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Participants

The following agencies and organizations participated in the development of this strategic plan.

State of Oregon

- Division of State Lands
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Oregon Department of Transportation
- Oregon Parks and Recreation Department
- Oregon State University, Department of Crop Science
- Oregon State University, Department of Horticulture
- Oregon State University, Department of Rangeland Resources
- Oregon State University, Extension Service
- Oregon Watershed Enhancement Board
- Oregon State Weed Board
- Portland State University

Federal Government

- U.S. Army Corps of Engineers
- U.S. Department of Agriculture—Animal Plant Health Inspection Service
- U.S. Department of Agriculture—Eastern Oregon Agriculture Research Center
- U.S. Department of Agriculture—Forest Service
- U.S. Department of Agriculture—Fish and Wildlife Service
- U.S. Department of Energy—Bonneville Power Administration
- U.S. Department of Interior—Bureau of Indian Affairs
- U.S. Department of Interior—Bureau of Land Management
- U.S. Department of Interior—Bureau of Reclamation

Oregon Counties

- Baker County Weed Control
- Clatsop County Soil and Water Conservation District
- Coos County Soil and Water Conservation District
- Coos County Road Department
- Crook County Weed Control
- Deschutes County Road Department
- Douglas County Weed Advisory Board
- Gilliam County Weed Department
- Grant County Weed Control
- Harney County Weed Control
- Hood River County Weed Control

Jefferson County Weed Control
Klamath County Weed Control
Lane County Vegetation Management
Lincoln County Vegetation Management
Malheur County Weed Board
Malheur County Weed Control
Morrow County Soil and Water Conservation District
Morrow County Weed Control
Morrow County Weed Control District
Multnomah County Drainage District
Multnomah County Transportation Department
Sherman County Weed District
Tri-County Weed Management Area
Tillamook County Soil and Water Conservation District
Umatilla County Weed Control
Union County Weed Control
Wallowa County Weed Control
Wasco County Weed Control
Wheeler Soil and Water Conservation District
Yamhill County Soil and Water Conservation District

Organizations

Association of Oregon Counties
Bridge Creek Watershed Council
Center for Lakes and Reservoirs
Columbia-Blue Mountain Resource Conservation and
Development Area
Douglas County Livestock Association
Oregon Cattlemen's Association
Oregon Farm Bureau
Oregonians for Food and Shelter
Southern Oregon Goat Producers
The Nature Conservancy of Oregon
Upper Burnt River Weed Control District

Other

City of Portland Parks and Recreation
Confederated Tribes of the Warm Springs Reservation of Oregon
Dow AgroSciences
Ochoco Irrigation District
The Research Group
UAP Northwest

Executive Summary

Oregon is under siege. The invaders have names such as diffuse knapweed, yellow starthistle, leafy spurge, and purple loosestrife. They are noxious weeds, exotic species that don't belong here. Numerous agencies and programs have been enlisted to fight the battle. Without those efforts, the invaders will win, crowd out native plant species, and overrun the landscape. Most everyone agrees, protection of Oregon's natural resources is worth fighting for.

Noxious weeds are becoming a topic of interest for many varied groups throughout the state. Those interested in preserving wetlands, rangeland, cropland, wildlife, recreational areas and even urban livability have a stake in weed control. Increased media attention on various noxious weeds this past year reflects the concern of Oregonians.

This document provides a framework and overall strategy for cooperators in noxious weed management. It assesses the magnitude of the problem, highlights the importance of current weed control activities, and offers recommendations. Implementation of this strategic plan will build and expand strong coordinated programs for the future to protect Oregon's agricultural economy and natural resources.

The spread of noxious weeds has been described as a "biological emergency," a "biological wildfire raging out of control," or "an explosion in slow motion." In any terms, noxious weeds pose a serious economic and environmental threat. Oregon loses more than \$83 million annually to just 21 of the 99 state-listed noxious weeds. These invasive, non-native plants choke out crops, destroy range and pasture lands, clog waterways, affect human and animal health, and threaten native plant communities.

Weed control in Oregon has experienced a decade of declining funding and reduced control efforts. State General Funds for noxious weed control have declined by more than 30 percent. County programs have declined by 70 percent overall, and only 15 of Oregon's 36 counties have active programs. Neither prevention of new weed introductions nor control of established weed problems is being adequately implemented. Despite the current level of effort,



new weeds continue to be introduced to the state and many established populations continue to expand.

During the last 10 years, the number of state-listed noxious weeds in Oregon has increased by 40 percent. The recent detection of two aggressive invasive weeds, kudzu and smooth cordgrass, has sounded a serious alarm about new invasions. Also alarming is the spread of established weeds. During the past 12 years, infestations of spotted knapweed and yellow starthistle have expanded 42 and 11 fold, respectively. Without immediate action, these trends will continue.

The 1999 Legislative Assembly started a reverse in these trends with the reinvestment of \$1.5 million in lottery funds and by passing House Bill 2118. This bill instructed the Oregon Department of Agriculture (ODA) to assess the impacts of noxious weeds on the state, review control programs, and provide recommendations for implementation of effective noxious weed management. Working with a broad-based group of stakeholders, ODA has developed this strategic plan in response to HB 2118.

To effectively manage noxious weeds, Oregon needs effective leadership and organization from a statewide and local perspective. Cooperation from the major land managers (state, federal, county, and private) is essential because weeds do not respect ownership boundaries. ODA best provides statewide leadership. County programs best provide local organization and direction.

Priority activities recommended by this plan are the following:

- Establishing strong statewide, county, and local weed control programs
- Providing leadership, developing cooperation and partnerships
- Providing education and increasing awareness to public and private sectors
- Providing assistance to public and private land managers
- Identifying new invaders and potential threats to the state
- Implementing early detection and eradication programs
- Implementing effective containment projects
- Providing and implementing biological control
- Providing quality inventory and mapping information
- Prioritizing and implementing effective projects

- Providing sufficient level of funding for noxious weed control programs

The priorities outlined by this plan and an investment into noxious weed control programs is a prudent course of action given the conservative estimate of \$83 million in annual negative impacts from noxious weeds. Control efforts have proven successful in the past. For example, the biological control of tansy ragwort has an estimated \$5 million per year benefit to Oregonians. This project alone provides an 83 percent annual return on investment. The control of six weeds having limited distribution in the state has a benefit to cost ratio of 33 to one. For every dollar spent on effective control, there is \$33 of benefit gained. If left unchecked, the potential impact from these six weeds is estimated at \$54 million annually.

The strategy outlined in this plan can be visualized as a chain. At one end are strong county weed control programs. In the middle are state and federal agencies, organizations, and private individuals. At the other end is the ODA's program concentrating on coordination, early detection, prevention, and biological control. Incentive programs, education, cooperative agreements, and partnerships forge the entire chain into a strong and formidable system.

Using the same analogy, the current chain is not securely linked. At the ends, only a third of Oregon counties have active weed programs; and the state spends less than one cent per acre annually to support ODA's essential coordination, early detection, prevention, and biological control efforts. In the middle, some incentives and partnerships are active, but many opportunities are missed. Not only are the current links loosely connected, but also the entire chain, from end to end, is too weak to address the full weight of the problem. By implementing the recommendations of this plan, the links that form a strong unbreakable chain are forged to provide effective noxious weed management.

Noxious weeds have invaded many parts of Oregon, but large tracts remain healthy and free of invasive weeds. Our challenge is to focus efforts to protect Oregon from new invasions, and to lessen the impact of weeds already established. This strategic plan outlines priorities for a strong and cohesive approach to control noxious weeds in Oregon. Controlling a "biological wildfire" is not an easy task, but it can and must be done in order to protect Oregon's economic and environmental health.

Control of noxious weeds is an issue that makes for some interesting alliances. Ranchers and farmers have spoken clearly about the threat weeds pose. So have conservation groups. Control efforts are no longer confined to a handful of agencies and programs. It now is the business of all Oregonians.



Purpose

Purpose of Plan:

1. Heighten Awareness
2. Organize Cooperation
3. Prioritize
4. Need for Additional Resources

Noxious weeds permanently degrade agricultural lands and the natural environment. They cause severe production losses, increased control costs, and can decrease value of farm, range, and forestlands. They challenge the ability to produce food and fiber, impact and alter aquatic systems, impede transportation and recreation, affect human and animal health, and threaten native plant communities. Oregon's economic losses from noxious weeds are more than \$83 million annually.

The intent of this plan is to provide a framework and overall direction for coordination of noxious weed management to protect and restore Oregon's natural resources. This plan presents the magnitude of the problem, highlights the importance of current work, and makes strategic recommendations for building strong, effective, coordinated programs for the future.

The purpose of this plan is to heighten awareness among Oregon's citizens, the legislature, local governments, tribal governments, conservation organizations, and land managers of the impact of noxious weeds and the need for effective noxious weed management; to further organize cooperation; to prioritize noxious weed projects; and demonstrate the necessity for additional resources to maintain and further advance noxious weed management.



Spotted knapweed spread along river and road corridor.

Introduction

What are Noxious Weeds?

Not all weeds are noxious weeds. Noxious weeds are non-native plants that have been legally designated as serious pests because they cause economic loss and harm the environment. Currently, there are 99 weeds on Oregon's Noxious Weed List (see Appendix 1). The introduction and spread of noxious weeds have become a biological emergency negatively impacting Oregon's natural resources.

The Scope (History of HB 2118)

At the direction of the of the 70th Oregon Legislative Assembly in 1999, House Bill 2118 instructed the Oregon Department of Agriculture (ODA) and the Oregon State Weed Board (OSWB) to assemble a working group to implement an impact study, evaluate weed control programs, and provide recommendations to address the impacts of invasive noxious weeds. A working group representing interests from agriculture, forestry, counties, state and federal agencies, tribal governments, conservation groups, and members of the public contributed and provided direction to this strategic plan. As part of the process, Oregon State University, through the Oregon Agriculture Research Foundation, conducted an economic study to assess the present and potential impacts of 21 of the 99 state-listed noxious weeds.

Layout of the Plan

This plan is divided into three sections.

- Section one provides background information; this includes a national and state perspective and current management roles and authorities.
- Section two reviews current trends in noxious weed management.
- Section three provides a framework of recommendations for effective management of noxious weed programs.

Sustainability

The management of noxious weeds compliments the Governor's Executive Order No. EO-00-07, "Sustainable Oregon," 8/29/2000. Noxious weed management is critical to sustain and improve Oregon's quality of life by maintaining the economic viability of Oregon's natural resource industries and preserving the integrity of Oregon's unique natural environment.



Scotch thistle

Section One Background



National and State Perspective

Where do noxious weeds come from and how are they spread?

Noxious weeds, non-native invaders, began to appear and spread with European settlement and continue to arrive today. Most of Oregon's least desirable weeds are of Mediterranean, European, and Asian origin. The introduction of non-native invasive plants has increased dramatically in the past decade due to the increased ease and speed of world travel and the expansion of global commerce (Cohen and Carlton 1998). Local spread of noxious weeds can be natural with wind, water, and animals; but human activities such as, recreation, vehicle travel, and the movement of contaminated equipment, products, and livestock often greatly increase the distance and rate of dispersal.



Purple loosestrife

National

Noxious weeds are of great significance on a national level. For example purple loosestrife, originally introduced as an ornamental in the 1880s, is now a weed in all of the lower 48 states. Purple loosestrife encroaches on native wetlands, rivers, streams, ponds and lakes impacting water quality and reducing the populations of 44 native plant species as well as impacting song bird, water fowl, amphibian and other wildlife habitat (Blossey 1999). Wetlands infested with purple loosestrife often lose half of the native vegetation and it is not uncommon to have complete stands of purple loosestrife (Westbrook 1998).

Annually, \$45 million in direct costs are attributed nationally to purple loosestrife. Controlling purple loosestrife provides an estimated benefit to cost ratio of 27:1. For every dollar spent on eradication, prevention, or control, there is an associated \$27 benefit (OTA 1993). Purple loosestrife is one example of many noxious weed problems on a national level.

Overall, noxious weeds cause an estimated \$27 billion in losses to crop, pasture, and forest production in the U.S. each year (Pimentel, 1999). They alter natural ecosystems by impacting native plant communities, watershed health, wildlife, and recreational use. An estimated 5,000 invasive non-native weeds now occur in U.S. natural areas (Pimentel, 1999). The Departments of Agriculture in 11 western states estimate there are 70 million acres of private, state, and federal lands infested by noxious weeds, which are increasing and spreading at an alarming rate of 12 to 14 percent each year (Asher, 1998). The spread of noxious weeds has been described as a “biological wildfire raging out of control.”

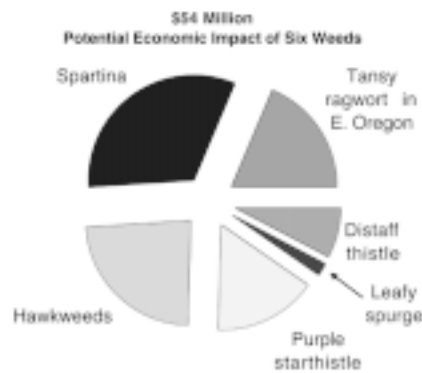
National concern about noxious weeds has recently been emphasized by the President's Executive Order 13112 on Invasive Species released February 3, 1999, (see Appendix 2) and the Plant Protection Act (PPA) signed into law on June 20, 2000.

State

Oregon has a diverse range of land use and natural resource interests including agriculture, forestry, conservation, wildlife, recreation, and urban needs. Noxious weeds are adversely affecting all Oregonians by impacting all of these interests. Oregon loses over \$83 million annually to just 21 of the 99 state-listed noxious weeds (see figure a, below). The true impact of all noxious weeds in Oregon may be as much as four times this amount. Six of the 21 weeds were assessed to look at their potential impacts (see figure b, below). If not controlled, these six weeds alone may cause an additional \$54 million in future losses (Radtke 2000—see Appendix 3).



(Figure a)



(Figure b)

Oregon has a history of being a leader in the field of noxious weed management and providing successful weed control programs. For example, the 1975 Legislature amended Oregon weed law (ORS 452) to include tansy ragwort, a widespread poisonous weed responsible for killing livestock (see Appendix 6, Table 1) and crowding out desirable forage and native plants. Prior to successful control of tansy ragwort, there was an estimated economic loss of \$5 million per year. Due to a successful biological control program in western Oregon, and an ongoing containment program in central and eastern Oregon, impacts have been reduced to low levels. A 1993 study estimated the economic benefit of controlling tansy ragwort to be 13:1; for every control dollar spent, \$13 of benefit is derived. (Radtke 1993).

Environmental Health

Invasive noxious weeds directly impact Oregon's environmental health. An important measure of environmental health is the lack of non-native plants. Invasion by non-native plants is considered one of the most serious threats to rare and endangered species. Concern for invasive noxious weeds has increased dramatically due to the threats and impacts they have on natural areas. Among the many ecological impacts are: direct exclusion and competition with native plants; negative effects to wildlife; alteration of soil chemistry and nutrient cycles; alteration of hydrology and stream flow; changes to the physical environment; and disruption and alteration of community succession (Huenneke 1996).

*State
Aquatic Nuisance Species
Management Plan*



Hydrilla and many other aquatic nuisance species are serious threats to Oregon's water resources. Aquatic weed management is also addressed in the State Aquatic Nuisance Species (ANS) Management Plan developed by Portland State University, Center for Lakes and Reservoirs. The state ANS plan recommends specific actions needed for comprehensive management of aquatic nuisance plants and animals.

(photo courtesy of Center for Aquatic Plants, University of Florida.)



Tansy ragwort infestation before release of biological control agents



Same site five years after release of biological control agents

Achievements, such as the control of tansy ragwort, are significant in maintaining Oregon's economic viability. As natural resource stewards, Oregonians must seek opportunities to prevent the introduction and spread of new problem weeds and reduce the impacts of established noxious weed populations.

The Oregon Progress Board is responsible for maintaining a 20-year strategic plan for the state, *Oregon Shines*, and developing Oregon Benchmarks. The benchmarks provide 90 indicators of economic, social and environmental health and are used to track Oregon's success in achieving *Oregon Shines* goals. Existing and pending Oregon Benchmarks (OB) affected by noxious weeds include: OB 77, percentage of Oregon wetland acreage maintained or increased; OB 88, percentage of native plant species that are healthy; OB 89, the number of nuisance invasive plant or animal species established in Oregon. Proposed and developmental benchmarks for 2001-2003 biennium include: OB 2024, the amount of intact or functional riparian vegetation found along stream and rivers; OB 2026, the condition of intertidal and near shore marine areas; OB 2027, the portion of agriculture or rangeland managed with sustainable practices.

The Oregon Progress Board also publishes a State of the Environment Report. In this report, the number of nuisance invasive species is listed as one of 18 selected indicators of ecosystem health.

Current Management Roles and Authorities

There is a need for effective and efficient statewide noxious weed management. State, county, and federal governments are responsible for implementing and maintaining control programs. Currently, these three entities provide different levels of management, while working towards a common objective. Private land managers also play an

essential role in the effective management of noxious weeds. About half of Oregon's 61 million acres are under public management and the balance is private. Noxious weeds do not respect ownership or political boundaries. Thus, there is a need for all resource interests to work toward common solutions for noxious weed management.

ODA Program

The Oregon Department of Agriculture (ODA) Noxious Weed Control Program provides statewide leadership and coordination. The general fund budget for the Noxious Weed Control Program is \$786,000 for the 1999-2001 biennium. This budget supports noxious weed control projects, detection and control of new invasive noxious weeds, implementation of biological control, technology transfer, education, inventory, mapping, database management, and assistance to land managers.

County Programs

Organization at the local level is an important role for Oregon's weed control efforts. County programs are the primary source of this support. In addition to providing local assistance and implementing control projects, county programs enforce the state weed laws. Currently however, only 15 of Oregon's 36 counties have active weed control programs. Overall spending for noxious weed management by county programs during 2000 is estimated at \$2.6 million.

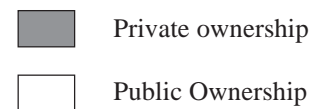
State and Federal Agencies

State and federal agencies manage roughly half of Oregon lands. As major land stewards, these agencies exercise a significant role in the implementation of effective weed management statewide. Many state and federal agencies have developed cooperative partnerships with ODA and county weed control programs to implement a variety of control activities. Federal land management agencies currently have an estimated annual budget of \$2.25 million for noxious weed control activities in Oregon. State agencies (excluding ODA) estimate current spending for noxious weed control at \$250,000 per year.

Private Land Managers

Individuals also play a significant role in noxious weed management. Landowners, organizations, and citizens participate in weed control activities, weed boards, and assist by reporting new infestations. Most

Land Ownership in Oregon



Oregon Department of Agriculture (ODA) 1999-01 Biennium

In the course of the 1999-01 biennium, a number of new programs and priority projects arose. The development and administration of a new grant program enabled the Oregon State Weed Board (OSWB) to monetarily support weed control efforts throughout the state. Small broomrape, which has the potential to disrupt agricultural production, was surveyed, inventoried, and quarantined. Kudzu, an aggressive invasive vine, was found in limited distribution in Oregon. Early detection of kudzu enabled the program to respond quickly with eradication and statewide awareness.

importantly, they can promote and use sustainable practices, and advocate the preservation of the natural environment.

Roles and Authorities

A number of state and federal agencies, counties, and universities are actively involved in noxious weed control. The major cooperators in noxious weed management are listed along with a brief description of their roles in Appendix 6.

Appendix 6, Table 2: Roles and Responsibilities,
State Department of Agriculture and Counties

Appendix 6, Table 3: Roles and Responsibilities,
Universities and Research Centers

Appendix 6, Table 4: Roles and Responsibilities,
Oregon State Natural Resource Agencies

Appendix 6, Table 5: Roles and Responsibilities,
Federal Land Management Agencies

Laws, regulations, and policies that grant governing agencies authority to conduct weed control activities are summarized in Appendix 4.

Section Two

Current Trends



Why are We Falling Behind?

In order to achieve effective weed management, strategies must build on previous success, while recognizing and correcting failures and shortcomings. Failure to identify the full scope and significance of the current situation will lead to reduced chances for success in the future. The deficiencies in Oregon's current noxious weed management are described below.

During the last decade, funding for weed control programs has decreased while the number of new noxious weeds have increased and existing infestations have spread at alarming rates. Less weed control at state and local levels is being done, because weed programs have experienced severe cuts in overall services during the last 10 years. Consequently, public concerns about noxious weeds have become a major issue. This has caused increased demands on the limited resources of public agencies and private landowners and has affected their ability to respond to the present crisis.

Despite the increased demands and cuts in some services, a number of agencies and concerned parties are making valiant efforts to control noxious weeds. Cooperative partnerships have been developed and fostered among public and private sectors. Priorities among cooperators have been set and important control projects have been implemented. However, more must be done to keep up with the increasing impacts of noxious weeds.

A reverse in these trends began with the 1999 Legislature and a reinvestment of \$1.1 million of lottery funds directed toward noxious weed control grants through the Oregon State Weed Board (OSWB) and \$400,000 for equipment upgrades and staff support in the ODA Weed Control Program.

Increasing Demands

The number of weeds listed by OSWB has increased by 40 percent over the last 10 years, from 60 species in 1990 to 99 species in 2000. In the past year alone, four new "A" listed, high priority noxious weeds (small broomrape, orange and yellow hawkweeds, and kudzu) were found in Oregon, requiring immediate attention. Interest in noxious weeds continues to increase. Land managers, private citizens, and conservation groups continue to become more informed and concerned demanding additional attention, assistance, and technical support from existing resources, programs, and staff.

Many noxious weed infestations continue to expand unchecked. During the last 12 years, spotted knapweed infestations increased 42 fold from nine townships to 379; yellow starthistle increased 11 fold from 38 to 428 townships, and rush skeletonweed almost 10 fold from 14 to 136 townships. These three noxious weeds alone now infest more than 5.4 million gross acres. (One township is equal to 36 square miles.)

ODA Program

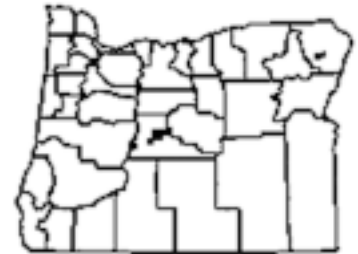
Many of ODA's priorities are not being addressed as a result of a 33 percent decline in General Funds over the past decade. The noxious weed control program has more demands than resources available to address essential functions. ODA is becoming increasingly dependent on outside funding sources from federal agencies, grants, and other sources to maintain the professional staff. Because of obligations to the funding sources, the ODA staff is less flexible to address statewide priorities. Priorities include, finding and controlling new invaders, implementing biological control, providing prevention and educational programs, and assisting county programs and private landowners. At the same time, the ODA program continues to take on more responsibilities and additional duties with existing resources.

The continuing influx of new invasive weeds has caused ODA to respond to unplanned emergency situations (i.e., small broomrape, kudzu, hawkweeds, and smooth cordgrass). The frequency of new introductions and the occurrence of new weed induced problems have increased over the last decade. Resources demanded by new projects and emergencies are diverted from other important existing control projects.

Oregon State Weed Board

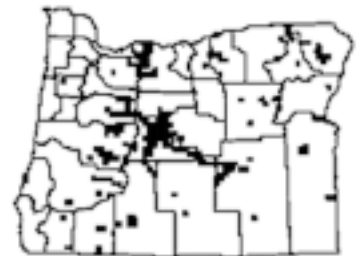
General Funds for the Oregon State Weed Board were cut over the last decade, limiting its ability to provide funds for county assistance, research, and education. The board received \$1.1 million in lottery funds for the 1999-2001 biennium. These funds have been crucial for implementation of vital on-the-ground control projects. However, these funds have limitations that prevent their use to support equally important functions such as of county assistance, education, research, and grant administration.

Expansion of spotted knapweed



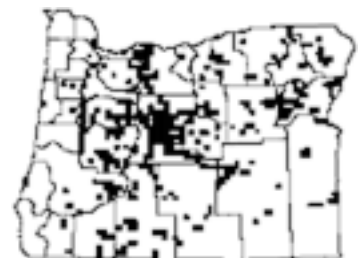
1982

Spotted knapweed distribution



1992

Spotted knapweed distribution



1999

Spotted knapweed distribution

County Programs

Many county programs are under funded or nonexistent. Twenty-one out of 36 Oregon counties do not have active weed control programs. Overall, county programs have declined by 70 percent during the past decade. The leading causes are linked to cuts in cost-share funds previously provided by the Oregon State Weed Board and reduced support from county general funds, due to property tax rate limitations and other revenue constraints.

In 1988, a survey of county programs rated the majority as good to excellent. A 1999 survey rated the majority of programs as fair to poor. Not only is Oregon losing county programs, but also the level of service of some of the remaining programs has been reduced. Despite the general decline, several county programs are doing an excellent job of noxious weed control.

State Agencies

State agencies (Division of State Lands, Department of Fish and Wildlife, Department of Transportation, Parks and Recreation Department, and Department of Forestry) recognize the need for noxious weed control. However, they lack adequate personnel and budgets to address them fully. Noxious weed management has been factored into budgets and duties on a limited basis. Some priorities have been addressed, but many opportunities are being missed.

Awareness of the need for noxious weed management is high among some individuals within state natural resource and land management agencies. But, only two out of five of these agencies have policy to address the management of noxious weeds. Two have management plans developed and most have only limited resources allocated for the management of noxious weeds.

These natural resource and land management agencies play a vital role in Oregon's diverse land use and resource management. They are responsible for forest protection, right-of-way maintenance, water quality preservation, fish and wildlife habitat protection, and recreation area and park maintenance. With these responsibilities, there is a need to increase awareness throughout the agencies and incorporate noxious weed management into resource and land management activities.

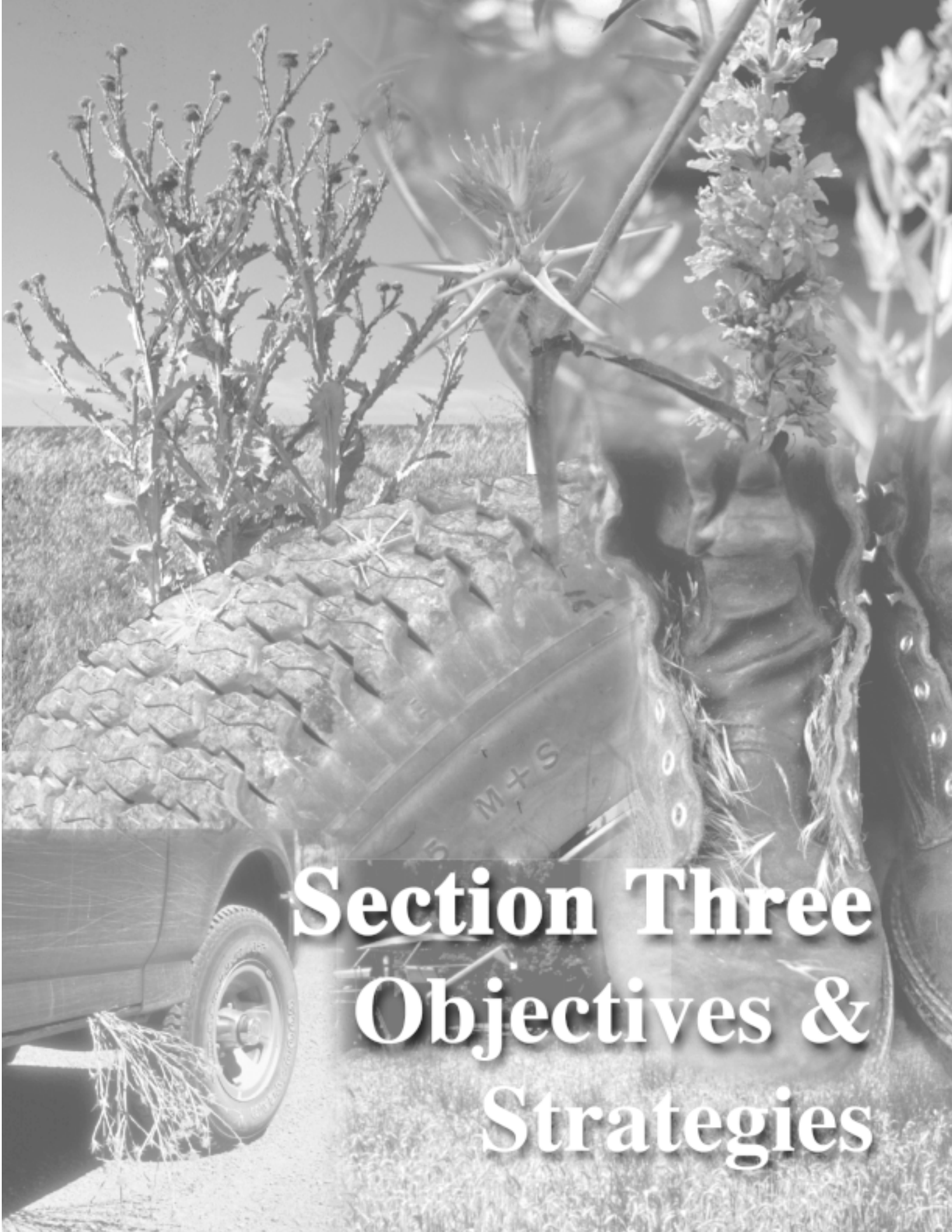
Federal Agencies

Federal agencies (for example, US Forest Service and Bureau of Land Management) play a significant role in noxious weed management. Most have developed policies, plans, and management strategies, but struggle with insufficient resources to accomplish their objectives. Federal agencies manage a large portion of Oregon land. This land does not fall under the authority of state and local weed regulations. In some cases, implementation of weed control projects has presented unique challenges. Federal regulations and policies can create delays, increase costs, and sometimes limit the choice of effective treatment options. Some federal agencies have built important partnerships and programs that have resulted in significant implementation of weed control projects from both a local and statewide perspective. However, some private landowners adjacent to infested federal lands have voiced concerns in areas where control projects have not been implemented.

Overall during the last 10 years, due in part to the 1990 amendment of the Federal Noxious Weed Act, federal agencies have put more emphasis on noxious weed management. This has included the formation of interagency working groups such as the Western Weed Coordinating Committee (WWCC) and the Federal Interagency Committee for Management of Noxious Exotic Weeds (FICMNEW), development of strategic documents, and implementation of more aggressive programs for the management of noxious weeds.

Challenges

ODA, counties, and state and federal agencies face many challenges in conducting noxious weed management programs. In one way or another, they are all confronted with insufficient resources, under developed policies or management plans, and unplanned emergencies. The lack of adequate resources presents the greatest challenge and causes insufficient attention to many weed issues.



Section Three Objectives & Strategies

Objectives and Strategies

The following section provides 10 objectives and identifies strategies for effective implementation. The recommended strategies following each objective are specific areas needing attention as identified by the strategic plan working group. These objectives and strategies were identified by the strategic plan working group as priorities for implementing effective noxious weed management.

Objectives and strategies outlined by this plan are:

Objective One: Leadership and Organization

Strategy One: Provide consistent statewide and local leadership and organization

Objective Two: Cooperative Partnerships

Strategy Two: Develop and expand partnerships

Objective Three: Planning and Prioritizing

Strategy Three: Develop and maintain noxious weed lists and plans all levels

Objective Four: Education and Awareness

Strategy Four: Provide education and awareness

Objective Five: Integrated Weed Management (IWM)

Strategy Five: Continue to support and advocate the principles of IWM

Objective Six: Early Detection and Control of New Invaders

Strategy Six: Implement early detection and control

Objective Seven: Noxious Weed Information System and Data Collection

Strategy Seven: Upgrade Noxious Weed Information System

Objective Eight: Monitoring and Evaluation

Strategy Eight: Monitor noxious weed projects to evaluate effectiveness

Objective Nine: Policy, Mandates, Law, Compliance and Enforcement

Strategy Nine: Use mandates, policy and law to encourage effective weed management

Objective Ten: Funding and Resources

Strategy Ten: Increase base level funding for state, county, local, and federal noxious weed control programs to address priorities and to assist private land managers.

Strategy Eleven: Additional funding sources for weed control programs

Objective One

Leadership and Organization

Leadership and organization are required to direct cooperative noxious weed projects and allocate limited resources. Leadership is needed at the federal, state, and local levels to organize weed control projects, develop partnerships, provide assistance, and implement effective programs.

Strategy One

Provide consistent statewide and local leadership and organization.

1. Leadership and Organization through ODA

Oregon Department of Agriculture (ODA) is designated as the primary agency that provides leadership for noxious weed management. The number and diversity of national, regional, and state noxious weed issues necessitates the need for leadership and organization at the state level. ODA and the Oregon State Weed Board (OSWB) will continue to provide statewide coordination of noxious weed management, oversight of statewide priorities, and assist with local efforts.

2. County and Local Programs

County programs provide the vital role of organization and implementation of local control programs. Counties are the primary local contact and provide the enforcement of the state weed laws and county ordinances.

3. State and Federal Natural Resources and Land Management Agencies

It is necessary that agencies take an active role in noxious weed management.

- Establish a noxious weed coordinator position within each agency
- Encourage agencies to assist and cooperate with statewide and local program objectives
- Encourage agencies to identify and develop policy, management plans, and implement control projects

Partnerships



Formation of partnerships is essential for successful weed control projects.

Objective Two

Cooperative Partnerships

Noxious weeds do not respect ownership and watershed boundaries. Effective management requires support and participation from all parties. Cooperative management of noxious weed control allows for prioritizing and pooling of limited resources. Partnerships allow management across jurisdictional and ownership boundaries.

Strategy Two

Develop and expand partnerships.

Encourage and support partnerships between private landowners, state agencies, federal agencies, tribal governments, counties, weed management areas, watershed associations, and conservation groups. Develop contacts, memorandums of understanding, and cooperative agreements to encourage the development of partnerships.

1. Agency Coordination and Partnerships

- Designate formal weed control contacts between ODA and state and federal natural resource and land management agencies
- Encourage partnerships to address noxious weed management on public lands
- Network among agencies to facilitate noxious weed management

2. Memorandum

- Develop a statewide memorandum of understanding between state and federal agencies to foster cooperative partnerships for noxious weed projects

3. Cooperative agreements

- Use cooperative agreements to facilitate control projects

4. Weed Management Areas

- Actively promote and develop Cooperative Weed Management Areas to organize local control efforts

5. Build Partnership with Private Land Managers

- Actively promote and foster partnerships with the private sector. Work through existing state, county, and federal programs and state and local weed control boards. Assist private control efforts through technical assistance, planning, implementation, and cost-assistance.

Objective Three

Planning and Prioritizing

Planning and prioritizing allocates limited resources and provides direction for implementation of programs and projects.

Strategy Three

Develop and maintain noxious weed lists at the state and county levels. Develop and implement noxious weed management plans at state, federal, and local levels.

1. Maintain State Noxious Weed List

OSWB will continue to list and rate weeds at the state level as “A”, “B”, and “T” classified weeds (see Appendix 1).

2. Statewide Plans and Priorities

OSWB and ODA will continue to develop and maintain statewide management plans and objectives for state priority listed “A” and “T” noxious weeds.

3. County Weed List

County weed boards should continue to list and classify weeds at the local level.

4. Regional Plans

Organize and conduct planning meetings among ODA, county weed boards, weed management areas, watershed groups, and private land managers to assist plan development, prioritization, and implementation of control projects.

5. State and Federal Agencies Plans

As major land stewards, agencies have the regional responsibility to plan and provide noxious weed control projects on lands under their jurisdiction.

6. Western States

Planning among western states is important to address regional and national issues such as biocontrol, introductions of new invasive species, research and funding, sharing of information, and to organize support for federal noxious weed control programs.



Strategic plan working group

National and Regional Issues

There is a need to work cooperatively with neighboring western states to address regional issues. It is critical that Oregon cooperators work with federal agencies, national interest groups, such as FICMINEW and WWCC, and other western states to capture national attention and interest to support and address regional concerns. It is also important to be informed of national and regional issues that may affect Oregon.

Weed Awareness Survey

A February, 2000 survey and report by Eastern Oregon State University sponsored by Columbia—Blue Mountain Resource Conservation and Development Area, recommends a public awareness campaign on the spread and impacts of noxious weeds. Respondents to the survey were well aware that noxious weeds are a problem for all Oregonians, but were not aware of the full impacts of weeds. Ninety-two percent of the respondents are interested in receiving noxious weed information (EONWSR 2000).

- Use organizations such as WWCC, INWAC, FICMNEW, and the Western Society of Weed Science (WSWS) as forums to identify, plan, move issues forward and gain political support.

Objective Four

Education and Awareness

The public is generally not aware of the economic and environmental impacts of noxious weeds. There is a need to improve awareness of noxious weeds and to provide educational information to cooperators, land managers, and the public. Pamphlets, bulletins, and brochures are useful at meetings, for follow-up consultations, and educational purposes. As people become more aware of noxious weeds, the probability of detecting them is greatly increased, which allows for more effective and timely control. Education and awareness assist weed identification, reporting new infestations, prevention and control, and fosters cooperation and partnerships.

State and federal natural resource agencies and county noxious weed control programs responded strongly, in an August 2000 ODA survey, indicating the need for more agency and public awareness of noxious weed issues.

Strategy Four

Provide education and awareness.

Increase awareness of noxious weeds among the general public, private landowners and public land managers. Increase awareness of decision-makers (managers, policy makers and Legislators) and encourage their participation in developing and achieving solutions.

1. Develop and Implement Noxious Weed Education Programs

2. Develop Educational Materials

Noxious weed cooperators should develop pamphlets, brochures, video, CDs, and other educational materials.

3. Provide Noxious Weed Information

A. Weed Programs

- Provide noxious weed education through ODA, counties, federal agencies, and local programs.

B. Universities

- Support OSU Extension as a resource to provide noxious weed education.

C. Organizations

- Encourage organizations (i.e., The Nature Conservancy, Blue Mountain RC & D, Douglas County Livestock Association) to provide noxious weed information to their members and the public.

D. Noxious Weed Internet Site

- ODA will develop and maintain web based information. Provide noxious weed identification, technical information, and resource materials. Include a noxious weed reporting form and updated noxious weed distribution maps.

E. News Releases

- ODA and cooperators will produce news releases on priority noxious weed issues

4. State and Federal Agency Awareness

Develop and implement noxious weed awareness programs.

A. ODA will work, through contacts with natural resource and land management agencies, to develop programs that increase awareness within agencies.

- Provide information to increase awareness with managers
- Conduct identification education with field staff
- Provide technical assistance to aid planning and implementation

Objective Five

Integrated Weed Management (IWM)

IWM is a multi-disciplinary approach to weed control based on the best available science and experience of weed managers. Control options are based on site-specific information and the best strategies for effective management are implemented. IWM uses all available methods and techniques for noxious weed control including prevention, mechanical, cultural, chemical, and biological control (see Appendix 5).

Strategy Five

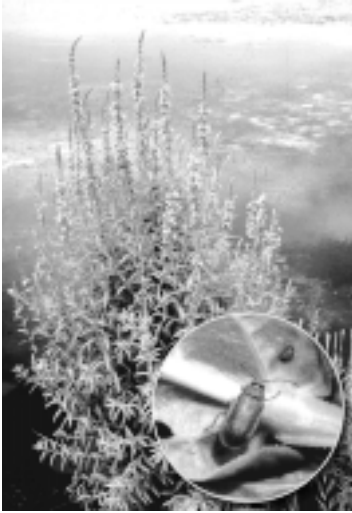
Continue to support and advocate the principles of IWM.

Support training and technical assistance. Support research on IWM practices to improve and provide effective methods of control.

National Funding

Funding at the national level for rangeland and wildland research has declined by as much as 50 percent during the past decade (Mullin 2000).

Expanding and Implementing Biological Control



The Galerucella leaf beetle is a biocontrol agent that attacks purple loosestrife.

For noxious weeds that are widely distributed and are beyond the economic and environmental possibility of regional control, biological control may be the only hope. A successful biocontrol project against tansy ragwort yielded a 15:1 benefit cost ratio. Oregon can select biocontrol targets, but the research and testing required to get approval for new biocontrol agents is done in the foreign countries where the weed originated. Oregon must either rely on joining existing projects with other states, under the direction of USDA-ARS and APHIS, or contract work to foreign organizations. It takes three to five years at a cost of \$250,000 to \$500,000 to find, test, and import a new biocontrol agent for release in the U.S.

1. Technical Assistance

Transfer information from weed control professionals to assist local programs, state and federal agencies, and private land managers

- A. Develop and provide technical and general information to facilitate noxious weed management through bulletins, pamphlets, classes, and web sites
- B. ODA will continue to host the Oregon Interagency Noxious Weed Symposium

2. Research

Research and develop IWM methods

A. IWM Methods

- Establish test plots to assess treatment and application methods
- Evaluate control methods and refine techniques to specific needs
- Assess herbicide treatments, timing, rates, and application methods
- Review cultural methods such as grazing and rotations
- Conduct demonstration projects
- Evaluate integration of chemical and biological control
- Develop and evaluate competitive planting methods

B. Biological Control

- Fully implement available biological control
- Establish nursery release sites of new biocontrol agents
- Monitor and evaluate impacts of biological control
- Review and evaluate target weeds
- Assist foreign exploration for new biocontrol agents
- Complete host specificity testing for new biocontrol agents
- Write petitions for introduction and release of approved biocontrol agents

C. Restoration

- Identify restoration needs
- Refine and improve restoration techniques

3. Prevention

Develop and implement prevention programs on a statewide basis.

A. Weed-Free Feed, Straw and Mulch

- Encourage the use of weed-free feeds and mulch on public lands
- Implement a noxious weed-free forage, feed, and straw program
- Provide certification of weed-free hay, straw, and feed
- Provide certification of straw and mulch for restoration and construction

B. Weed Free Seed

- Develop and distribute guidelines for procurement of weed free seed
- Maintain and update State Noxious Seed List to prohibit sale of contaminated seed

C. Restoration Guidelines

- Organize an interagency committee to identify restoration needs and develop restoration guidelines for noxious weed control sites

D. Risk Assessment

Develop and formalize a process of risk assessment for new invasive weeds and possible listing as state noxious weeds

Kudzu



Kudzu, a noxious vine that kills and degrades other plants by smothering, was recently found in limited distribution in Oregon. Kudzu is reported to be spreading at a rate of 125,000 acres per year in the southeast U.S. and is causing millions of dollars in economic losses. Kudzu is an example of the need for a noxious weed emergency fund for early treatment of new invading species.

Objective Six

Early Detection and Control of New Invaders

Prevention and treatment of new noxious weed introductions is the most successful, cost effective, and least environmentally damaging means of control. If new invasive noxious weeds are allowed to go unchecked, economic losses will exceed the present control costs of eradication or containment by several orders of magnitude. After initial introduction of a new invasive plant, there is a short period of opportunity for eradication and containment (see Figure c). Once permanently established, a new invader becomes a long-term management problem. A current economic assessment of six potential weeds in Oregon demonstrates the benefit of early detection and control of new invaders.

Purple starthistle



Purple starthistle, a new invader to the state in 1995, infests less than ten acres of pasture in Clackamas County. This noxious weed has the biological potential to invade 1.5 million acres of productive agriculture and pasture lands in Oregon. An aggressive eradication program costing \$3558 per year has been effective at containing the infestation. It is estimated that purple starthistle would have economic impacts of \$12 million per year if left to exploit its biological potential in Oregon. This purple starthistle project demonstrates the importance of early detection and eradication projects.

Long-term contingency planning for “A” classified weeds is critical in maintaining a proper defense against them. Having emergency funds available to implement early detection and treatment of new invaders can prevent their widespread establishment and associated impacts. Currently the state lists 37 species as “A” classified weeds. These weeds are of known economic importance and occur in the state in small enough infestations to be contained or eradicated, or are an imminent threat because they occur in neighboring states.

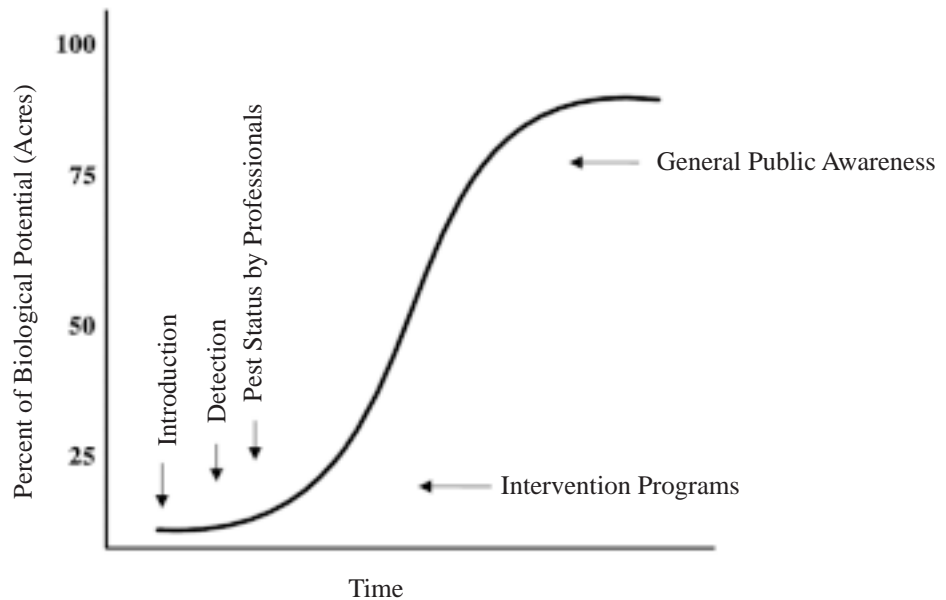


Figure C
A new invader goes through certain phases; introduction, establishment, and spread. After initial introduction, it increases slowly. After a period of time, the rate of increase and spread becomes exponential. This rate of increase continues until a limiting factor in the environment stops further spread (biological potential). Limiting factors may be natural or a result of human intervention (some type of management). Often the general public does not become aware of the problem until the weed is widespread and established. Early detection and control programs intervene on the lower portion of this growth curve to prevent new weeds from reaching their full biological potential. These programs intervene with prevention, survey, eradication, and containment projects.

Strategy Six *Implement early detection and control.*

Prevent the establishment and spread of new invader noxious weeds through early detection, eradication, and containment. List and evaluate the threats of new invaders. Develop contingency plans for new and/or potential invading weeds.

1. Watch List

Formalize a process at the state level to identify new species for potential listing as state listed noxious weeds. Develop and

maintain a Watch List of invasive plants to evaluate for possible addition to the State Noxious Weed List.

2. Contingency Planning

ODA and OSWB will develop contingency plans for all state “A Listed” noxious weeds to facilitate early detection and control.

- A. Work with affected land managers, industries, and state and federal agencies to develop plans to address new invader weeds.

3. Early Detection and Control

Expand the efforts of ODA and its cooperators for early detection and control programs to decrease the time between initial detection and treatment of priority noxious weeds.

- A. Survey for priority noxious weeds
- B. Implement timely treatment of new invaders

4. Proposed Invasive Species Council

Participate in the proposed Oregon Invasive Species Council (ODA and other state and federal agencies)

- A. Risk Assessment
Develop a process to assess risk of new invasive weeds.
- B. Evaluate the economic and environmental risk of new invasive weeds.
- C. Evaluate imported plant materials to prevent the introduction of noxious weed reproductive plant parts.
- D. List and regulate the importation of known invasive plants.

Objective Seven

Noxious Weed Information System and Data Collection

Survey, inventory, and mapping are very important processes for documenting weed infestations. Quality collection and use of weed distribution data provides information that is needed to make informed decisions and implement effective eradication, containment, and control projects. Prioritization of noxious weed projects cannot be done until infestations are accurately delimited. The collection of

Smooth cordgrass



Smooth cordgrass invades an estimated 4,000 acres of Washington State estuaries costing more than \$1 million in control costs annually. Infestations are increasing at about eight percent per year in Washington. All of Oregon’s 13 major estuaries, more than 64,000 acres, are at imminent threat to cordgrass invasion. Smooth cordgrass is able to alter the biological functions of estuaries, impacting waterfowl, shorebirds, shellfish, and marine vertebrate and invertebrate habitat (Isaacson 2000). It is estimated that smooth cordgrass would cause over \$17 million in annual losses once established in Oregon’s major estuaries.

Weed Mapper



Oregon State University
Department of Rangeland
Resources in cooperation with
Oregon Department of
Agriculture, Bureau of Land
Management and US Forest
Service is developing an
Internet based database,
reporting and mapping system.
When fully functional, this
system will facilitate weed
information exchange among
federal, state, and county weed
programs as well as private
citizens. More information on
weed mapper can be found on
the web at
www.weedmapper.org.

weed data at the state level needs to be standardized and stored at a central repository to improve noxious weed control efforts.

At the present time, noxious weed information is fragmented and is recorded and stored in various formats and locations. Information is collected and used by state, county, and federal programs. A standardized, centralized data collection and record storage system for noxious weed information is needed.

Strategy Seven

Upgrade Noxious Weed Information System

Update the ODA system for noxious weed survey, inventory, and mapping. Update Geographical Information System (GIS) hardware and software, develop and test a standardized data collection process and reporting procedure.

1. Comprehensive Survey

Coordinate with federal, state, and county programs to implement, maintain, and update a comprehensive statewide inventory of noxious weeds

2. Repository and Provider of Information

ODA should act as the repository and resource for noxious weed information for the state

Objective Eight

Monitoring and Evaluation

The collection of information allows informed decision-making and long-term planning. Monitoring and evaluation directs limited resources toward effective management activities.

Strategy Eight

Monitor noxious weed projects to evaluate effectiveness.

1. Evaluate Projects

Monitor and evaluate projects for effectiveness and improvements.

2. Evaluate Progress

Develop and implement measures of progress in noxious weed management statewide.

Objective Nine

Policy, Mandates, Law, Compliance and Enforcement

Mandates, laws, and policies direct and strengthen the management of noxious weeds. They give authority and direction to resource and land management agencies and heighten the importance of noxious weed management. Oregon weed law gives governing agencies the authority for enforcement and compliance.

Strategy Nine

Use mandates, policy and law to encourage effective weed management

1. Address Current Gaps

Develop law, mandates, and policy to address current gaps.

A. Level of Services by State Agencies

Mandate a level of service for noxious weed management by state natural resource and land management agencies. Include noxious weed management as a part of natural resource management.

- All natural resource agencies should establish a noxious weed coordinator.
- Agencies would be encouraged to assist and cooperate with local and statewide objectives.
- Agencies would be encouraged to develop policy and plans to address the spread and control of noxious weeds.
- Agencies should budget resources to implement noxious weed control plans.

B. Authority Gap

Develop law to address authority gaps in noxious weed enforcement. ODA should have parallel authority with the counties for state “A” listed weeds in order to address weed control of statewide concern where local programs do not exist.

C. Risk Assessment

Develop a formal policy to address risk of introduction of new invasive weeds and potential listing as State “A” listed noxious weeds.

- D. Imports of Invasive Plants
Explore authority and policy to regulate the importation of known or potentially invasive plants.

2. Enforce existing policy and law

- A. Enforce existing noxious weed law
County weed control programs, courts, and weed boards should enforce existing weed laws to assist and address the needs of local interests. County programs should be the primary level of enforcement for noxious weed law (ORS 570).
- B. Enforce Noxious Weed Quarantine
ODA should continue to enforce the recently enacted noxious weed quarantine to prevent sales of state listed noxious weeds (OAR 603-52-1200).

Objective Ten

Funding and Resources

Stable, consistent funding dedicated to noxious weed control is needed. Noxious weed management requires consistent ongoing coordination, planning, and implementation of treatment projects to effectively manage noxious weeds. A recent survey of state and federal natural resource agencies and county weed control programs ranks funding as the primary need for implementing effective weed control projects.

Strategy Ten

Increase base level funding for state, county, local, and federal noxious weed control programs to address priorities identified by the respective programs and to assist private land managers.

The total additional budgetary needs identified by state, county, and federal programs are estimated at \$12.4 million per year. Given the conservative estimate of losses from noxious weeds is identified at \$83 million annually, spending an additional \$5.2 million from state and local sources and \$7.2 million from federal sources would be a prudent investment. The dedication of additional resources towards noxious weed management is supported by the findings of a current economic assessment that accompanies this plan, *Economic Analysis*

of Containment Programs, Damages, and Production Losses From Noxious Weeds in Oregon (see Appendix 3).

1. State Programs

Support priority noxious weed control activities identified by ODA and state natural resource and land management agencies.

A. ODA Noxious Weed Control Program

The ODA weed control program needs additional resources to maintain its professional staff. The cost to restore the statewide role and focus on priorities, as recommended by this plan, is an additional \$375,000 per year.

Priorities Include:

- Providing statewide leadership for noxious weed management
- Developing and coordinating cooperative state, county, and federal projects
- Assisting private landowners
- Providing education, technology transfer, and consultation services
- Implementing biological control projects
- Implementing new invader control and eradication projects
- Implementing survey, inventory and mapping projects
- Implementing prevention programs

B. Oregon State Weed Board (OSWB)

OSWB needs additional funds to address the needs of education, research, and to provide assistance and incentive programs in the form of grants and cost-share. OSWB cost assistance should be used to develop and assist local weed control programs and to address priorities on private lands. Funds are also needed to address needs for weed control education, Integrated Weed Management (IWM) research, weed control emergencies, and grant administration. Additional needs are \$1 million per year for cost-assistance, education, research, weed control emergencies, and grant administration. Maintain existing \$1.1 million per biennium for noxious weed grants.

Priorities for OSWB Include:

- Administering grants for local control projects
- Providing funds for county cost-share and program development
- Funding education and awareness programs
- Funding research for Integrated Weed Management
- Addressing weed control emergencies and special projects

C. State Natural Resource and Land Management Agencies

State natural resource and land management agencies need additional resources to address basic weed control priorities. State agencies estimate the additional need at \$1 million per year (see Appendix 6, Table 4).

Priorities for each Agency Include:

- Establishing and providing noxious weed coordinator position
- Increasing agency awareness
- Developing noxious weed control plans
- Implementing control activities
- Developing and maintaining cooperative partnerships

2. County Programs

Counties need to fund and support local weed control boards and programs. OSWB should have funds for assistance to counties through cost-share, and grants. A basic county noxious weed control program costs about \$150,000 per year. Approximately two thirds of Oregon's 36 counties do not have active programs; thus, the approximate need to correct this shortfall is estimated at \$3.2 million per year.

Priorities Include:

- Developing and coordinating local programs
- Implementing local control projects
- Implementing survey, inventory, and mapping projects
- Assisting private landowners
- Providing education and consultation
- Implementing prevention activities

3. Federal Programs

Support federal noxious weed programs by working with federal agencies, noxious weed working groups, other western states, and congressional delegates to encourage the allocation of additional resources to address noxious weeds on federal lands. Federal agencies estimate an additional \$7.2 million per year is needed to adequately implement weed control programs on federal lands in Oregon (see Appendix 6, Table 5).

A. Oregon Cooperators Can Assist Federal Programs

- Supporting and encouraging federal agencies to develop, fund, and implement noxious weed control projects
- Supporting OSWB and local weed boards to voice concerns and to address federal and national issues (e.g., letters to agency heads, members of Congress)
- Participating in noxious weed work groups (i.e., WWCC, Intermountain Noxious Weed Advisory Council (INWAC), FICMNEW) to assist federal program funding and address national issues

Strategy Eleven

Additional funding sources for weed control programs

1. Explore and Develop Alternative Funding Sources

The introduction and spread of invasive weeds is an unfortunate by-product of human activity. New introductions have increased dramatically in the past decade due to the increased ease and speed of world travel and the expansion of global commerce. Local spread of noxious weeds can be natural with wind, water, and animals; but human activities such as, recreation, vehicle travel, and the movement of contaminated equipment, products, and animals greatly increase the rate and distance of dispersal.

There is a need for funding that is tied to the source and magnitude of the problem. Funding sources are needed that mirror trends in those aspects of weed dispersal that contain a component of risk for weed introduction and spread. The following is a list of examples to provoke thought about alternative funding sources.

A. Imported Plant Material

- A small percentage of intentionally introduced plants have become invasive weeds (e.g. kudzu, Scotch broom, Himalayan blackberry, and purple loosestrife). Weeds

Scotch broom



Pasture heavily infested with Scotch broom

Early settlers of the Pacific Coast introduced Scotch broom as a garden ornamental. It has spread far beyond the bounds of cultivation and covers millions of acres west of the Cascades in the Pacific Northwest.

Yellow starthistle



Yellow starthistle, native to the Mediterranean, was first introduced as a contaminate of alfalfa seed in the 1800s. Oregon now has more than 1.8 million acres infested by this noxious weed.

also hitchhike on imported nursery stock. Since the importation of plants carries a level of risk, this activity should help pay for programs that respond to new weed problems.

- A surcharge could be added to the nursery license fee for importers of plant material. Nursery license fees are currently based on a sliding scale of gross purchases or gross sales. A similar sliding scale fee could be added for imported plants. Nurseries importing a large amount of plant material would pay more; those dealing only in Oregon-grown plants would not pay an additional fee.

B. Imported Seed

- Imported seed often contains small amounts of weed seed. Some weed contaminants will establish and become problems in the future (e.g., small broomrape). The risk associated with seed imports could be offset by adding a surcharge to the seed dealers license related to the amount of imported seed from out-of-state.

C. Trade and Travel

- Weeds hitchhike on vehicles, trucks, railroad cars, boats, ships, and airplanes. Many weeds, like the knapweeds, are “roadrunners” that spread rapidly along roads and railroad tracks. Hydrilla, an aquatic weed not yet established in Oregon, threatens to arrive any day hanging from a boat’s propeller or clinging to its trailer.
- One way of connecting revenues to the source of the problem is to expand the use of the gas tax. Gas taxes are used primarily for highway maintenance in Oregon, but perhaps the definition of highway maintenance should include protecting Oregon’s lands from deleterious weeds that are spread along roadways by cars and trucks. Other examples could include international travel and shipment fees, port fees, fees on driver licenses for new residents, and license fees on ATVs and boats.

Conclusion

How do we fight a “biological wildfire”—the spread of noxious weeds? We are currently losing ground. This is made evident by the economic assessment that was prepared concurrently with this strategic plan, which documents \$83 million in annual losses from just 21 of Oregon’s 99 listed noxious weeds.

This situation threatens to deteriorate further. Support for noxious weed control programs has declined dramatically in the last decade, although there has been an encouraging turnaround at the state and federal levels in the last few years.

The stakeholders that contributed to this strategic plan identified the actions that need to be taken in the future. They are summarized in the objectives and strategies section of this document. Finding additional resources in a time of tight budgets was identified repeatedly as our greatest challenge. Hopefully, the discussion of alternative funding sources will stimulate thought on how support for weed control programs can be linked to activities that cause weed introduction and dispersal. We desperately need this connection; without it, the explosion of problems will continue to outstrip available resources.

Finally, it is essential for all of us to realize that the war on weeds is not lost. Noxious weeds have invaded many parts of Oregon, but large tracts remain that are healthy and free from invasive noxious weeds. Our challenge is to focus our efforts to protect Oregon from new invasions, and to lessen the impact of weeds already established. This strategic plan outlines priorities for a strong and cohesive approach to noxious weed control. Containing a “biological wildfire” is a difficult task, but it can be done. It is important that we be successful in this effort in order to protect the economy and environment that makes Oregon so unique.



Appendices

Oregon Weed Policy and Classification System (Appendix 1)

Noxious weeds, for the purpose of this system, shall be designated “A,” “B,” and/or “T,” according to the ODA Noxious Weed Rating System.

1. “A” designated weed

A weed of known economic importance which occurs in the state in small enough infestations to make eradication/containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent.

- RECOMMENDED ACTION: Infestations are subject to intensive control when and where found.

2. “B” designated weed

A weed of economic importance which is regionally abundant, but which may have limited distribution in some counties. Where implementation of a fully-integrated statewide management plan is infeasible, biological control shall be the main control approach (“B” weeds for which biological control agents are available are identified with an asterisk).

- RECOMMENDED ACTION: Limited to intensive control at the state or county level as determined on a case-by-case basis.

3. “T” designated weed

A priority noxious weed designated by the Oregon State Weed Board as a target weed species on which the Department will implement a statewide management plan.

“A” designated weeds as determined by the Oregon Department of agriculture.

Common Name	Scientific Name
African rue	Peganum harmala
Barbed goatgrass	Aegilops triuncialis
Big-headed knapweed	Centaurea macrocephala
Bulbed goatgrass	Aegilops ventricosa
Camelthorn	Alhagi pseudalhagi
Coltsfoot	Tussilago farfara
Feather-headed knapweed	Centaurea trichocephala
Giant hogweed	Heracleum mantegazzianum
Hydrilla	Hydrilla verticillata
Iberian starthistle	Centaurea iberica
King-devil hawkweed	Hieracium piloselloides
Kudzu	Pueraria lobata
Lepyroclis	Lepyroclis holosteoides
Matgrass	Nardus stricta
Meadow hawkweed	Hieracium pratense

Mouse-ear hawkweed	Hieracium pilosella
Orange hawkweed	Hieracium aurantiacum
Ovate goatgrass	Aegilops ovata
Plumeless thistle	Carduus alanthoides
Purple nutsedge	Cyperus rotundus
Purple starthistle	Centaurea calcitrapa
Short-fringed knapweed	Centaurea nigrescens
Silverleaf nightshade	Solanum elaeagnifolium
Skeletonleaf bursage	Ambrosia tomentosa
Small broomrape	Orobanche minor
Smooth cordgrass	Spartina alterniflora
Smooth distaff thistle	Carthamus baeticus
Spartina	Spartina densiflora
Spartina	Spartina anglica
Squarrose knapweed	Centaurea virgata
Syrian bean-caper	Zygophyllum fabago
Tausch's goatgrass	Aegilops tauschii
Texas blueweed	Helianthus ciliaris
Whitestem distaff thistle	Carthamus leucocaulos
Wild safflower	Carthamus oxycantha
Woolly distaff thistle	Carthamus lanatus
Yellow hawkweed	Hieracium floribundum

“B” designated weeds as determined by the Oregon Department of Agriculture.

Common Name	Scientific Name
Austrian peaweed (Swainsonpea)	Sphaerophysa salsula
Bearded creeper (Common Crupina)	Crupina vulgaris
Biddy-biddy	Acaena novae-zelandiae
Buffaloburr	Solanum rostratum
*Bull thistle	Cirsium vulgare
*Canada thistle	Cirsium arvense
Creeping yellow cress	Rorippa sylvestris
*Dalmation toadflax	Linaria dalmatica
*Diffuse knapweed	Centaurea diffusa
Dodder	Cuscuta spp.
Dyers woad	Isatis tinctoria
Eurasian watermilfoil	Myriophyllum spicatum
Field bindweed	Convolvulus arvensis
French broom	Cytisus monspessulanas
Giant horsetail	Equisetum telmateia
Giant knotweed	Polygonum sachalinense
*Gorse	Ulex europaeus
Hairy white top	Cardaria pubescens
Halogeton	Halogeton glomeratus
Himalayan blackberry	Rubus discolor (procerus)
Himalayan knotweed	Polygonum polystachyum
Houndstongue	Cynoglossum officinale
*Italian thistle	Carduus pycnocephalus

Japanese knotweed (Fleece flower)	<i>Polygonum cuspidatum</i>
Johnsongrass	<i>Sorghum halepense</i>
Jointed goatgrass	<i>Aegilops cylindrica</i>
Kochia	<i>Kochia scoparia</i>
*Leafy spurge	<i>Euphorbia esula</i>
Lens-podded white top	<i>Cardaria chalapensis</i>
*Meadow knapweed	<i>Centaurea pratensis</i>
*Mediterranean sage	<i>Salvia aethiopis</i>
Medusahead rye	<i>Taeniatherum caput-medusae</i>
*Milk thistle	<i>Silybum marianum</i>
*Musk thistle	<i>Carduus nutans</i>
Perennial pepperweed	<i>Lepidium latifolium</i>
*Poison hemlock	<i>Conium maculatum</i>
Portugese broom	<i>Cytisus striatus</i>
*Puncturevine	<i>Tribulus terrestris</i>
*Purple loosestrife	<i>Lythrum salicaria</i>
Quackgrass	<i>Agropyron repens</i>
Ragweed	<i>Ambrosia artemisiifolia</i>
*Rush skeletonweed	<i>Chondrilla juncea</i>
*Russian knapweed	<i>Centaurea repens</i>
*Scotch broom	<i>Cytisus scoparius</i>
Scotch thistle	<i>Onopordum acanthium</i>
*Slender-flowered thistle	<i>Carduus tenuiflorus</i>
South American waterweed (Elodea)	<i>Elodea (=egeria) densa</i>
Spartina	<i>Spartina patens</i>
Spanish broom	<i>Spartium junceum</i>
Spikeweed	<i>Hemizonia pungens</i>
Spiny cocklebur	<i>Xanthium spinosum</i>
*Spotted knapweed	<i>Centaurea maculosa</i>
*St. Johnswort (Klamath weed)	<i>Hypericum perforatum</i>
Sulfur cinquefoil	<i>Potentilla recta</i>
Tamarix	<i>Tamarix ramosissima</i>
*Tansy ragwort	<i>Senecio jacobaea</i>
Velvetleaf	<i>Abutilon theophrasti</i>
White top (Hoary cress)	<i>Cardaria draba</i>
Wild proso millet	<i>Panicum miliaceum</i>
Yellow nutsedge	<i>Cyperus esculentus</i>
*Yellow starthistle	<i>Centaurea solstitialis</i>
*Yellow toadflax	<i>Linaria vulgaris</i>

The Oregon Department of Agriculture “T” or target list.

The Oregon Department of Agriculture annually develops a target list of weed species that will be the focus of control by the Weed Control Program, sanctioned by the Oregon State Weed Board. Because of the economic threat to the state of Oregon, action against these weeds will receive priority.

Common Name	Scientific Name
Gorse	Ulex europaeus
Iberian starthistle	Centaurea iberica
Leafy spurge	Euphorbia esula
Purple starthistle	Centaurea calcitrapa
Rush skeletonweed	Chondrilla juncea
Spotted knapweed	Centaurea maculosa
Squarrose knapweed	Centaurea virgata
Tansy ragwort	Senecio jacobaea
Woolly distaff thistle	Carthamus lanatus
Yellow hawkweed	Hieracium floribundum
Yellow starthistle	Centaurea solstitialis

Executive Order (Appendix 2)

THE WHITE HOUSE
Office of the Press Secretary
For Immediate Release
EXECUTIVE ORDER

February 3, 1999

INVASIVE SPECIES

By the authority vested in me as President by the Constitution and the laws of the United States of America, including the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.), Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C.4701 et seq.), Lacey Act, as amended (18 U.S.C. 42), Federal Plant Pest Act (7 U.S.C. 150aa et seq.), Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2801 et seq.), Endangered Species Act of 1973, as amended (16U.S.C. 1531 et seq.), and other pertinent statutes, to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause, it is ordered as follows:

Section 1. Definitions.

- (a) “Alien species” means, with respect to a particular ecosystem, any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem.
- (b) “Control” means, as appropriate, eradicating, suppressing, reducing, or managing invasive species populations, preventing spread of invasive species from areas where they are present, and taking steps such as restoration of native species and habitats to reduce the effects of invasive species and to prevent further invasions.
- (c) “Ecosystem” means the complex of a community of organisms and its environment.
- (d) “Federal agency” means an executive department or agency, but does not include independent establishments as defined by 5 U.S.C. 104.
- (e) “Introduction” means the intentional or unintentional escape, release, dissemination, or placement of a species into an ecosystem as a result of human activity.
- (f) “Invasive species” means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.
- (g) “Native species” means, with respect to a particular ecosystem, a species that, other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.
- (h) “Species” means a group of organisms all of which have a high degree of physical and genetic similarity, generally interbreed only among themselves, and show persistent differences from members of allied groups of organisms.
- (i) “Stakeholders” means, but is not limited to, State, tribal, and local government agencies, academic institutions, the scientific community, nongovernmental entities including

environmental, agricultural, and conservation organizations, trade groups, commercial interests, and private landowners.

- (j) “United States” means the 50 States, the District of Columbia, *Puerto Rico, Guam, and all possessions, territories, and the territorial sea of the United States.

Section 2. Federal Agency Duties.

- (a) Each Federal agency whose actions may affect the status of invasive species shall, to the extent practicable and permitted by law,
 - (1) identify such actions;
 - (2) subject to the availability of appropriations, and within Administration budgetary limits, use relevant programs and authorities to: (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them; and
 - (3) not authorize, fund, or carry out actions that it believes are likely to cause or promote the introduction or spread of invasive species in the United States or elsewhere unless, pursuant to guidelines that it has prescribed, the agency has determined and made public its determination that the benefits of such actions clearly outweigh the potential harm caused by invasive species; and that all feasible and prudent measures to minimize risk of harm will be taken in conjunction with the actions.
- (b) Federal agencies shall pursue the duties set forth in this section in consultation with the Invasive Species Council, consistent with the Invasive Species Management Plan and in cooperation with stakeholders, as appropriate, and, as approved by the Department of State, when Federal agencies are working with international organizations and foreign nations.

Section 3. Invasive Species Council.

- (a) An Invasive Species Council (Council) is hereby established whose members shall include the Secretary of State, the Secretary of the Treasury, the Secretary of Defense, the Secretary of the Interior, the Secretary of Agriculture, the Secretary of Commerce, the Secretary of Transportation, and the Administrator of the Environmental Protection Agency. The Council shall be Co-Chaired by the Secretary of the Interior, the Secretary of Agriculture, and the Secretary of Commerce. The Council may invite additional Federal agency representatives to be members, including representatives from subcabinet bureaus or offices with significant responsibilities concerning invasive species, and may prescribe special procedures for their participation. The Secretary of the Interior shall, with concurrence of the Co-Chairs, appoint an Executive Director of the Council and shall provide the staff and administrative support for the Council
- (b) The Secretary of the Interior shall establish an advisory committee under the Federal Advisory Committee Act, 5 U.S.C. App., to provide information and advice for consideration

by the Council, and shall, after consultation with other members of the Council, appoint members of the advisory committee representing stakeholders. Among other things, the advisory committee shall recommend plans and actions at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of this order. The advisory committee shall act in cooperation with stakeholders and existing organizations addressing invasive species. The Department of the Interior shall provide the administrative and financial support for the advisory committee.

Section 4. Duties of the Invasive Species Council.

The Invasive Species Council shall provide national leadership regarding invasive species, and shall:

- (a) oversee the implementation of this order and see that the Federal agency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective, relying to the extent feasible and appropriate on existing organizations addressing invasive species, such as the Aquatic Nuisance Species Task Force, the Federal Interagency Committee for the Management of Noxious and Exotic Weeds, and the Committee on Environment and Natural Resources;
- (b) encourage planning and action at local, tribal, State, regional, and ecosystem-based levels to achieve the goals and objectives of the Management Plan in section 5 of this order, in cooperation with stakeholders and existing organizations addressing invasive species;
- (c) develop recommendations for international cooperation in addressing invasive species;
- (d) develop, in consultation with the Council on Environmental Quality, guidance to Federal agencies pursuant to the National Environmental Policy Act on prevention and control of invasive species, including the procurement, use, and maintenance of native species as they affect invasive species;
- (e) facilitate development of a coordinated network among Federal agencies to document, evaluate, and monitor impacts from invasive species on the economy, the environment, and human health;
- (f) facilitate establishment of a coordinated, up-to-date information-sharing system that utilizes, to the greatest extent practicable, the Internet; this system shall facilitate access to and exchange of information concerning invasive species, including, but not limited to, information on distribution and abundance of invasive species; life histories of such species and invasive characteristics; economic, environmental, and human health impacts; management techniques, and laws and programs for management, research, and public education; and
- (g) prepare and issue a national Invasive Species Management Plan as set forth in section 5 of this order.

Section 5. Invasive Species Management Plan.

- (a) Within 18 months after issuance of this order, the Council shall prepare and issue the first edition of a National Invasive Species Management Plan (Management Plan), which shall detail and recommend performance-oriented goals and objectives and specific measures of

success for Federal agency efforts concerning invasive species. The Management Plan shall recommend specific objectives and measures for carrying out each of the Federal agency duties established in section 2(a) of this order and shall set forth steps to be taken by the Council to carry out the duties assigned to it under section 4 of this order. The Management Plan shall be developed through a public process and in consultation with Federal agencies and stakeholders.

- (b) The first edition of the Management Plan shall include a review of existing and prospective approaches and authorities for preventing the introduction and spread of invasive species, including those for identifying pathways by which invasive species are introduced and for minimizing the risk of introductions via those pathways, and shall identify research needs and recommend measures to minimize the risk that introductions will occur. Such recommended measures shall provide for a science-based process to evaluate risks associated with introduction and spread of invasive species and a coordinated and systematic risk-based process to identify, monitor, and interdict pathways that may be involved in the introduction of invasive species. If recommended measures are not authorized by current law, the Council shall develop and recommend to the President through its Co-Chairs legislative proposals for necessary changes in authority.
- (c) The Council shall update the Management Plan biennially and shall concurrently evaluate and report on success in achieving the goals and objectives set forth in the Management Plan. The Management Plan shall identify the personnel, other resources, and additional levels of coordination needed to achieve the Management Plan's identified goals and objectives, and the Council shall provide each edition of the Management Plan and each report on it to the Office of Management and Budget. Within 18 months after measures have been recommended by the Council in any edition of the Management Plan, each Federal agency whose action is required to implement such measures shall either take the action recommended or shall provide the Council with an explanation of why the action is not feasible. The Council shall assess the effectiveness of this order no less than once each 5 years after the order is issued and shall report to the Office of Management and Budget on whether the order should be revised.

Section 6. Judicial Review and Administration.

- (a) This order is intended only to improve the internal management of the executive branch and is not intended to create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any other person.
- (b) Executive Order 11987 of May 24, 1977, is hereby revoked.
- (c) The requirements of this order do not affect the obligations of Federal agencies under 16 U.S.C. 4713 with respect to ballast water programs.
- (d) The requirements of section 2(a)(3) of this order shall not apply to any action of the Department of State or Department of Defense if the Secretary of State or the Secretary of Defense finds that exemption from such requirements is necessary for foreign policy or national security reasons.

WILLIAM J. CLINTON
THE WHITE HOUSE,
February 3, 1999.

Economic Assessment Executive Summary (Appendix 3)

Economic Analysis of Containment Programs, Damages, and Production Losses From Noxious Weeds in Oregon

Prepared for: Oregon Department of Agriculture
Plant Division, Noxious Weed Control Program, November 2000

Prepared by: Hans D. Radtke and Shannon W. Davis
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In 1999 the 70th Oregon Legislative Assembly passed House Bill 2118, which instructed the Oregon Department of Agriculture (ODA) to develop a strategic plan to address the growing problem of invasive noxious weeds. As part of the strategic planning process, ODA and Oregon State University (OSU), through the Oregon Agriculture Research Foundation, conducted an economic study to assess the impacts of 21 of the 99 weeds listed in Oregon as noxious. This study focused on two aspects of concern: the existing impacts on Oregon's resources of several noxious weeds, and the potential impacts caused by continuing invasion and expansion of noxious weeds. This analysis was a reconnaissance study that identifies the scope of the problem of noxious/invasive weeds in Oregon. The results may be used to educate resource managers and the public of the seriousness of the weed problem.

All of Oregon's listed noxious weeds, with perhaps two minor exceptions, are alien plant species, introduced here from other parts of the world. This is true, generally, of Oregon's neighboring states also, and the invasion of foreign plant species is an ongoing phenomenon. Some noxious weeds were introduced long ago and have since spread as widely as they might be expected to, but the majority have not yet reached their full potential, either in range or in their ultimate impact.

The impacts of noxious weeds on Oregon's economy and natural resources are many and varied. They can poison livestock and pets, increase fire hazard, compete with desirable plants, require investment of effort and resources for control, reduce the suitability of wildlife habitats, and change the nature and composition of plant communities. Because the impacts are so diverse, estimating and quantifying them is a challenge, and this study is therefore limited. We used existing data and, in estimating productivity losses, have limited the scope of the study to 14 species affecting rangelands, two species affecting both rangeland and farmland, two species affecting forests and three species affecting wetlands.

These 21 species, identified by the ODA staff for evaluation, presently reduce Oregon's total personal income by about \$83 million (Table E1 and Figure E1). This is equivalent to 3,329 annual jobs lost to Oregon's economy from the production foregone by the presence of these noxious weeds. Lost income and jobs from all 99 weeds listed in Oregon as noxious is most likely much

higher than this figure. The potential impacts of continued invasion and spread of noxious weed species was evaluated through examination of six identified species (Table E1). The invasive growth of these six identified species alone could reduce Oregon's personal income another \$54 million and reduce annual jobs by another 2,143.

In terms of economic value, both the existing and potential invasive weeds are costing Oregon citizens a total of about \$100 million per year (Figure E2). This is equivalent to an asset value of about one billion dollars. This means that the value of Oregon's resources may be reduced by as much as one billion dollars from these noxious weeds. This evaluation includes 21 of the 99 species classified as noxious weeds by the ODA. The economic effect of all 99 noxious weeds is expected to be significantly greater than that of the 21 identified species.

Previous work completed for the ODA on specific weed management programs concluded that the biological control of tansy ragwort produced a 13:1 benefit-cost ratio for the State of Oregon. The present analysis included an evaluation of three potential biological control and containment programs, and provided a perspective from which to extrapolate for programs aimed at other Oregon noxious weeds. A biological control program to control knapweeds may provide a benefit-cost ratio of 7.8. A program to exclude six identified potential invaders from Oregon may produce a benefit-cost ratio of 34:1. A program aimed at producing a biological agent to contain and reduce Scotch broom infestation by 10 percent may produce a benefit-cost ratio of 4.7 annually. These evaluations were completed with very limited information and data. Much more detailed analysis should be performed on potentially troublesome weeds where exclusion, containment, and eradication programs can be identified.

Authorities (Appendix 4)

Federal Authorities

The following federal laws and strategies comprise the primary authority for federal agency regulation and management of noxious weeds in the United States.

The Plant Protection Act (PPA) of 2000.

- The PPA was signed into law on June 20, 2000. This act consolidates, supersedes and amends 10 of the U.S. Department of Agriculture's laws into a single, comprehensive statute.

Federal Noxious Weed Act of 1974 [Public Law 93629 (U.S.C. 2801 et. Seq.; 88 stat. 2148)]. The Amendment to the Federal Noxious Weed Act 1990.

- Directs federal agencies to implement noxious weed control programs.

Nonindigenous Aquatic Nuisance Species Prevention and Control Act of 1990. Title I of P.L. 101-646 (104 Stat. 4761, 16 U.S.C. 4701).

- Federal program to prevent introduction and control of spread of aquatic nuisance species.

Carlson-Foley Act of 1968.

- Directs agency heads to enter upon lands under their jurisdiction with noxious plants and destroy noxious plants growing on such land.

Federal Plant Pest Act 1957 (7 U.S.C. 147a).

- Authorizes the Secretary of Agriculture to detect, eradicate, suppress, control, prevent, or retard the spread of pest plants from a foreign country and provides for inspections, seizures, and emergency measures, such a quarantines to protect American agriculture.

Organic Act of 1944 (7 U.S.C. 147a).

- Authorizes the Secretary of Agriculture to detect, eradicate, suppress, control, prevent, or retard the spread of plant pests in the United States.

Federal Seed Act 1939 (7 U.S.C. 15511611).

- Regulates the interstate and foreign commerce in seeds, and addresses "noxious weed seeds" that may be present in agricultural and vegetable seed.

Executive Order 13112 On Invasive Species, February 3,1999. (Appendix 1.1)

Federal Noxious Weed List

- USDA-APHIS maintains the Federal Noxious Weed List under the authority of the Federal Noxious Weed Act.

BLM Noxious Weed Strategy for Oregon and Washington (August 1994).

BLM "Partners Against Weeds (January 1996). BLM National Strategy for noxious weed management.

"Pulling Together" National Strategy for Invasive Plant Management (March 1998).

"Stemming The Invasive Tide" Forest Service Strategy for Noxious and Nonnative Invasive Plant Management (September 1998).

State Authorities

The following Oregon Revised Statutes (ORS), Oregon Administrative Rule (OAR), and policy are the primary sources of authority for noxious weed control by state and county agencies.

Chapter 452: Vector and Weed Control

- Ragweed Control, ORS 452.510-.590
- Tansy Ragwort Control, ORS 452.610-.630

Chapter 561: State Department of Agriculture

- Quarantine Power, ORS 561.510-.600
- Oregon State Weed Board, ORS 561.650-.680

Chapter 570: Plants; Inspection, Quarantine, Pest and Weed Control

- Weed Control, ORS 570.500-.600

OAR: 603-52-1200: Noxious Weed Quarantine

- Establishes a quarantine on state-listed noxious weed. Prohibits entry into the State; prohibits transport, purchase, sale or offering for sale in the State of; and prohibits propagation of listed weed in the State.

Noxious Weed Policy and Classification System

- Purpose: 1) Act as the ODA's official guideline for implementing and prioritizing noxious weed control programs. 2) Assist the ODA in the distribution of available funds for county assistance. 3) Serve as a model for the private sector in developing noxious weed classification systems.

Integrated Weed Management (IWM) Methods (Appendix 5)

The ODA approaches noxious weed control with an integrated, multi-disciplinary approach (Integrated Weed Management). Integrated Weed Management (IWM) is a decision making process based on the best available science and experience of weed managers. Control options are based on site specific information and the best strategy or combinations of strategies for effective management are chosen. Integrated Weed Management uses all available methods and techniques for noxious weed control including prevention, mechanical, cultural, chemical and biological control.

Prevention

- Prevention and early intervention are methods that prohibit noxious weed introduction, establishment, and spread. Prevention is a first line of defense and is often the most effective technique that can be deployed against weeds. Prevention methods stop or reduce the distribution of reproductive plant parts to uninfested areas. Prevention activities include minimizing soil disturbance; reseeding disturbed sites; use of weed-free feed, mulch, and planting stock; and cleaning of equipment to minimize their movement and spread.

Biological Control

- Biological control is the purposeful introduction of selected natural enemies to reduce the population density of targeted pest species below economic and ecological injury levels. This is the re-association of an exotic pest with its natural enemies. Biological control of noxious weeds is and continues to be the major emphasis of IWM programs in Oregon. The ODA and cooperators collect and redistribute 67 biological control agents for 30 targeted noxious weeds. Acquiring and introducing new biocontrol agents, monitoring of weed populations, and the introduction of biological agents into appropriate areas is a primary objective throughout the state.

Mechanical

- Mechanical control is the use of physical methods to control weeds. These methods are important for use in an integrated control program. Manual and mechanical control can be used in sensitive areas where chemicals are not appropriate or on small infestations where biological control and chemical application are not practical.

Cultural Control

- Many weeds contribute to the degradation of natural resources. Weeds may also be a symptom of degradation caused by other factors. Either way, it is important that the cause of the weed problem be identified and treated. The use of land management activities that favor desirable vegetation and reduce or hinder the spread and establishment of weeds are cultural control methods. The use of competitive planting, grazing practices, fertility management, and sanitation are all examples of cultural methods.

Chemical

- The use of herbicides are an effective method of control and are often the only feasible means of control once a noxious weed has been introduced. Herbicides will continue to be an important and useful tool as part of an IWM program. Herbicides have proven successful at eradicating new introductions of noxious weed species and containing larger or wider spread infestations.

Tables (Appendix 6)

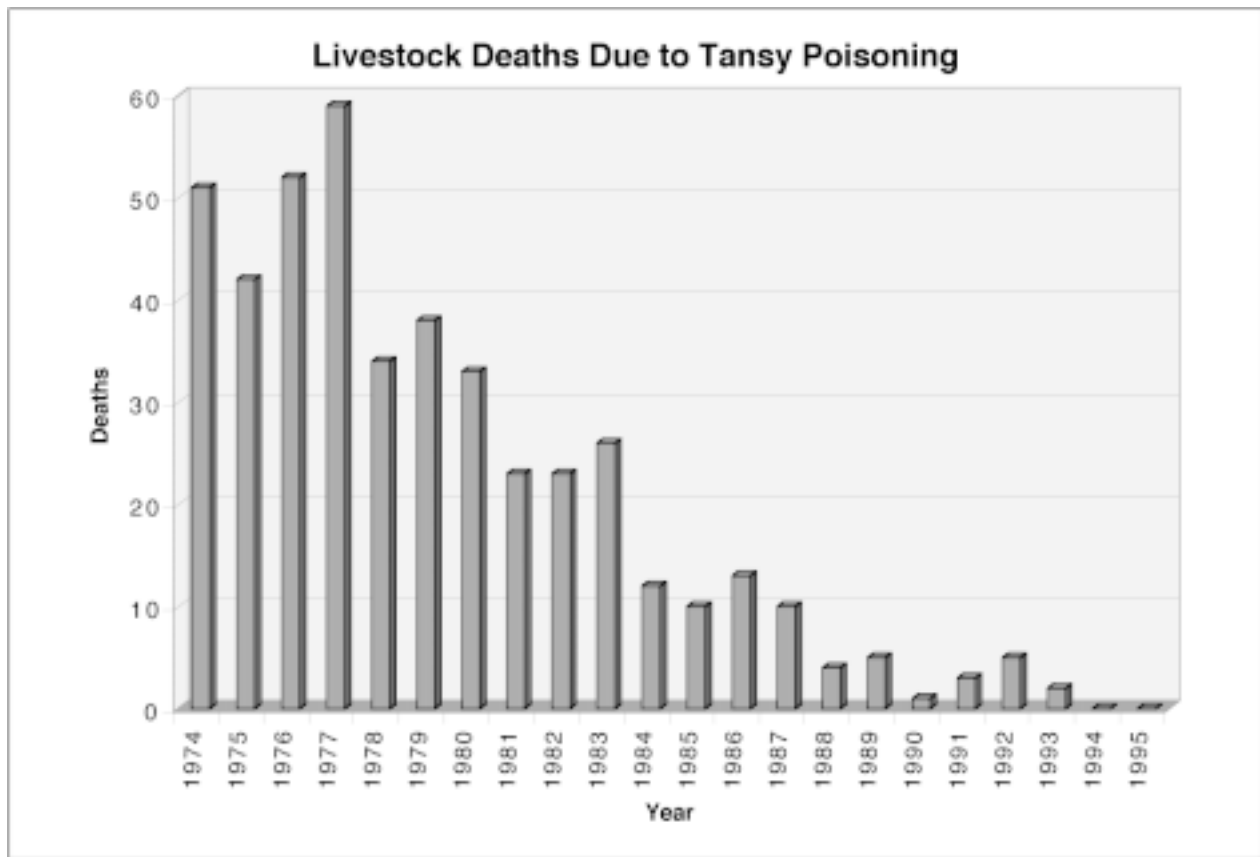


Table 1: Livestock Deaths Due to Tansy Poisoning

		Budget		Agencies Role in Noxious Weed Management
		Current Budget	Est. Need to Fund	Role & Responsibility
OD A A N D C O U N T I E S	ODA Noxious Weed Control Program	380,000 General Fund	750,000	ODA's primary role is to protect Oregon's natural resources from the invasion and proliferation of exotic noxious weeds. This includes providing statewide leadership, coordination and implementation of integrated weed management projects with public and private sectors; conduction of surveys to detect and delimit noxious weeds; implementation and coordination of biological control of weed projects; and provide education, awareness and technology transfer to cooperators on integrated weed management.
	Oregon State Weed Board (OSWB)	1.1 Million Lottery Dollars	2.1 Million	The OSWB is a seven member board appointed by the Director of Agriculture. The OSWB shall; identify and prioritize a list of noxious weeds in the state for action by weed control programs; assist the Director of Agriculture in allocation of monies made available the department to assist noxious weed control efforts of various counties and advise the director in performing duties, and functions assigned to the State Department of Agriculture.
	County Weed Programs	2.6 Million	5.8 Million	Counties have the primary role to implement and coordinate noxious weed control efforts at the local level. This includes education of local managers on integrated weed management, and implementation of integrated weed control projects. It is most effective for counties to be the leaders in implementation of noxious weed control efforts at the local level.

Table 2: Roles and Responsibilities, State Department of Agriculture and Counties

UNIVERSITIES & RESEARCH CENTERS	Budget		Agencies Role in Noxious Weed Management
	Current Budget	Est. Need to Fund	Role & Responsibility
Oregon State University (OSU)	Not Available	200,000	Oregon State University provides education and research on noxious weeds and cooperators with ODA's Noxious Weed Control Program. OSU needs to commit more resources, people and money to this effort. OSU weed scientist have acted in an advisory role to ODA Noxious Weed Program.
Oregon State University Extension	Not Available	Not Available	OSU Extension provides educational materials and information concerning noxious weed management on a statewide basis. Written educational materials include weed identification and control fact sheets. The PNW weed handbook, and publications related to specific issues. County extension faculty answer noxious weed questions and issues on a daily basis. Campus extension specialists provide educational presentations and publications, and conduct applied research on the management of noxious weeds.
Portland State University (PSU)	0	150,000	PSU provides technical assistance and management planning for aquatic weeds. This work is done under contracts with ODA and other agencies.
Agricultural Research Center (USDA/ARC)	Not Available	Not Available	We conduct research and provide information to assist noxious weed management.

Table 3: Roles and Responsibilities, Universities and Research Centers

	Budget		Agencies Role in Noxious Weed Management	
	Current Budget	Est. Need to Fund	Role & Responsibility	
OREGON STATE NATURAL RESOURCE AGENCIES	Division of State Lands (DSL)	5,000	60,000	DSL is responsible for managing approx. 640,000 acres of land, primarily rangelands in Southeastern Oregon. Programs administered on these lands include grazing, agriculture, minerals, wildlife, recreation and forest management. The Division is committed to the sustained yield of these natural resources and providing recreational opportunities on public land. The Division has contributed limited resources for noxious weed management through cooperative efforts with private landowners, non-profit organizations and federal agencies.
	Department of Fish & Wildlife (ODFW)	200,000	800,000	The Oregon Department of Fish and Wildlife manages 200,000 acres of timber/ag/range lands. For ODFW to successfully provide native habitats for native species it is imperative that invasive/noxious plant species be controlled.
	Department of Transportation (ODOT)	Not Available	Not Available	The Oregon Dept. of Transportation (ODOT) is comprised of 5 regions and 15 districts, and is responsible for managing approx. 70,000 acres of roadside vegetation. ODOT's mission is to act in the public interest and provide an efficient and safe transportation system. In addition, ODOT works to preserve Oregon's natural environment. As an agency with pest control responsibilities, ODOT will strive to meet noxious weed control objectives through the elements of Integrated Pest Management. ODOT will employ all available control methods to meet the desired condition for noxious weeds on ODOT properties.
	Parks and Recreation (OPRD)		250,000	OPRD basic policy is to manage it's lands to protect and enhance natural, scenic, cultural, historic and recreational values. OPRD provides these recreational sites for the enjoyment and education of present and future generations. OPRD manages approx. 228 properties, covering approx. 94,000 acres and 92 Willamette River Greenway properties. Park properties are divided into 29 management units. Park facilities are located in both urban and rural/wild land locations. Annual attendance at OPRD day use areas exceeds 38 million and over 2.1 million visitors in overnight camping facilities. Consequently, each park management unit has developed and Integrated Pest Management plan and practices the principles of IPM, which is vital to maintaining the quality recreational experiences OPRD provides to the public.
	Watershed Enhancement Board (OWEB)	1,500,000	Not Available	Funding for local watershed improvement or educational outreach efforts.
	Department of Forestry (ODF)		Not Available	The Board of Forestry has authority to act on all matters related to forest policy in the state. The Department of Forestry is both a manager of state forestlands and is responsible for encouraging and regulating management on private forestlands. Since the Department of Agriculture has taken the lead in addressing noxious weed management in Oregon, the Department of Forestry will work with them to coordinate efforts on forestlands in Oregon.

Table 4: Roles and Responsibilities, Oregon State Natural Resource Agencies

		Budget		Agencies Role in Noxious Weed Management		
		Budget	Fund	Role & Responsibility		
F E D E R A L L A N D M A N A G I N G A G E N C I E S	United States Department of Interior	Bureau of Land Management (BLM)	1,500,000	3,500,000	BLM's strategy is to prevent and control the spread of noxious weeds on BLM lands through cooperation with all partners (Partners Against Weeds Action PLAN). One of our highest order goals is ecosystem health and maintaining or restoring healthy ecosystems. OR/WA BLM structure is a state office in Portland, plus 10 district offices (includes numerous attached field office staffs plus 4 detached field offices).	
		Bureau of Indian Affairs (BIA) Confederated Tribes of Warm Springs (CTWS)	100,000	200,000	CTWS & BIA have long been in the noxious weed management business. For the past 10 years the CTWS/BIA have been attempting to hold in-check noxious weeds on 650,000 acres in the state of Oregon. New weeds are appearing every year, however brought through Highway 26 and navigable river systems within and adjacent to Reservation Lands. Federal budgets are 50% less than they were in the 80's and weed populations have doubled. Warm Springs is unique in its land base, watersheds and resources (androgynous fish populations). Noxious weed management and control have come to the forefront in management planning and implementation efforts. Noxious weeds are managed through Integrated Resource Management Plans, and managed through IPM process.	
		US Fish & Wildlife	200,000	1,000,000	Land management on national wildlife refuges and national fish hatcheries, including noxious weeds, invasive species (terrestrial/aquatic); surveillance for invasive species threats from watersheds, adjacent ecosystems, counties, and states and integrated pest / weed management on above lands.	
		U.S. Department of Agriculture	Animal & Plant Health Inspection Service (APHIS)	Not Available	Not Available	APHIS's role in Noxious Weed Management is to assist states and organizations where ever possible, through technical assistance, funding (where possible), facilitating importation of biocontrol agents through the permitting process, research, and quarantine processes. The new Plant Protection Act gives USDA stronger authority in dealing with noxious weeds, but exact regulations will be formulated over the next couple of years. APHIS - PPQ is supposedly a lead agency in dealing with invasive alien species. Both budget and clear direction is still forthcoming. PPQ is the regulatory agency in charge of our borders and ensuring noxious weeds are not knowingly transported across state borders. Funding and staffing suffers this activity.
			United States Forest Service (USFS)	350,000	2,000,000	Pacific Northwest Region FS is responsible for IWM on NF lands in OR & WA, including cooperative efforts with state and local governments and private land owners.
		U.S. Department of Energy	Bonneville Power Administration	100,000	400,000	As a land manager of approx. 50,000 acres of powerline corridors throughout Oregon, the importance of control in the spread of noxious weeds is essential to protecting the land. The corridors by nature act as vectors throughout the state. Controlling infestations here can greatly help prevent the spread of noxious weeds. The agency has focused on vegetation management by controlling trees from reaching powerlines with less emphasis given to managing weeds. Some regional NRSs have tried to address weed issues as part of our IVM program. Recent Environmental Impact Statement (EIS) has highlighted noxious weed problems and the agency plans to move forward to address those problems.
		U.S. Department of Defense	Army Corps	Not Available	Not Available	It is the policy of the Corps of Engineers to manage its property with a stewardship concept that focuses on sustaining ecosystems. The Corps gives preferential treatment to managing ecosystems, communities and habitats having special status species. Portland District manages 20 flood control, hydropower and navigation projects in the Rogue and Willamette River basins and along the lower Columbia River. By policy, the Corps manages land surrounding its reservoirs to minimize the degradation of natural resources and to restore habitats damage by improper or over utilization. Unacceptable pest populations (including noxious weeds) are to be identified and control programs adopted. Cooperative monitoring and control arrangements with other agencies are encouraged.

Table 5: Roles and Responsibilities, Federal Land Management Agencies

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