INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

October 2007 through September 2012

U.S. ARMY UMATILLA CHEMICAL DEPOT
HERMISTON, OREGON

RISK DIRECTORATE — ENVIRONMENTAL OFFICE

FINAL

INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

UMATILLA CHEMICAL DEPOT
HERMISTON, OREGON

APPROVAL

This Integrated Natural Resources Management Plan meets the requirements of the Sikes Act (16 U.S.C. 670a *et seq*.), Department of Defense Instruction 4715.3, *Environmental Conservation Program*, and Army Regulation 200-3, *Natural Resources—Land, Forest, and Wildlife Management.*

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INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN

UMATILLA CHEMICAL DEPOT, HERMISTON, OREGON

UMATILLA CHEMICAL DEPOT REVIEW

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The Umatilla Chemical Depot, including the Umatilla Chemical Agent Disposal Facility and Washington Group International, is dedicated to excellence in environmental stewardship through continued compliance with all applicable Environmental and Natural Resource Laws and Regulations. Additionally, the Installation is committed to reviewing its environmental impacts and identifying targets and objectives for environmental process improvement and waste minimization opportunities.

Umatilla Chemical Depot
Environmental Mission Statement

PREFACE

This draft of the Umatilla Chemical Depot (the Depot) Integrated Natural Resources Management Plan (INRMP) supercedes the 1998-2002 plan prepared by Gene Stout and Associates in 1997. The Depot has continued operations without a current INRMP for approximately six years. Due to the relatively benign nature of the Depot's mission, there have been no significant impacts to Depot resources as a result of this gap in management plans. However, with some changes in the direction of the Depot's operational programs, as well as potential new initiatives in resource management, a revised INRMP is called for. This INRMP will cover the period fiscal years 2008 through 2012.

An Environmental Assessment (EA) was prepared by Horne Engineering Services, Inc. for the 1998-2002 INRMP. This revised draft of the INRMP does not prescribe management practices that will result in significant geophysical changes to the environment not addressed in the previous INRMP and EA; therefore developing a new EA to address this INRMP is not warranted. The 1997 EA can be found at Appendix C.

For ease of use, common names of plants and animals will be given in the text; scientific names of those species cited will be presented in Appendix A. Scientific names are not listed for arthropods as most of them are not identified to species in the text.

Many of the Figures found in this INRMP were prepared by Tetra Tech EM, Inc.

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ABBREVIATIONS AND ACRONYMS

ADA	Ammunition Detonation Area
ADC	Animal Damage Control
AEC	Army Environmental Center
AIRFA	American Indian Religious Freedom Act
AMC	Army Materiel Command
AR	Army Regulation
ARPA	Archeological Resources Protection Act
BCA	Bird Conservation Area
BCR	Bird Conservation Region
BCC	Birds of Conservation Concern
BLM	Bureau of Land Management
BRAC	Base Realignment and Closure
CBDCOM	Chemical and Biological Defense Command
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERL	Construction Engineering Research Laboratories
CFR	Code of Federal Regulations
CMA	Chemical Management Agency
CSDP	Chemical Stockpile and Disposal Program
CX	Categorical Exclusion
DoA	Department of Army
DoD	Department of Defense
DOI	Department of the Interior
DPW	Directorate of Public Works
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMIS	Emergency Management Information System
EPA	Environmental Protection Agency
EPR	Environmental Program Requirements
EO	Executive Order
FWCA	Fish and Wildlife Conservation Act
FFCA	Federal Facilities Compliance Agreement
FONSI	Finding of No Significant Impact
FY	Fiscal Year
GIS	Geographic Information System
gpm	gallons per minute
HAZWOPER	Hazardous Waste Operations and Emergency Response
HMMWV	High Mobility Multipurpose Wheeled Vehicle
IAFWA	International Association of Fish and Wildlife Agencies
INRMP	Integrated Natural Resources Management Plan
IPA	Intergovernmental Personnel Act
IRMD	Industrial Risk Management Directorate
ISC	Installation Spill Contingency
ITAM	Integrated Training Area Management

IUCN	International Union for Conservation of Nature and Natural Resources
LCTA	Land Condition Trend Analysis
LRAM	Land Rehabilitation and Maintenance
MAPS	Monitoring Avian Productivity and Survivorship
MOU	Memorandum of Understanding
MOA	Memorandum of Agreement
mg/L	milligrams/liter
msl	mean sea level
NABCI	North American Bird Conservation Initiative
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFWA	National Military Fish and Wildlife Association
NOI	Notice of Intent
NPL	National Priorities List
NPS	National Parks Service
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OB/OD	Ordnance Burn/Ordnance Disposal
ODEP	Office of the Directorate of Environmental Programs
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
ONG	Oregon National Guard
ORAP	Operational Range Assessment Program
ORISE	Oak Ridge Institute of Science and Education
ORVs	off-road vehicles
OU	Operable Unit
PIF	Partners in Flight
PMO	Provost Marshal's Office
PMP	Pest Management Plan
QA	quality assurance
RD – EO	Risk Directorate – Environmental Office
REC	Record of Environmental Consideration
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SAR	Species at Risk
SBCCOM	Soldier and Biological Chemical Command
SCS	Soil Conservation Service
SHPO	State of Oregon Historic Preservation Office
SOC	Species of Concern
SOP	Standard Operating Procedures
SPCC	Spill Prevention, Control, and Counter Measures
SWCD	Morrow County Soil and Water Conservation District
SWMU	Solid Waste Management Unit
TBD	to be determined

TCP	Traditional Cultural Property
TRI	Training Requirements Integration
UBC	Uniform Building Codes
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
UXO	Unexploded Ordnance

EXECUTIVE SUMMARY

PURPOSE

This Integrated Natural Resources Management Plan (INRMP) guides the implementation of the Natural Resources Program on the Umatilla Chemical Depot (the Depot), located in north-central Oregon, from October 1, 2007 through September 30, 2012 (fiscal years 2008-2012). As the Depot follows through with Base Realignment and Closure (BRAC), the plan will help conserve the Depot's natural resources through identifying and defining those resources and prescribing best management practices.

SCOPE OF THE INRMP

This plan applies to internal and external organizations that are involved with or interested in the management or use of the Depot's natural resources.

RELATIONSHIP TO THE MILITARY MISSION

In 1988, the Commission on Base Closures recommended the Depot for realignment, a phase preliminary to a Chemical Stockpile Disposal Program (CSDP) and closure. This INRMP addresses impacts of the military mission on natural resources and the means to mitigate these impacts. However, it is not intended to replace the need for environmental documentation of the military mission at the Depot. As the Depot proceeds with BRAC, the relevant sections of the INRMP will be updated to reflect mission changes.

ENVIRONMENTAL COMPLIANCE

The Sikes Act, as amended (16 U.S.C. 670a-670f), Department of Defense (DoD) Instruction 4715.3 (*Environmental Conservation Program*), and Army Regulation (AR) 200-3 (*Natural Resources—Land, Forest, and Wildlife Management*), require the preparation and implementation of this INRMP. In addition, this INRMP helps to ensure that the Depot complies with other federal and state laws related to natural resources. This plan describes how the Depot will implement the provisions of AR 200-3 and local regulations.

The Sikes Act requires that this INRMP include the following:

- fish and wildlife habitat improvements or modifications;
- range rehabilitation for support of wildlife;
- control of off-road vehicular traffic;
- specific habitat improvement projects and related activities and adequate protection for species of fish, wildlife, and plants considered threatened or endangered.

This INRMP has the signatory approval of the U.S. Fish and Wildlife Service (USFWS) and the Oregon Department of Fish and Wildlife (ODFW). The USFWS approval includes concurrence that the INRMP complies with the Endangered Species Act.

ECOSYSTEM STATUS

The Depot has a special value to the region due to its relatively undisturbed status since construction more than 50 years ago. It is one of the few remaining areas of bitterbrush shrub-steppe habitat in the Columbia Basin. Discussions of trends in ecosystem status are very general due to a lack of data before and during Army occupation. Depot soils within the administrative and ammunition storage areas were significantly disturbed during the installation's initial construction phase, but a natural restoration process is taking place and, with that, biological diversity is improving. The Depot lands are capable of supporting the military mission, and the protection of the shrub-steppe habitat presents no threat to that capability.

PARTNERSHIPS

This INRMP cannot be implemented solely by the Depot. In accordance with the ecosystem management philosophy, the Depot has developed partnerships with various agencies to manage its natural resources. The USFWS and the ODFW are major partners in implementing this plan. Another partner in this effort is the Confederated Tribes of the Umatilla Indian Reservation. Universities and other federal and state agencies can also provide support through the establishment of partnerships. As the 5-year period of the plan progresses, the Depot may become involved in some regional management initiatives as a supporting agency.

PLAN COMPONENTS

This INRMP outlines goals and policies in five general areas: stewardship, military readiness, quality of life, compliance, and program integration. It describes the Depot's military mission in general terms, including the mission's impacts on natural resources. It also describes the Depot's climate, land base, facilities, and natural resources, including a brief history of natural resources management. The plan identifies internal and external responsible or interested parties for managing natural resources. An Environmental Assessment (EA) was prepared to support the development of the original Depot INRMP (Appendix C). However, since there will be no significant geophysical changes resulting from the implementation of this revised plan, a new EA is not warranted.

This INRMP is organized differently from the traditional, component-based natural resource plans (e.g., wildlife management, land management). It emphasizes an ecosystem management approach to natural resources management. Ecosystem management supports the use of natural resources for both military and other human-related values and purposes. Within this plan, ecosystem management chapters 11 through 17 address aspects of overall natural resources management, including inventory and monitoring, conservation and damage prevention, natural resources management, research and special projects, enforcement, and awareness.

Within these ecosystem management chapters are programs involving erosion control, general wildlife management, sensitive species, pest control, natural resources law enforcement, research programs, and overall conservation education. Additional chapters involve outdoor recreation associated with natural resources, cultural resources conservation during natural resources management activities, National Environmental Policy Act (NEPA) documentation, biopolitical issues, and the integration of natural resources within the Depot environmental program. A final chapter discusses specific measures to implement this plan.

This INRMP is concerned with land administratively controlled by the Army. It does not address management of adjacent co-use buffer areas (2,674 acres) because these properties are either administered by the Bureau of Land Management (BLM), or are privately owned. Army control of these properties is limited to prohibiting human settlement.

PLANNED MAJOR INITIATIVES

This INRMP includes a description of ongoing natural resource programs and projects. Most of these will either be continued or completed in FY08 through FY12. Major management initiatives within this INRMP include the following:

- maintain an ecosystem management philosophy.
- manage the Depot shrub-steppe habitat for native biodiversity.
- manage the captive pronghorn herd in cooperation with the ODFW.
- conduct Planning Level Surveys for terrestrial vertebrates.
- implement a raptor protection program on the Depot.
- consider conducting a second phase pronghorn genetics research project in cooperation with the ODFW.
- consider establishing a threatened and endangered plant restoration program.

BENEFITS

Environmental Benefits: The INRMP outlines strategies needed to protect and manage natural resources, thereby conserving ecosystems and biodiversity. It reduces the potential for environmental pollution through erosion control and groundwater monitoring. The plan's implementation will promote understanding of the functioning of the shrub-steppe ecosystem. The plan also supports and enhances cultural resources conservation on the Depot.

Military Mission Benefits: Implementation of this plan will maintain the natural resources needed to support the military mission as the Depot moves forward with BRAC. It will also enhance opportunities for the properties to be acquired by a land management entity when the closure process is implemented.

Other Benefits: Both community relations and the Depot's environmental image, internal and external to Defense, will be enhanced. Plan implementation will decrease long-term

environmental costs and reduce personal and Depot liabilities from environmental noncompliance.

COSTS

Implementation of this INRMP will cost approximately $272,500 for fiscal years 2008 through 2012. Support will come primarily from agricultural and environmental funding sources. The Planning Level Surveys, baseline inventories, monitoring and assessments needed to facilitate the ecosystem management approach are considered in the cost estimate for budgeting purposes.

SUMMARY

This INRMP presents a package that will comply with environmental laws, conserve and protect the Depot's natural resources, and support the military mission. It will not resolve all existing or future environmental issues. The plan will, however, provide the philosophy and outline the strategies needed to work toward resolving such issues.

INTRODUCTION

The proud tradition of the Umatilla Chemical Depot's role in the defense of the United States began in 1941 when a complete facility, including 1,001 ammunition storage igloos, was constructed in less than 1 year—a magnificent accomplishment. For more than half a century this facility has safely stored ammunition for use in conflicts worldwide. And now, even though the Depot is in its waning years as it is decommissioned, the tradition continues as its final mission is accomplished in the professional manner in which the Depot has functioned over the decades.

The 2001 terrorist attacks in New York City and on the Pentagon have served as a wake-up call among the nation's population to the threat of aggressors within our midst, and the need for vigilance to protect American lives, livelihoods, and freedom. As a result, Department of Defense installations across the nation have stepped up security measures to restrict or prohibit public access onto military lands. Accordingly, security measures on the Depot have intensified, and public access to the installation for recreational pursuits has been restricted. However, the resources themselves have not suffered as a result of this restricted access.

The Depot's lands and natural resources are important to the military mission and to the region as a whole. A stewardship responsibility came with the acquisition of these properties. The Depot is committed to excelling in this stewardship role, and this Integrated Natural Resources Management Plan is the Depot's plan of action for the care and wise use of its lands.

The plan is for a 5-year period, but the philosophy behind this plan is for a much longer period of time. The Depot is committed to an ecosystem management approach to its natural resources program. This approach will help protect biological diversity and allow informed decisions to be made regarding the use of natural resources to support both the military mission and the region's needs.

1.0 GOALS AND POLICIES

The Army strategy for the Environment is designed to strengthen the Army today and into the future. It establishes the long-range vision for a sustainable Army, and the goals upon which the vision is based.†

The Army's commitment to natural resources management is reflected in, *"Sustain the Mission, Secure the Future: The Army Strategy for the Environment"* (U.S. Army 2004). This document outlines six goals to which the Army has committed its environmental philosophy and strategy: Foster a Sustainability Ethic; Strengthen Army Operations; Meet Test, Training, and Mission Requirements; Minimize Impacts and Total Ownership Costs; Enhance Well-Being; and Drive Innovation. A primary theme, if not *the* primary theme, throughout these six goals, is sustainability. Ultimately, the Army recognizes that protecting and maintaining the environment now means sustaining the Army's capabilities to achieve its primary mission, "....to defend the United States - its people, its land, and its heritage", into the future (U.S. Army 2004).

The Army's commitment to natural resources management is also reflected in Department of Defense (DoD) Instruction 4715.3 (*Environmental Conservation Program)*, and Army Regulation (AR) 200-3 (*Natural Resources—Land, Forest, and Wildlife Management*), which require that Integrated Natural Resource Management Plans (INRMPs) be developed and maintained for all Army installations with significant natural resources. The INRMP is a living, dynamic document that will be maintained and added to or amended, as necessary, to reflect the natural resources information available. At a minimum, the status of the Depot's programs and projects, as outlined in this INRMP, will be reviewed annually by those cooperators signatory to the document.

1.1 GOALS

1.1.1 Military Readiness

Provide sustainable native natural resources on which to accomplish the Depot's military mission.

1.1.2 Stewardship

Manage natural resources on the Depot to ensure proper, science-based maintenance of public lands entrusted to Army care.

†Excerpted from *U.S. Army Environmental Strategy into the 21st Century*.

1.1.3 Compliance

Comply with laws and regulations that pertain to the management of the Depot's natural resources.

1.1.4 Integration

Integrate elements of natural resources management into a single program that, in turn, is integrated into the Depot's environmental program.

1.2 POLICIES

The policies presented below represent general Depot policies to attain the goals presented in Section 1.1. These policies also serve as a broad checklist to monitor the plan's success.

1.2.1 Military Readiness

- Ensure that there is no net loss in the capability of Depot lands to support the ongoing mission of chemical munition storage and demilitarization, and continue to support the Depot's changing mission under Base Realignment and Closure (BRAC).
- Maintain quality training lands by minimizing and mitigating damage through restoration or other means.

1.2.2 Stewardship

- Manage ecosystems to protect, conserve, and enhance native flora and fauna with an emphasis on native biodiversity conservation.
- Monitor and manage soils, vegetation, and wildlife on the Depot considering all biological communities and those human values associated with these resources.
- Provide professional enforcement of natural resource-related laws.
- Involve the surrounding community and the Confederated Tribes of the Umatilla Indian Reservation in the Depot's natural resources program.
- Ensure that the Depot's natural resources program is coordinated with other conservation agencies and organizations with similar interests.

1.2.3 Compliance

- Manage natural resources within both the letter and spirit of environmental laws.
- Emphasize the conservation, restoration, and management of protected species.
- Use procedures within the National Environmental Policy Act (NEPA) to make informed decisions that include natural resource considerations and mitigation.

- Ensure that the Depot's natural resources program is consistent with the installation's cultural resources program.
- Implement this INRMP within the framework of Army policies and regulations.

1.2.4 Integration

- Ensure the integration of, and consistency among, the various activities identified within this INRMP.
- Ensure that this INRMP is both consistent with and supports the principles of the Pest Management Program at the Depot.
- Coordinate the implementation of this INRMP with the operation of the Depot's overall environmental program.
- Use the natural resources program to support and enhance other elements within the Depot's environmental program.
- Provide command elements with the information needed to make decisions that include natural resource-related values.

2.0 LOCATION AND BACKGROUND

2.1 LOCATION

The Depot is located in northeastern Oregon and lies within parts of Umatilla and Morrow Counties. It is at the intersection of Interstates 82 and 84 and is approximately 35 miles south of the Tri-Cities area of Washington State (Figure 1). The Depot encompasses 17,054 acres and has a buffer area, the Quality Assurance (QA) Function Range, on 2,674 acres of private property and Bureau of Land Management (BLM) lands north and east of the Depot perimeter (this parcel is inaccurately labeled the ADA Range in Figure 2). Private property owners in the buffer area reserve the right to farm and graze their land; however, the buffer allows the U.S. government to prohibit residential use of the area. The Columbia River is located 3 miles to the north of the installation.

2.2 ADJACENT PROPERTIES

The area surrounding the Depot is primarily privately-owned and converted to agricultural purposes. Population centers near the Depot in Oregon include Umatilla, approximately 4 miles northeast, Hermiston, approximately 4 miles east, Pendleton, approximately 34 miles southeast and the small community of Irrigon, 2 miles northwest. Population centers near the Depot in Washington include the Tri-Cities (Richland, Kennewick, and Pasco) located approximately 35 miles north. Public lands in the vicinity include the Umatilla National Wildlife Refuge, located approximately 3 miles northwest of the Depot, and the Cold Springs National Wildlife Refuge, about 10 miles east of the installation. The Boardman Naval Training Facility, a 47,000-acre DoD facility, is situated approximately 6 miles southwest of the Depot.

2.3 ACREAGE AND ACQUISITION

The 17,054 acres that form the Depot were farmed or grazed prior to acquisition by the DoD. Some of this land was acquired by the federal government in 1941 from Morrow and Umatilla Counties, Northern Pacific Railroad, West Extension Irrigation Company, and private owners. Additional parcels were transferred from the BLM and the Department of the Interior (DOI) to the Department of Army (DoA).

2.4 DEPOT HISTORY

The land currently occupied by the Depot was inhabited by the Sahaptin-speaking Umatilla Indians during its ethnohistoric period. Initial contact between the Umatilla Indians and Euro-Americans took place in the last quarter of the 18th century. However, settlement of the area by Euro-Americans did not begin in earnest until the middle of the 19th century when mining and grazing opportunities became apparent. The introduction of flood irrigation in 1862, however, soon made agriculture the principle economic force in the area.

On 14 October 1941, an approximately 16,000-acre parcel of land was designated as a Military Reservation by War Department General Order Number 11. On 20 March 1942, exclusive jurisdiction was taken by the U.S. government. It was established as an Army ordnance depot in 1941 to store chemical-filled munitions and containerized chemical agents, and to repackage and store conventional munitions.

Ammunition demolition began at the Depot in 1945, and in 1947 an ammunition renovation facility was constructed. Two additional ammunition maintenance buildings were constructed in 1955 and 1958. During the period 1957 through 1959, an additional 3,939 acres were acquired (Intermountain Range Consultants 1988).

In 1962, the old Umatilla Ordnance Depot was assigned to the U.S. Army Supply and Maintenance Command. As the Umatilla Army Depot, storage of chemical agent-filled munitions and 1-ton containers of chemical agents began in K Block igloos and in Building 659. Besides chemical weapons, the Depot also stored conventional munitions in 14 magazines and igloos. Chemical weapons have not been used, tested, or manufactured on the Depot. The Depot was redesignated by the Army Materiel Command (AMC) in August 1973 as an "activity" of the Tooele Army Depot and was renamed the Umatilla Depot Activity.

In 1988, the Commission on Base Closures recommended the Depot for realignment. Under BRAC, the storage of conventional ordnance was moved from the Depot to Hawthorne Army Depot, Nevada, and the remaining conventional ordnance that could not be transported was destroyed on site. The Depot's current, realigned mission is the ongoing storage and demolition of chemical munitions; however, this will change with the full implementation of the Chemical Stockpile and Disposal Program (CSDP) and subsequent closure of the Depot.

In October 1995, the Depot was placed under the Major Subordinant Command, Chemical Biological Defense Command (CBDCOM) and was renamed the Umatilla Chemical Depot. In 1998 CBDCOM transitioned into the Soldier and Biological Chemical Command (SBCCOM), which in 2003 became the Chemical Management Agency (CMA). The Depot began destroying chemical munitions in September, 2004; a process that is not expected to be complete until approximately 2012. Umatilla Chemical Depot is expected to close no earlier than 2017, and because this INRMP is a 5-year plan, closure and reuse of the Depot are not addressed.

3.0 MILITARY MISSION

3.1 GENERAL

From the period of property acquisition and development to recent years, the Depot's primary mission has been the storage of munitions in support of U.S. military operations. That mission changed with the inception of the BRAC program, whereby the installation was realigned and the storage and eventual destruction of chemical munitions became the primary mission of the site. The Depot is currently in the chemical destruction phase of the BRAC process, which is projected to be completed by 2012. Ultimately the installation will be decommissioned and the Army will divest itself of these properties, although that is not projected to occur until at least 2017.

3.2 EFFECTS OF MILITARY MISSION ON NATURAL RESOURCES

The Depot's mission does not involve significant training activities, therefore there are few impacts on natural resources. In fact, the passive nature of the Depot's mission has resulted in the preservation of the native high plains desert habitat that has recovered since the initial damage experienced during construction of the facility. An in-depth discussion of the Depot's habitat can be found in Chapter 8.

The Oregon National Guard (ONG) has until recently used a small portion of the Depot for military training, including a rifle range and a tank maintenance testing track. These activities were highly controlled, resulting in a limited amount of localized maneuver damage that has been mitigated. The ONG is not intending to resume training on the Depot within the next 5 years. However, if training activities are resumed, all feasible measures will be employed to protect the resources while yet sustaining realistic training opportunities for the ONG units.

3.3 NATURAL RESOURCES NEEDED TO SUPPORT THE MILITARY MISSION

The primary mission of the Depot is the storage and destruction of chemical munitions. Maintaining open corridors called clear zones, with vegetation less than 8 inches in height, around sensitive areas is essential for this mission. Clear zones are planted with low growing native species and maintained by mechanical means and non-selective herbicides.

3.4 ENVIRONMENTAL CONSTRAINTS ON THE MILITARY MISSION

Due to the passive nature of the Depot's military mission, there are few environmental constraints that may impede activities on the installation. Furthermore, NEPA documentation is required to assess the impacts of any activities which could significantly affect natural or cultural resources, for example off-road travel or ground disturbance, prior to those actions being implemented.

4.0 FACILITIES

4.1 OVERVIEW

The Depot can be divided into 15 specific land use areas necessary to support the military mission (Earth Tech 1995). Acres not included in Table 4-1 are in open space.

Table 4-1: Significant Land Use Areas

Area	Acreage	Area	Acreage	Area	Acreage
Ammunition Storage	5,933	Standard Magazines	140	Landfill	15
Ammunition Demolition	1,716	Former Firing Range	621	Airfield (Closed)	293
Open Space Buffer	4,851	Spoil Areas	32	Administrative	136
Chemical Storage	646	Abandoned Landfills	20	Facilities Maintenance	40
Housing	15	Utilities Service	7	Union Pacific Railroad	140

4.2 TRANSPORTATION SYSTEM

There are 165 miles of paved, two-lane roads and 27 miles of gravel roads within the boundaries of the Depot (Del Grosso 1996). The Depot has a 3,000-foot long, 60-foot wide, 8,000-pound capacity airstrip. However, due to the construction of nearby power co-generation plants with tall emissions stacks, the airstrip has been decommissioned (U.S. Army 1995). The Depot does have a helipad located south of the clinic in the administrative area. The Union Pacific Railroad parallels the Depot's southern border and at one time a spur from this line entered the Depot. Rails have been removed from the line at the Depot's boundary however, preventing access to the installation by way of rail.

4.3 WATER SUPPLY

The Depot's water needs are supplied by seven wells that draw from a basalt aquifer whose minimum depth is approximately 200 feet below the surface. Three of these wells are active, three are on reserve, and one is inactive. The wells range in depth from 327 feet to 600 feet, and their pumping capacity ranges from 30 to 1,000 gallons per minute (gpm). Approximately 20% of the total capacity of the system is used for domestic water and the remainder is used for fire protection (Weston 1989 *in* U.S. Army 1996). Some of the water supply is also used for animal watering devices.

4.4 PROJECTED CHANGES IN FACILITIES

Nolte et al. (2002) noted that in 2002 there were approximately 1,389 standing structures on the Depot. Structures may be demolished as their condition deteriorates and their purpose becomes obsolete. Forty-three structures had been demolished as of 2006.

5.0 RESPONSIBLE AND/OR INTERESTED PARTIES

5.1 UMATILLA CHEMICAL DEPOT, HERMISTON, OREGON

Unless otherwise indicated, parties listed in this section are based at the Depot.

5.1.1 Depot Commander

The Depot Commander coordinates the activities of installation directorates, and is responsible for the provision of installation-wide support to implement this INRMP.

5.1.2 Risk Directorate – Environmental Office

The Risk Directorate – Environmental Office (RD – EO) is responsible for managing land, air, water, cultural, and wildlife resources at the Depot. RD – EO manages land to conserve flora and fauna, maintains storage and training lands, and ensures that the Depot complies with federal and state environmental laws and regulations. RD – EO is the primary organization responsible for implementing this INRMP.

5.1.3 Directorate of Public Works, Services Division

The Services Division is responsible for applying herbicides and pesticides to various areas of the Depot. Maintaining the appearance of the administrative area is currently conducted by a contractor, and the Services Division is responsible for the remainder of the Depot. The Depot's Pest Management Program is implemented by the Services Division as well.

5.1.4 Public Affairs Office

The Public Affairs Office has three primary roles: internal communication, media relations, and community relations. Consequently, the Public Affairs Office is responsible for disseminating information contained within this INRMP to the media and public when necessary.

5.1.5 Security Directorate

The Depot has a Security Directorate whose primary responsibility is the security and safety of the installation, its weapons stockpile, and its personnel. A guard force is employed to patrol the grounds and facilities and to detect and apprehend intruders.

5.1.6 Other Depot Organizations

Implementation of this plan also requires the support and assistance from other offices on the depot including contracting, purchasing, equipment authorizations, and personnel.

5.2 OTHER DEFENSE ORGANIZATIONS

5.2.1 Chemical Management Agency

The Depot is under the command of the Chemical Management Agency (CMA), located in Aberdeen Proving Ground, Maryland, which oversees the overall management of the Depot.

5.2.2 Installation Management Command - Western Region

The Installation Mangagement Command (IMC), Western Region, provides oversight of the Depot's natural and cultural resource management programs, and ensures installation staff is kept informed on issues regarding regulatory compliance, as well as other pertinent information.

5.2.3 Army Materiel Command

This major command headquarters will, per AR 200-3, assist the Depot with developing and implementing conservation programs. AMC has review and approval authority for this INRMP, and has the responsibility for programming funds to implement the INRMP.

5.2.4 Army Environmental Center

The Army Environmental Center's (AEC) mission is to provide oversight, centralized management, coordination, and execution of Army environmental programs and projects. It also has support capabilities in INRMP preparation, NEPA, endangered species, cultural resources, environmental compliance, and other related areas.

5.2.5 Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE), Seattle District, administers permitting under Section 404 of the Clean Water Act for activities that may impact waters of the United States, including wetlands. USACE works in consultation with other federal and state agencies in making decisions on issuing permits.

5.3 U.S. FISH AND WILDLIFE SERVICE

A 2006 Memorandum of Understanding (MOU) between the DoD, the USFWS, and the International Association of Fish and Wildlife Agencies (IAFWA), stipulates that INRMPs will be developed for military installations with "significant natural resources" (Appendix D). It further states that, as promulgated in the Sikes Act, as amended, 16 U.S.C. 670a-670f, DoD installations will cooperate with the USFWS and the respective state natural resource management agencies in which the installations are situated, in managing their natural resource programs. Further, the MOU encourages the parties involved to enter into cooperative agreements to "coordinate and implement natural resource management" on military installations. Such an agreement between the Depot, the USFWS, and the ODFW, is found at Appendix E. In addition, in early 2006 the Depot entered into a Cooperative Agreement with the

USFWS to outline strategies for raptor protection on Depot properties (Appendix F). Finally, in July, 2006, an MOU between the U.S. Department of Defense and the USFWS was developed to promote the conservation of migratory birds (Appendix G).

5.4 CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION

The Depot is responsible for protecting cultural resources found within its boundaries, including objects or properties of cultural significance for Native American tribes. The National Historic Preservation Act of 1966 (as amended), the Archaeological Resources Protection Act (ARPA) of 1979, the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, and the American Indian Religious Freedom Act (AIRFA) of 1978 establish policies for consulting with Native American tribes on the management of, and access to, significant resources. In October of 1996, the Assistant Secretary of the Army and the Chairman of the Board of Trustees of the Confederated Tribes of the Umatilla Indian Reservation (Confederated Tribes) signed a Memorandum of Agreement (MOA) that defined the protocols for government-to-government relations between the Army and the Confederated Tribes in matters concerning the destruction of the chemical weapons stockpile at the Depot. In accordance with federal laws, the Depot will continue to provide the Confederated Tribes access to all areas of the Depot that are not restricted due to reasons of safety and/or security.

The Confederated Tribes retained certain rights to natural resources on the Depot through the Treaty of 1855, such as collecting plants needed for ceremonial purposes. The Confederated Tribes do not distinguish between cultural and natural resources and have identified the general ecosystem of the Depot as a significant cultural resource worthy of preservation. Particular natural resources such as some species of plants may be individually significant for traditional subsistence patterns, such as hunting and gathering, and medical or religious practices.

The Confederated Tribes were consulted during the preparation of an Integrated Cultural Resources Plan for the Depot (Earth Tech 2002) and provided information on the historical uses of the land by their people. The Confederated Tribes were provided a draft of this INRMP so that they may participate in the INRMP decision-making process.

5.5 OREGON DEPARTMENT OF FISH AND WILDLIFE

The ODFW is a signatory and cooperating agency in the implementation of this plan in accordance with the Sikes Act and the MOU signed by the DoD, the USFWS, and the IAFWA (Appendix D). ODFW staff offer technical expertise and planning assistance for wildlife management. Specific items of cooperation between the ODFW and the Depot are outlined in Appendix E.

5.6 MORROW COUNTY SOIL AND WATER CONSERVATION DISTRICT

From 1986 to 2001, the Morrow County Soil and Water Conservation District (SWCD) was involved with monitoring and eradicating noxious weeds, performing rangeland inventories, and monitoring the condition of wildlife watering devices on the Depot. These activities were

conducted under an MOA between the Depot and the SWCD. However, the terrorist attacks of 2001 resulted in access restrictions to military installations, and the SWCD's activities on the Depot have been suspended.

5.7 OTHER INTERESTED PARTIES

No special interest groups have shown significant interest in the Depot natural resources program.

6.0 HISTORY OF NATURAL RESOURCES MANAGEMENT

When the Depot was established in 1941, the pressure to produce and store ammunition for World War II was an overriding concern. The land on which the Depot was constructed was razed, and the soil was scraped up and mounded onto newly constructed concrete igloos. During construction of the Depot, its biodiversity was greatly diminished. Following construction, however, the land was allowed to rehabilitate and native flora and fauna returned. The first Wildlife Management Plan was implemented in 1973. That plan made reference to trial food-plot seedings and cover-tree plantings. These plantings were apparently limited and are currently non-existent, having been reclaimed by the native flora of the area.

In 1969, 17 pronghorn were released on the Depot by the ODFW as part of a transplant program. The intent was to produce surplus animals to be relocated to preserves off the Depot. In the first year of the pronghorn reintroduction, it was decided that coyotes were limiting herd growth, and a predator control program was instituted. Between 1970 and 1980, the pronghorn herd's size increased to over 175 animals, and in 1986, the population was estimated at more than 400. Meanwhile, pronghorn were being removed from the Depot herd and translocated to Nevada and other parts of Oregon. The population started to decline, and approximately 130 animals were counted at the Depot in 1995. From 1997 to 2001 pronghorns were counted in conjunction with road surveys for long-billed curlews. Total numbers have ranged from 0 to 31 animals being observed. Herd composition was recorded during these surveys, and fawn numbers appeared to be especially low. A study was conducted in 2000 to assess the genetic variability of the remaining pronghorn on the Depot. It was found that the Depot herd had much lower genetic diversity, as well as significant haplotypic and genotypic differentiation, than its source herd.

In 1986 and 1987, the SWCD, funded by the Oregon Department of Agriculture, assisted the Depot with monitoring and eradicating rush skeletonweed, a noxious weed native to Eurasia. In 1987, however, Oregon mandated that eradication of noxious weeds is the responsibility of the property owner on whose land they occur. As a result, the Depot funded the SWCD for control of rush skeletonweed and rangeland inventories until 2001, when SWCD activities on the Depot were suspended due to access restrictions.

In March of 1988, a Natural Resources Management Plan was prepared for the Depot by Intermountain Range Consultants. The plan was written under the authority of an interagency agreement between the DoA and the SWCD. This plan recommended the teaming of the DoA with the SWCD to control rush skeletonweed, plant perennial grasses in locations susceptible to wind erosion, monitor vegetation annually to determine pronghorn grazing pressures, and monitor the pronghorn herd annually.

In 1995, the SWCD and the United States Department of Agriculture (USDA), Soil Conservation Service (SCS) prepared a report entitled *Rangeland Inventory and Planning Considerations, U.S. Army, Umatilla Depot Activity* (SWCD and SCS 1995). The report contains information on the condition of the range, monitoring to be conducted to assess impacts on the range, and planning considerations for range management.

In 1993, a risk-based, retrospective EA was prepared to assess impacts from chemical and ordnance storage and documented disposal activities. The assessment was conducted to support the decision-making process involved in remediation assessment, site monitoring and cleanup (USACE 1993). As part of the study, site-specific data on wildlife populations and plant communities were collected.

Gene Stout and Associates prepared an INRMP for the Depot in 1997, to direct the installation's natural resource management program from 1998 through 2002 (Gene Stout and Associates 1997). The plan recommended continuing many of the inventories, surveys, and monitoring programs that had been conducted in the past. Most of the recommendations put forth in the 1998-2002 INRMP have been implemented.

Planning Level Surveys for vegetative communities and threatened and endangered species were conducted on the Depot in 1999 and 2000 (Tetra Tech 2002a, 2002b). The results of those surveys are incorporated into this INRMP.

7.0 NATURAL RESOURCES AND CLIMATE

7.1 ECOREGIONAL CONTEXT

Several authors describe the geophysical areas of north-central Oregon using a number of different classification systems, with many of the names being interchangeable. For the purposes of this INRMP, Kagan et al. (2000), who generally adopts the system described in Omernik (1986) and McNab and Avers (1994) (*see also* Bailey 1995, 1998), is followed.

The Columbia Basin Ecoregional Province, generally characterized by mixed shrub-steppe and grassland habitats, with a semiarid and cool climate, extends from central Washington down into northeastern Oregon. Within that ecoregion, the Depot is located in the Umatilla Basin in north-central Oregon.

7.2 TOPOGRAPHY

The topography in the vicinity of the Depot is level to gently rolling and slopes northwest to the Columbia River. Elevations on the Depot range from 400 to 677 feet above mean sea level (msl) (Earth Tech 1995). Topography is depicted in Figure 2.

The surface of the Depot is characterized by two distinct features. The first is the parallel, lacustrine-deposited dune lines that are oriented along a north 69-degree east axis. These dune lines have a crest-to-crest interval of between 200 and 1000 feet. Relief between dunes varies from 5 to 30 feet. Strong southwest winds are responsible for streamlining and rounding the dunes. One to several feet of loess-like material have been deposited over the original gravel surface of the area by eolian processes. Water erosion has played little part in shaping the landscape due to scant rainfall and rapid infiltration in the area. The Depot's floral communities are significantly affected by the wind and by the solar protection offered by dunes. The northern and steeper faces of the dunes offer such protection and usually support more diverse and dense flora. Elevated dune crests are often devoid of vegetation and are subject to wind erosion (USACE 1993).

The second distinct feature is Coyote Coulee. This is a valley that traverses the Depot along a north 30-degree east axis. The eastern edge of this valley is an escarpment that rises 60 to 90 feet at a 30 to 45 percent slope. The western edge of Coyote Coulee slopes at 5 to 10 percent. The Coulee directs local winds northward and upward, resulting in a tendency for blowout area (localized areas of wind erosion) formation along the toe of the escarpment (USACE 1993).

7.3 GEOLOGY

Geologically, the Depot is situated in the Dalles-Umatilla Basin, which is a depression in the Columbia Plateau physiographic province (Jacobs Engineering Group 1987, *as cited in* U.S. Army 1995). The topography slopes gently toward the Columbia River from Horse Heaven Hills in Washington and the Blue Mountains in Oregon. The Depot is located on the southern side of this depression, in an area known as the Umatilla Plateau and lowlands (U.S. Army 1995).

Detailed information on and references for the geology of the area are provided in the EA found at Appendix C.

7.4 PETROLEUM AND MINERALS

The mineral resources in the Depot's vicinity consist of glaciofluvial sand and gravel deposits, which are used for road and other construction activities. There are two gravel quarries on the installation, although they have not been used for several years. Inert construction materials are being buried at one of the quarries. There are no other known mineral deposits, including oil and coal deposits, on or in the vicinity of the Depot (Brown 1991).

7.5 SOILS

There are two named and one un-named soil series mapped for the Depot (SCS 1983, SCS 1988; Figure 3). Isolated gravel pits and a blowout area are also indicated. The Quincy Series (mixed, mesic, Xeric Torripsamments) and the Burbank Series (sandy-skeletal, mixed, mesic, Xeric Torriorthents) are found throughout the Depot with Quincy dominating the area west of Coyote Coulee and Burbank dominating the area east of Coyote Coulee. The southeast corner of the Depot is also composed of the Quincy Series. These two soil series are both deep, excessively drained soils that formed in eolian sand and gravelly alluvium, and are located on terraces. The surface layer and substratum of the Quincy soils are fine sand and loamy fine sand with some areas having a gravelly substratum. The surface layer of the Burbank soils is loamy fine sand and the substratum is extremely gravelly sand (SCS 1988).

7.5.1 Cryptobiotic Soil Crusts

A thin and fragile biotic layer often covers soils in arid and semi-arid regions. This layer, called a cryptobiotic soil crust, is composed of mosses, lichens, algae, and bacteria, functioning in a symbiotic relationship, and is generally an indicator of a relatively undisturbed soil ecosystem. Also called cryptogamic soils, these crusts help stabilize soils, reduce wind and water erosion, and provide nitrogen and other nutrients for plant growth. Soils with cryptobiotic crusts are "blocky" in structure, forming irregular surfaces to retain and absorb moisture, and provide germination sites for seeds. Tetra Tech (2002b) noted cryptogamic soils in association with several vegetative communities during the Planning Level Surveys for vegetative communities on the Depot. For information on cryptobiotic crusts, see *http://eduscapes.com/nature/cryptsoil/index1.htm*, and *http://www.pnl.gov/pals/resource_cards/cryptogamic_crusts.stm*.

7.5.2 Soil Erosion

The Quincy and Burbank soils have rapid permeability and slow run-off, resulting in a low water erosion hazard. Both soils have high hazard for wind erosion due to the predominance of fine sands in the surface layers and the region's frequent, high winds. The Quincy fine sand phase has one of the highest hazard ratings for blowing soil and it is recommended that new land disturbance be limited to the period March 15 to September 15 (SCS 1983). Table 7-1 provides

the wind erosion factor (T factor) erodibility groups and land capability classifications for the Quincy and Burbank phases located on the Depot.

Table 7-1 Wind Erosion Hazard Ratings For Depot Soils			
Soil Name	**Erosion Factor (T)**	**Wind Erodibility Group**	**Land Capability Classification (N)**
Quincy Fine Sand	5	1	VII e
Quincy Loamy Fine Sand, gravelly substratum	3	2	VII e
Burbank Loamy Fine Sand	2	2	VII e

Key

Erosion Factor T: An estimate of the maximum average rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. Rate is in tons per acre per year (SCS 1988).

Wind Erodibility Group: The susceptibility of a soil to wind erosion and the amount of soil left. They are represented by federal classes and range from 1 to 8 with Group 1 soils being extremely erodible and Group 2 soils being very highly erodible (SCS 1988).

Land Capability Classification: The suitability of a soil for field crops based on a soil's limitation for field crops, risk of damage if used for field crops, and their response to management. Classes range from I to VIII with increasing severity of limitations as one approaches VIII. Subclass e indicates the main limitation is risk of erosion (SCS 1988).

Cryptogamic soils are especially vulnerable to erosion. Light damage to the cryptobiotic crusts in arid and semi-arid regions may take 5-7 years to rehabilitate, whereas extensive damage may require up to 250 years to fully restore. Once fractured and displaced, it is unlikely the detached pieces of crust will be able to reattach themselves. Furthermore, when the protective crust is displaced, soils exposed by the damage may now be windblown onto adjacent healthy crust, preventing light from getting to the crust and in turn killing the microorganisms that form that crust as well.

The nature of the Depot's storage mission does not result in extensive soil disturbance or vegetative cover destruction; however, exposed areas on the Depot, such as the ONG tracked vehicle course, Coyote Coulee, and unprotected construction areas, are highly susceptible to wind erosion. Section 14.7 discusses the Depot soil erosion controls.

7.5.3 Agricultural Land

There are no agricultural or grazing outleases on the Depot. Private property owners in the buffer area adjacent to the northeast corner of the Depot reserve the right to farm and graze their land. Also, the BLM issues grazing leases for the use of two parcels, of 670 and 480 acres, respectively, in the buffer area.

7.6 WATER RESOURCES

7.6.1 Surface Water

A National Wetlands Inventory was conducted on the Depot in June, 2000, and no permanent, naturally occurring surface water features were found on the installation (Swords and Tiner 2001). The final report documents 11.6 acres of palustrine wetland habitat on the Depot, however the accompanying map indicates that those acres are located on adjacent properties immediately east of the installation (Figure 4). A couple of sprinkler systems create wetland microhabitats on the Depot (Figure 4), although that designation is determined more by the presence of wetland vegetation than surface waters.

The lack of wetlands is due to the region's arid climate; annual rainfall is approximately 10 inches and infiltration is rapid (U.S. Army 1995). The Depot's highest point is in the north-central portion of the installation with an elevation of 677 feet msl. From this high region, the land slopes gently southeast in the eastern portion of the Depot; south in the central and southern portions; and northwest in the western portion. Runoff on the western portion of the Depot flows toward the West Extension Irrigation Canal. An approximately 1,750-foot section of the canal is located in the extreme northwest corner of the Depot, entering on the north boundary and leaving on the west boundary. The irrigation canal runs west as a ditch for about 18 miles before ending just northwest of the Boardman Naval Training Facility.

Stormwater runoff from the administrative area is collected by a curb and gutter system and is piped to an open ditch discharge site several hundred feet west of the sewage treatment facility tile field. Sampling of the outfall has indicated no exceedance of contaminant levels. In addition, there is a lined stormwater retention pond, approximately 100 by 160 feet in size, in the vicinity of the chemical demilitarization site, that collects water from the site. There is little use of the pond by terrestrial wildlife, although shorebirds have been observed to use it to some extent. No significant runoff leaves the Depot.

The Columbia River is located 3.3 miles north of the Depot's northern boundary. The river is essential for agricultural irrigation in the region and has several dams along its course, the closest to the Depot being McNary Dam, located approximately 6.5 miles northeast of the installation. The Umatilla River, located approximately 6 miles east of the Depot, is regulated by dams and reservoirs and discharges into the Columbia River. Many diversions have been made in the Umatilla River basin for agricultural purposes. Irrigation canals, which link to the Umatilla River, surround the Depot's eastern, western, and northern sides. The Umatilla River is joined by Butter Creek near the southeastern corner of the Depot.

Bodies of water near the Depot include McKay Reservoir, located south of Pendleton and Cold Springs Reservoir, located northeast of Hermiston. Lost Lake is located approximately 4 miles south of the Depot, northwest of Ward Butte on the Morrow-Umatilla County line.

7.6.2 Groundwater Resources

The Depot's groundwater exists in unconfined alluvial aquifers within surface sediments, as well as in a confined basalt aquifer system (U.S. Army 1996). Localized hydraulic interconnection exists between the unconfined aquifer and the uppermost portion of the basalt aquifer system in the Saddle Mountain Basalt. Groundwater in the alluvial aquifer and the interflow zones between basalt flows or layers primarily flows in a horizontal direction. Groundwater flow in areas where vertical joining of the basalt is prevalent has higher vertical flow rates. All interflow zones in the Columbia River Basalt Group are hydrologically interconnected, creating a large aquifer system.

The overall flow direction of unconfined and confined aquifers near the Depot is northwest toward the Columbia River, from recharge areas in the Blue Mountains. This overall flow is diverted northward on the southeastern corner of the Depot. It is probably attributed to year-round pumping of groundwater at the Lamb-Weston well located near the Depot. Unconfined alluvial aquifers, and possibly the Saddle Mountain Basalt portion of the confined basalt aquifers, discharge into local streams and rivers via seeps and springs with an ultimate discharge point at the Columbia River. The deeper portions of the confined basalt aquifers in the Wanapum Basalt and particularly in the Grande Ronde Basalt, provide minimal input to these baseflows.

The Depot's groundwater is slightly alkaline and of the calcium, sodium calcium, or sodium bicarbonate type. Dissolved solid concentrations in the basalt aquifer system range from 200 to 400 milligrams/liter (mg/L) with an average of 230 mg/L. Higher concentrations of dissolved solids exist in the alluvial aquifer at the surface. While groundwater is suitable for most purposes, its hardness in the alluvial aquifer is greater than what is desired for domestic use. Groundwater in the deeper portions of the basalt aquifer system has decreased hardness and concentrations of sulfate and bicarbonate, with greater concentrations of sodium and fluoride.

7.7 CLIMATE

The Depot is found within Oregon's North Central Climatic Zone (Zone 6), as established by the National Climatic Data Center (*http://www.ncdc.noaa.gov/oa/ncdc.html*). Its climate is influenced to some extent by air from the Pacific Ocean, allowing for relatively moderate temperatures; however the Cascade Mountains to the west of the installation block much of the precipitation from that direction (DeBano and Wooster 2004).

7.7.1 Temperature

The Depot has a dry continental climate with significant variation in temperature between summer and winter. In January, the average daily temperature is 30 °F and typical winters include just a few days with minimum temperatures below 0 °F. In July, the average daily temperature is 70 °F and typical summers include just a few days with maximum temperatures above 100 °F (U.S. Army 1995).

Unusual temperatures tend to occur when air from the Pacific Ocean is hindered by slow-moving, high-pressure systems over the interior of the country. Predominating, stagnant high pressure systems in the north or east in the summer or early fall can result in dry and hot southerly air at the Depot. This southerly air increases the risk of fire. The lowest temperatures in winter tend to occur when high pressure systems in central Canada force cold air southwest across the Rockies and into the Columbia Basin (U.S. Army 1995).

7.7.2 Precipitation

The Depot and its surrounding lands are relatively dry due to the influence of the Cascade and Coast mountain ranges west of the installation. As air from the Pacific Ocean clips the western slopes of these two mountain ranges, it cools and moisture is removed as precipitation. This effect, known as a rain shadow, results in the Depot receiving only approximately 10 inches of annual precipitation (U.S. Army 1995). Peak precipitation occurs as snow in November, December, and January as a result of winter storms. Annual snowfall is approximately 10 inches, and the majority of this falls between December and March (U.S. Army 1995). Although summer precipitation is unusual, when it does occur, it is usually in the form of thunderstorms, sometimes causing flash floods.

This region has been experiencing reduced precipitation for a number of years. The U.S. Drought Monitor, a multi-agency service established to monitor drought conditions throughout the nation, currently classifies the drought in this area as severe (*http://www.drought.unl.edu/dm/monitor.html*). Consequently, in April 2005 the Governor of Oregon, Theodore Kulongoski, signed Executive Order 05-05 declaring a state of drought emergency in Crook, Gilliam, Hood River, Morrow, Sherman, and Umatilla Counties, directing state agencies to provide assistance in mitigating the effects of drought on the public and economies of the state of Oregon (Office of the Governor of the State of Oregon 2005).

7.7.3 Wind

Wind in the vicinity of the Depot is channeled by the Columbia River Valley. This channeling, in conjunction with a generally prevailing westerly wind, results in a prevailing west-southwest wind at the Depot itself. A minor secondary peak in wind direction occurs from the east-northeast due to the draining of cold air down the river valley at night and early morning hours (U.S. Army 1995).

8.0 FLORA AND FAUNA

8.1 GENERAL

The Depot is situated in what is classified as an *Artemisia-Agropyron* steppe biome located in the upper part of the Columbia Basin floristic province of northeastern Oregon (Gene Stout and Associates 1997). Kagan et al. (2000) indicates that the Umatilla Chemical Depot and the Boeing Lease Lands contain the largest remaining bitterbrush shrub-steppe habitats in the Columbia Basin. As such, the Depot provides valuable habitat for native plant and animal species. Due to the limited distribution of the shrub-steppe habitat, many of the associated wildlife species are listed by the state as sensitive. The passive nature of the Depot's mission as a munitions storage facility, established in the early 1940s, has resulted in preservation of this significant habitat.

The Columbia Basin Province, also known as the Umatilla Plateau, originally supported vast natural grasslands. These have been replaced by irrigated crops and, to a lesser extent, cattle raising. Of Oregon's ten recognized physiographic provinces, the Columbia Basin is the one most modified by human influences. The availability of hydroelectric power and irrigation water has resulted in an expansion of croplands into this arid region (Puchy and Marshall 1993). The Depot is currently surrounded on all sides by intensively farmed lands employing pivot-type sprinkler irrigation systems.

While conducting surveys on the Depot, Tetra Tech EM Inc. (Tetra Tech) noted cryptogamic soil crusts underlying many of the vegetative communities on the installation. This indicates that much of the property has been protected from human disturbance for many years (para. 7.5.1). Cryptogamic crusts reduce soil erosion, retard runoff, offer structural "niches" to collect native plant seeds, and provide nutrients for plant growth.

8.1.1 Species at Risk

The DoD, in conjunction with NatureServe, has developed a Species at Risk (SAR) program, whereby imperiled species on military installations are identified, and management priorities recommended for those species and installations. NatureServe defines SAR as "…native, regularly occurring species in the United States that are <u>not</u> federally listed under the U.S. Endangered Species Act, but are either:

- *Candidates* for listing under the U.S. Endangered Species Act, or
- *Critically imperiled*….or *Imperiled*…., according to the NatureServe conservation status rank criteria." (NatureServe 2004.)

In general, NatureServe adopts the ranking system used by their cooperative member Natural Heritage Programs in assessing the status of SAR species in each respective state. In their "Species at Risk on Department of Defense Installations," NatureServe (2004) classifies the Depot as "closed," and further indicates that there are no SAR on the Depot. However, it does concede that many areas have not been adequately inventoried. The list indicates that nearby

Boardman Naval Training Facility has one unidentified SAR, presumably the Washington ground squirrel, which has not been documented on the Depot. In reviewing the SAR list, that is the only species on the list whose range may include the Depot.

8.2 FLORA

Tetra Tech EM Inc. (Tetra Tech) conducted Planning Level Vegetation Surveys on the Depot in 1999-2000, identifying seven shrubland and seven grassland vegetative communities on the site. Most of the communities appear to be variations of *Artemisia tridentata/Stipa comata*, *Purshia tridentata/Stipa comata*, and *Stipa comata-Poa secunda* associations (Tetra Tech 2002b). Overall, the vegetative communities support a relatively high degree of native species diversity.

The classification and distribution of vegetative communities as described by Tetra Tech (2002b) do not match those of the 1993 Ecological Assessment Report (USACE 1993), as presented in Gene Stout and Associates (1997). This may be due to differences in interpretation; changes in plant associations and distributions from 1992 to 1999 due to weather conditions and other environmental and human-induced influences; and/or an apparent lack of sufficient time spent in the field during the 1992 inventories (Gene Stout and Associates 1997). Tetra Tech's data is used in this INRMP because theirs is the more recent work, and considerable time was spent in the field ground-truthing the data.

Furthermore, it should be noted that the current drought gripping the region may result in some variations in plant species distribution, composition, diversity and cover from that reported by Tetra Tech in 2002.

In general, the Depot supports large communities of shrublands, dominated by sagebrush and bitterbrush with an understory of annual grasses and forbs; and grasslands, dominated by a mixture of native and exotic species such as Sandberg's bluegrass, cheatgrass (downy bromegrass), and crested wheatgrass. The shrublands are found primarily in the eastern and southwestern portions of the Depot on soils with a higher silt content, and consequently a higher moisture capacity. Note that Kagan et al. (2000) indicates that the Depot contains the largest remnants of bitterbrush habitat in the Columbia Basin, as well as high quality needle-and-thread sandy grasslands. The central region of the Depot is dominated by the grasslands, which are intermixed with the shrublands in the eastern portions as well. Tetra Tech (2000b) also identifies what they call "mixed communities", defined as areas wherein several vegetative communities are present and intermingled. The mixed communities are primarily in the northwestern and northeastern portions of the Depot. Cheatgrass is a prevalent understory in many of the shrubland communities.

See Tetra Tech (2002b) for a more in-depth treatment of the vegetative communities described below. A complete listing of plant species documented on the Depot during the Tetra Tech inventories can be found at Appendix B1. For a general overview of the Depot's vegetative communities, see Figure 5. Shrubland, grassland, and mixed vegetative communities are presented in Figures 6, 7, and 8, respectively.

8.2.1 Shrublands

8.2.1.1 Sagebrush/Annual Grasslands

This community, occupying approximately 173 acres, is found primarily in the sand dunes in the eastern portion of the Depot. Its dominant species are big sagebrush and cheatgrass. The cheatgrass understory presents a fire hazard, as it forms a continuous, light and flashy fuel load. Sagebrush is fire intolerant, and may be declining in the western states due to the incidence of both controlled burning and wildfires.

8.2.1.2 Sagebrush - Bitterbrush/Sandburg's Bluegrass - Cheatgrass

As with the sagebrush/annual grasslands community described above, this community is found in the eastern portion of the Depot, although it is characterized by about equal shrub coverage of sagebrush and bitterbrush. The cheatgrass understory is still dense and continuous however. This community occupies about 397 acres of the Depot.

8.2.1.3 Bitterbrush/Sandberg's Bluegrass - Cheatgrass

This is the most extensive shrubland community on the Depot, covering about 3,072 acres in the southern and eastern portions of the installation. Some older stands are over 6 feet in height. This community has the lowest species diversity of the shrub communities, as well as the lowest percent of native grass species. As with the other shrub communities already described, this community presents a high fire risk due to the continuous understory of cheatgrass.

8.2.1.4 Bitterbrush/Indian Ricegrass Sand Dunes

This community occupies approximately 164 acres in the north-central portion of the Depot. It is found in dunal areas, and except for the effects of past wildfires, has been relatively undisturbed by human traffic or grazing, as evidenced by an extensive coverage of cryptogamic soil crusts. Also, this type is the most species rich of the shrub communities, and has a high percentage of native species.

8.2.1.5 Gray and Green Rabbitbrush/Sandberg's Bluegrass - Cheatgrass

This shrubland community occupies only about 110 acres along the northeastern boundary of the Depot. Both species of rabbitbrush are present in the overstory, and although cheatgrass is found in the understory, it is not as prevalent as in other communities.

8.2.2 Grasslands

8.2.2.1 Needle-and-Thread Grass - Sandberg's Bluegrass - Cheatgrass

This grassland community, occupying about 313 acres in the northeastern and southeastern portions of the Depot, appears to be one of the least disturbed native plant

communities on the installation. Along with a well developed and extensive layer of soil cryptogams, it has the highest species diversity of the grassland communities, as well as a high percentage of native species.

8.2.2.2 Sandberg's Bluegrass - Cheatgrass

This community covers about 607 acres in the northeastern and north-central portions of the Depot. With the cheatgrass component, native species comprise only about 62 percent of the community.

8.2.2.3 Sandberg's Bluegrass - Balsamroot

This community is found in the east central portion of the Depot, and covers about 137 acres. The type can also be found as minor inclusions in other shrub- and grassland communities. As the name indicates, the type hosts large patches of Carey's balsamroot, as well as the highest percent cover of cryptogamic crust (22 percent).

8.2.2.4 Cheatgrass - Bulbous Bluegrass

This is the largest plant community on the Depot, covering approximately 3,097 acres in the central and eastern portions of the installation. Both dominant species are invasive exotics, and have occupied the area previously disturbed during the construction of the ammunition storage bunkers.

8.2.2.5 Cheatgrass - Sandberg's Bluegrass

The cheatgrass - Sandberg's bluegrass type occupies extensive areas on the Depot, covering 2,418 acres across the site. It typically occurs in association with the cheatgrass - bulbous bluegrass community in disturbed areas. As such, it has the highest percent cover of exotic species, and the lowest percent cover of cryptogamic crust.

8.2.2.6 Crested Wheatgrass

Crested wheatgrass, a non-native, was commonly planted on the Depot as a cover crop to stabilize soils. However, as a bunchgrass it tends to grow in a dispersed fashion, leaving a relatively high percentage of bare ground between bunches. The community is found primarily among the ammunition bunkers in the central portion of the Depot.

8.2.3 Mixed Communities

Several large areas on the Depot can only be characterized as mixed communities: an integrated combination of several of the above plant communities. As indicated earlier, these are found primarily in the northeastern and northwestern portions of the installation. See Figure 8 for a presentation of the installation's mixed communities.

8.2.4 Rare, Threatened, Endangered, and Sensitive Plants

As of September 2005, four species of concern were listed by the USFWS as potentially occurring within the Depot area: northern wormwood, Laurence's milk-vetch, hepatic monkeyflower, and Columbia yellow-cress. However, based on habitat, only one of these, Laurence's milk-vetch, is likely to occur on the installation. Laurence's milk-vetch is state-listed as a threatened species. In addition, Douglas' milk-vetch is not federally listed but is state-listed as a candidate and may occur within the Depot area.

Despite the extensive amount of time Tetra Tech spent in the field during their Planning Level Surveys, they found no federally listed vascular plant species on the Depot. They did, however, discover crouching milkweed, or Columbia milk-vetch, a state watch list species, in several of the vegetative communities on the site (Tetra Tech 2002b). The species was found primarily in the less disturbed dry shrub and grassland communities in the eastern portion of the Depot. However, it was also documented in a disturbed crested wheatgrass community and in a bitterbrush dominated community in the southwestern part of the installation.

A listing of federal and state-listed sensitive Oregon plant species can be found at Table 8-1, and at *http://www.oregon.gov/ODA/PLANT/CONSERVATION/statelist.shtml*.

8.2.5 Non-native Plant Species

Approximately 25 percent of the vascular plants documented by Tetra Tech (2002b) on the Depot are exotic species for the area. Two of those species are listed by the Oregon Department of Agriculture as noxious weeds: diffuse knapweed and rush skeletonweed. Land owners and managers are required to control or eradicate these species, when found on their properties, per state regulation (*Oregon Revised Statutes, Chapter 452, Vector and Weed Control*). Tetra Tech found rush skeletonweed in only a few locations along roadsides near the southern and northern boundaries of the installation. Diffuse knapweed was found extensively throughout the Depot along roadsides and in otherwise disturbed areas. However, this species can successfully invade native shrubland communities as well (Tetra Tech 2002b).

Cereal rye was found during the Planning Level Surveys conducted by Tetra Tech as well. This annual grass is commonly planted for domestic agricultural purposes. During the surveys the species was detected in two locations along the southeastern boundary of the Depot, but may become more widespread on the installation without aggressive control measures.

In previous years non-native crested wheatgrass and European beachgrass were both planted on the Depot in an attempt to prevent or reduce soil erosion. Both species have the potential for invading adjacent native plant communities, and to a limited extent have done so on the Depot. These species are no longer planted on the Depot.

Russian thistle and tumblemustard are non-native forbs found on the Depot by Tetra Tech. Russian thistle, once it has passed its life cycle, becomes the ubiquitous "tumbleweed"

which accumulates in depressions and along fencerows, becoming a fire hazard in such situations.

The most common non-native species found on the Depot are cheatgrass and bulbous bluegrass. As noted in the plant communities described above, cheatgrass is a pervasive understory species found throughout the installation. Not only do these species degrade the integrity of native communities, often outcompeting other species to form monocultural stands, they create a severe fire hazard due to the heavy fuel-loading as a result of dense, light and flashy plant materials. DeBano and Wooster (2004) indicate that cheatgrass can return quickly after a fire, and may burn as frequently as every five years, making reestablishment of native species, such as sagebrush, very difficult.

8.2.6 Wetlands

A National Wetlands Inventory was conducted on the Depot in June, 2000, and no permanent, naturally occurring wetlands were found on the installation (Swords and Tiner 2001; Figure 4). There are, however, two small wet areas created by wildlife watering devices releasing water onto the land at these sites (Figure 4). Wetland vegetation can be found at these locations.

8.3 FAUNA

A general qualitative assessment of wildlife at the Depot was conducted as a component of an ecological assessment process, which was prepared as part of the Remedial Investigation/ Feasibility Study (RI/FS) (USACE 1993). The field survey for the assessment was limited to a three-day period in March 1992. Lists 4, 5, and 6 in Appendix B2 summarize the confirmed and possible mammal, bird, and reptile and amphibian species, respectively, occurring at the Depot. No comprehensive planning level surveys for nonsensitive vertebrate species have been conducted on the Depot.

As indicated earlier, the Depot contains the largest remnants of bitterbrush shrub-steppe habitat in the Columbia Basin (Kagan et al. 2000). Therefore, more extensive and comprehensive Planning Level Surveys for terrestrial wildlife species should be conducted on the installation, to document the faunal species in this diminishing habitat.

In general, faunal species on the Depot are consistent with what one would expect in Columbia Basin native shrub-steppe and grassland habitats: pronghorn, coyote, American badger, jack- and cottontail rabbits, Swainson’s and redtail hawks, burrowing owl, long-billed curlew, and many other species common to this habitat. Note that the pronghorn herd is not free-ranging, as the Depot’s perimeter fence keeps it captive. The lack of permanent surface water on the Depot precludes the occurrence of native fish species, however, mosquito fish are stocked in a stormwater retention pond to eat mosquito larvae (para. 14.6.1.1). See Appendix B2, from the *Ecological Assessment Report* (USACE 1993), for a more complete listing of Depot wildlife. The following species on the Depot are worthy of special note.

8.3.1 Pronghorn

The pronghorn is indigenous only to Canada, the United States, and Mexico, and past populations are estimated to have been between 30 and 40 million (O'Gara and Yoakum 2004). Prior to settlement of the area by Euro-Americans, the species was abundant and widely distributed in Oregon. However, primarily as a result of over harvesting following settlement, pronghorn numbers plummeted and by 1915 it was estimated there were only about 2,000 animals left in the state (Bailey 1936, *as cited in* Verts and Carraway 1998). Laws were passed first prohibiting and then restricting the taking of pronghorn, and eventually viable populations were again seen in the state.

Several studies have been conducted assessing pronghorn habitats in Oregon. However, given that the Depot herd is confined to the area by the perimeter fences, their movements relative to habitat variability or quality are severely restricted. Suffice it to say that pronghorn were found in the area during pre-settlement periods, and since the Depot hosts some of the best remaining examples of native shrub-steppe habitat in the area, it may also have the best pronghorn habitat in the region.

Pronghorn are herbivores that graze on grasses, various forbs, and cacti during the summer (Whitaker 1980). Verts and Carraway (1998) indicate that, in Oregon, they feed largely on shrubs. In the winter, pronghorn browse on many different plant species, favoring sagebrush (Whitaker 1980). Under normal conditions, sagebrush, rabbitbrush, and saltbrush make up most of their diet at 25 to 50%, 10 to 25%, and 5 to 10% respectively (Martin et al. 1951). When succulent vegetation is available, pronghorn may drink little water, obtaining most of their water from the plants they ingest. However, during periods of drought, they are benefitted by free-water, and may experience weight loss and depressed activity without it (O'Gara and Yoakum 2004). Under these conditions, free-water availability may affect pronghorn distribution as well. Several sprinkler systems and water catchments offer free-water for wildlife use on the Depot.

In 1969, 17 pronghorn were reintroduced to the Depot by the ODFW as part of a transplant program. The original herd composition was two adult males, two juvenile males, ten adult females, and three juvenile females. The intent was to manage the herd to produce surplus animals for relocation to offsite preserves. In the first year following the pronghorn reintroduction, it was decided that coyotes were limiting herd growth, and a predator control program was initiated. Between 1970 and 1980, 374 coyotes were removed from the Depot and the immediate surrounding area by USDA Animal Damage Control (ADC) personnel (this and the following survey data was taken from ODFW, unpublished data). During that period, the pronghorn herd's size increased to over 175 animals (Oregon State Game Commission 1972 *as cited in* O'Gara and Yoakum 2004).

In 1981, seven pronghorn were tested for internal parasites and disease. While a few animals had intestinal nematodes and tested positive for blue-tongue, the pronghorn were generally in good health. Based on the studies conducted in 1981, it was estimated that the pronghorn carrying capacity of the Depot was between 300 and 350 individuals (Intermountain

Range Consultants 1988). However, ODFW personnel estimated the carrying capacity to be much lower, at 100-150 individuals.

In 1985, 40 pronghorn were transported to Nevada in a joint operation between the ODFW and the Nevada Department of Wildlife. In 1986, the pronghorn population was estimated at more than 400 animals, and in 1987, 110 head were transplanted to other locations in Oregon. The following year an additional 65 head were removed to Baker and Union Counties, within Oregon. According to a SWCD/SCS report, a pronghorn population census conducted on 18 September 1995 indicated that the herd's population had dropped to 130 (SWCD and SCS 1995). The reason for the population decline is unknown; however, predation, inbreeding, age, and/or other factors may have been responsible. From 1997 to 2001 pronghorns were counted in conjunction with long-billed curlew road surveys. Total numbers have ranged from 0 to 31 animals being observed. Herd composition was recorded during these surveys, and fawn numbers appeared to be especially low, a factor also noted through direct observation by the preparers of the 1998-2002 INRMP (Gene Stout and Associates 1997). This could be due to low production, low survivorship (possibly due to high predation), and/or limited observability. Finally, in February 2000, 50 head of pronghorn were trapped in support of an effort to trade Oregon pronghorn for Nevada bighorn sheep. Thirty pronghorn were sent to Nevada, 2 were injured and had to be euthanized, and the remaining 18 were released on site (Blakely, pers. com.).

On the Depot, coyotes are the main predators of pronghorn. The Depot's numerous fenced areas hinder the pronghorn's ability to escape predators whereas the coyotes easily pass under or through fences. Due to a lack of similar obstacles in their historical habitat, fences are a significant obstacle for pronghorn and can cause mortality in certain situations (Yoakum 1978). Gene Stout and Associates (1997) indicates the "....apparent lack of reproductive success may be attributable to coyote predation of pronghorn fawn."

A study comparing the levels of genetic diversity and structure in the Depot herd with those of its source population and another free-ranging Oregon pronghorn herd was recently conducted. Tissue samples were collected from the three discreet herds in 2000 and 2001, and it was found that the Depot herd exhibits "1) sharply lower diversity compared to its source and 2) significant haplotypic and genotypic differentiation from its source" (Stephen et al., *in press*).

8.3.2 Coyote

The coyote is a highly mobile predator that inhabits nearly all habitat types in eastern Oregon but prefers brushy areas or open plains. Coyotes will eat pronghorns, ground squirrels, mice, rabbits, pocket gophers, reptiles, birds, insects, carrion, and fleshy fruits. Coyote denning has been observed on the Depot; they excavate their own dens or use dens abandoned by other animals. On the Depot, the coyote is a top predator and may be partly responsible for the depressed pronghorn fawn counts (USACE 1993). Verts and Carraway (1998) indicate that in studies of pronghorn neonate survivorship in Oregon, coyotes were the primary predator causing losses in fawn crops. O'Gara and Yoakum (2004) summarized the data from 18 studies of

pronghorn fawn survivorship throughout the pronghorn range, and found that at least 67% of predator-related fawn mortalities were attributed to coyote predation.

8.3.3 Imperiled Avifauna

The Fish and Wildlife Conservation Act (FWCA) of 1980, as amended, mandates the USFWS to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." In response, the USFWS produced the Birds of Conservation Concern (BCC) in 2002 that identifies native bird species, "…that represent our highest conservation priorities and draw attention to species in need of conservation action" (USFWS 2002). Federally listed threatened or endangered bird species are not included on the BCC list, nor are gamebirds managed by state and/or federal entities through harvest quotas; however, the list was expanded over the FWCA requirements to include non-migratory species. BCC 2002 lists bird species of conservation concern at three geographic scales: North American Bird Conservation Initiative (NABCI) Bird Conservation Regions (BCRs), USFWS Regions, and National. Spatially, the smallest of these scales, as well as the most relevant for management implications, is the BCR. BCRs are delineated by ecological regions, similar to the ecoregions described in paragraph 7.1; however, BCRs are more relevant to bird populations and species (*http://www.nabci-us.org/bcrs.html*). Umatilla Chemical Depot lies within BCR 9, Great Basin.

In 2004 the USFWS Migratory Bird Program produced a 10-year strategic plan, "A Blueprint for the Future of Migratory Birds" (USFWS, n.d.), describing the mandates, mission, vision, and operating principles forming the foundation of the Service's bird conservation activities, as well as providing a list of migratory birds of management concern. This was followed up with the development of a goal to increase the percent of migratory bird species that are at healthy and sustainable levels (USFWS, n.d.). As a means of tracking the USFWS's performance in attaining these goals, a small subset of the birds of management concern was identified as "focal species", to "…document and demonstrate the depth and breadth of management challenges faced by the Service and its conservation partners" (USFWS 2005).

Umatilla Chemical Depot hosts several bird species that are on the BCC 2002 list and/or the USFWS Focal Species List. The sage sparrow and the long-billed curlew merit special mention due to their specialized living requirements or their declining numbers throughout their range.

8.3.3.1 Sage Sparrow

As indicated earlier, the Depot contains the largest remnants of intact bitterbrush shrub-steppe habitat in the Columbia Basin (Kagan et al. 2000). In their subbasin assessment of the Umatilla Basin, DeBano and Wooster (2004) select focal vertebrate species to "represent" vegetative communities; species that, if not obligate in their relationship with a respective community, at least rely heavily upon it for their survivorship requirements. The focal species for the bitterbrush shrub-steppe vegetative community is the sage sparrow. The following information on sage sparrows is taken from DeBano and Wooster (2004).

Sage sparrows are shrub-steppe obligates, meaning they require that habitat for their survival as a species. They are most closely associated with big sagebrush communities with perennial bunch grass understories. Sage sparrows are migratory, typically arriving in northern Oregon in late February to early March. They nest in or under sagebrush shrubs, and may raise one to three broods per nesting season. Brood parasitism by brown-headed cowbirds is known to occur. Predation by Townsend ground squirrels, gopher snakes, loggerhead shrikes and domestic and feral cats has been documented.

Undoubtedly, however, the greatest threat to sage sparrows is the loss of habitat through fragmentation and conversion. Using data generated by surveyors in the 1850s compared to current information, Kagan et al. (2000) estimates that 55% of the bitterbrush shrub-steppe habitat in the Umatilla Basin has been lost, mostly through conversion to agricultural uses. However, the Depot retains significant acreages of this vegetative community. Consistent with this, sage sparrows, which historic records indicate were once abundant in northern Morrow and Umatilla Counties (DeBano and Wooster 2004), are now relegated to remnants of their preferred habitats, such as those found on the Depot. A declining trend in sage sparrows on the Depot may signal detrimental trends or conditions in their preferred shrub-steppe habitat. As an example, the use of big sagebrush communities by sage sparrows may decrease as perennial bunch grass understories are taken over by invasive annual grasses, as is often found on the Depot (Kirsch, pers. com.) However, other factors, such as predation or disease, may contribute to population declines as well.

Altman and Holmes (2000) also use the sage sparrow as a focal species; for large, unfragmented patches of big sagebrush. As described in this Partners in Flight (PIF) conservation strategy, the ideal habitat for sage sparrows would consist of big sagebrush patches approximately 2,500 acres in size, greater than 20 inches in height, with 10-25% overstory cover and greater than 10% understory (herb) cover, and greater than 10% bare ground (Altman and Holmes 2000). Sage sparrows are a Bird of Conservation Concern species in BCR 9 (USFWS 2002).

8.3.3.2 Long-billed Curlew

The long-billed curlew is the largest shorebird in North America (Johnsgard 1981). The species breeds in grassland habitats, and feeds primarily on insects, using its long bill for snatching food items from the surface, or for probing slightly beneath the surface and in holes. Long-billed curlews arrive on their breeding grounds in mid-March, and may stay through the summer (Pampush 1980, Denchant et al. 2003). The species has been known to breed on the Depot; ODFW has conducted road surveys for curlews, in conjunction with burrowing owls, from 1988 to 2001. Survey results fluctuated considerably but suggest a declining trend in curlew numbers on the Depot (ODFW, unpubl. data). However, it's difficult to assess how many observations were of resident versus transient birds. In addition, some variation in survey results may be due to changes in survey methodologies in response to elevated security measures on the Depot in recent years (Kirsch, pers. com.). Tetra Tech staff members found several active curlew nests while conducting planning level surveys (Tetra Tech 2002a).

Long-billed curlews are one of the most threatened shorebird species on the continent, and have been extirpated in several states. The primary causes for their population declines are degradation and loss of breeding habitat. In the U.S. Shorebird Conservation Plan (2004), they are classified as "Highly Imperiled". The International Union for Conservation of Nature and Natural Resources (IUCN) lists the long-billed curlew as "Near Threatened" on its Red List (*see www.iucnredlist.org*), and the state of Oregon lists the species as "Vulnerable". Long-billed curlews are a Bird of Conservation Concern species at the BCR, Regional, and National levels (USFWS 2002), and they are designated as a focal species for conservation by the USFWS (USFWS 2005). However, some sources indicate that in some local areas, including the Columbia Plateau, the species may be increasing.

8.3.4 Other Rare, Threatened, Endangered, and Sensitive Wildlife Species

Tetra Tech conducted Planning Level Surveys for threatened and endangered wildlife species on the Depot in 1999 and 2000. They focused their survey efforts primarily on three species: the bald eagle, the peregrine falcon, and the Washington ground squirrel (Tetra Tech 2000a). However, other sensitive species were the subject of investigation as well. The following are the results of Tetra Tech's survey efforts for threatened and endangered species on the Depot, and unless otherwise indicated, the data presented is from Tetra Tech (2000a). See Table 8-1 for a listing of species of special concern potentially found on the Depot.

Bald Eagle: The bald eagle was recently removed from federal listing as a threatened species, but is still state-listed as threatened. It has been observed on the Depot in the past (Gene Stout and Associates 1997), although it is considered a transient on the site and likely observed during the winter months. Due to a lack of water and large trees, there is limited suitable foraging or resting habitat for the species on the installation.

American Peregrine Falcon: The peregrine falcon was removed from federal listing as an endangered species in 1999, however the species is still listed as endangered by the state. As with the bald eagle, the Depot lacks favorable habitat for the peregrine falcon, therefore the species may be observed incidentally as a transient. There are no known records of peregrine falcons having been observed on the installation. Peregrine falcons are a Bird of Conservation Concern species at the BCR, Regional, and National levels (USFWS 2002), and they are designated as a focal species for conservation by the USFWS (USFWS 2005).

Western Burrowing Owl: This diminutive owl is federally listed as a Bird of Conservation Concern in several western BCRs, USFWS Regions, and Nationally (USFWS 2002), and is designated as a focal species for conservation by the USFWS (USFWS 2005). It is also state-listed as sensitive critical. The Depot hosts several colonies of burrowing owls; during their surveys in 2000, Tetra Tech recorded 12 active nest sites on the installation, primarily in abandoned American badger dens.

Ferruginous Hawk: The ferruginous hawk is federally listed as a Bird of Conservation Concern in several western BCRs, as well as Nationally (USFWS 2002), and is designated as a focal

species for conservation by the USFWS (USFWS 2005). It is also state listed as sensitive critical. The species has been observed foraging on the Depot, but is not known to nest on the site.

Swainson's Hawk: The Swainson's hawk is federally listed as a Bird of Conservation Concern in several western BCRs, USFWS Regions, and Nationally (USFWS 2002). The state considers it a vulnerable species. During their surveys, Tetra Tech observed two active Swainson's hawk nests near the Depot's administrative area.

Grasshopper Sparrow and Loggerhead Shrike: Both of these species are listed as Birds of Conservation Concern at the BCR, USFWS Regional, and National levels (USFWS 2002), and both are designated as USFWS focal species for conservation purposes (USFWS 2005). They are considered vulnerable on Oregon's sensitive species list, and are commonly observed on the Depot.

Sage Grouse: Although sage grouse have not been documented in the Columbia Basin region for many years, Tetra Tech staff flushed a bird in the northwestern part of the Depot that appeared to be a sage grouse. At that time the grouse was federally listed as a candidate species. Its candidate status was removed in early 2005 however. The Columbia Basin population of the Greater sage grouse is listed as a Bird of Conservation Concern at the BCR, USFWS Regional, and National levels (USFWS 2002). In addition, the species is listed as vulnerable by the state.

Northern Sagebrush Lizard: This lizard is federally listed as a species of concern, and state-listed as a vulnerable species. Tetra Tech staff members record having seen the species in two locations during the surveys.

Washington Ground Squirrel: The Washington ground squirrel is a federal candidate species, is state listed as an endangered species, and is on the DoD/NatureServe list as a SAR (NatureServe 2004). Although this was one of the species targeted during Tetra Tech's planning level surveys, and considerable effort was focused on finding the species if present, no Washington ground squirrels were documented on the Depot. However, the ODFW indicates that this species has been found elsewhere in Umatilla County where none were thought to exist (Kirsch, pers. com.); therefore potential evidence of Washington ground squirrels (reported sightings, sign), should be thoroughly investigated.

Table 8-1: Faunal and Floral Species of Special Concern Potentially Found on U.S. Army Umatilla Chemical Depot					
Common Name	**Scientific Name**	**Federal Status**	**BCC[a] FS[b]**	**State Status**	**Occurrence**
Reptiles and Amphibians					
Northern Sagebrush Lizard	*Sceloporus graciosus graciosus*	SoC		SV	Present
Birds					
Long-billed Curlew	*Numenius americanus*	None	BCR 9, R1, N FS	SV	Present
Bald Eagle	*Haliaeetus leucocephalus*	None		LT	Transient
Swainson's Hawk	*Buteo swainsoni*	None	BCR 9, R1, N	SV	Present
Ferruginous Hawk	*Buteo regalis*	SoC	BCR 9, N FS	SC	Present
Peregrine Falcon	*Falco peregrinus*	None	BCR 9, R1, N FS	LE	Transient
Sage Grouse	*Centrocercus urophasianus*	None	BCR 9, R1, N	SV	Potential
Western Burrowing Owl	*Athene cunicularia hypugea*	SoC	BCR 9 FS	SC	Present
Lewis' Woodpecker	*Melanerpes lewis*	SoC	BCR 9	SC	Present
Bank Swallow	*Riparia riparia*	None		SU	Present
Loggerhead Shrike	*Lanius ludovincianus*	None	BCR 9 FS	SV	Present
Grasshopper Sparrow	*Ammodramus savannarum*	None		SV	Present
Black-throated Sparrow	*Amphispiza bilineata*	None		SP	Present
Sage Sparrow	*Amphispiza belli*	None	BCR 9	SC	Present
Bobolink	*Dolichonyx oryzivorus*	None	FS	SV	Present

Table 8-1: Faunal and Floral Species of Special Concern Potentially Found on U.S. Army Umatilla Chemical Depot					
Common Name	**Scientific Name**	**Federal Status**	**BCC[a] FS[b]**	**State Status**	**Occurrence**
Tricolored Blackbird	*Agelaius tricolor*	SoC	BCR 9, N FS	SP	Potential
Mammals					
Western Small-footed Myotis	*Myotis ciliolabrum*	SoC		SU	Potential
Long-eared Myotis	*Myotis evotis*	SoC		SU	Potential
Long-legged myotis	*Myotis volans*	SoC		SU	Potential
Townsend's Big-eared Bat	*Corynorhinus townsendii*	SoC		SC	Potential
Pallid Bat	*Antrozous pallidus*	None		SV	Potential
White-tailed Jackrabbit	*Lepus townsendii*	None		SU	Potential
Washington ground squirrel	*Spermophilus washingtoni*	C		LE	Potential
Plants					
Laurence's Milk-vetch	*Astragalus collinus var. laurentii*	SoC		ST	Potential
Douglas' Milk-vetch	*Astragalus kentrophyta*	None		SC	Potential

Key: The full keys are provided for comparison purposes.

Federal:

LT: Listed Threatened. This category includes taxa listed as threatened by the USFWS under the Endangered Species Act.

C: Candidate species. This category includes taxa for which the USFWS has sufficient biological information to support a proposal to list as endangered or threatened.

SoC: Species of Concern. This category includes taxa for which existing information may warrant listing, but for which substantial biological information to support a proposal rule is lacking.

[a]BCC: Birds of Conservation Concern (see para. 8.3.3)

BCR 9	Bird Conservation Region 9
R1	USFWS Region 1
N	National

[b]FS: Focal Species (see para. 8.3.3)

State Protected: (State Protected List also includes the categories listed as State Sensitive.)

LE	Listed as an Endangered Species.
LT	Listed as a Threatened Species.
PE	Proposed as an Endangered Species.
PT	Proposed as a Threatened Species.
SC	Sensitive - Critical. Those species for which state listing as threatened or endangered is pending, or for which state listing as threatened or endangered may be appropriate if immediate conservation efforts are not taken.
SV	Sensitive - Vulnerable. Those species for which state listing as threatened or endangered is not believed to be imminent and could be avoided through continued or expanded conservation measures or monitoring.
SP	Sensitive - Peripheral or Naturally Rare. Those species that occur in the state at the edge of their distribution. Naturally rare species are species that have been present in low numbers in Oregon historically due to natural limiting factors.
SU	Sensitive - Undetermined Status. Those species whose status is unclear.

9.0 ECOSYSTEM STATUS SUMMARY

9.1 GENERAL

This chapter analyzes information provided in previous chapters with regard to components of the Depot ecosystems and their ability to support the needs of the military mission and community. Much analysis within this chapter is subjective due to a lack of background data. However, implementation of this INRMP will significantly improve future trend analysis capability.

9.2 WATER QUALITY

The Depot was listed as a National Priorities List (NPL) site in July 1987 based on the Hazard Ranking System site score for the explosive washout lagoon area. This designation brought the Depot under Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Depot subsequently entered into a Federal Facilities Compliance Agreement (FFCA) with the Environmental Protection Agency (EPA), signed October 1989. Operable unit (OU) 3 is a remediation area where contaminated shallow groundwater is being remediated according to the *BRAC Cleanup Plan* (AEC 1995). It involves a pump and treat system using three extraction wells to remediate the contaminated water by carbon absorption, with recharge via infiltration to the shallow aquifer.

All known underground storage tanks (USTs) on the Depot have been removed and the Depot has converted all of its boilers to propane. Soil that was contaminated from underground storage tank operations was also removed from the installation to approved disposal sites.

There are no active sanitary landfills on the Depot; the Depot's solid waste is currently collected by a contractor and is landfilled off-site. One inactive landfill, OU 7, is involved with a selenium study, and there is a restrictive easement that bars the drilling of wells in its vicinity. Water quality monitoring for selenium is done twice annually as required by the State of Oregon under RCRA Subpart D.

9.3 SOIL PRODUCTIVITY

In the absence of irrigation, the Depot's soils are not particularly productive and support a shrub-steppe vegetation. In the early years of Army occupation, the loss of topsoil associated with igloo construction undoubtedly had significant impacts on soil productivity. A recent range condition survey showed approximately half of the Depot to be in fair condition and half to be in poor condition. Poor condition is associated with soil disturbance from historic Depot activities (SWCD and SCS 1995). Thus, the rehabilitation of the lands from construction more than 50 years ago is not complete.

There are localized problems with wind erosion, especially on and around the igloos. These are typically not significant because they are treated successfully on a case-by-case basis, generally by applying a layer of gravel, when they occur. Due to the arid climate and sparse

vegetation, there is a constant level of wind erosion that may be considered naturally occurring. Due to difficulties in estimating wind erosion, it is not known if the prior land disturbing activities (igloo construction) and/or the existing igloos affect wind erosion and consequently, soil productivity. Application of the Revised Wind Erosion Equation (Fryrear 1997) may provide some insight into the current status of wind erosion and its affect on soil productivity.

9.4 BIODIVERSITY

Biodiversity has declined significantly in the Columbia Basin Ecoregion during the past 150 years; Kagan et al. (2000) estimates that over 85 percent of the native sagebrush steppe, grassland, and riparian communities have been converted to agricultural uses or have been overtaken by exotic species. The Umatilla Basin has been subject to widespread agricultural conversion, and the Depot is completely surrounded by crop fields with center-pivot sprinkler systems and grazing lands. The Boardman Naval Training Facility and the Depot, collectively, now host 25 percent and 35 percent, respectively, of the remaining bitterbrush shrub-steppe and needle-and-thread grassland habitats remaining in the Umatilla Basin (Kagan et al. 2000).

Biodiversity on the Depot significantly declined immediately following Army acquisition of the land. A review of aerial photographs from 1939 and 1949 indicate extensive disturbance to the entire Depot resulting from construction of 1,001 ammunition storage igloos and of the cantonment facilities. The *Ecological Assessment Report* (USACE 1993) noted that only 6 percent of the Depot was undisturbed. Little of the primary biome species association at the Depot is considered climax due to the past disturbances. However, the passive nature of the Depot's mission has resulted in little to no recent disturbances, with the exception of the construction of the CSDP chemical destruction plant. This has led to the restoration and preservation of native habitats that, despite not being pristine, are significant due to their rarity in the area.

Kagan et al. (2000) indicates that the Depot contains the largest remnants of bitterbrush habitat in the Columbia Basin Ecoregion, as well as high quality needle-and-thread sandy grassland habitats. However, it also expresses concerns about the future integrity of those habitats, citing potential development as a "significant threat" to their preservation. As long as the Army retains ownership of the properties in question, and maintains a passive mission, the impact to native vegetative communities will likely remain minimal. However, those protections will come into question following the completion of the CSDP, when the Depot property is declared excess and must be transferred or sold to another owner. That action, however, is beyond the scope and timeline of this INRMP.

9.5 SUPPORT OF THE MILITARY MISSION

The Depot's current realigned mission is the ongoing storage and destruction of chemical munitions. That mission is not particularly natural resources dependent, and in turn does not significantly impact the Depot's resources. However, one key factor of the mission is the maintenance of open space, a provision supported by the Depot's natural resources management program. Implementation of this INRMP directly supports the Depot's mission. Priorities will

change with the completion of the CSDP and the impending closure of the Depot after 2017 under BRAC; it will be left to be seen how precedents established by the Depot's natural resources management program may influence the future disposition of those resources.

9.6 PRODUCTION OF RENEWABLE PRODUCTS/RECREATION

9.6.1 Game and Associated Hunting

The Depot has the capability to produce game, and with the installation's emphasis on native species biodiversity and the mission's limited impact on the resources, game animals may thrive. However, the military mission precludes hunting activities on the Depot, due to restricted access.

9.6.2 Agriculture

The Depot has no agricultural outleases. The Depot's mission, as well as security considerations, preclude this option.

10.0 LAND MANAGEMENT UNITS

10.1 AMMUNITION DEMOLITION AREA

A 1,750-acre ammunition demolition area is located on the northwestern portion of the Depot (Figure 2). It was used for demilitarizing conventional munitions and burning defective or expired propellants. Currently, only authorized personnel are permitted to enter the ammunition demolition area. This area, which is fenced off from the rest of the Depot, is designated as OU 4 and is being remediated under the *BRAC Cleanup Plan* (AEC 1995).

10.2 TRAINING AND TESTING AREAS

For many years, the ONG used two parcels of land, covering approximately 1,380 acres: a tank maintenance quality and assurance testing area, for field-testing tanks that had been repaired or refurbished on the Depot, and a small arms range. Firm, stable soils and open space were required for effective maneuvering on the tank testing course. As stated earlier, the Depot's fine, sandy soils are susceptible to wind erosion when disturbed. To prevent disturbance of these soils, the ONG covered the tank trail with a layer of gravel. The ONG also conducted tank operations training exercises, however they used a tank simulator in these exercises.

10.3 CANTONMENT AREA

The cantonment portion of the Depot covers approximately 191 acres and includes the administrative, facilities maintenance, and housing areas. Landscaping is limited due to the arid climate, and irrigation is required to maintain grass lawns. A total of 24 acres is irrigated at the Depot. This acreage is primarily located in the housing/administation area and consists of lawns and open space parade ground areas. Grounds work is contracted out; however, the Grounds and Pest Management Department removes and replaces damaged trees and maintains the clear zones around sensitive areas. Over the last several years, the acreage of mowed land has decreased.

10.4 STORAGE AREAS

The Depot contains 1,001 ammunition storage igloos (Figure 2). Conventional munitions have been removed from the Depot and 900 of these igloos are currently empty. The remainder of the igloos are used for storing chemical agents, related wastes, and security munitions. In addition, some of the available igloos are used by contractors to store equipment, and the American Red Cross uses some igloos to preposition disaster relief supplies.

The maintenance of clear open spaces is essential to performing the Depot's storage mission. The open spaces, called clear zones, are areas where the height of vegetation is kept at a minimum. A 15-foot clear zone with vegetation less than 8 inches in height is maintained around the Depot perimeter and an approximately 50-foot clear zone with vegetation less than 2 inches in height is maintained around other sensitive areas as necessary. Most clear zones are maintained by mowing; however, mechanical clearing and non-selective herbicides are also used. Clear zone maintenance is not beneficial to natural resources because it removes vegetative

cover that would otherwise be used by wildlife for cover. The Pest Management Coordinator will strive to reduce non-selective herbicide use for clear zone maintenance and will use mechanical means when possible.

11.0 ECOSYSTEM MANAGEMENT—GENERAL

Biodiversity protection is a DoD commitment and ecosystem management is recognized as the means to achieve this commitment. The publication *Conserving Biodiversity on Military Lands* (Leslie et al. 1996) provides guidance for military natural resource managers on conservation and ecosystem management, and may be used in the implementation of this INRMP.

11.1 OBJECTIVES

This chapter describes the following:

- biodiversity conservation and ecosystem management with regard to implementation by the DoA.
- how various natural resources programs fit within this INRMP and integrate with each other.

11.2 BIODIVERSITY CONSERVATION

This INRMP addresses biodiversity conservation in a variety of ways. It includes monitoring and inventorying that are critical to adaptive management, establishing conservation measures for protected species and communities, using and conserving native species, and reducing landscaping. Biodiversity conservation should not however, be related solely to maintaining or increasing numbers of individual species. Biological integrity of a system is a more encompassing goal that, if achieved, will provide the appropriate level of biodiversity for a given region or system (Angermeier and Karr 1994). This INRMP represents only the beginning of the process to manage for biodiversity and may need to be adjusted as DoD and DoA policies evolve.

11.3 ECOSYSTEM MANAGEMENT

Ecosystem management is a concept many natural resource managers have adopted on military installations during these past several years. Ecosystems can be defined on many levels, from genetic to landscape. Ecosystems often cross political boundaries, such as installation boundaries, which adds to the complexity of managing them. Ecosystem management strongly emphasizes processes, particularly adaptive management. Adaptive management is essentially flexibility: it involves implementing an option, monitoring the option's results, and modifying either the option or it's implementation accordingly.

Ecosystem management is not articulated formally in law, but its basic concepts have strong legal compliance aspects, especially within the Endangered Species Act, Sikes Act, Clean Water Act, and NEPA. Ecosystem management is a strategy that will help achieve biodiversity protection and maintain fully functional natural resource units.

The memorandum "Implementation of Ecosystem Management in the DoD" (Department of Defense 1994), states that ecosystem management will become the basis for future management of DoD lands and waters. In this context, ecosystem management will include:

Ecological approach: Individual species management will shift to ecosystem management.

Partnerships: Cooperation, coordination, and partnerships essential for managing ecosystems will be emphasized to "cross" the political boundaries that ecosystems straddle.

Participation: Public needs and desires will be considered in management decisions.

Information: The best available scientific information will be used to select technologies to be employed in managing natural resources.

Adaptive management: Adaptive management techniques will be incrementally applied as they are identified.

The DoD (1994), has an overall goal with regard to ecosystem management: " … to preserve, improve, and enhance ecosystem integrity. Over the long-term, this approach will maintain and improve the sustainability and biological diversity of terrestrial and aquatic (including marine) ecosystems while supporting sustainable economies and communities." The principles and guidelines needed to achieve this goal are listed below:

- maintain and improve sustainability and native diversity of ecosystems.
- administer with consideration of ecological units and time frames.
- support sustainable human activities.
- develop a vision of ecosystem health.
- develop priorities and reconcile conflicts.
- develop coordinated approaches to work toward ecosystem health.
- rely on the best science available.
- use benchmarks to monitor and evaluate outcomes.
- use adaptive management.
- implement through installation plans and programs.

Ecosystem management provides a means for the Depot to both conserve biodiversity and provide high-quality military readiness. The Depot uses land for its military mission. Ecosystem management recognizes this and other human-related needs, including sustainable human activities, in a management program.

Adaptive management uses a feedback monitoring system to allow for the adjustment of management programs based on results. This system recognizes that it is important to implement "best judgement" programs rather than waiting until research provides all needed answers. These programs are monitored and adjusted as needed.

The Depot intends to use these ecosystem management concepts to guide its program in the future. This management philosophy will enable the Depot to proactively manage its natural resources in a manner that supports the safe storage and destruction of military munitions while protecting natural resources. Concurrently, ecosystem management will help ensure compliance with environmental laws.

11.4 INTEGRATED NATURAL RESOURCES MANAGEMENT

This INRMP provides the framework for ecosystem management implementation at the Depot. Chapters 12 through 18 each deal with aspects of conservation, management, and natural resources. The former military natural resources planning methodology of separating wildlife management, rangeland management, woodland management, Integrated Training Area Management (ITAM), and other programs based on the products they produce has been abandoned.

For several years the Depot has been conducting natural resources baseline studies and preparing various environmental documents, generally as the result of BRAC-related actions. This INRMP supplements these baseline studies and ties natural resources data into a single, integrated program.

11.5 PARTNERSHIPS

Partnerships are critical to the success of ecosystem management, and the Depot has a good basis upon which to build and maintain partnerships. Relationships with its INRMP signatory partners, the USFWS and ODFW, are good, and will continue to be developed in the years to come. This plan continues the partnership with the Confederated Tribes as well. In addition, should the opportunity present itself, the Depot may cooperate with the SWCD on projects in future years. The potential to develop partnerships with adjoining landowners is limited because the surrounding land is mostly agricultural; however, there may be opportunities to work cooperatively on projects of mutual interest such as insect control.

Interagency partnerships are typically grounded in cooperative agreements, and memoranda of agreements and understandings. The Depot maintains a Cooperative Agreement with the USFWS and the ODFW concerning the cooperative management of natural resources on the installation (Appendix E); and an MOA with the USFWS regarding the protection of raptors on the site, especially as it relates to raptor electrocution on utility poles and systems (Appendix F). Furthermore, the Depot operates in accordance with an MOU between the DoD, the USFWS, and the IAFWA, addressing the protection, management, and use of resources on DoD installations (Appendix D); and an MOU between the DoD and the USFWS addressing the conservation of migratory birds on DoD properties (Appendix G).

11.6 WILDLIFE MANAGEMENT

In recent years, wildlife inventory efforts on the Depot have been limited to studies conducted under BRAC and have not been specifically for natural resources management

purposes. An exception to this is the monitoring of the pronghorn herd following reintroduction in 1969. Since the discontinuation of the ODFW's transplant program, the pronghorn inventory has been conducted intermittently by the ODFW and SCWD.

This INRMP will provide positive benefits to wildlife primarily through recommending the preservation and maintenance of native shrub-steppe habitats, as well as providing free-water with the wildlife watering devices. Recognizing the unique habitat on the Depot and making the effort to preserve it will prolong the reproductive success of native wildlife that inhabit the Depot.

11.7 APPLICATION OF INTEGRATED TRAINING AREA MANAGEMENT METHODS

The Depot does not have an intensive land use military mission. Therefore it does not have an ITAM program and, based upon the current passive mission, is unlikely to receive funding for ITAM in the future. However, ITAM program components are applicable to passive land use military missions since ITAM is built on the premise of land stewardship. Goals and objectives normally associated with the ITAM program are incorporated into INRMP objectives. Programs involving Environmental Awareness are in Section 17.0, and erosion control, which is similar to Land Rehabilitation and Maintenance (LRAM), is detailed in Section 14.7.

11.8 OTHER PERTINENT PLANS AND PROGRAMS

Other plans and programs are associated with natural resources management on the Depot. An INRMP is normally an integral part of the Master Plan, which is the planning document for the development of facilities on the Depot. However, due to the Depot's BRAC status, it is not required to have a Master Plan.

The *Pest Management Plan for Umatilla Chemical Depot* (Hunt 2005; Appendix H) and this INRMP are fully integrated and consistent with one another. The recommended practices related to pest management provided in this INRMP are also outlined in the Pest Management Plan (PMP). These include reduced use of pesticides and herbicides, use of non-selective herbicides, and the use of mechanical means of control rather than chemical, when feasible.

Programs and activities conducted in accordance with this INRMP, that may result in cultural resource "undertakings," will be reviewed prior to implementation to identify any appropriate mitigations to lessen or eliminate potential impacts to those resources. Such activities include, but are not limited to, firebreak maintenance and erosion control. INRMP implementation and cultural resources conservation integration procedures are consolidated primarily in Chapter 19 to avoid repetition in other sections.

12.0 INVENTORYING AND MONITORING

12.1 OBJECTIVE

The Army has completed inventories for sensitive, threatened and endangered species as well as vegetative communities on the installation (Tetra Tech 2002a , 2002b). Due to the passive nature of the Depot's mission, natural resources on the site are not expected to be significantly impacted as a result of the Army's actions. Therefore, the monitoring of those resources through the next 5 years is not expected to be intensive. The objectives are to monitor those resources that are important indicators of the following:

- the integrity of the overall ecosystem.
- the capability of lands to support military mission.
- the status of imperiled species or communities.

12.2 INVENTORYING AND MONITORING DEFINITIONS

The first step in biodiversity protection is to prepare an inventory. Inventory, as used here, means developing an itemized list or catalog of the aspects of an ecosystem. As indicated above, the vegetative communities as well as the sensitive, threatened and endangered species were inventoried in 2001.

Monitoring tracks trends (or absolute numbers if needed) of individual species or higher associations of species such as vegetative cover types or plant communities, is generally performed on a regular basis, and often targets species with high economic or human-use values, endangered species, and indicator species of overall ecosystem health. On the Depot, monitoring has generally not been conducted with the exception of ODFW monitoring the pronghorn population, particularly during the 1970s. In recent years, ODFW has been monitoring long-billed curlew and burrowing owl populations in conjunction with pronghorn surveys, as well.

12.3 FLORAL INVENTORYING AND MONITORING

12.3.1 Floral Surveys

Tetra Tech conducted Planning Level Surveys for vegetative species and communities on the Depot in 2001 (Tetra Tech 2002b). Plant communities can be seen at Figures 5-8; a listing of plant species observed during the surveys is included at Appendix B1.

The bitterbrush shrub-steppe habitat occurring on the Depot is the largest and best example of that native vegetative community in the Columbia Basin Ecoregion (Kagan et al. 2000). As such, it provides valuable habitat for native plant and animal species. Due to the limited distribution of the remaining shrub-steppe habitat in the region, many of the associated wildlife species are listed by the state as sensitive. Future population viabilities rely upon maintenance of these remnant habitat tracts.

12.3.2 Sensitive Plant Species

As discussed in paragraph 8.2.4, one federally listed species of concern which is also state listed as threatened, Laurence's milk-vetch, may occur on the Depot. Douglas' milk-vetch is not federally listed but is state listed as a candidate and may occur within the area as well. No federal or state listed threatened or endangered plant species were found on the Depot during the 2001 vegetation surveys, but Columbia milk-vetch, a state watch list species, was encountered in many of the vegetative communities (Tetra Tech 2002b).

12.3.3 Land Condition Trend Analysis

There is little need for a Land Condition Trend Analysis (LCTA) program to monitor the Depot's resources due to the passive nature of the military mission on the installation.

12.3.4 Aerial Photographs and Satellite Imagery

Aerial photographs by themselves are not inventory items. However, they are indispensable tools for surveying relatively large parcels of land and for analyzing long-term vegetation changes. The Depot has a considerable aerial photograph collection from its acquisition in 1941 to present, and includes photograph sets for 1951, 1958, 1970, 1972, 1975, 1980, 1988, and 1993. More recent aerial photographs, as well as satellite imagery, can now be found on-line through several internet search engine sites. These photographs are extremely useful for evaluating long-term effects of the military mission, as well as monitoring changes in the natural environment.

12.3.5 Vegetation Map

As part of a Planning Level Survey process, a vegetation map was produced that shows 14 major plant community cover types, including 7 shrub-dominated types and 7 types of grasses and herbaceous species (Tetra Tech 2002b) (Figure 5).

12.3.6 Non-native Species and Noxious Plant Surveys

In conjunction with the Planning Level Surveys for vegetative communities, Tetra Tech documented invasive and non-native plant species in the area (Tetra Tech 2002b). Tetra Tech estimated that approximately 25 percent of the vascular plants encountered were not native to the area. Some species, such as cheatgrass, were pervasive, occupying the herbaceous understory of several plant communities. Two species were listed by the Oregon Department of Agriculture as noxious weeds: diffuse knapweed and rush skeletonweed.

Noxious weed control is the responsibility of landowners per Chapter 452 of the Oregon Revised Statutes, Vector and Weed Control. Consequently, the Depot is required to control diffuse knapweed and rush skeletonweed. Although intensive annual surveys are not conducted for these invasives, they are treated immediately upon discovery during the normal course of duties. In accordance with DoD guidance regarding the use of pesticides, manual removal of the

plants is implemented if feasible. If chemical applications are required, the least amount of herbicides to attain an effective treatment is used.

12.4 FAUNAL INVENTORYING AND MONITORING

Data regarding the status of wildlife on the Depot is sparse. Given the size of the Depot and limited resources available to natural resources managers, there has been no consistent inventory and monitoring of species. Confirmed and potentially occurring mammal, bird, reptile and amphibian species lists were developed as a component of the ecological assessment (USACE 1993). It should be mentioned that habitat quality may be monitored by way of monitoring habitat obligate species. For example, declines in sage sparrow and sage thrasher populations may indicate decreases in the quality of the Depot's big sagebrush vegetative community. Surveys for pronghorn, long-billed curlews, and western burrowing owls have been conducted in the past, and should be continued in future years.

12.4.1 Terrestrial Vertebrate Species

To date, no comprehensive surveys have been conducted on the Depot for terrestrial vertebrate species. As indicated earlier, a 3-day field survey was undertaken in March 1992, in support of an RI/FS assessment. However, a much more in-depth inventory of the installation's mammal, herptile, and bird populations is needed to determine, in part, the integrity of the Depot's biotic systems.

Due to the rare status of the Depot's shrub-steppe and sandy grassland habitats in the Columbia Basin Ecoregion, and in light of the uncertain future of the Depot's properties when base closure takes effect, it is recommended that terrestrial wildlife Planning Level Surveys be conducted to document the presence/absence of wildlife species in these unique habitats.

12.4.2 Sensitive Wildlife Species

Tetra Tech conducted threatened and endangered species surveys on the Depot in 1999 and 2000. Specifically, Tetra Tech targeted three species in their search efforts: bald eagle (federally and state listed as threatened), peregrine falcon (state listed as endangered), and Washington ground squirrel (federal candidate, state listed as endangered). None of the target species was observed during these surveys. The Depot does not have nesting habitat for bald eagles or peregrine falcons, and both species are considered transient to the area. Tetra Tech suggests that the Depot's soils may lack the stability needed to be suitable for Washington ground squirrel burrows. In addition, the dry shrubland and grassland vegetation types at the Depot may lack suitable forage to support Washington ground squirrel populations (Tetra Tech 2002a). However, this species has been found elsewhere in the area where none were thought to exist (Kirsch, pers. com.); therefore potential evidence of Washington ground squirrels (reported sightings, sign), should be thoroughly investigated. In addition, an assessment can be made of the soils in those areas where Washington ground squirrels are known to exist in comparison with Depot soils.

In conjunction with the above surveys, Tetra Tech noted other species of special concern on the Depot as well. Those observed during the surveys were as follow (see Table 8-1 for the sensitivity status of each species):

- Western Burrowing Owl
- Swainson's Hawk
- Long-billed Curlew
- Grasshopper Sparrow
- Loggerhead Shrike
- Northern Sagebrush Lizard

With minimal mission-related impacts to Depot habitats, these sensitive species will hopefully be found on the Depot for many years to come.

12.4.3 Neotropical/Migratory Birds

Migratory bird species that winter in the tropics and nest in the United States and Canada are declining in both their numbers and distribution. Partners in Flight (PIF), a governmental-private conservation coalition, is dedicated to reversing this trend, and DoD is a partner in this organization.

From 1995 to 1997, and again in 2000 and 2001 after a fire in 1998, shrub-steppe birds were studied at the Boardman Naval Training Facility. The distribution, abundance, site fidelity, and productivity of shrub-steppe birds were studied before and after the burn, along with measures of vegetation change. The Naval Training Facility used ODFW and the Point Reyes Bird Observatory to conduct these studies. Funding to continue this work is lacking; however, if this study is started again, it may be possible for the Depot to form a partnership with Boardman to expand the scope of the project.

12.5 WILDLIFE DISEASES SURVEILLANCE

The RD – EO staff will remain vigilant for signs of diseases in wildlife populations, especially those diseases that may be transmissible to humans. The most likely evidence for the occurrence of such diseases is the finding of wildlife mortalities when the causes of death are not apparent (for example road kill), and many carcasses of the same species (such as magpies), or classes of animals (rodents) are being discovered. The observation of sick animals may also indicate a disease outbreak in wildlife populations. Potential diseases may be identified by the species affected. If several dead corvids (jays, magpies, or crows) are reported, West Nile Virus may be spreading through the bird populations. Raptors appear to be equally sensitive to West Nile Virus. (However, note that if found at the base of a power pole without raptor protection, a bird mortality may be due to electrocution). Multiple reports of dead rodents may indicate a plague outbreak in those populations. Sick canids (coyotes, foxes), sometimes evidenced by a lack of fear of humans, may indicate rabies in the populations. Skunks and bats also commonly contract rabies.

Suspected outbreaks of wildlife diseases should be reported immediately to the Umatilla and Morrow County Health Departments. Either of these county agencies may want to perform tests to confirm the presence of viral or bacterial infections, and may need access to the Depot to collect animal carcasses. Or they may request that Depot staff collect the carcasses; the staff should do so only in accordance with accepted guidelines, provided by the health departments, for the safe handling and transportation of carcasses potentially infected with transmissible diseases.

If a wildlife disease outbreak is suspected on or near Depot property, RD – EO should also make an announcement to the Depot residents, employees, and visitors that such a disease may be present. As a precautionary measure, the announcement should be made immediately, without waiting for confirmation on the identification of any diseases, and include precautions the personnel should take to prevent exposure to potential diseases. This should include monitoring the activities of their pets while outdoors.

12.6 WATER QUALITY MONITORING

The Depot has no naturally occurring surface water, so groundwater is the only water quality index to be measured. The Depot monitors groundwater at 110 monitoring wells. Most of this monitoring is due to the Depot's status on the NPL. This level of monitoring should continue through 2011 and beyond.

12.7 CULTURAL RESOURCE SITES

Natural resources management requires knowledge of cultural resources to avoid damage to cultural sites. Consistent with cultural resource laws and regulations, the Depot will survey areas that have not been previously surveyed prior to conducting soil disturbing activities associated with implementing initiatives included in this INRMP.

12.8 DATA STORAGE, RETRIEVAL, AND ANALYSIS

Collecting natural resources data in the absence of storage, retrieval and analytical capabilities does not provide support for decision-making processes. In many cases, biological data are collected and stored without being used. This practice is often due to inefficient data storage, retrieval, and analysis systems.

12.8.1 Geographic Information System

A Geographic Information System (GIS) integrates spatial data (e.g., maps, aerial photos, satellite images) with statistical data (e.g., elevations, percentiles) and works in a similar fashion as database software in allowing analyses and presentation of data. A GIS ideally has the capacity to address data in both vector (lines and points) and raster (areas) spatial formats.

The Depot's Environmental Office has ArcView 9.0 GIS capabilities, with dedicated natural resource data layers; however, the system is not yet fully functional.

12.9 FY08 THROUGH FY12 INVENTORY AND MONITORING PLANS

The following are floral and faunal inventory and monitoring activities that will be initiated and/or continued in future years:

- continue noxious weed surveillance.
- continue ongoing groundwater monitoring.
- continue support of pronghorn, burrowing owl, and long-billed curlew surveys.
- continue wildlife diseases surveillance.
- conduct terrestrial vertebrate Planning Level Surveys.
- conduct additional inventory and monitoring if the need arises or if opportunities to collect needed data occur with little additional expense.

13.0 CONSERVATION AND DAMAGE PREVENTION

Avoiding damage to ecosystems is a key factor in ecosystem management. The Depot's passive chemical storage and destruction mission depends upon the maintenance of the land in an undisturbed state. Unlike those installations which involve significant training activities, the success of the Depot's mission is to some degree dependent upon maintaining an absence of land disturbing activities.

One safeguard recently established to reduce or mitigate negative environmental impacts resulting from military projects is the Environmental Checklist for Work Orders or Contract Proposals (Appendix I). Project proponents prepare this checklist, describing the project and any potential impacts, and submits the document to RD – EO. RD – EO reviews the checklist and determines whether the Depot will remain in compliance with federal, state and local regulations if the project goes forward, and whether NEPA coordination is required to implement the project.

13.1 OBJECTIVES

The Depot has developed the following objectives for conservation and damage prevention:

- protect lands from wildfires.
- conserve areas of special ecological concern.
- protect wildlife from mission-related impacts.

13.2 WILDFIRE PROTECTION

Range wildfires account for approximately 95 percent of fires at the Depot. Most of the 30 to 50 annual range fires are started by lightning strikes, or railroad-related activities originating from the main rail lines passing along the south boundary of the installation. Flames ignited along this stretch are fanned by prevailing east-northeasterly winds, creating a significant fire hazard. The primary fire season is May through September.

Wildfire suppression is the responsibility of the Depot Fire Department which maintains a policy of actively suppressing all wildfires. Suppression normally does not involve ground disturbance beyond traversing cross-country with fire fighting equipment. Interagency agreements have been established to obtain assistance from Boardman, Umatilla, and Hermiston for range fire suppression, but the Depot responds to more off-post fires than it requests help for on-post fires.

There are no firebreaks on the Depot. However, security zones, which are kept clear of vegetation, act as firebreaks. These security zones are located around the Depot perimeter as well as around interior sensitive areas. These are maintained through mowing and the use of non-selective herbicides.

The Depot bales and burns tumbleweeds when they accumulate sufficiently enough to be a fire hazard. Beyond this practice, there is no prescribed burning on the Depot.

13.3 SHRUB-STEPPE HABITAT PROTECTION

The Depot is classified as an *Artemisia-Agropyron* steppe biome located in the upper part of the Columbia Basin floristic province of northeastern Oregon (Gene Stout and Associates 1997). The Depot is one of the few remaining areas of shrub-steppe in a region dominated by intensive, irrigated croplands and pasturelands. Vegetation on the depot consists primarily of a ground cover of grasses and forbs among shrubs and sagebrush, with some planted trees in the administrative area.

The Columbia Basin remains largely treeless, aside from riparian sites, farmsteads, and towns. Of the ten physiographic provinces, the Columbia Basin is one of two provinces that has been the most modified by human activities. Only remnants of the original grass steppe remain, and some of these remnants are dominated by exotic species (Puchy and Marshall 1993). In an ecoregional perspective, Kagan et al. (2000) maintains that the Depot contains the largest and best example of bitterbrush shrub-steppe in the Columbia Basin Ecoregional Province, which extends from central Washington to Central Oregon.

The Depot's mission does not involve significant training activities, therefore the natural resources are relatively undisturbed by mission functions. In fact, the passive nature of the Depot's mission has resulted in the preservation of the shrub-steppe habitat which has recovered since initial construction of the facility in 1941. Areas immediately surrounding the Depot are irrigated agricultural lands and are largely devoid of the native shrub-steppe habitat. As such, the Depot lands are a valuable natural resource as they represent one of very few remaining contiguous tracts of native shrub-steppe vegetation in the Columbia Basin.

All undeveloped land on the Depot will continue to be managed using very restrictive land-use designations. Off-road maneuvers will not be permitted and agriculture will continue to be precluded. Off-road vehicle use by Depot support personnel and contractors, except for emergency situations related to safety or security or that which is required to support the military mission, will be strictly prohibited. Actions involving vegetation removal will require NEPA documentation. In general, impacts to the land as a result of activities unrelated to the Depot's core mission, the safe and secure storage and destruction of the chemical stockpile, will not be tolerated.

The protection and maintenance of the native steppe and shrub-steppe habitats on the Depot, as outlined in this INRMP, are consistent with other management plans and recommended strategies developed for this general area, such as the Conservation Strategy for Landbirds in the Columbia Plateau of Eastern Oregon and Washington (Altman and Holmes 2000), the Umatilla and Willow Creek Basin Assessment for Shrub Steppe, Grasslands, and Riparian Habitats (Kagan et al. 2000), the Draft Umatilla/Willow Subbasin Plan (DeBano and Wooster 2004), and the Oregon Conservation Strategy (Oregon Department of Fish and Wildlife 2006).

13.4 MIGRATORY SPECIES CONSERVATION

In July 2006 the DoD and the USFWS signed an MOU to promote the conservation of migratory birds on DoD installations. This was a comprehensive agreement, calling for the two agencies to work cooperatively toward the protection and enhancement of migratory bird species and their habitats (Appendix G). The Depot fulfills the obligations of this agreement to the fullest extent practical, within the parameters of staff and funding limitations. As noted elsewhere in this INRMP, the Depot has instituted a raptor protection program, is considering installing burrowing owl artificial nest burrows and structures, and rigorously protects the unique native shrub-steppe habitat upon which some sensitive bird species depend. Other programs have been considered, such as the establishment of a Bird Conservation Area (BCA) designation (Altman and Holmes 2000), an Important Bird Area (IBA) designation (DoD PIF 2005), and/or implementing a Monitoring Avian Productivity and Survivorship (MAPS) program (DoD PIF 2002); however the Depot habitats, significant as they are, are likely too small and isolated to support these types of programs. If cooperators, such as the USFWS, the ODFW, or PIF, expressed interest in such projects on the installation, however, the Depot would be eager to join in discussions on the matter.

13.5 SENSITIVE SPECIES RESTORATION

As indicated earlier, the Laurence's milk-vetch is a federally listed species of concern and is state listed as threatened. Kagan et al. (2000) states the species is endemic to the lower Umatilla Basin, in which it is found in only 14 locations. This may present an opportunity for the Depot to proactively assist in the restoration of a sensitive species. The feasibility of establishing a viable Laurence's milk-vetch population on the Depot, which may be determined primarily by soil types, should be investigated. If there is a good potential the project can be met with success, it should be undertaken through partnerships with the ODFW and other interested organizations.

13.6 RAPTOR PROTECTION

The loss of hawks, eagles and owls through electrocution on electrical transmission systems has long been recognized a significant problem in the United States (APLIC and USFWS 2005, APLIC 2006). Raptors use power poles as perches for resting, hunting and feeding. Electrocution typically occurs as the birds are approaching or flying off the power poles, when each of their wings simultaneously touch two wires, resulting in an electrical surge passing through their bodies. These birds are protected by the Migratory Bird Treaty Act (MBTA), and each electrocution is a violation of that federal statute. Furthermore, eagles are protected by the Bald and Golden Eagle Protection Act, and bald eagles, being a federally-listed threatened species, are protected by the Endangered Species Act. Several measures have been identified to reduce or prevent the incidence of raptor electrocution (APLIC and USFWS 2005, APLIC 2006), most involving devices attached to the poles to preclude or discourage raptor perching, and methods of insulating wires and insulators to prevent direct contact with hot electrical systems.

Military bases often have electrical systems dating to the early- to mid-forties, which can be especially conducive to raptor electrocutions. Although not a frequent occurrence, raptors

have been electrocuted on the Depot. The Depot has recently entered into an agreement with the USFWS to cooperatively review raptor protection needs on the installation, and address those needs through preventative measures (Appendix F). These measures will consist primarily of retrofitting power poles with devices to reduce the chances of electrocutions. The program will be implemented in four phases:

1.) in a raptor electrocution incident, raptor protection will immediately be installed on the pole at which the electrocution took place.

2.) a program to retrofit existing power poles with raptor protection devices will be implemented. If full project funding is not available, the project may be apportioned through time, with "sections" of power lines being retrofitted each year as money is available.

3.) new power line systems will employ raptor protection devices upon installation. (It should be noted that the lines may be configured on the poles in a manner that precludes raptor electrocution, thus the necessity for raptor protection.) Alternatively, new lines may be buried rather than installed as overhead systems.

4.) as old transmission lines are decommissioned and removed, poles with cross pieces will be left standing to serve as alternate perch poles for raptors. Approximately every fourth pole may be left standing, or more if the area is especially attractive to raptors for foraging purposes. The USFWS may be consulted on the number, spacing, and locations of poles to be left standing.

This four phase process is a fulfillment of paragraph 2.f.(4) of the DoD/USFWS MOU for promoting the conservation of migratory birds (Appendix G), wherein the interaction of migratory species with communications towers, utilities, and energy development is addressed.

13.7 BUILDING DEMOLITIONS AND WILDLIFE PROTECTION

In conjunction with the BRAC program, buildings no longer being used by the Army may be slated for demolition. Abandoned structures often serve as nesting sites for birds and roost sites for bats. Harming or destroying most bird species, eggs, and/or bird nests are a violation of the MBTA, and care must be taken to avoid this action if at all possible. Some species, such as rock doves (pigeons) and starlings, are not protected by the MBTA. Bats are not protected under the MBTA, but are protected as nongame species under state regulations.

If buildings are scheduled for demolition during the breeding season, a thorough inspection of the structures should be made prior to destruction activities, to ensure no migratory birds be harmed. If nesting migratory species are present, demolition must be postponed until the protected species are done nesting. Although it is recognized that the timing of demolitions is often dictated by funding availability, it is better, if possible, to schedule demolish projects for the late fall and winter months (note that some species prone to nesting in abandoned buildings, such as great-horned owls, initiate nesting relatively early in the year).

Large structures, such as warehouses, or buildings with attics, sometimes house bat colonies. These may be either day-roost sites or maternity sites. Presumably, day-roosting bats can escape demolition activities and seek alternate roost sites. However, the demolition of a structure housing a maternity colony while the pups are still incapable of flight will result in the destruction of those bats.

13.8 WILDLIFE RESCUE/REHABILITATION

Despite the Army's best efforts to prevent impacts to native wildlife, harm will inevitably come to some animals as a result of human activities. The Depot has been commendable in its efforts to rescue and aid those animals in need of assistance. Typically the subjects of attention are birds: those that fly into windows, are struck by vehicles, or become sickened from unknown causes. Immediate attention is often required to save the animals, and the level of care needed is generally above that available on the Depot. In past years many animals have been rescued from the Depot and transferred to Blue Mountain Wildlife, a wildlife rehabilitation center in Pendleton, for assessment, medical attention and recovery. Blue Mountain Wildlife has an amazing recovery rate for its patients and, being the closest such facility available, should continue to be used when wildlife needs medical assessment and attention.

13.9 ENVIRONMENTAL CONTAMINANTS

Due to the generally benign nature of the Depot's military role through the years, the installation is relatively clean of contamination resulting from Army actions. The Depot once had 11 Solid Waste Management Units (SWMUs), or sites that were identified, per CERCLA remedial investigations, as being potentially contaminated with solid wastes or hazardous materials. An aggressive restoration and rehabilitation program has reduced that number to three. One of those is an explosives plume discussed in Section 9.2, Water Quality, where a pump-and-treat system was installed in 1996. This plume qualified the Depot as an NPL site under CERCLA. The other two SWMUs are unexploded ordnance (UXO) areas, one located in the Ordnance Burn/Ordnance Disposal (OB/OD) Range, in the Depot's northwest sector; and the other in the QA Function Range, an extension area adjacent to the Depot's northeast boundary. Both of these areas have restricted access.

All known historic USTs on the base have been removed and the Depot has converted all of its boilers to propane. Soil that was contaminated at UST locations was removed from the installation to approved disposal sites. One regulated UST currently in operation was installed to support the CSDP program. The Depot has 17 above ground storage tanks (ASTs), ranging in capacity from 275 to 15,000 gallons, used for the storage of petroleum products (Lopez 2004). Spill control measures are incorporated into all ASTs in accordance with 40 CFR 112.8(c) and AR 200-1, 3–3.a.(4), and 4–5.k.

Programs and operations that have been in place for several years, such as the Pest Management Program and operation of the shooting range, have discrete Standard Operating Procedures (SOPs) and plans that address potential contamination issues and response procedures. For example, Section G, Environmental Considerations, of the Pest Management

Plan (Appendix H), addresses such issues as protection of the public, pesticide use in sensitive areas, pesticide spills and remediation, and pollution prevention (Hunt 2005). On the shooting range, copper jacketed ammunition is used to reduce lead contamination of the soils, and the backstop berm, installed in 2004, is underlain by an impermeable barrier to further keep incidental lead contaminants from leaching into the groundwater. Remedial investigations conducted preliminary to the berm installation found no lead contamination at the site. The Depot is included in the Operational Range Assessment Program (ORAP), designed to identify potential migratory pathways for munitions constituents from military ranges to offsite communities and/or sensitive environments.

As noted earlier, there are no active sanitary landfills on the Depot; the Depot's solid waste is currently collected by a contractor and is landfilled off-site. One inactive landfill, OU 7, is involved with a selenium study, and there is a restrictive easement that bars the drilling of wells in its vicinity. Water quality monitoring for selenium is conducted twice annually as required by the State of Oregon under RCRA Subpart D.

A Spill Prevention, Control, and Countermeasures (SPCC) Plan and an Installation Spill Contingency (ISC) Plan have been developed for the Depot (Lopez 2004). The first plan identifies potential hazardous substance spill sites while the second establishes procedures for responding to and cleaning up hazardous substance spills. These plans pertain to the industrial operations at the Depot, and do not address potential spills in association with the chemical demilitarization program. While the CSDP maintains a separate SPCC Plan, that document is classified and not available for public review. Depot Risk Directorate – Emergency Services team personnel are trained in spill response procedures per 29 CFR 1910.120(q), and AR 200-1, 3–3.d.

The CSDP is a discrete program with operations and contingency plans separate from the normal operations of the Depot. The destruction of chemical munitions and supporting operations were addressed in the EIS, "*Disposal of Chemical Agents and Munitions Stored at Umatilla Depot Activity, Oregon*" (Program Manager for Chemical Demilitarization 1996). The subject EIS addresses the impacts of normal operations, including stack emissions, transport of agents and munitions from storage to the disposal plant, and the treatment of wastes resulting from the disposal process. The document also addresses the risks of, and responses to, potential accidents involving chemical munitions. In addition to the above, a Quantitative Risk Assessment was developed to assess the risks of continued storage of chemical munitions compared to disposal of the munitions, to the general public, as well as the disposal process workers (Science Applications International Corporation 2002).

An overview of the environmental contaminants program at the Depot is being prepared by the installation's Environmental Office and may be added to this document as an addendum upon completion.

14.0 NATURAL RESOURCES MANAGEMENT

14.1 OBJECTIVES

The Depot's objectives with regard to natural resources management are as follow:

- identify and develop appropriate management strategies for sensitive plant and animal species.
- protect and conserve all native biological communities.
- manage the shrub-steppe habitat at the Depot to enhance ecosystem integrity.
- restore damaged areas and provide conditions that can sustain the military mission without precluding future options for land use.
- engage in restoration projects, as much as feasible, for threatened and endangered plant and animal species.
- protect groundwater quality and its associated values on the Depot.
- manage the pronghorn herd as a component of the Depot ecosystem.
- protect and manage species to ensure sustainability and native species diversity.
- maintain cooperative working relationships with the USFWS, the ODFW, and the Confederated Tribes.

14.2 OTHER RELEVANT RESOURCE MANAGEMENT DOCUMENTS

Several natural resource assessments and management strategies and plans have been developed on ecoregional, state, and regional scales during recent years, including the Conservation Strategy for Landbirds in the Columbia Plateau of Eastern Oregon and Washington (Altman and Holmes 2000), the Umatilla and Willow Creek Basin Assessment for Shrub Steppe, Grasslands, and Riparian Habitats (Kagan et al. 2000), the Draft Umatilla/Willow Subbasin Plan (DeBano and Wooster 2004), and, most recently, the Oregon Conservation Strategy (Oregon Department of Fish and Wildlife 2006). The latter effort is part of a larger federally funded initiative for all states to develop management plans for their respective natural resources.

The Oregon Conservation Strategy assesses, and makes management recommendations for, the state's resources through a process decreasing in scale: from statewide, to ecoregion, to habitat, to species. Within the Habitats section, two Strategy Habitats found on the Depot are described: grasslands, and sagebrush steppe and shrublands. Furthermore, bitterbrush communities are identified as specialized and local habitats (Oregon Department of Fish and Wildlife 2006).

The Conservation Strategy also addresses strategy species, which it defines as "'low and declining' or otherwise at risk" for each ecoregion and habitat. Strategy species that have been observed on the Depot or in the immediate vicinity include the Brewer's sparrow, ferruginous hawk, grasshopper sparrow, loggerhead shrike, long-billed curlew, sage sparrow, Swainson's hawk, western burrowing owl, and northern sagebrush lizard (Oregon Department of Fish and

Wildlife 2006). The pallid bat and Townsend's big-eared bat may be present, but no survey work has been conducted on the Depot's bat species.

The Conservation Strategy strongly emphasizes partnerships and volunteerism for achieving management goals (Oregon Department of Fish and Wildlife 2006). Due to access restrictions on the Depot, volunteerism may be problematic at best. The Depot has already developed partnerships with the USFWS and the ODFW, as exemplified by this INRMP.

14.3 HABITAT MANAGEMENT

Habitat management includes those initiatives taken specifically to maintain or improve habitat for wildlife species. Generally speaking, management for wildlife habitat is minimal on the Depot. Considering the sensitive military mission, the Depot's restricted access, and the limited opportunities to use wildlife, major program changes to enhance habitat are not planned for the foreseeable future.

With the exception of those areas necessary for the CSDP program, and other developed areas, all lands on the Depot are considered to be wildlife habitat.

14.3.1 Wildlife Water Devices

The Depot provides water for the pronghorn herd and other wildlife through a variety of devices. Many of the watering devices were installed by ODFW to support the pronghorn herd that was reintroduced to the Depot in 1969 as part of a breeding/relocation program. The watering devices include three sprinklers, eight gallinaceous, self-filling water guzzlers, and five water troughs (Figure 4). The sprinklers operate continuously and are supplied by the Depot drinking water supply which is maintained by seven water supply wells. A guzzler is a type of cistern that is self-sustaining and is intended to operate on stored water maintained by precipitation. The troughs can collect water; however, they occasionally require filling by the Depot Fire Department to provide a reliable water supply.

Maintaining these watering devices is an important component of the wildlife habitat management program on the Depot. The Fire Department will continue to fill water tanks as needed and guzzlers will be maintained as required.

14.3.2 Wildfire Suppression

The Depot's Fire and Emergency Services Division is responsible for suppressing fires. The Depot has interagency agreements with Hermiston Rural and the cities of Boardman, Umatilla, and Hermiston for fire control assistance. Limited control burns are used by the fire department to reduce accumulated Russian thistle and to control wildfires. There are no specifically maintained firebreaks or significant controlled burns on the Depot. There are no prescribed burns planned for FY08 through FY12; however, the Depot is currently in the process of developing an Integrated Wildland Fire Management Plan in which the issue of prescribed and controlled burning will be addressed.

14.3.3 Burrowing Owl Nest Structures

Due to the sandy nature of the Depot's soils, burrows abandoned by rodents or other fossorial animals are often structurally unsound and may readily collapse. Burrowing owls are found on the Depot, and are seen during surveys conducted by the ODFW. However, these owls require underground burrows in which to nest and raise their broods. Therefore, their nesting success may be enhanced through augmentation of nest structures, namely tubes placed in the ground, that lead to subsurface nest boxes. Aside from ensuring structural stability in the nest tunnel and box, these tubes would also protect the owls from coyote predation. This project is supported by the PIF conservation strategy for the Columbia Plateau (Altman and Holmes 2000).

14.4 PRONGHORN MANAGEMENT, STOCKING AND TRANSLOCATION

As indicated earlier, the Depot's pronghorn herd provides some cause for concern. Seventeen pronghorn were introduced to the installation in 1969, to build a discreet and contained population from which animals may be taken to translocate to other areas. There has been no introduction of new genetic material into this herd since that time. In addition, due to the security fences enclosing the area, the captive pronghorn were not able to leave the site and pronghorn in adjacent areas were not able to join this herd. Although the population increased rapidly following introduction and was estimated to be at about 400 head in the mid- to late-1980s, that number is now much reduced and annual fawn productivity and/or survivorship appear to be extremely low (ODFW, unpublished data). Meanwhile, from 1969 to present, there have been at least four translocations of Depot pronghorn to other sites.

A study was conducted in 2000 to compare the genetic diversity of the Depot herd with that of its source herd, in central Oregon, and an independent herd in southeastern Oregon. It found that due to the small size of the original herd, and the lack of new genetic material being introduced since that time, the Depot herd had: "1) sharply lower diversity compared to its source, 2) significant haplotypic and genotypic differentiation from its source and, 3) an average relatedness that is 3.5 times that of the source population" (Stephens et al., *in press*). As a result, the authors of this study cautioned against further use of this herd as a reintroduction source. Furthermore, they suggested that translocations of pronghorn from other sites, in other words new genetic material, into the Depot herd may well be advised, to increase the genetic diversity of this population.

The Depot faces closure and uncertain land tenancy sometime after 2017. The surrounding properties have been converted to agricultural economies and landscapes, with little suitable habitat for free-ranging pronghorn. Therefore with closure the Depot herd will likely have to be destroyed or translocated elsewhere. However, with no introduction of new genetic material, the genetic diversity of this herd will continue to lessen between now and closure. If feasible, a program to introduce pronghorn from other herds in Oregon into the Depot population could be implemented that would not only "prepare" the Depot herd for eventual translocation into other sites/herds, but would offer an excellent opportunity to conduct a study of the reversal of the declining trend of genetic diversity in this herd.

The decision to destroy the Depot pronghorn herd, move it elsewhere, or reverse the declining trend in genetic diversity by introducing additional animals and reinvigorating the genetics study, hinges on projected Depot closure dates. For many reasons, including political, it is unlikely the animals will be destroyed. If closure were scheduled to occur in 2017 or soon thereafter, as currently projected, too little time would be available between the introduction of additional animals and closure for a research study to produce meaningful and applicable results. Therefore, with closure in approximately 10 years, the ODFW will remove the remaining pronghorn and introduce them to large herds with good genetic diversity (Kirsch, pers. com.). If the projected closure date for the Depot is extended an additional 10+ years, the opportunity for additional genetic studies, as described above, should be investigated.

Coyote predation has significantly reduced pronghorn survivorship on the Depot. Fawns are especially vulnerable to predation once coyotes perfect their "technique" in finding and capturing them. Coyote control programs have proven to be effective in increasing pronghorn survivorship, as demonstrated by control efforts on the Depot in the 1970s and the resultant increases in pronghorn numbers. However, predator control measures are often controversial, and employing control programs must be measured against public image and sentiment. The Depot will assess the merits of reinstituting a coyote control program in conjunction with other resource management agencies.

The potential to implement a pronghorn hunting program on the Depot has been discussed in the past. However, with the advent of heightened security due to the 9/11 terrorist attacks, and in light of the CSDP and its associated infrastructure, such a hunting program is not an option in the foreseeable future.

14.5 GROUNDS MANAGEMENT

The Depot has 191 acres of improved grounds. Del Grosso (1996) reports the following breakdown of these improved grounds:

- Lawns 29 acres
- Athletic Fields 4 acres
- Parade and Drill Fields 4 acres
- Playgrounds and Parks 9 acres
- Other 145 acres

In addition, the Depot has 1,975 acres of semi-improved grounds (lands that are not maintained regularly), most of which are associated with igloos and the infrastructure necessary to move, protect, and secure ammunition. Periodic maintenance, such as the application of non-selective herbicides, weed and brush control, drainage maintenance, and mowing for the maintenance of security standards, is required on some of these lands (Del Grosso 1996).

General grounds maintenance on the Depot is the responsibility of the Directorate of Public Works (DPW). This maintenance includes routine urban tree and shrub management

within the cantonment area. Most of the 200 acres that are mowed are maintained by military personnel; the remainder are maintained by a private contractor. The acreage of mowed land has decreased over the past several years, although there is little potential to further decrease the amount of mowing. A total of 24 acres is irrigated at the Depot. This acreage is primarily located in the housing/administation area and consists of lawns and open space parade ground areas.

14.6 PEST CONTROL

The *Pest Management Plan for Umatilla Chemical Depot, Hermiston, Oregon* (Hunt 2005; Appendix H), addresses pest control on the Depot. The DPW's Pest Management Coordinator is responsible for preparing, updating, and implementing the Depot's PMP, as well as coordinating nuisance animal control. Only approved (EPA, State of Oregon and DoD) pesticides and herbicides are applied under the direction of certified personnel, as required in the AR 200-5, *Pest Management Program*. Unless stated otherwise, information below is taken from *Pest Management Plan for Umatilla Chemical Depot, Hermiston, Oregon* (Hunt 2005).

14.6.1 Animal Pests

14.6.1.1 Disease Vectors and Medically Important Arthropods

Mosquitoes are minor pests on the Depot. Larvicides and occasional fogging are used as needed to control this pest, as well as eliminating breeding areas. In addition, the storm water retention pond is stocked with mosquito fish to feed on mosquito larvae. Black widow spiders, hobo spiders, and scorpions (all poisonous species), are found on the Depot but they cause few problems. Bees and wasps can be problems due to their painful stings and the allergic reactions experienced by some people. Chemical control is sometimes required on a case-by-case basis.

14.6.1.2 Quarantine Pests

Retrograde cargo is infrequently encountered at the Depot, and when encountered it is inspected for pests on an individual basis.

14.6.1.3 Structural/Wood Destroying Pests

The Depot surveys wooden structures biennially for termites, and chemically treats them when found. Therefore, damage to structures is minimal. Carpenter ants occasionally enter wooden structures, especially when conditions are wet, and are treated as needed.

14.6.1.4 Stored-Products Pests

Stored-products pests are a very infrequent complaint at the Depot. However, both saw-toothed grain beetles and red flour beetles have been found on the site, generally in homes.

14.6.1.5 Ornamental Plant and Turf Pests

Various insect pests create problems for trees and shrubs on the Depot. Bark and locust beetles are the most common, but spiders, mites, aphids, and apple worms also occasionally do damage. All but aphids are generally managed by surveillance and chemical control, as needed. Aphids are generally controlled by natural predators and winter kills.

14.6.1.6 Household Pests

Crawling insects (ants, crickets, beetles, roaches) and spiders may require control in offices, warehouses, and billets. Spider control is the most prevalent requirement in this category at the Depot. Proper sanitation and housekeeping are the primary control measures used.

14.6.1.7 Habituated Animal Pests

Animals often become habituated to people when they are frequently in close proximity to human habitation. Habituation is often facilitated by well-meaning people unwittingly feeding wildlife. This can lead to serious problems when animals lose their natural tendency to fear or avoid humans. Coyotes, foxes, skunks, and raccoons are examples of animals easily habituated to people. Wild animals do not need supplemental feeding to survive; they will live quite well off of their natural food items. Feeding wildlife, except for feeding birds at birdfeeders, will not be tolerated on the Depot. Furthermore, all residents will ensure that pet food is not left in outside food dishes overnight to serve as attractants to coyotes or other forms of wildlife.

14.6.1.8 Free-roaming Pets

Free-roaming pets, such as cats and dogs, pose a serious threat to natural resources. Cats, in particular, significantly impact biotic communities, especially birds. As an example, Coleman and Temple (1996) estimate that rural cats kill 7.8 to 219 million birds in Wisconsin alone on an annual basis (three estimates were presented for bird mortalities, the numbers cited here reflect the high and low estimates). Studies have shown that even cats fed at home will kill wildlife if allowed to range freely in the out-of-doors. Security Guards are responsible for capturing stray pets and returning them to their owners or taking them to shelters. Feral cats, those that have reverted to the wild, or their progeny, should be captured and taken to shelters. Stray pets generally wear collars, whereas feral animals typically do not have collars.

14.6.1.9 Other Animal Pests

Mice frequently invade buildings, and their control (both chemical and trapping) makes up about 8 percent of the pest management workload. Gopher control is sometimes required on lawns. Snakes in occupied buildings present a common problem on the Depot. They are removed when located, and efforts are made to “snake-proof” buildings. Rattlesnakes have reportedly been observed on the Depot but they are uncommon and have not been found in the residential or administrative areas.

14.6.2 Noxious Plants

Rush skeletonweed, a noxious plant sometimes found in the southern portion of the Depot, is an "A" list noxious weed in Umatilla and Morrow Counties. Morrow County defines "A" list weeds as those being economically detrimental and limited enough in distribution to control. Landowners are required by Oregon statute ORS 570.545-570.550 and Morrow County ordinance MC-C-4-84 to eradicate "A" list weeds when found on their properties.

Rush skeletonweed was originally found in 1985 on the southern edge of the Depot near Interstate 84. When the species is found on the installation, Depot staff attempt to destroy all plants prior to seeding by spraying them with herbicide. In 1994, 199 plants were located, generally south of Block H, and all but 70 were sprayed prior to seeding. Since then, a few plants have been found and treated each year on the Depot, although in 2005 a patch of approximately 4 acres was located and treated with herbicide.

In 1994 the SWCD reported finding diffuse knapweed spreading along the roadsides of the Depot, and indicated it may be a problem in the future if the shrub-steppe habitat is to be preserved. During their Planning Level Surveys for vegetative communities on the Depot in 1999-2000, Tetra Tech found diffuse knapweed widely distributed across the Depot along roadsides and in disturbed areas, and strongly recommended instituting control measures for this species (Tetra Tech 2002). The Depot PMP does not address diffuse knapweed (Hunt 2005), however, control measures are implemented whenever the species is found on the installation.

Besides rush skeletonweed and diffuse knapweed, the Depot PMP (Hunt 2005) identifies musk thistle and puncture vine as noxious weeds. The PMP recommends nonchemical control (e.g., mowing, digging, grading, and thatching) of noxious weeds prior to chemical use. However, in areas where this is not practical, herbicides are used.

Noxious weed control is a difficult problem to resolve. Ongoing programs to control these species, such as non-selective herbicide applications, are often ineffective and expensive. If the opportunity for eradication exists, it is the preferred option, even if initial costs are higher.

Security for sensitive areas is paramount at the Depot. This includes maintaining an approximate 50-foot clear zone around the perimeter of those areas. These clear zones must have vegetation less than 2 inches in height, which is normally accomplished by mowing and the application of non-selective herbicides. The Depot maintains a 15-foot wide clear zone with 8-inch vegetation just inside the perimeter fence as well. This is accomplished by a combination of mowing and by application of non-selective herbicides. Herbicides are also used along railroad tracks.

14.6.3 Integrated Pest Management

In 1994, DoD established three guidelines for military installations that defined the course of pest management programs through the year 2000. The guidelines were to have a valid integrated PMP by the end of FY97, to reduce pesticide use by 50 percent over a 7-year period

(1994 to 2000), and to have pesticide handlers certified within 2 years of employment by the end of FY98. The Depot has successfully met all of these guidelines.

14.6.3.1 Pest Management Plan

DPW recently completed a revised *Pest Management Plan* (Hunt 2005; Appendix H) for the Depot. It follows guidance provided in AR 420-76, *Pest Management Program*, and emphasizes integrated pest management. The revised PMP contains detailed descriptions of management strategies by species and establishes policy for developing pest management procedures.

14.6.3.2 Pesticide Use

The Depot pest controllers understand that chemicals are not only expensive, but seldom provide lasting control of most pests. Pesticides on the Depot are controlled by the Pest Management Coordinator, who keeps records of all pesticide use and sends a monthly report to AMC on behalf of the installation. Only chemicals approved by the EPA and the Army are used. The PMP includes provisions for conserving sensitive areas and important wildlife species.

The use of chemicals on the Depot is being reduced primarily by using chemicals only when nonchemical means are either ineffective or infeasible. Also, the amount of pesticide and herbicide chemicals stored on site has been reduced. The PMP emphasizes keeping only a minimum amount of chemicals on site and purchasing chemicals only when needed for insecticide use. There is a strong reliance on site-specific and species-specific tactics in the pest management program.

14.6.3.3 Professional Certification

The Depot complies with the Army's 1998 goal for certified pesticide application. Pesticides on the Depot are handled by personnel with a minimum of DoD Pest Management Certification in the EPA's Categories 3, 5, 6, 7, and 8.

14.6.3.4 Public Awareness

RD – EO has recently developed a handout, *Indigenous Pests Found at UMCD*, which is distributed to guests, employees and residents at the Depot. The brochure describes several pests found in the area, means of avoiding them, and symptoms and treatments if bitten or stung by them. It also discusses some diseases carried by "wild" vectors which are transmissible to humans.

14.7 EROSION CONTROL

Erosion is not a major problem on the Depot. Considerable damage to soils occurred more than 50 years ago during igloo construction. Revegetation of those areas has virtually eliminated erosion since the initial site construction activities. Most of the Depot, including igloos, experiences little erosion beyond that normally associated with naturally functioning ecosystems.

In revegetation projects, the Depot is aware of its responsibilities toward using native plant species that require relatively little maintenance (Office of the President 1994). In this regard, Indian ricegrass shows promise for revegetation (Intermountain Range Consultants 1988). This species, or species with similar attributes, may be tested on the Depot in larger areas that require revegetation.

There are two primary sources of erosion on the Depot (Intermountain Range Consultants 1988). Each is treated differently.

- **Igloo blowout areas:** Small areas on igloos are sometimes exposed due to disturbance (for example, from animals burrowing or foraging). These areas are then vulnerable to wind erosion. Such small areas are successfully treated using gravel to stop exposure of sandy soils to winds but not to inhibit germination of seeds for revegetation. Feasible revegetation using native perennials will be used to stabilize the soil, rather than application of gravel alone. These practices will be continued in the future on an as-needed basis, but with an emphasis on revegetating areas.

- **Construction disturbance:** Areas that have been disturbed by construction and exposed to erosion, primarily wind-generated erosion. The ideal solution to these larger areas is revegetation using native plants. However, this is difficult to achieve in such a dry climate. For example, when 10 acres of the small arms range were contoured and seeded with wheatgrass, the effort was unsuccessful. Revegetation efforts will continue to be used in the foreseeable future, but attention will be paid to the use of proper seeding techniques and seeding during the appropriate seasons. Reseeding of disturbed areas will also emphasize the use of native species that have soil stabilizing qualities and that may have a higher potential for success. Initial disturbances may be controlled by following local recommendations such as the SCS recommendation to control soil blowing (Quincy Series) to certain times of the year (limit new land disturbance to March 15 to September 15) (SCS 1983). There are no plans for further construction on the Depot in the foreseeable future.

Techniques for erosion control have much in common with the Army's LRAM aspect of ITAM. As opposed to ITAM, erosion control on the Depot is not focused on maintaining training areas, but rather on protecting the Depot in general. If erosion becomes a significant problem on the Depot, environmental staff may investigate using components of LRAM technology to resolve the issue.

One LRAM technique is known as “hardened sites.” Some areas are required for use so often that it is impossible to provide a natural environment to support the mission. An example is a highly erodible area repeatedly traversed by vehicles. In such cases, hardened sites may be the best alternative. Hardening involves putting down base material, such as crushed rock, to provide a solid foundation. Hardened site techniques are also useful for areas not subject to repetitive training activity but are affected by frequent and damaging natural forces. The use of a heavy layer of gravel on the tracked vehicle course at the Depot is similar to hardening a site.

Of particular concern is the maintenance of cryptobiotic soil crusts on the Depot (para. 7.5.1, 7.5.2). These biotic crusts are easily damaged, and rehabilitation may take decades or centuries, depending on the degree of damage. Furthermore, when the crust is displaced, the underlying soils are vulnerable to wind erosion, which may result in adjacent healthy crusts being overlain by these soils, killing the microorganisms that make the cryptobiotic crusts viable, functioning systems.

Tetra Tech (2002b) noted cryptobiotic soil crusts in association with several vegetative communities during the Planning Level Surveys on the Depot. Due to restrictions on off-road vehicle use on the installation, as well as the lack of foot traffic away from developed sites, most of the cryptobiotic soil crusts on the Depot are protected by the benign nature of the Depot’s mission. However, proposed soil disturbing projects in areas wherein cryptobiotic soils are known to exist should be reviewed with respect to their potential impacts to these unique resources.

14.8 AGRICULTURAL LEASING

At this time, security measures are such that grazing is not a viable option, nor does the Depot have any intentions of initiating agricultural outleases for grazing or crop production in the foreseeable future.

The Depot has buffer zones just outside its boundaries (2,674 acres in nine parcels), generally to the north and east (Figure 2). Agriculture is permitted on these lands, and most of them are either tilled or grazed. Residences are not permitted in these areas, however. Since the Army does not own or control methods of agriculture on these properties, management of these lands is not addressed within this INRMP.

14.9 WETLANDS MANAGEMENT

The Depot has no naturally occurring wetlands (Swords and Tiner 2001). However, the sprinkler system for wildlife water sources has created wet areas at two sites. These sprinklers will be maintained in future years, which in turn will sustain the wetland microhabitats.

15.0 RESEARCH/SPECIAL PROJECTS

Special projects and research are often important to implementing natural resources management programs. Special projects are those that require outside assistance to complete and often include surveys and plans. Research is the evaluation of various management options or the study of ecological processes.

The 2006 MOU between the DoD, the USFWS, and the IAFWA (Appendix D) encourages the respective signatory agencies to cooperate on research and special projects on DoD installations. Implementing such projects as outlined in Table 15-1, below, would be in accordance with this directive.

15.1 OBJECTIVES

The Depot's objectives for research and special projects are as follow:

- implement research/special projects when possible to better understand how to manage Depot resources.
- partner with other organizations and agencies in conducting research/special projects.

15.2 SUPPORT MECHANISMS

15.2.1 In-house Capabilities

The Depot has extremely limited in-house research or special project capabilities. Natural resources management on the Depot is largely conservation oriented and low profile. The small size of the in-house natural resources staff precludes extensive field work or studies. Some studies and projects require specialized academic training, while others require more trained personnel than is available on the Depot.

15.2.2 Other Agency Support

The Depot depends on support from other agency partners such as the USFWS and the ODFW to implement this plan. This is particularly true with regard to special projects such as raptor protection and pronghorn management.

15.2.3 Contractor Support

The Depot's natural resources program may turn to contractors to conduct research studies and management projects. Contractors give the post access to a wide variety of specialties and fields. In recent years, contractors have provided NEPA documentation support, prepared the 1998-2002 draft Depot INRMP, and conducted the Planning Level Surveys for vegetative communities and threatened and endangered species.

15.3 PLANNED RESEARCH/SPECIAL PROJECTS

Table 15-1 indicates needed research/special projects and their respective priorities. In FY08 through FY12, these projects will be implemented according to funding availability.

Table 15-1: FY08 Through FY12 Natural Resources Research/Special Project Needs

Project	Priority	Completion Date	Comments
Pronghorn management	1	Base closure	Proposed—ODFW
Noxious plant survey and control	1	Ongoing	In-house
Raptor protection	1	To be determined (TBD)	USFWS
Pronghorn research	2	TBD	ODFW
Planning level surveys - fauna	2	TBD	Contract
Burrowing owl nest structures	2	TBD	TBD
Laurence milk-vetch restoration	2	Base closure	TBD

16.0 ENFORCEMENT

Some aspects of natural resources management require effective enforcement of regulations if they are to be successful.

16.1 OBJECTIVE

The Depot's enforcement objective is to enforce laws and regulations pertaining to the implementation of the natural resources program at the Depot.

16.2 JURISDICTION

The Depot has both proprietary and exclusive jurisdictions. These form a checkerboard pattern, based on land acquisition. Depot security personnel have the commissions needed to enforce laws on installation properties with either type of jurisdiction.

16.3 RESPONSIBILITIES

Natural and cultural resources law enforcement on the Depot is the responsibility of the Director of Security. Security workforce personnel have extensive military-type tactical training; however, they are not specifically trained in natural resources law enforcement.

The Fish and Wildlife Enforcement Division of the Oregon State Police have enforcement authority on the proprietary portions of the Depot, and are available for law enforcement support as needed. In addition, the ODFW may be called upon for the dispatch and disposal of injured or road-killed big game.

16.4 ENFORCEMENT ACTIVITIES

Law enforcement activities on the Depot consist primarily of around-the-clock patrols, and enforcement of natural resource laws is incorporated into routine Depot security activities. Violators of state wildlife laws are turned over to ODFW and Oregon State Police enforcement personnel.

17.0 CONSERVATION AWARENESS

Conservation education is an important part of natural and cultural resources management on the Depot. Awareness is instrumental in creating the conditions needed to conduct sound, professional practices that produce both user opportunities and resource conservation. The Depot relies on education as the primary awareness tool. A conservation awareness program must be geared toward both internal and external interests if it is to be effective.

17.1 OBJECTIVES

The Depot's objectives with regard to awareness include the following:

- minimize damage to lands and natural resources by creating a conservation ethic in those who use the Depot's properties.
- provide an understanding of the natural and cultural resources programs to the Depot employees and the surrounding communities.
- provide decision-makers with the information needed to make scientifically-based judgements affecting natural and cultural resources.
- provide general conservation education to the Depot community.

17.2 ENVIRONMENTAL AWARENESS

The Depot's educational efforts involve conducting briefings in classroom settings and distributing educational materials. Environmental awareness is a multifaceted ITAM initiative that uses education to create a conservation ethic in military personnel.

17.2.1 Environmental Awareness Briefings

Training units will develop environmental awareness briefings and present them to the unit personnel who are involved in training that may degrade the resources. The briefings will cover training restrictions and will attempt to instill a conservation ethic that stresses the importance of maintaining the Depot's lands for sustained training.

17.3 PRINTED MEDIA

The Depot makes available an online weekly publication "*The Depot Bulletin*", which occasionally includes items of natural resources interest, especially emphasizing water quality and recycling.

Opportunities to develop a more detailed natural resources awareness program on the Depot are few due to the limited scope of the natural resources program. As this INRMP is implemented, additional opportunities for awareness will arise.

18.0 OUTDOOR RECREATION

18.1 OBJECTIVES

The Depot's objectives with regard to outdoor recreation are as follow:

- manage outdoor recreation consistent with requirements of the Depot military mission, within allowances determined by security and safety.
- manage outdoor recreation while maintaining ecosystem integrity and function.

18.2 MILITARY MISSION AND PUBLIC ACCESS CONSIDERATIONS

AR 200-3 specifies that DoD installations will allow public access onto properties under their stewardship control for recreational purposes, within the limits of safety and security. This is further stipulated in paragraph D.2.h. of the 2006 MOU between the DoD, the USFWS, and the IAFWA: "DoD agrees to....Subject to mission, safety and security requirements, provide public access to military installations to facilitate the sustainable multipurpose use of its natural resources." (Appendix D.)

Despite the above, due to the sensitive nature of the Depot's military mission, as well as for safety reasons, little outdoor recreation is available. The Depot is a "closed" post, and the public does not have unrestricted access.

18.3 FISHING AND HUNTING PROGRAMS

The Depot does not have fishing or hunting programs.

18.4 OTHER NATURAL RESOURCES ORIENTED OUTDOOR RECREATION

Off-road vehicles (ORVs) have great potential for damaging natural resources, and Army policy on their use is very restrictive (AR 200-3). Dune habitat can be irreparably damaged by irresponsible ORV use. The vehicles can cause digging, flattening, and displacement of dune soils, and they may destroy flora and fauna. For these reasons, the Depot does not allow ORV use unless specifically authorized to support the military mission or natural resources management.

A 20-foot by 40-foot swimming pool is open to Depot employees from Memorial Day to Labor Day. Additionally, the Depot rents outdoor equipment to Depot employees and their families for offsite recreational activities. Rental equipment includes rafts, motor boats, ski equipment, camping trailers, and camping equipment. The Depot does not sponsor offsite recreational trips due to the small number of military personnel present.

19.0 CULTURAL RESOURCES PROTECTION

Cultural resources conservation programs at the Depot are implemented in accordance with Sections 106 and 110 of the National Historic Preservation Act (NHPA) (16 U.S.C. Section 470, as amended), the Archeological Resources Protection Act (ARPA) (16 U.S.C. Section 470a-47011), the American Indian Religious Freedom Act (AIRFA) (42 U.S.C.), the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. Section 3001 *et seq*.), DoD Directive 4710.1 (*Archeological and Historic Resources Management* 1984), Executive Order (EO) 13007 (*Indian Sacred Sites),* and AR 200-4 (*Historic Preservation*). The Industrial Risk Management Directorate is responsible for cultural resources management. The Depot coordinates with DoA's Office of the Directorate of Environmental Programs (ODEP); the AMC Environmental Office; the Installation Management Command - West Region; the Advisory Council on Historic Preservation; the Oregon State Historic Preservation Office (SHPO); and the Confederated Tribes of the Umatilla Indian Reservation, comprised of the Cayuse, the Umatilla, and the Walla Walla Indian Tribes.

19.1 OBJECTIVES

Among the Depot's objectives for cultural resource protection is to ensure that implementation of this INRMP is consistent with the conservation and protection of its prehistoric and historic cultural resources.

19.2 PREHISTORIC AND HISTORIC CULTURAL RESOURCES

In 1987, the National Park Service (NPS) completed *An Archeological Overview and Management Plan for the Umatilla Depot Activity* (NPS 1987). More recently, Earth Tech developed the *Final Integrated Cultural Resources Management Plan, Umatilla Chemical Depot, Hermiston, Oregon* (Earth Tech 2002), to guide cultural resource management on the Depot.

Prehistoric, ethnohistoric, and historic evidence indicates that prior to construction of the installation in 1941, the Depot area was not a scene of intensive human use. No known significant archaeological or historical sites existed on the Depot. A general cultural resource inventory, except for archaeological clearance surveys for specific future projects, was not recommended for the Depot by the NPS. To date, Class III cultural resource inventories have been conducted on approximately 6 percent of the Depot.

In addition to archaeological sites, Traditional Cultural Properties (TCPs) and sacred sites may be found on the Depot. Parker and King (1998) define a TCP generally as: "…one that is eligible for inclusion in the National Register [of Historic Places] because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community." A sacred site, as defined by EO 13007, is: "…any specific, discrete, narrowly delineated location on Federal land that is identified by an Indian tribe, or Indian individual determined to be an appropriately authoritative representative of an Indian religion, as sacred by virtue of its

established religious significance to, or ceremonial use by, an Indian religion; provided that the tribe or appropriately authoritative representative of an Indian religion has informed the agency of the existence of such a site." Traditional cultural properties and sacred sites are identified through consultation with the appropriate groups of peoples. It should be noted that while sacred sites are specific to Native American tribes, TCPs may be associated with any discrete cultural community, prehistoric or historic. No formal consultations have been held on TCPs or sacred sites on the Depot, although Earth Tech (2002) acknowledges that such areas may exist. If indeed TCPs and/or sacred sites are identified on the Depot, those areas would be afforded increased protection through the NHPA; and the AIRFA and EO 13007, respectively.

Earth Tech (2002) indicates that in 1984 a historic buildings and structures study concluded that Building Nos. 1 (Headquarters) and 2 (Firehouse) were eligible for listing in the National Register of Historic Places (NRHP). In 1998 the SHPO wrote a letter to the Depot stating its determination that the whole installation, in and of itself, is eligible for listing in the NRHP, due to its association with national defense efforts as well as for its architectural merit (SHPO 1998). The Depot is still in consultation with the SHPO regarding this matter.

19.3 NATURAL RESOURCES MANAGEMENT IMPLICATIONS

Due to the presumed small number of archaeological resources on the Depot, their preservation should not affect the installation's natural resource management program. The INRMP does not recommend activities that require significant land disturbance, therefore it is unlikely that implementing the plan would impact unknown archaeological sites. Currently, no ground disturbance is permitted at the Depot without the authorization of the Environmental Office. If natural resources program activities involving ground disturbance are proposed for implementation, they will be preceded by an archaeological survey of the site if the area has not already been surveyed and/or disturbed. Much of the Depot was significantly disturbed during its construction; consequently the integrity of impacted sites will likely have been compromised. Therefore extensive archaeological surveys are not anticipated.

If it is determined that a proposed action has the potential for affecting historic properties, Section 106 of the NHPA will be implemented, and coordination with the SHPO and, if appropriate, Native American tribes, will be initiated regarding the action. The procedures for coordinating with all appropriate parties, both internal and external, are outlined in Chapter 5 of the Depot's Integrated Cultural Resources Management Plan (Earth Tech 2002). It should be noted that relative to TCPs and sacred sites, ground disturbance alone may not result in impacts. For example, alterations or disruptions of viewscapes may constitute significant and detrimental impacts to such sites.

As stated in Section 5.4, the Confederated Tribes have identified the Depot's general ecosystem as a cultural resource worthy of preservation; however, they have not identified individual plant species, animal species, or areas that are important to them due to concern that once these resources are identified they will be exploited. Initial discussions have been held with the Tribes to implement a *First Foods* program, whereby the Native Americans identify plant species and communities on the Depot that hold cultural significance for the Tribes.

Identification of such species and communities would further strengthen protection of the habitats in which they are found, as well as facilitate access to the Depot by Native Americans for the purpose of collecting plant materials. In accordance with the Treaty of 1855, the NHPA of 1966 (as amended), EO 13007 (*Indian Sacred Sites*), and the AIRFA of 1978, the Depot will continue to grant the Confederated Tribes access to all areas of the Depot that are not restricted due to safety or security reasons. Also in accordance with these laws, the Confederated Tribes will be consulted when the Depot's activities may disturb the ground or natural resources, as it is unknown which areas, plants, or animals are culturally significant to them. It is not anticipated that this plan's implementation will negatively affect the Depot's cultural resources.

Since this INRMP does not propose changes in the use or structure of the cantonment area, the headquarters building and the fire house (which are listed as Category III historic properties) will not be affected. Therefore, this plan does not negatively affect the historic resources of the Depot.

20.0 NATIONAL ENVIRONMENTAL POLICY ACT IMPLEMENTATION

The federal law requiring the review of all federally supported activities with the potential to impact the environment is called NEPA. This review must be documented and the public has the right to be involved in the review process. AR 200-2, *Environmental Effects of Army Actions,* implements NEPA requirements and requires mitigation to limit damage to the environment. The purpose of NEPA is not to stop actions. Rather, it is designed to identify potential environmental problems early in the process and inform the decision-maker of alternative actions and their potential impacts. The proponent can then pursue actions, if he/she so chooses, to resolve these problems in the early stages of project development.

20.1 OBJECTIVES

The Depot's objectives for NEPA implementation with regard to natural resources are as follow:

- identify projects and activities on the Depot that might impact natural resources.
- work with project planners to resolve issues early in the planning process using NEPA.
- ensure the impacts of the INRMP are documented according to the spirit and intent of NEPA.

20.2 NEPA RESPONSIBILITIES AND IMPLEMENTATION

20.2.1 Responsibility

The proponent of an action has primary responsibility for preparing the appropriate NEPA documentation, as it relates to their project, at the Depot.

20.2.2 Environmental Checklist

One safeguard recently established to reduce or mitigate negative environmental impacts resulting from military projects is the Environmental Checklist for Work Orders or Contract Proposals (Appendix I). Project proponents prepare this checklist, describing the project and any potential impacts, and submits the document to RD – EO. RD – EO reviews the checklist and determines whether the Depot will remain in compliance with federal, state and local regulations if the project goes forward, and whether further NEPA coordination is required to implement the project.

20.2.3 NEPA Documentation

The most common NEPA document prepared for projects is a Categorical Exclusion (CX). The list of approved Army CXs can be found in Appendix A of AR 200-2. A Record of Environmental Consideration (REC) is required for some CXs if the action is covered in an existing NEPA document or if it qualifies for a CX.

An EA is prepared for actions that do not fit the requirement for a CX and for actions for which the effects on the environment are unknown. An EA results in a Finding of No Significant Impact (FONSI) or a Notice of Intent (NOI). A NOI is prepared if significant impacts are anticipated and an EIS will be prepared. An EIS results in a Record of Decision (ROD).

An EA was prepared for the Depot's original Master Plan (USACE 1993), which addresses natural resources management on the installation, and is included as an appendix to the 1998 INRMP. The requirement for updating the Master Plan was waived because the Depot is a BRAC facility. There is no requirement to amend or revise the EA for the preparation of this INRMP because there will be no significant impacts to biotic resources as a result of implementing this plan.

20.2.4 Mitigation

Mitigation is used to reduce the adverse environmental impacts of an action. Mitigative actions are identified in the FONSI or the ROD, which are by Army policy considered binding documents. Commitments made in these documents become legal requirements and must be monitored and documented. These become "must fund" items for Environmental Program Requirements (EPR). The RD – EO at the Depot will continue to track mitigation commitments made in NEPA documents for compliance purposes.

20.3 NEPA AND NATURAL RESOURCES MANAGEMENT

The RD – EO will use NEPA to ensure that its activities, as described in this INRMP, are properly planned, coordinated, and documented. The RD – EO will also review the Environmental Checklist and associated NEPA documents prepared by the proponents to identify potential natural resource impacts. RD – EO personnel can help decide where a proposed action should take place. Appropriate siting can eliminate unnecessary environmental impacts. Discussions regarding the location of a proposed project should be of help early in the planning process, even before the development of a draft NEPA document.

The checklist submitted by project proponents helps assess potential impacts to natural and cultural resources, directly addressing federal regulations such as the Endangered Species Act (Appendix I).

In FY08 through FY12, the RD – EO will continue the following steps to use NEPA to protect and conserve the Depot's natural and cultural resources:

- review proposed actions during the project concept phases whenever possible.
- ensure that mitigation is included in projects that may damage natural and cultural resources. If such mitigation is included, ensure that it is entered into the EPR report process.
- use RD – EO capabilities to provide mitigation. These resources include land rehabilitation and special area conservation.

- track projects to ensure that mitigation is accomplished and that restrictions included within the REC are followed.

20.4 NEPA AND THIS INRMP

The attached EA (Appendix C) provides an evaluation of the effects of implementing this INRMP, as well as alternatives, on the Depot's natural resources. Future actions covered within the INRMP will be evaluated in the planning stages to determine the appropriate level of NEPA documentation in accordance with the NEPA regulations, the Council on Environmental Quality's regulations, and AR 200-2.

21.0 BIOPOLITICAL ISSUES

The Depot has done a good job of protecting and conserving its natural resources, and there has been little controversy regarding the program. However, the installation lies within a region sensitive to environmental issues and potential threats to natural resources and quality of life.

Some issues involving the Depot are not easily resolved. This section deals with these issues. The first step to resolving issues is to admit that answers are not readily available and maintain a willingness to keep working toward resolution.

21.1 BASE REALIGNMENT AND CLOSURE CONSIDERATIONS

Umatilla Chemical Depot is moving forward with BRAC activities which include the CSDP and closure. The Depot was included in the 2005 BRAC closure list and, as of this writing, the Depot's estimated closure date is 2017. This INRMP, having a 5-year implementation period, does not directly address BRAC. However, decisions made during the ongoing BRAC process will ultimately affect natural resources on the Depot. Reuse decision-making must consider the impacts of multiple land-users (i.e. separately owned/managed tracts) on the resources.

Of primary concern is the future management and preservation of the bitterbrush shrub-steppe habitat. As has been indicated earlier, Kagan et al. (2000) states that the Depot contains the largest remnants of bitterbrush habitat in the Columbia Basin. Although some non-native species have invaded the vegetative communities on the Depot, the most pervasive being cheatgrass, relative to surrounding areas the Depot's habitats are ecologically in good condition. Kagan et al. (2000) expresses a concern that the Depot properties may be subject to industrial development.

In addition, thought must be given to the future of the Depot's pronghorn herd. Stephen et al. (*in press*), recommends that, due to the herd's lack of genetic variability, the animals no longer be used for translocation projects. However, decisions must be made regarding the fate of the herd in relation to Depot closure. With the current projected closure date of 2017, the ODFW will likely remove the animals prior to that date and introduce them into large herds with good genetic variability. If the closure date is extended for an additional 10 years or so, the Depot and the ODFW may consider increasing the genetic variability of the captive herd by introducing pronghorn from elsewhere in the state, and reinstitute research on the Depot to assess rate and effectiveness of genetic reinvigoration.

22.0 INRMP IMPLEMENTATION

22.1 ORGANIZATION

This INRMP can be implemented by the existing organization based at the Depot, with outsourcing to contractors and cooperating agencies when needed.

22.2 PERSONNEL

22.2.1 Staffing

The Depot's Natural Resources Management Program would clearly benefit from the addition of a full-time technician to the environmental staff. However, given the current budget constraints, it is obvious that such a position would be difficult to acquire and sustain. However, a technician position might be justified if it were not dedicated to a single program, but allowed to assume the responsibility for field tasks of any of the environmental program's projects where feasible.

22.2.2 Personnel Training

Due to the limited staff in the Depot's environmental office, the environmental program is benefitted by having each staff member be as multi-disciplinary as possible. This is achieved and sustained through training. Staff members should be expected to maintain state-of-the-art knowledge in those programs for which they are responsible. This involves not only training, but participation in conferences and workshops as well. Examples of training courses, workshops and conferences staff should attend to implement the Depot's Natural Resources Management Program might include:

- National Military Fish and Wildlife Association (NMFWA) annual workshops.
- State and National Wildlife Society meetings and conferences.
- range management workshops.
- Partners in Flight workshops.
- training courses on federal regulatory measures, for example MBTA.

Other conferences and workshops will be evaluated for their usefulness on a case-by-case basis. Decisions will be made based on their appropriateness to ongoing projects, funding availability, and time commitments. Involvement in state chapters of professional resource management organizations should be encouraged.

22.2.3 Outside Assistance

Implementation of this INRMP will require active assistance from the Depot partners, both signatory and otherwise. Much of this assistance will be facilitated through the MOUs, MOAs, and Cooperative Agreements the DoD and the Depot maintain with other agencies and

organizations. Specific needs for interagency assistance are indicated throughout this document. In recent years, the Depot has received technical assistance from the USFWS, in both developing a raptor protection program as well as having independent review of their natural resources program in general. The installation hopes to maintain this working relationship with the USFWS in the future. Reimbursement for interagency assistance will be handled on a case-by-case basis, wherein sometimes the Depot may assume full responsibility for costs incurred, and at other times the Depot may engage in cost-sharing programs with cooperators.

In certain circumstances, the specific expertise needed to undertake tasks may not be found in any of the signatory cooperators, and the Depot may have to look to contractors to fulfill requirements, such as conducting Planning Level Surveys for biotic resources. Procedures are in place to locate and hire contractors when the need arises.

22.3 PROJECT/PROGRAM PRIORITIES

Preparation of this INRMP is required by the Sikes Act, as well as DoD Instruction 4715.3, and therefore is a high funding priority. However, it is unlikely that all programs within this INRMP will be funded immediately. Therefore, the following sections prioritize the relative importance of projects and programs specifically included within this INRMP. Each priority category's programs are listed in the order they are first mentioned in this document. Estimated time schedules are provided.

Due to funding restrictions, lower priority projects may be implemented ahead of higher ones. Some "high priority" projects are critical, but they may not be compliance driven, making funding more difficult. The list below is based on need and effect on the Depot natural resources, not funding likelihood. Since these are programs planned for the next 5 years, ongoing BRAC actions should not significantly affect them.

22.3.1 High Priority Projects/Programs

- Mission support (INRMP, in general)
- Conserve biodiversity (11.2)
- Maintain an ecosystem management philosophy (11.3)
- Maintain ecosystem management partnerships (11.5)
- Faunal Planning Level Surveys (12.4)
- Monitor the pronghorn herd (12.4)
- Survey long-billed curlews and western burrowing owls (12.4)
- Wildlife diseases surveillance (12.5)
- Monitor groundwater quality (12.6)
- Wildfire suppression (13.2)
- Sensitive species restoration (13.5)
- Raptor protection (13.6)
- Building demolitions and wildlife protection (13.7)
- Wildlife rescue/rehabilitation (13.8)

- Maintain wildlife water devices (14.3)
- Establish burrowing owl nest structures (14.3)
- Determine future disposition of the pronghorn herd (14.4)
- Control pests including noxious plants (14.6)
- Implement PMP (14.6)
- Control erosion (14.7)
- Support the Natural Resources Law Enforcement Program (16.0)
- Use media resources to inform the public of natural resources programs (17.3)
- Protect cultural resources while implementing this INRMP (19.3)
- Ensure Environmental Office review of NEPA documents (20.3)
- Work to resolve unresolved biopolitical issues (21.0)
- Hire personnel to implement this INRMP (22.2)
- Provide personnel training (22.2)
- Obtain the outside assistance needed to implement this INRMP (22.2)
- Obtain funding to implement this INRMP (22.4)
- Provide command support to implement this INRMP (22.6)

22.4 FUNDING OPTIONS

22.4.1 Agricultural Funds

Agricultural funds are derived from agricultural leases on installations. They are centrally controlled at both DoA and Major Command levels, and can sometimes be spent at installations without agricultural programs. AR 200-3 (Chapter 2) outlines procedures for collecting and spending these funds. They are primarily intended to offset the costs of maintaining agricultural leases, but they may also be available for preparing and implementing INRMPs. These are the broadest use funds available exclusively to natural resources managers. They are also exempt from Base Commercial Equipment limits on the purchase of equipment more than $25,000. In recent years agriculture funds have been reserved for those installations maintaining agricultural (grazing and/or croplands) programs on an outlease basis.

22.4.2 Environmental Funding

Environmental dollars are a special category of Operations and Maintenance (O&M) funding. They are controlled by the EPR report process and are subject to the restrictions of O&M funds. The key to getting environmental funding is regulatory compliance. The program heavily favors high-priority funding projects needed to obtain or maintain compliance with federal or state laws, especially if findings of noncompliance result in notices of violation or other enforcement agency action. “Must fund” classifications include mitigation required and identified within FONSIs as well as items required within Federal Facilities Compliance Agreements. This INRMP is a Federal Facilities Requirement Agreement.

DoD Instruction 4715.3, *Environmental Conservation Program*, identifies the programming and budgeting priorities for conservation programs. Many of the inventories,

assessments, and surveys needed to support ecosystem management implemented through the INRMP are classified as Class I: Current Compliance Action for funding purposes (these actions have a higher priority for funding than actions that are not compliance driven), (DoD 4715.3, Enclosure 4.B.). Class I also includes projects and activities needed that are not currently out of compliance (for example, requirements have been established by regulations and DoD policies but are not in force), but shall be if projects are not implemented in the current program year (DoD Instruction 4715.3, Enclosure 4.). Activities in these categories which are relevant to the implementation of this INRMP include:

> 1. environmental analyses for natural (and cultural) resources conservation projects, and monitoring studies required to assess and mitigate potential impacts of the military mission on conservation resources.
>
> ...
>
> 2. raptor protection, to reduce the potential for violation of the MBTA.
>
> ...
>
> 3. baseline inventories of natural (and cultural) resources.
>
> ...
>
> 4. biological assessments, surveys, or habitat protection for a specific listed species, critical for the protection of the species so that proposed or continuing actions can be modified in consultation with the USFWS to prevent "taking" of the species.

Environmental funding has been important to natural resource programs on the Depot. Implementation of much of this INRMP requires work from the Depot's small staff, none of whom is currently dedicated to natural resources management. Salaries to support this natural resources work are paid from environmental funding. As indicated earlier, the Depot will investigate opportunities to use external personnel to implement other portions of this INRMP.

22.4.3 Training Funds

Funds for natural resources training should be budgeted from environmental accounts or requested through the agricultural work plan. Training funds are needed to cover training workshops (e.g. 40-hour HAZWOPER), and related conferences and workshops.

22.5 INRMP IMPLEMENTATION FUNDING REQUIREMENTS

Environmental funding needed to implement this INRMP will vary from year to year, ranging from approximately $24,000 to $131,500, depending upon the programs and projects being undertaken during any given fiscal period (Table 22-1). Implementing this INRMP for the period FY08 through FY12 will cost somewhat more than an estimated $272,500.

Table 22-1: Estimated Funding Needs for Natural Resources for FY08 through FY12 (X $1,000)					
Support Area	**FY08**	**FY09**	**FY10**	**FY11**	**FY12**
USFWS Technical Assistance	92.5	12.0	14.0	15.0	15.0
Training	4.0	3.0	4.0	4.0	4.0
Surveys and Assessments	30.0	30.0	10.0	0	0
Monitoring	5.0	5.0	5.0	5.0	5.0
Special Projects	0	10.0	TBD	TBD	TBD
Fiscal Year Totals	131.5	60.0	33.0+	24.0+	24.0+
					5-Year Total: $272.5+

22.6 COMMAND SUPPORT

Command support is essential to implementation of this plan. The Commander is personally liable for noncompliance with environmental laws such as those affected by this INRMP, and therefore has a personal interest in assuring that this plan is properly implemented.

This INRMP has the support of the Depot Commander and other personnel in command positions who are needed to implement it. The Command is dedicated to maintaining and improving the military mission at the Depot, and implementing this plan is a means to that end.

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APPENDIX A

Scientific Names for Floral and Faunal Species Cited in the Text

APPENDIX B1

Floral Species Found at Umatilla Chemical Depot

From: Tetra Tech EM Inc. 2002. *Planning Level Survey Report for Vegetative Communities: Umatilla Chemical Depot, Hermiston, Oregon*. Umatilla Chemical Depot, Hermiston, OR. 50 pp + appendices.

APPENDIX B2

Faunal Species Found at Umatilla Chemical Depot

From: US Army Corps of Engineers. 1993. *Ecological Assessment Report for the Umatilla Depot Activity, Hermiston, Oregon*. Prepared by Dames & Moore, Inc. for the U.S. Army Corps of Engineers. Report number: CETHA-BC-CR-92056.

APPENDIX C

Environmental Assessment for the Development and Implementation
of an Integrated Natural Resources Management Plan,
Umatilla Chemical Depot, Hermiston, Oregon

APPENDIX D

Memorandum of Understanding Among the U.S. Department of Defense and the U.S. Fish and Wildlife Service and the International Association of Fish and Wildlife Agencies for a Cooperative Integrated Natural Resource Management Program on Military Installations

APPENDIX E

Specific Items of Cooperation Between the U.S. Fish and Wildlife Service, the Oregon Department of Fish and Wildlife, and Umatilla Chemical Depot

APPENDIX F

Memorandum of Agreement (MOA)
Between U.S. Army Umatilla Chemical Depot (UMCD)
and U.S. Fish and Wildlife Service (USFWS)
Mid-Columbia River National Wildlife Refuge Complex (NWRC)

APPENDIX G

Memorandum of Understanding Between the U.S. Department of Defense
and the U.S. Fish and Wildlife Service
to Promote the Conservation of Migratory Birds

APPENDIX H

Pest Management Plan for Umatilla Chemical Depot, Hermiston, Oregon

APPENDIX I

Environmental Checklist for Work Orders or Contract Proposals