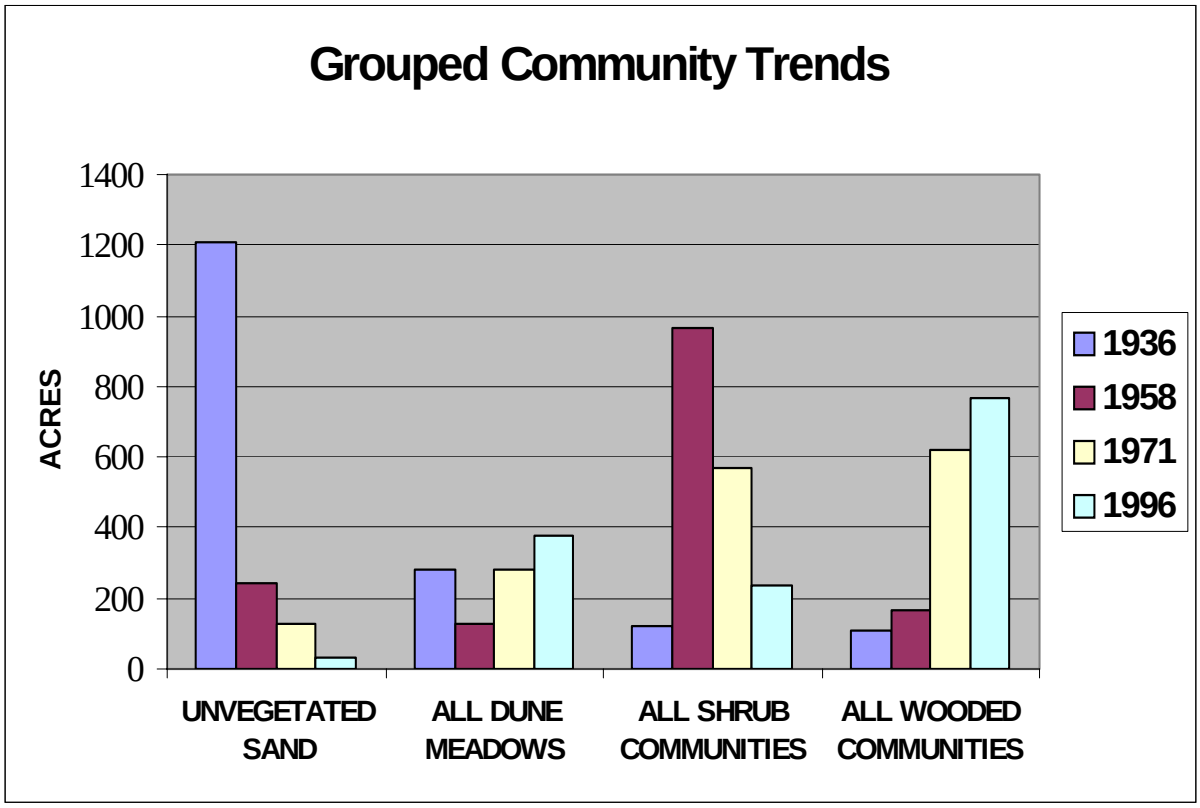

Figure 3.7.1-1 Grouped Community Trends Graph

This graph contains groupings of individual categories. Unvegetated sand is the only one that has not been grouped. The "All Dune Meadows" category includes: Accretion Dune Meadow, Foredune Meadow and Complex Interdune Meadow. "All Shrub Communities" includes Shrub Wetland and shrub. "All Wooded Communities" includes Wooded and Wooded Wetland.

3.7.2 Current Plant Communities

The existing plant communities on Camp Rilea are a direct result of the dune stabilization plantings of the 1930s and subsequent management actions by the Oregon Military Department. Therefore, there are few areas dominated by native vegetation. Much of the camp is covered with closed canopy forests of shore pine or other exotic pines, including Scots pine and Black pine. Large areas of European beachgrass and forested wetlands are also present. This landscape neither resembles what was present in the past or what would have evolved under natural conditions, except perhaps the wetlands.

Using the U.S. National Vegetation Classification System (USNVCS), OSU Botany classified the existing plant communities into vegetation types during its floristic surveys of 1998-1999. Types were classified down to the Community Association

level in the established hierarchy. The USNVCS is heavily based on existing vegetation and uses qualitative or quantitative data. A total of 20 vegetation types (excluding nonvegetated and developed) were recognized and are shown on Figure 3.7.2-1. The 20 types are described below (from Sundberg, 1999):

Open water: The open water category is actually nonvegetated, although submerged rooted and floating aquatic plants do occur in shallow water throughout the camp. Canadian waterweed (*Elodea canadensis*) and water buttercup (*Ranunculus aquatilis*) are rooted aquatics commonly found here. Common duckweed (*Lemna minor*), dotted water-flaxseed and duckweed fern are the most abundant floating aquatic species. South American water milfoil, a floating rooted aquatic species, occurs in patches too small to be mapped in that vegetation type.

Floating rooted aquatic (*Nuphar polysepala-Nymphaea odorata* Community Association): This vegetation type occurs in both forks of Neacoxie Creek, Sunset Lake, and Slusher Lake, although many patches are too small to be mapped. Dominant species are the native species, yellow pond lily (*Nuphar polysepala*) or the nonnative species, fragrant water lily (*Nymphaea odorata*).

Sea rocket strand (*Cakile edentula-Cakile maritima* Community Association): This strand of vegetation occurs at and slightly above maximum high tide. It is dominated by two species of sea rocket (*Cakile edentula* and *Cakile maritima*) which are both nonnative species. At the upper edge of the strand searocket co-occurs with beachgrass species (*Ammophila* spp.) of the accretion foredune.

Accretion foredune meadow (*Ammophila spp.-Leymus mollis* Community Association): The accretion foredune lies inland from the searocket strand. It is dominated by the nonnative species European beachgrass and short-liguled beachgrass (*Ammophila breviligulata*), and the American dunegrass, which is native. These were originally planted in the camp to stabilize sand dunes and have spread extensively. This seaward portion of the foredune is partially covered by sand each year.

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Foredune meadow (*Leymus mollis-Lathyrus japonicus* Community Association): The foredune meadow extends from the accretion foredune meadow to the west to the interdune meadow to the east. It spans the top of the foredune ridge. Vegetation consists of the native species American dunegrass and maritime peavine (*Lathyrus japonicus*). European beachgrass also occurs in some portions of the foredune meadow.

Interdune meadow (*Ammophila arenaria – Leymus mollis* Community Association): The interdune meadow is a rich mosaic of several plant communities that occur in patches too small to map in the current study. Most of the area is dominated by European beach grass and/or dune grass, with patches of the native species coastal strawberry (*Fragaria chiloensis*), yarrow (*Achillea millefolium*), pearly everlasting (*Anaphalis margaritacea*), nonnative common velvetgrass (*Holcus lanatus*) and dozens of other native and nonnative species. Wetland slough sedge, wetland willow, and upland Scots broom scrub are common vegetation inclusions in the Interdune meadow vegetation type.

Disturbed European beachgrass meadow (*Ammophila arenaria–Holcus lanatus* Community Association): This vegetation type occurs in scattered areas where soils have been disturbed in recent years. It is dominated by European beach grass and typically includes assorted other nonnative grasses and forbs.

Upland sedge meadow (*Carex pansa-Anthoxanthum odoratum* Community Association): Upland sedge meadows are found in the central portion of the camp. These are the "butterfly meadows" that are mowed annually to provide habitat for the Oregon silverspot butterfly. These meadows have a rich mix of native and nonnative plant species. Sand sedge (*Carex pansa*) and sweet vernalgrass (*Anthoxanthum odoratum*) are dominant species. Several native species are conspicuous but not dominant, including hillside rein orchid (*Piperia elegans*), chocolate lily (*Fritillaria affinis*), elegant brodiaea (*Brodiaea elegans*), and hooked spur violet (*Viola adunca*), the larval host for the silverspot butterfly.

Planted/cultivated grassland (*Agrostis tenuis* or *Festuca arundinacea* Community Association): Planted/cultivated grasslands are maintained lawns or other managed grass areas. They surround most buildings in the cantonment area and are found in several other areas of the camp.

Slough sedge wet meadow (*Carex obnupta* Community Association): Slough sedge (*Carex obnupta*) wet meadows mostly occur in the depression inland from the foredune, adjacent to wetland willow forest vegetation. They also are found in small patches in the interdune meadow and along the edge of West Neacoxie Creek. Few species other than slough sedge occur in this vegetation type, and these are not significant components of the vegetation. Slough sedge meadows are typically inundated most of the year, drying up late in the summer and in the fall.

Cusick's sedge wet meadow (*Carex cusickii* Community Association): This vegetation type is found in one area along the edge of West Neacoxie Creek, in

the northeastern portion of the camp. Much of the wetland consists of sedge hummocks surrounded by water, and thus soils are saturated or inundated all year. Groundwater level is typically at or within a few centimeters of the surface. Cusick's sedge (*Carex cusickii*) and other sedge species dominate Cusick's sedge meadow. The invasive weed purple loosestrife is scattered through much of the meadow, as is South American water milfoil, which occurs in pools interspersed throughout the wetland. Sphagnum moss (*Sphagnum* sp.) grows in small patches in a few areas.

Upland Scots broom scrub (*Cytisus scoparius*/grasses Community Association): Dominated by Scots broom, typically in dense thickets 2-3 meters tall with scattered grasses, this vegetation type is widespread in disturbed areas of the camp.

Wetland sweet gale scrub (*Myrica gale* Community Association): Sweet gale scrub occurs in scattered, nearly monospecific patches of low shrubs along the shore of East Neacoxie Creek.

Upland planted conifer forest (*Pinus contorta, P. nigra, P. sylvestris, Picea sitchensis,* and/or *Tsuga heterophylla* forest with *Cytisus scoparius* understory Vegetation Type): This includes even-age stands of shore pine, Scots pine (*Pinus sylvestris*), black pine (*Pinus nigra*) and/or Sitka spruce (*Picea sitchensis*) and Western hemlock (*Tsuga heterophylla*). Maritime pine (*Pinus pinaster*) was also found during the plant surveys, but was not widely planted. These tree species were planted for dune stabilization over much of Camp Rilea. In training areas 9 and 12, the pines planted in the 1930s were harvested in 2004. These training areas were replanted in Sitka spruce and Western hemlock in 2006. In some places, shrubs have been removed from the understory and the lower limbs of trees have been removed. There is little stratification of the canopy. The understory varies from sparsely vegetated, consisting mostly of a carpet of moss species, to densely vegetated, with colonization by native shrub and tree species. In many areas, the nonnative species, Scots broom is abundant. Native shrub species include evergreen huckleberry (*Vaccinium ovatum*) and Pacific wax myrtle (*Myrica gale*). Forbs and grasses present include western rattlesnake plantain (*Goodyera oblongifolia*) and sweet vernalgrass.

Upland spruce/sword fern forest (*Picea sitchensis*/*Polystichum munitum* Community Association): This forest type is dominated by Sitka spruce and sword fern (*Polystichum munitum*). It is less disturbed than other forests in the camp. The canopy is typically stratified, with cascara (*Rhamnus purshiana*), red alder (*Alnus rubra*), red huckleberry (*Vaccinium parvifolium*) and Pacific blackberry (*Rubus ursinus*) dominating different levels of the canopy. The herbaceous stratum is dominated by sword fern and includes a rich mix of forbs and grasses.

Upland managed woodland (open spruce or shore pine with mowed understory): Managed woodland forest includes widely spaced Sitka spruce and/or shore pine

trees. The understory in most of this forest type is managed by shrub removal and in some areas by mowing herbaceous vegetation.

Wetland willow forest (*Salix hookeriana*/*Carex obnupta* Community Association): Dominated by Hooker's willow (*Salix hookeriana*), this forest of trees approximately 7-8 meters tall, is flooded much of the year. The understory is dominated by slough sedge or is bare where the ground remains ponded for longer periods of time.

Wetland alder forest (*Alnus rhombifolia/Carex obnupta* Community Association): This forest type is dominated by white alder (*Alnus rhombifolia*) and slough sedge. It is restricted to one wetland that lies in a depression between old vegetated dunes west of North Neacoxie Road.

Wetland shore pine forest (*Pinus contorta*/*Carex obnupta* Community Association): This forest type occurs in a north-south-oriented band adjacent to wetland willow forests in the depression behind the foredune. Shore pine trees grow on low hummocks in a wetland that remains inundated late into the spring. The understory is dominated by slough sedge. This forest type also includes patches of red alder (*Alnus rubra*) and Sitka spruce trees.

Upland mixed deciduous forest (*Alnus rubra – Rhamnus purshiana* Community Association): This forest type is typically dominated by red alder and cascara but may also include Hooker's willow, western crabapple (*Malus fusca*) and along the southern border of the camp, black locust (*Robinia pseudoacacia*).

Due to similarities in some of the above communities and how they will be managed and used, some of the communities were combined. In addition, some types were renamed to facilitate interpretation. These combined and/or renamed plant communities form the management units for this plan. The final 11 modified plant communities/management units are shown in Table 3.7.2-1.

Table 3.7.2-1 Plant Community/Management Unit Data

MODIFIED PLANT COM/MGMT. UNIT NAME	USNVCS NAME	NO. OF AREAS	ACRES	TRAINING AREAS
coastal zone meadows	sea rocket strand; accretion foredune, foredune, and interdune meadows	1	352.9	2-5,7,8,11
floating aquatic	floating rooted aquatic and open water	6	11.3	Cantonment
sweet gale wetland	wetland sweet gale scrub	1	0.9	Cantonment
forested wetland	wetland shore pine forest; wetland alder forest; and wetland willow forest	21	216.1	1-8, 10, 11,13
planted conifer forest	upland planted mixed conifer forest and managed woodland	21	514.8	all
deciduous forest	upland mixed deciduous forest	12	18.2	1,6
Spruce/fern forest	upland spruce/swordfern forest	15	38.7	1,6,10,13
Scots broom/beachgrass	upland Scots broom scrub and disturbed European beachgrass	52	141.2	all
upland sedge meadow	upland sedge meadow	5	91.5	1,3,4,6,9,10
wet sedge meadow	Cusick's and slough sedge wet meadows	2	16.2	2,10
cultivated grassland	planted/cultivated grassland	20	229.3	1,2,3,4,6,10

Figure 3.7.2-2 shows the spatial distribution of these 11 modified plant communities/ management units. Table 3.7.2-1 also lists the acreage of each and the training areas within which they are located. Representative photographs of each community are in Appendix G.

Floristic Survey Results

The survey documented 274 plant species at Camp Rilea (Appendix F). This is approximately six percent of the 4,423 plant species known to grow outside of cultivation in Oregon (Sundberg, 1999). Sixty-four families and 186 genera are represented. Forty-one percent of the species at Rilea are nonnative; by comparison approximately 18 percent of plant species are nonnative statewide. It was estimated that 95 percent of the plant species, subspecies and varieties were documented at Camp Rilea (Sundberg, 1999).

Although there are no Endangered Species Act listed plant species within the camp, there are four notable, rare native species present. These are discussed below:

Columbia watermeal (*Wolffia columbiana*) is a tiny, ellipsoidal, floating aquatic about one millimeter long. It is one of the smallest flowering plants in the world. It grows in several areas along West Fork Neacoxie Creek within Camp Rilea and it is likely to periodically occur along the entire length of the creek. It has not been found on East Fork Neacoxie Creek. The species is listed as “Threatened or Endangered in Oregon (Category 2) by the Oregon Natural Heritage Information Center (ONHIC), formerly called the Oregon Natural Heritage Program (ONHP),

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but has no state or federal status. Columbia watermeal is widely distributed in the Americas and is most commonly collected in the eastern United States and Argentina. The population at Camp Rilea is healthy and apparently stable. There are no apparent threats to the plant as long as the hydrology of the creek is maintained and the water does not become polluted to the extent that it is toxic to the plants.

Sweet gale (*Myrica gale*) is a medium-sized wetland shrub with fragrant leaves and inconspicuous flowers. Individual plants are either male or female. The species grows at the edge of Camp Rilea in dense stands along East Fork Neacoxie Creek and constitutes the dominant species in the Wetland sweet gale scrub vegetation type. This species has no state or federal status, but is on the ONHIC "Review List" (Category 3 status). Sweet gale is distributed along the Pacific Coast from Alaska to Oregon, east to Wisconsin, from Nova Scotia to North Carolina, and in Eurasia. The population at Camp Rilea is healthy and stable. There are no apparent threats to the plant as long as the hydrology of the creek is maintained and the water does not become excessively polluted.

Yellow sand verbena (*Abronia latifolia*) is a sprawling, sticky, succulent herb with round leaves and yellow flowers. In 1993, ONHP botanists found three plants north of Slusher Lake Road and north of Millersburg training area (MOUT site). In 1997 and 1999, additional plants were found in the MOUT site. In 1999 one plant was found growing in a sand pit in the newly constructed obstacle course north of Slusher Lake Road. Several vigorous plants were also seen in the M203 Range and in the Infantry Squad Live Fire Range, on either side of Second Causeway. In each case the ground had been disturbed in the past few years and the ground cleared of competing vegetation. It is likely that the species cannot tolerate annual disturbance. However, it is also apparent that it will not survive in many areas of Camp Rilea unless the ground is periodically cleared of vegetation. Yellow sand verbena has no state or federal status. It is on the ONHIC "Watch List" (Category 4). Yellow sand verbena occurs from southern Vancouver Island to the central California coast.

Big-headed sedge (*Carex macrocephala*) is a grass-like plant in the sedge family. It is notable for its clusters of flowers, which are the largest of any Oregon sedge. The species has no state or federal status but is listed on the ONHIC "Watch List" (Category 4). It is sparsely distributed at Camp Rilea, occurring mainly on patches of open sand. It also periodically requires soil disturbance, as it does not persist in areas where European beachgrass and other plants cover the ground. Big-headed sedge grows from Coos County, on the central Oregon coast to Alaska, China and Japan.

There are also a number of species that are not often found, yet are not sufficiently uncommon to be considered rare. Leather grapefern (*Botrychium multifidum*) and golden eyed grass (*Sisyrinchium californicum*) are examples. Black knotweed (*Polygonum paronychium)*, sea purslane (*Honckenya peploides*), footsteps of spring (*Sanicula arctopoides*) and silver beachweed (*Ambrosia*

chamissonis) are typical native dune species that are present, but not abundant at the camp. These species are not commonly seen in Oregon.

Nonnative vegetation is widespread on the camp and is a problem as it often restricts training and wildlife habitat. The most abundant nonnative species at Camp Rilea were planted for dune stabilization, including European beachgrass, Scots broom, Scots pine (*Pinus sylvestris*) and black pine (*Pinus nigra*). Scots broom is now considered an invasive plant species in western Oregon. Other invasive or noxious weeds found on Camp Rilea include purple loosestrife (*Lythrum salicaria*), English ivy (*Hedera helix*), tansy ragwort (*Senecio jacobaea*), South American water milfoil (*Myriophyllum aquaticum*), English holly (*Ilex aquifolium*), and meadow knapweed (*Centaurea pratensis*). Several nonnative grass species are especially abundant, and many exotic species of forbs are found commonly throughout the camp. Species that have escaped cultivation include daffodil (*Narcissus pseudonarcissus*), European privet (*Ligustrum vulgare*), Etruscan honeysuckle (*Lonicera etrusca*), and tapegrass (*Vallisneria americana*), which is often grown in freshwater aquaria.

3.8 WETLANDS

Camp Rilea has many large wetland areas. These were surveyed and mapped during the OSU Department of Botany and Plant Pathology (OSU Botany) floristic surveys in 1998 and 1999. OSU Botany mapped the camp's vegetation types using the existing vegetation (discussed below). The vegetation type classes with wetlands vegetation were then compared to the classes of the U.S. Fish and Wildlife Service (USFWS) wetlands classification system (Cowardin, 1979), and the appropriate USFWS wetlands class was assigned to each type. This wetlands inventory is useful only for planning purposes, since the minimum mapping unit from the vegetation type mapping was one to one and a half acres. Therefore, boundaries and acreages are not exact. The inventory indicates that there are approximately 244 acres of wetlands in 29 separate areas, ranging in size from about one acre to 159 acres. All but nine are of the palustrine forested class, and this class accounts for 216 acres. Figure 3.5.2-1 and Table 3.8-1 shows the location of and present data on these wetlands. As can be seen, most are in the depression between the foredune and second dune.

Table 3.8-1. Wetlands Data

COWARDIN CLASS	NO. OF AREAS	ACRES
palustrine aquatic bed (PA)	6	11.3
palustrine emergent wetland (PE)	2	16.2
palustrine forested wetland (PF)	20	216.1
palustrine scrub-shrub wetland (PS)	1	0.9
TOTALS	29	244.5

3.9 WILDLIFE

3.9.1 Vertebrate Faunal Inventory

The Forest and Rangeland Ecosystem Science Center, Biological Resources Division of the U.S. Geological Survey (USGS) conducted a vertebrate faunal inventory at Camp Rilea from November 1997 through March 1999. Methods included avian point counts, small mammal trapping, arboreal mammal trapping, infrared monitoring, mist netting, spotlighting, amphibian and reptile searches, habitat measurements, and incidental observations. The USGS staff made 72 visits to the camp and documented the presence of 125 bird species, 32 mammal species, and 7 species of amphibians and reptiles. Avian point counts conducted in the spring were the most productive, and riparian areas had the greatest species richness and diversity. White-crowned sparrows (*Zonotrichia leucophrys*), American robins (*Turdus migratorius*), and Savannah sparrows (*Passerculus sandwichensis*) had the highest frequency and relative abundances. American widgeons (*Anus americana*) were the most observed waterfowl species and sanderling (*Calidrus alba*) and dunlins (*Calidrus alpina*) the most frequently recorded shorebirds. The willow wetlands plant community had the highest diversity index for small mammals. Deer mice (*Peromyscus maniculatus*) were the most frequently captured species. Only one species of bats was captured during mist netting, with one additional species identified from incidental observations. The most commonly encountered amphibians/reptiles species was Pacific chorus frogs (83.8%) during terrestrial surveys and red-legged frogs (95.8%) during aquatic surveys. Appendix E contains the species lists for birds, mammals, and amphibians and reptiles. Additional data can be obtained from the full report (Henny, et al., 1999).

Of all the species recorded, nine were nonnative. Five of them were mammals; three were birds, and one frog. The European starling (*Sturnus vulgaris*), cat (*Felis catus*), nutria, black rat, and bullfrog are considered to be problems or pests. Starlings may adversely affect cavity nesting bird species and cats may be a major predator of birds and small mammals. Nutria construct burrows in banks of rivers, sloughs, and ponds, sometimes causing considerable erosion. Burrows can weaken roadbeds, stream banks, dams, and dikes, which may collapse when the soil is saturated by rain or high water. Foraging nutria also can significantly impact natural plant communities. Over utilization of emergent marsh plants can damage stands of desirable vegetation used by other wildlife. Nutria are aggressive competitors with the native muskrat which is smaller. Muskrats have

been largely eliminated or greatly reduced where nutria have become established. Bullfrogs will eat nearly anything they can swallow and have a voracious appetite. Areas with an abundant bullfrog population have few or no turtle hatchlings or other frog species. These five species are potentially reducing species richness and avian biodiversity at the camp.

A number of key habitat areas that appeared to be important for wildlife were noted. The riparian areas supported a diverse faunal community, and represented a major percentage of the plant communities available. The lakes, creeks, sloughs, willow wetlands, and open beach were also important habitat components. Riparian areas contained the highest species richness for birds from point counts, as well as the highest mean number of birds encountered per point. This area was important to the avian community during breeding and wintering seasons. Small mammal observations showed the willow wetland to have the highest species richness, although this varied with season. In spring when many lowlands were inundated, the adjacent beachgrass, and to some extent coniferous woodland, were important areas for small mammals. By fall, the now-dry willow wetlands had exceeded all other plant communities in species diversity. When considering overall species diversity on Camp Rilea, the open water, creeks, and beach zone were all important to their respective genera. The beach zone serves as an important area for migrant shorebirds, as shown by the large number of transient flocks and individuals observed. Inland permanent water was used throughout the year by resident and migrant waterfowl, and also served as brood rearing habitat. The presence of nest boxes along Neacoxie Creek enable larger cavity nesters to use the area, especially given the absence of mature timber and snags. This added significantly to the creek's overall diversity.

Since the USGS inventory only lasted one year, much year-to-year variation of wildlife populations and their use of habitat were missed. For example, a plant community that contains high numbers of species one year may prove to be less significant the following year with changes in annual precipitation, land use on adjacent properties, and a host of other variables. Data from one- or two-year inventories can only provide a partial look at the identification of key habitats on a study site. Furthermore, some species that were expected to occur were not recorded (see table in Appendix E). Therefore, multiyear assessments of wildlife and habitats would be needed to account for this variation.

In accordance with the Migratory Bird Treaty Act (MBTA), activities conducted on Camp Adair must be assessed for their potential to harm migratory birds, even if the harm is inadvertent. In general, implementing the INRMP should benefit birds, but some actions could inadvertently harm some birds. The ORARNG is responsible for analyzing and describing the potential effects from its activities on migratory birds and minimizing any adverse effects.

Wood Duck Nesting Box Project

From 1990 to 2001, science students from Jewell High School installed and monitored nest boxes for wood ducks (Aix sponsa) on the Clatsop Plains. Fifteen

boxes were located in Camp Rilea, all along the west fork of Neacoxie Creek. The boxes were visited every year and reproductive data gathered. In 1997, the Camp Rilea boxes contained 292 wood duck eggs of which 170 hatched (58%). Hooded mergansers also used some of the boxes (44 eggs; 16 hatches). The Camp Rilea boxes averaged 314 wood duck and 22 hooded merganser eggs from 1990-97. For all of the project boxes, wood duck clutch size averaged 15 eggs (11 excluding dump nests). Hatch success averaged 43% for wood ducks and 53% for hooded mergansers. Most hatching occurred in either May or June. On average, over 45% of the boxes contained dump nests. Dump nests (over 16 eggs in a box) result when one wood duck female deposits her eggs on top of another clutch and are believed to be related to the conspicuousness of nest boxes. The project was discontinued in 2001 and Jewell High School does not have plans to resume the project.

Deer and Elk

Black-tailed deer and Roosevelt elk are present at Camp Rilea. However, no studies of deer or elk at Camp Rilea have been conducted. Anecdotal information, observations, and statistics from Oregon Department of Fish and Wildlife's (ODFW) Saddle Mountain Management Unit are the only sources of information.

The deer population appears to be rather dense at the camp. It is common to see deer, often in small herds (e.g., 6-12), while driving around or in the field. Since deer have home ranges of approximately one square mile, these deer are probably year round residents. Saddle Mountain Unit census data suggest that there would be about 60 deer residing at Rilea. This was based on the Eastman model and assumes average habitat. Since Rilea's habitat is above average, it is likely that more deer are present. As for demographics, the census data suggest that around 12 percent of these animals would be bucks and 30 percent fawns. Lowland deer on the Clatsop Plains can be affected by Deer Hair Loss Syndrome. The Syndrome does not itself appear to be a cause of mortality to the deer, but does appear to be a symptom of other stresses to the animals' immune systems, such as heavy parasite burdens or disease.

There are apparently three residential herds of elk west of Highway 101, with two of these regularly visiting and using Camp Rilea. The three herds total about 80 to 100 animals in the summer and 120 to 150 animals in the winter, when animals summering on Clatsop Ridge move down to the plains for the winter. The middle herd is the one spending the most time at the camp, while the last herd has never been observed there. It is believed that all three herds move up and down the coast from Hammond to Gearhardt and use Camp Rilea, which is consistent with their behavior and estimated home range size. Although they are in close proximity, the herds do not seem to co-mingle. There has been little change in total numbers observed over the last ten years. The herds grow through reproduction and adults moving west from the Coast Ranges, and then are reduced through hunting and other causes of mortality. It is not uncommon to observe 40 or more elk at a time on Camp Rilea.

Fish and other Aquatic Animal Species

Information on fish is fairly limited and nonexistent for other aquatic animal species for the surface waters of Camp Rilea. The ODFW has done intermittent gill netting and electroshocking for decades to gather information on the fisheries of Sunset and Slusher Lakes. The last survey was in June 1995. Both lakes have bluegill, largemouth bass, yellow perch, sculpins, carp, and bullhead species. Sunset also has been stocked with rainbow trout, salmon, and steelhead (bluegill and bass are have been stocked in this lake in the past). For some unknown reason the warmwater fish in Sunset do not survive past the juvenile stage. Thus, what was once a good, popular warmwater fishery has declined to a poor state. In the past, the ODFW has expressed an interest in investigating this problem and improving this fishery. No sampling has been done in Neacoxie Creek above Sunset Lake. Due to the stagnation of this creek, fish are thought to be absent.

3.10 THREATENED, ENDANGERED AND SPECIAL STATUS SPECIES

Appendix F provides the federal, state, and ONHIC species of concern at Camp Rilea. Species of concern includes those listed as threatened or endangered under the federal Endangered Species Act or Oregon law, as well as candidates for ESA listing, state-critical, state-vulnerable, and ONHIC watch list categories. The most current list, dated May 2004, is based on a statewide database and is also available on the Internet at http://oregonstate.edu/ornhic/2004_t&e_book.pdf.

The highlights of the list are as follows: Seven listed birds could be present (six state and federally-listed and one state-listed only); one federally-threatened fish (state critical list); one federally-threatened invertebrate; and one state-endangered plant. In addition, one mammal is on the state critical list; one other bird species is on the state critical list; one amphibian is on the state critical list; one reptile is on the state critical list; two other fish species are candidates for the federal list; and four plants are candidates for state ESA listing. All of these species are listed in Appendix F. The federally-threatened Stellar sea lion is not included since the ocean and beach are not part of Camp Rilea. However, no observations of this species have occurred in the coastal area adjacent to the camp.

Camp Rilea has known that the federally-threatened Oregon silverspot butterfly (OSB) has been present since 1982 and began managing habitat for this species shortly after this discovery. The number of female silverspot butterflies annually observed at the camp during late summer monitoring has varied from 82 to zero, declining steadily (Hammond, 1999). The OMD completed a Section 7 (Endangered Species Act) consultation with the USFWS and adopted a formal habitat management plan for the OSB in 1999 (OMD, 1999). While OSB conservation goals, objectives, and projects have been incorporated into this revision of the INRMP, the habitat management plan should be consulted for detailed information on the biology, management, and monitoring of this species. Currently 68 acres of meadow habitat on Camp Rilea are designated as protected habitat and managed primarily to maintain and improve OSB habitat (Figure 3.10-1).

Three separate efforts have been made to determine whether any other special status species are present within the camp, particularly the species listed on the Appendix F list. The first was a brief inventory conducted by the ONHP in the spring/summer of 1993. This inventory failed to document the occurrence of any sensitive species other than the Oregon silverspot butterfly (Kagan, 1993). It was also reported that a lack of suitable habitat precluded the presence of most listed species.

The second effort was for vascular plants only, and consisted of floristic surveys by the OSU Botany Department. Surveys were conducted during the growing season in both 1998 and 1999. No state or federally-listed plants or candidates were discovered. However, four species were encountered that are on the ONHIC lists and considered rare: Columbia watermeal, sweet gale, yellow sand verbena, and big-headed sedge. The four species were described in the section on natural history and vegetation. The observed locations of these plants are shown on Figure 3.10-2.

The third effort consisted of vertebrate faunal surveys by scientists from the Biological Resources Division of the USGS during 1997-1999 (discussed above). During 72 visits to the camp, the USGS scientists recorded three listed bird species: the California brown pelican (state and federally endangered); the Bald Eagle (state and federally threatened); and the peregrine falcon (state endangered). The listing status of these species remains the same in 2006. One bird species (pileated woodpecker) and one frog species (northern red-legged frog) that the state or USFWS considered vulnerable or of concern were recorded by the USGS. However, in 2006, only the Northern red-legged frog remains listed as a federal species of concern and state vulnerable species. The pileated woodpecker has been determined to be too numerous to be considered rare, threatened, or endangered (ONHIC, 2004).

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1
2 Figure 3.10-1

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2 Figure 3.10-2

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3.11 CULTURAL RESOURCES

The ORARNG has completed 100 percent archeological surveys and evaluated all extant buildings and structures on Camp Rilea property. There are no archeological sites located at Camp Rilea. The ORARNG has determined, in consultation with the Oregon State Historic Preservation Office (SHPO), that 15 buildings are eligible for inclusion on the National Register of Historic Places (National Register). One of these eligible buildings, the Chateau, includes associated gateposts and landscaping that are also considered eligible. Two other features, a 1931 memorial stone and a concrete and pebble stairway, are also eligible for the National Register. Additionally, the ORARNG has determined, in consultation with the SHPO that most of Camp Rilea (the Cantonment area and all property west of the West Fork Neacoxie Creek) is a historic military landscape eligible for inclusion on the National Register.

There are no known Native American-associated sites nor Traditional Cultural Properties located at Camp Rilea. Slusher Lake has been identified as the possible location of a Native American village described in the Lewis and Clark journals. However, surface features have never been found, and preliminary studies conducted using Ground Penetrating Radar to a depth of 2.7 meters revealed no cultural evidence and were generally inconclusive.

3.12 AIR QUALITY

3.12.1 Existing Sources of Air Emissions

The federal Clean Air Act (CAA), as amended, authorizes the Environmental Protection Agency (EPA) to establish national ambient air quality standards to protect public health and welfare. Federal ambient air quality standards have been adopted for the following six criteria pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, inhalable and fine particulate matter (PM_{10} and $PM_{2.5}$), and lead. PM_{10} refers to particles 10 microns in diameter and smaller. Particles of this size can lodge deep in the lungs for weeks and months, aggravating asthma, heart disease, and other circulatory and respiratory conditions. $PM_{2.5}$ refers to particles that are 2.5 microns in diameter and smaller.

States are required to adopt standards that are at least as stringent as the national standards; Oregon has adopted the national ambient air quality standards, with the exception of sulfur dioxide, for which stricter standards have been adopted. Areas that violate a federal air quality standard are designated as nonattainment. Nonattainment designations for ozone, carbon monoxide, and PM_{10} include subcategories indicating the severity of the air quality problem.

Table 3.12.1-1 shows the federal and state ambient air quality standards. Clatsop County is in attainment for all of the federal ambient air quality standards. Vehicles and fugitive dust are the primary sources of air emissions at Camp Rilea.

The small population, strong year round ocean winds and large amounts of forest lands help to mitigate and remove what localized air quality problems exist in Clatsop County during most of the year. The major point source of air pollution in

the County is the Wauna paper mill, located approximately 25 miles east of Camp Rilea, which is meeting the requirements of its Air Contaminant Discharge Permit.

The Oregon Department of Environmental Quality (ODEQ) air quality officials do not feel that there are significant air pollution problems in Clatsop County. Air Contaminant Discharge Permits are monitored on a regular basis by the state, and the combination of pollution control equipment and the wind in the area mitigate against the need for additional controls. (Clatsop County Comprehensive Plan).

3.12.2 Regulatory Considerations

The federal CAA requires each state to develop, adopt, and implement a State Implementation Plan (SIP) to achieve, maintain, and enforce federal air quality standards throughout the state. The SIP documents are developed on a pollutant-by-pollutant basis whenever one or more air quality standards are being violated. Section 176(c) of the CAA, USC § 7506(c), requires federal agencies to ensure that actions undertaken in nonattainment or maintenance areas are consistent with the CAA and with federally enforceable air quality management plans. The EPA has promulgated separate rules that establish conformity analysis procedures for transportation-related actions and for other (general) federal agency actions. The EPA general conformity rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The CAA conformity guidelines do not apply to Camp Rilea because it is within an attainment/unclassified area.

Table 3.12.1-1
Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	National Ambient Air Quality Standard (NAAQS) Violation Determination[1]	Federal Standard (NAAQS) Exceedance Level	State Standard Exceedance Level
Carbon Monoxide	1-hour	Not to be exceeded more than once/year.	35 ppm	35 ppm
	8-hour	Not to be exceeded more than once/year.	9 ppm	9 ppm
Lead	Calendar Quarter	Quarterly arithmetic mean	1.5 µg/m^3	1.5 µg/m^3
Nitrogen Dioxide	Annual	Annual arithmetic mean	0.053 ppm	0.053 ppm
Ozone	1-hour	The expected number of days per calendar year with max hourly average concentrations above 0.12 ppm is equal to or less than 1.	0.12 ppm	0.12 ppm
	8-hour	3-year average of the annual 4th highest daily maximum 8-hour average concentration.	0.08 ppm	
PM2.5	24 hour	98th percentile of the 24-hour values determined for each year. 3-year average of the 98th percentile values.	65 µg/m^3	
	Annual Average	3-year average of the annual arithmetic mean	15 µg/m^3	
PM10	Annual Average	3-year average of the annual arithmetic mean	50 µg/m^3	50 µg/m^3
	24 hour	The expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than 1 over a 3-year period.	150 µg/m^3	150 µg/m^3
Sulfur Dioxide	Annual Arithmetic Mean	Not to be exceeded more than once per calendar year.	0.03 ppm	0.02 ppm
	24 hour	Not to be exceeded more than once per calendar year.	0.14 ppm	0.10 ppm
	3 hour	Not to be exceeded more than once per calendar year.	N/A	0.050 ppm

Notes: µg/m3 = *micrograms of pollutant per cubic meter of air*
ppm = *parts per million*

Source: http://www.deq.state.or.us/aq/forms/2004ar/naaqs_Tbl5.pdf

3.13 NOISE

3.13.1 Noise Level Criteria and Standards

Noise Management

Sound travels through the air in waves of minute air pressure fluctuations caused by vibration. Sound level meters are designed to detect these sound waves and register different sound frequency ranges on a logarithmic decibel (dB) scale.

Because the human ear is not equally sensitive to all frequencies, an "A-weighted" decibel scale (dBA) is commonly used to represent the response of the human ear. For certain low frequency noises, such as traffic, aircraft, and heavy weapons firing, where noise may be heard and felt, a "C-weighted" decibel scale (dBC) is used. Average noise exposure over a 24-hour period often is presented as a day-night average noise level (DNL). The DNL values are calculated from 24-hour averages in which nighttime values (10 PM to 7 AM) are increased by 10 dB to account for the greater disturbance potential from nighttime noises.

Federal Agency Guidelines

The federal Noise Control Act of 1972 (42 USC 4901 - 4918) requires all federal agencies to comply with applicable federal, state, interstate, and local noise control regulations. However, local and state agencies have no regulatory authority over military aircraft operations. Federal agencies also were directed to administer their programs in a manner that promotes an environment free from noise that jeopardizes public health or welfare. Executive Order 13045 (62 Federal Register 19885) establishes a requirement that federal agencies identify, assess, and address the extent to which agency programs and activities create disproportionate environmental health and safety risks for children.

State Agency Guidelines

State noise standards and guidelines include airport noise standards, guidelines for noise elements of general plans, and noise insulation standards for hotels, motels, and new multiple unit residential developments. The Oregon Department of Environmental Quality (ODEQ) regulates noise control under Oregon Revised Statutes Chapter 467 (ORS 467.010 – 467.990) and Oregon Administrative Rules Chapter 340, Division 35 (OAR340-35-0005 – 340-35-0110).

Local Guidelines and Criteria

According to the Clatsop Comprehensive Plan, the most probable future noise control problems in Clatsop County would be due to conflicts between noise sensitive properties and noisy industrial users, noise from major arterial highways and noise conflicts created by airports. In order to minimize these conflicts, noise considerations can be used when designating new industrial zoned land. In addition, performance standards for noise can be used in approving new commercial and industrial uses to minimize any conflicts with surrounding noise sensitive properties.

3.13.2 Existing Noise Conditions

Operational noise from Camp Rilea was modeled and analyzed by the US Army Center for Health Promotion and Preventative Medicine (USACHPPM). The results are reported in the Oregon Army National Guard Operational Noise Management Plan (US Army, 2005)

USACHPPM concluded that annual average noise levels from training at Camp Rilea are compatible with federal guidelines and overall, the off-post noise impact from training at Camp Rilea is moderate. There is a slight potential for noise complaints from nearby, off-Post residents due to small arms training. However, there is moderate potential for complaints from infrequent loud noise events, such during demolitions and claymore mine training, particularly if explosive charges larger than one pound were used.

Occasionally, rotary-wing aircraft fly directly onto Camp Rilea, although this activity is infrequent, perhaps 2 or 3 times a year. Aircraft generally do not train on Camp Rilea and their use consists of personnel transport or refueling. Usually, only one aircraft will visit Camp Rilea at any given time. The noise from aircraft activities are minimal, however, helicopter overflight of nearby residences is possible. USACHPPM suggested, if possible, that all aircraft approach and depart Camp Rilea from the west, passing over the Pacific coast, thus avoiding the residential development which surrounds Camp Rilea.

3.14 PUBLIC HEALTH AND SAFETY

The primary concerns in terms of public health and safety at Camp Rilea are military training activities, hazardous materials use, and wildfires. The ORARNG employs specific measures in its training activities and daily operations to curb these dangers. Risk management is a key factor in protecting military personnel and the public and in determining the policies that will ensure their safety.

3.14.1 Hazardous Materials and Hazardous Waste

Hazardous materials are used during daily installation operations and maintenance activities and during military activities involving vehicular maneuvers at Camp Rilea. Hazardous materials are handled, stored, and transported in accordance with EPA, Occupational Safety and Health Administration, US Department of Transportation, State, and Army requirements. Hazardous materials used on-site include petroleum, oils, and lubricants, antifreeze, brake, hydraulic, and transmission fluids, acids, caustic materials, paints, solvents, and pesticides.

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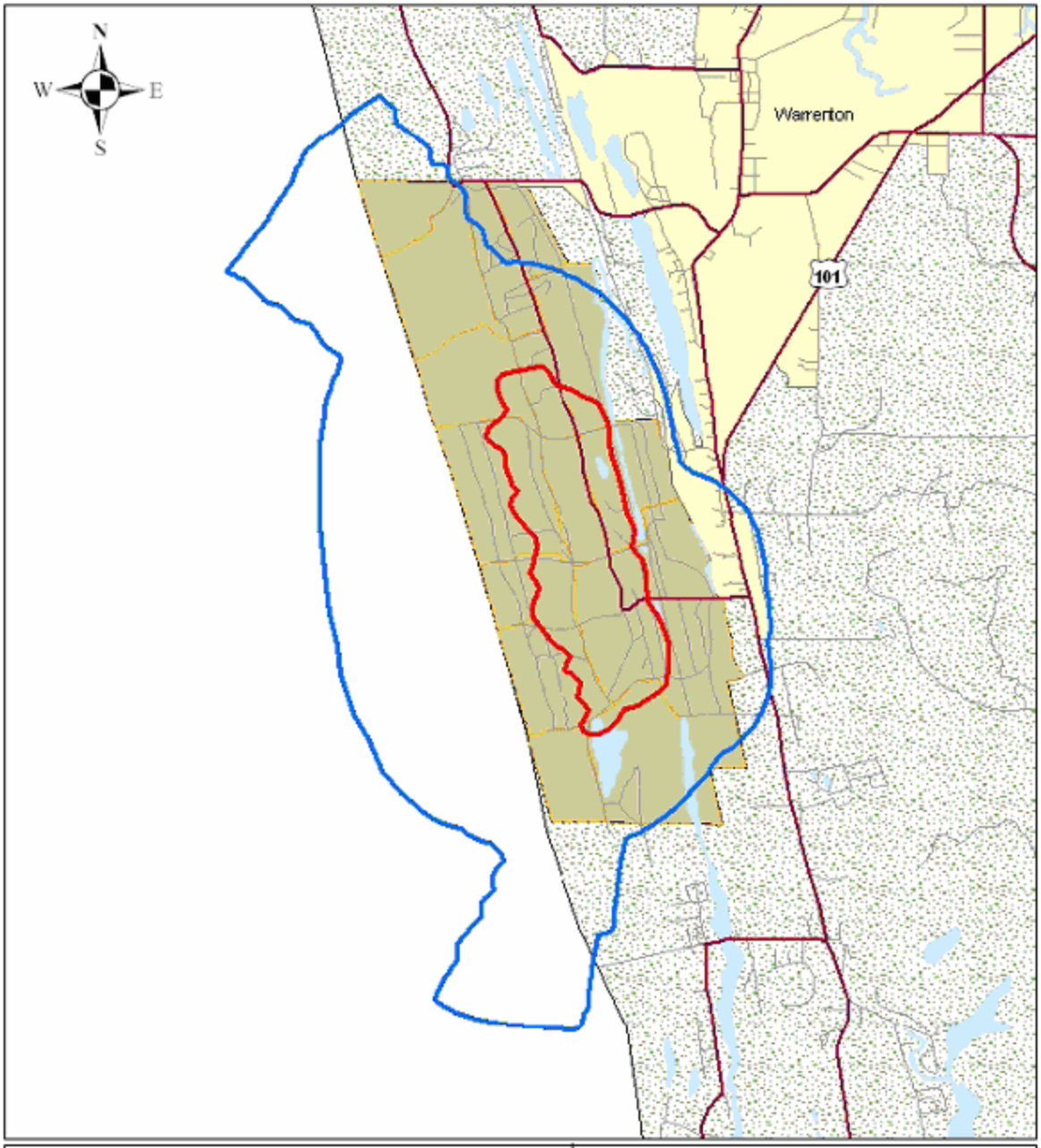

LEGEND

87 dBP - Zone II
104 dBP - Zone III
Urban Area
Training Areas
Camp Rilea

FIGURE 3.13-1
CAMP RILEA PEAK SMALL ARMS
NOISE CONTOURS

0 500 1,000 2,000 3,000
Meters

Note: The information on this map is for planning purposes only. This information is not adequate for legal boundary definition, regulatory interpretation, or parcel-level analysis. The exact boundaries depicted on this map are based on the best available information existing at this time. This map is a "living document", in that it is intended to change as new data becomes available.

USACHPPM
OPERATIONAL NOISE PROGRAM

Creator: Dan Reichard
Last Revision: June 2005
Name: sarnam.mxd
Location: C:\gisprojects\ORARNG\Rilea
Source: ORARNG, ESRI, USACHPPM
Purpose: Supplement to ORARNG SONMP

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The ORARNG Regulation 210-6 describes responsibilities of ORARNG personnel in planning for and responding to spills of regulated substances to the environment. Additionally, ORARNG Regulation 420-47 specifies management requirements for hazardous materials and disposing of hazardous waste generated on ORARNG facilities in accordance with federal and state regulations. Storage of hazardous materials and wastes is limited to facilities designed for that purpose, and use/handling is by persons trained to deal with these materials and wastes. Except for the application of pesticides, all hazardous materials and wastes used or created in the training areas are promptly removed to approved facilities in the developed area of the camp. Wastes are then disposed of in accordance with state and federal regulations.

Storage Tanks and Fuel

Camp Rilea has no underground storage tanks that store hazardous substances or petroleum products. The camp has 8 aboveground tanks, ranging in size from 200 to 7,000 gallons, used to store fuel, used oil, and antifreeze. A small number of 55-gallon or smaller containers of fuel, solvents, pesticides, paints and similar products are stored onsite in secondary containment structures. If refueling of equipment was needed at the camp, mobile refuelers, set inside temporary secondary containment structures, would be used.

Ordnance and Explosives

Small arms ammunition and explosives may be stored in the Camp's ammunition holding area for short periods during training. Training units are responsible for supplying and transporting blank or live ammunition and explosives from off-site locations for use at Camp Rilea. Ammunition and explosives are removed from Camp Rilea when training is completed.

3.14.2 Wildland Fire and Fire Control

Fire is a natural phenomenon in the coastal dune grass and temperate boreal forests communities that compose most of the CR ecosystem. Without disturbance such as fire, dune grasses will gradually be replaced by shrubs and trees resulting in a significant change in the coastal dune vegetative and wildlife habitats. Disturbance also maintains the health and vitality of the coastal forest which otherwise will gradually decline with age. In the forested areas, this gradual decline in forest health presents hazards for military training in creating snags and dead falls that could injure soldiers during training and the density of decadent old growth and thick understory brush inhibit safety during training activities. However, due to the combination of a generally moderate and moist maritime climate and effective fire prevention, Camp Rilea proper has not had any significant wildfire in the past forty years or more of record.

The fire season on lands utilized by Camp Rilea for military training, generally extends from mid-July to mid-September. During the fire season, Camp Rilea Range Control mitigates the fire risk due to military training by restricting or prohibiting the use of tracer ammunition, pyrotechnic devices such as smoke grenades and flares, and warming fires. Such mitigating restrictions or

prohibitions are dependent on current fire weather and fuel moisture conditions at the time of the specific training activities.

Camp Rilea does not undertake a program of prescribed fire or wildland fire for either habitat or fire management purposes. However, Camp Rilea does cooperate with the Oregon Department of Forestry (ODF) which utilizes small areas of Camp Rilea for control burn and fire suppression training exercises conducted by the ODF for its own fire staff. Such activities are carried out under ODF prescribed fire burn, smoke management and training plans. Typically, in return for use of the Camp Rilea lands, ODF utilizes specific Camp Rilea range areas, for example the Squad Live Fire range. The result of this cooperative training use by ODF, Camp Rilea realizes a reduction in the fire load and consequent fire hazard on specific live fire training ranges.

Additionally, The Nature Conservancy (TNC) has conducted prescribed fire treatment of Silver Spotted Butterfly habitat areas in cooperation with the Oregon Department of Fish and Wildlife (ODFW) in habitat management and restoration studies. Camp Rilea is a cooperator and host to the ODFW and TNC activities in support of Silver Spotted Butterfly habitat restoration; however, prescribed fire activities are carried out under burn and smoke management plans developed and directed by either ODFW or TNC.

Camp Rilea proper is surrounded by wildland urban interface, rural and agricultural lands within Clatsop County. At this time, Clatsop County does not have a Community Wildfire Protection Plan (CWPP) in preparation.

Camp Rilea does not maintain a firefighting vehicle with crew on site during all military training exercises during the fire season. Current Camp Rilea Standard Operating Procedures call for Camp Rilea's Range Control staff to perform an initial size-up of any wildfire and call for the most appropriate response from the Oregon Department of Forestry for wildfire suppression crews and equipment. The city of Warrenton Fire Department serves as a backup response for the Oregon Department of Forestry under the mutual aid agreement between ODF and the Warrenton Fire Department. Currently, Camp Rilea's Range Control staff and range equipment does not conform to accepted federal consensus training or apparatus equipment standards such as those of the National Wildfire Coordinating Group (NWCG).

3.14.3 Dust Abatement

Blowing dust is not a problem at Camp Rilea. Vegetative cover aids in preventing wind erosion and dust. As with all safety issues, minimizing this risk is a primary objective.

3.15 SOCIOECONOMIC RESOURCES

3.15.1 Definition of Resource

Socioeconomics includes data on population, employment, income, housing, earnings, and schools. Population includes the number of residents in the area

and the recent change in population growth. Employment data includes labor sectors, labor force, and statistics on unemployment. Income information is provided as an annual total by county and as per capita income. Housing includes numbers of multifamily units, single-family homes, and mobile homes and their vacancy rate. Earnings by industry provide a measure of the health of local business activity. School enrollment and capacity are important considerations in assessing the effects of potential growth.

3.15.2 Affected Area

The affected socioeconomic area for Camp Rilea is Clatsop County. The affected area was selected based on the assumption that most base personnel commute to and from work and spend dollars within the county. QuickFacts on Clatsop County are provided in Table 3.15.2-1.

3.16 ENVIRONMENTAL JUSTICE

This section addresses specific topics related to environmental justice, as required by NEPA. Specifically, a discussion of issues related to environmental justice are presented in accordance with EO 12898, and issues related to protecting children from environmental health risks are presented in accordance with EO 13045.

3.16.1 Executive Order 12898

On February 11, 1994, President Clinton issued EO 12898, entitled "Federal Actions to Address Environmental Justice in Minority and Low-income Populations." This order requires that "each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities, on minority populations and low-income populations" (EO 12898, 59 FR 7629 [Section 1-101]). On April 21, 1995, the Secretary of Defense submitted a formal environmental justice strategy and

Table 3.15.2-1
Clatsop County Socioeconomic Data

People QuickFacts	Clatsop County	Oregon
Population, 2004 estimate	36,340	3,594,586
Population, percent change, April 1, 2000 to July 1, 2004	2.0%	5.1%
Population, 2000	35,630	3,421,399
Population, percent change, 1990 to 2000	7.0%	20.4%
Persons under 5 years old, percent, 2000	5.6%	6.5%
Persons under 18 years old, percent, 2000	23.7%	24.7%
Persons 65 years old and over, percent, 2000	15.6%	12.8%
Female persons, percent, 2000	50.5%	50.4%
White persons, percent, 2000 (a)	93.1%	86.6%
Black or African American persons, percent, 2000 (a)	0.5%	1.6%
American Indian and Alaska Native persons, percent, 2000 (a)	1.0%	1.3%
Asian persons, percent, 2000 (a)	1.2%	3.0%
Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	0.2%	0.2%
Persons reporting some other race, percent, 2000 (a)	1.6%	4.2%
Persons reporting two or more races, percent, 2000	2.3%	3.1%
White persons, not of Hispanic/Latino origin, percent, 2000	90.8%	83.5%
Persons of Hispanic or Latino origin, percent, 2000 (b)	4.5%	8.0%
Living in same house in 1995 and 2000, pct age 5+, 2000	47.9%	46.8%
Foreign born persons, percent, 2000	4.2%	8.5%
Language other than English spoken at home, pct age 5+, 2000	7.1%	12.1%
High school graduates, percent of persons age 25+, 2000	85.6%	85.1%
Bachelor's degree or higher, pct of persons age 25+, 2000	19.1%	25.1%
Persons with a disability, age 5+, 2000	6,776	593,301
Mean travel time to work (minutes), workers age 16+, 2000	19.5	22.2
Housing units, 2002	19,850	1,495,582
Homeownership rate, 2000	64.2%	64.3%
Housing units in multiunit structures, percent, 2000	22.0%	23.1%
Median value of owner-occupied housing units, 2000	$143,400	$152,100
Households, 2000	14,703	1,333,723
Persons per household, 2000	2.35	2.51
Median household income, 1999	$36,301	$40,916
Per capita money income, 1999	$19,515	$20,940

Persons below poverty, percent, 1999	13.2%	11.6%
Business QuickFacts	**Clatsop County**	**Oregon**
Private nonfarm establishments with paid employees, 2001	1,395	101,003
Private nonfarm employment, 2001	11,398	1,364,924
Private nonfarm employment, percent change 2000-2001	0.1%	0.7%
Nonemployer establishments, 2000	2,432	212,165
Manufacturers shipments, 1997 ($1000)	142,407	47,665,990
Retail sales, 1997 ($1000)	332,365	33,396,849
Retail sales per capita, 1997	$9,382	$10,297
Minority-owned firms, percent of total, 1997	3.2%	6.2%
Women-owned firms, percent of total, 1997	23.1%	27.6%
Housing units authorized by building permits, 2002	167	22,186[1]
Federal funds and grants, 2002 ($1000)	222,591	19,839,214
Geography QuickFacts	**Clatsop County**	**Oregon**
Land area, 2000 (square miles)	827	95,997
Persons per square mile, 2000	43.1	35.6
FIPS Code	007	41
Metropolitan or Micropolitan Statistical Area	Astoria, OR Micro Area	

Source U.S. Census Bureau: State and County QuickFacts (http://quickfacts.census.gov/qfd/states/41/41007.html)

implementation plan to the EPA. To comply with the order, the following actions have occurred concurrently with this INRMP:

- Economic, racial, and demographic information generated from the 2000 census have been gathered to identify areas of low income and high minority populations in and around Camp Rilea;

- Alternatives for disproportionate impacts resulting from on-site activities associated with the proposed action were assessed; and

- Input into this plan from community members and public agencies were solicited through public notification of the draft document, as identified in Section 1.6.

Existing Demographics

Table 3.15.2-1 above provides demographic information for Clatsop County, compared with the state of Oregon. In 1999, the percentage of the population below the poverty level in Clatsop County was 13.2%, higher than the 11.6% poverty level for the state of Oregon.

3.16.2 Executive Order 13045

EO 13045, entitled "Protection of Children from Environmental Health Risks and Safety Risks" (EO 13045, 62 FR 19885), states that each federal agency shall make it a high priority to identify and assess environmental health risks and safety risks that could disproportionately affect children and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. Environmental health risks and safety risks mean risks to health or to safety that are attributable to products or substances that the child is likely to come into contact with or to ingest.

The training activities conducted at Camp Rilea would not pose any health and safety risks to children.

SECTION 4
EXISTING MANAGEMENT PROGRAMS AND INITIATIVES

4.1 INTRODUCTION

This section provides a brief overview of existing management plans and programs in place at Camp Rilea. Applicable components of these plans have been integrated into this INRMP Update and support the goals, objectives, and management strategies presented in Section 5.

The OMD strives to make the best use of Camp Rilea's natural resources by using in-house personnel and equipment to plan, design, and implement proposed projects when ever feasible. Fiscally conservative program planning is central to all activities at ORARNG facilities. The INRMP provides a planning tool for maintaining stewardship of Camp Rilea's natural resources, in support of the Camp's military training mission, the conservation of threatened and endangered species, and public use of the Camp's natural resources.

4.2 LAND USE PLANNING

The Range and Training Land Program Development Plan (ORARNG April 2000) for the ORARNG includes Camp Rilea and is used for land use planning. This plan is reviewed annually and updated as appropriate. The development plan provides a summary of the existing infrastructure, facilities, and improved structures used by the ORARNG at Camp Rilea. The development plan also identifies short-term and long-term management techniques for maintaining the physical integrity of these improvements at Camp Rilea. The predominant land uses at Camp Rilea are weapons live fire and light maneuver training.

4.3 INTEGRATED TRAINING AREA MANAGEMENT

Integrated Training Area Management (ITAM) is a management approach that seeks to balance military mission requirements with the long-term ecological sustainment of military training sites. The Army and the ARNG are implementing this approach on their installations and training areas. The goal of ITAM is to achieve and sustain the optimum use of training lands to support training and mission requirements indefinitely, while protecting natural resources. ITAM is composed of four components:

Training Requirements Integration

Training Requirements Integration (TRI) uses Range and Training Land Assessment (RTLA) information (formerly called Land Condition-Trend Analysis or LCTA) and Army training requirements to select appropriate training sites for units requesting training, and for the placement of training facilities. It applies the carrying capacity concept and seeks to minimize adverse impacts to training lands. TRI mandates a high level of coordination between operations, range control, engineering, and environmental staffs.

The procedure for conducting training at Camp Rilea begins with either a written or electronic request from a unit to Camp Rilea Range Control. Camp Rilea verifies

the information and reserves the appropriate facilities and areas needed by the unit, using the Range Facility Management Support System (RFMSS). Priorities, resource conditions, and the suitability of the training area for the requested use are considered along with unit needs when training facilities are assigned and reservations are confirmed. After the unit completes its training and after action reports are completed and filed with Camp Rilea Range Control, RFMSS information is then edited to reflect the actual training that occurred. This data is then used to help identify LRAM projects and for analysis with existing RTLA data.

Range and Training Land Assessments

The Range and Training Land Assessment (RTLA) program inventories and monitors environmental conditions, and manages and analyzes natural resources information. Formerly known as the Land Condition-Trend Analysis (LCTA) program, the new name, RTLA, reflects a renewed focus on the sustained use of training and testing lands.

Data and the results pertinent to the management of training and testing lands provide inputs toward decisions that promote sustained and multiple uses of military lands. The RTLA program is a long-term effort designed to evaluate land use and condition. Since 2001, a weather station has been installed at Camp Rilea as an RTLA project. However, in general, RTLA projects at Camp Rilea have not been conducted because there have been no significant ground-disturbing training activities. If ground-disturbing activities were planned, then appropriate RTLA projects would be implemented.

Land Rehabilitation and Maintenance

Land Rehabilitation and Maintenance (LRAM) is the planning, design, and implementation of projects to maintain the environmental condition of training lands. These projects should be based on RTLA information and priorities derived through the ITAM process. Although LRAM often focuses on repairing military damage, the goal is to maintain training areas in an acceptable condition to support realistic training opportunities. ITAM-funded LRAM projects at Camp Rilea during 2001 – 2006 have included road and trail armoring with gravel, invasive and undesired vegetation control, bank protection and riparian planting, prescribed burning, and conversion of planted pine forests in training areas 9 and 12.

Environmental Awareness

Environmental awareness involves using educational opportunities and materials to help land users understand the impacts of their actions. This applies to training site staff and units conducting training, although these materials are also valuable to public users and others interested in the site. Examples include awareness briefings and videos, posters, and instructional field cards.

An environmental awareness video was produced in 2002 and a revision was completed in 2006.

4.4 ENVIRONMENTAL PERFORMANCE ASSESSMENT SYSTEM

The Environmental Performance Assessment System (EPAS) program assists all Army commanders and facility staff in attaining, sustaining, and monitoring compliance with federal, state, and local environmental laws and regulations, as well as DOD, Army and Army National Guard requirements. The EPAS external and internal multimedia assessments identify noncompliance and deficiencies, suggest immediate and long-term corrective actions, and indicate resources needed for implementation. Military training site commanders, including those at Camp Rilea, use environmental compliance assessments, in combination with regulatory agency inspections and sound day-to-day environmental management procedures, as a means of attaining, sustaining, and monitoring compliance with applicable environmental regulations.

4.5 CULTURAL RESOURCES

The ORARNG developed an Integrated Cultural Resource Management Plan (ICRMP) in early 2002. This plan was developed according to Department of Army and National Guard Bureau guidance and guides ORARNG compliance with cultural resource management laws and regulations across the state, including at Camp Rilea. Procedures are in place in the event of an inadvertent discovery of archeological features and to review projects with the potential to effect historic properties, including any natural resource management activities related to the Camp Rilea INRMP.

4.6 FISH AND WILDLIFE MANAGEMENT

In order to maintain the existing biodiversity that exists, the full range of natural plant communities and wildlife habitats should be maintained. However, some habitats, such as wetlands and open water, are more important than others and have a higher priority for protection. Upland meadows should be maintained to provide habitat for deer and elk. In addition, within the communities, structural elements that increase habitat value should be identified and maintained. These structural elements include well-developed understory vegetation, snags, forest openings, and downed wood. Control efforts may be needed for the five non-native species (nutria, cats, rats, bullfrogs, and starlings) if they are shown to be significantly affecting biodiversity. Good surface water quality should be maintained to help preserve aquatic faunal communities.

4.7 THREATENED AND ENDANGERED SPECIES

Preservation and management of Oregon silverspot butterfly habitat is required by the USFWS and the ESA. For Camp Rilea, this entails annual mowing, monitoring, and limited restrictions on activities in the habitat management areas. At present, the three ESA listed bird species are all occasional visitors, which limit the concerns to prevention of harassment, injuries, or deaths. Although not required by law, the species of concern (the four plants discussed in the previous section and the northern red-legged frog) and their important habitat areas should be protected to help maximize biodiversity, avoid potential future listings, and assist the OMD in meeting its stewardship responsibilities. Western snowy

plovers have not been observed on the Camp or immediately adjacent beaches and habitat conditions are not very favorable for this species at present.

4.8 VEGETATION MANAGEMENT

The plant communities illustrate the general biodiversity of the camp. If native plant communities are maintained, the existing biodiversity is likely to be maintained as well. Undesired communities (Scots broom/disturbed beachgrass) are highlighted for treatment and monitoring. Although not required by regulations, rare plant species should also be protected to maintain total species biodiversity and meet stewardship goals. Protection does not necessarily mean making locations off-limits to training and management activities; some species like or need disturbance, and training opportunities can often be enhanced by proper management. Based on field observations, Big-headed sedge and yellow sand verbena appear to be two such plants. Several species of non-native plants could cause future problems if they become dominant, which has already happened with Scots broom. The distribution of non-native plants should be closely monitored.

4.9 FIRE MANAGEMENT

The ORARNG Wildland Fire Program implements the U.S. Army's Wildland Fire Policy Guidance of 4 September 2002. The purpose of the ORARNG's Wildland Fire Program is to have an integrated plan for each of the ORARNG's training centers. The plan follows the direction contained within: the Wildland Fire Policy Guidance and the regulatory requirements of AR 200-3 Natural Resources, AR 420-90 Fire and Emergency Services, Oregon Revised Statute (ORS) Chapter 477 Fire Protection of Forests and Vegetation, and Oregon Administrative Rules (OAR) Chapter 629, Division 42 Fire Control and Division 43 Fire Prevention. Additionally, the separate land use agreements between Camp Rilea and the Oregon Department of Forestry, and also the agreement between the Oregon Military Department and Weyerhaeuser Company for use of nearby forest lands specifies that the ORARNG will provide a specified level of fire protection resources during training activities. Presently, none of the ORARNG's training centers are authorized or have professional fire departments with full-time fire staff. Given this direction, regulatory and land use agreement requirements, the intent of the ORARNG's wildland fire program is to develop and implement wildland fire management activities that comply with the Army's Wildland Fire Policy Guidance direction, regulations, and land use agreement requirements. Currently, the Integrated Wildland Fire Management Plan is in preparation for Camp Rilea but has not yet been approved. In accordance with the Army's Wildland Fire Policy Guidance, the IWFMP needs to be completed by September 2007.

Fire Prevention and Suppression

The purpose and intent of the Camp Rilea's fire prevention and suppression activities are to provide for military and public safety on lands within Camp Rilea. One goal of the Camp Rilea IWFMP is to provide immediate suppression of any wildfires. Prescribed fire and wildland fire actions on Camp Rilea are carried out by the Oregon Department of Forestry under their respective prescribed fire burn,

smoke management and training plans. Camp Rilea cooperates with the Oregon Department of Forestry's plans. Within the IWFMP, the ORARNG will establish a fire prevention education and awareness program for military units training on Camp Rilea during periods of high wildland fire risk.

Prescribe Fire and Smoke Management

The ORARNG has no plan or intent to use either prescribed fire or wildland fire use on the Camp Rilea as a fuels management technique to mitigate wildland fires, but the ORARNG cooperates with the Oregon Department of Forestry's fire management training activities on Camp Rilea. Camp Rilea also cooperates with the ODF's fuel management activities in which Camp Rilea may use mechanical methods such as thinning and brush disposal as part of fuels treatment program. Likewise, Camp Rilea will cooperate with ODFW and TNC in prescribed fire and smoke management plans intended to restore Silver Spotted Butterfly habitat areas within the limits of Camp Rilea.

The Oregon Department of Forestry, Oregon Department of Fish and Wildlife and The Nature Conservancy should address smoke management issues as part of their respective prescribed fire or wildland fire use program management activities. For any wildfire, regardless of origin, the fire management goal is for immediate suppression of wildfires on Camp Rilea and consequently the immediate suppression of any smoke originating from such wildfires.

4.10 SOILS MANAGEMENT

The beaches and dune land series are not appropriate for most developments due to the severe erosion potential and their limited load supporting capacities. Training that eliminates the ground cover over large areas would also not be appropriate as it would lead to soil/dune instability. The Gearhart and Waldport series are excessively drained with rapid permeability. Therefore, activities and developments that have a high level of risk of introducing contaminants should be located elsewhere. In addition, Waldport soils are susceptible to wind erosion, so vegetative cover should be maintained where these soils occur. The dune land and fine, sandy soil mapping units have high potential soil erosion so vegetative cover should be maintained or replaced quickly if removed.

4.11 GEOGRAPHIC INFORMATION SYSTEM

Through field surveys and application of geographic information system (GIS) technology, long-range planning, and data analysis, Camp Rilea has made significant progress toward better understanding and management of its resources.

The GIS datalayers provided in this INRMP update contribute to good stewardship of Camp Rilea’s natural resources for proper management and decision making. The GIS datalayers and analysis in the INRMP update include:

- Camp Rilea Installation Boundary
- Camp Rilea Locations of Plant Species of Concern

- Camp Rilea Modified Plant Communities
- Camp Rilea OSB Habitat Areas
- Camp Rilea Potential Soil Loss Analysis
- Camp Rilea Soils
- Camp Rilea Topography
- Camp Rilea Training Areas and Roads
- Camp Rilea Tsunami Risk Zones
- Camp Rilea USNVCS Plant Communities
- Camp Rilea Wetlands and Surface Waters

OMD's GIS system uses Environmental Systems Research Institute's (ESRI) ArcGIS software. GIS mapping is prepared for site plans, NEPA documentation, preplanning documentation, and other related plans. OMD's GIS is based on the best available data at the time. As new data becomes available, it is incorporated into OMD's enterprise GIS database.

SECTION 5
PROPOSED NATURAL RESOURCE MANAGEMENT ACTIONS

Natural resource management actions proposed for Camp Rilea during 2007 through 2011 are presented in this section in Table 5.1-1. These also are discussed by the primary plant communities that comprise natural resources management units on the Camp (see Figure 3.7.2-2). In addition, topics that cut across management units are discussed after the seven management units.

In the discussions of individual management units, the "Management Approach Rationale" section explains how and why adaptive management decisions are being made and why any training activities must be restricted. The "Training Activities" section describes types of training activities that typically are or are not compatible with the natural resources management goals that apply to each management unit. Although this plan may limit training opportunities at some locations, it does not result in any net loss of training lands.

The primary goal in managing the natural resources on Camp Rilea is to provide as many appropriate military training opportunities as possible within a natural environment. Overall, the camp's natural resources are managed through an ecosystem approach that focuses on systemic qualities rather than on single species or elements, in order to enhance biodiversity, ecosystem health, and biotic/ecologic integrity. Integrating human activities into naturally functioning communities and taking a landscape perspective are also emphasized. This system of management uses fire, native species, erosion control, and other techniques, as appropriate, to achieve its goals.

5.1 MANAGEMENT GOALS, OBJECTIVES, AND PROJECTS

The ORARNG has identified management goals applicable to the management units, objectives, projects, and action timeframes in the Camp Rilea 2007-2011 INRMP. Table 5.1-1 provides this information.

Table 5.1-1
2006-2011 INRMP Goals, Objectives, and Projects

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
CONSERVE THE OREGON SILVERSPOT BUTTERFLY (OSB) HABITAT ON CAMP RILEA.	Upland sedge meadow	Maintain and, where possible, expand existing native meadow habitat in OSB habitat management areas in accordance with the USFWS-approved habitat management plan.	Mow vegetation in OSB habitat management areas as described in the Camp Rilea Oregon Silverspot Butterfly Management Plan	Annually per schedule
			Survey OSB habitat management areas for distribution and vigor of exotic species (primarily Scotch broom, bent grass, European beach grass, and wild carrot) that could adversely affect OSB habitat.	Approximately every five years beginning in 2009.
			Monitor OSB habitat areas for the presence and vigor of exotic plant species.	Ongoing
			Reduce significant areas of exotic plant species from OSB habitat management areas.	Annually, as needed.
			Monitor height of meadow vegetation in OSB habitat management areas.	Annually in September

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
			Monitor numbers of Goldenrod plants in OSB habitat management areas.	Annually in September
			Monitor distribution and vigor of violets in OSB habitat management areas.	Annually in May
		Identify OSB use of Camp Rilea	Survey OSB numbers in designated habitat management areas.	Annually, from 1 August through 30 September.
			Monitor potential OSB habitat (violet habitat outside designated OSB habitat management areas) for use and ovipositing by OSBs.	Annually, from 1 August through 30 September.
		Ensure Camp Rilea users and activities avoid or, if avoidance is not possible, minimize effects on OSBs and habitat management areas.	Educate Post users on the OSB, OSB habitat locations, and area use controls as needed.	Ongoing
			AGI-ENV participates in planning proposed construction projects and activities that may affect OSBs or habitat areas with appropriate OMD and Camp staff.	As needed

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
			Conduct biological assessments and consultation concerning proposed projects and activities with USFWS as needed.	As needed
			Monitor construction projects and activities to minimize potential adverse effects to OSBs and habitat areas, including use of construction easements, placement of excavation materials on roads, and revegetation using native seed/hay from Area 5 or other appropriate materials.	As needed
			Monitor areas and identify and repair damage to OSB habitat as quickly as practicable after it occurs.	As needed
		Foster expansion and maintenance of native meadow vegetation in appropriate areas of the Post.	Survey the distribution and extent of native and nonnative flora in potential native meadow areas of the Post.	Every five years beginning in 2007.
			Monitor species diversity, distribution, and vigor of sensitive plant species (e.g., *Fritillaria*) that comprise native meadow vegetation.	Ongoing

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
			Mow and harvest hay from OSB habitat management Area 5 for seeding disturbed or new areas.	As needed.
			Transplant or purchase and plant seeds or seedlings of native meadow plants.	As needed and practicable.
		Seek and participate in off-Post partnering opportunities to conserve the OSB.	Participate in the OSB work group.	Annually and otherwise, as scheduled or needed.
CONSERVE THE WESTERN SNOWY PLOVER ON CAMP RILEA	Beach Coastal zone meadow	Protect Western snowy plovers and nesting habitat on or adjacent to Camp Rilea.	Survey for plover nesting areas on and adjacent to Camp Rilea, in coordination with ODFW and USFWS.	Annually
			Evaluate potential effects to military training and work with USFWS and ODFW to develop and implement appropriate protective measures for plover nesting areas.	As needed, if nesting areas are found on Camp Rilea or adjacent beaches.
			Participate in local plover conservation efforts with other area stakeholders.	As organized by USFWS or ODFW
ESTABLISH AND MAINTAIN HEALTHY NATIVE AND DESIRED NON-NATIVE VEGETATION	All	Minimize harmful invasive plant species.	Survey Camp Rilea to identify target invasive species (e.g., Scotch broom, Reed canary grass, Himalayan blackberry), and potential locations for vegetation control actions.	Every five years beginning in 2007

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
			Conduct mechanical, chemical, and/or biological control actions to control target species.	Annually
			Monitor post-action regrowth of target species and assess the need for further control action.	Ongoing
	Planted conifer forest	Convert planted pine forest to native species forests.	Identify areas and set schedules to conduct forest cleanups, thinning, cutting, and replantings.	Annually
			Conduct forest cleanups, thinning, cutting, and replanting projects.	Annually
			Prepare cut areas for replanting including mowing or herbicide application.	As required by harvest areas
			Monitor growth and condition of planted trees to achieve regulatory requirements and desired training and habitat conditions.	Annually
		Foster development and maintenance of native meadows in open areas outside of the main cantonment.	Identify areas for expansion of native meadow habitat.	2009
			Prepare meadow expansion area(s).	2009 - 2010

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
			Transplant or seed native species in meadow expansion areas, as needed to facilitate revegetation.	As needed, beginning in 2010 or 2011
			Monitor native species distribution and performance in meadow expansion areas.	2011 and beyond
			Continue maintenance to foster meadow development in the selected areas.	Ongoing
	Floating Aquatic Sweet gale wetland Planted conifer forest Scotch broom/ beachgrass	Protect rare native plant species on Camp Rilea including Columbia watermeal, Sweet gale, Big-headed sedge, and Yellow sand verbena.	Monitor distribution and performance of rare plant species on Camp Rilea.	Ongoing
			Protect rare plants from being damaged by activities and projects.	Ongoing
		Foster expansion of rare native plant species when in concert with military training goals.	Plan, implement, and monitor projects to promote the distribution and performance of rare plant species.	
MINIMIZE WILDLAND FIRE POTENTIAL WHILE PROVIDING DESIRED TRAINING AND HABITAT CONDITIONS	All	Minimize potential fire fuel loads consistent with desired training and habitat conditions.	Assess fire risk posed by fuel loads throughout the Post.	2007
			Reduce potential fire fuel loads.	Annually, as needed
			Maintain roads for fire response access.	Annual assessment of road conditions, with maintenance work as needed

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
			Develop and implement a Camp Rilea Wildland Fire Management Plan.	Develop the plan in 2007 with ongoing implementation
MAINTAIN FUNCTIONS AND VALUES OF WETLANDS AND RIPARIAN ZONES	Surface waters Sweet gale wetlands Forested wetlands Wet sedge wetlands	Identify wetlands and riparian zones.	Conduct/update wetlands and riparian inventory and assess their significance.	2009
		See that projects and activities meet regulatory requirements and do not adversely affect wetlands and riparian zones.	AGI-ENV participates in planning activities and project execution with appropriate OMD and Camp staff to avoid or mitigate adverse effects to wetlands and riparian zones.	Ongoing
		Identify adverse effects to wetlands and riparian zones as quickly as possible.	Monitor the condition of wetlands near areas where activities or projects may cause adverse effects.	Annually and as warranted by projects and activities
		Remediate adverse effects to wetlands and riparian zones as quickly as possible.	Design and implement remediation actions as quickly as possible.	As needed
			Monitor the status of remediation actions to assess their success or the need for additional action.	As needed

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
MAINTAIN SAND DUNE STABILITY AND MINIMIZE SOIL EROSION	All	Prevent dune instability and soil erosion problems.	AGI-ENV and facility staff work with project, activity, or training proponents to identify potential dune instability and soil erosion threats, meet regulatory requirements, and identify methods to avoid or minimize potential problems.	When projects are identified
		Identify dune instability and soil erosion problems as quickly as possible.	Monitor dune stability and soil erosion conditions on Camp Rilea, especially in areas where projects and activities have or are occurring.	Annual survey and during projects with erosion potential
		Remediate dune instability or soil erosion problems as quickly as possible.	Plan and implement dune stability or soil erosion remediation measures as quickly as possible, once problems have been identified.	When problems are identified
MAINTAIN HIGH WATER QUALITY IN WATERBODIES ON AND BORDERING THE POST	N/A	Assess existing water quality and identify the nature and source of water quality impairment on Camp Rilea.	Conduct water quality monitoring in Neacoxie Creek, Slusher Lake, and Sunset Lake for fecal coliform, dissolved oxygen, pH, temperature, turbidity, and nitrates.	Annually

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
		Prevent impairment of water quality from projects and activities on Camp Rilea.	AGI-ENV and installation staff works with project and activity proponents to identify potential nonpoint source pollution threats and identify methods to avoid or minimize them.	When projects and activities that may affect water quality are identified.
			Construct hardened engineering bridge sites along Slusher Lake.	When project is funded.
		Remediate water quality impairments originating from Camp Rilea.	Plan, implement, and monitor projects to improve water quality from problems originating on Camp Rilea as quickly as possible once problems have been identified.	As needed.
MAINTAIN NATIVE WILDLIFE AND WILDLIFE HABITAT	All	Protect wildlife and important habitat areas from project or activity damage, as required.	Monitor projects and activities to assess potential effects on wildlife and habitat.	As needed
			Investigate incidents of sick or dead wildlife on Camp Rilea.	As needed
			Identify and remediate habitat damages that occur as quickly as possible.	As needed

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
MINIMIZE PRIVATE PROPERTY AND ENVIRONMENTAL DAMAGE CAUSED BY WILDLIFE USING CAMP RILEA	All	Assess potentially harmful effects from wildlife on Camp Rilea.	Monitor the Post for environmental damage caused by wildlife.	Ongoing
		Remediate environmental damage on Post caused by wildlife, as appropriate.	Plan, implement and monitor remedial projects.	As needed
		Work with ODFW to address complaints from neighbors about private property damage that may have been caused by wildlife using Camp Rilea.	Notify ODFW of damage situations or complaints received from neighbors.	As needed
			Work with ODFW biologists to resolve wildlife damage problems.	As needed
PROTECT CAMP RILEA'S NATURAL RESOURCES FROM DAMAGE	All	Prevent natural resources damage by educating OMD staff and users about Camp Rilea's natural resources, concerns, restrictions, etc.	Include and update natural resources protection in orientation/briefing materials for all Post users.	When environmental briefing materials are updated (2007 estimated).
			Produce and distribute signs, posters, and other outreach materials on specific natural resource issues.	As needed.
			Include pertinent natural resource protection information on installation maps.	Ongoing.
			Produce, install, and maintain signs, SEIBERT stakes, or other appropriate markings delineating natural resource protection areas, as appropriate and needed.	Ongoing.

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
		Assess natural resources damages caused by users or natural forces.	Monitor general environmental conditions.	Ongoing.
		Remediate significant natural resources damages caused by users or natural forces.	Plan, implement and monitor remedial projects.	As needed.
PROVIDE PUBLIC NATURAL RESOURCE USE OPPORTUNITIES CONSISTENT WITH TRAINING MISSIONS AND INSTALLATION SAFETY/SECURITY	All	Maintain a catch and release sport fishery for Camp Rilea users in Slusher Lake.	Coordinate with and obtain fingerlings from ODFW.	As needed.
			Monitor habitat conditions and remediate unfavorable conditions. (See water quality, native vegetation, and wetlands projects.)	As part of other projects.
		Maintain continued Fort-to-Sea Trail access on Camp Rilea.	Coordinate continued public access and trail improvement and maintenance projects with OR Dept of Parks and Recreation staff.	Annually.
			Advise OR Dept of Parks and Recreation staff of trail access or maintenance problems.	As needed, when problems are identified.
		Foster on-post natural resource-related recreational opportunities for installation users.	Develop and include guidelines for safe wildlife viewing to supplement natural resources educational and briefing materials.	2007.

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
			Develop maps, diagrams, or other materials concerning natural resources management and recreational opportunities for activities such as historic re-enactors, RV space users, and athletic events.	2007.
		Support natural resources-related research and training by others.	Coordinate use of Camp Rilea for natural resources-related research and training projects with outside organizations, including state and federal natural resources agencies, educational institutions, and nonprofit organizations.	Ongoing.
MAINTAIN AND USE UP-TO-DATE INFORMATION ON CAMP RILEA'S NATURAL RESOURCES	All	Conduct or update natural resources planning level surveys	Conduct planning level survey of wetlands.	2008
			Update planning level survey of plants	2010
			Update planning level survey of birds	2008
			Update planning level survey of mammals	2010
			Update planning level survey of reptiles and amphibians	2009
			Conduct planning level survey of fish	2008

Management Goal	Affected Vegetation Communities	Objective	Project	Action Time Frame(s)
			Conduct bird nesting surveys, especially for GBHs and Bald Eagles.	Annually
		Analyze and use the most current natural resources information available in planning and management actions.	Analyze planning level survey data and data from other natural resources monitoring efforts.	Following completion of planning level surveys
			Develop and implement appropriate new projects, or modify existing projects, to achieve desired natural resource adaptive management and military training opportunity outcomes.	Following completion of planning level survey and other monitoring data analyses.

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5.2 MANAGEMENT APPROACH RATIONALE

Management plans are presented below, by plant community. The management of subjects that cut across plant communities is discussed after the eleven communities/units. Representative photographs of the plant communities are in Appendix G. The primary overall natural resources management goal is to maximize sustainable military training opportunities on Camp Rilea. The "Training Activities" section under each plant community discussion describes types of training activities that are incompatible with the management objectives for that community; these activities would be controlled, as appropriate. The "Management Approach" section explains how and why management decisions were made and why any training activities are restricted. In short, although this plan may limit some future training opportunities, it does not result in a loss of training lands, except for those areas restricted due to the endangered species habitat management, and it generally provides for overall support of the military mission. All required training activities can be completed somewhere on Camp Rilea. Projects to accomplish the management objectives described for the various communities discussed below are listed in Table 5.1-1.

In order to implement ecosystem management and ITAM, the carrying capacity of each management unit for sustained training should be established. Carrying capacity would be determined over time using quantitative RTLA data, empirical observations, and data from monitoring efforts described below. At this time carrying capacity cannot be determined due to lack of data. It is hoped that future data will confirm that the management approach used in this plan has set military training at a level that can be sustained indefinitely (at or under carrying capacities).

Coastal Zone Meadows

Management Objectives

- Maintain dune stability and vegetative cover in compliance with Clatsop County regulations and Oregon Statewide Planning Goal 18.
- Preserve native dune vegetation and where possible, foster restoration of native plant species or encourage natural re-colonization of native species.

Participate in Western snowy plover conservation efforts, as appropriate.

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Training Activities

No vehicles will be allowed off-road. Digging with heavy equipment is also not authorized. This plant community will be used primarily for airborne (paratroopers) and air assault (rappelling, jumping from aircraft, etc.) operations, and dismounted infantry maneuver training. Natural resource management actions do not change the current training opportunities and uses.

Due to the sensitivity of the dunes to potential erosion, and the regulations drafted to protect the dunes, some military training is not appropriate. Using units, camp staff, and OMD project planners will be briefed on dune erosion sensitivity and state and local regulations. The open character of this ecosystem is desirable since it is within the beach drop zone (air assault training). The flora is dominated

by European beachgrass, a nonnative plant. An exception is the foredune meadow, which is dominated by American dunegrass and maritime peavine. This plant community is globally imperiled and Camp Rilea contains one of the best examples of what little remains. It is perhaps the most important habitat within the camp. Attempts may be made to foster restoration of this ecosystem and reduce the amount of European beachgrass. Any restoration projects in the coastal zone meadows will use native species such as American dunegrass. Because of the heavy beach traffic, it is questionable whether Western snowy plover recovery projects should be undertaken. However, potential participation in recovery efforts should be explored further.

Floating Aquatic (includes surface waters)

Management Objectives

- Protect water quality and comply with federal and state wetlands fill and removal regulations.
- Maintain existing fishery and aquatic fauna.
- Protect rare plant species that are present.
- Control nonnative vegetation.
- Minimize impact from engineer water training (bridging operations).

Training Activities

No training activities that involve putting motorized vehicles into surface waters are allowed except as follows: Engineer bridging operations will be allowed at sites along Slusher lake, once the sites are hardened, and small boat operations will occur in Slusher Lake, Sunset Lake, and the west fork of Neacoxie Creek. Natural resource management actions do not change the current training opportunities and uses.

Management Approach

The Clean Water Act and DEQ/DSL regulations require a permit to discharge pollutants into or engage in removal/fill activities in these areas. The DEQ regulations are being extended to include nonpoint sources (e.g., sediments). Surface waters are directly linked to the aquifer that serves most residents of the Clatsop Plains. Sunset Lake is also a popular catch and release sport fishery using stocked fish. The rare Columbia watermeal floats in at least two locations in Neacoxie Creek. Therefore, training activities in these areas will be carefully reviewed to avoid potential contamination of water, to protect this rare plant, and to avoid conflicts with the fishery. The banks next to surface waters will be protected and the growth or restoration of native vegetation will be encouraged, as practicable, to provide high-quality riparian wildlife habitat and buffer the surface waters from upland activities (except for the designated bridging sites). Efforts will be made to control nonnative aquatic vegetation in Sunset Lake and Neacoxie Creek, if practicable. Projects that involve the placement of fill or removal of soil in this area would require a permit from the DSL or USACE.

Sweet Gale Wetlands

Management Objectives

- Maintain the aerial extent of the community and protect the Sweet gale vegetation.
- Comply with federal and state wetlands fill and removal requirements.

Training Activities

Digging and off-road vehicle use are not allowed in this wetland area. Dismounted infantry maneuver training with small squads would be acceptable in this area, but the area is very small and wet, traditionally has not been used for training, and is not expected to be proposed for training in the future. Natural resource management actions do not change the current training opportunities and uses of this community.

Management Approach

This is a shrub-scrub wetland plant community composed entirely of a rare plant species. Sweet gale is not listed, so it has no protection under the ESA. However, it is a small area (most plants located in an area of less than one acre along the East Fork Neacoxie Creek) and not needed for any required training. Shading from Himalayan blackberry is a threat to Sweet gale; therefore, blackberry growth should be monitored and blackberry plants removed if they adversely affect the gale. Using units, camp staff, and OMD project planners will be briefed on the location and sensitivity of this community as well as state and federal wetlands regulations. Projects that involve the placement of fill or removal of soil in this area would require a permit from the DSL or USACE.

Forested Wetlands

Management Objectives

- Maintain existing area, but increase Sitka spruce patches within the area.
- Protect existing native vegetation and wildlife, especially rare Northern red-legged frogs and their important habitat areas.
- Comply with federal and state wetlands fill and removal requirements.

Training Activities

No digging is allowed and vehicles are allowed only on existing roads/trails. Nevertheless, most other types of training are compatible with the functions and values of this community and the existence of the rare species. This community is used almost exclusively for dismounted infantry maneuver training. Natural resource management actions do not change the current training opportunities and uses of this community.

Management Approach and Projects

These wetlands provide flood control, water quality protection, and high-quality wildlife habitat. Projects that involve the placement of fill or removal of soil in this area would require a permit from the DSL or USACE. This community has a high level of biodiversity, and harbors some rare species. Sitka spruce dominated wetlands are very rare, so actions to foster their expansion would be positive.

Using units, camp staff, and OMD project planners will be briefed on the location, value, and sensitivity of this community and state and federal wetlands regulations. It may be desirable to improve water circulation within the western wetlands strip via road culverts at the crossroads. The effects on this community and drainage within and outside of the camp would be studied if such a project is pursued.

Planted Conifer Forest

Management Objectives

- Decrease the acreage of this community through conversion to other forest community types.
- Change the structural composition of much of the remainder by lowering the density of shore pines; creating small openings in forest interiors or connecting existing openings; and removing the nonnative understory vegetation, especially around the silverspot butterfly habitat areas.
- Dune stability would be maintained and military training maximized.

Training Activities

Tracked vehicles are allowed only on designated roads and trails. Digging with heavy equipment is not allowed. This community is heavily used for all other types of training, as appropriate. Natural resource management actions do not change the current training opportunities and uses of this community.

Management Approach

The pines, planted in the 1930s, are aging, although the stands appear healthy and may have several decades of life remaining. These trees were planted densely and were not subsequently thinned, so they have not grown as robust as possible. Camp Rilea regularly experiences high winds, which makes converting larger areas of these older planted areas a challenge. Timber harvesting or thinning can result in increased blowdown of remaining and surrounding trees. This decreases an area's usefulness for military training and increases the need for subsequent actions to stabilize and reforest the area. This appears to have occurred in training areas 9 and 12, where thinning was attempted several years ago, but subsequent blowdown resulted in the decision to remove all of the remaining planted pines and replant with more stable, late succession species (Sitka spruce and Western Hemlock). Colonization by native shrub and tree species appears to be occurring in most areas of the planted pine forest. Rather than attempting to completely remove and replant other large areas of the planted pines, as was done in areas 9 and 12, it seems preferable to conduct more limited forest cleanup work (i.e., removing trees hazardous to troops and trees and lower limbs restricting movement through areas) and also encourage forest succession through natural processes or careful, limited thinning and supplemental planting with desired tree species. This approach would not remove existing concealment and cover from additional large tracts of maneuver land, which will take many years to re-establish and require more intensive forest management, as is expect to be required in areas 9 and 12. If forest cleanup actions do not succeed or a large-scale die off or blowdown event occurs, complete removal and replanting of

an area still remains an option. Configuration and management of the planted conifer forests are governed primarily by military training opportunity needs, but present an opportunity to eventually return these areas to more natural conditions and foster the expansion of other types of habitats, like Upland Sedge Meadows, where openings in the forest are desired.

Deciduous Forest

Management Objectives

- Maintain the aerial extent of the community and protect native vegetation and wildlife habitat values.
- Maximize training opportunities, while protecting riparian areas.

Training Activities

While this vegetation community can be used for most types of training activities, it typically receives little, if any, use because of the small acreage and locations where it occurs. Deep digging and heavy equipment operations have not occurred and are not expected to occur in these areas due to their locations.

Management Approach

This is an early-successional community, very limited in extent (18 acres), and scattered in location. It is also a very common community type, and not especially valuable for conservation purposes, except for where it occurs next to streams. However, it provides a type of forest very different from the conifer forests covering much of the camp. Therefore, it provides a different training environment. It is believed that the general camp-wide training management strategy is adequate for conserving the native vegetation and wildlife habitat values the community provides. Where the community occurs as a riparian area, it is very important for protecting water quality and water-dependent species. These areas should be protected like wetlands.

Spruce/Fern Forest

Management Objectives

- Maintain the aerial extent of the community and protect native vegetation and wildlife habitat values.
- Attempt to increase the acreage of this community and late-successional development.

Training Activities

No trenching or heavy equipment operations are allowed. Vehicles must remain on roads and trails. This community is used for all other types of training, as appropriate. Natural resource management actions do not change the current training opportunities and uses of this community.

Management Approach

At present this community is very limited in extent (39 acres). However, it is a very desirable type of conifer forest for both maintaining biodiversity and providing realistic training environments. It represents the desired end state for conversion

of the planted conifer forest areas. This desirability comes primarily from the late-successional characteristics, namely the openness of the understory and the longevity/stability of this community. These conditions are lacking in the planted conifer forests. Thus, a large increase in the acreage of this type of forest is desired. It is believed that the general camp-wide training restrictions are sufficient to protect the health, functions, and values of this community.

Scots Broom/Beachgrass Community

Management Objectives

- Eliminate or reduce the extent of this community through conversion to native upland meadows or other desired native plant communities.
- Protect rare plant species that are present.
- Maintain dune stability.

Training Activities

Engineer digging and heavy equipment operations are allowed only in designated areas. Vehicles must remain on roads and trails. This community is heavily used for all other types of training, as appropriate. Natural resource management actions do not change the current training opportunities and uses of this community.

Management Approach

This community has limited value for training or as wildlife habitat. Scots broom forms a virtually impenetrable cover over most of the areas that are not covered by European beachgrass. Elimination of the Scots broom and European beachgrass and conversion to upland meadows or other more desirable community types would increase training opportunities and acreage, and increase biodiversity as well. The big-headed sedge and yellow sand verbena occur in this community in the Infantry Squad Battle Course, LAW range, and by the MOUT site. Range maintenance activities, which include prescribed burning, appear to be perpetuating the existence of these plants and suppressing Scots broom and should be continued.

Upland Sedge Meadows

Management Objectives

- Maintain existing aerial extent and protect native vegetation, and wildlife habitat values (particularly the rare plant species that are present).
- Foster the expansion of this community where desired, and the amount of red fescue and native forbs.
- Comply with federal ESA and approved habitat management plan (for the 68 acres of Oregon silverspot butterfly habitat).
- Expand silverspot butterfly habitat without incurring additional training restrictions.

Training Activities

Except at the Hand Grenade Range, designated Oregon Silverspot butterfly habitat management areas are not used directly for military training activities.

However the habitat management areas are incorporated into training scenarios as avoidance areas (e.g., mine fields or friendly forces). Engineer digging and heavy equipment operations are not allowed except in areas designated for those activities. Vehicles must remain on roads and trails. This community is used for all other types of training, as appropriate. Natural resource management actions do not change the current training opportunities and uses of this community.

Management Approach

The designated OSB habitat areas are managed as outlined in the USFWS-approved habitat management plan. This involves annual mowings, monitoring, and a complete ban on training to meet regulatory requirements. Other areas of this community type are valuable open areas required for many training tasks. All areas of this community type are important foraging areas for deer and elk, and harbor many native herbaceous plants. Therefore, this community is important for both maintaining biodiversity and providing different, realistic training environments. An increase in this community and the native grass red fescue and native forbs would be positive. This would not expand officially designated OSB habitat or lead to additional restrictions on training per the safe harbor concept in the approved silverspot habitat management plan. Big-headed sedges and yellow sand verbena occur in this community by the MOUT site. MOUT related disturbance appears to be perpetuating the existence of these plants.

Wet Sedge Meadows

Management Objective

- Maintain the existing aerial extent of the community and protect native vegetation and wildlife habitat values.
- Comply with federal and state wetlands fill and removal requirements.

Training Activities

No tracked or wheeled vehicles are allowed off roads. No digging is allowed. Most other training activities are compatible with the functions and values of these wet meadows. This Cusick's wet sedge meadow area receives little training activity use because of its wet conditions and because it is located along the northeastern Camp boundary, with off-post residences nearby. Natural resource management actions do not change the current training opportunities and uses of this community.

Management Approach

These emergent wetlands provide flood control, water quality protection, high-quality wildlife habitat, and have high biodiversity. Section 404 of the Clean Water Act and the DSL removal/fill law require a permit for removal/fill activities. The Cusick's sedge community in the northeast edge of the camp is a unique community by itself; it is very rare in the lower 48 states. The invasive nonnative plant purple loosestrife is widespread in the Cusick's sedge community. Biological controls have been shown to work well on this plant, although it takes a long time to achieve significant reductions after their introduction. Using units, camp staff,

and OMD project planners will be briefed on the location, value, and sensitivity of this community as well as state and federal wetlands regulations.

Cultivated Grasslands

Management Objective

- Maintain the areal extent and existing conditions of this community.
- Protect rare plant species that are present.

Training Activities

Engineer digging and heavy equipment operations are allowed in designated areas. Vehicles must remain on roads and trails. This community is used for all other types of training, as appropriate. Natural resource management actions do not change the current training opportunities and uses of this community

Management Approach

Much of this community is occupied by the firing ranges and other developed training facilities, or is within the cantonment area. It is valuable open space required for many training activities. This community type also serves as foraging areas for deer and elk. Therefore, it is important for both maintaining biodiversity and providing different, realistic training environments. A slight increase in this community would be acceptable. Big-headed sedge and yellow sand verbena occur in this community in the Infantry Squad Battle Course and LAW range. Range maintenance activities appear to be perpetuating the existence of these plants and should be continued.

5.3 CANTONMENT (DEVELOPED) AREA MANAGEMENT

In general, management of the cantonment area is not part of this plan. A notable exception is that four OSB habitat management areas are within the cantonment area. Management of cantonment area will be covered in an updated camp master plan. Activities and the management of natural resources within the cantonment will sometimes affect natural resources in the training areas, so cantonment area management should not conflict with the goals and objectives of this plan. Thus, water quality will be protected, soil erosion limited, and nonnative species controlled in a manner similar to that planned for the management units. Projects such as bat box installation, nutria and bullfrog control, best management practices to limit erosion, and water quality monitoring will be extended into the cantonment area as desired and necessary.

5.4 GENERAL FISH AND WILDLIFE MANAGEMENT

Management by plant communities addresses the needs of much wildlife. However, many wildlife species use multiple plant communities. This is particularly true for wide-ranging species like birds and mammals. Therefore, a general wildlife management section is appropriate.

Fostering increases in native ecosystems and vegetation should greatly increase food, shelter, and nesting opportunities for wildlife. Measures beyond those

discussed in each plant community are not really necessary (except for elk, as discussed below).

In accordance with the Migratory Bird Treaty Act (MBTA), activities conducted on Camp Adair must be assessed for their potential to harm migratory birds, even if the harm is inadvertent. In general, implementing the INRMP should benefit birds, but some actions could inadvertently harm some birds. The ORARNG is responsible for analyzing and describing the potential effects from its activities on migratory birds and minimizing any adverse effects

Elk Management

The Clatsop Plains elk herds have been a source of property damage complaints from private landowners. This has led to management actions by ODFW in the past, including trapping and removal of elk to lower the population. Fort Stevens State Park established an elk management effort in cooperation with ODFW. Since elk frequently reside on Camp Rilea, an elk management plan was contemplated. A partnership for elk monitoring was discussed with ODFW and Fort Stevens State Park in 2001-2002. However, little interest was shown by either agency to conduct the suggested surveys. Since there is no regulatory requirement and the local elk herds are managed by ODFW, an OMD elk management plan was deemed to be unnecessary. OMD and Camp Rilea will continue to work with and assist ODFW in meeting its elk management requirements on the Clatsop Plains.

Threatened and Endangered Species Management

The Oregon silverspot butterfly is the only threatened or endangered species that is known to have resided within the camp boundaries. A formal silverspot butterfly habitat management plan was completed by the OMD and approved by the USFWS in 1999. The plan describes in detail how the OMD will preserve and maintain 68 acres of meadow habitat for this species (Hammond, 1999). The objectives of the plan are to maintain an adequate number of key plant species (goldenrod and violets), monitor silverspot butterflies, and have a low vegetation height in the fall. Mowing is the chief management tool being employed to keep the vegetation low and give a competitive edge to the native plants required by the silverspot. Plant monitoring and silverspot monitoring are conducted annually to assess habitat condition and check for the presence of the butterfly. Camp Rilea also is the location of several experimental coastal prairie restoration sites, as part of a research project being conducted by The Nature Conservancy from 2002 through 2006.

Despite the habitat management efforts, which plant monitoring shows to be generally improving habitat conditions, no silverspot butterflies have been observed at Camp Rilea since 1995 or elsewhere on the Clatsop Plains since 1998. It is thought that the lack of other habitat areas may have caused the Clatsop Plains population to drop below a recoverable level. Nevertheless, the Camp Rilea silverspot habitat will be maintained in the hope that the species will

return or to serve as a reintroduction site, if the silverspot recovery group and/or USFWS approves that action and the OMD agrees to allow it.

The approved habitat management plan should be consulted for more detailed information. A biological assessment was written for implementation of the habitat management plan and a no-jeopardy biological opinion was received. Since goals, objectives and projects from the habitat management plan are being incorporated into this plan, a new biological assessment is not required.

The bald eagle and peregrine falcon are occasional visitors to the camp and do not nest there. There are no specific management efforts geared to either species, other than maintaining the fishery in Slusher Lake, and the various bird species, which provide food for these species. In addition, any future documented bald eagle perching or roosting trees will be protected, unless they pose a risk to property or human safety. A biological assessment is not necessary for these species as it is believed that implementing this plan will not affect either one.

At this point it has not been determined if Western snowy plover conservation efforts on Camp Rilea are needed. Habitat favored by the plovers is flat, open coastal beaches, in sand dunes and near stream mouths, which is likely beyond the Camp boundary and not within OMD's control. However, as an adjacent property owner and an organization who periodic uses the beach for training activities, OMD will work with USFWS and ODFW to identify the need for plover conservation efforts at the Camp. Plans and projects will be added to the INRMP if needed.

Soil Erosion Management

To maintain the productivity of the land and to keep sediment from entering streams and other surface waters, it is necessary to prevent and control soil erosion, as appropriate. This is especially true for areas with high potential soil loss estimates or erodibility indexes. Bare ground areas should be promptly covered with soil amendments and vegetation. Areas of high-frequency, ground disturbing training should be considered for hardening with gravel or other materials provided training values are not unduly compromised. This is an especially good idea for wet or streamside areas. Best management practices developed for western Oregon will be employed at Camp Rilea. These include using native grasses and other plants, and the use of geotextile fabrics and straw mulches, among other things. The Clatsop County Soil and Water Conservation District and U.S. Natural Resources Conservation Service would be contacted to ensure that erosion control projects are properly designed and implemented, as appropriate.

Integrated Pest Management

Integrated pest management (IPM) activities will affect the natural resources of the camp. Much of this effort involves controlling unwanted vegetation and animal pests in the cantonment area. However, IPM activities will occur in the training areas, such as removal of nonnative vegetation (Scots broom, English ivy, etc.)

and mosquito control. A statewide Integrated Pest Management Plan that included Camp Rilea was completed in 1998 and was updated in 2002. This plan encourages nonchemical control over chemical, but allows for controlled use of pesticides, herbicides, and insecticides. Use of chemicals is curtailed or banned around certain natural resources, such as wetlands and within designated OSB habitat. Except for uncontrolled infestations of invasive plants, it is likely that nonchemical methods can effectively control pest plants and animals in the training areas. Selective use of herbicides on hardened areas, along fencelines, and on Scots broom or other nuisance or noxious plants is planned, but biological, mechanical, and manual methods will be considered when they have been shown or have the potential to be effective.

Cultural Resources Management

There are no resource management activities included in the Camp Rilea INRMP that would have an adverse effect on the Camp's National Register eligible buildings, features, or landscape.

Noise Management

The OMD's 2005 Statewide Operational Noise Management Plan (SONMP) identified and analyzed the potential effects from common sources of noise generated by training activities at the camp. The OMD works with the local community to advise nearby residents of training and other activities that are expected to generate abnormally loud noise or noise at unusual times. A noise complaint resolution process has been in place at Camp Rilea since 1994. The ORARNG expects to use the SONMP to reduce the potential of incompatible land uses around Camp Rilea which impact on its mission and will work to have Clatsop County adopt public disclosure of the noise zones found within the SONMP.

Hazardous Materials/Waste Management

Hazardous materials and wastes must be managed according to state and federal regulations. In addition, the OMD has completed a statewide Hazardous Waste Management Plan (ORARNGR 420-47) and a Pollution Prevention Plan. A statewide Installation Spill Contingency Plan (ISCP) also exists (ORARNGR 210-6). Camp Rilea, also has an installation-specific ISCP and meets the Spill Prevention Control and Countermeasure Plan (SPCC) requirements. These plans address water quality protection, and provide standard operating procedures based on the statewide plans. Taken together, these documents provide processes to be used in response to a release of petroleum products, hazardous materials or wastes, with the goal of minimizing the potential for pollution and environmental impacts. In general, storage of hazardous materials and wastes is limited to facilities designed for that purpose, and use/handling is primarily by persons trained to deal with these materials and wastes. Except for chemicals used to control problem-causing nonnative species, all hazardous materials and wastes used or created in the training areas are promptly removed to approve facilities in the developed area of the camp. Wastes are then disposed of in accordance with state and federal regulations.

Public Use and Outdoor Recreation

Public use of Camp Rilea is allowed, with approval on a case-by-case basis, but is heavily restricted during military training activities. No hunting is allowed on the camp. Catch and release fishing, by authorized camp users with a state fishing license, is allowed in the two lakes, but very little fishing actually occurs. There is considerable public use of the beach, but this area is not part of the camp. Beach users occasionally cross over the foredune into the camp, but usually do not stay and recreate. There is a small recreational vehicle park in the cantonment area open to active, reserve, and retired military personnel.

The Camp also hosts several events each year, sponsored by variety of organizations that use the Camp's natural resources. These events include high school athletic meets and camps, local car club shows, and military re-enactor gatherings. Perhaps the single largest public event is Camp Rosenbaum, a one-week summer camp held for 9-11 year old children from urban areas. Since 1968, more than 4,000 children have attended Camp Rosenbaum.

In 2005, a consortium of private and government organizations completed the Fort to Sea Trail, from Fort Clatsop in Lewis and Clark National Historical Park to Sunset Beach State Park. The trail crosses a portion of southeastern Camp Rilea and has resulted in increased public use of the Camp. The trail is not expected to adversely affect the Camp's natural resources, including designated OSB habitat, wetlands, and rare plant locations. In addition, bridges have been constructed over the east fork of Neacoxie Creek and Sunset Lake.

Public Safety

Public safety and enforcement of agency regulations is the responsibility of camp staff, primarily the Range Control Office. Additional law enforcement and control of access are provided by a private security company. Range Control and camp staff also provide emergency services, including fire response. Unplanned fires will be extinguished immediately. Other law enforcement agencies and local emergency services, such as fire departments, are requested as necessary to supplement Camp Rilea resources.

SECTION 6
IMPLEMENTATION OF THE INRMP

6.1 ORGANIZATIONS, ROLES, AND RESPONSIBILITIES

6.1.1 Introduction

The ORARNG is responsible for ensuring its activities and operations comply with applicable federal, state, and local environmental laws and regulations, as well as DoD, DA, and NGB policy, regulations, and implementing guidance. Consequently, the ORARNG has the primary role and responsibility for directing the implementation of this INRMP. The Camp's maintenance staff, together with the Post Commander, state facility managers, and AGI-ENV staff is responsible for the daily management and oversight of the camp's natural resources management program.

6.1.2 National Guard Bureau Responsibilities

The Environmental Programs Division (NGB-ARE) ensures operational readiness by promoting environmental quality and an environmental ethic throughout the ARNG and is responsible for tracking projects, providing technical assistance, conducting quality assurance of written materials, and providing funding to support the programs. The NGB-ARE is responsible for reviewing and approving the INRMP/EA. Such approval should be documented by signing both the signature page in the document and a Finding of No Significant Impact. NGB-ARE is also responsible for advising the ORARNG before formal submission to the USFWS and ODFW.

6.1.3 OMD/ORARNG Responsibilities

The Adjutant General (TAG) for Oregon is responsible for the operation and maintenance of Camp Rilea, which includes implementation of this INRMP. TAG ensures that all facility land users are aware of and comply with procedures, requirements, or applicable laws and regulations that accomplish the goals and objectives of the INRMP. TAG also ensures coordination between environmental, training, and engineering staffs for the efficient completion of Guard activities and construction projects.

The Deputy Chief of Staff Operations and Training (J-3) has the primary responsibility for scheduling military training and safety of all personnel while training exercises are being conducted. Secondary to scheduling is maintaining a high-quality training environment. The J-3 will coordinate with commands and assist AGI-ENV in training of personnel, assist AGI-ENV in coordinating environmental program projects and budget requirements, and ensure appropriate NEPA documents are prepared before implementing various plans or programs.

AGI-ENV is responsible for characterizing the natural and cultural resources of the training sites, identifying compliance needs, encouraging environmental stewardship, and advising the ORARNG on the best ways to comply with federal and state environmental laws and regulations while protecting the environment. AGI-ENV provides technical assistance to training site personnel including

developing projects, securing permits, conducting field studies, providing environmental awareness materials, locating and mapping natural and cultural resources, preparing plans, and coordinating the review of and revising the INRMP every five years. AGI-ENV also coordinates the ITAM program and oversees the NEPA process for the ORARNG.

Daily management and oversight of the Camp Rilea natural resources management program falls to the Camp Rilea maintenance and Range Control staff. The staff at Camp Rilea have extensive knowledge of all aspects of the training site, including training schedules (and conflicts), locations of training facilities, impairments or problems with human-made structures or natural functions, and needs for improvement or maintenance of the training land.

AGI provides a full range of engineering disciplines for all agency facilities, including Camp Rilea. AGI is responsible for master planning and ensuring that all construction projects comply with environmental regulations by consulting with AGI-ENV prior to any construction. The AGI also provides necessary assistance with design and oversight of construction projects, such as roads and erosion control projects.

The Public Affairs Office provides expertise in the development and production of environmental awareness materials for distribution to training site managers and unit commanders. The Public Affairs Office also functions as a liaison with the public in public meetings and community educational events.

The Judge Staff Advocate advises the Adjutant General, J-3, AGI, and AGI-ENV on laws and regulations that affect training land use and environmental compliance. Depending on the issue, however, this may be the responsibility of the State Attorney General, as mandated by state law.

6.2 LABOR RESOURCES

Day-to-day maintenance and operations at Camp Rilea are conducted by several roads and grounds and range maintenance workers. Maintenance and construction projects also are conducted by private contractors via state contracts and by ORARNG units. AGI, including AGI-ENV, provides administrative support and technical assistance staff for the natural resources program at Camp Rilea.

6.3 PLAN REVISION AND AMENDMENT PROCESS

This plan covers calendar years 2007 through 2011 and will be revised for 2012 through 2016. Plan revisions will include consultation with the appropriate state and federal agencies, Native American tribes, and the local community. Prior to the scheduled revision, it may be necessary to amend the plan to reflect management changes. Changes are likely because adaptive management is part of the plan. A change in the installation's mission, such as realignment, may require an update earlier than five years. Significant amendments to the plan will be drafted into a letter or other appropriate document and mailed to the appropriate state and federal agencies, Native American tribes, and interested

parties for review and comments. If no comments are received, or no substantial issues rose, the amendment will be adopted into the plan. This INRMP will be reviewed per the Environmental Performance Assessment System, which is discussed in Section 4.4. Table 6.3-1 provides master lists for updating the INRMP.

6.4 INRMP FUNDING

6.4.1 Military Funding

Funding to support natural resource management activities on Camp Rilea is provided by NGB, which receives an annual budget from congressional appropriations. To receive funding for natural resources projects, proposed management actions must be shown to comply with federal laws and mandates before funds are appropriated. Funding requirements for this INRMP are identified by AGI-ENV and submitted in accordance with current NGB guidance.

6.4.2 Integrated Training Area Management Funding

AGI-ENV and J-3 oversee administration of the ITAM Program for Camp Rilea. The ITAM Program provides funding for baseline data collection, monitoring programs, and rehabilitation activities. The ITAM funds are earmarked for projects aimed at maintaining, preserving, and restoring natural resources that could enhance military training activities. Funding for the ITAM Program is appropriated by NGB from training funds and can be used for stewardship projects, depending on the priority of the project. Some projects may require outside assistance from other federal and state agencies, universities, organizations, and private contractors. Using these resources is often the most efficient and cost-effective method for acquiring short-term or temporary expertise. Some of the parties will be reimbursed for their assistance, as agreed, based on memoranda of understanding and contractual agreements. Other parties could supply their assistance in accordance with cooperative agreements.

OMD has determined that RTLA monitoring, as it is intended in the ITAM Program, could not be used to advantage until more comprehensive military training data can be collected, the coastal prairie/upland meadow restoration and forest conversion projects are completed, and vegetation becomes more stable.

6.5 IMPLEMENTATION AND FUNDING PRIORITY FOR THE INRMP

To facilitate the INRMP implementation process, an implementation priority and funding priority rating system has been developed. The purpose of the system is to allow the ORARNG and Camp Rilea to forecast funding requests and staffing needs. It is designed to justify why certain management actions are needed to secure funding and to emphasize the importance of certain projects over others.

Table 6.3-1
INRMP Master Lists for Updating INRMP
2006 - 2011

Report Number	Date Created	INRMP Section	Page	Project/Action
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Report Number _____ Type of Update: *Supplement* Existing Project or Action
INRMP Section _____, Page _____ *Remove* Existing Project or Action
Prepared by _____ *Create* New Project or Action

1

1. Project or Action.					
2. Goal / objective for the project or action.					
3. Related projects. List relevant INRMP sections and pages. Indicate if these projects are contingent on completion of project or action listed in 1 above.					
4. Anticipated start / end dates. Indicate whether one-time (e.g., survey) or routine (e.g., monitoring).					
5. Resources needed.					
Initial Costs (+) / Savings (-): $			Yearly Costs (+) / Savings (-): $		
Installation Labor:		Volunteer Labor:		Contractor Labor:	
	hours		hours		hours
Equipment:					
Training:					
IT/Information Management:					

2 NOTE: Use this INRMP master update list and the INRMP update reports to keep your INRMP current. Consolidate forms from
3 each staff member when completing annual or 5-year INRMP updates. Log each INRMP update report on this INRMP master
4 update list. Complete this form electronically or in hard copy, and insert into the INRMP. Create more pages as necessary.

6. Coordination requirements. Include estimated timeline/schedule.
Installation Offices/Programs:
Local Authorities:
State Agencies:
Federal Agencies:
7. Compliance requirements. List appropriate regulations, documentation, permits.
Service/Installation:
State:
Federal:
8. Briefly describe reason for update.

Due to budgetary limitations, DoD-related environmental funding tends to be allocated for those actions fulfilling legal requirements and is more limited for stewardship actions that are not mandated by regulatory requirements. Thus, funding priorities sometimes differ from the implementation priorities of an ecosystem-based INRMP. Funding priority is defined by the "Environmental Quality Conservation Compliance Classes," as detailed in DoD Instruction 4715.3, and is summarized in Table 6.5-1. Implementation priorities tend to be based on legal, institutional, and ecological principles related to ecosystem-based natural resource management. Implementation priorities are determined by the following criteria:

- High priority—Legally required activities or actions deemed important to the military mission, ecology, or personnel safety. These actions would be ongoing or would be expected to be implemented as soon as possible, but no later than within one year, depending on the availability of funding (fiscal years 2007 – 2009).

- Medium priority—Compliance or stewardship actions that need to be implemented in time to meet the established deadlines defined in the INRMP or within the next six years, depending on the availability of funding (fiscal years 2007 – 2011).

- Low priority—Activities and projects that enhance natural resources but that are not specifically required by law or military mission needs. These activities or projects are likely to be implemented if staffing and funding is available.

The Camp Rilea INRMP management projects are summarized in Table 6.5-2. This table lists each management project presented in Section 5 and compares the implementation priority to the funding priority. The table is based on an initial review of funding needs, and includes the likely source of funds and the party responsible for each management strategy. In most cases, environmental funding is allocated to strategies that are compliance and policy-based, while ITAM funds can be used for projects relating to maintaining, monitoring, and restoring training lands. Where possible, other funding sources have been identified.

Projects will be established in NGB-required databases and undertaken as funding becomes available. Inclusion of projects on this list does not obligate the ORARNG to complete required actions if funding is not available from federal sources. If federal, state, or local regulatory requirements are involved, activities may be restricted in order to ensure compliance.

1
2
3
4

Table 6.5.1
Camp Rilea 2007 – 2011 Revised INRMP Goals Objectives and Proposed Projects

Project	Funding priority	Funding sources	Schedule	Responsible Party
GOAL 1. CONSERVE THE OREGON SILVERSPOT BUTTERFLY (OSB) ON THE CLATSOP PLAINS. Objective 1. Maintain and where possible expand existing native meadow habitat in OSB habitat management areas in accordance with the USFWS-approved habitat management plan.				
1.1.1. Mow vegetation in OSB habitat management areas as described in the Camp Rilea Oregon Silverspot Butterfly Management Plan.	High (compliance)	ENV	Annually per schedule in Cp Rilea OSB Habitat Management Plan.	Cp Rilea AGI-ENV
1.1.2. Survey OSB habitat management areas for distribution and vigor of exotic species (primarily Scotch broom, bent grass, European beach grass, and wild carrot) that could adversely affect OSB habitat.	Low (enhancement)	ENV	Every five years beginning in 2009, dependent on available funding.	AGI-ENV
1.1.3. Monitor OSB habitat areas for the presence and vigor of exotic plant species.	Low (enhancement)	ENV	Ongoing as part of other management activities.	Cp Rilea AGI-ENV
1.1.4. Reduce significant areas of exotic plant species from OSB habitat management areas	Medium (maintenance)	ENV	As needed.	AGI-ENV Cp Rilea
1.1.5. Monitor height of meadow vegetation in OSB habitat management areas.	High (compliance)	ENV	Annually per schedule in Cp Rilea OSB Habitat Management Plan.	AGI-ENV
1.1.6. Monitor numbers of Goldenrod and other nectar source plants in OSB habitat management areas.	High (compliance)	ENV	Annually per schedule in Cp Rilea OSB Habitat Management Plan.	AGI-ENV
1.1.7. Monitor distribution and vigor of violets in OSB habitat management areas.	High (compliance)	ENV	Annually per schedule in Cp Rilea OSB Habitat Management Plan.	AGI-ENV

Project	Funding priority	Funding sources	Schedule	Responsible Party
GOAL 1, Objective 2. Identify OSB use of Camp Rilea.				
1.2.1. Survey OSB numbers in designated habitat management areas.	High (compliance)	ENV	Annually per schedule in Cp Rilea OSB Habitat Management Plan.	AGI-ENV
1.2.2. Monitor potential OSB habitat (violet habitat outside designated OSB habitat management areas) for use and ovipositing by OSBs.	Low (enhancement)	ENV	Annually per schedule in Cp Rilea OSB Habitat Management Plan.	AGI-ENV
GOAL 1, Objective 3. Ensure Camp Rilea users and activities avoid or, if avoidance is not possible, minimize effects on OSBs and habitat management areas.				
1.3.1. Educate Post users on the OSB, OSB habitat locations, and area use restrictions.	High (compliance)	ENV	Ongoing	AGI-ENV Cp Rilea
1.3.2. AGI-ENV participates in planning proposed construction projects and activities that may affect OSBs or habitat areas with appropriate OMD and Camp staff.	High (compliance)	ENV	Ongoing	AGI-ENV
1.3.3. Conduct biological assessments and consultation concerning proposed projects and activities with USFWS as needed.	High (compliance)	ENV	As needed	AGI-ENV
1.3.4 Monitor construction projects and activities to minimize potential adverse effects to OSBs and habitat areas, including use of construction easements, placement of excavation materials on roads, and revegetation using native seed/hay from Area 5 or other appropriate materials.	High (compliance)	ENV	As needed	AGI-ENV Cp Rilea
1.3.5. Monitor areas and identify and repair damage to OSB habitat as quickly as practicable after it occurs.	High (compliance)	ENV	As needed	AGI-ENV Cp Rilea

Project	Funding priority	Funding sources	Schedule	Responsible Party
GOAL 1, Objective 4. Foster expansion and maintenance of native meadow vegetation in open areas of the Post.				
1.4.1. Survey the distribution and extent of native and non-native flora in potential native meadow areas of the Post.	Medium (maintenance)	ENV	Every five years beginning in 2008	AGI-ENV
1.4.2. Monitor species diversity, distribution, and vigor of sensitive plant species (e.g., *Fritillaria*) that comprise native meadow vegetation.	Low (enhancement)	ENV	Ongoing	AGI-ENV
1.4.3 Mow and harvest hay from OSB habitat management area 5 for seeding disturbed or new areas.	High (compliance)	ENV	As needed	Cp RIlea
1.4.4. Transplant or purchase and plant seeds or seedlings of native meadow plants.	Medium (maintenance)	ENV	As needed and practicable.	AGI-ENV
GOAL 1, Objective 5. Seek and participate in partnering opportunities to conserve the OSB while reducing conservation focus on Camp Rilea.				
1.5.1. Participate in the OSB workgroup.	High (compliance)	ENV	Annually and otherwise as scheduled or needed.	AGI-ENV
1.5.2. Identify and pursue other OSB conservation opportunities consistent with Cp Rilea mission.	High (enhancement)	Other (e.g., ACUB, State)	Ongoing	AGI-ENV
GOAL 2. CONSERVE THE WESTERN SNOWY PLOVER IN CLATSOP COUNTY Objective 1. Protect Western Snowy Plovers and their habitat adjacent to Camp Rilea.				
2.1.1. Participate in local Plover conservation efforts, as appropriate, with other area stakeholders.	High (compliance)	ENV	As organized by USFWS, ODFW, or others.	AGI-ENV

Project	Funding priority	Funding sources	Schedule	Responsible Party
GOAL 3. ESTABLISH AND MAINTAIN HEALTHY NATIVE VEGETATION Objective 1. Maintain knowledge of the composition, distribution, and condition of the flora on Camp Rilea				
3.1.1. Update the existing planning level survey of the Camp's flora.	High (compliance)	ENV	Every five years beginning in 2009	AGI-ENV
Objective 2. Minimize harmful exotic and invasive plant species.				
3.2.1. Survey Camp Rilea to identify target exotic species (e.g., Scotch broom, Reed canary grass, Himalayan blackberry), and potential locations for vegetation control actions.	Medium (maintenance)	ITAM	Every five years beginning in 2010	AGI-ENV
3.2.2. Conduct mechanical, chemical, and/or biological control actions to control target species.	Medium (maintenance)	ITAM	Annually	Cp Rilea AGI-ENV
3.2.3. Monitor post-action re-growth of target species and assess the need for further control action.	Medium (maintenance)	ITAM	Ongoing	Cp Rilea AGI-ENV
GOAL 3, Objective 3. Convert planted pine forest to native species forests.				
3.3.1. Develop and adopt a Camp Rilea forest management plan to identify areas and set schedules to conduct forest cleanups, thinning, cutting, and re-plantings.	Medium (maintenance)	ITAM	Every five years beginning in 2007	AGI-ENV Cp Rilea
3.3.2. Conduct planned forest cleanups, thinning, cutting, and re-planting projects.	Medium (maintenance)	ITAM	Annually	AGI-ENV Cp Rilea

Project	Funding priority	Funding sources	Schedule	Responsible Party
3.3.3. Prepare cut or blow down areas for replanting, including mowing or herbicide application.	Medium (maintenance)	ITAM	As needed	Cp Rilea AGI-ENV
3.3.4. Monitor growth and condition of planted trees to achieve regulatory requirements and desired training and habitat conditions.	Medium (maintenance)	ITAM	Annually	Cp Rilea AGI-ENV
GOAL 3, Objective 4. Foster development and maintenance of native meadows in open areas outside of the main cantonment.				
3.4.1. Identify areas for expansion of native meadow habitat, as desired by training staff.	Medium (maintenance)	ITAM	2009	Cp Rilea AGI-ENV
3.4.2. Prepare meadow expansion area(s) by mowing and/or herbicide application.	Medium (maintenance)	ITAM	2010	Cp Rilea AGI-ENV
3.4.3. Transplant or seed native species in meadow expansion areas.	Medium (maintenance)	ITAM	2011	Cp Rilea AGI-ENV
3.4.4. Monitor native species distribution and performance in meadow expansion areas.	Medium (maintenance)	ITAM	Beyond 2011	Cp Rilea AGI-ENV
3.4.5. Maintain meadow areas by mowing, prescribed burning, and/or herbicide application.	Medium (maintenance)	ITAM	Beyond 2011	Cp Rilea AGI-ENV
GOAL 3, Objective 5. Protect rare native plant species including Columbia watermeal, Sweet gale, Big-headed sedge, and Yellow sand verbena				
3.5.1. Monitor distribution and performance of rare plant species on Camp Rilea.	Medium (maintenance)	ENV	Ongoing	AGI-ENV
3.5.2. Protect rare plants from damage by activities and projects by appropriate means.	Medium (maintenance)	ENV ITAM	Ongoing	AGI-ENV Cp Rilea

Project	Funding priority	Funding sources	Schedule	Responsible Party
3.5.3. Foster expansion of rare native plant species consistent with military training mission.	Medium (maintenance)	ENV ITAM	Ongoing	AGI-ENV Cp Rilea
GOAL 4. MINIMIZE WILDLAND FIRE POTENTIAL WHILE PROVIDING DESIRED TRAINING AND HABITAT CONDITIONS Objective 1. Prepare for wildland fires and prescribed burns.				
4.1.1. Develop and implement an integrated wildland fire management plan.	High (Compliance)	ITAM	Develop plan in 2007; implementation ongoing	DCSOPS AGI-ENV
GOAL 4, Objective 2. Minimize potential fire fuel loads consistent with desired training and habitat conditions				
4.2.1. Assess fire risk posed by fuel loads throughout the Post	Medium (maintenance)	ITAM	2008	AGI-ENV
4.2.2. Conduct mowing, prescribed burning or manual removal of fuels.	Medium (maintenance)	ITAM	Annually, as needed	Cp Rilea AGI-ENV
4.2.3. Maintain roads and trails for fire response access.	Medium (maintenance)	ITAM	Annual assessment of road conditions, with maintenance work as needed	Cp Rilea
GOAL 5. MAINTAIN FUNCTIONS AND VALUES OF WETLANDS AND RIPARIAN ZONES Objective 1. Ensure projects and activities meet regulatory requirements and do not adversely affect wetlands and riparian zones				
5.1.1. Conduct a planning level delineation of wetlands on Camp Rilea.	High (compliance)	ENV	Every five years beginning in 2011	AGI-ENV
5.1.1 AGI-ENV participates in planning activities and project execution with appropriate OMD and Camp staff to avoid or mitigate adverse effects to wetlands and riparian zones.	High (compliance)	ENV	Ongoing	AGI-ENV
GOAL 5, Objective 2. Identify and remediate adverse effects to wetlands and riparian zones as quickly as possible				
5.2.1. Monitor the condition of wetlands near areas where activities or projects may cause adverse effects.	High (compliance)	ENV	Annually and as warranted by projects and activities	AGI-ENV

Project	Funding priority	Funding sources	Schedule	Responsible Party
5.2.2. Design and implement remediation actions as quickly as possible.	High (compliance)	ENV	As needed	AGI-ENV
5.2.3. Monitor the status of remediation actions to assess their success or the need for additional action.	High (compliance)	ENV	As needed	AGI-ENV Cp Rilea
GOAL 6. MAINTAIN SAND DUNE STABILITY AND MINIMIZE SOIL EROSION Objective 1. Prevent dune instability and soil erosion problems.				
6.1.1. AGI-ENV and facility staff work with project, activity, or training proponents to identify potential dune instability and soil erosion threats, meet regulatory requirements, and identify methods to avoid or minimize potential problems.	High (compliance)	ENV	When projects are identified	AGI-ENV Cp Rilea
GOAL 6, Objective 2. Identify and remediate dune instability and soil erosion problems as quickly as possible.				
6.2.1. Monitor dune stability and soil erosion conditions on the Camp, especially in areas where projects and activities have or are occurring.	High (compliance)	ENV	Annual survey and during projects with erosion potential.	Cp Rilea AGI-ENV
6.2.2. Plan and implement dune stability or soil erosion remediation measures as quickly as possible, once problems have been identified.	High (compliance)	ENV	When problems are identified.	Cp Rilea AGI-ENV
GOAL 7. MAINTAIN HIGH WATER QUALITY IN WATERBODIES ON AND BORDERING THE POST Objective 1. Understand the water quality and the nature and source of degraded water quality on Camp Rilea.				
7.1.1. Conduct limited water quality monitoring in Neacoxie Creek, Slusher Lake, and Sunset Lake for fecal coliform, dissolved oxygen, pH, temperature, turbidity, and nitrates.	Medium (maintenance)	ENV	Twice annually	AGI-ENV
GOAL 7, Objective 2. Prevent impairment of water quality from projects and activities on Camp Rilea				

Project	Funding priority	Funding sources	Schedule	Responsible Party
7.2.1. AGI-E and installation staff works with project and activity proponents to identify potential non-point source pollution threats and identify methods to avoid or minimize discharges to surface waters.	High (compliance)	ENV	When projects and activities that may affect water quality are identified.	AGI-ENV Cp Rilea
GOAL 7, Objective 3. Remediate water quality impairments originating from Camp Rilea				
7.3.1. Plan, implement, and monitor projects to improve water quality from sources on Camp Rilea as quickly as possible, once problems have been identified.	High (compliance)	ENV	When problems are identified.	AGI-ENV Cp RIlea
GOAL 8. MAINTAIN NATIVE WILDLIFE AND HIGH QUALITY WILDLIFE HABITAT Objective 1. Identify fauna and important fauna habitat on Camp Rilea.				
8.1.1. Update surveys of sensitive fauna and assess the condition of habitat for mammals, birds, fish, reptiles, amphibians, and invertebrates.	High (compliance)	ENV	Mammals, birds and fish: 2008 Reptiles, amphibians, and invertebrates: 2009	AGI-ENV
8.1.2. Conduct bird nesting surveys, especially for threatened or endangered species	High (compliance)	ENV	Annually	AGI-ENV
GOAL 8, Objective 2. Protect wildlife and important habitat areas from project or activity damage				
8.2.1. Monitor projects and activities to assess potential effects on wildlife and habitat.	High (compliance)	ENV	As needed	AGI-ENV
8.2.2. Investigate and report incidents of sick or dead wildlife.	High (compliance)	ENV	As needed	Cp Rilea AGI-ENV
8.2.3. Identify and remediate habitat damages that occur as quickly as possible.	High (maintenance)	ITAM	As needed	Cp Rilea AGI-ENV
GOAL 8, Objective 3. Foster increased wildlife consistent with habitat carrying capacity and Camp Rilea's military mission.				
8.3.1. Identify and implement projects to improve wildlife habitat (e.g. erect and maintain bat boxes or bird nesting boxes).	Low (enhancement)	Other	Ongoing	AGI-ENV Cp RIlea

Project	Funding priority	Funding sources	Schedule	Responsible Party
GOAL 8, Objective 4. Minimize private property and environmental damage caused by resident wildlife.				
8.4.1. Monitor the Post for environmental damage caused by wildlife.	High (maintenance)	ITAM	Ongoing	Cp Rilea AGI-ENV
8.4.2. Plan, implement and monitor projects to repair damages caused by wildlife.	High (maintenance)	ITAM	As needed	AGI-ENV Cp Rilea
8.4.3. Notify ODFW of damage situations or complaints received from neighbors.	Medium (maintenance)	ENV	As needed	Cp Rilea AGI-ENV
8.4.4. Work with ODFW biologists to resolve wildlife damage problems.	Medium (maintenance)	ENV	As needed	AGI-ENV Cp Rilea
GOAL 9. PROTECT CAMP RILEA'S NATURAL RESOURCES FROM DAMAGE Objective 1. Prevent natural resources damage by educating OMD staff and users about Camp Rilea's natural resources, concerns, restrictions, etc.				
9.1.1. Include and update natural resources protection in orientation/briefing materials for all Post users	High (compliance)	ENV ITAM	When environmental briefing materials are updated (2007 estimated)	AGI-ENV Cp Rilea
9.1.2. Produce and distribute signs, posters, and other outreach materials on specific natural resource issues.	High (compliance)	ENV ITAM	As needed	AGI-ENV
9.1.3. Include pertinent natural resource protection information on installation maps	High (compliance)	ENV ITAM	Ongoing	AGI-ENV
9.1.4. Produce, install, and maintain signs, SEIBERT stakes, or other appropriate markings delineating natural resource protection areas, as appropriate and needed.	High (compliance)	ENV ITAM	Ongoing	AGI-ENV Cp Rilea
GOAL 9, Objective 2. Identify and remediate natural resources damages caused by users or natural forces				

Project	Funding priority	Funding sources	Schedule	Responsible Party
9.2.1. Monitor general environmental conditions on the Post.	High (compliance)	ENV	Ongoing	Cp Rilea AGI-ENV
9.2.2. Plan, implement and monitor projects to repair environmental damages caused by installation users or natural forces.	High (compliance)	ENV ITAM	As needed	AGI-ENV Cp Rilea
GOAL 10. PROVIDE APPROPRIATE NATURAL RESOURCE USE OPPORTUNITIES TO THE PUBLIC CONSISTENT WITH THE MILITARY MISSION AND INSTALLATION SAFETY AND SECURITY REQUIREMENTS. Objective 1. Advise installation users of appropriate on-post natural resource-related recreational opportunities.				
10.1.1. Develop maps and other informational materials concerning natural resources management and recreational activity opportunities for users such as historic re-enactors, RV space users, and public athletic events.	Low (enhancement)		Ongoing	AGI-ENV Cp Rilea
10.1.2. Develop and include guidelines for safe wildlife viewing to supplement natural resources educational and briefing materials.	Low (enhancement)		2007	AGI-ENV
GOAL 10, Objective 2. Oversee the Fort-to-Sea Trail through Camp Rilea.				
10.2.1. Coordinate continued public access and trail improvement and maintenance projects with OR Dept of Parks and Recreation staff.	Low (enhancement)	ENV	Annually	Cp Rilea AGI-ENV
10.2.2. Advise OR Dept of Parks and Recreation staff of trail access or maintenance problems.	Low (enhancement)	ENV	As needed.	Cp Rilea AGI-ENV
GOAL 10, Objective 3. Maintain a catch and release sport fishery in Slusher Lake.				
10.3.1. Coordinate with and obtain fingerlings from ODFW.	Low (enhancement)	State	Annually	Cp Rilea

Project	Funding priority	Funding sources	Schedule	Responsible Party
10.3.2. Monitor habitat conditions and remediate unfavorable conditions.	Included as water quality, native vegetation, and wetlands/riparian projects	See other projects	Included as water quality, native vegetation, and wetlands/riparian projects.	Cp Rilea AGI-ENV
GOAL 10, Objective 4. Provide natural resources-related research opportunities.				
10.4.1. Coordinate the use of Camp Rilea for natural resources-related research and training projects by outside organizations, including State and federal natural resources agencies, educational institutions, and nonprofit organizations.	Low (enhancement)	State	As requested	AGI-ENV Cp Rilea

6.6 PROJECTS IMPLEMENTED FOR THE 2001 – 2006 INRMP

Table 6.6-1 lists the projects that were proposed for the 2001 – 2006 INRMP, and identifies projects that were implemented, and those that were reconsidered and their rationale for being reconsidered.

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Table 6.6-1
INRMP Project List for 2001-2006

Project	Planned accomplishment	Planned Schedule	Status
Install wetland/riparian buffer; signs or stakes for these areas and dunes	AGI-ENV / Camp Rilea staff	2001 – 2002	AGI-ENV and Camp Rilea staff determined routine installation of signs and stakes were not needed or desired; AGI-ENV and Camp Rilea staff agreed to monitor and install signs or stakes where needed to control activities and resulting damage.
Conduct water sampling	AGI-ENV / Contractor	2001 – 2005	Participated in limited USGS and Portland State University water quality studies in 2001 – 2003. NGB guidance precluded more comprehensive sampling and analysis.
Control of reed canary grass and purple loosestrife	Camp Rilea staff	2001 – 2006	Hand pulling of loose strife conducted in one area, biological controls applied in another area. Herbicide control of reed canary grass conducted.
Investigate source(s) of purple loosestrife seeds and potential control	AGI-ENV / ODA / Camp Rilea staff	2001 – 2005	AGI-ENV determined that control of off-post loosestrife seed sources was not feasible and has not pursued the project.
Control butterfly/moth survey	Contractor	2001 – 2002	Surveys conducted and report produced in 2002 – 2003. The survey found no listed species other than the Oregon Spotted Butterfly requiring special management.
Conduct elk monitoring	AGI-ENV / ODFW	2001 – 2006	Discussed with ODFW and determined monitoring was not needed. During 2001 – 2006, ODFW ceased existing management efforts for resident elk herds using the area.
Establish LCTA monitoring points and conduct monitoring	AGI-ENV	2001 – 2006	AGI-ENV, in coordination with NGB, determined formal LCTA monitoring was not needed based on types of training activities conducted.
Remove planted pine forests	Contractor	2003 – 2006	Planted pine forest in Training Areas 9 and 12 was removed in 2003 – 2004. Efforts to suppress invasive species (mostly Scotch broom) were conducted and replacement of the forest with native hemlock and spruce species was completed in 2006.

Project	Planned accomplishment	Planned Schedule	Status
Conduct tree, limb, and shrub removal in planted pine forest	Contractor	2002 – 2004	Forest in Training Areas 10 and 13 were limbed and thinned during 2004 and 2005.
Prepare upland meadow restoration plan (includes burn plan)	AGI-ENV / USFWS / ODF / Camp Rilea staff	2002 – 2006	The Nature Conservancy is conducting a multi-year project studying different upland meadow restoration and management methods. The study has been assisted by ODF, Camp Rilea, and AGI-ENV, and is partially funded by AGI-ENV.
Collect and propagate native plant seeds (includes greenhouse renovation)	Camp Rilea staff / AGI-ENV	2001 – 2005	Determined to be infeasible due to lack of funds, but would be reconsidered if need arises and resources obtained. Discussed potential with USFWS in 2006.
Replant trees and shrubs in planted pine forest areas	Camp Rilea staff / AGI-ENV / Contractor	2001 – 2005	Training Areas 9 and 12 prepared in 2005 and native tree species planted in 2006.
Conduct bank protection, non-native plant control, and riparian tree/shrub planting	Camp Rilea staff / ODA / AGI-ENV	2001 – 2002 and 2004 – 2005	Trees planted along Sunset Lake and Neacoxie Creek in 2001. Multi-year English ivy and Scot's broom control efforts undertaken. Bank protection measures not required because training activities that may cause bank damage did not occur.
Conduct rare plant, red-legged frog, pileated woodpecker, and cavity nesting songbird surveys/monitoring	AGI-ENV/ONHP	2001 – 2002 and 2004 – 2005	OR Natural History Program conducted a sensitive species survey in 2002. Additional frog surveys recommended, but not conducted.
Install nest boxes	Jewell High School / Camp Rilea staff	2001 – 2002 and 2004 – 2005	JHS has installed and maintained numerous wood duck nesting boxes. Camp Rilea staff had the Tongue Point Job Corps Center build 50 bat houses, which have been installed around the Camp.
Control non-native fauna	AGI-ENV / ONHP / ODFW	2001 – 2002 and 2004 – 2005	Not started; efforts would likely focus on removing bullfrogs, nutria, and feral cats.

Project	Planned accomplishment	Planned Schedule	Status
Survey for an conduct undesired plant removal or control	AGI-ENV / ONHP / Contractor	2001 – 2005	Non-native plant survey conducted in 2002. Multi-year English ivy and Scotch broom control efforts undertaken. Major effort to control Scotch broom in areas 9 and 12 required during 2004 – 2005.
Conduct prescribed burning and herbicide treatments (areas not in upland meadow restoration)	Cp Rilea staff / ODF	2001 – 2005	Prescribed burns conducted on squad live-fire range in 2002 and 2005. Herbicide spraying of English ivy and Scotch broom conducted annually.
Conduct hydrology investigation and culvert study	Contractor	2001 – 2002	No known hydrology problems identified, so project not conducted.
Conduct orthophotography and/or videography	Contractor	2001 – 2002	Orthophotography of Camp Rilea acquired in 2001 and 2004.
Monitor ecological restoration	Unknown	Unknown	Project not described in INRMP text; not conducted.
Implement upland meadow restoration plan (includes prescribed burning and herbicide treatments)	Unknown	Unknown	Project included in list, but not described in INRMP text; not conducted.

1

SECTION 7
LIST OF INRMP PREPARERS AND REVIEWERS

Individuals from the ORARNG, Camp Rilea/Regional Training Institute, OMD Environmental Branch, the Oregon Army National Guard Operations Directorate, and contractor personnel who were involved in the preparation and review of the INRMP are listed below.

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SECTION 8
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Environmental Assessment

for Implementation of the 2007 – 2011
Integrated Natural Resources Management Plan,
Camp Rilea, Oregon

September 2006

Prepared for

The Oregon Military Department
Oregon Army National Guard
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ENVIRONMENTAL ASSESSMENT ABSTRACT

Responsible Agency: The Oregon Military Department (OMD), Oregon Army National Guard

Title: Environmental Assessment (EA) for the Implementation of the 2007 – 2011 Integrated Natural Resources Management Plan (INRMP), Camp Rilea, OR

Report Designation: Environmental Assessment

Abstract: This EA analyzes the potential environmental impacts from the proposed implementation of the updated 2001 INRMP for the years 2007 - 2011. The implementation of the proposed 2007 INRMP at Camp Rilea would successfully promote adaptive stewardship practices that protect and enhance natural resources for multiple use, sustainable yield, and biological integrity, while supporting the military mission.

Two alternatives are evaluated in this EA; the proposed action and the No Action Alternative. The EA concludes that Alternative 1, implementing the proposed INRMP, would meet the proposed action requirements. This alternative would not result in significant impacts to the physical, biological or socioeconomic environment.

Alternative 2 is the No Action Alternative, meaning that an updated INRMP would not be implemented at Camp Rilea and existing management goals, objectives, and strategies would continue to be implemented. The use of adaptive management in preserving and enhancing natural resources is needed for an ecologically sound environment, and changes occur through time that must be addressed. This alternative would also not incur significant impacts to the physical, biological or socioeconomic environment; however, it does not update necessary changes needed for effective management of the natural resources at Camp Rilea.

The INRMP will be updated every five years (i.e., 2011, 2016, etc.), unless circumstances arise that would require the plan to be revised more frequently, to update the document with any changes in the military mission or the natural resources of Camp Rilea.

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EXECUTIVE SUMMARY

An INRMP "serves as a comprehensive plan to outline management of all natural resources on a particular training site over a five-year period to support and be consistent with the military mission while protecting and enhancing such resources in accordance with accepted stewardship principles" [reference "Memorandum, NGB-ARE, 15 June 2000, subject: All States (Log Number P00-0039) Integrated Natural Resources Management Plans]. In addition, under the Sikes Act [16 USC 670a(b)(1)(I)], as amended, an INRMP should ensure that "no net loss in the capability of military lands to support the military mission" of the training site occurs as a result of natural resources management provided in the plan.

In summary, this INRMP describes the baseline conditions of natural resources at Camp Rilea and provides management programs and guidance. Preparation of this plan is required by Army Regulation (AR) 200-3, the Sikes Act, as amended (16 USC 670a *et seq*.), Department of Defense Instruction (DoDI) 4715.3, and other DoD regulations and guidance. Section 2-2(b) of AR 200-3 states that actions associated with implementation of an INRMP must be assessed in accordance with the National Environmental Policy Act (NEPA) for potential environmental effects. In this case, analysis of the potential environmental effects of implementing the INRMP is undertaken by this EA.

This assessment presents resource areas requiring assessment pursuant to 32 CFR 651, *Environmental Analysis of Army Actions (AR 200-2)* and *Guidance on Preparing Environmental Documentation for Army National Guard Actions in Compliance with the National Environmental Policy Act of 1969,* (March 2002). The organization of this EA is as follows:

- Section 1.0 addresses the purpose and need for the proposed action;
- Section 2.0 summarizes the alternatives considered;
- Section 3.0 summarizes the affected environment;
- Section 4.0 addresses the potential environmental consequences of implementation of the alternatives
- Section 5.0 presents Cumulative Effects
- Section 6.0 discusses other Considerations, including Irreversible or Irretrievable Commitment of Resources; Unavoidable Adverse Effects; and Relationship Between Short-Term Uses and Long-Term Productivity;
- Section 7.0 addresses the conclusions;
- Section 8.0 presents the list of preparers of this EA; and
- Section 9.0 presents the references used for this EA.

Two alternatives are identified and evaluated: Alternative 1, implementation of the 2007 - 2011 INRMP (referred to in this document as the 2007 INRMP); and Alternative 2, continue the implementation of the existing 2001 INRMP. This INRMP provides descriptions of the various goals and objectives used to develop management measures/projects for the issues and concerns for each resource area. This NEPA review assesses known, potential, and reasonably foreseeable environmental consequences related to strategies and projects presented in this INRMP. Additional NEPA analysis could be required prior to the implementation of certain actions or projects, such as implementing prescribed burning. However, projects requiring additional analysis could be tiered from this EA.

No significant impacts would result from implementation of either Alternative 1, implementation of the updated INRMP, or Alternative 2, the no action alternative (the continuation of existing natural resources management under the 2001 INRMP).

ACRONYMS AND ABBREVIATIONS

AR	Army Regulation
AGI-ENV	OMD Environmental Branch
AGI-O	OMD Sustainment, Restoration and Modernization Branch
CEQ	Council on Environmental Quality
CFR	Code Of Federal Regulations
CREST	Columbia River Estuary Study Taskforce
CWA	Clean Water Act
DoD	Department of Defense
DoDI	Department of Defense Instruction
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
ODFW	Oregon Department of Fish and Wildlife
OMD	Oregon Military Department
OR	Oregon
ORANG	Oregon Air National Guard
ORARNG	Oregon Army National Guard
OSB	Oregon Silverspot Butterfly
PL	Public Law
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

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TABLE OF CONTENTS

1.0 PURPOSE OF AND NEED FOR ACTION

The Sikes Act, as amended, states "the Secretary of each military department shall prepare and implement an integrated natural resources management plan (INRMP) for each military installation in the United States under the jurisdiction of the Secretary, unless the Secretary determines that the absence of significant natural resources on a particular installation makes preparation of such a plan inappropriate" (16 USC 670a).

Camp Rilea is a 1,750-acre state-owned military training area located on the Pacific Coast in northwestern Oregon. The camp was created in 1927, through the purchase of private farmland by the OMD, who continues to own and manage the training area. The OMD adopted and implemented an INRMP in 2001 for the years 2001 to 2006. In compliance with the requirements of the Sikes Act, the OMD is proposing to revise the INRMP for 2007 to 2011

To address potential effects from implementing the updated INRMP, referenced throughout this document as the 2006 INRMP, the OMD has prepared this environmental assessment (EA). The EA has been prepared in accordance with Title 32, Part 651 of the Code of Federal Regulations (32 CFR 651) and *Guidance on Preparing Environmental Documentation for Army National Guard Actions in Compliance with the National Environmental Policy Act of 1969,* (March 2002).

The 32 CFR 651 regulations implement the National Environmental Policy Act (NEPA) for Army and Army National Guard proposed actions and supersede Army Regulation (AR) 200-2 *Environmental Effects of Army Actions*. This EA analyzes the potential effects that may result from implementation of the revised Camp Rilea INRMP. Topics addressed are related to the effects of implementing the proposed plan on natural resources. The details are discussed in the following chapters and include: geology, topography, soils, water resources, vegetation, wetlands, wildlife, threatened/endangered and special status species; cultural resources; air quality; noise; public health and safety; socioeconomic resources, and environmental justice.

1.1 PURPOSE AND NEED FOR ACTION

In general, the purpose of the proposed action is to provide for the effective, long-term management of the installation's natural resources while allowing military training and other installation activities to proceed. More specifically, the purposes of implementing an INRMP are to:

- Conserve and rehabilitate natural resources on military installations;
- Sustain multipurpose use of the resources, including hunting, fishing, trapping, and nonconsumptive uses; and

- Provide public access to military installations, subject to safety requirements and military security.

The need for the proposed action is to ensure natural resources are managed effectively at Camp Rilea, as required by the Sikes Act, Army Regulation (AR) 200-3 *National Resources – Land, Forest, And Wildlife Management*, and other applicable natural resource regulations and guidance documents, while allowing the training mission(s) and other supporting activities to be accomplished in order to provide a fully trained and ready force.

Additionally, the proposed action is needed to fulfill the requirements of the Sikes Act, as amended. The INRMP provides for the coordinated management of the following resource issues: geology, topography, soils, water resources, vegetation, wetlands, wildlife, threatened/endangered and special status species; cultural resources; air quality; noise; public health and safety; socioeconomic resources, and environmental justice.

The INRMP identifies goals and management objectives/strategies to accomplish those goals for each resource issue, and identifies projects that, if implemented, would help accomplish the set goals.

1.2 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

Public involvement and agency coordination were accomplished through a thorough scoping process at the initial stage of updating the INRMP. Copies of the scoping letters can be found in Appendix A. In addition, the draft 2007 INRMP and the EA were made available for a 30-day public review period.

During the scoping process, the following agencies provided information and assistance:

Federal Agencies

The U.S. Fish and Wildlife Service (USFWS) has provided technical assistance on known and potentially occurring sensitive species and wildlife habitat management issues. They were provided a letter of coordination for initiating the INRMP process. This agency is the primary federal agency for issues regarding fish and wildlife management and is the regulatory authority for the Endangered Species Act (ESA) of 1973, PL 93-205 (codified at 16 USC 1531– 1534) and the Migratory Bird Treaty Act of 1918 (codified as amended at 16 USC 703–711).

Tribal Governments

The Confederated Tribes of Grande Ronde and the Confederated Tribes of Siletz were formally invited to participate in the planning process through written correspondence by the Adjutant General to their respective Tribal Chairs and resource management staff.

State Agencies

The Oregon Department of Fish and Wildlife (ODFW) is the primary state agency responsible for managing fish and wildlife. Cooperation between the OMD and ODFW generally involves compliance issues concerning the Endangered Species Act, the Migratory Bird Treaty Act, and other federal and state laws and regulations. The ODFW was sent a coordination letter notifying them of the OMD's intent to initiate the INRMP process.

Other state and local agencies receiving letters notifying them of OMD's intent to update the INRMP are listed below:

- Oregon Water Resources Department
- Oregon Department of Agriculture
- State Historic Preservation Office, Oregon Parks and Recreation Department
- Planning Manager, Oregon Parks and Recreation Department
- Clatsop County Soil and Water Conservation District
- Oregon State University, Department of Botany and Plant Pathology
- Oregon Department of Forestry
- Oregon Department of State Lands (Field Operations)
- Oregon Department of State Lands (Policy & Planning)
- Columbia River Estuary Study Taskforce (CREST)
- Clatsop County Planning Department
- Emergency Services Coordinator, Clatsop County Sheriff's Office
- Skipannon Watershed Council and Water Central District

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2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section describes the Proposed Action and Alternatives and the Alternatives Eliminated from Detailed Study.

2.1 DESCRIPTION OF THE PROPOSED ACTION

Implementation of the 2007 INRMP is the proposed action analyzed in this environmental assessment. The proposed action is described in detail in Section 5 of the INRMP, *Proposed Natural Resource Management Actions.* The goals of the INRMP are: conserve the Oregon silverspot butterfly and western snowy plover, maintain healthy native and desired non-native vegetation, minimize wildland fire potential, maintain the function and value of wetlands and riparian areas, maintain sand dune stability and minimize soil erosion, maintain water quality, maintain native wildlife and wildlife habitat, minimize property and environmental damage caused by wildlife, protect natural resources from damage by Camp users, provide public natural resource use opportunities consistent with the installation training mission and installation security, and maintain and use up-to-date natural resources information in support of decision making for the installation.

2.2 DESCRIPTION OF THE ALTERNATIVES

Alternative 1, the preferred alternative, consists of implementing the proposed action as an ecosystem-based INRMP using adaptive management. Table 5.1-1, in Section 5 of the INRMP, presents the natural resource management goals, objectives, projects, and timelines that will be evaluated in this EA.

Alternative 2 is the No Action Alternative. This alternative would involve a continuation of current practices described in the 2001 – 2006 Camp Rilea INRMP and would not include implementation of updated management goals, objectives, and projects that would enhance the preservation and protection of natural resources at Camp Rilea. An analysis of the No-Action Alternative is required by the Council on Environmental Quality (CEQ) regulations to serve as a benchmark against which the Proposed Action can be evaluated.

2.3 ALTERNATIVES ELIMINATED FROM DETAILED ANALYSIS

Some natural resource management goals, objectives, and projects considered during revision of the INRMP were eliminated because they were found not economically feasible, ecologically sound, or compatible with the

requirements of the military mission. Some goals, objectives, and projects identified in the 2001 INRMP were eliminated for some of these reasons, and some were replaced with more feasible and ecologically sound projects. Section 6 of the revised INRMP identifies projects, including those that were implemented or eliminated. It also provides an explanation for the elimination.

3.0 AFFECTED ENVIRONMENT

Existing environmental conditions at Camp Rilea are described in Section 3 *Existing Environmental Conditions*, of the 2007 INRMP.

3.1 Land Use

Most of Camp Rilea is zoned by Clatsop County as a military reserve; some of the land is listed as open space, parks and recreation. Surface waters and wetlands are in the Lake and Wetlands Zone. The area adjacent to the camp primarily is rural residential (zoned residential agriculture), except for the ocean to the west. Residential areas of the city of Warrenton start at the Camp's north boundary. This INRMP is not proposing any change to the present land use and therefore, this resource was not analyzed for this EA.

3.2 Ecological Setting and Climate

Camp Rilea is located within the Coastal Lowlands ecoregion. This is an area of estuarine marshes, freshwater lakes, black-water streams, marine terraces, and sand dunes. These ecosystems still characterize the landscape of the camp. The climate is considered marine temperate, and is dominated by the proximity to the Pacific Ocean. This INRMP is not proposing any change to the present ecological setting or climate therefore this resource was not analyzed for this EA.

3.3 Geology

The Coastal Lowlands ecoregion is composed of Quaternary marine and non-marine terrace deposits, beach, and dune sands. The Clatsop Plains geographical area, including Camp Rilea, is believed to consist of an ancient terrace of marine and estuarine sedimentary rocks overlain by a sand dune complex built from Columbia River derived sediments. The INRMP is not proposing any change to the present geology therefore this resource was not analyzed for this EA.

3.4 Soils

Camp Rilea has six soil components within its boundaries: beaches, dune land soil, Gearhart fine sandy loam, Heceta-Waldport fine sands, Waldport fine sand, and Warrenton loamy fine sand. The beaches and dune land soils have severe erosion potential from both wind and water. All other soils have slight erosion potential from water. Concerning potential wind erosion, the Waldport series has a severe erosion potential; Gearhart and Heceta-Waldport have moderate erosion potential; and Warrenton has slight erosion potential. Section 4.1 of this assessment analyzes the potential environmental consequences of the INRMP upon this resource.

3.5 Water

Camp Rilea contains two lakes: Slusher Lake and Sunset Lake. Slusher Lake is a 23 acre triangle-shaped body of water totally within the camp boundaries. It averages five feet deep and volume averages 80 acre-feet. There is no inflow or outflow, except when heavy rains cause the lake to rise and flow north over Slusher Lake Road into forested wetlands. Sunset Lake (sometimes also called Neacoxie Lake) is long (over three miles) and narrow (50-700 feet), and about 110 acres in size. Only about 15 acres of Sunset lake is within the camp boundaries. Its maximum depth is 20 feet and volume averages 975 acre-feet. The lake discharges south into Neacoxie Creek. Sunset Lake was included on the 1998 and 2003 ODEQ lists of water bodies that do not meet water quality standards (the "303(d)" lists) because of the growth of aquatic weeds. ODEQ has adopted, and EPA has approved Total Maximum Daily Loads (TMDLs) for some water quality criteria and water quality management plans for those affected waterbodies, but a comprehensive plan addressing noxious aquatic vegetation affecting coastal lakes, such as Sunset Lake, has not yet been developed.

Neacoxie Creek also flows through the camp. Its hydrology is confusing given past drainage alterations and the stream's very low gradient. Neacoxie Creek originates in the Coffenbury Lake area and flows south, dividing into two forks near the northern boundary of the camp. The East Fork continues south past the entrance to the camp, on under Highway 101, and into the Skipanon River northwest of Cullaby Lake. The West Fork has virtually no flow, but extends south through the eastern edge of Camp Rilea towards Sunset Lake, stopping about 3,000 feet north of the lake. The intervening dry area was filled in the 1930's or 1940's, probably by the ORARNG. The West Fork outflows from Sunset Lake and continues south for 3.5 miles where it flows into Necanicum Bay.

Although the surface drainage is obscure and poorly understood, most of the camp seems to be within the Skipanon River Watershed and drains south and east to that stream. The southern third of Camp Rilea, which includes the two lakes, is in the Necanicum River Watershed and drains south to Neacoxie Creek, a tributary of the Necanicum. According to the Clatsop County Planning Department, there are no 100-year floodplains within the camp. Most of the camp is classified as Flood Zone C (areas with minimal flooding).

The Quaternary marine and nonmarine deposits and dune sands contain the principal aquifer of the area. This Clatsop Plains sand-dune aquifer is a complete local flow system recharged almost entirely by infiltrating precipitation. In the western half of the camp, lateral groundwater movement is towards the ocean. Conversely, the eastern

portion of the southern half moves to Sunset Lake, while the eastern portion of the northern half moves to Neacoxie Creek. The entire camp can be considered a recharge area. The water table ranges in elevation from sea level to about 20 feet. Groundwater meets the surface at Slusher Lake, which rises and falls with the water table. The aquifer is the primary water source for most people living on the Clatsop Plains. Fortunately, water quality of this aquifer is good. Much of Camp Rilea sits above the downstream end of the Clatsop Plains aquifer, close to where it begins its submarine discharge. Nevertheless, Clatsop County has designated the entire area north of Slusher Lake and north of the cantonment area all the way to the northern camp boundary as an Aquifer Reserve Overlay District.

Section 4.2 analyzes the potential environmental consequences of the INRMP upon this resource.

3.6 Coastal Zone

Camp Rilea has three miles of beach frontage. The beach itself, seaward of the statutory vegetation line, is a public resource managed by the Oregon Parks and Recreation Department, and is not part of the camp. The camp is wholly within the coastal shore lands, a near-ocean planning zone defined by the Oregon Department of Land Conservation and Development (ODLCD). Land use is regulated in the coastal shore lands by Clatsop County under its coastal zone management program, its Land and Water Development and Use Ordinance, and in accordance with the applicable statewide planning goals. To protect the dunes and coastal resources, Clatsop County has created a Beaches and Dunes Overlay District, which covers the entire camp property. Regulations for this district are in Appendix C. Clatsop County also regulates activities that affect vegetative cover of the coastal dunes. Actions involving sand removal, dune grading, dune breaching, and that have the potential to cause erosion require approval of the County.

The Oregon coast is at risk for a tsunami event. Distant tsunamis could strike the Oregon coast from earthquakes far out to sea, or local tsunamis could result from an earthquake along the nearby Cascadia subduction zone fault system. Geologic evidence indicates that past earthquakes of large magnitudes on this fault system have created large waves up to 40 feet in height that have periodically inundated coastal areas. The recurrence interval suggests that an event such as this could occur anytime in the next 300 years. In response to this threat, the state Department of Geology and Mineral Industries has developed maps showing tsunami risk zones, based largely on topography. There are four zones along the coast ranging from extreme to low risk, with risk declining as you move inland. The first three zones would need to be evacuated if an off-

shore earthquake occurred. On Camp Rilea only undeveloped training areas are within the zones requiring evacuation.

This INRMP is not proposing any change in the coastal zone and it would not change the threat of a tsunami, therefore this resource was not analyzed for this EA.

3.7 Vegetation

A total of 20 vegetation types, classified using the U.S. National Vegetation Classification System (USNVCS) have been identified on the Camp. The Camp has evolved from an area covered mostly by unvegetated sand and dunegrasses (over 1,450 acres in 1939), to one dominated by shrub and wooded communities (over 1,100 acres in 1971 and over 1,400 acres in 1996). The existing plant communities are a direct result of the dune stabilization plantings by the Civilian Conservation Corps in the 1930s and subsequent management actions by the Oregon Military Department. There are few areas dominated by native vegetation. Much of the camp is covered with closed canopy forests of shore pine or other exotic pines, including Scots pine and Black pine. Large areas of European beachgrass and forested wetlands are also present.

No State- or Federally-listed threatened or endangered plant species are known to exist on the Camp, but four relatively rare species are found: Columbia watermeal (*Wolffia columbiana*), Sweet gale (*Myrica gale*), Yellow sand verbena (*Abronia latifolia*), and Big-headed sedge (*Carex macrocephala*).

Nonnative vegetation is widespread on the Camp. The most abundant nonnative species at Camp Rilea were planted for dune stabilization, including European beachgrass, Scots broom, Scots pine (*Pinus sylvestris*) and black pine (*Pinus nigra*). Scots broom is now considered an invasive plant species in western Oregon. Several nonnative grass species are especially abundant, and many exotic species of forbs are found commonly throughout the camp.

Section 4.3 analyzes the potential environmental consequences of the INRMP upon this resource.

3.8 Wetlands

Camp Rilea has approximately 244 acres of wetlands in 29 separate areas, ranging in size from about one acre to 159 acres. All but nine are of the palustrine forested class, and this class accounts for 216 acres. Most are in the depression between the foredune and second dune.

Section 4.4 analyzes the potential environmental consequences of the INRMP upon this resource.

3.9 Wildlife

Surveys of the Camp have identified and documented the presence of 125 bird species, 32 mammal species, and 7 species of amphibians and reptiles. Section 4.5 analyzes the potential environmental consequences of the INRMP upon this resource.

3.10 Threatened, Endangered, and Special Status Species

Seven listed birds could be present (six state- and federally-listed and one state-listed only); one federally-threatened fish (state critical list); one federally-threatened invertebrate; and one state-endangered plant. In addition, one mammal is on the state critical list; one other bird species is on the state critical list; one amphibian is on the state critical list; one reptile is on the state critical list; two other fish species are candidates for the federal list; and four plants are candidates for state ESA listing. The federally-threatened Stellar sea lion is not included since the ocean and beach are not part of Camp Rilea. However, no observations of this species have occurred in the coastal area adjacent to the camp.

Historically, the federally-threatened Oregon silverspot butterfly (OSB) was present on Camp Rilea. The OMD has managed approximately 68 acres of habitat for this species since 1991. The number of female silverspot butterflies annually observed at the camp during late summer monitoring has varied from 82 to zero, declining steadily. The OMD completed an Endangered Species Act Section 7 consultation with the USFWS and adopted a formal habitat management plan for the OSB in 1999.

Section 4.6 analyzes the potential environmental consequences of the INRMP upon these species.

3.11 Cultural

The ORARNG has completed 100 percent archeological surveys and evaluated all extant buildings and structures on Camp Rilea property. There are no archeological sites located at Camp Rilea. The ORARNG has determined, in consultation with the Oregon State Historic Preservation Office (SHPO), that 15 buildings are eligible for inclusion on the National Register of Historic Places (National Register). One of these eligible buildings, the Chateau, includes associated gateposts and landscaping that are also considered eligible. Two other features, a 1931 memorial stone and a concrete and pebble stairway, are also eligible for the National Register. Additionally, the ORARNG has determined, in consultation with the SHPO, that most of Camp Rilea (the Cantonment area and all property west of the

West Fork Neacoxie Creek) is a historic military landscape eligible for inclusion on the National Register.

There are no known Native American-associated sites nor Traditional Cultural Properties located at Camp Rilea. Slusher Lake has been identified as the possible location of a Native American village described in the Lewis and Clark journals. However, surface features have never been found, and preliminary studies conducted using Ground Penetrating Radar to a depth of 2.7 meters revealed no cultural evidence and were generally inconclusive.

3.12 Air Quality

Camp Rilea is located in a Clean Air Act (CAA) attainment area. Section 4.8 analyzes the potential environmental consequences of the INRMP upon this resource.

3.13 Noise

Operational noise from Camp Rilea was modeled and analyzed by the US Army Center for Health Promotion and Preventative Medicine (USACHPPM). The results are reported in the Oregon Army National Guard Operational Noise Management Plan. USACHPPM concluded that annual average noise levels from training at Camp Rilea are compatible with federal guidelines and overall, the off-post noise impact from training at Camp Rilea is moderate. There is a slight potential for noise complaints from nearby, off-Post residents due to small arms training. However, there is moderate potential for complaints from infrequent loud noise events, such during demolitions and claymore mine training, particularly if explosive charges larger than one pound were used. Rotary-wing aircraft occasionally fly directly onto Camp Rilea to transport personnel or to refuel. Training involving aircraft operations generally does not occur on Camp Rilea. Usually, only one aircraft will visit Camp Rilea at any given time. The noise from aircraft activities are minimal, however, helicopter overflight of nearby residences is possible. USACHPPM suggested, if possible, that all aircraft approach and depart Camp Rilea from the west, passing over the Pacific coast, thus avoiding the residential development which surrounds Camp Rilea, Section 4.9 analyzes the potential environmental consequences of the INRMP upon this resource.

3.14 Public Health and Safety

The primary concerns in terms of public health and safety at Camp Rilea are military training activities, hazardous materials use, and wildfires. The ORARNG employs specific measures in its training activities and daily operations to curb these dangers. Risk management is a key factor in protecting military personnel and the public and in determining the policies

that will ensure their safety. Section 4.10 analyzes the potential environmental consequences of the INRMP upon this resource.

3.15 Socioeconomic

The affected socioeconomic area for Camp Rilea is Clatsop County. Section 4.11 analyzes the potential environmental consequences of the INRMP upon this resource.

3.16 Environmental Justice

Executive Order 12898 requires an analysis of potential disproportional impacts of activities upon minority and low-income populations. And Executive Order 13045 requires an analysis of the environmental health and safety risks from activities that could disproportionally affect children. Section 4.12 analyzes the potential environmental consequences of the INRMP upon this resource.

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4.0 ENVIRONMENTAL CONSEQUENCES

This section describes the environmental consequences that may result from the implementation of Alternative 1, the 2007 INRMP, and Alternative 2 (no action), continuing to implement the existing 2001 INRMP. Both alternatives are based on adaptive management; however, Alternative 2 does not include the changes in natural resources management goals, objectives, and projects (updates beyond Year 2005) that are described in the revised 2007 INRMP.

4.1 SOIL RESOURCES

In general, potential adverse impacts to soil resources from the proposed action include erosion, loss of soil fertility and contamination. Potential benefits include avoiding erosion, maintaining soil fertility, and avoiding contamination. The soils at Camp Rilea do have a potential for wind erosion, and can be susceptible to water erosion, particularly soils on steeper slopes. Roads and unvegetated, disturbed areas on slopes have the highest potential for erosion. The fine sandy soils with the steepest slope classes and the dune land have the highest potential soil loss.

The natural resource management strategies contained in both alternatives are intended to protect soil stability and fertility, as well as maintain the maximum long-term benefits from soils. Erosion would be stopped and repaired as quickly as possible under either alternative. Native vegetation would be used in active revegetation efforts, if feasible. Under either alternative, several management practices would be used to protect soils including:

- Not conducting activities that would significantly disturb soils in areas with high soil erosion potential;
- Protecting bare ground in high erosion areas with amendments or vegetation as quickly as possible;
- Hardening areas of recurring ground disturbance with gravel or similar surfaces to retain soils;
- Limiting off-road equipment use to selected areas and times of the year;
- Contacting the Clatsop County Soil and Water Conservation District and the U.S. Natural Resources Conservation Service, as needed, for assistance in designing and implementing soil erosion projects.

Therefore, both alternatives are expected to result in beneficial impacts on soil resources.

4.1.1 Alternative 1: Implementation of the 2007 INRMP

Alternative 1 would focus on acting to avoid soil erosion by addressing it during project and activity planning, than repairing damage, if it occurs, when projects and activities are conducted. Most projects proposed in the 2007 INRMP are expected to have little, if any, potential to cause erosion and result in no significant adverse effects on soil resources. The use of registered pesticides at Camp Rilea, in accordance with their label directions, is not expected to have a significant impact on soil resources.

Identified in Section 1, paragraph 1.2.2 (page 1-9) of the INRMP are future military training activities. These projects would be environmentally evaluated on a case-by-case basis as they become funded and an erosion control plan would be prepared before any construction begins, ideally during the project planning and design phases.

4.1.2 Alternative 2: Continued Implementation of the 2001 INRMP (No Action)

Under this alternative, existing management programs and projects would continue. Soils at Camp Rilea would be maintained in their present condition. Alternative 2 is similar to Alternative 1 in that soil disturbances caused by activities would be promptly corrected.

4.2 WATER RESOURCES

Water resources include surface water and groundwater. Adverse impacts to water resources include detrimental changes in water quality, decreases in the quantity of water available for existing or potential beneficial uses, and increased potential for flooding. Adverse impacts are judged to be significant if they result in noncompliance with regulatory standards, plans, or policies. Otherwise, the significance is based on the degree of harm the impacts could cause to people or the environment. In general, any degradation of water quality that reduces the existing or potential beneficial uses of the water is considered significant. The significance of reducing the quantity of water available for beneficial uses depends on the size, timing, duration, and permanence of the reduction. The significance of changes in hydraulic conditions depends on the context in which the change occurs. For example, increased flooding potential is deemed significant if it increases the 100-year flood zone or if it results in increased potential for injury, loss of life, or damage to structures.

Most natural resources management activities proposed in either alternative have little potential to affect water resources. Under both alternatives:

- Pesticides would be used in accordance with Environmental Protection Agency (EPA)-approved label direction;

- Activities would be restricted in wet areas and drainages; and
- Vehicles and excavation activities typically would not be allowed in drainages and wet areas.

4.2.1 Alternative 1: Implementation of the 2007 INRMP

Implementing Alternative 1 is not expected to result in significant effects, either adverse or beneficial, concerning potential flooding, general hydraulic conditions, overland flow patterns, or water quality.

4.2.2 Alternative 2: Continued Implementation of the 2001 INRMP (No Action)

Under the No Action Alternative, the OMD would continue to implement existing conservation measures at Camp Rilea to protect and conserve surface and groundwater resources.

4.3 VEGETATION

Impacts to vegetative communities and habitats can be adverse or beneficial. Adverse impacts to vegetation communities include introducing noxious weeds or exotic plant species that compete with or replace native species, reducing or eliminating native or rare plants or their habitat, and reducing vegetative types considered important for the military mission. Beneficial impacts include protecting and enhancing rare plant species, their habitats, and native vegetation communities. The significance of an impact is assessed based on the degree to which it affects the functions and values of the vegetation and habitat.

Implementation of either alternative is expected to benefit the native vegetation of the camp. Both alternatives aim to control or eliminate exotic and invasive species and to protect and enhance native plant species, including threatened and endangered species.

4.3.1 Alternative 1: Implementation of the 2007 INRMP

The goals and individual projects in Alternative 1 that could benefit vegetation are not as extensive as the management strategies presented in Alternative 2. However, some of the management strategies in the existing INRMP were not implemented during 2001-2006 and are not expected to be implemented in the future because they lack management support or funding. Alternative 1 is expected to result in the greater benefits to the native vegetation because more of the projects contained in the plan would likely be implemented.

4.3.2 Alternative 2: Continued Implementation of the 2001 INRMP (No Action)

No significant changes to current conditions would be expected from continued implementation of the existing INRMP. Some of the existing

INRMP's management strategies have not been implemented and are not expected to be implemented in the future.

4.4 WETLANDS

Adverse impacts to wetlands are those that result in the destruction or modification of wetlands that result in decreased functions and values. Impacts could result from activities that destroy or greatly alter the hydrology, soils, vegetation, or wildlife of wetlands. Some examples of adverse impacts include filling or excavating in wetlands, draining ditches through pumping or excavation, or otherwise removing plants and vegetation. Short-term adverse impacts, such as from burning or mowing vegetation, could become beneficial over the long term. Adverse impacts are judged to be significant if they result in noncompliance with existing regulatory standards, plans, or policies, such as Section 404 of the Clean Water Act (CWA) or EO 11990. The significance of impacts to wetlands is assessed based on the degree to which they affect the functions and values of wetlands. Beneficial impacts include the conservation, rehabilitation, or enhancement of wetlands or anything that improves the functions and values of a wetland.

4.4.1 Alternative 1: Implementation of the 2007 INRMP

Alternative 1 is expected to have no significant adverse effects on wetlands. Wetlands would continue to be protected from damage. The placement of any fill in wetlands as part of this project would be conducted in accordance with any required state and/or federal permits.

4.4.2 Alternative 2: Continued implementation of the 2001 INRMP (No Action)

The No Action Alternative also is expected to have no adverse impact on potential wetland resources. Continued implementation of the existing INRMP is expected to maintain wetland areas in their existing conditions.

4.5 WILDLIFE

Significant adverse impacts to wildlife are those that would:

- Result in substantial decreases in species numbers;
- Decrease or degrade habitats that serve as concentrated breeding or foraging areas or support substantial concentrations of one or more sensitive species; or
- Decrease or degrade habitats or that are limited in availability; and
- Beneficial impacts conserve or enhance wildlife communities and habitat.

Implementation of either alternative is expected to benefit wildlife, because both alternatives aim to protect and enhance wildlife habitats and are not expected to decrease or adversely alter habitats. The existing INRMP identified an attempt to develop an elk management plan, but OMD has decided against it and will continue to work with ODFW on this issue. Under the existing INRMP, many bat and birdhouses were constructed by OMD and other parties to ensure that there are ample places for native songbirds and bats to nest or roost.

4.6 THREATENED AND ENDANGERED SPECIES

Potential effects to federally- or state-listed threatened and endangered species or candidate species can be adverse or beneficial. Significant adverse impacts are those that result in substantial declines in species numbers or in substantial declines or degradation of habitat crucial to a species survival. Beneficial impacts include the conservation and enhancement of a species and its habitat. Implementation of either alternative is expected to protect and enhance threatened, endangered, and candidate species to the same extent.

At Camp Rilea, The Oregon silverspot butterfly (OSB) is the only threatened or endangered species that actually resides within the camp boundaries. Management efforts in both cases are directed towards avoiding damage to the OSB and conserving and enhancing its habitat. Periodic monitoring would be conducted to assess the condition and threats to known threatened, endangered, and candidate species. Periodic surveys also would be conducted to identify other threatened, endangered, and candidate plant and animal species that are not now known to reside on the installation, but which have a reasonable chance of being found there. If a new threatened, endangered, and candidate species is identified or discovered on Camp Rilea, it would be conserved according to the applicable regulatory requirements.

The Oregon Endangered Species Act and Section 7 of the federal Endangered Species Act both require consultation with the appropriate state or federal agency for actions that may affect listed species. For the OSB listed at Camp Rilea, the USFWS is the appropriate federal agency. The USFWS has been consulted regularly during the preparation of a Habitat Management Plan for the OSB at Camp Rilea and when proposed activities have required the development of a Biological Assessment.

4.7 CULTURAL RESOURCES

Activities carried out under this INRMP are not likely to have any adverse effect on the 17 National Register-eligible buildings and features. Though no archeological sites or Native American sites have been located, procedures are in place to address an inadvertent discovery in compliance with applicable laws and regulations.

The Camp Rilea Historic Landscape is composed of 6 critical elements: wooded sand dunes, a cantonment, a circulation system of roads, training areas, water features, and an Observation Post. "It is the spatial arrangement and the physical interrelationship of these features as they existed during the period of significance that is important. Although coastal geologic processes have shaped the overall topography of Camp Rilea, the siting and layout of the camp reflects historic and modern development and modification of the landscape to serve the needs of a military training facility." Several of these elements may be impacted by natural resource management activities; however, it is unlikely that such activities would include significant modifications of the physical interrelationship of these features. For example, logging the "wooded sand dunes" would clearly impact their relationship to rest of the landscape; however, selective thinning would not. Likewise, draining Slusher or Sunset Lakes would have an adverse effect on "water features;" however, improving riparian habitat would not.

4.8 AIR QUALITY

Adverse impacts to air quality are those that result in degradation of air quality, such as increased vehicle emissions or generation of airborne pollutants. The significance of impacts to air quality is assessed based on the degree to which they degrade air quality. Beneficial impacts include reducing windblown emissions such as dust.

Implementation of either alternative could have minor, temporary adverse impacts to air quality, primarily in the form of dust and vehicle exhaust from roads.

Prescribed burns are considered for use under either alternative. Any burns would be conducted according to a burn plan and coordinated with Clatsop County, the Oregon Department of Environmental Quality, the Oregon Department of Forestry, and other appropriate agencies. Air quality effects from a prescribed burn are expected to be temporary and would be mitigated as much as possible by planning the burn and conducting it in accordance with a burning plan in order to minimize the effects of smoke on nearby residents.

Dust from the construction of roads and vehicle emissions are expected to be localized, temporary, or intermittent. The creation of dust would be avoided or mitigated by using a dust control agent, such as water.

4.9 NOISE

Noise impacts include increases in sound levels, exceeding acceptable land use compatibility guidance, or changes in public acceptance (e.g., complaints about noise).

The significance of noise level impacts is assessed based on the degree to which they increase existing noise levels or if impacts result in a substantial increase in noise levels as compared to federal, state, or local regulations.

Neither implementation of the proposed 2007 INRMP nor continued implementation of the existing INRMP are expected to change the existing noise conditions at Camp Rilea.

4.10 PUBLIC HEALTH AND SAFETY

Adverse impacts to public health and safety are those that result in decrease or loss of protection of military personnel and other camp users. The significance of impacts to public health and safety is assessed based on the degree to which impacts threaten public health and safety. Beneficial impacts to public health and safety include dust abatement.

No adverse effects to public health or safety are expected from the implementation of natural resource management projects under either alternative. Pesticides would continue to be applied to control and eliminate exotic and noxious plant species in accordance with EPA-approved label directions. Prescribed burns would be conducted only by the Oregon Department of Forestry, under suitable weather conditions, to minimize the potential risk to nearby landowners and residents.

4.11 SOCIOECONOMIC RESOURCES

Impacts to socioeconomic resources include changes in employment, local income, population, housing, or schools. The significance of impacts is assessed based on the degree to which impacts change the existing conditions of employment, local income, population, housing, or schools.

EO 13045, entitled “Protection of Children from Environmental Health Risks and Safety Risks” (EO 13045, 62 FR 19885), states that each federal agency shall make it a high priority to identify and assess environmental health risks and safety risks that could disproportionately affect children and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. Environmental health risks and safety risks mean risks to health or to safety that are attributable to products or substances that the child is likely to come into contact with or to ingest.

The implementation of either alternative is not expected to significantly affect socioeconomic conditions. Any effects are expected to be beneficial. Under either alternative some natural resource management project work, such as pesticide applications, access road construction, or resource surveys, may be contracted. The use of contractors to conduct

natural resources management related projects may have a slight beneficial effect on local employment and income.

4.12 ENVIRONMENTAL JUSTICE

Adverse impacts to environmental justice include disproportionate impacts to low income or minority populations.

On February 11, 1994, President Clinton issued EO 12898, entitled "Federal Actions to Address Environmental Justice in Minority and Low-income Populations." This order requires that "each federal agency make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities, on minority populations and low- income populations" (EO 12898, 59 FR 7629 [Section 1-101]).

No disproportionate potential adverse effects to any low income or minority populations are expected from implementation of either alternative.

5.0 CUMULATIVE EFFECTS

The Council on Environmental Quality (CEQ) regulations implementing the procedural provisions of NEPA define cumulative effects as:

> The impact on the environment (that) results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions (40 CFR § 1508.7 [1997]).

Cumulative effect analysis can be conducted in a variety of ways. In this document, it has been conducted by identifying public and private projects that are expected to be implemented during the same period as would the proposed action.

The Clatsop County Comprehensive Plan is the official policy guide for decisions about growth, development and conservation of natural resources in Clatsop County. It is based on the physical, economic and social characteristics of the county; the desires and needs of county citizens; state laws; and programs and polices of other local, state, and federal governmental agencies. Based on a cursory review of the Clatsop County Comprehensive Plan, it is possible that additional homes may be built on parcels near Camp Rilea that could affect the military training site. No current actions or past projects have been identified that would be interdependent with the proposed action and result in adverse impacts.

Implementing the 2007 INRMP with other proposed management actions at Camp Rilea is not expected to result in any significant adverse impacts to local natural or cultural resources, and there would not be incompatibility between military training activities and the proposed projects. Implementing the 2007 INRMP would not affect the amount of training at Camp Rilea, so issues such as transportation would not be affected by the updated INRMP. The potential for beneficial impacts is substantially increased by implementing the updated INRMP. No details for substantially increasing the level of the military mission or training schedule at Camp Rilea have been proposed at this time; therefore, the contribution of such an action to cumulative conditions cannot be assessed.

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6.0 OTHER CONSIDERATIONS

6.1 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA requires an analysis of significant irreversible effects. Resources that are irreversibly or irretrievably committed to a project are those that are long term or permanent. This includes the use of nonrenewable resources, such as metal, wood, fuel, paper, and other natural or cultural resources. These resources are irretrievable in that they would be used for this project when they could have been used for other purposes. Another impact that falls under the category of the irreversible and irretrievable commitment of resources is the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment.

No irreversible or irretrievable impacts would be expected from implementing either of the alternatives. Under both alternatives, cultural resources and protected habitats (for example, wetlands and areas inhabited by threatened and endangered species) would not be adversely affected. Likewise, both alternatives would have a negligible to beneficial effect on net consumption of resources.

6.2 UNAVOIDABLE ADVERSE EFFECTS

NEPA requires a discussion of any adverse environmental effects that cannot be avoided. No mitigation measures are required to reduce potentially significant impacts. No significant adverse impacts have been identified from implementing either of the alternatives.

6.3 RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY

NEPA requires a discussion of the relationship between short-term uses of the environment and the maintenance and enhancement of long-term productivity.

Both of the alternatives would have some short-term negative effects: air quality impacts due to prescribed burning and potential soil erosion.

Most negative effects to implementing Alternative 1 are minor and short term, with long-term benefits: soil/ground disturbance due to manual removal of exotic and invasive species; the manual removal of shade trees,

mowing, and herbicide applications to control exotic and invasive species; creation of additional open areas by manual removal of trees, prescribed burning, and improving selected existing roads and constructing new roads for fire fighting access, training, and resource management purposes.

7.0 CONCLUSIONS

No significant adverse environmental impacts are expected to result from implementing Alternative 1, the revised INRMP for 2007-2011, or Alternative 2, the No Action Alternative. Both alternatives are expected to benefit the natural resources of Camp Rilea, with no significant adverse effects. Alternative 1 is expected to produce the greatest benefits, because it better identifies goals, objectives, and projects that are supported by OMD and capable of being implemented. Neither alternative would result in a net loss in the capability of lands to support the military mission of ORARNG. In addition, Alternative 1 would result in:

- Conservation and enhancement of natural resources managed by the ORARNG, where management actions support accomplishment of the military mission;
- Professional natural resources management, including protection, enhancement, and conservation of the natural resources;
- Implementation of land management practices that conserve soil and water resources, reduce reliance on chemical pesticides to control noxious weeds, abate nonpoint pollution, minimize vegetative loss, and prevent soil erosion;
- Identification of special status, threatened, or endangered species, emphasizing military mission requirements and interagency cooperation during consultation, species recovery planning, and management activities, in coordination with the USFWS and ODFW; and
- Implementation of the updated INRMP would enhance sustainability and support military training activities, and would not adversely impact the military mission.

OMD chooses to implement Alternative 1. Since no significant adverse environmental impacts are expected as a result of the proposed action a Finding of No Significant Impact will be prepared.

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8.0 LIST OF PREPARERS

Individuals from the ORARNG, Camp Rilea, OMD Environmental Branch, the Oregon Army National Guard Operations Directorate, and contractor personnel who were involved in the preparation and review of the INRMP are listed below.

Oregon Army National Guard
Oregon Military Department Environmental Branch (AGI-ENV)

Gerald Elliott, Environmental Program Manager
Scott Stuemke, Cultural Resources Specialist
Robin Howard, Natural Resources Specialist
Jeff Mach, Natural Resources Specialist
Terri Noble, Natural Resources Specialist
William Vagt, Natural Resources Specialist

Oregon Military Department Installations Division (AGI)

MAJ Stanley Hutchinson, Deputy Director of Installations

Oregon Military Department Sustainment, Restoration, and Modernization Branch (AGI-O)

LTC Rendell Chilton, Branch Chief

Oregon Army National Guard Operations Directorate

LTC Mark Rathburn, Deputy Director of Operations
LTC David Stuckey, Deputy Director of Operations
1LT Heather James, Training Lands Officer
Bill McCaffrey, Environmental Protection Specialist

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B.S. Civil and Environmental Engineering Studies
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Gloria Hagge, Project Manager
M.S. Urban Planning
B.S. General Biology
Cynthia Alvarado, Environmental Planner
A.S. Environmental Science
Amy Stubbs
B.S. Rangeland Ecology & Management
Ellen Stutsman
Administrative Assistant/Quality Assurance

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9.0 REFERENCES

16 USC 670a Title 16, Chapter 5C, Subchapter I, Conservation Programs on Military Installations

32 CFR 651, *Environmental Analysis of Army Actions (AR 200-2)*

Oregon Military Department. 2001. Final Integrated Natural Resources Management Plan, Camp Rilea Training Site, Clatsop County Oregon. Oregon Military Department, Salem, Oregon.

Army National Guard, 2006, *NGB NEPA Handbook*

APPENDIX B
COORDINATION PROCESS AND MAILING LIST

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Oregon Water Resources Department
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Salem, OR 97301

Ms. Kathy Schutt
Planning Manager
Oregon Parks and Recreation Dept
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Salem, OR 97301

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Bend Field Office
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Bend, Oregon 97701

Mr. Kemper McMaster
U.S. Fish and Wildlife Service
Portland Office
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Portland, OR 97266

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Oregon Department of State Lands
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Mr. John Lilly
Assistant Director, Policy & Planning
Oregon Department of State Lands
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Oregon Department of Fish & Wildlife
Assistant Tillamook District Wildlife Biologist
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Columbia River Estuary Study Taskforce (CREST)
750 Commercial Street, Room 205
Astoria, OR 97103

Clatsop County Planning Department
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Astoria, OR 97103

NRCS
St Helens Service Center
2514 Sykes Rd
St Helens, OR 97051-2745

Mr. Tim Butler
Weed Specialist
Oregon Department of Agriculture
635 Capitol Street NE
Salem, OR 97301-2532

Emergency Services Coordinator
Clatsop County Sheriff's Office
355 Seventh Street
Astoria, OR 97103

Mr. James Hamrick
Oregon Parks and Recreation Dept
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97301

Mr. Steve Elefant
Oregon Department of Forestry
2600 State Street
Salem, OR 97310

Oregon State University
Department of Botany and Plant Pathology
Corvallis, OR 97331-4501

Chairwoman Cheryle Kennedy
Confederated Tribes of Grande Ronde
9615 Grand Ronde Road
Grand Ronde, OR 97347

Chairwoman Delores Pigsley
Confederated Tribes of Siletz
PO Box 549
Siletz, OR 97380

Mr. Mike Kennedy
Natural Resource Manager
Confederated Tribes of Siletz
PO Box 549
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Mr. Robert Kentta
Cultural Specialist
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Clatsop Soil and Water Conservation District
750 Commercial Street, Room 207
Astoria, OR 97103

Skipanon Watershed Council and Water Control District
750 Commercial Street, Room 205
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Mr. Cliff Adams
General Manager
Confederated Tribes of Grande Ronde
9615 Grand Ronde Road
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Ms. June Olson
Cultural Resource Manager
Confederated Tribes of Grande Ronde
9615 Grand Ronde Road
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Mr. Robert Lohn
Regional Administrator
National Marine Fisheries Service
7600 Sand Point Way NE
Seattle, WA 98115-0070

OREGON MILITARY DEPARTMENT
JOINT FORCE HEADQUARTERS, OREGON NATIONAL GUARD
OFFICE OF THE ADJUTANT GENERAL
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P.O. BOX 14350
SALEM, OREGON 97309-5047

January 5, 2005

Chairwoman Delores Pigsley
Confederated Tribes of Siletz
PO Box 549
Siletz, OR 97380

Dear Chairwoman Pigsley:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau (NGB) policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment (EA) to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your tribal organization.

Camp Rilea occupies 1,750 acres on the northern Oregon Coast in Clatsop County and is the most developed ORARNG training facility. It is located at 91204 Oregon Road, Warrenton, OR. A map of Camp Rilea is enclosed for your use. The existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

The NGB, OMD, and ORARNG believe that close coordination and consultation with affected Tribes during the updating of the INRMP and preparation of the EA will provide a meaningful and collaborative effort. We would like to begin the consultation process with your tribal leadership and staff to ensure concerns your tribe may have to this land regarding significant natural resources, cultural resources, and properties of traditional, customary, religious or cultural importance are addressed. Your input will be invaluable in our planning process and during the preparation of environmental documentation. Our goal is to achieve consultation pursuant to the Department of Defense "American Indian and Alaska Native Policy" and other federal legislation.

Should you have any questions, or would like to discuss or provide input in the planning process, please contact my Environmental Program Manager, Sergeant Major (Retired) Gerald E. Elliott, at (503) 584-3868 or Cultural Resources Manager, Mr. Scott E. Stuemke, at 503-584-3164. In addition, we have hired a consultant to manage the INRMP update effort. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Please forward any information to Ms. Hagge at:

EES, Inc.
2631 Bulverde Road, Suite 104
Bulverde, TX 78163
FAX: (830) 980-1831
Email: ghagge@envexpress.com

Sincerely,

RAYMOND C. BYRNE, JR.
Brigadier General
Acting Adjutant General

Enclosure

CF: (w/encl)
Mr. Mike Kennedy, Natural Resource Manager
Mr. Robert Kentta, Cultural Specialist

OREGON MILITARY DEPARTMENT
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SALEM, OREGON 97309-5047

January 5, 2005

Chairwoman Cheryle Kennedy
Confederated Tribes of Grande Ronde
9615 Grand Ronde Road
Grand Ronde, OR 97347

Dear Chairwoman Kennedy:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau (NGB) policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment (EA) to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your tribal organization.

Camp Rilea occupies 1,750 acres on the northern Oregon Coast in Clatsop County and is the most developed ORARNG training facility. It is located at 91204 Oregon Road, Warrenton, OR. A map of Camp Rilea is enclosed for your use. The existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

The NGB, OMD, and ORARNG believe that close coordination and consultation with affected Tribes during the updating of the INRMP and preparation of the EA will provide a meaningful and collaborative effort. We would like to begin the consultation process with your tribal leadership and staff to ensure concerns your tribe may have to this land regarding significant natural resources, cultural resources, and properties of traditional, customary, religious or cultural importance are addressed. Your input will be invaluable in our planning process and during the preparation of environmental documentation. Our goal is to achieve consultation pursuant to the Department of Defense "American Indian and Alaska Native Policy" and other federal legislation.

Should you have any questions, or would like to discuss or provide input in the planning process, please contact my Environmental Program Manager, Sergeant Major (Retired) Gerald E. Elliott, at (503) 584-3868 or Cultural Resources Manager, Mr. Scott E. Stuemke, at 503-584-3164. In addition, we have hired a consultant to manage the INRMP update effort. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

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2631 Bulverde Road, Suite 104
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Sincerely,

RAYMOND C. BYRNE, JR.
Brigadier General
Acting Adjutant General

Enclosure

CF: (w/encl)
Mr. Cliff Adams, General Manager
Ms. June Olson, Cultural Resource Manager

OREGON MILITARY DEPARTMENT
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January 5, 2005

Mr. James Hamrick
Deputy State Historic Preservation Officer
Oregon Parks and Recreation Department
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97301

Dear Mr. Hamrick:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea, which is located on the south side of Warrenton in Clatsop County, OR. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation with, and input by, your agency, as well as public review.

The OMD requests your assistance by providing us with any information on programs managed by your agency that may affect natural resources management at Camp Rilea and its surrounding area, that may have changed or be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the OMD website: http://www.mil.state.or.us/AGI-E/.

Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge, who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

Gerald E. Elliott

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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SALEM, OREGON 97309-5047

January 4, 2005

Oregon Department of Fish & Wildlife
ATTN: Lindsay Ball, Director
3406 Cherry Ave NE
Salem, OR 97303

Dear Sir:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG), is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea, which is located just south of Warrenton, in Clatsop County, OR. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau (NGB) policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

NGB policy requires that we coordinate the revision of the INRMP with your agency, with the goal of receiving a letter of concurrence from your state office for the final plan contents. We received such a letter for the current plan from the Tillamook office, and hopefully can coordinate with one or both offices during the current effort to gain your written concurrence. In order to accomplish this, I would suggest one or more meetings be held with designated ODFW staff, as needed, to discuss particular details of the proposed plan revisions.

We have asked for input from other agencies by February 15, 2005. Shortly thereafter, we will begin preparation of the draft documents. It would be beneficial to have your thoughts and comments at that time, as well. I would suggest at least one coordination meeting at the beginning of the process in order to identify any significant issues you feel need to be addressed, and routine coordination and consultation at least through the draft development and review stage. More meetings can be scheduled, as needed, or as you deem necessary to support, in writing, our final plan.

A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the OMD website: http://www.mil.state.or.us/AGI-E/.

I would be happy to discuss these issues with you or your designated staff at any time, and look forward to development of this plan with the cooperation of your agency. I will be out of the office much of February, and would appreciate if we could initiate some discussion before the end of January. You can reach me at (503) 584-3868, email Gerald.Elliott@or.ngb.army.mil.

In addition, and for your information, we have hired a consultant to manage the revision effort. The consultant Project Manager is Ms. Gloria Hagge. She can be reached at (830) 980-1830. Other contact information is: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163, FAX (830) 980-1831 or email ghagge@envexpress.com. However, she is not on site and will not be able to have detailed discussions with you regarding the specifics of the INRMP for Camp Rilea.

Sincerely,

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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JOINT FORCE HEADQUARTERS, OREGON NATIONAL GUARD
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SALEM, OREGON 97309-5047

January 4, 2005

Oregon Department of Fish & Wildlife
ATTN: Dave Nuzum
4907 3rd Street
Tillamook, OR 97141

Dear Sir:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG), is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau (NGB) policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

NGB policy requires that we coordinate the preparation and/or revision of the INRMP with your agency, with the goal of receiving a letter of concurrence from the state office of your agency for the final plan contents. We received such a letter for the current plan from you, and appreciate all the hard work and input you provided at that time. In order to meet the current requirement, some coordination with the state office will be required, and I have sent a letter to the Lindsay Ball, requesting support. For this revision, I have suggested one or more meetings be held with designated ODFW staff, as needed, to discuss particular details of the proposed plan revisions. Hopefully, that will involve working with you at the local level.

We have asked for input from other agencies by February 15, 2005. Shortly thereafter, we will begin preparation of the draft documents. It would be beneficial to have ODFW thoughts and comments at that time, as well. Again, I have suggest at least one coordination meeting at the beginning of the process in order to identify any significant issues you feel need to be addressed, and routine coordination and consultation at least through the draft development and review stage. More meetings can be scheduled, as needed, or as deemed necessary to support, in writing, our final plan. I recognize one of the issues we must address is snowy plover habitat, and I have had some discussions and a site visit with Charlie Bruce on this matter.

A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the OMD website: http://www.mil.state.or.us/AGI-E/.

I would be happy to discuss these issues with you or other designated staff at any time, and look forward to development of this plan with the cooperation of your agency. I will be out of the office much of February, and would appreciate if we could initiate some discussion before the end of January. You can reach me at (503) 584-3868, email Gerald.Elliott@or.ngb.army.mil.

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Sincerely,

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

OREGON MILITARY DEPARTMENT
JOINT FORCE HEADQUARTERS, OREGON NATIONAL GUARD
INSTALLATIONS DIVISION
1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Mr. Kemper McMaster
U.S. Fish and Wildlife Service
Portland Office
2600 SE 98th Ave.
Portland, OR 97266

Dear Mr. McMaster:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG), is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau (NGB) policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

NGB policy requires that we coordinate the preparation and/or revision of the INRMP with your agency, with the goal of receiving a letter of concurrence from your state office for the final plan contents. We received such a letter for the current plan. In order to accomplish this for the revisions, I would suggest one or more meetings be held with designated USFWS staff, as needed, to discuss particular details of the proposed plan revisions.

We have asked for input from other agencies by February 15, 2005. Shortly thereafter, we will begin preparation of the draft documents. It would be beneficial to have your thoughts and comments at that time, as well. I would suggest at least one coordination meeting at the beginning of the process in order to identify any significant issues you feel need to be addressed, and routine coordination and consultation at least through the draft development and review stage. More meetings can be scheduled, as needed, or as you deem necessary to support, in writing, our final plan.

A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the OMD website: http://www.mil.state.or.us/AGI-E/.

I would be happy to discuss these issues with you or your designated staff at any time, and look forward to development of this plan with the cooperation of your agency. I will be out of the office much of February, and would appreciate if we could initiate some discussion before the end of January. You can reach me at (503) 584-3868, email Gerald.Elliott@or.ngb.army.mil.

In addition, and for your information, we have hired a consultant to manage the revision effort. The consultant Project Manager is Ms. Gloria Hagge. She can be reached at (830) 980-1830. Other contact information is: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163, FAX (830) 980-1831 or email ghagge@envexpress.com. However, she is not on site and will not be able to have detailed discussions with you regarding the specifics of the INRMP for Camp Rilea.

Sincerely,

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

OREGON MILITARY DEPARTMENT
JOINT FORCE HEADQUARTERS, OREGON NATIONAL GUARD
INSTALLATIONS DIVISION
1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Skipanon Watershed Council and Water Control District
750 Commercial Street, Room 205
Astoria, OR 97103

Dear Sir or Madam:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

The OMD requests your assistance by providing us with any information involving programs managed by your agency that may impact Camp Rilea and its surrounding area, and have changed or are be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

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JOINT FORCE HEADQUARTERS, OREGON NATIONAL GUARD
INSTALLATIONS DIVISION
1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Mr. Bill Fujii
Natural Resources Specialist
Oregon Water Resources Departmcnt
725 Summer Street NE
Salem, OR 97301

Dear Mr. Fujii:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

The OMD requests your assistance by providing us with any information on planning or managing program issues managed by your agency for Camp Rilea and its surrounding area that may have changed or be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

Gerald E. Elliott

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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JOINT FORCE HEADQUARTERS, OREGON NATIONAL GUARD
INSTALLATIONS DIVISION
1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Mr. Steve Elefant
Oregon Department of Forestry
2600 State Street
Salem, OR 97310

Dear Mr. Elefant:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

The OMD requests your assistance by providing us with any information involving programs managed by your agency that may impact Camp Rilea and its surrounding area, and have changed or are be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

Gerald E. Elliott

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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1776 MILITIA WAY
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SALEM, OREGON 97309-5047

January 4, 2005

Mr. John Lilly
Assistant Director, Policy & Planning
Oregon Department of State Lands
775 Summer St. NE Suite 100
Salem, OR 97301-1279

Dear Mr. Lilly:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

The OMD requests your assistance by providing us with any information on wetlands or other related programs managed by your agency for Camp Rilea and its immediate surroundings that may have changed or be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Ms. Kathy Schutt
Planning Manager
Oregon Parks and Recreation Department
Heritage Conservation Division
State Historic Preservation Office
725 Summer Street NE, Suite C
Salem, OR 97301

Dear Ms. Schutt:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG), is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

The OMD requests your assistance by providing us with any information involving programs managed by your agency that may impact Camp Rilea and its surrounding area, and have changed or are be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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JOINT FORCE HEADQUARTERS, OREGON NATIONAL GUARD
INSTALLATIONS DIVISION
1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Mr. Tim Butler
Weed Specialist
Oregon Department of Agriculture
635 Capitol Street NE
Salem, OR 97301-2532

Dear Mr. Butler:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

The OMD requests your assistance by providing us with any information regarding programs managed by your agency that may Camp Rilea and its surrounding area, and may have changed or be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

Gerald E. Elliott

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Natural Resources Conservation Service
St Helens Service Center
2514 Sykes Rd
St Helens, OR 97051-2745

Dear Sir or Madam:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

The OMD requests your assistance by providing information within programs managed by your agency that may impact Camp Rilea and its surrounding area, and have changed or are be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

Gerald E. Elliott

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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SALEM, OREGON 97309-5047

January 4, 2005

Emergency Services Coordinator
Clatsop County Sheriff's Office
355 Seventh Street
Astoria, OR 97103

Dear Sir or Madam:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

The OMD requests your assistance by providing us with any information on emergency services issues for Camp Rilea and its immediate surroundings that may have changed or be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

Gerald E. Elliott

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Columbia River Estuary Study Taskforce (CREST)
750 Commercial Street, Room 205
Astoria, OR 97103

Dear Sir or Madam:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

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Sincerely,

Gerald E. Elliott

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

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1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Clatsop Soil and Water Conservation District
750 Commercial Street, Room 207
Astoria, OR 97103

Dear Sir or Madam:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

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Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

OREGON MILITARY DEPARTMENT
JOINT FORCE HEADQUARTERS, OREGON NATIONAL GUARD
INSTALLATIONS DIVISION
1776 MILITIA WAY
P.O. BOX 14350
SALEM, OREGON 97309-5047

January 4, 2005

Clatsop County Planning Department
800 Exchange Street, Suite 100
Astoria, OR 97103

Dear Sir or Madam:

The Oregon Military Department (OMD), administrative head of the Oregon Army National Guard (ORARNG) is beginning the process of updating its existing 2001–2006 Integrated Natural Resources Management Plan (INRMP) for Camp Rilea. Revisions are required within five years of plan adoption by the Sikes Act Improvement Act and current National Guard Bureau policy. In addition, a revision of the plan will be accompanied by an Environmental Assessment to identify and evaluate potential environmental impacts that may result from implementing proposed INRMP revisions. Both of these actions provide an opportunity for cooperation and input by your agency, as well as public review.

The OMD requests your assistance by providing us with any information on planning, zoning and related studies for Camp Rilea, Oregon, and its immediate surroundings that may have changed or be considered for change in the near future. A map showing the Camp Rilea Training Site is provided for your use, and the existing 2001–2006 INRMP can be viewed in the Oregon Military Department website: http://www.mil.state.or.us/AGI-E/.

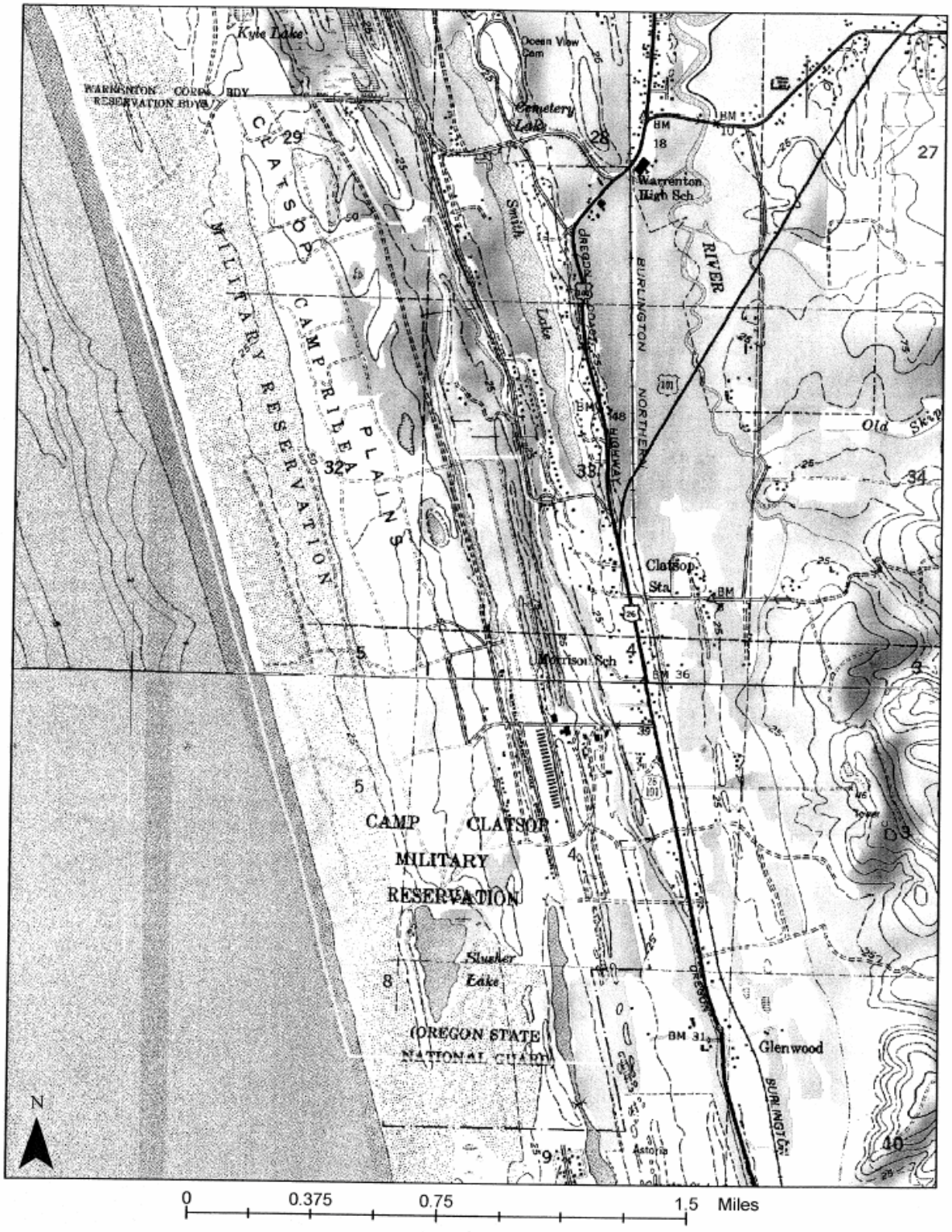
Should you have any questions, or would like to discuss or provide input in the planning process prior to sending formal comments to the consultant by February 15, 2005, please contact me at (503) 584-3868. The consultant Project Manager is Ms. Gloria Hagge who can be reached at (830) 980-1830. Please forward all information to: EES, Inc., 2631 Bulverde Road, Suite 104, Bulverde, TX 78163. You may also fax information to (830) 980-1831 or email ghagge@envexpress.com.

Sincerely,

GERALD E. ELLIOTT
Sergeant Major (Retired)
Environmental Program Manager

Enclosure

Camp Rilea, Oregon



This map meets National Map Accuracy Standards. NAD83

FROM: Barbara Robinson
TO: Gloria Hagge

Fri 1/14/2005 4:33 PM

This email is in response to a letter that was received in the Clatsop County, Oregon, Community Development Department requesting information on planning, zoning and related studies for Camp Rilea, Oregon and its immediate surroundings that may have changed or be considered for change in the near future. The letter was sent by Gerald E. Elliott, Oregon Military Department. The following is a summary, to the best of our recollection, regarding planning related issues and studies in the area:

1. Fort to Sea Trail - Consists of trails, bridges over small waterways and an undercrossing at US Hwy. 101, immediately adjacent to Camp Rilea.

2. Ocean Bellevue Subdivision - This is a 16-lot, single family residential subdivision proposed for the property immediately abutting the Camp Rilea property to the south.

3. Western Snowy Plover - Habitat Conservation Plan

4. Oregon Silverspot Butterfly - Inventory and report

5. Aquifer Reserve Overlay Zone - Includes the Camp Rilea property.

6. Clatsop Plans Community Plan - Camp Rilea is located within this designated community.

7. Density Transfer Program - Potential for transfer of density rights on property to the south of Camp Rilea. This property is currently owned by Oregon State Parks.

In addition, the northern border of Camp Rilea abuts the Warrenton City limits. You will need to contact Patrick Weingard at the City of Warrenton for information relating to the area north of the military reserve. He can be reached by email at planning director@ci.warrenton.or.us. He can also be reached by phone at 503-861-0920.

If we can provide you further information, please contact me directly.

Barbara Robinson
Community Development Supervisor
Clatsop County
503-338-3664
brobinson@co.clatsop.or.us

APPENDIX C
FEDERAL, STATE, COUNTY REQUIREMENTS AND OTHER GUIDELINES

FEDERAL REQUIREMENTS AND OTHER GUIDELINES

Army facilities, including Army National Guard installations, are subject to numerous regulations affecting use and management of natural resources, including federal laws, EOs, and Army regulations. Table 2-1 lists applicable laws, regulations, and policies, and this section discusses the most important of these. Military regulations, directives, and guidelines are enforced by the ORARNG and NGB. All other federal regulations, except for those related to wildlife resources, are enforced by the agencies that have adopted them. The USFWS and ODFW are responsible for enforcing laws and regulations pertaining to wildlife resources, especially the management of threatened and endangered species.

MILITARY INSTRUCTIONS ON INRMPS

This section provides an overview of NGB, DOD, and Army policies and instructions, as well as the Sikes Act, which establishes requirements and guidance for the preparation of INRMPs and is part of the need for this document. NGB's All-States Memorandum P00-0039 of June 15, 2000 is the main guidance for preparation and implementation of INRMPs and is discussed below.

National Guard Bureau Regulations

It is NGB policy to prepare an INRMP and EA for all federally supported military training sites used by the Army National Guard. NGB's All-States Memorandum P00-0039 of June 15, 2000 provides policy and guidance for preparation and implementation of INRMPs at Army National Guard training sites (NGB 2000a). The directives presented in this memorandum incorporate a variety of other guidance documents and regulations, including but not limited to the Sikes Act, the Sikes Act Improvement Act of 1997, DOD instructions, multiple Army regulations, and various other guidance memorandums, procedure manuals, and policies. The most important of these are discussed in the following sections.

Department of Defense Instruction 4715.3

DOD Instruction 4715.3 implements policy, assigns responsibilities, and prescribes procedures for the integrated management of natural and cultural resources on property under military control. The instruction states that "all DOD conservation programs shall work to guarantee continued access to [DOD] land, air, and water resources for realistic military training and testing while ensuring that the natural and cultural resources entrusted to DOD care are sustained in a healthy condition for scientific research, education, and other compatible uses by future generations" (DOD 1996).

DOD Instruction 4715.3 also designates DOD executive agents to lead the military services in implementing key conservation issues, including preparing, maintaining, and monitoring of INRMPs on all military installations. Instruction 4715.3 notes that conservation management is a dynamic process, yet prescribes that a consistent conservation management approach include those systematic procedures that should be used by each DOD installation, as follows:

- Assess military mission;
- Prepare detailed inventory of resources;
- Analyze and assess risk to the resources;
- Prepare and implement management plans;
- Monitor and assess results;
- Conduct needs assessment survey;
- Reassess inventories;

- Reanalyze and reassess risk to resources; and
- Adjust program as necessary.

Army Regulations

The *US Army Environmental Strategy into the 21st Century* (US Army 1992) provides the framework to ensure that environmental considerations are integral to the Army mission and that an environmental stewardship ethic governs all Army activities. The Army's environmental strategy is illustrated as a building with a foundation and four pillars supporting the overall vision of environmental stewardship. The strategy's goals focus on the four pillars, which represent environmental compliance, restoration, pollution prevention, and natural resources conservation.

The general goal of the conservation pillar is to conserve, protect, and enhance environmental, natural, and cultural resources using all practical means consistent with Army missions, so that present and future generations can use and enjoy them. Natural resources management in the conservation pillar is focused on conservation.

Conservation involves the responsible stewardship of Army-managed lands to ensure long-term natural resources productivity so the Army can fulfill its military mission. Conservation balances the need for long-term resource use and resource protection. Conservation is also essential for ensuring the future integrity of valuable national resources, such as wetlands, soils, endangered species habitat, and historic and cultural sites. The Army Regulation (AR) 200-series describes in detail the natural resources and environmental protection programs to be employed on lands used by the Army. These regulations are as follows:

AR 200-1: *Environmental Protection and Enhancement* (US Army 1997), requires installations to conduct an integrated, multiple-use natural resources and land management program on lands under Army jurisdiction.

Environmental Effects of Army Actions, codified as 32 CFR 651, replaced AR 200-2: *Environmental Effect of Army Actions* (US Army 1988) in March 2002. As with AR 200-2, 32 CFR 651 sets forth policy, responsibilities, and procedures for integrating environmental considerations into Army planning and decision making. Specifically, 32 CFR 651 requires environmental analyses and other documentation required by the regulations to be integrated as much as practicable with other environmental reviews, laws, and EOs.

The Army's commitment to the conservation of natural resources is further reflected in AR 200-3, *Natural Resources Land, Forest, and Wildlife Management*. AR 200-3 "sets forth the policy, procedures, and responsibilities for the conservation, management, and restoration of land and the natural resources thereon consistent with the military mission and in consonance with national policies" (US Army 1995).

AR 200-4: *Cultural Resources Management* (US Army 1998), promotes the Army's policy for managing cultural resources to meet legal compliance requirements and to support the military mission.

AR 200-1 currently is being extensively revised and, when reissued, will incorporate AR 200-3, AR 200-4, and AR 200-5 *Pest Management*. AR 200-1 is scheduled to be reissued as a part of 32 CFR.

Oregon Army National Guard Regulations

The ORARNG also has separate regulations pertaining to natural resources management. Those regulations that could be pertinent to the management of military activities at Camp Rilea include the following:

- ORARNG Regulation 200-1: *Environmental Compliance*. This regulation defines the responsibilities of commands, directorates, and individuals of the ORARNG in meeting the requirements of AR 200-1, 200-2, 200-3, and 200-4, NGB regulations and policies, and applicable federal, state, and local environmental regulations. Directorates, commands, and personnel must execute defined responsibilities in order to ensure that ORARNG activities and operations comply with applicable requirements.
- ORARNG Regulation 210-5: *Integrated Pest Management Plan*. This regulation identifies pest management requirements and defines resources, administrative, safety, and environmental requirements to control pests at ORARNG facilities and installations.
- ORARNG Regulation 210-6: *Installation Spill Contingency Plan*. This regulation describes responsibilities of units, supervisors, and individuals of the ORARNG in planning for and responding to spills of regulated substances to the environment. In order to comply with the law and to meet DOD and DA directives on environmental stewardship, the provisions of Regulation 210-6 are followed to the maximum extent practicable on ORARNG installations.
- ORARNG Regulation 420-47: *Hazardous Waste Management Plan*. This regulation provides responsibilities and guidance for managing hazardous materials and for disposing of hazardous waste generated at ORARNG facilities and installations in accordance with federal and state regulations.
- ORARNG Regulation 350-25: *Integrated Training Area Management*. Integrated Training Area Management (ITAM) is a management approach that seeks to match military mission requirements with the long-term ecological integrity of military training sites. The Army and Army National Guard have embraced this approach and are implementing it on their installations and training areas. The goal of ITAM is to achieve and sustain the optimum use of training lands to support training and mission requirements indefinitely, while ensuring protection of natural resources. ITAM consists of four components that should be implemented as a whole in order to meet its overall goal. Section 4.3 of the INRMP provides a synopsis of the four components: LCTA, Training Requirements Integration (TRI), Land Rehabilitation and Maintenance (LRAM), and Environmental Awareness.

ENDANGERED SPECIES ACT (16 USC 1531 - 1534)

Under the ESA, all federal agencies, in consultation with the Secretary of the Interior, must take all necessary precautions to ensure that agency actions do not jeopardize federally threatened or endangered species or adversely modify or destroy critical habitat. Any agency whose action could affect (positively or negatively) the continued existence of a federally listed threatened or endangered species must consult with USFWS (see 50 CFR 17 and 50 CFR 402). Section 7(A)(1) of the ESA states that "All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to Section 4 of the ESA." Consultations under the ESA are divided into two categories: formal and informal. In general, no formal consultation is required if the action agency finds, with the USFWS's written concurrence, that the proposed action "may affect, but is not likely to adversely affect" listed species or critical habitat. This finding can be made only if all of the reasonably

expected effects of the proposed action will be beneficial, insignificant, or discountable. The action agency must request concurrence in writing from the USFWS for this finding. Preparation of a biological assessment is required before formal consultation begins and also is required for informal consultation in cases involving major construction activity where listed species or critical habitat are present. Anywhere from a few weeks to more than a year could be required to finalize a biological assessment before it can be submitted to the USFWS as part of the request to initiate formal consultations. Formal consultations involve up to 90 days and an additional 45 days for the USFWS to prepare a biological opinion (135 days total). A biological opinion is a written statement from the USFWS regarding its opinion and a summary of the information on which the opinion is based, detailing how the agency action affects the species and/or its critical habitat. The biological opinion may provide nondiscretionary "reasonable and prudent" measures that should be implemented in conjunction with a proposed action to avoid or minimize impacts. The USFWS also provides nonbinding conservation recommendations as part of the biological opinion.

CLEAN WATER ACT (33 USC 1251 - 1387)

The Clean Water Act (CWA) is the law under which most US Army Corps of Engineers (USACE) permits are issued for discharging fill into wetlands. Most of the act deals with water pollution, which is the purview of the EPA. Responsibility for disposing of dredged material was delegated to the USACE because of its historic role in that arena, but the EPA still maintains ultimate responsibility for overseeing the program. The COE regulations are published at 33 CFR 320 - 384; those of the EPA are published at 40 CFR 230 - 233 and are often referred to as Section 404(b)(1) guidelines. Section 404 of the Act defines dredge and fill responsibilities under the CWA. Exemptions for Section 404 permits are granted for normal agricultural, livestock grazing, and silvicultural activities, as well as for maintaining existing drains, culverts, farm ponds, and roads. The USACE manages the wetland permitting program, but the EPA has veto power over COE permit decisions, and the USFWS and National Marine Fisheries Service have consultative rights. The USACE and the EPA share enforcement authority. States can adopt administration of parts of the program from the USACE, with EPA oversight. The point of contact for Section 404 permit issues is the USACE. Section 319 of the CWA addresses nonpoint source pollution by requiring all states to report to EPA all major sources of nonpoint source pollution. States must develop management programs with identified best management practices suitable for reducing nonpoint source pollution. Section 319(h) grants are awarded to states with approved nonpoint source pollution programs. Such grant money supports a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects.

RELEVANT EXECUTIVE ORDERS

EO 11990—Protection of Wetlands. This order requires federal agencies to avoid adverse impacts associated with the destruction or modification of wetlands wherever there is a practicable alternative. Projects in wetlands should include all feasible measures to minimize harm to wetlands.

EO 11644—Use of Off-road Vehicles on Public Lands. This order requires federal agencies to establish policies and provide for procedures to ensure that the use of off road vehicles on public lands will be controlled and directed so as to protect the resources of those lands, to promote the safety of all users of those lands, and to minimize conflicts among the various uses of those lands. The order clarifies agency authority to define zones of use by off-road vehicles on public lands by exempting fire, military, emergency, law enforcement, or combat/combat support vehicles.

EO 13112—Invasive Species. This order requires that to the extent permitted by law, federal agencies will restrict the introduction of exotic species into the natural ecosystems on lands and waters that they own, lease, or hold for purposes of administration, and they will encourage the states, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the United States. It also requires executive agencies, to the extent permitted by law, to restrict the use of federal funds, programs, or authorities to export native species for the purpose of introducing such species into ecosystems outside the United States where they do not naturally occur.

EO 13175—Consultation and Coordination with Indian Tribal Governments. This order requires federal agencies to have an accountable process to ensure meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.

OTHER FEDERAL ACTS

In addition to the laws discussed above, there are a number of other laws that must be considered in natural resource management. Table 2-1 lists the major federal natural resource laws and regulations, along with a qualitative assessment on the likely influence they have on management activities at Camp Rilea. The Legal Information Institute, at http://www.law.cornell.edu/topics/environmental.html. conveniently provides the complete text of codified laws.

Clatsop County Comprehensive Plan
Sections Pertaining to Military and Related Use

Source: http://www.co.clatsop.or.us/default.asp?pageid=313&deptid=12

SECTION 3.845. MILITARY RESERVE ZONE (MR).

Section 3.847. Purpose.

The MR zone is intended to accommodate the immediate foreseeable demand for military activities in areas where a commitment to such activities has already occurred through existing uses by the military. In areas where residential development has already occurred, the MR zone is intended to separate these uses from conflicting uses that may occur on the Military Reserve.

Section 3.849. Development and Use Permitted.

The following development and their accessory developments are permitted under a Type I procedure subject to applicable development standards:

(1) Military reserve and activities directly related such as:
- **(A)** Training of military personnel.
- **(B)** Movement of military personnel.

(2) Dwelling units for military personnel stationed on the military reserve.
(3) One caretaker's residence for every one hundred acres of land in the military reserve.
(4) Storage facilities for military equipment and supplies.
(5) Minor utilities.
(6) Property line adjustment.
(7) Low intensity recreation.

Section 3.851. Conditional Development and Use.

The following developments and their accessory developments may be permitted only under a Type II procedure and Sections 5.000 to 5.030 and subject to applicable standards:

(1) Public/semi-public development.
(2) Utilities necessary for public service.
(3) Extraction, processing, and stockpiling of rock, sand, mineral and other surface materials.
(4) Airports, heliports.
(5) Public or private recreation facilities such as riding stables, golf courses, boating docks or ramps etc. subject to the provisions of Section S4.200-S4.234.

Section 3.853. Additional Conditional Development and Use.

The following developments and their accessory developments may be permitted only under a Type III procedure and shall be subject to conditions set by the Community Development Director or Planning Commission:

(1) Storage of hazardous wastes.
(2) Nuclear power generation facilities.

Section 3.855. Development and Conditional Development and Use Standards.

(1) Development shall be permitted as required to meet State sanitation requirements and local setback and Ordinance requirements. The following shall be the criteria for determining requirements of each development proposed:
- **(A)** The nature of the proposed use in relation to the impacts on nearby properties, and
- **(B)** Consideration of State sanitation requirements, local setbacks and other standards of this Ordinance.
- **(C)** All residential development shall be subject to the standards of Section 3.180 (RA-1) of this Ordinance.

(2) Maximum building height: 35 feet.
- **(A)** With the exception of antennas, control towers, and field training facilities for military personnel.

(3) All new development shall indicate on the building permit how storm water is to be drained from the property. The Building Official shall require the installation of culverts, dry wells or retention facilities in cases where development has major storm drainage impacts.

(4) The setback requirements for all structures shall be seventy-five (75) feet from the line of non-aquatic vegetation.

(5) Chapters 1, 2, 5 and 6 and Section 3.180 of Chapter 3 of this Ordinance along with Chapters 2 Section S2.010-S2.300 and Chapter 3 Section S3.010-S3.152, S3.158-S3.214, S3.550-S3.708 of the Standards Document of this Ordinance.

(6) An accessory structure separated from the main building shall be located in accordance with yard setback requirements.

Section 3.857. Additional Development and Use Standards.

A buffer zone a minimum of 200 feet around the perimeter of any new Military Reserve zone and within the property boundaries of any military use area shall be established. This buffer shall be designated OPR and subject to the restrictions set forth in Chapter 4 in the Standards Document of this Ordinance and subject to Section 3.580 of this Ordinance.

Section 3.859. State and Federal Permit.

If any state or federal permit is required for a development or use, an applicant, prior to issuance of a development permit or action, shall submit to the Planning Department a copy of the state or federal permit.

SECTION 3.900. PARK MASTER PLAN ZONE (PMP).

Section 3.910. Purpose.

The purpose of this zone is to provide for the long term protection, management and enjoyment of natural, cultural, scenic, open space and recreational resources within publicly-owned or managed parks. Through the implementation of adopted park master plans, this zone provides for the development of park facilities and the support of recreational uses in a manner that is consistent with defined park management objectives, the County's Comprehensive Plan, and the Statewide Planning Goals.

Section 3.911. Applicability.

This zone will be applied only to public parks which has master plans adopted by Clatsop County pursuant to OAR 660 Division 34. For state parks, the master plans shall also have adopted by the Oregon Parks and Recreation Department (OPRD) pursuant to OAR 736 Division 18. The adoption of this zone for a park shall supersede all previously adopted zones and overlay districts for the subject park property for as long as the property remains in public ownership or management and is used for public park purposes. In the event that such park property is transferred to private ownership or ceases to be managed or used for park purposes, a Comprehensive Plan and Zoning Map amendment shall be applied for and approved, consistent with the Statewide Planning Goals, prior to the approval of any development permits for the subject property.

Section 3.912. Park Development and Uses Allowed.

Park uses and facilities that are consistent with a park master plan adopted pursuant to OAR 660 Division 34, and with applicable development standards, are allowed through the review procedures specified below:

(1) Uses and facilities described in the park master plan are allowed through the review procedures specified in the master plan for the described projects.

(2) Minor variations from the uses and facilities described in the park master plan are allowed through the review procedures specified in the master plan for the described projects, unless the master plan language specifically precludes such variations. The standards in Section 3.195 of this ordinance shall be used to determine whether a proposed variation from a planned use or facility is minor.

(3) Accessory uses and facilities which are incidental and customarily appurtenant to the uses and facilities described in this park master plan are allowed through Type I procedures.

(4) The repair and renovation of existing park facilities are allowed through Type I procedures.

(5) The replacement, in the same location and size, of existing park facilities is allowed through Type I procedures.

(6) The replacement, with minor location changes, of park facilities that existed on the effective date of this ordinance (October 26, 2001) is allowed through Type 2 procedures. The standards in Section 3.916 of this ordinance shall be used to determine whether a proposed location change for an existing park facility is minor.

(7) The minor expansion of park uses and facilities that existed on the effective date of this ordinance (October 26, 2001) is allowed through Type 2 procedures. The standards in Section 3.916 of this ordinance shall be used to determine whether a proposed expansion of an existing use or facility is minor.

(8) Road construction, construction, and maintenance only as provided in paragraph (a) through (c) of this section.

(A) A road may be constructed or reconstructed if it is determined through a Type III process that one of the following circumstances exists:

1) A road is needed to conduct a response action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) or to conduct a natural resource restoration action under CERCLA, Section 311 of the Clean Water Act, or the Oil Pollution Act;

2) A road is needed pursuant to reserved or outstanding rights, of as provided for by state statute or treaty;

3) Road realignment is needed to prevent irreparable resource damage that arises from the design, location, use or deterioration of an existing road that cannot be mitigated by road maintenance. Realignment may occur under this paragraph only if the road is deemed essential for public or private access, natural resource management or public health or safety;

4) Road reconstruction is needed to implement a road safety improvement project on an existing road determined to be hazardous on the basis of accident experience or accident potential on that road.

(B) A road may be constructed or reconstructed if the Oregon Parks and Recreation Department, in consultation with Clatsop County, determines that a road is needed to protect public health and safety in cases of an imminent threat of flood, fire, or other catastrophic event, that, without intervention, would cause the loss of like or property.

(C) Maintenance of existing roads is permissible.

(9) Proposed park uses and facilities that are not provided for in subsections 1 through 8 of this section shall require an amendment to the park master plan adopted through the Plan Amendment process described under OAR 660 Division 34.

Section 3.913. Park Master Plan.

Each park master plan implemented through this ordinance shall include:

(1) Findings that describe the park issues regarding the constraints, needs, and opportunities related to the use and development of the park and the protection, management, and interpretation of park resources.

(2) Maps that adequately illustrate the locations of park resources that are important to the use and development of the park and to the protection, management, and interpretation of resources, including maps that depict significant habitat, protected species, significant plant communities, water features, natural hazards, cultural resource sites, and scenic resources.

(3) Goals for park use and development for the protection, management, and interpretation of park resources.

(4) Narrative descriptions, site plans, and illustrations as necessary to adequately describe the types, locations, sizes, capacities, and site designs of the existing and planned park uses and facilities.

(5) Guidelines for the management of the park's natural, cultural and scenic resources.

(6) Standards for the development of planned park facilities in identified sensitive resource areas, including riparian areas, wetlands, estuarine areas, coastal lakes, significant upland habitat, coastal dune hazard areas, and flood hazard areas.

(7) Findings that demonstrate that the park master plan is in compliance with the Statewide Planning Goals.

(8) Any additional information that the Community Development Director deems necessary to adequately assess the compliance of the park master plan with the Statewide Planning Goals.

Section 3.914. State and Federal Permits.

If any state or federal permits are required for a park use or facility, the applicant shall submit copies of such permits to the Community Development Director prior to issuance of any development permits for the use or facility.

Section 3.915. Standards for Reviewing Proposed Variations from Park Master Plans.

The following standards shall be used to determine whether a proposed variation from a planned park use or facility is minor. A proposed variation may be determined to be minor if it is not expected to cause significant impacts on adjacent land uses, other uses in the park, local public services, transportation systems, or important natural, cultural, or scenic resources. Further:

(1) A proposed location change for a planned park facility may be determined to be minor if it does not cause the facility to serve a different park use area.

(2) The following limitations shall apply to determinations involving minor expansions of planned park facilities:

(A) A maximum of 20 percent increase in the floor area of any planned permanent building, provided that this limitation shall not apply to the following: toilet and shower buildings, garbage and recycling collection buildings; campground registration and storage buildings; and any other accessory building that does not exceed 120 square feet after expansion;

(B) A maximum of 20 percent increase in the number of planned bedrooms in any lodge, inn, bed and breakfast, barracks or bunkhouse, or group of cabins, or in any park use area;

(C) A maximum of 20 percent increase in the number of planned camp sites in any general o r group camping area;

(D) A maximum of 20 percent increase in the number of planned parking spaces in any parking lot or park use area;

(E) A maximum of 20 percent increase in the surface area of any planned road for purposes of improving safety, realignment or widening; or

(F) Extension of a road to provide access to a planned use that is expanded or relocated under the provisions of this section may be considered minor only to the extent needed to serve the expanded or relocated use.

(3) A proposal for a different kind or location of park use area from those in the adopted master plan shall not be considered a minor variation.

(4) Within an existing or planned park use area, a proposal for a park facility that is different from the kind of park facilities in that park area in the adopted master plan shall not be considered a minor variation, except that proposals for the following different facilities may be considered minor variations: toilet and shower buildings, garbage and recycling facilities; campground registration and storage buildings; any other accessory structure not exceeding 120 square feet; alternative camping structures such as yurts, camper cabins, tepees and covered wagons in planned or existing tent and RV sites; picnic shelters in day use area; and trails.

(5) Outside of existing and planned park use areas, new trails located at least 300 feet from the nearest park boundary may be considered minor variations from adopted master plans.

Section 3.916. Standards for Review Proposed Location Changes and Expansions of Existing Park Uses and Facilities.

The following standards shall be used to determine whether a proposed location change or expansion of an existing park use or facility is minor. A proposed location change or expansion may be determined to be minor if it is not expected to cause significant impacts on adjacent land uses, other uses in the park, local public services, transportation systems, or important natural, cultural, or scenic resources. Further:

(1) A location change for an existing park facility may be determined to be minor if it does not cause the facility to serve a different park use.

(2) The following limitations shall apply to determinations involving minor expansions of existing park uses and facilities;

(A) A maximum of 20 percent increase in the floor area of any permanent building, provided that this limitation shall not apply to the following: toilet and shower buildings, garbage and recycling collection buildings; campground registration and storage buildings; and any other accessory building that does not exceed 120 square feet after expansion;

(B) A maximum of 20 percent increase in the number of planned bedrooms in any lodge, inn, bed and breakfast, barracks or bunkhouse, or group of cabins, or in any park use area;

(C) A maximum of 20 percent increase in the number of planned camp sites in any general o r group camping area;

(D) A maximum of 20 percent increase in the number of planned parking spaces in any parking lot or park use area; and

(E) A maximum of 20 percent increase in the surface area of any road for purposes of improving safety, realignment or widening; or

(F) Extension of an existing road to provide access to a that is expanded or relocated under the provisions of this section may be considered minor only to the extent needed to serve the expanded or relocated use.

SECTION 3.580. OPEN SPACE, PARKS, AND RECREATION ZONE (OPR).

Section 3.582. Purpose.

The OPR zone is intended to provide for the conservation of open space; the protection and development of areas uniquely suited for outdoor recreation and the protection of designated scenic, natural and cultural resource areas.

Section 3.584. Development and Use Permitted.

The following developments and their accessory developments are permitted under a Type I procedure subject to applicable development standards.

(1) Farm use.
(2) Forest use.
(3) Wildlife refuge or management area.
(4) Public regional park or recreation area excluding campgrounds.
(5) Historical or archaeological site/area.
(6) Golf courses except in areas identified as Coastal Shorelands.
(7) R.V. Park subject to Section S3.550-S3.552 except in the Clatsop Plains Planning Area.
(8) Other watersheds.
(9) Public or private neighborhood park or playground.
(10) Golf driving range.
(11) Municipally owned watersheds.
(12) Accessory development customarily provided in conjunction with the above developments.
(13) Property line adjustment.
(14) Low intensity recreation.

Section 3.586. Conditional Development and Use.

The following developments and their accessory developments may be permitted under a Type II procedure and Sections 5.000 to 5.030 subject to applicable criteria and development standards and site plan review.

(1) Campground, primitive except in areas identified as Coastal Shorelands.
(2) Group camping facilities (e.g. youth, church) except in areas identified as Coastal Shorelands.
(3) Hunting and fishing clubs except in areas identified as Coastal Shorelands.
(4) Hiking, nature observation or horse trails.
(5) Marinas, boat launchings and moorage facilities.
(6) Structures for viewing or exhibition of natural resources.
(7) Cemetery except in areas identified as Coastal Shorelands.
(8) Other developments within a historical structure provided the use would not result in the modification of the outward appearance of the structure.

(9) Riding stables except in areas identified as Coastal Shorelands.
(10) Accessory development customarily provided in conjunction with the above developments.

Section 3.588. Conditional Development and Use Criteria.

The following limitations and requirements shall apply to conditional developments:
(1) The proposed development shall be consistent with the Clatsop County Comprehensive Plan.
(2) The development shall be compatible with and appropriate to the natural resources and features, recreational characteristics and current predominant land use of the area for which it is proposed.
(3) In no event shall the proposed development destroy or endanger the natural and recreational resources giving value to the area.
(4) The proposed development shall include adequate measures to reduce fire hazards and prevent the spread of fire to surrounding areas.
(5) The location of buildings, signs, parking, recreation areas and open space shall be compatible with adjacent areas and the natural scenic amenities of the locality.

Section 3.590. Development and Use Standards.

The following standards are applicable to permitted and conditional developments in this zone:
(1) Setbacks. No structures shall be placed closer than 100 feet to perennial streams, lakes or other water bodies or closer than 60 feet to arterials, collectors or public roads and highways or closer than 20 feet to other roads and property lines.
(2) Utility Services. All utility services, including power and telephone, shall be installed underground where physical conditions permit.
(3) Building Height. Maximum height for all structures shall be 35 feet or the maximum height allowed in an adjacent zone that has a lower maximum height standard.
(4) Area and Lot Size. The minimum area and lot size shall be that determined to be necessary for the protection of health and natural resources.
(5) An accessory structure separated from the main building shall be located in accordance with yard setback requirements.

Section 3.592. State and Federal Permits.

If any state or federal permit is required for a development or use, an applicant, prior to issuance of a development permit or action, shall submit to the Planning Department a copy of the state or federal permit.

Section 3.599 State and Federal Permits.

If any state or federal permit is required for a development or use, an applicant, prior to issuance of a development permit or action, shall submit to the Planning Department a copy of the state or federal permit

SECTION 3.610. LAKE AND WETLANDS ZONE (LW).

Section 3.611. Purpose.

The purpose of the LW zone is to assure the conservation of important shoreland and wetland biological habitats and conserve examples of different natural ecosystem types and to assure a diversity of species and ecological relations in Clatsop County.

Low intensity uses which do not result in major alterations are appropriate in this zone. Low to moderate intensity recreation is appropriate in coastal lakes.

This zone includes coastal and non-coastal lakes, significant non-estuarine freshwater marshes and important upland biological habitat.

The freshwater marshes in this district are of two categories: those designated under Goal 17 which were formed by coastal processes, and those designated under Goal 5.

Section 3.612. Zone Boundaries.

The zone shall be designated on the Clatsop County Land and Water Development and Use Ordinance zoning map, and shall conform to the 1" to 400' photocontour maps entitled "Significant Shoreland and Wetland Biological Habitats" on file at the Clatsop County Department of Community Development office and hereby adopted by reference.

Section 3.613. Development and Use Permitted.

The following developments are permitted under a Type I procedure subject to the applicable development standards:

(1) Low intensity recreation.
(2) Passive restoration.
(3) Vegetative shoreline stabilization.
(4) Submerged cable, sewerline, waterline or other pipeline.
(5) Maintenance and repair of existing structures.
(6) Cultivation and harvest of cranberries, including irrigation equipment, pumps and ditches necessary for the management and protection of cranberries. This use is permitted only in the Delmoor Loop Road area as described in the County's Goal 5 Element.
(7) Bridges and pile supported walkways or other piling supported structures under 500 sq.ft., other than docks.
(8) Property line adjustment.

Section 3.614. Conditional Development and Use Permitted.

The following developments may be permitted under a Type II procedure and Sections 5.000 to 5.030 subject to applicable criteria and development and site plan review:

(1) Active restoration.

(2) Structural shoreline stabilization limited to riprap.

(3) Boat launch.

(4) Bridges and pile supported walkways or other piling supported structures 500 sq. ft. or greater, other than docks.

(5) Individual docks limited to 500 square feet for recreational or fishing use and necessary piling.

(6) Vegetation removal from coastal lakes east of U.S. Highway 101 that is acceptable to the Oregon Department of Fish and Wildlife and other state and federal agencies.

(7) Developments necessary for and accessory to cranberry cultivation and harvest, including equipment storage sheds, access roads and temporary cranberry storage facilities, but not including a residence. This use is permitted conditionally only in the Delmoor Loop Road area as described in the County's Goal 5 Plan Element.

Section 3.615. Additional Conditional Uses and Activities Permitted in Goal 5 Wetlands.

The following uses may be permitted under a Type II procedure and Sections 5.000 to 5.030 subject to applicable standards. In addition, the use must be analyzed by the procedure in the Goal 5 Administrative Rule (OAR 660-16) and meet either Section 3B or 3C of that rule.

(1) Low intensity, non-structural agricultural uses subject to standards in S4.602.

(2) Selective harvesting of timber, subject to standards in S4.604.

Section 3.616. Development and Conditional Development and Use Standards.

(1) All standards as set forth in the Clatsop County Development Standards Document 80-14, as amended.

(2) Uses that are not water-dependent or water-related shall be set back to the extent of riparian vegetation identified in the Comprehensive Plan. Riparian vegetation shall be protected in accordance with Section S4.500. At such time that a development is proposed in the vicinity of the wetlands area, the county may require a site investigation to determine the exact location or the boundary. The site investigation shall be performed by a qualified expert, such as a biologist from the U.S. Army Corps of Engineers, Oregon Division of State Lands, or the Oregon Department of Fish and Wildlife. Nothing in this provision shall allow for a redefinition or major alteration of the wetlands boundary. In order to maintain consistency, the site investigation shall employ the same criteria originally used to identify freshwater wetlands in the County. (The study performed by Dr. Duncan Thomas of CREST, entitled *Significant Shoreland and Wetland Habitats in the Clatsop Plains*).

Section 3.617. State and Federal Permits.

If any state or federal permit is required for a development or use, an applicant, prior to issuance of a development permit or action, shall submit to the Planning Department a copy of the state or federal permit.

SECTION 4.050. BEACH AND DUNE OVERLAY DISTRICT (/BDO).

Section 4.051. Purpose.

The intent of the beach and dune overlay is to regulate uses and activities in the affected areas in order to: ensure that development is consistent with the natural limitations of the oceanshore; ensure that identified recreational, aesthetic, wildlife habitat and other resources are protected; conserve, protect, where appropriate develop, and where appropriate restore the resources and benefits of beach and dune areas; and to reduce the hazards to property and human life resulting from both natural events and development activities.

Section 4.052. Applicability.

The beach and dune overlay (BDO) includes the following beach and dune areas:

(1) The beach, which extends from extreme low tide landward to the Statutory Vegetation Line established and described in ORS 390.770, or the line of established upland shore vegetation, whichever is further inland;

(2) The dune hazard area, which extends From the Statutory Vegetation Line established and described by ORS 390.770 or the line of established upland shore vegetation, which ever is further inland, landward to the construction setback line.

(3) The construction setback line is established as follows:

- **(A)** A line 570 feet landward of the Statutory Vegetation Line established and described by ORS 390.770 for the area north of Surf Pines to the Columbia River south jetty.
- **(B)** The Pinehurst construction setback line, established and described in Ordinance 92-90; and
- **(C)** The Surf Pines construction setback line, established and described in Ordinance 83-17 and extended north to include T7N, R10W, Section 16C, Tax Lot 300.

(4) The dune construction area, which extends from the construction setback line as defined in the section above, landward to the eastern limit of Highway 101.

Section 4.053. Relationship to the Underlying Zone.

Uses and activities permitted in the Beach and Dune Overlay zone(BDO) are subject to the provisions and standards of the underlying zone and this chapter. Where the provisions of this district and the underlying zone conflict, the provisions of this district shall apply.

Section 4.054 State Parks and Recreation Department Regulated Uses.

Uses and activities permitted on the beach, as defined in Section 4.052(1) are those permitted subject to review and approval by the Oregon Parks and recreation Department consistent with ORS 390.605-390.725 and OAR Divisions 20-30.

Section 4.055. Permitted Development and Uses.

The following developments and uses are permitted under a Type I procedure subject to specific development standards.

(1) In the dune hazard area as defined in Section 4.052(2),

- **(A)** Maintenance and repair of existing structures, including roads and subsurface disposal systems.
- **(B)** Drainage improvements, including storm water outfall.

(C) Foredune breaching, where:

1) The breaching is required to replenish sand supply in interdune areas, or is undertaken on a temporary basis for emergency purposes such as fire control or the alleviation of a flood hazard.

2) There are no other reasonable alternatives to alleviate the emergency.

3) The breaching does not endanger existing development.

4) The area affected by the breaching is restored according to an approved restoration plan prepared by a registered professional geologist or certified engineering geologist, where the restoration plan shall include appropriate revegetation; and

5) At a minimum, foredunes shall be restored to a dune profile which provides flood protection equivalent to that prior to breaching.

(D) Remedial grading, in the following cases:

1) Clearing of sand which is inundating houses or commercial buildings and their associated improvements. Sand may be graded up to thirty-five feet from a building's foundation subject to the following conditions:

(a) The area to be graded constitutes open sand dunes or the back slope of a foredune,

(b) There is no modification to the crest of a foredune,

(c) At a minimum, the area graded shall maintain the one hundred year flood elevation as established by the county's Flood Insurance Rate Map (FIRM), and

(d) No grading shall occur seaward of the Statutory Vegetation Line, except for placement of material removed from the structure in question;

2) Excavation necessary for the purpose of placing a beachfront protective structure;

3) Clearing of sand which is inundating a public street and is interfering with vehicular or pedestrian traffic, including clearing of sand from a public beach access parking lot.

4) Excavation of sand necessary to alleviate storm water buildup;

5) Minor reshaping of the forward portion of a dune necessary to provide an even slope for the planting of stabilizing vegetation; and

6) Where feasible, all graded sand shall be placed on the beach or foreslope portion of the adjoining dune. Where not feasible, then sand shall be placed at a location approved by the county. In no event shall sand be removed from the beach and dune system.

(E) Maintenance of existing riparian vegetation, including the planting of additional riparian vegetation.

(2) In the dune construction area defined in Section 4.052(3), any permitted uses allowed in the underlying zone subject to the applicable standards of that zone and the applicable general standards of Section 4.059.

Section 4.056 Development and Uses Permitted with Review.

The following developments and uses are permitted under a Type II procedure, Sections 5.040 to 5.050, subject to the applicable general standards of Section 4.059.

(1) Beachfront protective structures seaward of th Statutory Vegetation Line established and described by ORS 390.770 or the line established upland shore vegetation, whichever is further inland require a permit from the Oregon Parks and Recreation Department and the County. The County's review of beachfront protective structures shall be coordinated with the Oregon Parks and Recreation Department.

(2) The emergency placement of riprap on the beach, as defined above and in Section 4.052(1) requires a permit from the Oregon Parks and Recreation Department (OPRD).

(3) No construction is permitted prior to the issuance of an OPRD permit.

(4) On the beach, as defined in Section 4.052(1), and in the dune hazard area as defined in section 4.052(2), and in the dune construction area as defined in section 4.052(3):

(A) Pedestrian and Equestrian Trail.

1) To minimize the loss of vegetation, fencing adjacent to the trail may be required in order to restrict traffic to the designated trail, an

2) Subdivisions or other developments of ten or more dwelling units shall provide public trails to the beach.

(B) Structural shoreline stabilization.

1) The priorities for beachfront protection, from highest to lowest, are:

(a) Proper maintenance of existing vegetation.
(b) Planting of riparian vegetation.
(c) Rip-rap.
(d) Bulkhead or seawall.

2) Proposals for rip-rap, bulkheads, or seawalls shall demonstrate that:

(a) The beachfront protective structure is located in an area where the county has identified that development existed on or before January 1, 1977.
(b) The development is being threatened by erosion hazard.
(c) Non-structural means of shoreline stabilization cannot provide adequate erosion protection.
(d) The structure is the minimum necessary to provide for the level of protection that has been identified.
(e) The structure is placed as far landward as is practical, consistent with maintaining existing riparian vegetation.
(f) Potential adverse impacts on adjacent property are minimized.
(g) Existing public access is preserved. The county may require that the shoreline stabilization incorporate steps or other improvements to enhance public access to the beach.
(h) Visual impacts are minimized.
(i) Any rip-rap shall be covered with sand and revegetated with beach grass, willow or other appropriate vegetation.

(C) Sand stabilization program

1) The program shall be prepared by a qualified individual approved by the County.

2) The program shall be based on an analysis of the area subject to accretion or erosion. The area selected for management shall be found, based on the analysis, to be of sufficient size to successfully achieve the program objectives.

3) The program shall include specifications on how identified activities are to be undertaken. The specifications should address such elements as: the proposed type of vegetation to be planted or removed; the distribution, required fertilization and maintenance of vegetation to be planted; the location of any sand fences; and the timing of the elements of the proposed program.

4) Fire-resistant species are the preferred stabilizing vegetation within twenty-five feet of existing dwellings or structures. Fire resistant vegetation should only be planted when the foreslope and crest of the dune are adequately stabilized to prevent significant accumulation of windblown sand.

5) Where the placement of sand fences is proposed, evidence shall be provided that the planting of vegetation alone will not achieve the stated purpose of the sand stabilization program. Fencing may be permitted on a temporary basis to protect vegetation that is being planted as part of the program, or to control the effects of pedestrian beach access on adjacent areas.

(5) In the dune construction area as defined in section 4.052 (3), any permitted uses allowed in the underlying zone subject to the applicable standards of that zone and the applicable standards of Section 4.059.

Section 4.057. Conditional Development and Use.

The following developments and uses may be permitted under a Type IIa procedure Sections 5.010 to 5.025, subject to the applicable general of Section 4.059.

(1) On the beach, as defined in section 4.052(1), and in the dune hazard area as defined in section 4.052(2):

(A) Foredune grading

Foredune grading for view enhancement or to prevent sand inundation may be allowed only in foredune areas that were committed to development on or before January 1, 1977 and where an overall plan for foredune grading is prepared.

1) A foredune grading plan shall be prepared by a qualified expert approved by the County.

2) A foredune grading plan shall be based on an consideration of factors affecting the stability of the shoreline to be managed including sources of sand, ocean flooding, and patterns of accretion and erosion (including wind erosion), and the effects of beachfront protective structures and jetties.

3) The foredune grading plan shall:

(a) Cover an entire beach and foredune area subject to an accretion problem, including adjacent areas potentially affected by changes in flooding, erosion or accretion as a result of dune grading;

(b) Specify minimum dune height and width requirements to be maintained for protection from flooding and erosion. The minimum height for flood protection is four feet above the one hundred year flood elevation established by the FEMA flood insurance studies;

(c) Identify and set priorities for low and narrow dune areas which need to be built up;
(d) Prescribe standards for redistribution of sand and temporary and permanent stabilization measures including the timing of these activities; and
(e) Prohibit removal of sand from the beach-foredune system.

(2) In the dune construction area as defined in section 4.052(3), any conditional uses allowed in the underlying zone subject to applicable standards of that zone and the applicable general standards of Section 4.059.

Section 4.058 Prohibited Activities.

The following activities are prohibited in all areas within the beach and dune overlay (BDO) as defined in Section 4.052:

(1) Removal of sand from the beach or dune system.

(2) Removal of stabilizing vegetation, except in conjunction with a permitted development or use.

Section 4.059. General Development and Use Criteria.

The following criteria are applicable to developments and uses in the BDO, in addition to those specific standards identified in Sections 4.054 through 4.057.

(1) For development located in all areas in the BDO as defined by Section 4.052, other than older stabilized dunes, findings shall address the following:

(A) The adverse effects the proposed development might have on the site and adjacent areas;

(B) Temporary and permanent stabilization proposed and the planned maintenance of new and existing vegetation;

(C) Methods for protecting the surrounding area from any adverse effects of the development;

(D) Hazards to life, public and private property, and the natural environment which may be caused by the proposed use.

(E) How the proposed development will not result in the draw down of the groundwater supply in a manner that would lead to:

1) The loss of stabilizing vegetation:

2) The loss of water quality;

3) Salt water intrusion into the water supply; or

4) Significant lowering of interdune water level. Building permits for single-family dwellings are exempt from this requirement if appropriate findings are provided at the time of subdivision approval.

(2) For development on the beach, as defined in section 4.052(1), and in the dune hazard area as defined in section 4.052(2) a geotechnical report in conformance with Section 4.044, shall be required by the Planning Director prior to the issuance of a development permit.

(3) For development in the dune hazard area as defined in section 4.052 (2) and in the dune construction area as defined in section 4.052(3) a wind erosion control plan shall be required by the Planning Director prior to the issuance of a development permit. The purpose of the wind erosion control plan is to maintain the stability of the site during periods when the vegetative cover is removed and to ensure that adjacent properties are not adversely affected. The plan shall:

(A) Identify areas where vegetation is to be removed and the type of vegetation to be removed;

(B) Describe any temporary sand stabilization measures to be used during construction;

(C) The proposed type of vegetation to be planted to stabilize the site after construction, including the density of planting, proposed fertilization, method of maintenance, and timing of the planting;

(D) The removal of vegetation shall be kept to a minimum during site preparation and construction; and

(E) No site clearing is permitted prior to the issuance of the development permit for the proposed development or use. Site clearing shall occur no sooner than is necessary prior to construction. The permanent revegetation of the site shall be started as soon as is practical, but in no event later than six months after the completion of construction.

SECTION 4.120. AQUIFER RESERVE OVERLAY DISTRICT (/ARO).

Section 4.122. Purpose.

The purpose of the aquifer reserve overlay zoning district is to protect the aquifer as a future drinking water source by controlling activities which may occur on the ground surface. These sections apply as additional restrictions to the underlying zones. Should the regulations of this overlay district be in conflict with the underlying zone, the conflict shall be resolved by the application of the more stringent regulation.

Section 4.123. Development and Uses Permitted.

Unless otherwise listed in Section 4.125, any use permitted in the underlying zone may be allowed within the boundaries of this special district.

Section 4.124. Conditional Development and Use.

Unless otherwise listed in Section 4.125, any use conditionally allowed in the underlying zone may be allowed within the boundaries of this special district subject to the applicable standards of that zone.

Section 4.125. Prohibited Development and Use.

The following developments are prohibited in this district unless determined by the Planning Director as set out in Section 4.126 below that such use will not adversely affect the aquifer:

(1) Construction of subsurface sewage disposal systems.

(2) Application of fertilizers in amounts and concentrations which would add nitrates to the groundwater.

(3) Construction of oil and gas storage facilities unless they are adequately protected to prevent spillage from reaching groundwater.

(4) Other activities which, in the opinion of the Community Development Director, would cause the degradation of groundwater as a potable water source.

Section 4.126. Determination by the Community Development Director.

Any activities which, in the opinion of the Community Development Director, would adversely affect the aquifer as a potable water source, are prohibited by Section 4.125 above. To aid in this determination, the Community Development Director may require certification from a qualified professional engineer or hydrologist that a proposed activity will not cause such degradation.

APPENDIX D
PLANT SPECIES LIST

Family	Plant Name	Common name	Origin	Abundance	FPN name
Apiaceae	Angelica lucida	sea watch	Native	common	
Apiaceae	Cicuta douglasii	Douglas water hemlock, w. water hemlock	Native	occasional	
Apiaceae	Conioselinum pacificum	Pacific hemlock parsley	Native	common	
Apiaceae	Daucus carota	wild carrot, Queen Anne's lace	Exotic	common	
Apiaceae	Heracleum lanatum	cow parsnip	Native	common	
Apiaceae	Hydrocotyle ranunculoides	floating marsh pennywort	Native	common	
Apiaceae	Lomatium nudicaule	barestem lomatium	Native	occasional	
Apiaceae	Oenanthe sarmentosa	Pacific water parsley	Native	common	
Apiaceae	Osmorhiza berteroi	mountain sweet cicely	Native	common	= Osmorhiza chilensis
Apiaceae	Sanicula arctopoides	footsteps of spring, bear's foot sanicle	Native	occasional	
Apiaceae	Sanicula crassicaulis	Pacific snakeroot, western snakeroot	Native	occasional	
Aquifoliaceae	Ilex aquifolium	English holly	Exotic	common	
Araceae	Lysichiton americanus	skunk cabbage	Native	scarce	= Lysichitum americanum
Araliaceae	Hedera helix	English ivy	Exotic	common	
Asteraceae	Achillea millefolium	yarrow, milfoil	Native	abundant	
Asteraceae	Ambrosia chamissonis var. chamissonis	silver beachweed, beach bur	Native	scarce	
Asteraceae	Anaphalis margaritacea	pearly everlasting	Native	abundant	
Asteraceae	Anthemis arvensis	corn chamomile, field chamomile	Exotic	occasional	
Asteraceae	Anthemis cotula	mayweed chamomile, dogfennel	Exotic	occasional	
Asteraceae	Anthemis tinctoria	yellow chamomile, golden marguerite	Exotic	scarce	
Asteraceae	Artemisia suksdorfii	Suksdorf's sagewort, coastal mugwort	Native	common	
Asteraceae	Aster chilensis	common California aster, Pacific aster	Native	common	= Aster chilensis ssp. chilensis
Asteraceae	Bellis perennis	English daisy, lawn daisy	Exotic	common	
Asteraceae	Bidens cernua	nodding beggar ticks, bur marigold	Native	occasional	
Asteraceae	Centaurea cyanus	bachelor's button, cornflower	Exotic	scarce	

Family	Plant Name	Common name	Origin	Abundance	FPN name
Asteraceae	Centaurea pratensis	meadow knapweed	Exotic	common	
Asteraceae	Cichorium intybus	wild succory, common chicory	Exotic	scarce	
Asteraceae	Cirsium edule	Indian thistle, edible thistle	Native	common	= Cirsium edule and C. hallii
Asteraceae	Cirsium vulgare	bull thistle, common thistle	Exotic	common	
Asteraceae	Conyza canadensis	Canadian fleabane, horseweed	Native	common	
Asteraceae	Cotula coronopifolia	brass buttons	Exotic	occasional	
Asteraceae	Crepis capillaris	smooth hawksbeard	Exotic	occasional	
Asteraceae	Erechtites minima	Australian burnweed, toothed coast fireweed	Exotic	common	
Asteraceae	Gnaphalium californicum	California cudweed, California everlasting	N	occasional	
Asteraceae	Gnaphalium purpureum	purple cudweed	N	common	
Asteraceae	Gnaphalium uliginosum	marsh cudweed	E	common	
Asteraceae	Hypochaeris radicata	rough cat's ear, hairy cat's ear	E	abundant	
Asteraceae	Leontodon taraxacoides ssp. taraxacoides	hairy hawkbit, rough hawkbit	E	common	= Leontodon nudicaulis ssp. taraxacoides
Asteraceae	Leucanthemum vulgare	oxeye daisy	E	common	= Chrysanthemum leucanthemum
Asteraceae	Matricaria discoidea	pineapple weed	N	occasional	= Matricaria matricarioides
Asteraceae	Petasites frigidus var. palmatus	sweet coltsfoot, western coltsfoot	N	scarce	
Asteraceae	Senecio jacobaea	tansy ragwort	E	common	
Asteraceae	Senecio sylvaticus	woodland groundsel, wood groundsel	E	common	
Asteraceae	Senecio vulgaris	old man in the spring, common groundsel	E	occasional	
Asteraceae	Solidago canadensis var. salebrosa	Canada goldenrod, meadow goldenrod	N	common	
Asteraceae	Solidago simplex var. spathulata	dune goldenrod, coast goldenrod	N	common	= Solidago spathulata var. spathulata
Asteraceae	Sonchus asper	prickly sow thistle	E	occasional	
Asteraceae	Tanacetum camphoratum	dune tansy	N	common	= Tanacetum douglasii
Asteraceae	Taraxacum officinale	common dandelion	E	common	
Azollaceae	Azolla filiculoides	duckweed fern	N	occasional	
Betulaceae	Alnus rhombifolia	white alder	N	common	
Betulaceae	Alnus rubra	red alder, Oregon alder	N	abundant	
Blechnaceae	Blechnum spicant	deer fern	N	occasional	

Family	Plant Name	Common name	Origin	Abundance	FPN name
Boraginaceae	Myosotis discolor	yellow and blue forget me not or scorpion grass	E	occasional	
Boraginaceae	Myosotis scorpioides	common forget me not; water scorpian grass	E	scarce	
Brassicaceae	Barbarea orthoceras	American wintercress	N	occasional	
Brassicaceae	Cakile edentula var. edentula	American searocket	E	abundant	
Brassicaceae	Cakile maritima	European searocket, searocket	E	abundant	
Brassicaceae	Cardamine breweri var. orbicularis	coast bittercress	N	occasional	
Brassicaceae	Cardamine oligosperma	little western bittercress	N	common	
Brassicaceae	Raphanus raphanistrum	jointed charlock	E	occasional	
Brassicaceae	Teesdalia nudicaulis	shepherd's cress, teesdalia	E	common	
Callitrichaceae	Callitriche stagnalis	pond water starwort	E	occasional	
Caprifoliaceae	Lonicera etrusca	Etruscan honeysuckle	E	occasional	
Caprifoliaceae	Lonicera involucrata var. ledebourii	coastal twinberry	N	common	
Caprifoliaceae	Sambucus racemosa var. arborescens	red elderberry	N	common	
Caryophyllaceae	Arenaria sp.	sandwort	E	scarce	
Caryophyllaceae	Cardionema ramosissima	sandmat	N	abundant	
Caryophyllaceae	Cerastium glomeratum	sticky chickweed, sticky cerastium	E	common	= Cerastium viscosum
Caryophyllaceae	Cerastium nutans	nodding chickweed, nodding mouse ear	N	scarce	
Caryophyllaceae	Dianthus armeria	Deptford pink, grass pink	E	occasional	
Caryophyllaceae	Honckenya peploides	sea purslane, seabeach sandwort	N	scarce	
Caryophyllaceae	Sagina apetala	common pearlwort, arctic pearlwort	N	occasional	
Caryophyllaceae	Sagina decumbens ssp. occidentalis	western pearlwort	N	occasional	= Sagina occidentalis
Caryophyllaceae	Scleranthus annuus	annual knawel	E	abundant	
Caryophyllaceae	Spergula arvensis	stickwort, cornspurry	E	abundant	
Caryophyllaceae	Spergularia rubra	red sandspurry	E	scarce	
Caryophyllaceae	Stellaria borealis ssp. sitchana	few flowered northern starwort	N	common	= Stellaria calycantha var. sitchana
Caryophyllaceae	Stellaria longipes var. longipes	longstalk starwort	N	common	

Family	Plant Name	Common name	Origin	Abundance	FPN name
Caryophyllaceae	Stellaria media	common chickweed	E	common	
Ceratophyllaceae	Ceratophyllum demersum	hornwort, coontail	N	occasional	
Chenopodiaceae	Chenopodium album	lamb's quarter, pigweed	E	scarce	
Convolvulaceae	Calystegia sepium	hedge bindweed, lady's nightcap	E	occasional	= Convolvulus sepium
Cyperaceae	Carex canescens	silvery sedge	N	occasional	
Cyperaceae	Carex cusickii	Cusick's sedge	N	common	
Cyperaceae	Carex lenticularis var. limnophila	lakeshore sedge	N	occasional	
Cyperaceae	Carex macrocephala (1)	big headed sedge	N	occasional	
Cyperaceae	Carex obnupta	slough sedge	N	abundant	
Cyperaceae	Carex pansa	sand sedge	N	abundant	
Cyperaceae	Eleocharis palustris	creeping spike rush	N	abundant	
Cyperaceae	Scirpus microcarpus	panicled bulrush, small fruited bulrush	N	common	
Dennstaedtiaceae	Pteridium aquilinum var. pubescens	bracken fern, brake fern	N	common	
Dryopteridaceae	Athyrium filix-femina var. cyclosorum	northwestern lady fern	N	common	
Dryopteridaceae	Polystichum munitum	common sword fern	N	abundant	
Equisetaceae	Equisetum arvense	field horsetail, common horsetail	N	common	
Equisetaceae	Equisetum hyemale var. affine	common scouring rush	N	scarce	
Ericaceae	Erica carnea	spring heath	E	scarce	
Ericaceae	Gaultheria shallon	salal	N	common	
Ericaceae	Pyrola asarifolia	alpine pyrola, bog wintergreen	N	scarce	
Ericaceae	Vaccinium ovatum	evergreen blueberry	N	common	
Ericaceae	Vaccinium parvifolium	red bilberry, red huckleberry	N	common	
Fabaceae	Cytisus scoparius	Scots broom	E	abundant	
Fabaceae	Lathyrus japonicus var. glaber	maritime peavine, beach pea	N	common	
Fabaceae	Lathyrus littoralis	beach peavine, gray beach pea	N	occasional	
Fabaceae	Lotus corniculatus	birdsfoot trefoil	E	common	
Fabaceae	Lotus micranthus	field lotus, small flowered lotus	N	occasional	
Fabaceae	Lupinus arboreus	tree lupine, yellow bush lupine	E	occasional	
Fabaceae	Lupinus littoralis	seashore lupine	N	common	
Fabaceae	Medicago lupulina	black medic, hop clover	E	occasional	
Fabaceae	Robinia pseudoacacia	black locust	E	occasional	

Family	Plant Name	Common name	Origin	Abundance	FPN name
Fabaceae	Trifolium arvense	hare's foot, rabbitfoot clover	E	occasional	
Fabaceae	Trifolium dubium	least hop clover	E	occasional	
Fabaceae	Trifolium pratense	red clover	E	common	
Fabaceae	Trifolium repens	white clover, Dutch clover	E	common	
Fabaceae	Trifolium subterraneum	subterranean clover	E	common	
Fabaceae	Trifolium wormskjoldii	springbank clover	N	common	
Fabaceae	Vicia gigantea	giant vetch	N	occasional	
Fabaceae	Vicia hirsuta	hairy vetch, tiny vetch	E	occasional	
Fabaceae	Vicia sativa var. angustifolia	common vetch, tare	E	occasional	
Fabaceae	Vicia villosa var. glabrescens	hairy vetch	E	occasional	
Gentianaceae	Centaurium erythraea	common centaury, European centaury	E	occasional	= Centaurium umbellatum
Geraniaceae	Erodium cicutarium	filaree	E	occasional	
Geraniaceae	Geranium dissectum	cutleaf geranium	E	occasional	
Geraniaceae	Geranium molle	dovefoot geranium	E	occasional	
Grossulariaceae	Ribes divaricatum	coast black gooseberry, straggly gooseberry	N	occasional	
Grossulariaceae	Ribes laxiflorum	trailing black currant, coast trailing currant	N	occasional	
Haloragaceae	Myriophyllum aquaticum	South American water milfoil, parrot's feather	E	common	= Myriophyllum brasiliense
Hippuridaceae	Hippuris vulgaris	mare's tail	N	scarce	
Hydrocharitaceae	Egeria densa	Brazilian waterweed, South American waterweed	E	common	= Elodea densa
Hydrocharitaceae	Elodea canadensis	Canadian waterweed, Rocky Mountain waterweed	N	common	
Hydrocharitaceae	Vallisneria americana	tapegrass, American water celery	E	scarce	
Hypericaceae	Hypericum perforatum	Klamathweed, common St. John's wort	E	common	
Iridaceae	Iris pseudacorus	yellow flag, yellow iris	E	occasional	
Iridaceae	Sisyrinchium bellum	handsome or beautiful blue eyed grass	N	occasional	= Sisyrinchium angustifolium
Iridaceae	Sisyrinchium californicum	golden eyed grass	N	scarce	
Juncaceae	Juncus articulatus	jointed rush, jointed leaved rush	N	common	
Juncaceae	Juncus breweri	salt rush, Brewer's rush	N	abundant	= Juncus lesueurii of authors

Family	Plant Name	Common name	Origin	Abundance	FPN name
Juncaceae	Juncus bufonius	toad rush	N	common	
Juncaceae	Juncus effusus var. effusus	common rush	N	common	
Juncaceae	Juncus effusus var. gracilis	shiny rush	N	common	
Juncaceae	Juncus effusus var. pacificus	Pacific rush, common rush	N	common	
Juncaceae	Juncus falcatus var. sitchensis	sickle leaved rush	N	occasional	
Juncaceae	Juncus nevadensis var. inventus	Oregon rush	N	occasional	
Juncaceae	Luzula comosa	common woodrush	N	occasional	= Luzula campestris
Lamiaceae	Lycopus uniflorus	northern bugleweed	N	scarce	
Lamiaceae	Mentha arvensis var. canadensis	field mint, corn mint	N	occasional	
Lamiaceae	Mentha piperita ssp. piperita	peppermint	E	occasional	
Lamiaceae	Prunella vulgaris var. lanceolata	native heal all	N	common	
Lamiaceae	Stachys cooleyae	great betony, Cooley's hedgenettle	N	occasional	
Lemnaceae	Lemna minor	common duckweed, water lentil	N	common	
Lemnaceae	Spirodela polyrrhiza	greater duckweed, duckmeat	N	common	
Lemnaceae	Spirodela punctata (2)	dotted duckweed	E	common	
Lemnaceae	Wolffia columbiana (3)	Columbia water meal	N	common	
Liliaceae	Allium cernuum	nodding onion	N	occasional	
Liliaceae	Brodiaea elegans ssp. hooveri	elegant brodiaea	N	common	
Liliaceae	Fritillaria affinis	checker lily, mission bells	N	occasional	= Fritillaria lanceolata
Liliaceae	Lilium columbianum	Columbia lily, Oregon lily	N	occasional	
Liliaceae	Maianthemum dilatatum	false lily of the valley, beadruby	N	common	
Liliaceae	Narcissus pseudonarcissus	dafodil	E	scarce	
Liliaceae	Prosartes smithii	fairy lanterns, largeflower fairybells	N	scarce	= Disporum smithii
Liliaceae	Triteleia hyacinthina	hyacinth triteleia, hyacinth brodiaea	N	occasional	= Brodiaea hyacinthina
Lythraceae	Lythrum portula	purslane loosestrife, water purslane	E	scarce	
Lythraceae	Lythrum salicaria	purple loosestrife	E	common	
Myricaceae	Myrica californica	Pacific wax myrtle	N	common	
Myricaceae	Myrica gale (4)	sweet gale	N	common	
Nyctaginaceae	Abronia latifolia (5)	yellow sandverbena	N	common	
Nymphaeaceae	Nuphar polysepala	yellow pond lily, wakas	N	abundant	

Family	Plant Name	Common name	Origin	Abundance	FPN name
Nymphaeaceae	Nymphaea odorata	fragrant water lily	E	common	
Oleaceae	Ligustrum vulgare	European privet	E	scarce	
Onagraceae	Epilobium ciliatum ssp. watsonii	Pacific willowherb	N	common	= Epilobium watsonii var. watsonii
Onagraceae	Ludwigia palustris	false loosestrife	N	scarce	
Ophioglossaceae	Botrychium multifidum	leather grapefern	N	common	
Orchidaceae	Goodyera oblongifolia	western rattlesnake plantain, rattlesnake orchid	N	abundant	
Orchidaceae	Piperia elegans	hillside rein orchid, elegant rein orchid	N	common	= Habenaria greenei, H. elegans
Orchidaceae	Spiranthes romanzoffiana	hooded ladies tresses	N	scarce	
Orobanchaceae	Orobanche uniflora	naked broomrape	N	scarce	
Oxalidaceae	Oxalis corniculata	creeping yellow wood sorrel	E	occasional	
Pinaceae	Picea sitchensis	Sitka spruce	N	abundant	
Pinaceae	Pinus contorta var. contorta	shore pine	N	abundant	
Pinaceae	Pinus nigra	black pine	E	common	
Pinaceae	Pinus pinaster	maritime pine	E	occasional	
Pinaceae	Pinus sylvestris	Scots pine	E	abundant	
Pinaceae	Pseudotsuga menziesii var. menziesii	coast Douglas fir, Douglas fir	N	scarce	
Pinaceae	Tsuga heterophylla	western hemlock	N	common	
Plantaginaceae	Plantago lanceolata	English plantain, buckhorn plantain	E	common	
Plantaginaceae	Plantago major	common plantain	E	common	
Plumbaginaceae	Armeria maritima var. californica	California thrift, California sea pink	N	common	
Poaceae	Agrostis capillaris	colonial bentgrass	E	common	= Agrostis tenuis
Poaceae	Agrostis exarata	spike bentgrass	N	common	
Poaceae	Agrostis stolonifera	fiorin creeping bent	E	abundant	= Agrostis alba
Poaceae	Aira caryophyllea	diffuse hairgrass, elegant hairgrass	E	common	
Poaceae	Aira praecox	early hairgrass, little hairgrass	E	common	
Poaceae	Ammophila arenaria	European beachgrass	E	abundant	
Poaceae	Ammophila breviligulata	American beachgrass	E	abundant	
Poaceae	Anthoxanthum odoratum	sweet vernalgrass	E	abundant	
Poaceae	Bromus carinatus	California brome	N	occasional	

Family	Plant Name	Common name	Origin	Abundance	FPN name
Poaceae	Bromus hordeaceus	soft brome	E	common	= Bromus mollis
Poaceae	Bromus rigidus	ripgut brome	E	occasional	
Poaceae	Calamagrostis nutkaensis	Pacific reedgrass	N	occasional	
Poaceae	Cynosurus echinatus	hedgehog dogtail	E	common	
Poaceae	Dactylis glomerata	orchard grass, cock's foot grass	E	abundant	
Poaceae	Danthonia californica	California danthonia, California oatgrass	N	occasional	
Poaceae	Digitaria sanguinalis	hairy crabgrass	E	occasional	
Poaceae	Echinochloa crusgalli	large barnyard grass	E	occasional	
Poaceae	Festuca arundinacea	tall fescue	E	abundant	
Poaceae	Festuca rubra var. rubra	red fescue	E	common	
Poaceae	Holcus lanatus	common velvetgrass, Yorkshire fog	E	common	
Poaceae	Leymus mollis ssp. mollis	American dunegrass, dune wildrye	N	abundant	= Elymus mollis
Poaceae	Lolium perenne	perennial ryegrass	E	occasional	
Poaceae	Melica smithii	Smith melic	N	occasional	
Poaceae	Melica subulata	Alaska oniongrass	N	occasional	
Poaceae	Panicum capillare	witchgrass	N	occasional	
Poaceae	Phalaris arundinacea	reed canary grass	N	common	
Poaceae	Poa annua	annual bluegrass	E	common	
Poaceae	Poa pratensis ssp. pratensis	Kentucky bluegrass	E	abundant	
Poaceae	Poa trivialis	roughstalk bluegrass	E	occasional	
Poaceae	Polypogon monspeliensis	rabbitfoot grass, annual beardgrass	E	occasional	
Poaceae	Torreyochloa pallida var. pauciflora	pale false mannagrass, weak mannagrass	N	scarce	= Puccinellia pauciflora
Poaceae	Triticum aestivum	wheat	E	scarce	
Poaceae	Vulpia myuros	foxtail fescue, rat tail fescue	E	occasional	= Festuca myuros
Polygonaceae	Polygonum arenastrum	common knotweed, doorweed	E	common	
Polygonaceae	Polygonum hydropiperoides	waterpepper	N	occasional	
Polygonaceae	Polygonum lapathifolium	curltop ladysthumb, willow weed	N	scarce	
Polygonaceae	Polygonum paronychia	black knotweed, nailwort knotweed	N	occasional	
Polygonaceae	Polygonum persicaria	spotted ladysthumb, heartweed	E	occasional	

Family	Plant Name	Common name	Origin	Abundance	FPN name
Polygonaceae	Rumex acetosella	sheep sorrel, sour dock	E	abundant	
Polygonaceae	Rumex conglomeratus	clustered dock	E	occasional	
Polygonaceae	Rumex crispus	curly dock	E	common	
Polypodiaceae	Polypodium glycyrrhiza	licorice fern	N	common	
Portulacaceae	Claytonia exigua ssp. exigua	pale springbeauty	N	occasional	= Montia spathulata in part
Portulacaceae	Claytonia rubra ssp. depressa	redstem springbeauty	N	occasional	= Montia perfoliata in part
Portulacaceae	Claytonia sibirica	Siberian candyflower	N	common	= Montia sibirica
Potamogetonaceae	Potamogeton richardsonii	Richardson's pondweed	N	common	
Ranunculaceae	Ranunculus aquatilis var. aquatilis	stiff leaved water buttercup	N	common	
Ranunculaceae	Ranunculus flammula	creeping buttercup, lesser spearwort	N	occasional	
Ranunculaceae	Ranunculus occidentalis var. occidentalis	western buttercup	N	common	
Ranunculaceae	Ranunculus repens	creeping buttercup	E	scarce	
Rhamnaceae	Rhamnus purshiana	cascara, chittam	N	common	
Rosaceae	Aphanes occidentalis	western lady's mantle	N	occasional	= Alchemilla occidentalis
Rosaceae	Cotoneaster franchetii	orange cotoneaster	E	occasional	
Rosaceae	Crataegus monogyna	one seeded hawthorn, English hawthorn	E	occasional	
Rosaceae	Crataegus suksdorfii	Suksdorf's hawthorn	N	occasional	= Crataegus douglasii var. suksdorfii
Rosaceae	Fragaria chiloensis	coastal strawberry, Chilean strawberry	N	abundant	
Rosaceae	Malus fusca	western crabapple, Oregon crabapple	N	occasional	= Pyrus fusca
Rosaceae	Oemleria cerasiformis	osoberry	N	common	
Rosaceae	Potentilla anserina ssp. pacifica	Pacific silverweed	N	abundant	= Potentilla pacifica
Rosaceae	Potentilla palustris	marsh cinquefoil, purple cinquefoil	N	occasional	
Rosaceae	Rosa nutkana var. nutkana	Nootka rose	N	common	
Rosaceae	Rubus armeniacus	Himalayan blackberry	E	common	= Rubus discolor
Rosaceae	Rubus laciniatus	evergreen blackberry, cut leaved blackberry	E	occasional	
Rosaceae	Rubus parviflorus	thimbleberry	N	common	
Rosaceae	Rubus spectabilis	salmonberry	N	occasional	

Family	Plant Name	Common name	Origin	Abundance	FPN name
Rosaceae	Rubus ursinus	Pacific blackberry, Pacific dewberry	N	abundant	
Rosaceae	Spiraea douglasii var. douglasii	Douglas spiraea	N	common	
Rubiaceae	Galium aparine	stickywilly, cleavers	N	common	
Rubiaceae	Galium trifidum var. pacificum	small bedstraw	N	common	
Rubiaceae	Galium triflorum	sweetscented bedstraw	N	common	
Rubiaceae	Sherardia arvensis	blue field madder	E	scarce	
Salicaceae	Salix hookeriana	coastal willow, Hooker's willow	N	abundant	
Salicaceae	Salix lucida ssp. lasiandra	Pacific willow	N	occasional	= Salix lasiandra var. lasiandra
Saxifragaceae	Tellima grandiflora	large fringecup	N	scarce	
Saxifragaceae	Tiarella trifoliata var. trifoliata	trefoil foamflower	N	occasional	
Scrophulariaceae	Digitalis purpurea	foxglove	E	common	
Scrophulariaceae	Parentucellia viscosa	yellow parentucellia	E	common	
Scrophulariaceae	Triphysaria pusilla	dwarf triphysaria, dwarf owl clover	N	occasional	= Orthocarpus pusillus
Scrophulariaceae	Veronica americana	American brooklime	N	common	
Scrophulariaceae	Veronica arvensis	common speedwell	E	occasional	
Scrophulariaceae	Veronica scutellata	marsh speedwell, skullcap speedwell	N	common	
Solanaceae	Solanum dulcamara	bittersweet, climbing nightshade	E	occasional	
Sparganiaceae	Sparganium emersum	simple stem bur reed	N	scarce	
Typhaceae	Typha latifolia	common cattail, broad leaf cattail	N	common	
Valerianaceae	Plectritis brachystemon	shortspur white plectritis	N	occasional	= Plectritis congesta in part
Violaceae	Viola adunca	hookedspur violet, western longspur violet	N	abundant	
Violaceae	Viola palustris	marsh violet	N	scarce	

APPENDIX E
WILDLIFE SPECIES LIST

COMMON NAME	GENUS/SPECIES
Birds	
American Coot	*Fulica Americana*
American Crow	*Corvus brachyrhynchos*
American Goldfinch	*Carduelis tristis*
American Green-winged Teal	*Anas crecca*
American Kestrel	*Falco sparverius*
American Pipit	*Anthus rubescens*
American Robin	*Turdus migratorius*
American Widgeon	*Anas Americana*
Bald Eagle (T)	*Haliaeetus leucocephalus*
Band-tailed Pigeon	*Columba fasciata*
Barn Swallow	*Hirundo rustica*
Belted Kingfisher	*Ceryle alcyon*
Bewick's Wren	*Thryomanes bewickii*
Black Brandt	*Branta bericla*
Black Turnstone	*Arenaria melanocephala*
Black-bellied Plover	*Pluvialis squatarola*
Black-capped Chickadee	*Parus atricapillus*
Black-throated Gray Warbler	*Dendroica nigrescens*
Bonaparte's Gull	*Larus Philadelphia*
Brown Pelican (E)	*Pelecanus occidentalis*
Brown-headed Cowbird	*Molothrus ater*
Bufflehead	*Bucephala albeola*
California Gull	*Larus californicus*
Canada Goose (I)	*Branta Canadensis*
Canvasback	*Aythya valisineria*
Caspian Tern	*Sterna caspia*
Chestnut-backed Chickadee	*Parus rufescens*
Cinnamon Teal	*Anas cyanoptera*
Cliff Swallow	*Hirundo pyrrhonota*
Common Bushtit	*Psaltriparus minimus*
Common Goldeneye	*Bucephala clangula*
Common Loon	*Gavia immer*
Common Merganser	*Mergus merganser*
Common Raven	*Corvus corax*
Common Snipe	*Gallinago gallinago*
Common Yellowthroat	*Geothlypis trichas*
Cooper's Hawk	*Accipiter cooperii*
Dark-eyed Junco	*Junco hyemalis*
Double-crested Cormorant	*Phalacrocorax auritus*
Downy Woodpecker	*Picoides pubescens*
Dunlin	*Calidris alpine*
European Starling (I)	*Sturnus vulgaris*
Eurasian Widgeon	*Anas Penelope*
Evening Grosbeak	*Coccothraustes vespertina*
Fox Sparrow	*Passerella iliaca*

COMMON NAME	GENUS/SPECIES
Gadwall	*Anas strepera*
Glaucous Gull	*Larus hyperboreus*
Golden-crowned Kinglet	*Regulus satrapa*
Golden-crowned Sparrow	*Zonotrichia atricapilla*
Great Blue Heron	*Ardea herodias*
Great Horned Owl	*Bubo virginianus*
Greater White-fronted Goose	*Anser albifrons*
Greater Yellowlegs	*Tringa melanoleuca*
Green-backed Heron	*Butorides striatus*
Hairy Woodpecker	*Picoides villosus*
Heerman's Gull	*Larus heermanni*
Hermit Thrush	*Catharus guttatus*
Herring Gull	*Larus argentatus*
Hooded Merganser	*Lophodytes cucullatus*
Horned Grebe	*Podiceps auritus*
Hudsonian Godwit	*Limosa haemastica*
Hutton's Vireo	*Vireo huttoni*
Killdeer	*Charadrius vociferous*
Least Sandpiper	*Calidris minutilla*
Lesser Scaup	*Aythya affinis*
Long-billed Curlew	*Numenius americanus*
MacGillivray's Warbler	*Oporornis tolmiei*
Mallard	*Anas platyrhynchos*
Marbled Godwit	*Limosa fedoa*
Marsh Wren	*Telmatodytes palustris*
Merlin	*Falco columbaris*
Mew Gull	*Larus canus*
Northern Flicker	*Colaptes auratus*
Northern Harrier	*Circus cyaneus*
Northern Pintail	*Anas acuta*
Northern Shoveler	*Anas clypeata*
Orange-crowned Warbler	*Vermivora celata*
Osprey	*Pandion haliaetus*
Pacific Golden-Plover	*Pluvialis fulva*
Peregrine Falcon (E)	*Falco peregrinus*
Pied-billed Grebe	*Podilymbus podiceps*
Pileated Woodpecker	*Dryocopus pileatus*
Pine Siskin	*Carduelis pinus*
Purple Finch	*Carpodacus purpureus*
Red Crossbill	*Loxia curvirostra*
Red-breasted Merganser	*Mergus serrator*
Red-breasted Nuthatch	*Sitta Canadensis*
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	*Agelaius phoeniceus*
Redhead	*Aythya Americana*
Ring-billed Gull	*Larus delawarensis*
Ring-necked Duck	*Aythya collaris*

COMMON NAME	GENUS/SPECIES
Ring-necked Pheasant (I)	*Phasianus colchicus*
Ruby-crowned Kinglet	*Regulus calendula*
Ruddy Duck	*Oxyura jamaicensis*
Ruddy Turnstone	*Arenaria interpres*
Ruffed Grouse	*Bonasa umbellus*
Rufous Hummingbird	*Selasphorus rufus*
Rufous-sided Towhee	*Pipilo erythrophthalmus*
Sanderling	*Calidris alba*
Savannah Sparrow	*Passerculus sandwichensis*
Semipalmated Plover	*Charadrius semipalmatus*
Sharp-shinned Hawk	*Accipiter striatus*
Snow Bunting	*Plectrophenax nivalis*
Song Sparrow	*Melospiza melodia*
Sora	*Porzana Carolina*
Steller's Jay	*Cyanocitta stelleri*
Surf Scoter	*Melanitta perspicillata*
Swainson's Thrush	*Catharus ustulatus*
Tree Swallow	*Tachycineta bicolor*
Unknown Gull (Immature)	*Larus*
Varied Thrush	*Ixoreus naevius*
Violet-green Swallow	*Tachycineta thalassina*
Virginia Rail	*Rallus limicola*
Western Flycatcher	*Empidonax difficilis*
Western Grebe	*Aechmophorus occidentalis*
Western Gull	*Larus occidentalis*
Western Meadowlark	*Sturnella neglecta*
Western Sandpiper	*Calidris mauri*
White-crowned Sparrow	*Zonotrichia leucophrys*
White-winged Scoter	*Melanitta fusca*
Wilson's Warbler	*Wilsonia pusilla*
Winter Wren	*Troglodytes troglodytes*
Wood Duck	*Aix sponsa*
Yellow-rumped Warbler	*Dendroica coronata*
Mammals	
Bat, Big Brown	*Eptesicus fuscus*
Bat, Little Brown	*Myotis lucifugus*
Beaver	*Castor Canadensis*
Cat (I)	*Felis catus*
Chipmunk, Townsend's	*Eutamias townsendii*
Coyote	*Canis latrans*
Deer, Black-tailed	*Odocoileus hemionus columbianus*
Elk, Roosevelt	*Cervus elaphus*
Ground Squirrel, Beechy	*Spermophilus beecheyi*
Jumping Mouse, Pacific	*Zapus trinotatus*
Mink	*Mustela vison*

COMMON NAME	GENUS/SPECIES
Mole	*Scapanus*
Mouse, Deer	*Peromyscus maniculatus*
Muskrat	*Ondatra zibethicus*
Nutria (I)	*Myocastor coypus*
Opposum, Virginia (I)	*Didelphis virginianus*
Otter, River	*Lutra Canadensis*
Pocket Gopher, Mazama	*Thomomys mazama*
Rabbit, Brush	*Sylvilagus bachmani*
Raccoon	*Procyon lotor*
Rat, Black (I)	*Rattus rattus*
Rat, Norway (I)	*Rattus norvegicus*
Shrew, Baird's	*Sorex bairdii*
Shrew, Marsh	*Sorex bendirei*
Shrew, Trowbridge	*Sorex trowbridgii*
Shrew, Vagrant	*Sorex vagrans*
Skunk, Stripped	*Mephitis mephitis*
Squirrel, Douglas	*Tamiasciurus douglasi*
Squirrel, Northern Flying	*Glaucomys sabrinus*
Vole, Creeping	*Microtus oregoni*
Vole, Townsend's	*Microtus townsendii*
Weasel, Short-tailed	*Mustela erminea*
Amphibians and Reptiles	
Northwestern Salamander	*Ambystoma gracile*
Rough-skinned Newt	*Taricha granulose*
Pacific Chorus Frog	*Pseudacris regilla*
Red-legged Frog	*Rana aurora*
Bullfrog (I)	*Rana catesbiana*
Northwestern Garter Snake	*Thamnophis ordinoides*
Common Garter Snake	*Thamnophis sirtalis*
T = state or federally threatened	
E = state or federally endangered	
S = state sensitive	
I = introduced (non-native)	

Species Expected to Occur, but not Observed,
Camp Rilea, 1998.

Birds:	**Justification[a]**
Turkey Vulture (*Cathartes aura*)	1,2
California Quail (*Laphortyx californicus*) (I)	1,2
Common Egret (*Casmerodius albus*)	1,2
Western Snowy Plover (*Charadrius alexandrinus*)	1
Mourning Dove (*Zenaidura macroura*)	1,2
Screech Owl (*Otus asio*)	1,2
Barn Owl (*Tyto alba*)	1,2
Red-Breasted Sapsucker (*Sphyrapicus ruber*)	1,2,3
Purple Martin (*Progne subis*)	2
Common Nighthawk (*Chordeiles minor*)	2
House Wren (*Troglodytes aedon*)	1,2
Cedar Waxwing (*Bombycilla cedrorum*)	1,2
Townsend's Warbler (*Dendroica townsendi*)	1
Brewer's Blackbird (*Euphagus cyanocephalus*)	1,2
House Sparrow (*Passer domesticus*) (I)	1, 2
Mammals:	
Red Fox (*Vulpes vulpes*)	1,2,3
Spotted Skunk (*Spilogale gracilis*)	1,2
Long-tailed Weasel (*Mustela frenata*)	1
Bushy-tailed Woodrat (*Neotoma cinerea*)	1,2
Porcupine (*Erethizon dorsatum*)	1
California Myotis (*Myotis californicus*)	1,2
Mountain Beaver (*Aplodontia rufa*)	1,2,3
Bobcat (*Lynx rufus*)	1,2
Amphibians and Reptiles:	
Ensatina (*Ensatina eschscholtzi*)	1
Long-toed Salamander (*Ambystoma macrodactylum*)	1
Western Toad (*Bufo boreas*)	1
Northern Alligator Lizard (*Elgaria coerulea*)	1

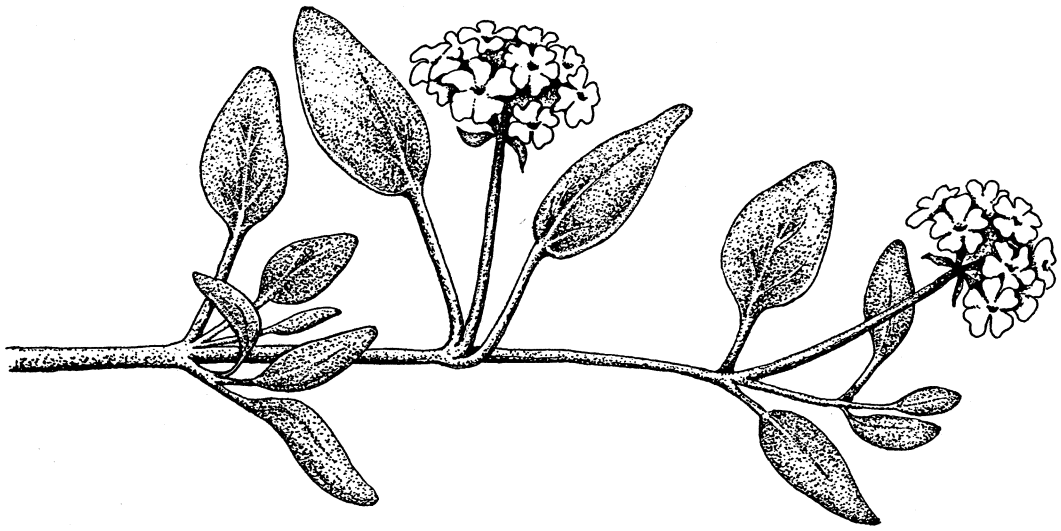
a - 1 = Appropriate habitat exists on the training site, and site is within the distribution range of this species.

2 = This species was observed on lands adjacent (within 1 km) to the training base boundary during 1999.

3 = Evidence of this species past presence was found on Camp Rilea, i.e. Sapsucker bark damage to deciduous trees, anecdotal accounts of Red Fox.

(I) = Introduced (non-native) species

RARE, THREATENED AND ENDANGERED SPECIES OF OREGON



OREGON NATURAL HERITAGE
INFORMATION CENTER

May 2004

Scientific Name Common Name	Ecoregion; Adjacent States Oregon Counties	Heritage Rank	Federal Status	ODFW Status	ORNHIC List
FISH					
Acipenser medirostris Green sturgeon	CR, WC?, WV; CA, WA + Clat, Colu, Coos, Curr, Doug, Lane, Linc, Mult, Till	G3 S3	SOC	–	4
Catostomus microps Modoc sucker	EC; CA Lake	G1 S1	LE	–	1
Catostomus occidentalis lacusanserinus Goose Lake sucker	EC; CA Lake	G5T2T3Q S2	SOC	SC	1
Catostomus rimiculus Jenny Creek sucker	EC, KM, WC; CA Jack	G5T2Q S2	SOC	SP	1
Catostomus snyderi Klamath largescale sucker	EC; CA Klam, Lake	G3 S3	SOC	–	4
Catostomus tahoensis Tahoe sucker	BR; CA, NV Malh	G5 S1	–	SP	2
Catostomus warnerensis Warner sucker	BR; NV Lake	G1 S1	LT	LT	1
Chasmistes brevirostris Shortnose sucker	EC; CA Klam	G1 S1	LE	LE	1
Cottus bendirei Malheur mottled sculpin	BM, BR, CR, WC, WV; WA + Colu, Gran, Harn, Lane, Linn, Wash	G4Q S4	SOC	SC	4
Cottus marginatus Margined sculpin	BM, CB; WA Morr, Umat	G3 S3	SOC	SV	4
Cottus pitensis Pit sculpin	EC; CA Lake	G4 S1	–	SP	2
Cottus tenuis Slender sculpin	EC Klam, Lake	G3 S3	SOC	–	3
Deltistes luxatus Lost River sucker	EC; CA Klam	G1 S1	LE	LE	1
Gila alvordensis Alvord chub	BR; NV Harn	G2 S2	SOC	SV	1
Gila bicolor eurysoma Sheldon tui chub	BR; NV Lake	G4T1 S1	SOC	SC	1
Gila bicolor oregonensis Oregon Lakes tui chub	BR, EC Lake	G4T2 S2	SOC	SV	1
Gila bicolor ssp. Hutton tui chub	BR Lake	G4T1 S1	LT	LT	1
Gila bicolor ssp. Summer Basin tui chub	BR Lake	G4T1 S1	SOC	SC	1
Gila bicolor ssp. Catlow tui chub	BR Harn, Lake	G4T1 S1	SOC	SV	1
Gila bicolor ssp. Warner Basin tui chub	BR Lake	G4T2Q S2	–	SP	1
Gila bicolor thalassina Goose Lake tui chub	EC; CA Lake	G4T2 S2	–	SP	1

Scientific Name Common Name	Ecoregion; Adjacent States Oregon Counties	Heritage Rank	Federal Status	ODFW Status	ORNHIC List
Gila boraxobius Borax Lake chub	BR Harn	G1 S1	LE	LE	1
Lampetra ayresi River lamprey	CR; CA, WA + Clat, Colu, Coos, Doug, Linc, Till	G4 S3?	SOC	--	3
Lampetra lethophaga Pit-Klamath brook lamprey	EC; CA Jack, Klam, Lake	G3G4 S3	--	--	4
Lampetra minima Miller Lake lamprey	EC, WC Klam, Lake	G1 S1	SOC	--	1
Lampetra tridentata Pacific lamprey	BM, CB, CR, EC, KM, WC, WV; CA, ID, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Doug, Gill, Gran, Hood, Jack, Jose, Klam, Lake, Lane, Linc, Linn, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Yamh	G5 S3	SOC	SV	4
Lampetra tridentata ssp. Goose Lake lamprey	EC; CA Lake	G5T1 S1	SOC	SC	1
Lavinia symmetricus mitrulus Pit roach	EC; CA Lake	G5T3 S2?	SOC	SP	2
Oncorhynchus clarki Coastal cutthroat trout (Oregon Coast ESU)	CR, KM, WC, WV Bent, Clat, Colu, Coos, Curr, Doug, Lane, Linc, Polk, Till, Wash, Yamh	G4T3Q S3	SOC	SV	4
Oncorhynchus clarki Coastal cutthroat trout (Southwestern Washington/Columbia River ESU)	CB, CR, EC, WC, WV; WA Clac, Clat, Colu, Hood, Mari, Mult, Wasc, Wash	G4T2Q S2	--	SC	1
Oncorhynchus clarki Coastal cutthroat trout (Upper Willamette River ESU)	CR, WC, WV Bent, Clac, Clat, Colu, Lane, Linc, Linn, Mari, Mult, Polk, Wash, Yamh	G4T?Q S3?	SOC	--	4
Oncorhynchus clarki Coastal cutthroat trout (Southern Oregon/California Coasts ESU)	CR, KM, WC; CA Curr, Jack, Jose	G4T?Q S3?	SOC	SV	4
Oncorhynchus clarki henshawi Lahontan cutthroat trout	BR; CA, NV Harn, Malh	G4T3 S1	LT	LT	2
Oncorhynchus clarki lewisi Westslope cutthroat trout	BM; ID, WA + Gran	G4T3 S3	SOC	SV	1
Oncorhynchus clarki ssp. Alvord cutthroat trout	BR; NV Harn	G4TX SX	--	--	1-ex
Oncorhynchus keta Chum salmon (Columbia River ESU)	CR, WC, WV; WA Clat, Colu, Mult	G5T2Q S2	LT	SC	1
Oncorhynchus keta Chum salmon (Pacific Coast ESU)	CR; CA, WA Clat, Coos, Doug, Lane, Linc, Till	G5T3Q S2	--	SC	2
Oncorhynchus kisutch Coho salmon (Lower Columbia River/SW Washington Coast ESU)	CB, CR, EC, WC, WV; WA Clac, Clat, Colu, Hood, Mari, Mult, Wasc	G4T2Q S2	C	LE	1
Oncorhynchus kisutch Coho salmon (Southern Oregon/Northern California Coasts ESU)	CR, KM, WC; CA Curr, Jack, Jose	G4T2Q S2	LT	SC	1
Oncorhynchus kisutch Coho salmon (Oregon Coast ESU)	CR, KM, WC, WV Bent, Clat, Colu, Coos, Curr, Doug, Lane, Linc, Polk, Till, Wash, Yamh	G4T2Q S2	LT	SC	1
Oncorhynchus mykiss gairdneri Inland Columbia Basin redband trout	BM, BR, CB, EC, SP; ID, WA + Bake, Croo, Desc, Gill, Gran, Harn, Jeff, Klam, Malh, Morr, Sher, Umat, Unio, Wall, Wasc	G5T4 S3	SOC	SV	4

Scientific Name Common Name	Ecoregion; Adjacent States Oregon Counties	Heritage Rank	Federal Status	ODFW Status	ORNHIC List
Oncorhynchus mykiss Steelhead (Snake River Basin ESU)	BM, CB, CR, EC, WC, WV; WA, ID Clat, Colu, Gill, Hood, Morr, Mult, Sher, Umat, Unio, Wall, Wasc	G5T2T3Q S2S3	LT	SV	1
Oncorhynchus mykiss Oregon Great Basin redband trout		G5T3Q S3	--	SV	3
Oncorhynchus mykiss Jenny Creek redband trout	EC Jack, Klam	G5T2Q S2	--	SV	1
Oncorhynchus mykiss Steelhead (Klamath Mountains Province ESU, summer run)	CR, KM, WC; CA Curr, Jack, Jose	G5T3Q S2S3	--	SV	2
Oncorhynchus mykiss Steelhead (Klamath Mountains Province ESU, winter run)	CR, KM, WC; CA Curr, Jack, Jose	G5T3Q S2S3	--	SV	2
Oncorhynchus mykiss Steelhead (Lower Columbia River ESU, summer run)	CR, EC, WC, WV; WA Clac, Clat, Colu, Hood, Mari, Mult	G5T2Q S2	LT	SC	1
Oncorhynchus mykiss Steelhead (Lower Columbia River ESU, winter run)	CR, EC, WC, WV; WA Clac, Clat, Colu, Hood, Mari, Mult	G5T2Q S2	LT	SC	1
Oncorhynchus mykiss Steelhead (Middle Columbia River ESU, summer run)	BM, CB, CR, EC, WC, WV; WA Clat, Colu, Croo, Gill, Gran, Hood, Jeff, Morr, Mult, Sher, Umat, Wasc, Whee	G5T2Q S2	LT	SV	1
Oncorhynchus mykiss Steelhead (Middle Columbia River ESU, winter run)	BM, CB, CR, EC, WC, WV; WA Clat, Colu, Croo, Gill, Gran, Hood, Jeff, Morr, Mult, Sher, Umat, Wasc, Whee	G5T2Q S2	LT	SC	1
Oncorhynchus mykiss Catlow Valley redband trout	BR Harn, Lake	G5T1Q S1	SOC	SV	1
Oncorhynchus mykiss Steelhead (Oregon Coast ESU, summer run)	CR, KM, WC, WV Bent, Clat, Colu, Coos, Curr, Doug, Lane, Linc, Polk, Till, Wash, Yamh	G5T2T3Q S2S3	C	SV	1
Oncorhynchus mykiss Steelhead (Oregon Coast ESU, winter run)	CR, KM, WC, WV Bent, Clat, Colu, Coos, Curr, Doug, Lane, Linc, Polk, Till, Wash, Yamh	G5T2T3Q S2S3	C	SV	1
Oncorhynchus mykiss Steelhead (Upper Willamette River ESU, winter run)	CR, WC, WV Bent, Clac, Clat, Colu, Linn, Mari, Mult, Polk, Wash, Yamh	G5T2Q S2	LT	SC	1
Oncorhynchus mykiss Steelhead (Southwest Washington ESU, winter run)	CR, WV; WA Clat, Colu	G5T3Q S2	--	SC	2
Oncorhynchus mykiss Warner Valley redband trout	BR, EC; CA, NV Lake	G5T2Q S2	SOC	SV	1
Oncorhynchus mykiss Goose Lake redband trout	EC; CA Lake	G5T2Q S2	SOC	SV	1
Oncorhynchus nerka Sockeye salmon (Snake River ESU)	BM; ID (migratory/non-breeder in OR, WA) Unio, Wall	G5T1Q SX	LE	--	1-ex
Oncorhynchus tshawytscha Chinook salmon (Snake River ESU, fall run)	BM, CB, CR, EC, WC, WV; ID, WA Clat, Colu, Gill, Hood, Morr, Mult, Sher, Umat, Wall, Wasc	G5T1Q S1	LT	LT	1
Oncorhynchus tshawytscha Chinook salmon (Lower Columbia River ESU, spring run)	CR, EC, WC, WV; WA Clac, Clat, Colu, Hood, Mult	G5T2Q S2	LT	SC	1

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Oncorhynchus tshawytscha Chinook salmon (Lower Columbia River ESU, fall run)	CR, EC, WC, WV; WA Clac, Clat, Colu, Hood, Mult	G5T2Q S2	LT	SC	1
Oncorhynchus tshawytscha Chinook salmon (Upper Willamette River ESU, spring run)	CR, WC, WV Bent, Clac, Clat, Colu, Lane, Linn, Mari, Mult, Polk, Yamh	G5T2Q S2	LT	--	1
Oncorhynchus tshawytscha Chinook salmon (Southern Oregon/Northern California Coast ESU, fall run)	CR, KM, WC; CA Curr, Jack, Jose	G5T3Q S2	--	SC	2
Oncorhynchus tshawytscha Chinook salmon (Snake River ESU, spring/summer run)	BM, CB, CR, EC, WC, WV; ID, WA Clat, Colu, Gill, Hood, Morr, Mult, Sher, Umat, Unio, Wall, Wasc	G5T1Q S1	LT	LT	1
Oregonichthys crameri Oregon chub	WC, WV Bent, Lane, Linn, Mari, Polk	G2 S2	LE	SC	1
Oregonichthys kalawatseti Umpqua chub	CR, KM, WC Doug	G2G3 S2S3	SOC	SV	1
Rhinichthys cataractae ssp. Millicoma dace	CR Coos, Doug	G5T2 S2	SOC	SP	1
Rhinichthys osculus ssp. Foskett Spring speckled dace	BR Lake	G5T1 S1	LT	LT	1
Richardsonius egregius Lahontan redside	BR; CA, NV Malh	G5 S2	--	SP	2
Salvelinus confluentus Bull trout (Klamath River population)	EC, WC Klam, Lake	G3T2Q S2	LT	SC	1
Salvelinus confluentus Bull trout (Columbia River population)	BM, CB, EC, WC, WV; ID, MT, WA Bake, Desc, Doug, Gran, Harn, Hood, Jeff, Klam, Lane, Linn, Malh, Umat, Unio, Wall, Wasc	G3T2Q S2	LT	SC	1
AMPHIBIANS					
Ambystoma tigrinum melanostictum Blotched tiger salamander	BM, BR, EC; ID, WA + Desc, Harn, Klam, Malh, Wasc	G5T4 S2?	--	SU	3
Aneides ferreus Clouded salamander	CR, KM, WC, WV; CA Bent, Clac, Clat, Colu, Coos, Curr, Desc, Doug, Hood, Jack, Jeff, Jose, Klam, Lane, Linc, Linn, Mari, Mult, Polk, Till, Wasc, Wash, Yamh	G3 S3	--	SU	4
Aneides flavipunctatus Black salamander	KM; CA Jack, Jose	G4 S2	--	SP	2
Ascaphus montanus Inland tailed frog	BM; ID, WA + Bake, Unio, Wall	G4 S2	SOC	SV	2
Ascaphus truei Coastal tailed frog	CR, EC, KM, WC; CA, WA + Bent, Clac, Clat, Colu, Coos, Curr, Desc, Doug, Hood, Jack, Jeff, Jose, Klam, Lane, Linc, Linn, Mari, Mult, Polk, Till, Wall, Wasc, Wash, Whee, Yamh	G4 S3	SOC	SV	4
Batrachoseps attenuatus California slender salamander	CR, KM; CA Coos, Curr	G5 S2	--	SP	2
Batrachoseps wrightorum Oregon slender salamander	EC, WC, WV Clac, Desc, Doug, Hood, Jeff, Klam, Lane, Linn, Mari, Mult, Wasc	G2G3 S2S3	SOC	SU	1
Bufo boreas Western toad	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G4 S3	--	SV	4

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Bufo woodhousii Woodhouse's toad	BR, CB, SP; ID, NV, WA + Malh, Morr, Umat	G5 S2	--	SP	2
Dicamptodon copei Cope's giant salamander	CR, WC; WA Clac, Clat, Colu, Hood, Mult, Till, Wasc, Wash	G3G4 S2	--	SU	2
Plethodon elongatus Del Norte salamander	CR, KM; CA Coos, Curr, Doug, Jack, Jose	G4 S3	SOC	SV	4
Plethodon larselli Larch Mountain salamander	WC; WA Clac, Hood, Mult	G3 S2	SOC	SV	2
Plethodon stormi Siskiyou Mountains salamander	KM; CA Jack, Jose	G2G3 S2	SOC	SV	1
Rana aurora aurora Northern red-legged frog (SV in WV ecoregion; SU elsewhere)	CR, KM, WC, WV; CA, WA + Bent, Clac, Clat, Colu, Coos, Curr, Doug, Hood, Jack, Jose, Klam, Lane, Linc, Linn, Mari, Mult, Polk, Till, Wasc, Wash, Yamh	G4T4 S3S4	SOC	SV/SU	4
Rana boylii Foothill yellow-legged frog	CR, KM, WC, WV; CA Coos, Curr, Doug, Jack, Jose, Klam, Lane, Linn, Mari	G3 S2S3	SOC	SV	2
Rana cascadae Cascades frog	EC, KM, WC; CA, WA Clac, Desc, Doug, Hood, Jack, Jeff, Klam, Lane, Linn, Mari, Mult, Wasc	G3G4 S3	SOC	SV	4
Rana luteiventris Columbia spotted frog	BM, BR, CB; ID, NV, WA + Bake, Croo, Gran, Harn, Jeff, Lake, Malh, Umat, Unio, Wall, Whee	G4 S2S3	C	SU	2
Rana pipiens Northern leopard frog	BM, BR, CB, EC, KM, SP; CA, ID, NV, WA + Bake, Croo, Gill, Gran, Hood, Jack, Jeff, Klam, Malh, Morr, Sher, Umat, Wasc	G5 S1S2	--	SC	2
Rana pretiosa Oregon spotted frog	EC, WC, WV; CA, WA Bent, Clac, Colu, Croo, Desc, Hood, Jack, Jeff, Klam, Lane, Linn, Mari, Mult, Polk, Wasc, Wash, Yamh	G2 S2	C	SC	1
Rhyacotriton cascadae Cascade torrent salamander	WC; WA Clac, Hood, Lane, Linn, Mari, Mult	G3 S3	--	SV	4
Rhyacotriton kezeri Columbia torrent salamander	CR; WA Clat, Colu, Polk, Till, Wash, Yamh	G3 S3	--	SC	4
Rhyacotriton variegatus Southern torrent salamander	CR, KM, WC, WV; CA Bent, Coos, Curr, Doug, Jose, Lane, Linc, Polk, Till, Yamh	G3G4 S3	SOC	SV	4
Taricha granulosa mazamae Crater Lake newt	EC Klam	G5T1Q S1	--	--	1
REPTILES					
Chrysemys picta Painted turtle	BM, CB, WC, WV; ID, WA + Bake, Bent, Clac, Colu, Gran, Hood, Lane, Linn, Mari, Morr, Mult, Polk, Sher, Umat, Unio, Wall, Wasc, Wash, Yamh	G5 S2	--	SC	2
Crotalus viridis Western rattlesnake (SV in WV ecoregion only)	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linn, Malh, Mari, Morr, Sher, Umat, Unio, Wall, Wasc, Whee	G5 S5	--	SV	4
Emys marmorata marmorata Northwestern pond turtle	CR, EC, KM, WC, WV; CA, NV, WA Bent, Clac, Colu, Coos, Curr, Doug, Hood, Jack, Jose, Klam, Lane, Linn, Mari, Mult, Polk, Till, Wasc, Wash, Yamh	G3G4T3T4 S2	SOC	SC	2
Lampropeltis getula Common kingsnake	KM, WC; CA, NV + Curr, Doug, Jack, Jose	G5 S3	SOC	SV	4
Lampropeltis zonata California mountain kingsnake	CR, EC, KM, WC; CA, WA Curr, Doug, Jack, Jose	G4G5 S4	SOC	SV	4

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Sceloporus graciosus graciosus Northern sagebrush lizard (SV in CB ecoregion only)	BM, BR, CB, CR, EC, KM, WC; CA, ID, NV, WA	G5T5 S5	SOC	SV	4
Sonora semiannulata Ground snake	BR; CA, ID, NV + Harn, Malh	G5 S3	--	SP	4
BIRDS					
Accipiter gentilis Northern goshawk	BM, BR, CB, CR, EC, KM, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Coos, Croo, Curr, Desc, Doug, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Umat, Unio, Wall, Wasc, Whee	G5 S3B	SOC	SC	4
Aechmophorus clarkii Clark's grebe	BM, BR, CR, EC, KM, SP; CA, NV, ID, WA + Clat, Colu, Coos, Curr, Doug, Harn, Jack, Klam, Lake, Lane, Linc, Till	G5 S3B,S2N	--	--	4
Aechmophorus occidentalis Western grebe	BM, BR, CR, EC, KM, SP, WC, WV; CA, NV, ID, WA + Clat, Colu, Coos, Curr, Desc, Harn, Jack, Klam, Lake, Lane, Linc, Linn, Mult, Polk, Till, Wash	G5 S3B,S2S3N	--	--	4
Aegolius funereus Boreal owl	BM, EC, WC; ID, WA + Bake, Clac, Desc, Gran, Hood, Jeff, Klam, Lane, Linn, Mari, Umat, Unio, Wall, Wasc, Whee	G5 S3?	--	SU	3
Agelaius tricolor Tricolored blackbird	BM, CB, EC, KM, WV; CA Jack, Klam, Lake, Mult, Umat, Wasc, Whee	G3 S2B	SOC	SP	2
Ammodramus savannarum Grasshopper sparrow (SV in CB ecoregion; SP in WV ecoregion)	BM, BR, CB, KM, WV; CA, ID, NV, WA + Bake, Doug, Gill, Harn, Jack, Lane, Linn, Malh, Morr, Polk, Sher, Umat, Wall, Wasc	G5 S2B	--	SV/SP	2
Amphispiza belli Sage sparrow (SC in CB ecoregion only)	BM, BR, CB, EC, SP; CA, ID, NV, WA + Bake, Croo, Desc, Gill, Harn, Jeff, Lake, Malh, Morr, Umat, Whee	G5 S4B	--	SC	4
Amphispiza bilineata Black-throated sparrow	BM, BR, CB; CA, ID, NV, WA + Croo, Desc, Harn, Klam, Lake, Malh, Morr, Whee	G5 S3B	--	SP	4
Anser albifrons elgasi Tule goose	BR, EC; WA Harn, Klam, Lake	G5T2T3 S2S3N	--	--	1
Athene cunicularia hypugaea Western burrowing owl (SC in WV, KM, CB and BM ecoregions only)	BM, BR, CB, EC, KM, SP, WV Bake, Bent, Croo, Desc, Doug, Gill, Gran, Harn, Jack, Jeff, Jose, Klam, Lake, Lane, Linn, Malh, Morr, Sher, Umat, Unio, Wall, Wasc, Whee	G4T4 S3B	SOC	SC	4
Bartramia longicauda Upland sandpiper	BM, EC; ID, WA + Croo, Gran, Klam, Lake, Umat, Unio	G5 S1B	SOC	SC	2
Brachyramphus marmoratus Marbled murrelet	CR, KM; CA, WA + Bent, Clat, Coos, Curr, Doug, Lane, Linc, Polk, Till	G3G4 S2	LT	LT	2
Branta canadensis leucopareia Aleutian Canada goose	CR, KM, WV; AK, CA, WA, BC Bent, Colu, Coos, Curr, Mari, Mult, Polk, Till, Wash, Yamh	G5T3 S2N	--	LE	2
Branta canadensis occidentalis Dusky Canada goose	CR, WV; WA + Bent, Colu, Lane, Linn, Mari, Mult, Polk, Till, Wash, Yamh	G5T2T3 S2S3N	--	--	1
Bucephala albeola Bufflehead	BM, BR, CB, CR, EC, KM, WC, WV; CA, ID, WA + Bake, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gran, Harn, Jack, Jeff, Jose, Klam, Lake, Lane, Linn, Malh, Mari, Morr, Mult, Till, Umat, Wall, Wasc, Wash, Whee, Yamh	G5 S2B,S5N	--	SU	2
Bucephala islandica Barrow's goldeneye	BM, BR, CB, EC, WC; CA, ID, WA + Bake, Clac, Desc, Doug, Hood, Jack, Jeff, Klam, Lake, Lane, Linn, Malh, Mari, Morr, Umat, Wall, Wasc	G5 S3B,S3N	--	SU	4
Buteo regalis Ferruginous hawk	BM, BR, CB, SP; CA, ID, NV, WA + Bake, Croo, Desc, Gill, Gran, Harn, Lake, Malh, Morr, Sher, Umat, Unio, Wall, Wasc, Whee	G4 S3B	SOC	SC	4
Buteo swainsoni Swainson's hawk	BM, BR, CB, EC, SP; CA, ID, NV, WA + Bake, Croo, Desc, Gill, Harn, Jeff, Lake, Malh, Morr, Sher, Umat, Unio, Wall, Wasc, Whee	G5 S3B	--	SV	4

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Centrocercus urophasianus Greater sage-grouse (SV in EC, CB and BM ecoregions only)	BM, BR, CB, EC; CA, NV, WA Bake, Croo, Desc, Gill, Gran, Harn, Klam, Lake, Malh, Unio, Wasc, Whee	G4 S3	SOC	SV	4
Cerorhinca monocerata Rhinoceros auklet	CR; CA, WA + Clat, Coos, Curr, Doug, Lane, Linc, Till	G5 S2B	--	--	2
Charadrius alexandrinus nivosus Western snowy plover (LT (Federal) for coastal pops. only)	BR, CR, EC, KM; CA, NV, WA + Clat, Coos, Curr, Doug, Harn, Klam, Lake, Lane, Linc, Till	G4T3 S2	PS:LT	LT	2
Chlidonias niger Black tern	BM, BR, EC, WV; ID, NV, WA + Bent, Croo, Desc, Gran, Harn, Klam, Lake, Lane, Linn, Malh, Polk	G4 S3B	SOC	--	4
Chordeiles minor Common nighthawk (SC in WV ecoregion only)	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G5 S5B	--	SC	4
Coccyzus americanus Yellow-billed cuckoo	BM, BR, EC, WC, WV; CA, ID, NV, WA + Bake, Clac, Desc, Gran, Harn, Klam, Lake, Linn, Malh, Mult, Umat, Unio, Wall	G5 SHB	C	SC	2-ex
Contopus cooperi Olive-sided flycatcher	BM, CR, EC, KM, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G4 S3B	SOC	SV	4
Coturnicops noveboracensis Yellow rail	EC; CA + Klam, Lake	G4 S1B	SOC	SC	2
Cygnus buccinator Trumpeter swan	BM, BR, CR, EC, WV; NV, ID, WA + Clat, Colu, Harn, Klam, Lake, Malh, Mult, Polk	G4 S1?B,S3N	--	--	2
Cypseloides niger Black swift	WC; CA, ID, WA + Doug, Hood, Jack, Lane	G4 S2B	--	SP	2
Dolichonyx oryzivorus Bobolink	BM, BR; ID, NV, WA + Bake, Croo, Gran, Harn, Lake, Malh, Umat, Unio, Wall	G5 S2B	--	SV	2
Egretta thula Snowy egret	BR, EC; CA, ID, NV, WA + Harn, Klam, Lake	G5 S2B	--	SV	2
Elanus leucurus White-tailed kite	CR, KM, WV; CA + Bent, Clat, Coos, Curr, Doug, Jack, Jose, Lane, Polk, Till	G5 S2B,S3N	--	--	2
Empidonax traillii adastus Willow flycatcher	BM, BR, CB, EC, KM, SP; CA, ID, NV, WA + Bake, Croo, Desc, Gran, Harn, Hood, Jeff, Klam, Lake, Malh, Morr, Umat, Unio, Wall, Wasc, Whee	G5T5 S3S4B	SOC	SU	4
Empidonax traillii brewsteri Little willow flycatcher	CR, KM, WC, WV; CA, WA + Bent, Clac, Clat, Colu, Coos, Curr, Doug, Hood, Jack, Jose, Lane, Linc, Linn, Mari, Mult, Polk, Till, Wash, Yamh	G5T3T4 S3S4B	--	SV	4
Eremophila alpestris strigata Streaked horned lark	CR, KM, WV; WA + Bent, Clac, Clat, Doug, Jack, Jose, Lane, Linn, Mari, Mult, Polk, Wash, Yamh	G5T2 S2B	C	SC	1
Falcipennis canadensis Spruce grouse	BM; ID, WA + Bake, Unio, Wall	G5 S3	--	SU	3
Falco columbarius Merlin	BR, CB, EC; ID, WA + Gill, Harn, Klam, Morr	G5 SHB	--	--	2-ex
Falco peregrinus anatum American peregrine falcon	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G4T3 S2B	--	LE	2

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Fratercula cirrhata Tufted puffin	CR, KM; CA, WA + Clat, Coos, Curr, Lane, Linc, Till	G5 S2B	--	--	2
Grus canadensis canadensis Lesser sandhill crane	BR; ID, NV Harn, Malh	G5T4 S3N	--	--	4
Grus canadensis rowani Canadian sandhill crane	WV; WA + Mult	G5T3T4 S2?N	--	--	3
Grus canadensis tabida Greater sandhill crane	BM, BR, EC, WC; CA, ID, NV, WA + Bake, Clac, Croo, Desc, Gran, Harn, Hood, Jack, Jeff, Klam, Lake, Lane, Linn, Malh, Mari, Umat, Unio, Wall, Wasc	G5T4 S3S4B	--	SV	4
Gymnogyps californianus California condor	CR, KM, WC, WV; CA	G1 SX	LE	--	1-ex
Haematopus bachmani Black oystercatcher	CR; CA, WA + Clat, Coos, Curr, Lane, Linc, Till	G5 S3	--	--	4
Haliaeetus leucocephalus Bald eagle	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G4 S4B,S4N	LT	LT	4
Histrionicus histrionicus Harlequin duck	BM, CR, EC, WC; ID, WA + Clac, Clat, Coos, Curr, Doug, Hood, Klam, Lane, Linc, Linn, Mari, Mult, Till, Wall	G4 S2B,S3N	SOC	SU	2
Icteria virens Yellow-breasted chat (SC in WV ecoregion only)	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G5 S4B	SOC	SC	4
Ixobrychus exilis hesperis Western least bittern	BR, EC; CA + Harn, Klam	G5T3T4 S1B	SOC	SP	3
Lanius ludovicianus Loggerhead shrike (SV in CB and BM ecoregions only)	BM, BR, CB, EC, KM, SP, WV; CA, ID, NV, WA + Bake, Croo, Desc, Gill, Gran, Harn, Jack, Jeff, Klam, Lake, Lane, Malh, Morr, Sher, Umat, Unio, Wall, Wasc, Whee	G4 S3B,S2N	--	SV	4
Larus pipixcan Franklin's gull	BR; CA, ID + Harn	G4G5 S2B	--	SP	2
Leucosticte atrata Black rosy-finch	BR; CA, ID, NV, WA + Harn	G4 S2B	--	SP	2
Leucosticte tephrocotis wallowa Wallowa rosy-finch	BM Wall	G5T2 S2B,S2?N	--	--	1
Melanerpes formicivorus Acorn woodpecker	CR, EC, KM, WV; CA, WA + Bent, Clac, Coos, Curr, Doug, Jack, Jose, Klam, Lane, Linn, Mari, Polk, Wasc, Wash, Yamh	G5 S3	SOC	--	4
Melanerpes lewis Lewis's woodpecker (SC in WV, KM, WC, EC and CB ecoregions only)	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G4 S2S3B	SOC	SC	2
Numenius americanus Long-billed curlew (SV in CB ecoregion only)	BM, BR, CB, EC, SP; CA, ID, NV, WA + Bake, Croo, Desc, Gill, Gran, Harn, Jeff, Klam, Lake, Malh, Morr, Sher, Umat, Unio, Wall, Wasc, Whee	G5 S3B	--	SV	4
Oceanodroma furcata Fork-tailed storm-petrel	CR; CA, WA + Clat, Curr, Till	G5 S2B	--	SV	2

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Oreortyx pictus Mountain quail (SU in EC and BM ecoregions only)	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G5 S4	SOC	SU	4
Otus flammeolus Flammulated owl	BM, BR, EC, KM, WC; CA, ID, NV, WA + Bake, Croo, Desc, Gran, Harn, Jack, Jeff, Klam, Lake, Morr, Umat, Unio, Wall, Wasc, Whee	G4 S3B	--	SC	4
Patagioenas fasciata Band-tailed pigeon	CR, KM, WC, WV; CA, ID, NV, WA + Bent, Clac, Clat, Colu, Coos, Curr, Doug, Hood, Jack, Jose, Lane, Linc, Linn, Mari, Mult, Polk, Till, Wasc, Wash, Yamh	G4 S3B	SOC	--	4
Pelecanus erythrorhynchos American white pelican	BR, EC; CA, ID, NV, WA + Harn, Klam, Lake	G3 S2B	--	SV	2
Pelecanus occidentalis californicus California brown pelican	CR; CA, WA + Clat, Coos, Curr, Doug, Lane, Linc, Till	G4T3 S2N	LE	LE	2
Picoides albolarvatus White-headed woodpecker	BM, EC, KM, WC; CA, ID, NV, WA + Bake, Croo, Curr, Desc, Doug, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Morr, Umat, Unio, Wall, Wasc, Whee	G4 S2S3	SOC	SC	2
Picoides arcticus Black-backed woodpecker	BM, EC, KM, WC; CA, ID, NV, WA + Bake, Clac, Croo, Desc, Doug, Gran, Harn, Hood, Jack, Jeff, Klam, Lake, Lane, Linn, Mari, Morr, Mult, Umat, Unio, Wall, Wasc, Whee	G5 S3	--	SC	4
Picoides dorsalis American three-toed woodpecker	BM, EC, WC; ID, NV, WA + Bake, Clac, Croo, Desc, Doug, Gran, Jack, Jeff, Klam, Lane, Linn, Mari, Mult, Umat, Unio, Wall, Wasc	G5 S3	--	SC	4
Pinicola enucleator Pine grosbeak	BM, EC, WC?; CA, ID, NV, WA + Bake, Desc, Gran, Jeff, Unio, Wall	G5 S2?	--	--	3
Plegadis chihi White-faced ibis	BR, EC; CA, NV + Harn, Klam, Lake, Malh	G5 S3B	SOC	--	4
Podiceps auritus Horned grebe	BM, BR, CB, CR, EC, WC, WV; ID, WA + Clat, Coos, Curr, Doug, Harn, Klam, Lake, Lane, Linc, Linn, Till, Wall	G5 S2B,S5N	--	SP	2
Podiceps grisegena Red-necked grebe	CR, EC, WC; ID, WA + Clat, Coos, Curr, Doug, Jack, Klam, Lane, Linc, Mult, Till	G5 S1B,S4N	--	SC	2
Pooecetes gramineus affinis Oregon vesper sparrow	CR, KM, WV; WA + Bent, Clac, Colu, Coos, Doug, Jack, Jose, Lane, Linn, Mari, Mult, Polk, Wash, Yamh	G5T3 S2B,S2N	SOC	SC	2
Progne subis Purple martin	CR, KM, WC, WV; CA, ID, WA + Bent, Clac, Clat, Colu, Coos, Curr, Doug, Hood, Jack, Jose, Klam, Lake, Lane, Linc, Linn, Mari, Mult, Polk, Till, Wasc, Wash, Yamh	G5 S2B	SOC	SC	2
Ptychoramphus aleuticus Cassin's auklet	CR; CA, WA + Clat, Coos, Curr, Lane, Linc, Till	G4 S2B	--	--	2
Seiurus noveboracensis Northern waterthrush	BM, EC, WC; ID, WA + Desc, Klam, Lane, Unio, Wall	G5 S2B	--	--	2
Selasphorus platycercus Broad-tailed hummingbird	BM, BR; CA, ID, NV + Harn, Lake, Malh, Unio, Wall	G5 S2?B	--	--	3
Sialia mexicana Western bluebird (SV in CR, WV, KM and WC ecoregions only)	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G5 S4B,S4N	--	SV	4
Sitta carolinensis aculeata Slender-billed nuthatch	CR, KM, WC, WV; CA, WA, BC, Mexico Bent, Clac, Colu, Curr, Doug, Jack, Jose, Klam, Lane, Linn, Mari, Polk, Wash, Yamh	G5T4 S3	--	--	4

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Sterna forsteri Forster's tern	BR, CB, EC, WC; CA, ID, NV, WA + Desc, Harn, Klam, Lake, Malh, Morr	G5 S3B	--	--	4
Strix nebulosa Great gray owl	BM, EC, KM, WC; CA, ID, WA + Bake, Clac, Desc, Doug, Gran, Jack, Jeff, Klam, Lake, Lane, Linn, Mari, Umat, Unio, Wall, Wasc, Whee	G5 S3	--	SV	4
Strix occidentalis caurina Northern spotted owl	CR, EC, KM, WC, WV; CA, WA, BC Bent, Clac, Clat, Colu, Coos, Curr, Desc, Doug, Hood, Jack, Jeff, Jose, Klam, Lane, Linc, Linn, Mari, Mult, Polk, Till, Wasc, Wash, Yamh	G3T3 S3	LT	LT	1
Sturnella neglecta Western meadowlark (SC in WV ecoregion)	BM, BR, CB, EC, KM, WV; CA, ID, NV, WA + Bake, Bent, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G5 S4	--	SC	4
Tympanuchus phasianellus columbianus Columbian sharp-tailed grouse	BM, BR, CB, EC; CA, ID, MT, NV, WA, BC Bake, Croo, Desc, Gill, Gran, Harn, Hood, Jeff, Klam, Lake, Malh, Morr, Sher, Umat, Unio, Wall, Wasc, Whee	G4T3 S1	SOC	--	2
MAMMALS					
Ammospermophilus leucurus White-tailed antelope squirrel	BR, SP; CA, ID, NV + Harn, Lake, Malh	G5 S4?	--	SU	3
Antrozous pallidus Pallid bat	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Croo, Doug, Gill, Gran, Harn, Jack, Jeff, Jose, Klam, Lake, Lane, Malh, Mult, Umat, Wasc, Whee	G5 S2	SOC	SV	2
Arborimus albipes White-footed vole	CR, KM, WC, WV; CA Bent, Clat, Colu, Coos, Curr, Doug, Jose, Lane, Linc, Linn, Polk, Till, Wash, Yamh	G3G4 S3S4	SOC	SU	4
Arborimus longicaudus longicaudus Red tree vole	CR, KM, WC, WV; CA? Bent?, Clac, Coos, Curr, Doug, Hood, Jack, Jose, Lane, Linn, Mari, Mult	G3G4T3Q S3	SOC	--	4
Arborimus longicaudus silvicola Dusky tree vole	CR, WV? Bent, Clat, Colu, Linc, Polk, Till, Wash, Yamh	G3G4T1Q S1	SOC	--	1
Bassariscus astutus Ringtail	CR, EC, KM, WC; CA, NV + Coos, Curr, Doug, Jack, Jose, Klam, Lane	G5 S3	--	SU	4
Brachylagus idahoensis Pygmy rabbit	BM, BR, CB, EC, SP; CA, ID, NV, WA + Bake, Croo, Desc, Gran, Harn, Jeff, Klam, Lake, Malh, Unio, Wasc, Whee	G4 S2?	SOC	SV	2
Canis lupus Gray wolf	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G4 SH	LT	LE	2-ex
Corynorhinus townsendii Townsend's big-eared bat	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Coos, Croo, Curr, Desc, Doug, Gran, Harn, Jack, Jeff, Jose, Klam, Lake, Lane, Malh, Mari, Mult, Till, Umat, Unio, Wall, Wasc, Wash, Whee	G4 S2	SOC	SC	2
Enhydra lutris Sea otter	CR; CA, WA + Curr	G4 SH	LT	LT	2-ex
Euderma maculatum Spotted bat	BM, BR, CB; CA, ID, NV, WA + Croo, Desc, Gill, Gran, Harn, Jeff, Sher, Wall, Wasc, Whee	G4 S2	SOC	--	2
Eumetopias jubatus Northern sea lion	CR; CA, WA Clat, Coos, Curr, Lane, Linc, Till	G3 S2	LT	SV	2
Gulo gulo luteus California wolverine	BM, BR, CR, EC, KM, WC; CA, WA Bake, Clac, Croo, Desc, Doug, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Mari, Till, Umat, Unio, Wall, Wasc, Whee	G4T3Q S1?	SOC	LT	2

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Lasionycteris noctivagans Silver-haired bat	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Coos, Croo, Curr, Desc, Doug, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linn, Malh, Mari, Mult, Polk, Till, Umat, Unio, Wall, Wasc, Wash, Whee	G5 S3S4	SOC	SU	4
Lasiurus cinereus Hoary bat	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Clac, Clat, Croo, Curr, Desc, Doug, Gran, Harn, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Mult, Till, Umat, Unio, Wall, Wasc, Whee	G5 S3	–	–	4
Lepus townsendii White-tailed jackrabbit	BM, BR, CB, EC; CA, ID, NV, WA + Bake, Croo, Desc, Gill, Gran, Harn, Jeff, Klam, Lake, Malh, Morr, Sher, Umat, Unio, Wall, Wasc, Whee	G5 S4?	–	SU	3
Lynx canadensis Canada lynx	BM, BR, CB, EC, KM, WC, WV; ID, NV, WA + Bake, Bent, Clac, Croo, Desc, Doug, Gran, Harn, Jack, Klam, Lake, Lane, Linn, Morr, Mult, Sher, Umat, Unio, Wall, Wasc	G5 S1?	LT	–	2
Martes americana American marten	BM, CR, EC, KM, WC; CA, ID, NV, WA + Bake, Bent, Clac, Coos, Curr, Desc, Doug, Gran, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Mari, Mult, Till, Umat, Unio, Wall, Wasc, Wash, Yamh	G5 S3S4	–	SV	4
Martes pennanti Fisher	BM, CR, EC, KM, WC; CA, ID, WA Bake, Clac, Coos, Curr, Desc, Doug, Gran, Jack, Jose, Klam, Lake, Lane, Linc, Linn, Morr, Till, Umat, Unio, Wall, Wasc, Yamh	G5 S2	C	SC	2
Myotis californicus California myotis	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Coos, Curr, Doug, Gran, Harn, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Mari, Umat, Unio, Wall, Wasc, Whee, Yamh	G5 S3	–	–	4
Myotis ciliolabrum Western small-footed myotis	BM, BR, CB, EC, SP; CA, ID, NV, WA + Bake, Croo, Desc, Doug, Gran, Harn, Hood, Jeff, Klam, Lake, Malh, Morr, Sher, Umat, Unio, Wall, Wasc, Whee	G5 S3S4	SOC	SU	4
Myotis evotis Long-eared myotis	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Till, Umat, Unio, Wall, Wasc, Whee, Yamh	G5 S4	SOC	SU	4
Myotis thysanodes Fringed myotis	BM, BR, CR, EC, KM, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Curr, Doug, Gran, Harn, Jack, Jose, Klam, Lake, Lane, Linc, Linn, Till, Unio, Wall, Wash	G4G5 S2	SOC	SV	2
Myotis volans Long-legged myotis	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gran, Harn, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Mult, Till, Umat, Unio, Wall, Wasc, Wash, Whee	G5 S3	SOC	SU	4
Myotis yumanensis Yuma myotis	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G5 S3	SOC	–	4
Odocoileus virginianus leucurus Columbian white-tailed deer (LE for Columbia River DPS only; SV in CR ecoregion only)	CR, KM, WV; WA Clat, Colu, Doug, Lane, Mult	G5T2Q S2	PS:LE	SV	1
Ovis canadensis canadensis Rocky Mountain bighorn sheep	BM; ID, WA + Bake, Unio, Wall	G4T4Q S3	–	–	4
Ovis canadensis nelsoni Desert bighorn sheep	BM, BR, CB, EC; CA, NV Bake, Desc, Gill, Gran, Harn, Lake, Malh, Morr, Sher, Wasc, Whee	G4T4Q S3	SOC	–	4

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Sciurus griseus Western gray squirrel	CR, EC, KM, WC, WV; CA, NV, WA Bent, Clac, Colu, Coos, Curr, Desc, Doug, Hood, Jack, Jeff, Jose, Klam, Lane, Linc, Linn, Mari, Mult, Polk, Till, Wasc, Wash, Yamh	G5 S4	--	SU	4
Sorex preblei Preble's shrew	BM, BR, EC; CA, ID, NV, WA + Bake, Croo, Desc, Gran, Harn, Klam, Lake, Malh, Umat, Unio, Wall	G4 S3?	SOC	--	3
Spermophilus elegans nevadensis Wyoming ground squirrel	BR; ID, NV + Malh	G5T4 SH	--	--	2-ex
Spermophilus washingtoni Washington ground squirrel	CB; WA Gill, Morr, Umat	G2 S2	C	LE	1
Tadarida brasiliensis Brazilian free-tailed bat	EC, KM, WC, WV; CA, NV+ Doug, Jack, Jose, Klam, Lane, Wash	G5 S4	--	--	4
Thomomys bottae detumidus Pistol River pocket gopher	CR Curr	G5T2Q S2	SOC	--	2
Thomomys bulbivorus Camas pocket gopher	WV Bent, Clac, Colu, Lane, Linn, Mari, Mult, Polk, Wash, Yamh	G3G4 S3S4	SOC	--	4
Thomomys mazama helleri Gold Beach pocket gopher	CR Curr	G4G5T1T2 S1S2	SOC	--	2
Ursus arctos horribilis Grizzly bear	BM, BR, CB, CR, EC, KM, SP, WC, WV; CA, ID, NV, WA + Bake, Bent, Clac, Clat, Colu, Coos, Croo, Curr, Desc, Doug, Gill, Gran, Harn, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linc, Linn, Malh, Mari, Morr, Mult, Polk, Sher, Till, Umat, Unio, Wall, Wasc, Wash, Whee, Yamh	G4T3T4 SX	LT	--	2-ex
Vulpes macrotis Kit fox	BR, EC; CA, ID, NV + Desc, Harn, Klam, Malh	G4 S1	--	LT	2

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INVERTEBRATES					
Class Turbellaria - Flatworms					
Order Tricladida					
Kenkia rhynchida A flatworm (planarian)	BR Harn	G1G2 S1S2	SOC	–	1
Class Bivalvia - Clams, Oysters and Mussels					
Order Ostreoida					
Ostrea conchaphila Native oyster	CR; WA Linc, Till	GNR SNR	–	–	3
Order Unionoida					
Anodonta californiensis California floater (mussel)	BM, BR, CB, CR, EC, WC, WV; CA, ID, NV, WA + Clat, Colu, Coos?, Desc, Gran, Harn, Klam, Linn, Malh, Mult, Sher, Wasc, Wash	G3 S1	SOC	–	2
Anodonta oregonensis Oregon floater (mussel)	BR, CB, CR, EC, KM, WC, WV; CA, NV, UT, WA Bent, Clac, Clat, Colu, Coos, Doug, Harn, Klam, Lane, Linc, Mari, Mult, Polk, Sher, Wasc, Wash	G5 S3	–	–	4
Anodonta wahlametensis Willamette floater (mussel)	BR, CR, EC, WC, WV; CA, WA Clat, Colu, Harn, Mult, Wasc?	G2Q S1	–	–	1
Gonidea angulata Western ridgemussel	BM, BR, CB, EC, WC, WV; CA, ID, NV, WA, BC Clac, Colu, Desc, Harn, Klam, Linn, Malh, Mari, Mult, Wasc, Wash	G3 S2	–	–	2
Margaritifera falcata Western pearlshell	BM, BR, CB, CR, EC, WC, WV; CA, ID, NV, WA + Bent, Clac, Clat, Coos, Croo, Desc, Doug, Harn, Klam, Lane, Linc, Linn, Mari, Polk, Sher, Wasc, Wash, Whee	G4 S3	–	–	4
Order Veneroida					
Pisidium sp. nov. Modoc peaclam	EC; CA Klam	G1 S1	–	–	1
Pisidium ultramontanum Montane peaclam	EC; CA Klam	G1 S1	SOC	–	1
Class Gastropoda - Snails and Slugs					
Order Neotaenioglossa					
Algamorda newcombiana Newcomb's littorine snail	CR; CA, WA Coos	G1G2 S1	SOC	–	1
Colligyrus depressus Harney Basin duskysnail	BR Harn	G1 S1	–	–	1
Colligyrus sp. nov. Blue Mountains duskysnail	BM Bake, Gran	G1 S1	–	–	1
Colligyrus sp. nov. Columbia duskysnail	CB, EC, WC, WV; WA Clac, Hood, Mult, Wasc	G2 S2	–	–	1
Colligyrus sp. nov. Klamath duskysnail	EC Klam	G1 S1	–	–	1
Colligyrus sp. nov. Link River duskysnail	EC Klam	G1 S1	–	–	1
Colligyrus sp. nov. Mare's egg duskysnail	EC Klam	G1 S1	–	–	1
Colligyrus sp. nov. Nodose duskysnail	EC Klam	G1 S1	–	–	1
Fluminicola fuscus Columbia pebblesnail or spire snail	BM, CB, WV; BC, ID, MT, WA, WY Mult, Wall, Wasc	G2 S1	SOC	–	1
Fluminicola insolitus Donner und Blitzen pebblesnail	BR Harn	G1 S1	–	–	1
Fluminicola sp. nov. Metolius pebblesnail	EC Jeff	G1 S1	–	–	1

Scientific Name Common Name	Ecoregion; Adjacent States Oregon Counties	Heritage Rank	Federal Status	ODFW Status	ORNHIC List
Fluminicola sp. nov. Nerite pebblesnail	WC Jack	G1 S1	–	–	1
Fluminicola sp. nov. Odessa pebblesnail	EC Klam	G1 S1	–	–	1
Fluminicola sp. nov. Ouxy Spring pebblesnail	EC Klam	G1 S1	–	–	1
Fluminicola sp. nov. Tall pebblesnail	EC Klam	G1 S1	–	–	1
Fluminicola sp. nov. Tiger lily pebblesnail	EC Klam	G1 S1	–	–	1
Fluminicola sp. nov. Toothed pebblesnail	WC Jack	G1 S1	–	–	1
Fluminicola sp. nov. Tuscan pebblesnail	CB Wasc	G1 S1	–	–	1
Fluminicola sp. nov. Wood River pebblesnail	EC Klam	G1 S1	–	–	1
Fluminicola sp. nov. Keene Creek pebblesnail	EC, KM Jack, Klam	G1 S1	–	–	1
Fluminicola sp. nov. Casebeer pebblesnail	EC Klam	G1 S1	–	–	1
Fluminicola sp. nov. Crooked Creek pebblesnail	EC Klam	G2 S2	–	–	1
Fluminicola sp. nov. Diminuitive pebblesnail	WC Jack	G1 S1	–	–	1
Fluminicola sp. nov. Fall Creek pebblesnail	WC Jack, Klam	G1 S1	–	–	1
Fluminicola sp. nov. Klamath pebblesnail	EC; CA Klam, Lake	G1G2 S1S2	–	–	1
Fluminicola sp. nov. Klamath Rim pebblesnail	EC Klam	G1 S1	–	–	1
Fluminicola sp. nov. Lake of the Woods pebblesnail	EC Klam	G1G2 S1S2	–	–	1
Fluminicola sp. nov. Lost River pebblesnail	EC Klam	G1 S1	–	–	1
Fluminicola sp. nov. Malheur pebblesnail	BR Harn, Malh	G1 S1	–	–	1
Fluminicola turbiniformis Turban pebblesnail	BR, EC; CA, NV Harn, Lake	G3 S1	–	–	1
Juga acutifilosa Scalloped juga (snail)	EC; CA Jack	G2 S1	–	–	1
Juga bulbosa Bulb juga (snail)	BM, CB Jeff, Sher, Wasc	G1 S1	–	–	1
Juga hemphilli dallesensis Dalles juga (snail)	EC, WC; WA Hood, Wasc	G2T1 S1	–	–	1
Juga hemphilli hemphilli Barren juga (snail)	WC, WV; WA Mult, Wasc	G2T1 S1	–	–	1

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Juga hemphilli maupinensis Purple-lipped juga (snail)	BM, CB Jeff, Sher, Wasc	G2T1 S1	–	–	1
Juga hemphilli ssp. nov. Indian Ford juga (snail)	EC Desc	G2T1 S1	–	–	1
Juga sp. nov. Basalt juga (snail)	EC, WC Hood, Wasc	G1 S1	–	–	1
Juga sp. nov. Blue Mountains juga (snail)	BM Gran	G1 S1	–	–	1
Juga sp. nov. Brown juga (snail)	WC; WA Hood, Mult	G1 S1	–	–	1
Juga sp. nov. Crooked River juga (snail)	BM, CB Jeff, Wasc	G1 S1	–	–	1
Juga sp. nov. Opal Springs juga (snail)	BM Croo	G1 S1	–	–	1
Juga sp. nov. Purple juga (snail)	CB Wasc	G1 S1	–	–	1
Juga sp. nov. Three-band juga (snail)	CB, EC, WC; WA Gill, Hood, Sher, Wasc	G1 S1	–	–	1
Pomatiopsis binneyi Robust walker	CR, KM; CA Curr, Jose	G1 S1	–	–	1
Pomatiopsis californica Pacific walker	CR; CA Coos, Lane	G1 S1	–	–	1
Pomatiopsis chacei Marsh walker	CR, KM; CA Curr	G1 S1	–	–	1
Pristinicola hemphilli Pristine springsnail	BM, CB, EC, WC; CA, ID, WA Bake, Clac, Gran, Hood, Jeff, Lane, Mult, Sher, Unio, Wall, Wasc	G3Q S2	–	–	3
Pyrgulopsis archimedis Archimedes springsnail	EC Klam	G1Q S1	–	–	1
Pyrgulopsis hendersoni Harney Lake springsnail	BR Harn, Lake	G1 S1	–	–	1
Pyrgulopsis intermedia Crooked Creek springsnail	BR; CA Malh	G1 S1	–	–	1
Pyrgulopsis sp. nov. Lake Abert springsnail	BR Lake	G1 S1	–	–	1
Pyrgulopsis sp. nov. Malheur springsnail	BR Malh	G1 S1	–	–	1
Pyrgulopsis sp. nov. Owyhee hot springsnail	BR Malh	G1 S1	–	–	1
Pyrgulopsis sp. nov. Lost River springsnail	EC Klam	G1 S1	–	–	1
Pyrgulopsis sp. nov. Columbia springsnail	CB; WA Sher, Umat, Wasc	G1Q S1	–	–	1
Pyrgulopsis sp. nov. Klamath Lake springsnail	EC Klam	G1 S1	–	–	1
Order Basommatophora					
Fisherola nuttalli Shortface lanx (=Giant Columbia River limpet)	CB, WV; ID, MT, WA, BC Jeff, Mult, Sher, Wall, Wasc	G2 S1S2	–	–	1

Scientific Name Common Name	Ecoregion; Adjacent States Oregon Counties	Heritage Rank	Federal Status	ODFW Status	ORNHIC List
Helisoma newberryi newberryi Great Basin ramshorn (snail)	BR, EC; CA Klam, Lake	G1T1 S1	–	–	1
Lanx alta Highcap lanx (snail)	EC, KM; CA Curr, Jack, Jose, Klam	G1 S1	–	–	1
Lanx klamathensis Scale lanx (snail)	EC; CA Klam	G1 S1	–	–	1
Lanx subrotunda Rotund lanx (snail)	KM Doug, Jack, Jose	G2 S2	–	–	1
Petrophysa sp. nov. Hotspring physa (snail)	BR Malh	G1 S1	–	–	1
Physa megalochlamys Large-mantle physa (snail)	BR; ID + Harn	G3 S1	–	–	2
Physella columbiana Rotund physa (snail)	CR, WC, WV; WA + Clat, Colu, Hood, Mult, Wasc	G2 SH	–	–	1
Planorbella oregonensis Borax Lake ramshorn (snail)	BR; UT? Harn	G1 S1	–	–	1
Vorticifex effusus dalli Dall's ramshorn (snail)	EC Klam	G3QT1 S1	–	–	1
Vorticifex effusus diagonalis Lined ramshorn (snail)	EC Klam	G3QT1 S1	–	–	1
Vorticifex klamathensis klamathensis Klamath ramshorn (snail)	EC; CA Klam	G1QT1 S1	–	–	1
Vorticifex klamathensis sinitsini Sinitsin ramshorn (snail)	EC Klam	G1QT1 S1	–	–	1
Vorticifex neritoides Nerite ramshorn (snail)	CR, WC, WV; WA Clat, Colu, Hood, Mult	G1Q SH	–	–	1
Order Stylommatophora					
Cryptomastix devia Puget oregonian (snail)	EC, WC, WV; WA Hood, Mult, Wasc	G2 S1	–	–	1
Cryptomastix hendersoni Columbia Gorge oregonian (snail)	CB, EC; WA Hood, Sher, Wasc	G1G2 S1S2	–	–	1
Cryptomastix populi Hell's Canyon land snail	BM; ID, WA Wall	G2 S1	–	–	1
Cryptomastix sp. nov. Disc oregonian (snail)	BM; ID, WA Wall	G1 S1	–	–	1
Deroceras hesperium Evening fieldslug	CR, EC, WC, WV; WA, BC Clac, Clat, Colu, Jack, Klam	G1 S1	–	–	1
Gliabates oregonius Salamander slug	CR, EC, WC; ID Clac, Hood, Lane, Linn	G1Q S1	–	–	1
Helminthoglypta hertleini Oregon shoulderband (snail)	KM, WC; CA Doug, Jack, Jose	G1 S1	–	–	1
Hemphillia glandulosa Warty jumping-slug	CR, WV; WA Bent, Linc, Till, Yamh	G3 S2	–	–	2
Hemphillia malonei Malone jumping-slug	CR, WC Bent, Clac, Hood, Mari, Mult	G3 S3	–	–	4
Hesperarion mariae Tillamook westernslug	CR Doug, Lane, Till	G2 S2	–	–	1

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Hochbergellus hirsutus Sisters hesperian (snail)	KM Curr	G1 S1	–	–	1
Megomphix hemphilli Oregon megomphix (snail)	CR, KM, WC, WV; WA Bent, Clat, Colu, Coos, Doug, Lane, Linn, Mari, Mult, Till, Wash, Yamh	G3 S3	–	–	4
Megomphix lutarius Umatilla megomphix (snail)	BM; WA Umat, Wall?	G1 SH	–	–	3
Monadenia chaceana Chace sideband (snail)	KM, WC; CA Doug, Jack, Jose	G1Q S1	–	–	1
Monadenia fidelis beryllica Green sideband (snail)	KM Coos, Curr	G4G5T1T2 S1S2	–	–	1
Monadenia fidelis celeuthia Traveling sideband (snail)	WC Jack	G4G5T1 S1	–	–	1
Monadenia fidelis columbiana Columbia sideband (snail)	WC; WA Hood	G4G5T1 S1	–	–	1
Monadenia fidelis minor Oregon snail (Dalles sideband)	CB; WA Sher, Wasc	G4G5T1 S1	SOC	–	1
Monadenia fidelis ssp. nov. Deschutes sideband (snail)	BM, CB Sher, Wasc	G4G5T1 S1	–	–	1
Monadenia fidelis ssp. nov. Modoc sideband (snail)	EC Klam	G4G5T1 S1	–	–	1
Ogaridiscus subrupicola Southern tightcoil (snail)	BM; ID, UT Umat, Wall	G1 S1	–	–	1
Oreohelix sp. nov. Hells Canyon mountainsnail	BM; ID, WA Wall	G2 S1?	–	–	1
Oreohelix strigosa delicata Blue mountainsnail	BM Wall	G5T1 S1	–	–	1
Oreohelix variabilis ssp. nov. Deschutes mountainsnail	CB Sher, Wasc	G1T1 S1	–	–	1
Oreohelix variabilis variabilis Dalles mountainsnail	CB Sher, Wasc	G1T1 S1	–	–	1
Polygyrella polygyrella Humped coin (snail)	BM; ID, MT, WA Umat	G2G3 SH	–	–	3
Pristiloma arcticum crateris Crater Lake tightcoil (snail)	EC, WC Desc, Doug, Jeff, Klam	G4T1 S1	–	–	1
Pristiloma johnsoni Broadwhorl tightcoil (snail)	CR, WC?; WA Doug?, Lane, Till	G3 S2?	–	–	2
Pristiloma pilsbryi Crowned tightcoil (snail)	CR; WA Linc	G1 S1	–	–	1
Pristiloma wascoense Shiny tightcoil (snail)	BM, EC; ID, WA Wall, Wasc	G2Q SH	–	–	3
Prophysaon sp. nov. Klamath tail-dropper	EC, KM; CA Doug, Jack, Jose, Klam	G2 S1S2	–	–	1
Prophysaon vanattae var. pardalis Spotted tail-dropper	CR, WC; WA Clac, Coos, Lane, Till	G4T2 S2	–	–	1
Radiodiscus abietum Fir pinwheel (snail)	BM; ID, MT, WA Unio, Wall	G3 S1	–	–	2

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Vespericola depressus Columbia Gorge hesperian (snail)	CB; WA Sher, Wasc	G2 S2	–	–	1
Vespericola sierranus Siskiyou hesperian (snail)	EC, KM, WC; CA Jack, Jose	G2 S1	–	–	1
Vespericola sp. nov. Oak Springs hesperian (snail)	CB Sher, Wasc	G1 S1	–	–	1
Vespericola sp. nov. Bald hesperian (snail)	WV Lane	G1 S1	–	–	1
Class Oligochaeta - Earthworms **Order Haplotaxida**					
Driloleirus macelfreshi Oregon giant earthworm	CR, WV Linc, Linn, Mari, Polk, Yamh	G1 S1	SOC	–	1
Class Arachnida - Spiders, Scorpions, Mites and Ticks **Order Pseudoscorpiones**					
Apochthonius malheuri Malheur pseudoscorpion	BR Harn	G1 S1	SOC	–	1
Class Branchiopoda - Crustaceans **Order Anostraca**					
Branchinecta lynchi Vernal pool fairy shrimp	KM; CA Jack	G2G3 S2S3	LT	–	1
Class Malacostraca - Crustaceans **Order Isopoda**					
Amerigoniscus malheurensis Malheur isopod	BR Harn	G1 S1	–	–	1
Order Amphipoda					
Stygobromus hubbsi Malheur Cave amphipod	BR Harn	G1 S1	SOC	–	1
Stygobromus oregonensis Oregon Cave amphipod	KM Jose	G1 S1	–	–	1
Class Insecta - Insects **Order Collembola**					
Oncopodura mala Malheur Cave springtail	BR; CA? Harn	G3G4 S1	–	–	1
Order Odonata					
Gomphus lynnae Lynn's clubtail dragonfly	BM, CB; WA Gill, Gran, Malh, Whee	G2 S1?	SOC	–	3
Order Orthoptera					
Chloealtis aspasma Siskiyou short-horned grasshopper	KM, WV Bent, Jack	G1 S1	SOC	–	1
Order Plecoptera					
Zapada wahkeena Wahkeena Falls flightless stonefly	WC Mult	G2 S2	SOC	–	1
Order Hemiptera					
Acalypta cooleyi Cooley's lace bug	BM, WC Harn, Jack	G2 S2	–	–	3
Acalypta lillianus Lillian's lace bug	WC; AR + Lane	G3 S1	–	–	3
Acetropis americana American grass bug	WV Bent, Yamh	G1 S1	SOC	–	1
Atrazonotus umbrosus Umbrose seed bug		G3 S2	–	–	3

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Boreostolus americanus American unique-headed bug	KM, WC; WA + Jack, Lane, Linn	G2 S2?	–	–	3
Cardiastethus borealis Boreal minute pirate bug		G4 S2	–	–	3
Criocoris saliens Salien plant bug		G4 S2	–	–	3
Dendrocoris arizonensis Arizona stink bug	WV Bent, Jack	G4 S2	–	–	3
Derephysia foliacea Foliaceous lace bug	CR, WC, WV Bent, Lane	G2 S1	–	–	3
Eurychilopterella sp. nov. Oregon trunk-inhabiting plant bug	KM, WC Jack, Lane	G2 S2	–	–	3
Hebrus buenoi Bueno's velvet water bug	BR Harn, Lane	G4 S2	–	–	3
Hesperocimex coloradensis Colorado bed bug	BM Gran, Klam	G4 S2	–	–	3
Hoplistoscelis heidemanni Heidemann's damsel bug	KM, WV Bent, Curr	G4 S2	–	–	3
Hydrometra martini Martin's water-measurer	WV Bent	G5 S2	–	–	3
Lygus oregonae Oregon plant bug	CR; WA Linc, Till	G2 S2	–	–	2
Macrotylus essigi Essig's plant bug	WC Lane	G3 S2	–	–	3
Malezonotus obrieni Obrien's seed bug	WC Lane	G3 S2	–	–	3
Mesovelia mulsanti Mulsant's water treader	BR, CR, WC, WV Bent, Harn, Linn, Till, Yamh	G4 S2	–	–	3
Micracanthia fennica Harney Hot Spring shore bug	BR; BC + Harn	G5 S1?	–	–	2
Micracanthia schuhi Schuh's shore bug	WC Clac	G3 S2	–	–	3
Nabicula propinqua Marsh damsel bug	CR Coos, Till	G5 S2	–	–	3
Nabicula subcoleoptrata Black damsel bug	BM Wall	G5 S2	–	–	3
Orectoderus schuhi Schuh's plant bug	BR Klam	G3 S2	–	–	3
Pinalitus solivagus True fir plant bug	CR, KM, WC Bent, Hood, Jose, Lane	G5 S2	–	–	3
Platylygus pseudotsugae Douglas-fir plant bug	CR, WC Bent, Lane	G5 S2	–	–	3
Pronotocrepis clavicornis Thick-antennaed plant bug	BR Lake	G2 S2	–	–	3
Saldula villosa Hairy shore bug	CR; CA Coos	G3 S1	–	–	2
Sixeonotus sp. nov. A plant bug	WC Desc	G2 S1	–	–	2

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Teratocoris paludum Pale plant bug	CR Coos	G4 S1	–	–	2
Vanduzeeina borealis californica California shield-backed bug	WC Hood, Lane	G3T3 S1	–	–	2
Order Coleoptera					
Acupalpus punctulatus Marsh ground beetle	WV Bent, Wash	G2? S2?	–	–	3
Agonum belleri Beller's ground beetle	WC; WA Clac, Wasc	G3 S1?	SOC	–	2
Bembidion tigrinum Cryptic beach carabid beetle	CR; CA, WA Clat, Coos, Till	G5 S4	–	–	3
Cicindela columbica Columbia River tiger beetle	BM, CB, EC; ID, WA Gill, Hood, Sher, Umat, Wasc	G2 SH	–	–	1-ex
Cicindela hirticollis siuslawensis Siuslaw sand tiger beetle	CR; WA Coos, Lane, Linc, Till	G5T3 S3?	–	–	4
Eusattus rectus Sandbar darkling beetle	CB?, CR; WA Clat, Wasc?	GNR SH	–	–	3
Nebria gebleri fragariae Strawberry Mountains gazelle beetle	BM Gran	G4G5T3? S3?	–	–	4
Nebria gebleri siskiyouensis Siskiyou gazelle beetle	CR, KM; CA Curr, Jack, Jose	G4G5T4 S4	SOC	–	3
Nebria piperi Piper's gazelle beetle	WC; WA, BC + Lane	G5 S3?	–	–	3
Pterostichus johnsoni Johnson's waterfall carabid beetle	CR, WC?; WA Doug?, Lane, Till	G3 S2?	–	–	2
Pterostichus rothi Roth's blind ground beetle	CR Bent, Linc	G1 S1	SOC	–	1
Order Trichoptera					
Agapetus denningi Denning's agapetus caddisfly	WC Jack	GH SH	SOC	–	3
Allomyia scotti Scott's apatanian caddisfly	WC Clac	G1 S1	SOC	–	1
Apatania tavala Cascades apatanian caddisfly	BM, EC, WC Clac, Croo, Doug, Jeff, Klam, Linn	G3 S3	SOC	–	4
Eobrachycentrus gelidae Mt. Hood brachycentrid caddisfly	WC; BC Clac, Doug, Hood, Linn, Mult	G3 S3	SOC	–	4
Farula constricta A caddisfly	WC Mult	G1? S1?	SOC	–	1
Farula davisi Green Springs Mountain farulan caddisfly	WC Jack	GH SH	SOC	–	3
Farula jewetti Mt. Hood farulan caddisfly	EC, WC Clac, Hood, Mult	G3 S3	SOC	–	4
Farula reapiri Tombstone Prairie farulan caddisfly	WC Doug, Lane, Linn	G3 S3	SOC	–	4
Goeracea oregona Sagehen Creek goeracean caddisfly	WC; CA Doug, Jack	GNRQ SNR	SOC	–	3
Homoplectra schuhi Schuh's homoplectran caddisfly	EC, KM; CA Jack, Klam	G3Q S3	SOC	–	3

Scientific Name Common Name	Ecoregion; Adjacent States Oregon Counties	Heritage Rank	Federal Status	ODFW Status	ORNHIC List
Lepania cascada A caddisfly	CR, WC; WA + Bent, Hood, Linc	G3 S3	SOC	–	3
Moselyana comosa A caddisfly	CR, WC; WA Bent, Clac, Doug, Hood, Jack, Klam, Lane	G3 S3	SOC	–	3
Namamyia plutonis A caddisfly	CR, WC; CA Bent, Doug, Lane, Mari	G3 S3	SOC	–	2
Neothremma andersoni Columbia Gorge caddisfly	WC Mult	G1 S1	SOC	–	1
Oligophlebodes mostbento Tombstone Prairie caddisfly	WC; BC, MT Lane, Linn	G3 S3	SOC	–	3
Rhyacophila chandleri A caddisfly	WC; CA Lane	G3 S3	SOC	–	2
Rhyacophila colonus O'brien rhyacophilan caddisfly	KM Jose	GH SH	SOC	–	3
Rhyacophila haddocki Haddock's rhyacophilan caddisfly	CR Bent	G1 S1	SOC	–	1
Rhyacophila leechi A caddisfly	WC; CA	G3 S3	SOC	–	2
Rhyacophila unipunctata One-spot rhyacophilan caddisfly	WC; WA? Hood, Lane	G3 S3	SOC	–	3
Order Lepidoptera					
Agriades podarce Gray blue (butterfly)	EC, WC; CA, NV Doug, Jack, Klam	G3G4 S2	–	–	2
Boloria bellona toddi Eastern meadow fritillary (butterfly)	BM; ID, WA + Umat	G5T4T5 S1	–	–	2
Boloria selene atrocostalis Silver-bordered fritillary (butterfly)	BM; ID, WA + Bake, Croo, Gran	G5T4Q S2	–	–	2
Euphydryas editha taylori Taylor's checkerspot (butterfly)	WV; WA Bent, Lane, Polk	G5T1 S1	C	–	1
Icaricia icarioides fenderi Fender's blue butterfly	WV Bent, Lane, Polk, Yamh	G5T1 S1	LE	–	1
Incisalia polia maritima Hoary elfin (butterfly)	CR; CA, WA + Curr, Linc	G5T2T3 S1?	–	–	1
Mitoura johnsoni Johnson's hairstreak (butterfly)	BM, CR, EC, KM, WC, WV; CA, WA + Bake, Coos, Curr, Doug, Hood, Jack, Jeff, Jose, Klam, Lake, Lane, Linn, Mari, Polk, Wall, Wasc	G2G3 S2?	–	–	1
Ochlodes yuma Yuma skipper (butterfly)	BM, BR; CA, NV, WA + Lake, Wall	G5 S1?	–	–	2
Plebeius saepiolus littoralis Insular blue butterfly	CR; CA Curr, Lane	G5T1T3 S1	SOC	–	1
Polites mardon Mardon skipper (butterfly)	WC; CA, WA Jack, Klam	G2G3 S2	C	–	1
Speyeria callippe ssp. nov. Willamette callippe fritillary (butterfly)	WV Bent	G5TH SX	–	–	1-ex
Speyeria coronis coronis Coronis fritillary (butterfly)	KM, WC; CA Jack, Jose	G5T3T4 S1	–	–	2
Speyeria zerene bremnerii Valley silverspot butterfly	CR, WV; WA, BC Bent, Polk	G5T3T4 SH	–	–	2-ex

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Speyeria zerene hippolyta Oregon silverspot butterfly	CR; CA, WA Clat, Lane, Linc, Till, Yamh	G5T1 S1	LT	--	1
Order Hymenoptera					
Bombus franklini Franklin's bumblebee	KM; CA Doug, Jack	GNR S3?	SOC	--	3

APPENDIX G
MODIFIED PLANT COMMUNITY AND LISTED SPECIES PHOTOGRAPHS

Coastal Zone Meadows

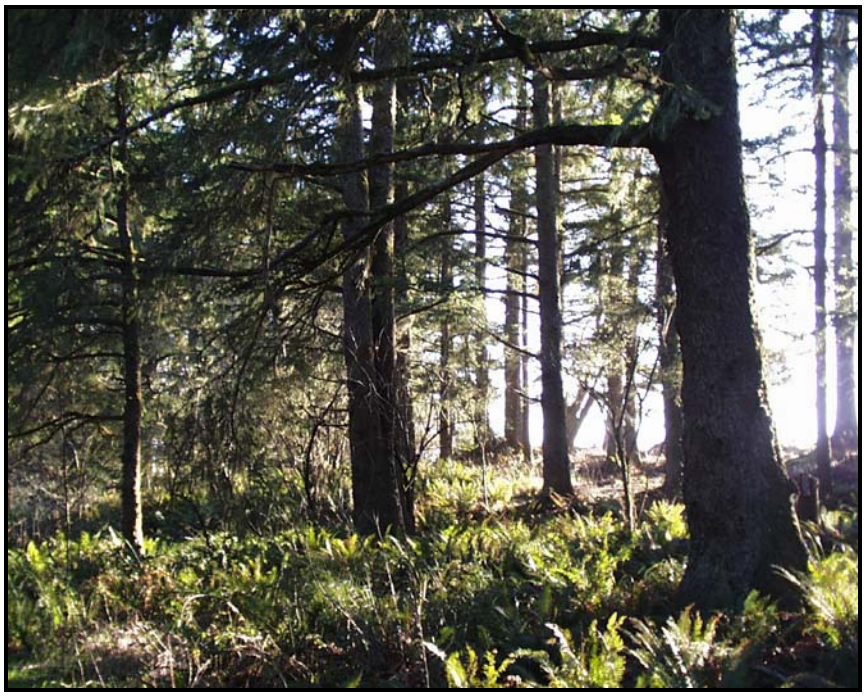
Floating Aquatic

Sweet Gale Wetlands

Forested Wetlands

Planted Pine Forest

Deciduous Forest



Spruce/Fern Forest

Scot's Broom/Beachgrass

Upland Sedge Meadows

Wet Sedge Meadows

Cultivated Grasslands

Big-headed Sedge

Yellow sand verbena

Roosevelt Elk

APPENDIX H
SOIL EROSION HAZARD DATA

SOIL EROSION LOSS

MAP UNIT SYMBOL	MAP UNIT NAME	COMPONENT NAME	R	K	Kf	SLOPE LOW (%)	SLOPE HIGH (%)	SLOPE AVG. (%)	AVG. SLOPE LENGTH (FT)	AVG. RUSLE LS	T	POTENTIAL SOIL LOSS (R x K x LS) tons/acre/yr - bare soil surface	RUSLE Erodibility Index (EI)
4	Beaches	BEACHES	120	0.05	0.05	0	3	2	300	0.35	5	2.1	0.4
15	Dune land	DUNE LAND	120	0.10	0.10	3	30	17	200	4.19	5	50.3	10.1
19C	Gearhart fine sandy loam, 3-15%	GEARHART	120	0.17	0.17	3	15	9	400	2.36	2	48.1	24.1
19D	Gearhart fine sandy loam, 15-30%	GEARHART	120	0.17	0.17	15	30	23	350	8.66	2	176.7	88.3
24C	Heceta-Waldport fine sands, 0-15%	HECETA	120	0.10	0.10	0	15	8	300	1.77	5	21.2	4.2
24C	Heceta-Waldport fine sands, 0-15%	WALDPORT	120	0.17	0.17	0	15	8	300	1.77	5	36.1	7.2
70C	Waldport fine sand, 3-15%	WALDPORT	120	0.17	0.17	3	15	9	350	2.21	5	45.1	9.0
70D	Waldport fine sand, 15-30%	WALDPORT	120	0.17	0.17	15	30	23	350	8.66	5	176.7	35.3
72A	Warrenton loamy fine sand, 0-3%	WARRENTON	120	0.10	0.10	0	3	2	400	0.37	5	4.4	0.9