

Gorse Action Group

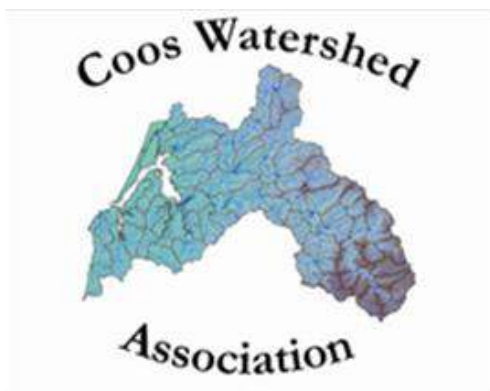
Comprehensive Multi-level Gorse Management Plan for the Southern Oregon Coast

Version 1 Final Draft (Updated 22 January 2018)



Coos Watershed Association
186 N. 8th Street/PO Box 388
Coos Bay, Oregon 97420

Gorse Action Group
Email: gorseactiongroup@gmail.com
Website: <http://gorseactiongroup.org/>



Cover photo: Gorse infestation, south of Elk River, Curry County, Oregon. Photo credit: Wyatt Williams, Oregon Department of Forestry, 2014

Document prepared by: Kim Goodwin, Affiliate of Land Resources and Environmental Sciences Department, Montana State University, Bozeman, 59771

Suggested citation:

Goodwin, K. 2018. Comprehensive Multi-level Gorse Management Plan for the Southern Oregon Coast, Version 1 Final Draft (updated 22 January 2018). Gorse Action Group in association with Coos Watershed Association, Coos Bay, OR. 36 pp with appendices.

This plan was developed under the leadership of Elizabeth Galli-Noble, Executive Director, Coos Watershed Association and Cynthia Park, Project Manager, Coos Watershed Association with grateful acknowledgement of the cooperation of the Gorse Action Group, specifically the Coos County Noxious Weed Control District Advisory Board, Curry Soil & Water Conservation District, Oregon Department of Agriculture, Oregon Parks and Recreation Department, and the Bureau of Land Management, Coos Bay District.

USE OF THIS PLAN

This work is a comprehensive, landscape scale plan developed as a master set of actions to guide an integrated long-term approach to effectively manage gorse (*Ulex europaeus* L., Fabaceae) in the southern Oregon coast region. Gorse is a worsening and complex long-term problem. A system-wide comprehensive approach is therefore required that accounts for ecological principles, land use and management, and policy support to improve gorse management and continually adapt and maintain these improvements over time.

This long-term, landscape scale plan of action, by its nature, will function as a roadmap or working document. The use of this plan will require an accompanying annual operation plan to carry out the highest priority actions or “personalize” stakeholder activities to site-specific conditions. For example, delineating and implementing the following management zones at various scales will be necessary for long-term success. Ideally, management zone operation would be guided by site-specific integrated management plans, which focus on approved gorse management techniques (see page 25) and are implemented under the South Coast Cooperative Weed Management Area:

1. Eradication zones with outlier infestations where managers actively eradicate small populations and prevent new infestations; and
2. Control zones with widespread infestations where managers contain, and where possible, reduce core infestations, and prevent spread.

Some actions proposed in this plan may be readily implemented or accomplished in a short time period and within the existing finances and framework. Other actions will require longer term strategic or operational planning to gather data, establish task forces and work plans, or identify and secure funding, for example. It is also the case that some actions will not be implemented at all and that many actions will be revised. None of the actions in the Gorse Management Plan are mandatory. Each suggested action is optional and included only to provide approaches and actions to consider on future strategic directions for success.

The aim of this plan is to integrate regional needs and concerns with strategies built on local resources and local knowledge and experience. The continued development of the Gorse Management Plan will require workshops with land managers and community members. Encouraging stakeholders and partners to contribute to regular plan revisions will continue their ongoing adaptation to changing ecological, social, and economic conditions.

MISSION STATEMENT

To restore natural and ecological values to the land, increase economic and recreational values in the region, and improve public safety by reducing gorse populations and associated wildfire risk.

VISION STATEMENT

Through community commitment and responsibility, the spread of gorse is abated and the region's economic, environmental, and social assets are protected.

GORSE ACTION GROUP OVERVIEW

In 2013 during the annual USDA, NRCS Coos-Curry County Local Work Group meeting, land managers concerned about the widespread gorse problem along the southern Oregon coast initiated the Gorse Action Group (GAG) as a subdivision of the Curry Wildfire Preparation Team (CWPT). The CWPT is an interagency group addressing wildfire issues and hazardous fuel reductions in Curry County, including treatments of gorse, a highly flammable invasive shrub and State-listed noxious weed. Given the scope and complexity of the gorse problem, GAG stakeholders recently decided to pursue a focused initiative on gorse control. The shift to an independent noxious weed management effort, focusing on a comprehensive approach that addresses the whole system of ecology, management, and policy, aims to advance practice in prevention and improved control of gorse in the region.

The impetus and drive for improved management of gorse is being led by GAG, a diverse group of stakeholders pooling resources and working toward common and collaborative solutions to address the shared gorse problem. The group is represented by landowners and private parties, non-profit organizations, and federal, state, and county agencies in Coos, Curry, and Douglas counties (see panel 1). Successful efforts led by GAG and its partners in only the last few years have resulted in seed funding for gorse control projects, expanded stakeholder representation, additional federal, county, and private funding, demonstration projects, education and outreach materials, as well as fire planning in local municipalities to reduce gorse fuels, for example efforts to control the 250 acre "Donut Hole" infestation located in the city of Bandon. And most importantly, GAG has led the charge in both developing a management plan for gorse (this plan) and undertaking a mapping project to document the distribution and relative abundance (density) of gorse using ground-based and aerial methods. A comprehensive distribution and abundance map of gorse is a critical first step for long-term planning and sustainable management.

In 2016 Oregon Governor Brown officially designated the mitigation of gorse as an Oregon Solutions Project on 7 December 2016 following a request from community leaders in the southern Oregon coast region and GAG. Oregon Solutions is a statewide program that provides assistance to communities to develop partnerships and sustainable solutions to local problems through collaboration among stakeholders. The Oregon Solutions Declaration of Cooperation, finalized in December 2017, is a statement of the commitment and cooperation of more than 30 multi-level stakeholders (Appendix 1). It is the consensus opinion of GAG that a consistent, coordinated approach to gorse prevention and control among public and private land managers will reduce gorse populations and associated impacts on the community and environment.

Panel 1: Current partners of the Gorse Action Group at the time of this writing

Local agencies, organizations, and private parties	
<ul style="list-style-type: none"> • Bandon Dunes Golf Resort • By-the-Sea Gardens, LLC • City of Bandon • Private Citizens of Bandon, OR • Bandon High School Go Native • City of Brookings • City of Port Orford • Coos County • Coos Forest Protective Association • Coos Watershed Association • Coquille Watershed Association • Curry County 	<ul style="list-style-type: none"> • Curry Soil & Water Conservation District • Curry Watersheds Partnership • Curry Wildfire Preparation Team • David C. Smith and Associates, Inc. • Douglas County Soil & Water Cons. Dist. • Lane County Public Works • Mason, Bruce & Girard, Inc. • NeighborWorks Umpqua • South Coast Watershed Council • The Nature Conservancy • Wild Rivers Coast Alliance
State agencies and organizations	
<ul style="list-style-type: none"> • Oregon Dept. of Agriculture • Oregon Dept. of Forestry • Oregon Parks & Recreation Dept. • Oregon Dept. of Transportation 	<ul style="list-style-type: none"> • Oregon Regional Solutions • Oregon Invasive Species Council • Oregon State University Extension Service • South Slough National Estuarine Reserve
Tribes, federal agencies, and nonprofits	
<ul style="list-style-type: none"> • Coquille Indian Tribe • DOI, Bureau of Land Management • DOI, Fish and Wildlife Service 	<ul style="list-style-type: none"> • National Fish and Wildlife Foundation • USDA, Forest Service • USDA, Natural Resources Conservation Service

TABLE OF CONTENTS

EXECUTIVE SUMMARY

I.	THE CHALLENGE	2
II.	INTRODUCTION.....	5
	a. Principles underpinning sustainable gorse management.....	5
	b. The existing situation.....	7
	i. Global distribution and impacts.....	7
	ii. Oregon distribution and impacts	8
	iii. Oregon enacted laws and governance infrastructure.....	10
	c. Strategic plan development.....	12
	d. Enacted laws and relevance to policy and other strategies.....	12
III.	STRATEGIC GOALS AND OBJECTIVES	12
	a. Goal 1: Prevent new infestations from establishing	14
	b. Goal 2: Strategically control large, established infestations.....	17
	c. Goal 3: Increase capacity and commitment to manage gorse	21
IV.	STAKEHOLDER ROLES AND RESPONSIBILITIES	25
V.	ADDITIONAL INFORMATION	25
VI.	MANAGEMENT TECHNIQUES	25
VII.	FIGURES.....	33
VIII.	REFERENCES	35
IX.	APPENDICES	37

EXECUTIVE SUMMARY

Gorse is a state listed noxious weed that threatens environmental and economic values of the southern Oregon coast. Heavy infestations are present in the coastal areas of Coos, Curry, Douglas, and Lane counties. Gorse invades coastal mountains, beaches, dunes, and low marine terraces where it can rapidly form dense thickets and dominate plant communities if not adequately managed. Heavy infestations displace native plants, modify hydrological and soil conditions, and cause a decline in ecosystem function and local biodiversity, while fueling intense fires. Fire risk from gorse poses a serious hazard to property owners and community assets. Challenges for future management include the difficulty and expense of control once thickets are allowed to establish, the steep bluffs and inaccessible areas in which it frequently occurs, different activities by managers and coordination status, varied compliance by public and private landowners, along with local fiscal stress and tight budgets.

The Gorse Management Plan aims to deliver three goals and supporting objectives.

1. Prevent new infestations from establishing

- Partners provide leadership to guide the long term prevention and eradication of new gorse infestations
- Primary pathways of introduction and entry points are identified and managed to minimize spread
- Early detection of small infestations is achieved to elicit a rapid response and eradication of emerging problems
- New infestations and outliers are eradicated to slow spread and while still possible before they grow too large to eradicate effectively
- Native plant communities are maintained and restored to increase competition and reduce the colonization and spread of gorse

2. Strategically control large, established infestations

- Partners provide leadership to guide the long term control of established infestations
- Implement strategic integrated management to control large infestations
- Reduce risk and impacts to community and environment
- Refine and promote best practice to improve gorse control

3. Increase capacity and commitment to manage gorse

- Policies and infrastructure are sufficient to support management plan
- Develop cooperative planning and management networks
- Maintain comprehensive regional maps to inform and support management
- Communicate with and engage stakeholders in reducing risk and impacts of gorse
- Build stakeholder capacity and commitment for effective delivery of plan

THE CHALLENGE

Gorse (*Ulex europaeus* L., Fabaceae) is an invasive flammable shrub and considered one of the most invasive plant species in the world, causing significant environmental and social impacts worldwide. It was introduced to North America as an ornamental shrub near the town of Bandon, Oregon in the late 1800's¹ and has since spread along the coastal areas of western North America. The plant has proved to be highly invasive with the ability to impact coastal landscapes when not adequately managed. It is estimated infestations in Oregon total about 28,000 acres. This represents 0.2% (28,000 of 16.8 million acres) of the potential range of gorse in the State,² or generally the western third of Oregon. While management is occurring in many areas, long-lived infestations continue to expand and spread between local areas. Long distance seed movement is primarily along roadsides, hiking trails, and from contaminated heavy equipment. Gorse commonly establishes along roads and trails and other disturbed sites and then if not adequately managed, has the ability to spread into adjacent undisturbed areas.

Gorse is a large, dense, leguminous shrub. The widespread and abundant distribution of gorse and its dense highly flammable stands make it a high threat to native habitats and the residents of the southern Oregon coast. Communities are threatened by intense gorse fueled fires, and widespread infestations affect healthy ecosystems and impact the local economies that depend on them now and in the future. Environments are endangered by dense infestations that can lead to dramatic ecosystem degradation, major alterations of ecosystem function, shifts in fire regimes, and impacts on local biodiversity and soil properties.

Successful management of gorse through planning, prioritizing, and resourcing will be a major challenge. The impacts and spread of gorse is a continuous, long-term problem that cannot be controlled by any one agency or stakeholder. A range of gorse-related activities are performed by private landowners and many different public land managers. These actions are guided by various weed plans and protocols under different statutory authorities and obligations, rather than by a single comprehensive management plan or a set of uniform standards. Control activities, therefore, can be fragmented or isolated among independent managers, causing inefficiencies in gorse control at multiple levels.

Because managing gorse and maintaining native plant communities is not straightforward, balancing various management issues to attain overall gorse control objectives is necessary. This will require greater emphasis on collaborative planning and

management of shared resources between jurisdictions through the Gorse Action Group (GAG) and the newly formed South Coast Cooperative Weed Management Area. The goal of the South Coast CWMA is to coordinate the delivery of weed management on all lands within the boundaries of Coos and Curry counties. Success will rely on consistent (even relatively small) contributions of time and money over the long term from all federal and non-federal cooperators of the CWMA. Any gains on gorse control will be lost during periods of unfunded efforts.

The governance infrastructure of noxious weed management is largely in place for gorse control, although improvements could be made to strengthen coordination and local authority in support of GAG and the CWMA. Advancing the support functions provided by the county noxious weed advisory boards can have a critical role in increasing the likelihood of successful control of gorse and other noxious weeds. More specifically, policy development can help build and sustain capacity of GAG and the CWMA to plan and deliver effective control and eradication programs. The adoption of recommendations on local management policies that promote and support the framework for comprehensive management, for example, will increase the capacity of GAG and the CWMA to carry out their missions. Support is also provided by the advisory boards' duty to establish base funding for the weed districts, allowing for the effective control of gorse and other weeds on county lands, including road rights of way. This is critical because roads are primary pathways for new invasions of gorse that can establish and spread into adjacent habitat.

Gorse impacts and is impacted by a variety of disciplines, including fire, range, forestry, riparian, land use, conservation, restoration, wildlife, fisheries, aquatics, and other fields. Multiple interactions exist between and among these programs and partners. In particular, given the vast and interconnected weed-fire problems, there is a need to coordinate and formally integrate gorse management and fire management programs in the near future. Aligning program structures on all lands by way of an official, integrated platform can facilitate high-level coordination and integrated management at a landscape scale including cooperative implementation of the Federal Fire Policy³ and development of Firewise sites in the region. With effective high-level leadership, this platform can establish the basis to develop a coordinated local-level risk management strategy to guide fuels and weed management and planning over the long term for Coos and Curry counties. Other unique opportunities under a weed-fire platform that could be capitalized upon are described in Appendix 2.

Other difficulties presented by gorse are to reduce spread, eradicate new infestations and outliers, and address large infestations including site restoration following control. Although effective control options for gorse are available, established infestations are difficult and costly to manage, and pose particular difficulties in remote or inaccessible areas. It is likely stakeholders may share the perception that control is impractical and nothing can be done, particularly in areas where heavy infestations are prevalent. It will be important to educate the public on prevention and control and ensure best practices are used collectively and consistently by public and private land managers over time, for example ensuring heavy equipment is clean prior to arrival at work sites.

Additional challenges addressed by this plan, either directly or through indirect efforts aimed at attaining overall control objectives, are listed here.

1. Continued mapping of the presence and absence (distribution) and relative abundance (density) of gorse populations is critical for planning and management.
2. Improved awareness and early detection with public reporting is necessary to complement surveys and mapping programs.
3. Better communication and engagement with the public is necessary to gain broader support and public participation.
4. Ecosystem value and function is generally not understood by the public.
5. Gorse control is not mandatory and a low priority on many sites.
6. Greater emphasis on maintaining and restoring native plant communities is critical to increase competition and reduce colonization and spread of gorse.
7. Development of public policy is essential for carrying out state and federal policy to protect the productivity of natural ecosystems and economies that depend on them.
8. Adopting official policies to support the work and operations of GAG and the CWMA is critical for increased participation of diverse actors.

Implementation of the Gorse Management Plan will address the gorse problem in a more strategic and integrated manner and provide a long-term comprehensive effort to limit the impacts and spread of gorse and other noxious weeds. Local leadership in the implementation of this plan aims to protect and restore natural ecosystems and working landscapes for the citizens of Coos and Curry counties.

INTRODUCTION

The purpose of the Gorse Management Plan is to provide information and recommendations for a coordinated and integrated long-term approach to reduce the risk and impacts of gorse in Coos and Curry counties, located in southwestern Oregon. While this plan centers on Coos and Curry counties due to similar conditions and gorse, it provides general insight and application as well to Douglas and Lane counties. Some adjustments could be made to expand the scale of this plan in the near future, if desired by the Gorse Action Group (GAG).

The actions proposed in the Gorse Management Plan represent information derived from published and unpublished literature, including a brief strategic action plan in draft version created by GAG in October 2016 (Appendix 3), as well as discussions among GAG team members. This plan is intended for use by stakeholders as they maintain and restore desired plant communities and engage community and public support toward the mission to reduce the spread and impacts of gorse in the southern Oregon coast region.

This plan outlines a number of proposed actions for preventing and eradicating invasions, controlling large infestations, and minimizing risks and impacts of gorse to society and environment. It serves as a basis for the collaborative management of gorse using a risk-based integrated weed management approach within an adaptive framework. Essential to the sustainable, cost-effective control of gorse is the primary goal of maintaining and restoring native plant communities or desired plants to increase competition and reduce colonization and spread. This goal relies on an integrated approach that combines the following primary strategies:

1. Education and noxious weed policy,
2. Federal and nonfederal participation,
3. Proper land use practices that promote native plant competition,
4. Prevention and eradication programs,
5. Control and restoration, and
6. Monitoring and adaptive management.

Principles underpinning sustainable gorse management

The Gorse Management Plan is based on the following principles of collaborative planning, risk management (ISO 31000, 2009), integrated weed management, and adaptive management.

- Weed management requires coordination and collaborative planning to define the highest priorities among stakeholders and improve capacity with local solutions.

- A collaborative planning approach includes the following steps:
 1. Identify goals for a management area,
 2. Evaluate existing conditions and relative invasibility of sites within the area,
 3. Prioritize sites and develop management objectives, which will vary between sites depending on site factors, and then
 4. Consider management options, and develop an integrated management plan.
- An integrated weed management (IWM) program on all land in a management area requires a combination of multiple methods of prevention, chemical controls, cultural practices and reseeding, and physical removal. Steady follow-up over time is critical.
- The most cost-efficient and effective way to deal with gorse is to protect gorse-free habitat. Protection is a low-risk strategy that involves maintaining and improving native plant communities by preventing new invasions from establishing through:
 1. Measures of seed spread prevention,
 2. Land use practices that promote native plant recruitment and persistence, and
 3. Reliable monitoring to find and eradicate invasions before they expand and establish.
- Once gorse expands to near complete dominance within a plant community, control and restoration can be difficult and relies on massive resource inputs. Paying much more attention to eradicating emerging gorse problems while still possible, precludes the need for on-going control and restoration in the first place.
- Applying IWM within an adaptive framework is necessary to allow for real-time assessments that inform management decisions, consisting of the following steps:
 1. Pre-treatment monitoring (of gorse density, native species richness, erosion),
 2. Implementation of IWM methods,
 3. Post-treatment monitoring, and
 4. Reevaluating, adjusting management, and starting the cycle again.
- Combating gorse is a shared responsibility of public and private landowners. Effective management requires clear definition of responsibilities with sustained coordination.
- Integrated marketing communication programs (see Appendix 4, for example) are conducted to influence the support of, and relationships with, stakeholder groups.
- Long-term outcomes and measurable actions evaluate progress and help hold agencies accountable for implementing management plans. Regular evaluations of actions are consistent with performance management⁴ and the Government Performance and Results Modernization Act of 2010 (P.L. 111-352). Localized outcomes should be designed by stakeholders and drawn from their knowledge. For example, short- and long-term indicators may include ecosystem and management functions and such

social measures as relationship building, governance, communication, stakeholder satisfaction, and public opinion.

The existing situation

Global distribution and impacts. Gorse is a spiny evergreen shrub native to the western seaboard of continental Europe. This plant was spread intentionally around the world by Europeans in the mid-to-late 1800's for such agricultural uses as hedging to contain grazing animals, forage, and later as an ornamental. Today gorse has colonized a very wide range of many coastal regions worldwide at temperate latitudes that vary from the equator to 50°N and 54°S, and at altitudes ranging from sea level to 11,500 feet⁵.

Gorse is currently found in over 45 countries on every continent, excluding Antarctica. The plant causes serious environmental problems and has been clearly recognized as invasive in Australia, New Zealand, Asia (Japan, Sri Lanka), Central America and Caribbean, the west coast areas of North America (British Columbia, California, Oregon, and Washington), South America (Brazil, Chile, and Falkland Islands), and such tropical islands as Hawaii and the islands of Mauritius, Réunion, and Saint Helena, located near the African continent⁶. Gorse is declared a noxious weed in Australia, New Zealand, British Columbia, and the following states of the United States: California, Hawaii, Oregon, and Washington.

Gorse is an invasive species of worldwide concern. It is known to be tremendously harmful to local biodiversity and ecosystems in a variety of habitats throughout the world, causing ecological and economic effects on a global scale. Consequently, gorse is considered one of the world's worst invasive species (International Union for Conservation of Nature⁷), and reducing its impacts everywhere it occurs is essential for worldwide conservation action to conserve native species. The invasiveness of gorse is largely attributed to its:

1. Fast growing, hardy, and long lived nature;
2. Formation of dense stands that exclude native regeneration;
3. High levels of reproduction and persistent seeds with long term viability;
4. Difficulty of control once thickets are established, which then continue to expand without adequate management;
5. Ability to fix nitrogen and thrive in a wide range of soil types especially nutrient-poor soils, and modify soil chemicals that inhibit the growth of natives;
6. Increased competitive growth as nitrogen-fixer or in the absence of natural enemies;

7. Ability to completely alter the fire regime of invaded ecosystems that rarely burn naturally or have very long fire return intervals, such as moist coastal sites; and
8. Pioneering nature, or ability to benefit from human alterations to ecosystem attributes and processes that promote disturbance and degradation.

Oregon distribution and impacts. In North America gorse occurs widely along the coastal areas from California to British Columbia (Figure 1). The plant is frequently a pioneering species in disturbed areas and sites of low fertility. As a nitrogen-fixing species, it can survive on a variety of soil types and rapidly dominate infertile or disturbed sites. In Oregon gorse colonizes sandy beaches, coastal dunes, terraces, and steep bluffs, headland grasslands, inland pastures, shrublands, floodplains, coastal mountains, and forest margins and openings. The plant is frequent on roadsides and in open areas or in early succession where the vegetation is disturbed by fire or various land use including logging. Gorse, if not managed, takes over eroded areas, poorly managed pastures, undeveloped areas, abandoned agricultural fields, burned or logged areas, backyards, and can form solid monocultures on beaches.

In Oregon, gorse primarily occurs along the coast within the Coast Range ecoregion (USEPA Level III) and some parts of the interior. Infestations of gorse occupy approximately 28,000 acres in the state, which represents 0.2% (28,000 of 16.8 million acres) of the potential range of gorse in Oregon.² Heavy infestations are frequent along the southern Oregon coast, south of the town of Florence, while light infestations with limited distribution occur along the northern coast (Figure 2). The high degree of invasion observed along the southern Oregon coast may largely correspond with the spatial extent of the Coastal Lowlands ecoregion (1a; Level IV), characterized by beaches, dunes, and low marine terraces, as well as a warmer climate than the northern Oregon coast, generally represented by rugged headlands and low mountains. Gorse infestations also occur within the Willamette Valley ecoregion (Level III) of Lane County and the following Level IV ecoregions of the Klamath Mountains ecoregion: Coastal Siskiyou ecoregion (78f) of Curry County and the Umpqua Interior Foothills ecoregion (78c) in Douglas County. The habitat of much of the western third of Oregon is suitable for gorse,² which generally consists of the following Level III ecoregions: Coast Range, Willamette Valley, Cascades, and Klamath Mountains. Appendix 5 provides an ecoregion map of Oregon (USEPA, Ecosystems Research). Most of the habitat suitable for gorse colonization remains largely gorse-free, which argues for policy prescriptions and institutional supports that prevent invasion and facilitate eradication of outliers and new populations.

Heavy infestations of gorse displace native vegetation, while fueling extremely intense fires. Plants survive and regenerate from heat-tolerant seeds and stumps after fire, promoting an increase in fire frequency on some sites and the conversion of native ecosystems into invasive flammable shrublands. In addition to the genuinely new problem of shifts in fire regimes or frequencies, gorse is also responsible for major changes in the basic biogeochemistry of ecosystems, which govern the composition and function of ecosystems and the environment. These biogeochemical changes bring new problems to ecosystems lacking these traits, such as irreversible shifts that can alter the course of native plant succession and hinder restoration efforts on some sites.

1. Local hydrology: Gorse reduces soil water availability by intercepting a high proportion of rainfall. Soil is often dry beneath the gorse canopy following rainfall events. And any rainfall reaching the soil may be retained by the deep, dry litter, which evaporates without becoming available in the soil.
2. Nutrient pools and fluxes: As a nitrogen-fixing plant, gorse increases the total amount and cycling of nitrogen. Nitrogen may accumulate on invaded sites, or soil phosphorus may decline owing to the phosphorus-demanding reaction of nitrogen-fixation,⁸ making the soil unlikely to support certain natives or likely to favor weeds. Nitrogen-rich litter produced by gorse, consisting of dry branches and spines, decomposes slowly and accumulates on invaded sites, acidifying the soil.
3. Geomorphology: Gorse replaces native grasses and forbs that hold soil. The soil is often bare between individual plants, increasing erosion rates on some sites.

In Oregon, gorse forms large populations and tends to grow in dense, tall, impenetrable, spiny thickets that cover large areas. Dense stands exclude native plant regeneration and create a serious fire hazard, often burning at very high rates of spread and producing extremely intense fires. Mature stands are highly flammable and can burn with explosive force due to a substantial amount of high standing biomass with elevated dead fine fuel loads (small branches) suspended in the canopy layer, deep dry litter layers that accumulate and increase fine-dry fuel on the ground, and a high content of volatile oils or resin in the foliage and branches. While this author is not aware of a wildland fire behavior prediction system for fires burning in gorse, it is known that gorse stands with large amounts of elevated dead, dry fine fuels in the canopy are exceptionally flammable and can sustain extreme fire behavior at even low or moderate fire hazard conditions. As such, many areas dominated by gorse could create a constant fire risk and may be considered among the most fire-prone landscapes in Oregon.

Management of gorse is a high priority to property owners and land and fire managers. Dense thickets are impossible to walk through, restricting firefighter access and preventing livestock access to food and water, while dramatically reducing stocking rates and causing environmental and economic degradation. Gorse can interfere with forestry operations by competing with young trees for resources and reducing conifer growth and survival. Southwestern Oregon counties have a strategic dependence on the conservation of native plant communities since economic development in the region is very much related to the productivity and function of ecosystems. Environmental and natural resources such as timber, fisheries, agriculture, and tourism and recreation represent primary sources of income and most if not all community members make direct and indirect use of the environmental resources of the coastal watersheds of the region.

Oregon enacted laws and governance infrastructure. Gorse is designated a noxious weed in the west coast states of California, Oregon, and Washington. In broad terms, *noxious weeds* are regulated plants that are managed under federal, state, or local laws or regulations. In Oregon, gorse is designated noxious by the Oregon State Weed Board under ORS 569.615. Management requirements of noxious weeds are guided by state rules of noxious weed quarantine under the Oregon Department of Agriculture (OAR 603-052-1200), which tier the noxious weeds into “A” and “B” classifications. Class A noxious weeds are either not present or limited in distribution in Oregon, and subject to mandatory control and state enforced eradication action. Gorse has a regionally abundant statewide distribution and is therefore designated a Class B noxious weed. Class B weeds are not generally subject to state enforced management action given these plants are too widespread for practical action at the state-level. Under OAR 603-052-1200(5)(b), the goal of Class B weed management is the control and prevention of new infestations, and “when available, biological control may be the primary long-term control strategy” (OAR 603-052-1200[5][a]). Counties have authority to establish control requirements, eradication action, and enforcement of Class B weeds, if locally desired. In Coos and Curry counties, private and public landowners are not required to control gorse. At the time of this writing, the control requirements and enforcement of gorse in Douglas and Lane counties were not known to this author.

Sections of Oregon’s noxious weed law (ORS 569 et seq.) dealing with on-the-ground control, such as responsibility, cooperation, weed control funding, and weed districts that might be of interest are included here.

- ORS 569.350 sets forth responsibility and calls for cooperation among county, state, and federal government with individual landowners in carrying out weed control.

The cooperation of federal agencies is required under Executive Order No. 13751 (Appendix 6) and the Federal Noxious Weed Act, amended (FNWA; 7 U.S.C. 2814[c]; Appendix 7). FNWA as amended authorizes federal agencies to manage invasive plants on federal lands and enter into agreements with states and local units and coordinate management with nonfederal landowners.

- ORS 569.420 authorizes counties to levy property taxes as revenue to fund cooperation and weed control on county lands and roads. ORS 569.425 authorizes counties to levy special assessment taxes in specific geographic areas to fund weed control as a public project. It is not clear to this author if these levies are subject to the limitations on property taxes of section 11, Article XI of the Oregon Constitution.
- ORS 569.360 to 569.495, which together with local county ordinances, policies, and procedures, guides enforcement and the structure and duties of county noxious weed control districts.

County noxious weed control districts. In Coos and Curry counties, the weed control districts are bounded by county lines and administered by the Board of Commissioners of the respective counties with oversight of operations provided by advisory boards. The Coos County Noxious Weed Control District is governed by county Order 08-05-048L, enacted in May 2008 (Appendix 8), which sets policy and procedure broadly for the control of noxious weeds within the county. Coos County Resolution 17-10-156L was enacted in November 2017, adopting amended bylaws for the Coos County Noxious Weed Control District Advisory Board (Appendix 9). The local Curry County Soil and Water Conservation District serves as the Curry County Weed Control Advisory Board and administers the weed control program under an intergovernmental agreement filed in June 2004 (Appendix 10). These official actions may not be complete of all relevant weed control rules and policies of Coos and Curry counties. The noxious weed control rules and policies of Douglas and Lane counties were not acquired at the time of this writing.

In most western states, county weed control districts are organized under state law as subdivisions of county government that perform public functions, similar to county soil and water conservation districts. Appendix 11 provides some relevant information on the functions of weed control districts in the western states and possible applications to counties and cooperative weed management areas in the project area.

Cooperative weed management areas. Many Oregon counties have weed districts in place. Additionally, cooperative weed management areas have been formed to improve

coordination and collaboration of management activities on federal and nonfederal lands. The South Coast Cooperative Weed Management Area (CWMA) was recently established to share resources and expand control of gorse and other noxious weeds across Coos and Curry counties. The CWMA is led by the Coos Watershed Association, Coquille Watershed Association, and the Curry Soil and Water Conservation District. Key players include the Coos Bay BLM District, Oregon Department of Agriculture, Oregon Parks and Recreation Department, and the noxious weed control district advisory boards of Coos and Curry counties. The goal of the South Coast CWMA is twofold: to ensure communication and collaboration between public and private land managers, and to prevent and control the spread of gorse and other noxious weeds along the Southern Oregon Coast.

Strategic plan development

In November 2017, the first draft of the Gorse Management Plan was presented to the GAG Science Team and other key stakeholders for review and comment. This input is reflected in this final draft 2018 plan, and a response document is provided in Appendix 12. Continued development of the plan will require workshops with land managers and community members. While this plan was developed to complement existing policies with explicit linking of objectives to relevant strategies, these inclusions will require additional time and informed discussion. Relevant strategies include local fire^{9,10} and private lands conservation¹¹ plans, the state conservation strategy,¹² and local state and federal agency weed control plans.

Gorse infestations may be associated with Scotch broom (*Cytisus scoparius* L.) and French broom (*Genista monspessulana* L.) in the project area. All three of these invasive shrubs are designated Class “B” noxious weeds in Oregon. Gorse and brooms are from the pea family (Fabaceae) and have similar life history. Because the treatment methods for gorse control also generally apply to the brooms, all three shrubs might be covered under this plan jointly with some adjustments in the near future, if desired by GAG.

Enacted laws and relevance to policy and other strategies

Laws, regulations, and standards known to this author and applicable to the development and implementation of the Gorse Management Plan are provided in Appendix 13.

STRATEGIC GOALS AND OBJECTIVES

The Gorse Management Plan outlines proposed actions that will contribute to the Gorse Action Group vision: Through community commitment and responsibility, the spread of gorse is abated and the region’s economic, environmental, and social assets are protected.

Three proposed goals have been developed, which support or are largely shared with the statewide action plan of the Oregon Invasive Species Council¹³, updated in 2017. Goals also support federal Forest Service and Bureau of Land Management standards, and mitigation objectives in the Community Wildfire Protection Plans of Coos and Curry counties, created in 2011 and 2008, respectively. The focus of the following goals is to minimize spread by preventing and eradicating new invasions and removing outliers, reduce impacts by controlling large infestations, and increase the capacity and commitment of stakeholders. Several objectives are proposed to contribute to the achievement of each goal.

Table 1. Strategic goals and objectives	
Strategic goal	Objectives
1. Prevent new infestations from establishing	1.1 Partners provide leadership to guide the long term prevention and eradication of new gorse infestations
	1.2 Primary pathways of introduction and entry points are identified and managed to minimize spread
	1.3 Early detection of small infestations is achieved to elicit a rapid response and eradication of emerging problems
	1.4 New infestations and outliers are eradicated to slow spread and while still possible before they grow too large to eradicate efficiently
	1.5 Native plant communities are maintained and restored to increase competition and reduce the colonization and spread of gorse
2. Strategically control large, established infestations	2.1 Partners provide leadership to guide the long term control of established gorse infestations
	2.2 Implement strategic integrated management to control large infestations
	2.3 Reduce risk and impacts to community and environment
	2.4 Refine and promote best practice to improve gorse control
3. Increase capacity and commitment to manage gorse	3.1 Policies and infrastructure are sufficient to support management plan
	3.2 Develop cooperative planning and management networks
	3.3 Maintain comprehensive regional maps to inform and support management
	3.4 Communicate with and engage stakeholders in reducing risk and impacts of gorse
	3.5 Build stakeholder capacity and commitment for effective delivery of management plan

An annual operation plan should be developed each year to guide stakeholder activities based on the highest priority actions. For example, priorities could be assigned to actions in the tables below based on the following criteria:

Priority 1 – Critical to the success of management plan

Priority 2 – Valuable; will significantly contribute to the success of management plan

Priority 3 – Beneficial; valuable, but not critical to the success of management plan

Goal 1: Prevent new infestations from establishing

Prevention and eradication: The most effective method for managing gorse is to prevent introduction and eradicate new infestations. Key strategies focus on limiting seed dispersal, managing disturbance, enforcement and education, detecting and eradicating new invasions, monitoring treatment effectiveness, and encouraging desirable competitive plants.

Gorse produces seeds in large numbers, but due to their size and weight are seldom dispersed far from the parent plant except in the cases of water transport in streams and human transport. Priority is given to remove gorse from transportation networks, stream corridors, contaminated heavy equipment, and in soil attached to boots. While gorse can spread into adjacent land from roadsides and water corridor entry points, the plant appears to have a slow process of dispersal and may have yet to reach its current range and impacts in the state. Priority is given to the protection of suitable areas at risk of infestation through early detection and rapid response (EDRR).

Table 2. Goal 1: Prevent new infestations from establishing			
Objectives	Actions	Priority	Partners
1.1 Partners provide leadership to guide the long term prevention and eradication of new gorse infestations	1.1.1 Establish and support a task force on prevention and eradication to coordinate policies and prioritize strategic action, secure funding, and define priority sites for protection among partners		
	1.1.2 Support participation in the most sustainable, cost-effective, and low-risk practices to combat gorse and minimize spread: maintain healthy plant communities and aggressively attack new invasions with the objective of eradication		
	1.1.3 Determine indicators and measure progress towards achieving objectives and actions, including long term monitoring programs to detect change		

1.2 Primary pathways of introduction and entry points are identified and managed to minimize spread	1.2.1 Control gorse on roadsides to limit long-distance spread and spread into adjacent properties, while creating wider firebreaks and improving safety for evacuating residents and firefighters		
	1.2.2 Develop and distribute customized outreach materials on the treatment of roadside occurrences, hazard reduction, and firebreak establishment, prompting public involvement to protect their land		
	1.2.3 Control gorse along streams, irrigation canals, railways, trails, power lines, and other linear corridors of long-distance weed transport, on areas of high risk or major disturbance (fire, erosion, logging), and in municipal areas		
	1.2.4 Determine if ornamental horticulture is a relevant pathway and manage introduction		
	1.2.5 Promote hygiene protocols and practices focusing on agricultural equipment (ORS 569.445)		
	1.2.6 Promote hygiene and decontamination of machinery used in gorse removal and logging or fire equipment before leaving infested areas		
	1.2.7 Establish the proposed weed wash station in Bandon; design standards, if needed, are available in the USDI Bureau of Reclamation cleaning manual ¹⁴		
	1.2.8 Deliver education on gorse prevention to visitors of state parks; for example, signage and boot brushes at trailheads, beach entrances, etc.		
	1.2.9 Train seasonal personnel on gorse prevention and to be on constant surveillance for new invasions, reporting via EDDMapS West		
1.3 Early detection of small infestations is achieved to elicit a rapid response and	1.3.1 Determine and map areas to regularly survey for early detection, such as areas at risk of invasion and gorse-free landscapes that need to be protected		
	1.3.2 Undertake surveying, monitoring, and mapping activities and coordinate delimitation actions via collaborative planning		

eradication of emerging problems	1.3.3 Collect fine-grained spatial data on distribution (presence, absence) of incursions using standardized protocols, maintain data in a centralized database		
	1.3.4 Publish guidelines on the most efficient methods to conduct ground surveys, inventories, and monitoring of habitats, subject to peer-review		
	1.3.5 Increase survey and monitoring coverage by enlisting volunteers (citizen scientists, students) or workers via youth service programs including AmeriCorps VISTA, Conservation Corps		
	1.3.6 Consider funding or cost-sharing a volunteer coordinator to recruit and deploy students and other volunteers or interns across jurisdictions		
	1.3.7 Promote and maintain EDDMapS West as a mobile app-based system for citizen scientists, cooperators, and the public to report invasions		
1.4 New infestations and outliers are eradicated to slow spread and while still possible before they grow too large to eradicate efficiently	1.4.1 Determine factors to consider for prioritizing infestations for eradication, such as relative feasibility of eradication and location, for example outliers of core infestations and infestations threatening conservation and other high value sites		
	1.4.2 Undertake eradication activities and monitor treatment areas to 1) control regrowth and detect new plants, and 2) assess effectiveness of control actions, allowing for adaptive management as eradication progresses		
	1.4.3 Collect treatment data using standardized protocols, maintain data in a centralized database		
	1.4.4 Support restoration of eradication sites when existing levels of native plants are insufficient to enable natural recovery		
	1.4.5 Support and encourage public involvement in task force approaches to eradication and supporting programs, for example equipment/tool rentals and seasonal gorse crews “for hire” through the CWMA		

	1.4.6 Distribute identification products and customized materials with OSU Extension on best practice to eradicate gorse and restoration		
1.5 Native plant communities are maintained and restored to increase competition and reduce the colonization and spread of gorse	1.5.1 Review research and publish best practice with OSU Extension on maintaining and restoring healthy plant communities to increase resilience and resistance of ecosystems		
	1.5.2 Develop and support incentives to routinely fund and implement best practice to maintain and restore healthy plant communities and ecosystem function		
	1.5.3 Promote control or mitigation of soil disturbance and loss of native vegetative cover; disturbed soil is known to promote gorse invasion		
	1.5.4 Facilitate control of non-natural, or human-influenced, disturbances and alterations to ecosystem attributes and processes such as poor management and degradation that promote invasion and colonization of gorse		
	1.5.5 Identify and restore declining habitat by adjusting land use or removing non-natural stressors to allow for natural recovery and regeneration when desired plants are adequately present on the site		
	1.5.6 Identify and restore degraded habitat by reestablishing desired plants when native plants are missing or severely underrepresented on the site		
	1.5.7 Facilitate the use of native plant materials on projects and support the Go Native Program		

Goal 2: Strategically control large, established infestations

Control and management: When prevention and eradication fails and gorse reaches dominance within a plant community, it is exceptionally difficult and expensive to control. Large infestations occur throughout the project area. These are impossible to eradicate but should be strategically managed to reduce impacts to communities and environment. This will require planning, prioritizing, and resourcing control objectives to employ the most

cost-effective techniques for on-going, long-term suppression, while focusing efforts on eradication and protection of gorse-free areas (Goal 1) as the priority strategy.

The focus of control is to contain infestations, or prevent their expansion with treatments (e.g., border spraying), and where possible reduce infestations, or decrease their size and density with intensive management. Control can decrease seed production and spread from core infestations, while improving ecological conditions and decreasing impacts and fire risk. In most cases the best option for large infestations is to control small outlying patches first to minimize spread between local areas and beyond a containment line, and then reduce impacts by tackling the core infestation. With vigilance and perseverance, many infestations can be suppressed or maintained at low levels by integrating a combination of multiple methods such as spraying, prescribed grazing, reseeding, and physical control including fire. Many years of follow-up is critical and while infestations will require some level of on-going control, each successive treatment should become easier and less costly over time.

Prescribed grazing is an effective practice for controlling gorse. Both sheep and goats will eat gorse and are ideal for operations with limited acreage. While goats may be better suited to graze gorse in terms of overall shrub use, the inventory numbers of goats may be lower than sheep in the area, and so their availability may be limited. Generally goats can be easier and less costly to manage, and will consume twice as much gorse than sheep owing to their diet selection and foraging skills. Goats prefer shrubs, selecting less forbs and grass than sheep. They are agile and graze in higher vegetation layers within the woody, thorny vegetation. Developing a grazing/browsing prescription for gorse control involves selecting the livestock type appropriate for the site and designing the specific timing, intensity, and frequency of grazing. For more information see the USDA, NRCS Prescribed Grazing Conservation Practice Standard for Oregon, Code 528 (Field Office Technical Guide, <https://efotg.sc.egov.usda.gov/treemenuFS.aspx>).

Table 3. Goal 2: Strategically control large, established infestations			
Objectives	Actions	Priority	Partners
2.1 Partners provide leadership to guide the long term control of established gorse infestations	2.1.1 Establish and support a task force (with fire) on control to plan the suppression approach, coordinate strategic action, secure funding, and define the highest priorities among partners, emphasizing control on only <i>high-priority sites</i>		
	2.1.2 Determine indicators and measure progress towards achieving objectives and actions, including long term monitoring programs to detect change		
2.2 Implement strategic integrated management to control large infestations	2.2.1 Determine methods for prioritizing and resourcing control of large infestations, informed by a risk management approach; prioritizing includes feasibility of control and location in relation to conservation and other priority sites		
	2.2.2 Prioritize sites for control, set containment lines, and contain infestations, and where possible, progressively reduce size and density; control is guided by site-specific integrated management plans and revegetation plans that support objectives at various scales		
	2.2.3 Support restoration or revegetation on appropriate sites following control treatment		
	2.2.4 Collect spatial and treatment data using standardized protocols and maintain data in a centralized database		
	2.2.5 Monitor treatment and revegetation areas to control regrowth and identify areas needing further treatment, and to assess effectiveness of control actions that allow for adaptive management		
2.3 Reduce risk and impacts to community and environment	2.3.1 Reduce the overall risk of gorse by supporting ecosystem health and healthy plant communities, and maintaining gorse-free landscapes over time		
	2.3.2 Reduce the overall risk of gorse by restoring working landscapes and protecting gorse-free areas,		

	community assets, and critical environmental resources via early detection and control		
	2.3.3 Increase involvement of land managers in maintaining and restoring ecological health and resiliency as a low-risk and successful strategy to prevent invasion and assist gorse control		
	2.3.4 Encourage public participation in strategic control (with Firewise), particularly in reducing gorse fuel hazards and expanding firebreaks		
	2.3.5 Educate and raise landowner acceptance of the need for collective and persistent best practice control of infestations, emphasizing successful control is possible with persistence, becoming easier and less costly with successive treatments		
	2.3.6 Support greater partnerships with private landowners in curbing gorse by developing NRCS conservation plans and their implementation through Farm Bill funding opportunities		
2.4 Refine and promote best practice to improve gorse control	2.4.1 Review existing on-the-ground control practices of the region and identify what advances or improvements are needed to increase the efficacy and cost-effectiveness of sustainable long term suppression of gorse infestations		
	2.4.2 Review research and publish best practice to cost-effectively control gorse for the region with OSU Extension; update gorse bulletin EC 1593 and PNW Weed Management Handbook		
	2.4.3 Increase land manager involvement in using the most sustainable, cost-effective control practices, including goat or sheep grazing		
	2.4.4 Assess landowner interest and the feasibility of cost-sharing small-scale goat or sheep grazing operations; consider trade-offs between herd management and the benefits of gorse control together with the sustainable delivery of niche products (meat, dairy, fiber); goat products are		

	showing steady growth in domestic demand		
	2.4.5 Support greater partnerships between land managers from allied fields (weed, fire, climate change planning, conservation) to explore and identify a wider range of approaches, innovative control techniques, and management possibilities		
	2.4.6 Facilitate and promote requests for continued OSU/USDA-ARS research on the development of new biocontrol agents		
	2.4.7 Assess the potential of gorse as a source of biofuel to complement control objectives; see Curry County Biomass Forum		
	2.4.8 Support best practice adoption with incentive programs and such outreach efforts as field days, spray days, demonstrations, herbicide training, community events, property visitation, etc.		

Goal 3: Increase capacity and commitment to manage gorse

The management of gorse involves diverse public and private stakeholders. Management will require a coordinated and cooperative approach, collaboratively driven by stakeholders and supported by a comprehensive framework. Implementation of this approach is under the leadership of GAG and the CWMA with support provided by local weed control advisory boards. Key strategies focus on cooperative planning and management, critical mapping programs to support management, education and awareness programs, and stakeholder delivery of the Gorse Management Plan. Actions support the objectives of Goals 1 and 2.

The establishment and implementation of gorse management zones will be important for landscape-scale planning and long-term success. Using current and potential distribution maps, areas are delineated based on infestation severity or level (trace/mild, partial dominance, or complete dominance) at various scales. For example, eradication zones with outlier infestations call for landowners to actively identify and eradicate small populations and prevent new infestations. And control zones with widespread infestations oblige landowners to contain, and where possible, reduce core infestations, and prevent spread. The operation of each management zone would be guided by multiple-scale integrated management plans. These plans would incorporate ecological knowledge, feasibility of

control, and other data with strategies built on local needs and resources. Stakeholder implementation of management plans would ideally be led by the CWMA.

Table 4. Goal 3: Increase capacity and commitment to manage gorse			
Objectives	Actions	Priority	Partners
3.1 Policies and infrastructure are sufficient to support management plan	3.1.1 Maintain the Gorse Action Group as a regional Gorse Task Force with the primary role of overseeing the implementation of the Gorse Management Plan and securing funding sources		
	3.1.2 Explore options for gorse control in specific areas with funding by special assessment tax (ORS 569.425) as a public project		
	3.1.3 Seek consistent, even if relatively small, contributions to gorse control via tax levy (ORS 569.420) when economic conditions permit or by tapping federal PILT distributions		
	3.1.4 Evaluate and consider which new public policies or changes to existing policies or incentive programs are needed for effective cross jurisdictional prevention and control		
	3.1.5 Review existing noxious weed laws, ordinances, requirements, weed plans, written agreements to better understand and document the operation/delivery of the system and identify areas of improvement		
	3.1.6 Review land-use ordinances and permitting requirements that help to limit the dominance of gorse and identify areas for improvement		
	3.1.7 Assess the compliance of decontamination requirements of machinery and equipment at all levels and identify areas for improvement		
	3.1.8 Engage with city and county planning boards and review zoning strategies and building and development standards to protect against gorse fires, including urban expansion and development near wildland areas		

	3.1.9 Review fire hazard regulations and enforcement in local municipalities (and urban areas) as they relate to fuels reduction and noxious weed control and identify areas for improvement		
	3.1.10 Reduce gorse fuels in local municipalities, for example by facilitating control of the 250 acre Donut Hole infestation located in Bandon		
	3.1.11 Support the City of Bandon's master planning process in the development of the Donut Hole site into an affordable housing project		
	3.1.12 Incorporate explicit linking of management plan objectives to relevant strategies (conservation plans, wildfire plans, biodiversity, climate change planning) and monitor implementation		
3.2 Develop cooperative planning and management networks	3.2.1 Develop and maintain the South Coast CWMA to implement the Gorse Management Plan		
	3.2.2 CWMA to review existing weed plans and protocols of local state and federal management units, municipalities, and large private landholders to determine what is being done, how gorse control is being delivered, and identify opportunities for cooperators to share responsibilities for control		
	3.2.3 Develop a plan to formally align or integrate weed and fire programs at some point in the near future, which will provide an official platform with an institutional basis to increase coordination and efficiency of interconnected weed-fire programs (see Appendix 2, for example)		
3.3 Maintain comprehensive regional maps to inform and support management	3.3.1 Develop a long-term plan to implement the mapping initiative and its supporting programs		
	3.3.2 Maintain a comprehensive, fine-grained dataset on the distribution (presence and absence) of gorse populations and relative abundance of large infestations in a centralized database		
	3.3.3 Maintain, publish and review distribution maps to prioritize sites for management actions		

	3.3.4 Identify gorse-free landscapes and prioritize for protection and monitoring and outreach efforts		
3.4 Communicate with and engage stakeholders in reducing risk and impacts of gorse	3.4.1 Develop and maintain an integrated marketing communication program (see Appendix 4, for example) designed to support greater interaction among GAG/CWMA leadership and the broader community to ultimately influence public attitudes and increase stakeholder participation		
	3.4.2 Support education of the public on the shared responsibility and means to address gorse, advertising community wins and successes		
	3.4.3 Develop policy and processes around public involvement in gorse control by establishing citizen's advisory panels or focus groups		
	3.4.4 Engage the public in negotiated rulemaking including task forces		
	3.4.5 Support stakeholder ownership and buy-in of this plan (before control efforts begin), allowing for voiced concerns in town meetings with voting		
	3.4.6 Communicate with decision-makers and county and agency administrators to include regularly scheduled briefings with local officials		
	3.4.7 Facilitate coordination between local officials and federal supervisors on shared issues relating to gorse and affecting natural resources and land resources (rights of way, land use planning)		
3.5 Build stakeholder capacity and commitment for effective delivery of management plan	3.5.1 Develop and maintain planning and management work groups to support strategy actions including project and funding proposals		
	3.5.2 Maintain an interactive website to improve communication and share relevant information managers need to implement the Gorse Management Plan and make informed decisions on the gorse program such as guidelines, project updates, agendas, minutes, and other products		

	3.5.3 Convene stakeholders to share information on methods, challenges, and areas of improvement with frequent communications through structured workshops		
	3.5.4 Explore the feasibility of making low interest or no interest loans available to landowners for gorse removal projects		
	3.5.5 Determine indicators and measure progress towards achieving objectives and actions, including long term monitoring programs to detect change		

STAKEHOLDER ROLES AND RESPONSIBILITIES

While public and private landowners are ultimately responsible for gorse control on their own land, the involvement of a range of stakeholders and the development of partnerships is necessary for the effective implementation of the Gorse Management Plan. The responsibilities of stakeholders can vary between jurisdictions. Roles and responsibilities are provided in Appendix 14.

ADDITIONAL INFORMATION

A description of gorse, and information on seed dispersal and environmental requirements of gorse is provided in Appendix 15.

MANAGEMENT TECHNIQUES

Several resources on gorse control methods for Oregon land managers, including key strategies and guidelines on hygiene practices, chemical control, and restoration are available on the GAG website at: <http://gorseactiongroup.org/index.php/land-manager-resources/>. For example, the management techniques listed in Table 5 have been approved by and are recommended by the GAG Science Team for effective management of gorse within the region. An informal literature review of gorse management techniques for the western North America region is provided in Appendix 16. The Oregon State University Extension Bulletin on gorse management options, published in 2008, is provided in Appendix 17.

Table 5. Available Gorse Management Strategies		
	Description of Management Strategy	Tips, Notes
Prevention	Most cost effective means of control. When you spot new gorse plants on your property, treat them right away to	In open areas where forests are adjacent, young gorse plants can look similar to conifer seedlings

	prevent further spread. Be especially vigilant, looking for new plants in February/ March when flowering shrubs are most visible.	
Hygiene	Preventing spread of gorse seeds is critical. Use a power washer to remove any vegetation or seed material from equipment (mowers, excavators, mulchers, etc.), undercarriages of ATVs, UTV's and pickup trucks.	Before utilizing equipment in gorse-free or clean areas, please inspect to make sure all machinery is gorse-free.
Manual	Appropriate for isolated plants or small patches. Wear thorn-resistant gloves and clothing, in addition to eye/face protection. Hand cutting with heavy loppers, a chainsaw, or a pole saw. Use a root extracting tool (The Uprooter, formerly known as a weed wrench) to remove small-medium sized plants when the soil is wet.	Tackle outlying, newly emerging infestations FIRST to prevent plants from dropping seed and providing a means to further advance the overall rate of spread. There seems to be some value in re-covering the disturbed soil after removal activities. After removing medium to large plants (only use plants with no seed pods), place the cut portion back over the stump area to provide shade, as the material decomposes it forms a natural mulch.
Mechanical	Mechanical clearing is the most effective way to address extensive infestations. Bulldozers and excavators are effective in removing large gorse plant colonies and much of their root systems. A more practical and less intensive form of mechanical control is the use of mulchers or thrashers attached on the arm of an excavator or tractor to chop and grind gorse plants while leaving a mulch layer in place. Mulch helps to suppress the seedbank and follow-up herbicide treatments.	Pulling creates disturbed soil with many root fragments and exposed seed beds. Be prepared to address a large flush of seeds germinating. <i>Power washing machinery is CRITICAL to preventing spread into gorse-free or clean areas.</i>
Grazing	Repeated grazing by sheep and goats has been shown to be effective in reducing seedling establishment and gorse crown regrowth, but intensive animal management is required. When animals are pulled off of an infested site, gorse will return unless competitive plantings (grass, forbs mix) are established.	In a long-term study, the best control was achieved by first burning gorse stands, followed by grazing goats or a 2:1 mix of goats and sheep at 10 or more animals/acre. In areas of unburned gorse, sustained goat stocking for 4-5 years provided good control in some situations.

Herbicide	<p>Triclopyr (2% solution) has been shown to be the most effective herbicide along the Oregon coast. Capstone (Triclopyr+ small amount of Milestone) is the latest product being used with great results on coastal shrubs, including gorse. Adding a small amount of a silicone surfactant (e.g. Syltac) has been shown to increase success as well. Other herbicides shown to have some effectiveness include: glyphosate, Metsulfuron, and Triclopyr + 2,4-D (Crossbow®). Complete spray coverage of all branch and stem surfaces (even the undersides of branches) is essential. Use of an adjuvant (MSO, to help with uptake of the herbicide is very important. For best results, apply when plants are actively growing, during spring to early summer months and after first fall rains. Other times can be effective as well. Check for regrowth in 12 months. ALL herbicides must be used in accordance with the label instructions, including wearing appropriate clothing and gloves.</p>	<p><i>DO NOT spray when plants are in full flower or when bees are active.</i> Only aquatic registered formulations of triclopyr (Garlon 3A or Vastlan®) and glyphosate (Rodeo®, AquaMaster®, AquaPro®, etc.) should be used near water. A non-ionic surfactant should be used for applications near water. <i>Crossbow should NOT be used near water and can volatilize (move off site) in temperatures over 75 degrees.</i> For information on the toxicity, half-life, and environmental fate of herbicides, please refer to the National Pesticide Information Center fact sheets, http://pic.orst.edu/)</p>
<i>foliar</i>	Foliar applications refer to spraying of all leaf and stem surfaces.	
<i>cut stump or hack squirt</i>	<p>Cut Stump treatments refer to cutting/chopping down a gorse plant and applying (spraying or painting on) a concentrated herbicide to the cut surface, immediately apply herbicide solution after cutting. Triclopyr products (Garlon 4 or 3A) have been found to be most effective. A 25% Garlon 4 Ultra in 75% oil carrier (MSO, etc.) or undiluted Garlon 3A or 50% Garlon 3A in spray solution/water. A gel formulation of Triclopyr can be used or a wick applicator to limit off-target impacts. . A 50-100% glyphosate solution has been found to be effective in Lincoln County, OR.</p>	<p>Care must be taken to thoroughly understand the precautions when using a concentrated product. Approved herbicide applicator eyewear (brow and side eye protection) should be worn to avoid potential eye injury. READ the label very carefully to not go over the legally allowed herbicide per acre limits.</p>
<i>basal Bark</i>	<p>Basal bark applications refer to applying a concentrated herbicide to the lower portion (lower trunk to height of 12-15 inches) of the gorse stem. Spray should wet the lower stem, but not to the point</p>	<p>Care must be taken to thoroughly understand the precautions when using a concentrated product. Approved herbicide applicator eyewear (brow and side eye</p>

	of runoff. 20% Garlon 4 Ultra in 80% oil (MSO, etc.) carrier or undiluted Pathfinder II as a ready to use formulation. Plants should not be cut for at least 1 month following basal bark treatment.	protection) should be worn to avoid potential eye injury. READ the label very carefully to not go over the legally allowed herbicide per acre limits.
Pasture Fertilization	In managing pastures, the addition of nitrogen and lime can results in a soil pH that is not favorable to gorse and has shown to be effective in some situations.	Active pasture management, including soil testing is key to the successful use of this strategy.
Controlled burning	Can be a useful tool before grazing or in dense thickets before spraying. Burning alone does not kill the root system, resprouts are common after treatment. Fire stimulates a flush of seedling germination. Use of herbicide following a burn provides good control. Continued annual maintenance is required.	Use of controlled burning must be carefully assessed and locally coordinated with Fire Districts due to the high flammability of gorse and the potential for unintended, escaped fire situations.
Competitive Planting/ Shading	The Oregon Forest Research Laboratory (Portland, OR) recommends using acid-tolerant, fast growing trees. Monterey pine and Douglas fir showed greatest success although the former is more susceptible to animal, pest and disease risks. Small areas of open space should be cleared within the gorse patch for planting seedlings. Within these spaces, gorse plants and their root crowns should be removed by hand either in a checkerboard pattern, parallel rows, or at random. Seedlings should be at least 18 inches tall and 5/16 of an inch thick at the base, and should be protected with a barrier such as a tree tube or wire cage.	This technique works best when soil disturbance is kept to a minimum. Annual follow-up in these spaces should ensure that nearby gorse plants do not overtop the tree seedlings. It takes 10 to 15 years for the shade to stunt/kill the gorse plants and it is unlikely that all the gorse will die. While established gorse plants can withstand shade; increasing shade prevents further gorse germination.
Biocontrol	The gorse seed weevil (<i>Exapion ulicis</i>) and spider mite (<i>Tetranychus lintearius</i>) have both been released and become established in Oregon. The seed weevil reduces viable seed in some seed pods (some studies show 35% reduction of seed each year), but does not kill established stands. Heavy mite infestations can kill branches and are apparent by dense webbing that covers branches. A new biocontrol agent (a	Biocontrol is rarely a "silver bullet", but rather is used for regional-scale infestations in an integrated approach to reduce seed loads and weaken overall plant vigor, sometimes weakening plants making them more susceptible to other control methods and less competitive against desirable plants.

	sap-sucking thrip, <i>Sericothrips staphylinus</i>) is awaiting final approval for release.	
IPM: Integrated Strategies		
Monocultures	Oregon State Parks and Recreation has developed a guiding document for removal of large stands of gorse on State Park lands. This detailed document includes removal methodology and specifications (including: mechanical, herbicide, and replanting phases), as well as suggested timelines to guide management and tables of estimated gorse removal costs per acre, per year of a multi-year gorse removal and restoration program.	For a copy of this Oregon State Parks and Recreation guiding document, please contact Sherri Laier, sherri.laier@oregon.gov
Steep Slopes	The removal or mowing/mulching of gorse on steep slopes is problematic due to the inability to operate heavy machinery safely, and without posing undue risk to soil and cliff/slope stability. In many cases, access for machinery is impossible. In these situations, manual removal of gorse is required. Often times, the gorse plants are large requiring the use of chainsaws, pole saws, and heavy loppers. Ideally plants can be cut at the base and herbicide applied immediately (i.e., cut stump method). If not, annual follow-up with selective herbicides to treat resprouting from root crowns and new gorse seedlings will be necessary. Cut plants can be dragged/piled for burning or mulching if moved to where machinery is accessible.	Use of heavy protective clothing and hand/face/head protection is imperative. Trials are underway near Coquille Pt. in Bandon to determine if this method of removal poses a risk to soil/cliff stability.
Riparian Areas	Working in riparian areas can be challenging for a number of reasons. Heavy machinery can get stuck, damage the sensitive wetland and many areas can be inaccessible requiring hand work. However, the ground pressure (psi) of a person is more than a tracked vehicle weighing thousands of pounds. To minimize rutting and soil disturbance in sensitive areas and areas with soft soils, machinery used to cut and grind the gorse monocultures should always	Always determine staging areas on uplands for herbicide mixing and equipment refueling. Drip containment diapering of equipment staged near wetlands may be necessary to prevent leaks. Herbicides, by law, must be aquatic approved when working in wetlands. The most commonly used of these chemicals is triclopyr amine (Garlon 3A) and Aquatic

	<p>be tracked. A flail mower head attachment can reach between 12' and 30' so actual entrance to an area is not necessary.</p> <p>Wetland vegetation is extremely resilient and will often remain in the seed bank, growing and filling in areas that were once choked with gorse. To help the process along, plant grasses. Broadcast wetland grass seed at a rate of at least 15lbs/acre to allow for continued herbiciding of gorse with Garlon 3A.</p> <p>Best seeding windows for grass seed in wetlands is Sept.10-October 15 or immediately after retreat of surface water in spring/early summer. Once gorse is under control and being spot treated only, plant wetland shrubs and trees</p>	<p>approved glyphosate (Rodeo). Wetlands are usually spot-treated rather than broadcast sprayed to minimize impact to non-target species.</p>
Competitive Plantings	<p>As described in Liza Ehle's 5-step plan, replanting/revegetation is important to establish competitive species as soon as possible after gorse plants are removed or mowed/mulched. Other nitrogen-fixers, legumes, and acid tolerant tall grasses can out-compete gorse once the seedlings have an opportunity to use the mulch layer, open space, and sunlight. Nitrogen-fixers like perennial rye, clovers, lupine, Ceanothus and red alders can quickly do the same root work to loosen soils, provide nitrogen and restore ecological balance that encourages other vigorously adapted species like Sitka spruce, willow, twin berry, huckleberry, salal, etc.</p>	<p>5 step Strategy: http://www.wildriverscoastalliance.com/gap/ Go Natives Nursery (Bandon High School) can provide recommended native plants and advice.</p>
Native Plant Areas, Bradley Sister Method	<p>An approach developed by the Bradley sisters in Australia. It combines the strategies of containment and reduction and can be used most successfully in natural areas where weed stands are close to or intermingled with native vegetation. This approach uses carefully planned hand weeding to favor native vegetation, which fills the area where the weeds have been removed. Gorse removal is done outwards from the edge</p>	<p>Choose an area you can visit easily and often, where the native vegetation meets a mixture of natives and weeds not worse than 1 weed to 2 natives. <i>If you choose the most heavily infested areas to clear first, the weeds will re-invade very quickly because you have provided them with ideal conditions: bare, disturbed soil and full sunlight.</i></p>

	<p>of the best stands of natives. Start weeding in a strip about 12 feet wide. As you weed, be careful to replace any leaf litter that gets disturbed and use the weeds themselves as mulch when no mature seeds are present. Once your cleared strip is reclaimed by desirable vegetation, begin to clear another block. Using this method, the two Bradley sisters (both over fifty) cleared a 40-acre woodland reserve so successfully that the area needed only slight attention once or twice a year (mainly in vulnerable spots such as roadsides and creek banks) to be maintained weed-free. They expended an average of 45 minutes per day between the two of them. This low-cost, low-impact approach enables restoration to occur with minimal labor or equipment.</p>	<p>The length of this strip will depend on how much area you can easily maintain by visiting it once or twice a month during the growing season. <i>It is not necessary for the plants to be tall, but it is important that they form a dense cover over the soil and that they fill in the weeded area right up to the edge.</i> Avoid increasing the area you are maintaining until the native vegetation has moved in. <i>Nothing will be gained by hurrying this process; allow the desired plants time to grow and stabilize the area.</i></p>
Forest	<p>Once the forest canopy begins to close, shade deters gorse from invading forested areas. When a timber harvest or fire occurs, it is important to monitor and spray any gorse seed that emerges from the seed bank or new seed that may colonize on disturbed and exposed soils. The sooner tree seedlings are planted back into cleared sites the better since leaving exposed soils results in secondary invasion by invasive weeds, including gorse.</p> <p>A long-term (1946-1964) tree planting study conducted by OSU and the Dept. of Forestry in the Bandon area revealed many practical tips, including: "Control of gorse through tree planting should be attempted only in areas that are to be kept as forested land for several decades... planted trees will probably need 20-30 years before they can shade out gorse, although this period may be shortened somewhat by close spacing of planted seedlings. Use of additional overstory plantings in conjunction with reforestation may assist with gorse (and other invasive weed) control.</p>	<p>Cleaning equipment before entering and leaving timber harvest sites is key in preventing new introductions of gorse. Viable seeds have been shown to be easily transported by equipment used in silviculture activities. Preventing the transport of seeds from one location to another will help to prevent further gorse infestation. It may be wise to consider additional overstory vegetation to provide shade until the tree seedlings are able to take over providing required shade to inhibit gorse (and other invasive weeds).</p>
Pasture	On ~100 acres of heavily gorse-infested	Case Study available upon

	land, initial control was through mechanical means, and then ongoing control (now in 9th year) has been primarily through intensive grazing. Initial control (mulching/ grinding in year 1; disking in year 1-3; fertilizer/ compost, plus grass seed mix, with intensive grazing starting in year 1), then ongoing control largely through intensive grazing, plus compost, and hand-cutting plants (once/ year) that start to get established.	request. A case study was developed with details and tips in how to remove large stands of gorse and convert land to healthy pasture ground through an integrated approach.
Rights of Way/ Corridors	Brush or flail mow prior to seed set and 1-3 months prior to foliar herbicide application of 2% Triclopyr. If herbicide treatment can/will occur in spring, then brush mowing the prior season should be attempted; All equipment should be pressure washed at the site of infestation prior to relocation. Plan to treat all infestations for 3 consecutive years. Ground disturbance should be minimized to the extent possible.	GPS data about the extent of the infestation and timing of treatment should be recorded; infestation location data should be shared with neighboring organizations or the Gorse Action Group, especially if there are adjoining populations on public or private land.
Methods Tried, Found to be Ineffective		
Wood Vinegar (and biochar)	In 2014, OSU put out a trial in Bandon testing pyroligneous acid (wood vinegar) as a potential method of control for gorse; results were inconclusive. It is important to note that decades of testing of acetic acid (vinegars) and natural oils (clove, citrus, etc.) on a wide variety of weed species has only shown effectiveness on seedlings of annual species (acids and oils rupture cells that make up the outer layers of leaves leading to seedling desiccation) while showing little to no success for tough woody, perennial species.	Wood vinegar is a byproduct of pyrolysis, a thermochemical decomposition of carbon-based material. Wood vinegar has been used in Asia as a natural pesticide. Another byproduct of pyrolysis is biochar, a heavy pyrolytic oil that can be burned similar to heating oil. Studies have been conducted to test if gorse could be used to make marketable biochar; attempts were found to not be cost-effective.

FIGURES

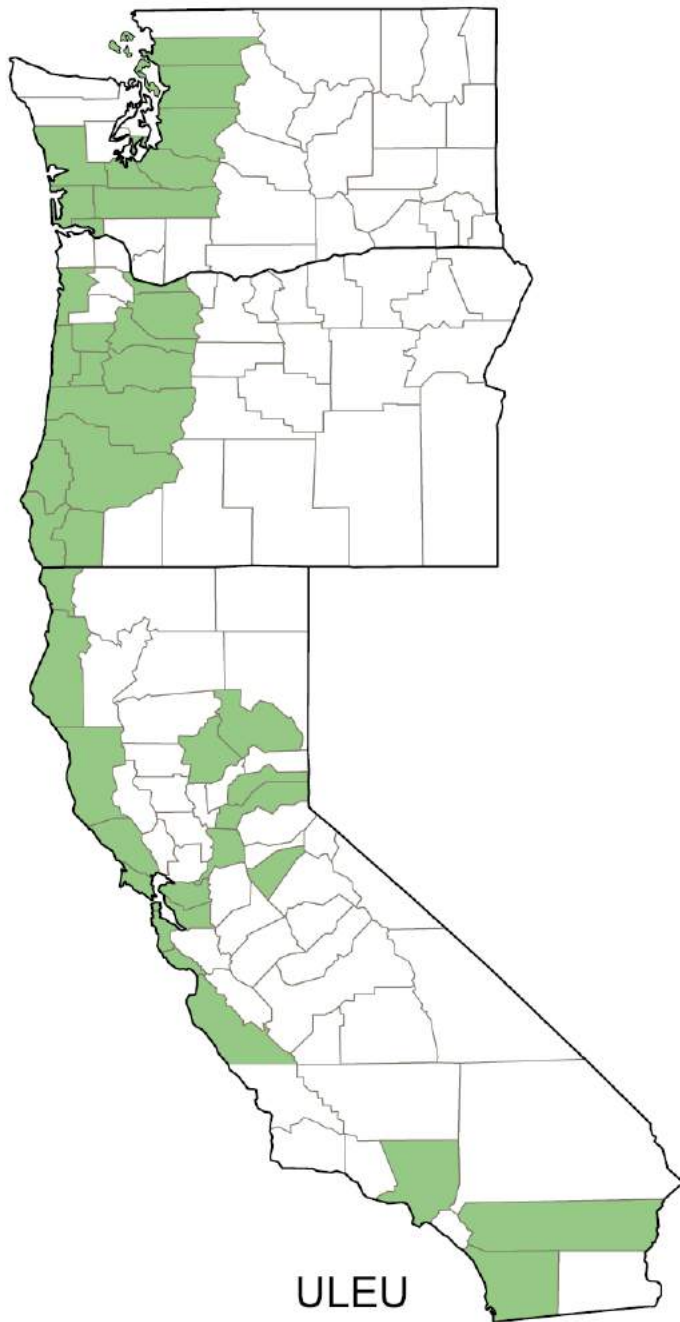


Figure 1. County distribution of gorse (ULEU; *Ulex europaeus*) in California, Oregon, and Washington. Source: PLANTS Database, USDA Natural Resources Conservation Service, National Plant Data Team, Greensboro, NC. Available: <http://plants.usda.gov> (26 November 2017).

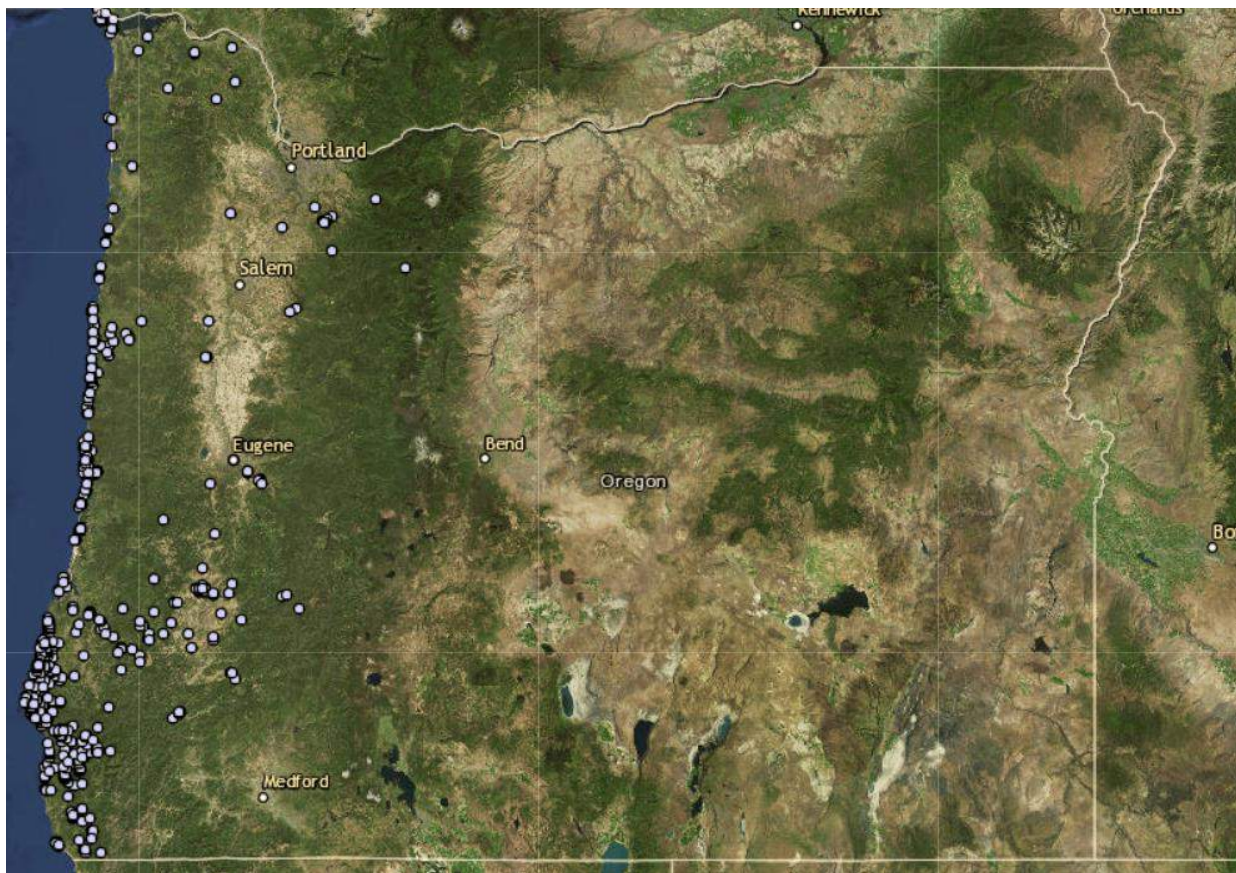


Figure 2. Distribution of gorse in Oregon. Source: WeedMapper, Oregon Department of Agriculture, Noxious Weed Control Program, Salem, OR. Available: <http://geo.maps.arcgis.com/apps/webappviewer/index.html?id=54e9b0eaacb34bc4a146a33faa9f8966> (26 November 2017).

REFERENCES

- ¹ Hermann, R. K. and M. Newton. 1968. Tree planting for control of gorse on the Oregon coast. Research Paper 9. Forest Research Laboratory, Oregon State Univ., Corvallis, OR. 12 pp.
- ² Economic Impact from Selected Noxious Weeds in Oregon. December 2014. Prepared by The Research Group, LLC for Oregon Department of Agriculture, Noxious Weed Control Program, Salem, OR. 186 pp.
- ³ U.S. Department of Interior, et al. 2001. Review and Update of the 1995 Federal Wildland Fire Management Policy. Boise, ID: National Interagency Fire Center.
- ⁴ Hutchinson, S. 2013. Performance Management: Theory and Practice. London, UK: Chartered Institute of Personnel & Development.
- ⁵ Hornoy, B., A. Atlan, V. Roussel, Y.M. Buckley, and M. Tarayre. 2013. Two colonisation stages generate two different patterns of genetic diversity within native and invasive ranges of *Ulex europaeus*. *Heredity* (Edinb) 111(5): 355-363.
- ⁶ Centre for Agriculture and Biosciences International (CABI). Invasive Species Compendium database (online). Available: <http://www.cabi.org/isc/> (12 November 2017)
- ⁷ Lowe, S., M. Browne, S. Boudjelas, and M. De Poorter. 2000. 100 of the world's worst invasive alien species: a selection from the Global Invasive Species Database. Invasive Species Specialist Group (ISSG) a specialist group of the Species Survival Commission (SSC) of the World Conservation Union (IUCN). Invasive Species Specialist Group, Auckland. 12pp.
- ⁸ Shaben, J. and J. H. Myers. 2010. Relationships between Scotch broom (*Cytisus scoparius*), soil nutrients, and plant diversity in the Garry oak savannah ecosystem. *Plant Ecology* 207: 81-91.
- ⁹ Coos County Community Wildfire Protection Plan. 2011. Prepared by Oregon Partnership for Disaster Resilience and Community Planning Workshop. Coos County Board of Commissioners, Coquille, OR. 71 pp.
- ¹⁰ Curry County Community Wildfire Protection Plan. 2008. Prepared by K. Lynn and R. Ojerio. Curry County and the Curry Wildfire Preparation Team, OR. 165 pp.
- ¹¹ USDA, Natural Resources Conservation Service. 2017. Strategic Private Lands Conservation in Coos & Curry County 2018 - 2023. NRCS Coquille Service Center, Coquille, OR. 38pp.
- ¹² Oregon Conservation Strategy. 2016. Oregon Department of Fish and Wildlife, Salem, Oregon.

¹³ The Oregon Statewide Action Plan for Invasive Species. 2017 – 2019. Working Document V1, Updated July 5, 2017. Developed by the Statewide Strategic Plan Working Group of the Oregon Invasive Species Council. 23 pp.

¹⁴ For details on cleaning for vehicles and equipment for terrestrial plants, see DiVittorio, J., M. Grodowitz, J. Snow, and T. Manross. 2012. Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive Species. Technical Memorandum No. 86-68220-07-05, U.S. Department of the Interior, Bureau of Reclamation, Denver, CO. 224 pp.

APPENDICES

- Appendix 1. Oregon Solutions Declaration of Cooperation, November 2017
- Appendix 2. Weed-fire platform description
- Appendix 3. Draft Gorse Action Group Strategic Action Plan, October 2016
- Appendix 4. Integrated marketing communication program example
- Appendix 5. USEPA Ecoregions of Oregon map
- Appendix 6. Executive Order on Invasive Species, Exec. Order 13751, December 2016
- Appendix 7. Federal Noxious Weed Act of 1974 amended, 7 U.S.C. 2814
- Appendix 8. Coos Co. Weed Control District Order, 08-05-048L, May 2008
- Appendix 9. Coos Co. Weed Advisory Board Amended Bylaws, Resolution 17-10-156L, November 2017
- Appendix 10. Intergovernmental agreement between Curry County and Curry County Soil & Water Conservation District, June 2004
- Appendix 11. Noxious weed control district functions in the western states
- Appendix 12. Response to comments received regarding the first draft (November 2017) of the Gorse Management Plan
- Appendix 13. Enacted laws and relevant regulations and standards
- Appendix 14. Stakeholder roles and responsibilities
- Appendix 15. Additional information: gorse description, seed dispersal, and environmental requirements
- Appendix 16. Short literature review of gorse management techniques
- Appendix 17. OSU Extension gorse management bulletin, September 2008

Declaration of Cooperation

Oregon Solutions Gorse Project

Purpose

The establishment of gorse (*Ulex europaeus*) is a substantial statewide issue that affects many different communities across Oregon and will require a collective commitment to address. In response, the Oregon Solutions Gorse Project team partners have created this Declaration of Cooperation (DOC) to bring organizations, agencies, and individuals together to work towards the shared goal of controlling and managing gorse in the Oregon Coast region and preventing the spread of gorse beyond its current extent.

The purpose of this DOC is to identify solutions to address the issue at hand and acknowledge the Oregon Solutions Project Team's commitments to work together on this complex issue. It recognizes and honors how our diverse group of partners are aligning their available resources and actions in order to collaboratively and holistically work towards shared solutions. In order to create an agreement in which all partners are invested, partners should be provided an annual opportunity to edit commitments based on budget cycles and new developments. Additional partners and commitments can be formally added to this commitment at that time.

Background

Noxious weeds are non-native plants that have been legally declared a menace to public welfare by the Oregon State Weed Board and a top priority for weed control programs¹. Gorse is a noxious weed found mainly along the coast of Oregon. It is highly invasive, extremely flammable, and forms monocultures that are rich in flammable oils and fine fuels, posing a serious fire risk to coastal communities. Gorse is persistent and one of the most difficult weeds to manage in the world. The shrubby evergreen plants are heavily armored, form dense thickets and generally are 3-10 feet tall. Additionally, the seed can survive many decades in the soil², making control time consuming, expensive, and particularly difficult on steep coastal bluffs.

Gorse was responsible for the burning of the entire city of Bandon in 1936 and notable subsequent fires in 1980, 1999, 2007, and 2015. In addition to widespread coverage of gorse on the Southern Oregon coast, dense gorse thickets currently cover approximately 60% of a 250-acre area of largely undeveloped land surrounded by urban residential development inside the City of Bandon's Urban Growth Boundary, posing a significant fire threat. This area is referred to as the Donut Hole and is a top priority for annexation in the City's comprehensive plan. The Donut Hole is divided among many private owners and much of it is platted with small undeveloped subdivision lots which could go a long way towards meeting the area's short and long-term workforce housing needs if the area's gorse, annexation, and public facilities issues can be addressed through a master planning process.

In addition to the fire threat, gorse rapidly invades land, impacting farming and grazing as well as timberlands. Gorse has already caused some south coast local farms to discontinue or sharply curtail their agricultural operations, and its impacts will continue until effective solutions are found.

Governor Brown designated the mitigation of gorse as an Oregon Solutions Project in December 2016 following a request from community leaders in the Southern Oregon Coast region and the Gorse Action Group (GAG). The GAG is a collaborative group of over 20 federal, state, and county agencies as well as local non-profit organizations, seeking to assess the extent of gorse and to create and implement a strategic plan for control on the southern Oregon coast. The GAG was developed as a subgroup of the Curry Wildfire Preparation Team and became a focused initiative. The GAG is an example of diverse groups pooling resources and working toward a common solution. The mission of the GAG is to: restore natural and ecological values to the land; increase economic and recreational values in the region; and increase public safety by reducing wildfire risk.

The GAG's achievements include education and outreach and an aerial photography and mapping project that documents in high-resolution detail the existing percent cover of gorse and outlines its predicted spread. It has also initiated or joined in several demonstration projects, obtaining funding to return lands to workable and usable condition. The GAG continues to seek funding and other forms of public and private support to further its mission. The Oregon Solutions Gorse Project Team and future partners signing this DOC will be referred to as 'the Gorse Action Group'.

Oregon Solutions

Governor Brown's designation of the Oregon Solutions Gorse Project is a major milestone in the effort to address a persistent noxious threat. Co-convened by Representative Caddy McKeown, Representative District 9, and Jim Seeley, Executive Director of Wild Rivers Coast Alliance, the project team began holding regular meetings in March of 2017. Four subcommittees have provided expertise and recommendations from scientists, communication and engagement specialists, the public, and Donut Hole property owners and stakeholders.

The Oregon Solutions Collaborative Process

1. Begins with a problem or opportunity defined by the community.
 - *Gorse is an Oregon "B" noxious weed found mainly along the coast of Oregon. Gorse is highly invasive, extremely flammable, and able to colonize a wide variety of habitats. This flammable plant poses a serious risk to coastal communities in southern Oregon, as well as native flora and fauna.*
2. Is chaired by a community convener identified by Governor Brown.
 - *Conveners include Representative McKeown and Mr. Seeley.*
3. Uses a collaborative process involving a team of federal, state, and local governments; businesses, landowners, and nonprofit organizations.
 - *Heidi McGowan provides professional facilitation services for the Gorse Project.*
4. Works toward an integrated solution that leverages the resources of the team.
5. Results in a signed Declaration of Cooperation.

The Oregon Solutions Gorse Project committed to “working agreements” for how they conduct their business with one another. As partners of the Oregon Solutions Gorse Project, we agreed to approach problems with creativity and open minds, and acknowledge that each member has a unique perspective and worthy contributions to make.

Project Team

When the Oregon Solutions Gorse Project was first established, there were 30 participants invited to the table. It was soon recognized that in order for the project to be successful, the project team needed to be more inclusive and more participants were invited as gaps were identified. Currently, there are four action teams (aka subcommittees) that work together to help lead and coordinate efforts, ensuring that the collaborative vision is realized through the action of partners working on diverse projects with varying geographic scope. The Project Team has identified additional partners who need to be involved for overall project success including Bonneville Power Administration, Power Utility Districts, and other counties or jurisdictions that are managing gorse, to name a few. The Project Team will continue to recruit additional partners to sign on to this DOC as they move beyond the Oregon Solutions project as the expanded Gorse Action Group.

Project Team Solutions

The project teams collaboratively identified eight overarching solutions that encompass key strategies and necessary actions to address gorse issues at varying scales of control, containment, detection and prevention. These solutions are not intended to serve as an action plan, but rather the guiding framework for the group’s collaborative efforts.

Below are the eight solutions with a brief summary of the associated strategies, *listed in no particular order*:

On-the-Ground Gorse Management and Best Practices

The key strategies and commitments identified for On-the-Ground Gorse Management and Best Management Practices Solutions include:

- Supporting gorse removal projects;
- Updating existing herbicide cost-share programs;
- Controlling gorse along private roads railways, trails, waterways, and other corridors of long-distance transport of weeds and in areas of high risk and points of entry, including campgrounds, power lines, airports, and areas of major disturbance;
- Facilitating and assessing the compliance of decontamination of machinery used in gorse removal and logging and fire equipment;
- Developing a wash station in Bandon as a model for the state;
- Conducting Firewise assessments & removing vegetation/fuel from buffer around homes; and
- Establishing Firewise Communities in the region.

Education, Training, and Technical Support

The key strategies and commitments identified for Education, Training, and Technical Support Solutions include:

- Creating in-person and web-based training modules & resources;
- Supporting Weed Day events;
- Conducting gorse management demonstrations;
- Providing summer internship opportunities focused on gorse management;
- Offering landowner technical assistance;
- Developing equipment rental programs;
- Training contractors and utility workers in best management practices for gorse; and
- Establishing workforce training opportunities.

Communications & Outreach

The key strategies and commitments identified for Communications & Outreach Solutions include:

- Developing diverse engagement strategies for impacted stakeholders and the general public;
- Streamlining communications including branding and materials;
- Developing informational materials for the public;
- Hosting a Donut Hole community meeting;
- Providing information through various media platforms;
- Reviewing incoming information from community-based scientists;
- Conducting fire hazard mitigation outreach; and
- Developing case studies.

Mapping & Reporting

The key strategies and commitments identified for Mapping & Reporting Solutions include:

- Creating maps at various scales to prioritize projects and responses and to use as a communication tool;
- Collecting data where data gaps exist;
- Organizing sketch mapping flights for consistent map data over time;
- Identifying outlier gorse populations;
- Identifying gorse populations in close proximity to vectoring (roadways, power lines, waterways, etc);
- Adopting a shared strategy and communication about detection of populations and response;
- Streamlining methods for sharing and collecting data about gorse locations and management; and
- Using smartphone applications to collect data.

Research

The key strategies and commitments identified for Research Solutions include:

- Conducting a thorough literature review;
- Identifying research needs;
- Fostering academic relationships for research opportunities;
- Conducting cost-benefit analyses;
- Evaluating landscape resilience; and

- Supporting the use of biocontrol methods when possible.

Coordination & Networking

The key strategies and commitments identified for Coordination & Networking Solutions include:

- Supporting a diverse Coordinating Committee to maintain the coordination and direction of the GAG;
- Continuing to build out the partnership at varying scales including landowners and community members, regional stakeholders, and state leaders;
- Aligning existing conservation strategies;
- Coordinating with regional Cooperative Weed Management Areas;
- Tracking management outcomes;
- Developing parameters to inform prioritization and planning of projects between GAG partners and action teams; and
- Aligning and seeking out funding opportunities for projects at varying scales and sustainability of the GAG's collaborative efforts.

Demonstration Projects

A variety of demonstration projects are key to showcasing progress and achievements and testing the limits of what can be done. Some of the demonstration projects that have been identified include:

Gorse Management Sites

- Bullards Beach
- Coquille Point
- Harris Beach
- Cape Blanco State Airport

Donut Hole

The key strategies and commitments identified for Donut Hole Solutions include:

- Hosting community meetings;
- Obtaining Firewise Community status;
- Applying Title III funding to vegetation removal / fuel reduction projects in the Donut Hole;
- Initiating and supporting a collaborative city-county master planning process;
- Identifying and fulfilling permitting requirements for gorse removal; and
- Implementing gorse removal, restoration and development strategies within the Donut Hole.

¹ODA. 2017. Noxious Weed Policy and Classification System 2017, Salem OR or [www.oregon.gov/ODA/programs/Weeds/Pages/About Weeds.aspx](http://www.oregon.gov/ODA/programs/Weeds/Pages/About%20Weeds.aspx)

²HR. L. Hill Landcare Research , P.O. Box 69, Lincoln, New Zealand ; Richard Hill & Associates , P.O. Box 4704, Christchurch, New Zealand E-mail: Hillr@crop.cri.nz , A. H. Gourlay Landcare Research , P.O. Box 69, Lincoln, New Zealand & R. J. BARKER.2000. Survival of *Ulex europaeus* seeds in the soil at three sites in New Zealand. P 235-244. Landcare Research , P.O. Box 69, Lincoln, New Zealand; Department of Mathematics and Statistics , University of Otago , P.O. Box 56, Dunedin, New Zealand

This Declaration of Cooperation, while not a binding legal contract, is evidence to and a statement of the good faith and commitment of the undersigned parties to realize the collaborative vision of the Oregon Solutions Gorse Project. The undersigned parties to this Declaration of Cooperation have, through a collaborative process, agreed and pledged their cooperation to the actions described below. Individual contributions and objectives are described in detail in Attachment A and intended to be reviewed/edited on an annual basis.

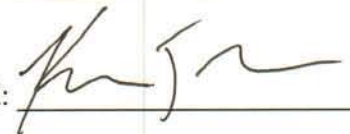
Al Johnson (Individual), WRCA Steering Committee Member, Retired Land Use Attorney

Signed: 

Date: 12/4/17

By (Print Name): AL JOHNSON

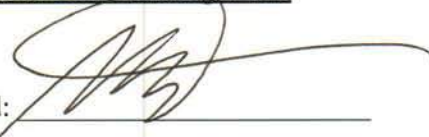
Bandon Dunes Golf Resort

Signed: 

Date: 12/4/17

By (Print Name): KEN NICE

Bureau of Land Management

Signed: 

Date: 12/4/17

By (Print Name): GLENN HARKESROAD
FOR KATHY WOSIENSKOW
DISTRICT MANAGER

By-the-Sea Gardens, LLC

Signed: 

Date: 12/4/17

By (Print Name): LIZA FATZEL

City of Bandon

Signed: Mary Schamehorn

Date: 12/4/17

By (Print Name):
MARY SCHAMEHORN

Coos County Board of Commissioners

Signed: Melissa Cribbins

Date: 12/4/2017

By (Print Name): Melissa Cribbins

Coos County Noxious Weed Control District Advisory Board

Signed: William J. Bailey

Date: 12/4/17

By (Print Name):
WILLIAM J. BAILEY

Coos County Office of Emergency Management

Signed: _____

Date: _____

By (Print Name):

Coos Forest Protective Association

Signed: _____

Date: _____

By (Print Name):

Coos Watershed Association

Signed: Elizabeth Galli-Noble

Date: Dec 4, 2017

By (Print Name): Elizabeth Galli-Noble

Coquille Indian Tribe

Signed: Mark Johnston

Date: Dec. 4, 2017

By (Print Name): Mark Johnston

Coquille Watershed Association

Signed: Melaney Danne

Date: December 4, 2017

By (Print Name): Melaney Danne

Curry County Board of Commissioners

Signed: _____

Date: _____

By (Print Name):

Curry County Office of Emergency Management

Signed:  _____

Date: 12/4/17

By (Print Name):

Jeremy Dunlap

Curry Soil & Water Conservation District

Signed:  _____

Date: 12/18/17

By (Print Name): *Erin Minster*

Douglas County Soil & Water Conservation District

Signed: _____

Date: _____

By (Print Name):

Hedley Prince (Individual) - Donut Hole Property Owner

Signed: 

Date: 12/4/17

By (Print Name):

Hedley Prince

Lane County Public Works

Signed: _____

Date: _____

By (Print Name):

NeighborWorks Umpqua

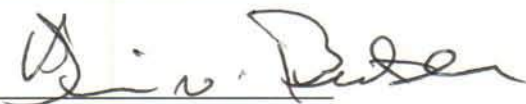
Signed: 

Date: 12/04/2017

By (Print Name):

MERTEN BANGEHANN-JOHNSON, CEO


Oregon Department of Agriculture

Signed: 

Date: 12-4-17

By (Print Name): TIM V. BUTLER

Oregon Department of Forestry

Signed: 

Date: 12-4-17

By (Print Name):

Oregon Department of Transportation

Signed: Dan L. Neavill

Date: 12/4/17

By (Print Name): DARRIN NEAVILL

Oregon Regional Solutions, Souther Oregon Region, Office of Governor Kate Brown

Signed: Alex Campbell

Date: 12/4/17

By (Print Name): Alex Campbell

Oregon Natural Resources Conservation Service

Signed: Eric Moeggenberg

Date: 12/4/2017

By (Print Name): Eric Moeggenberg

Oregon Parks and Recreation Department

Signed: Larry E. Becker

Date: 12/6/2017

By (Print Name): LARRY E. BECKER

Oregon State University Extension Service

Signed: Wila, A. Thompson

Date: 29 Nov 2014

By (Print Name):
Wila, A. Thompson
Director, Coastal Extension

South Coast Watershed Council

Signed: Matt Swanson

Date: 12/4/17

By (Print Name): MATT SWANSON

South Slough National Estuarine Research Reserve

Signed: John P. [Signature]

Date: 12/4/2017

By (Print Name):

State Representative, House District 9, Caddy McKeown

Signed: Caddy McKeown

Date: December 1st 2017

By (Print Name): REPRESENTATIVE CADDY MCKEOWN
HOUSE DISTRICT #9

U.S. Fish and Wildlife Service

Signed: Madeline Vander Heyden
By (Print Name): Madeline Vander Heyden

Date: 12/4/17

Wild Rivers Coast Alliance

Signed: Jim Seelky
By (Print Name):

Date: 12/4/17

Jim Seelky

Attachment A: Individual Commitments

In support of the Oregon Solutions Gorse Project, the following commit to the actions outlined below:

Al Johnson- WRCA Steering Committee Member, Retired Land Use Attorney

- Continue to help, on a volunteer basis, with master planning, workforce housing, and long-term gorse solutions for the Donut Hole

Bandon Dunes Golf Resort

- Continue to be available for knowledge sharing
- Serve as an on the ground example of a working landscape dealing with gorse control

Bureau of Land Management

- Control gorse on BLM lands
- Serve as a member of the GAG Science Team and continue participation in GAG
- Report infestations via EDDMaps or share data with ODA annually
- Report infestations found on other ownerships to landowners

By-the-Sea Gardens, LLC

- Be a local source for applicator and contractor trainings
- Explore the potential of establishing a gorse wash station in Bandon
- Continue to assist in the development of best practices and herbicide guidance documents
- Serve as outreach liaison for the forest industry
- Promote prevention practices amongst contractors, loggers, etc.

City of Bandon

- Continue to serve as a leading member of the GAG, Communications & Outreach subcommittee and other GAG sub-committees as needed.
- Commit to joint planning efforts, with Coos County and other regional stakeholders, to address concerns within the City's urban growth boundary and the greater Bandon area.
- Work as the liaison with the Bandon Rural Fire Protection District.
- Continue to develop and improve Best Management Practices for municipal activities.
- Become more of a resource and education source for private property owners within the City of Bandon.
- Continue to partner in the effort to control & eradicate gorse.

Coos County Board of Commissioners

- Continue to support the Noxious Weed Advisory Board
- Continue our efforts to control gorse on our 15,000 acre county forest
- Support the Firewise Communities' Program for GAG related activities
- Consider county codes requiring gorse control on properties lying within certain distances of Urban Growth Boundaries and structures outside of city boundaries.

Coos County Noxious Weed Control District Advisory Board

- Serve as leading member of the GAG Science Team
- Carry-out the responsibilities of the Coos County Noxious Weed Control District (ORS 569.360) as approved and directed by the Coos County Board of Commissioners
- Assist in the development of best practices and herbicide guidance documents
- Work with local farm supply stores to encourage vendors to carry products described in gorse management guidance documents
- Coordinate/administer countywide herbicide cost-share program as funds permit
- Promote prevention practices amongst agencies, contractors, loggers, ranchers, etc.

Coos County Office of Emergency Management

- Serve as a member of the GAG Science Team

Coos Forest Protective Association

- Work with landowners to encourage the use of best practices to reduce fire danger by eliminating gorse and buildup of tinder and debris
- Implement Best Management Practices in activities
- Report infestations via EDDMaps or share data with ODA annually

Coos Watershed Association

- Serve as a member of the GAG Coordinating Committee and Science, Communication and Outreach, Projects and Funding teams
- Host, manage, and populate the Gorse Action Group Website, a clearinghouse and repository for all things gorse
- Promote and manage EDDMapS West to report gorse infestations, particularly new sightings and outliers
- Serve as one of several coastal managers for Invasive Species Hotline gorse reports
- Engage interested parties, submit grants to fund, and co-lead the new South Coast Cooperative Weed Management Area, which will cover Coos and Curry counties
- Monitor and control outlier populations of gorse in the Coos Watershed.

Coquille Indian Tribe

- Provide database, mapping and GIS support services
- Continue to participate as member of the Gorse Action Group (GAG)

Coquille Watershed Association

- Serve on the Donut Hole team
- Act as liaison with SCWMA
- Identify and apply for funding to control and prevent the spread of gorse in the Coquille and neighboring watersheds

Curry County Board of Commissioners

Curry County Office of Emergency Management

- Serve as a member of the GAG

Curry Soil & Water Conservation District

- Continue to pursue grant funds to control outlier gorse populations and collaborate in larger control/restoration efforts in Curry County
- Continue to serve as a member of the Science Team, specifically the mapping subgroup
- Promote the GAG through the website including assisting with content updating and by distributing outreach materials

Douglas County Soil & Water Conservation District

- Engage with the GAG
- Apply for grants to control gorse populations in the Sutherlin area, the most inland (eastern) active population of gorse in Oregon
- Be a point person for the development of a coastal Quarry Certification Program

Hedley Prince (Individual) - Donut Hole Property Owner

- Host meetings with other Donut Hole property owners beginning on November 2nd, 2017
- Lead formation of organization to represent property owners is a high priority.
- Seek positive publicity for gorse removal and development in the Donut Hole
- Seek lower cost gorse removal methods

Lane County Public Works

- Serve as a member of the GAG Science Team
- Promote further Lane County partnerships with GAG
- Assist in mapping and control of Lane County gorse populations

NeighborWorks Umpqua

- Commit to coordinate with Donut Hole Team on outreach
- Commit to provide technical assistance and advice in the development opportunities within the Donut Hole area with focus on providing workforce housing
- Continue as a member of the Donut Hole sub-committee, or “Action Team”
- Be available to act as fiscal agent for funding as appropriate
- Continue as a member of the Communications & Outreach Action Team
- Commit to facilitate a Community Impact Measurement Survey to current owners/occupants within the Donut Hole area

Oregon Department of Agriculture

ORS 569.185 outlines the authority of the Oregon Department of Agriculture for integrated noxious weed management activities.

- Continue to serve as a leading member of the GAG Science Team
- Serve as co-lead for database and mapping development
- Take a leadership role in gorse early detection rapid response (EDRR) efforts for outlier sites.
- Serve as one of several coastal managers for Invasive Species Hotline and EDDMapS gorse reports
- Continue to assist in the development of integrated BMP's and herbicide guidance documents promoting effective gorse control
- Support efforts to obtain release permits for future biological control agents and support research for potential new agents
- Develop case studies (e.g. Wahl, grazing study) to highlight the most effective gorse management options
- Continue to provide feedback in the development of GAG public outreach messaging materials

Oregon Department of Transportation

- Explore the potential of establishing commercial vehicle wash station in Bandon
- Develop a gorse treatment plan for road shoulders and rights of way along Highway 101 and other state maintained roadways.
- Use best practices for cleaning mowing equipment to help prevent the spread of gorse along roads and highways

Oregon Regional Solutions, Southern Oregon Region, Office of Governor Kate Brown

- Assist in identification of resources and funding for specific projects
- Assist with coordination and outreach to relevant State of Oregon agencies
- Play a role as convener on for project implementation

Oregon Natural Resources Conservation Service

- Serve as a member of the GAG Team
- Offer technical and financial assistance for gorse control to cooperating farmers and ranchers
- Work with GAG members and Agency partners in exploring a potential gorse Conservation Implementation Strategy (CIS)
- Seek additional NRCS Program financial assistance (RCPP, Two Chiefs)

Oregon Parks and Recreation Department

- Serve as a member of the GAG Science and Communications teams
- Serve as a co-lead in the development of a useful coastal map to help guide prioritized control
- Assist in the development of herbicide guidance documents for gorse
- Continue to control gorse infestations on State Parks lands utilizing OPRD priorities and guidelines
- Demonstrate successful control strategies, such as those used at Bullards Beach, Coquille Point, Harris Beach, Cape Blanco State Airport

Oregon State University Extension Service

- Serve as a member of the GAG Science Team
- Develop and promote coastal pesticide applicator trainings
- Assist landowners in the development of basic gorse management plans
- Promote updating the Pacific Northwest Weed Management Handbook to include GAG gorse control recommendations

South Coast Watershed Council

- Promote and coordinate projects that lead to the suppression and eradication of gorse within the Council's Service Area (New River south to the California border), particularly those projects that have a direct benefit to watershed health
- Promote the activities of the GAG through outreach and education
- Continue to serve as a member of the GAG's Funding and Coordination subcommittees

South Slough National Estuarine Research Reserve

- Continue to serve as a member of the Gorse Action Group
- Address gorse outbreaks or infestations on lands managed by the reserve
- Work with the GAG communications and outreach team to identify training needs, develop training, and evaluate the effectiveness of training products and services
- Provide a venue for training at the South Slough Visitors Center
- Assist the GAG with Pacific Northwest regional outreach

State Representative, House District 9, Caddy McKeown

- Support and promote the efforts of the Gorse Action Group within the Legislative body, including the Coastal Caucus and the House Committee on Agriculture and Natural Resources

U.S. Fish and Wildlife Service

- Serve as a leading member of the GAG
- Control gorse infestation on Refuge lands utilizing USFWS priorities and guidelines

Wild Rivers Coast Alliance

- Provided match funding and capacity funding to facilitate the Gorse project communication and management
- Continue support for convening, communication and gorse removal projects

Weed-fire platform

A formal weed-fire program as a platform with an institutional basis, or focused on organizational function, is needed to increase coordination and effectiveness of interconnected weed and fire programs. Unique opportunities under this platform are included here.

- Harmonizing programs at all levels to facilitate consistent objectives, procedures and policies, standardized terminology, geospatial data sharing, uniform fuel/fire control, and cooperative implementation of integrated plans and projects
- Maintaining and sharing geospatial datasets in a centralized database for wildfire risk assessments and evaluations of potential fuel reduction treatments.
- Cross-pollinating ideas and knowledge to develop common understandings and create innovative, sustainable risk management solutions to shared problems; increased funding
- Developing proactive horizontal policies as they relate to fuels reduction and gorse control to share the risk between programs that increase efficacy and cost-effectiveness
- Linking the risk of weeds and fire with carbon management and storage aimed at making the region act as sink of carbon rather than potential source
- Examining greenhouse gas emissions from fires associated with gorse and abatement measures
- Engaging more decision-makers and other stakeholders for better policy development, promoting compliance and accountability
- Establishing a larger audience base to promote public education on weeds-fire and the means to address them while addressing public expectations and attitudes
- Expanding the weed role of private landowners to include initial response in affiliation with local fire entities or directly with certified training
- Expanding the weed role of public land managers to include assistance with geospatial data collection and fuel reduction activities, while addressing limited operating windows

DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT DRAFT

Gorse Action Group (GAG) Strategic Action Plan*

Document Purpose: In this document the Gorse Action Group (GAG) outlines objectives, strategies, and tasks to engage community and public support towards the mission to contain and control gorse effectively throughout Coos and Curry Counties.

Mission: To restore natural and ecological values to the land, increase economic and recreational values in the region, and increase public safety by reducing wildfire risk.

Vision: “A community that accepts responsibility for gorse control and contributes to on-going protection of social, economic, and environmental assets, with no further increase in gorse distribution in the region.”

Background: Gorse (*Ulex europaeus*) is an Oregon State Class B Noxious weed found in abundance on the southern Oregon coast. Gorse was intentionally introduced into the southern Oregon coast in the late 1800s and is now rated one of the top 100 worst invasive species worldwide (World Conservation Union), and the #1 most invasive species on the south coast of Oregon (Oregon State Parks). The presence of gorse has negatively impacted the regional economy and, due to its flammable nature, has created a serious public safety concern. In 1936, gorse played a key role in the complete burning of the town of Bandon, OR (Oregon Historical Society).

Controlling gorse requires a collaborative, long-term effort to combine knowledge and resources. The Gorse Action Group (GAG) is a collaborative group of representatives from federal, state, and county agencies and nonprofit organizations seeking to work together to assess the extent of gorse and create a strategic plan for control on the southern Oregon coast. Initially a subgroup of the Curry Wildfire Preparation Team and funded by the BLM and National Fire Plan, it soon became apparent that the GAG should branch out to become its own focused initiative. The GAG is a great example of diverse groups pooling resources and working toward a common solution.

Objectives: Four key objectives have been identified, working to improve: public perception, our local economy, regional ecology, and public safety.

Public perception: Gorse has become so prevalent along parts of the south coast that the community has developed the perception that nothing can be done to prevent further spread and address current populations. GAG will strive to change this perception.

Local Economy: The burden of gorse invasion has many harmful impacts to ranch operations, land and potential home resale values, recreation and related tourist opportunities.

*This GAG Strategic Plan Outline is modeled after plans developed by the Australian National Gorse Task Force.

Appendix 3

Regional Ecology: Gorse devastates forest, dune, and other coastal habitats reducing valued native plant and animal species.

Public Safety: Gorse produces a large fuel load that is highly flammable and thus poses a fire danger to heavily infested southern coastal communities.

Objective	Strategy	Tasks to implement strategies	Timing
Public Perception			
<i>Change public perception about gorse; reduce the attitude of defeat and/or apathy.</i>	Demonstrate successes, both big and small	- Describe and include photos of successful projects in outreach materials at community events	Annually
		- Successful projects highlighted in media (websites i.e. "gorsebusters")	Ongoing
		- Highlight successes at public meetings using PowerPoint presentations	Ongoing
		- Establish targeted pilot projects and convert invaded areas to working landscapes	2017
		- Landowner/agency field trips	2018/19
		- Make public aware of local ordinances as they relate to fuels reduction and gorse control	Ongoing
Local Economies			
<i>Improve local economies through gorse reduction.</i>	Increase working landscapes in forestry, agriculture, recreational areas	- Seek funding for small grant program for landowner gorse removal projects; promote best management practices	2018/19
		- Explore possibility of "for hire" seasonal gorse removal crew	2017
		- Explore potential of low interest/no interest loans for landowner gorse removal projects	2017
		- Seek funding for implementable projects on large-scale landscapes; promote best management practices	Ongoing
		- Identify and target events and areas to maximize outreach efforts	2017

Appendix 3

		<ul style="list-style-type: none"> - Encourage dialog into entrepreneurial and enterprising ways to use gorse (e.g. pellet mill stoves, honey, biofuels, etc.) 	Ongoing
Regional Ecology			
<i>Improve regional ecology through focused collaborative projects.</i>	Reduce gorse from high value /priority areas	<ul style="list-style-type: none"> - Complete mapping project - Identify method to assist in prioritization of high value control areas (e.g. rank areas based on common values like rare/threatened/endangered species) - Identify and establish gorse free zones to be surveyed and monitored regularly, establish MOUs to preserve for long-term success - Partner with Go Native Program - Contain monocultures near high value areas using best management practices - Appeal for continued OSU / USDA-ARS research promoting new biological control agents 	Ongoing
			2017
			2017/18
			Ongoing
			Ongoing
			Ongoing
Public Safety			
<i>Improve public safety</i>	Remove high density gorse infestations near populated areas	<ul style="list-style-type: none"> - Continue to develop partnerships: city, county, CFPA, neighborhoods, etc. - Identify and prioritize areas for wildland-urban interface gorse reduction projects; seek funding - Include gorse outreach into defensible space outreach programs - Explore the idea of community (gorse removal) tool sharing programs - Address gorse along right-of-ways: power lines, roadways, etc. 	Ongoing
			2017, Ongoing
			Annually
			2017/18
			Ongoing

Integrated marketing communication program example

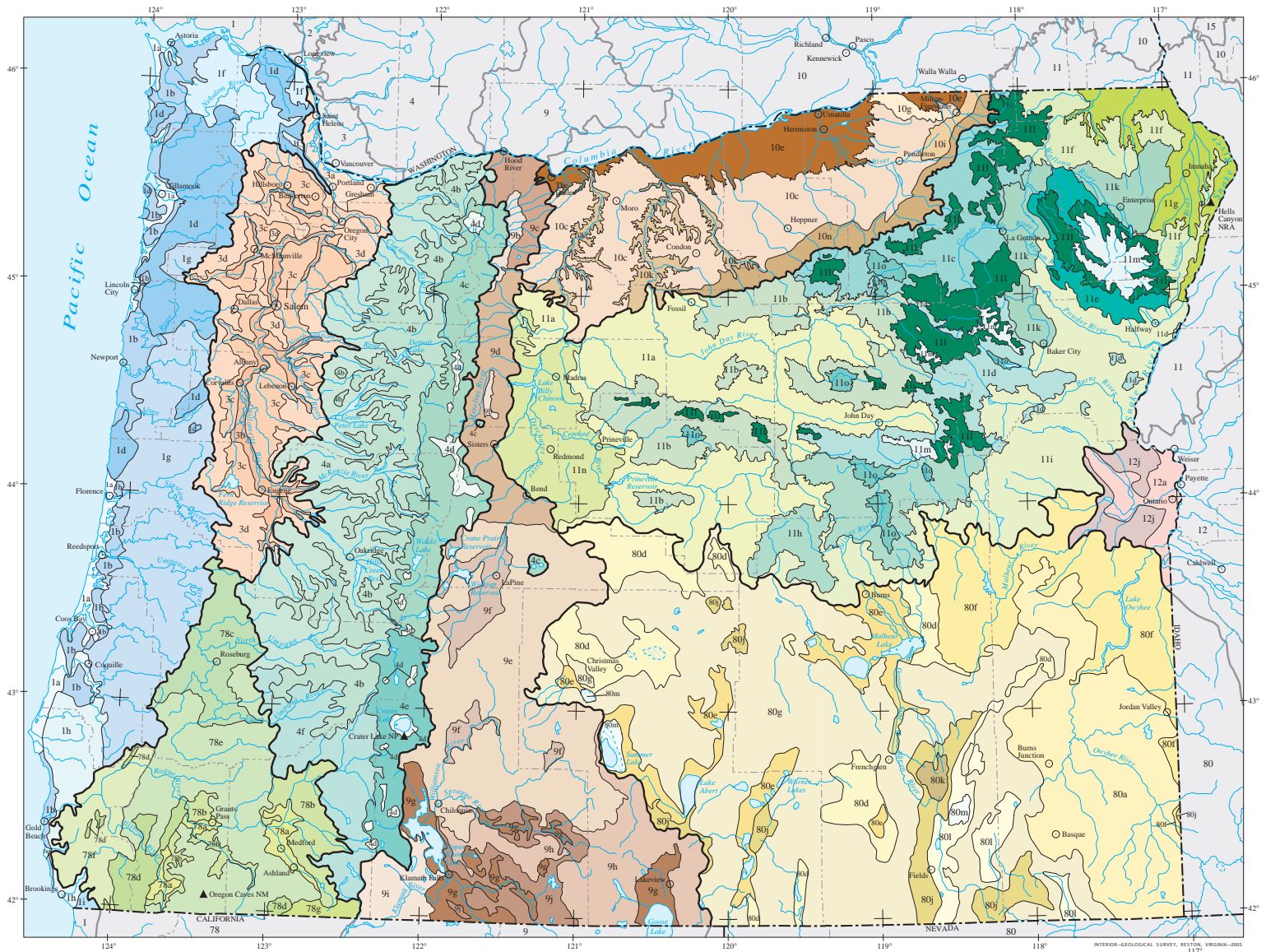
Integrated marketing communication (IMC) programs vary in approach. These programs are frequently designed to influence the support of, and relationships with, various stakeholder groups. Programs often focus on marketing communications and promotion management, including consumer behavior, attitudes and persuasion, and adoption (Journal of Marketing Communications, <http://www.tandfonline.com/toc/rjmc20/current>).

In our case, to generate attitudes (reduce the attitude of defeat or apathy) and behaviors (increase stakeholder support and participation) so society can contribute to risk management and conservation practice, a multi-scale program might initially focus on identifying and integrating all of the potential interactions (communications) that external and internal stakeholders may have with the weed-fire program, as well as all of its products and services (identify products and services of weed control programs here).

1. Develop program based on existing science-based environmental education and community outreach programs that incorporate local social and ecological contexts to improve public literacy in biodiversity (for example see Action Bioscience, American Institute of Biological Sciences, <http://www.actionbioscience.org/>).
2. Explicitly link IMC program objectives to reducing risk and impacts of gorse, ordinances on fuels reduction and gorse control, stakeholder responsibilities, ecosystem value and services, protecting and restoring ecosystem function, priority conservation areas, the pervasiveness of interconnected weed-fire problems, and weed-fire program and its services
3. Include internal and external education on these topics along with wildfire issues such as the complexities and costs of full suppression.
4. Deliver steady, unified messages and advertise successful projects across multiple digital, social, and traditional communication tools, including:
 - a. Print and broadcast media, interactive website/electronic consultation,
 - b. Place advertising, including bulletins, posters, transit
 - i. Increase educational signage across the region
 - c. Promotions, including contests and incentives, and
 - d. Public hearings or meetings
5. Promote a mascot (“gorsebusters”) or piggy back with Smoky the Bear to make the weed–fire connection.
6. Involve public and private stakeholders in citizen’s panels, focus groups, task forces, public hearings and meetings, and town meetings with voting.

7. Establish communication links and interfaces between civic leaders, policy-makers, agency administrators, students, the public, and agency field staff to keep them informed.
8. Involve schools through hands-on, outdoors education and formal education (K – 12) with student participation in inventories or environmental monitoring.
9. Conduct cross-jurisdictional education efforts at all levels: K–12, general public, civic leaders, and policy makers.
10. Include community outreach through informal education with citizen science and youth service programs for monitoring and data collection.
11. Conduct best practice management training, demonstrations, field days, property visitation.
12. Advertise a call to action in agency brochures, flyers, and leaflets to ensure the community understands the role they play in preventing and controlling gorse.
13. Disseminate information to reach large numbers of people.
14. Share gorse info with fire managers for fire information packets during incidents.
15. Use existing programs such as Extension, NRCS, and Firewise.
16. Include gorse outreach into defensible space outreach programs.
17. Collaboratively develop educational materials with network partners to pool expertise and resources.
18. Publish best management practices for community outreach, dialogue, and involvement on gorse control and habitat recovery and conservation.

Ecoregions of Oregon



1 Coast Range

- 1a Coastal Lowlands
- 1b Coastal Uplands
- 1d Volcanics
- 1f Willapa Hills
- 1g Mid-Coastal Sedimentary
- 1h Southern Oregon Coastal Mountains
- 1i Redwood Zone

3 Willamette Valley

- 3a Portland/Vancouver Basin
- 3b Willamette River and Tributaries Gallery Forest
- 3c Prairie Terraces
- 3d Valley Foothills

4 Cascades

- 4a Western Cascades Lowlands and Valleys
- 4b Western Cascades Montane Highlands
- 4c Cascade Crest Montane Forest
- 4d Cascade Subalpine/Alpine
- 4e High Southern Cascades Montane Forest
- 4f Southern Cascades

9 Eastern Cascades Slopes and Foothills

- 9b Grand Fir Mixed Forest
- 9c Oak/Conifer Foothills
- 9d Ponderosa Pine/Bitterbrush Woodland
- 9e Pumice Plateau
- 9f Pumice Plateau Basins
- 9g Klamath/Goose Lake Basins
- 9h Fremont Pine/Fir Forest
- 9i Southern Cascades Slope
- 9j Klamath Juniper Woodland

10 Columbia Plateau

- 10a Umatilla Plateau
- 10c Pleistocene Lake Basins
- 10g Yakima Folds
- 10i Deep Loess Foothills
- 10k Deschutes/John Day Canyons
- 10n Umatilla Dissected Uplands

11 Blue Mountains

- 11a John Day/Clarno Uplands
- 11b John Day/Clarno Highlands
- 11c Maritime-Influenced Zone
- 11d Melange
- 11e Wallows/Seven Devils Mountains
- 11f Canyons and Dissected Highlands
- 11g Canyons and Dissected Uplands
- 11h Continental Zone Highlands
- 11i Continental Zone Foothills
- 11k Blue Mountain Basins
- 11l Mesic Forest Zone
- 11m Subalpine-Alpine Zone
- 11n Deschutes River Valley
- 11o Cold Basins

12 Snake River Plain

- 12a Treasure Valley
- 12j Unwooded Alkaline Foothills

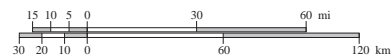
78 Klamath Mountains

- 78a Rogue/Illinois Valleys
- 78b Oak Savanna Foothills
- 78c Umpqua Interior Foothills
- 78d Serpentine Siskiyou
- 78e Inland Siskiyou
- 78f Coastal Siskiyou
- 78g Klamath River Ridges

80 Northern Basin and Range

- 80a Dissected High Lava Plateau
- 80d Pluvial Lake Basins
- 80e High Desert Wetlands
- 80f Owyhee Uplands and Canyons
- 80g High Lava Plains
- 80j Semiarid Uplands
- 80k Partly Forested Mountains
- 80l Salt Shrub Valleys
- 80m Barren Playas

— Level III ecoregion
 --- Level IV ecoregion
 — County boundary
 - - - State boundary



Albers Equal Area Projection
 Standard parallels 43° N and 45° N

Presidential Documents

Title 3—**Executive Order 13751 of December 5, 2016****The President****Safeguarding the Nation From the Impacts of Invasive Species**

By the authority vested in me as President by the Constitution and to ensure the faithful execution of 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.*), the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, (16 U.S.C. 4701 *et seq.*), the Plant Protection Act (7 U.S.C. 7701 *et seq.*), the Lacey Act, as amended (18 U.S.C. 42, 16 U.S.C. 3371–3378 *et seq.*), the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), the Noxious Weed Control and Eradication Act of 2004 (7 U.S.C. 7781 *et seq.*), and other pertinent statutes, to prevent the introduction of invasive species and provide for their control, and to minimize the economic, plant, animal, ecological, and human health impacts that invasive species cause, it is hereby ordered as follows:

Section 1. Policy. It is the policy of the United States to prevent the introduction, establishment, and spread of invasive species, as well as to eradicate and control populations of invasive species that are established. Invasive species pose threats to prosperity, security, and quality of life. They have negative impacts on the environment and natural resources, agriculture and food production systems, water resources, human, animal, and plant health, infrastructure, the economy, energy, cultural resources, and military readiness. Every year, invasive species cost the United States billions of dollars in economic losses and other damages.

Of substantial growing concern are invasive species that are or may be vectors, reservoirs, and causative agents of disease, which threaten human, animal, and plant health. The introduction, establishment, and spread of invasive species create the potential for serious public health impacts, especially when considered in the context of changing climate conditions. Climate change influences the establishment, spread, and impacts of invasive species.

Executive Order 13112 of February 3, 1999 (Invasive Species), called upon executive departments and agencies to take steps to prevent the introduction and spread of invasive species, and to support efforts to eradicate and control invasive species that are established. Executive Order 13112 also created a coordinating body—the Invasive Species Council, also referred to as the National Invasive Species Council—to oversee implementation of the order, encourage proactive planning and action, develop recommendations for international cooperation, and take other steps to improve the Federal response to invasive species. Past efforts at preventing, eradicating, and controlling invasive species demonstrated that collaboration across Federal, State, local, tribal, and territorial government; stakeholders; and the private sector is critical to minimizing the spread of invasive species and that coordinated action is necessary to protect the assets and security of the United States.

This order amends Executive Order 13112 and directs actions to continue coordinated Federal prevention and control efforts related to invasive species. This order maintains the National Invasive Species Council (Council) and the Invasive Species Advisory Committee; expands the membership of the Council; clarifies the operations of the Council; incorporates considerations

of human and environmental health, climate change, technological innovation, and other emerging priorities into Federal efforts to address invasive species; and strengthens coordinated, cost-efficient Federal action.

Sec. 2. Definitions. Section 1 of Executive Order 13112 is amended to read as follows:

“**Section 1. Definitions.** (a) ‘Control’ means containing, suppressing, or reducing populations of invasive species.

(b) ‘Eradication’ means the removal or destruction of an entire population of invasive species.

(c) ‘Federal agency’ means an executive department or agency, but does not include independent establishments as defined by 5 U.S.C. 104.

(d) ‘Introduction’ means, as a result of human activity, the intentional or unintentional escape, release, dissemination, or placement of an organism into an ecosystem to which it is not native.

(e) ‘Invasive species’ means, with regard to a particular ecosystem, a non-native organism whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health.

(f) ‘Non-native species’ or ‘alien species’ means, with respect to a particular ecosystem, an organism, including its seeds, eggs, spores, or other biological material capable of propagating that species, that occurs outside of its natural range.

(g) ‘Pathway’ means the mechanisms and processes by which non-native species are moved, intentionally or unintentionally, into a new ecosystem.

(h) ‘Prevention’ means the action of stopping invasive species from being introduced or spreading into a new ecosystem.

(i) ‘United States’ means the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the U.S. Virgin Islands, the Commonwealth of the Northern Mariana Islands, all possessions, and the territorial sea of the United States as defined by Presidential Proclamation 5928 of December 27, 1988.”

Sec. 3. Federal Agency Duties. Section 2 of Executive Order 13112 is amended to read as follows:

“**Sec. 2. Federal Agency Duties.** (a) Each Federal agency for which that agency’s actions may affect the introduction, establishment, or spread of invasive species shall, to the extent practicable and permitted by law,

(1) identify such agency actions;

(2) subject to the availability of appropriations, and within administrative, budgetary, and jurisdictional limits, use relevant agency programs and authorities to:

(i) prevent the introduction, establishment, and spread of invasive species;

(ii) detect and respond rapidly to eradicate or control populations of invasive species in a manner that is cost-effective and minimizes human, animal, plant, and environmental health risks;

(iii) monitor invasive species populations accurately and reliably;

(iv) provide for the restoration of native species, ecosystems, and other assets that have been impacted by invasive species;

(v) conduct research on invasive species and develop and apply technologies to prevent their introduction, and provide for environmentally sound methods of eradication and control of invasive species;

(vi) promote public education and action on invasive species, their pathways, and ways to address them, with an emphasis on prevention, and early detection and rapid response;

(vii) assess and strengthen, as appropriate, policy and regulatory frameworks pertaining to the prevention, eradication, and control of invasive species and address regulatory gaps, inconsistencies, and conflicts;

(viii) coordinate with and complement similar efforts of States, territories, federally recognized American Indian tribes, Alaska Native Corporations, Native Hawaiians, local governments, nongovernmental organizations, and the private sector; and

(ix) in consultation with the Department of State and with other agencies as appropriate, coordinate with foreign governments to prevent the movement and minimize the impacts of invasive species; and

(3) refrain from authorizing, funding, or implementing actions that are likely to cause or promote the introduction, establishment, or spread of invasive species in the United States 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.

(c) Federal agencies shall pursue the duties set forth in this section in coordination, to the extent practicable, with other member agencies of the Council and staff, consistent with the National Invasive Species Council Management Plan, and in cooperation with State, local, tribal, and territorial governments, and stakeholders, as appropriate, and in consultation with the Department of State when Federal agencies are working with international organizations and foreign nations.

(d) Federal agencies that are members of the Council, and Federal inter-agency bodies working on issues relevant to the prevention, eradication, and control of invasive species, shall provide the Council with annual information on actions taken that implement these duties and identify barriers to advancing priority actions.

(e) To the extent practicable, Federal agencies shall also expand the use of new and existing technologies and practices; develop, share, and utilize similar metrics and standards, methodologies, and databases and, where relevant, platforms for monitoring invasive species; and, facilitate the interoperability of information systems, open data, data analytics, predictive modeling, and data reporting necessary to inform timely, science-based decision making.

Sec. 4. *Emerging Priorities.* Federal agencies that are members of the Council and Federal interagency bodies working on issues relevant to the prevention, eradication, and control of invasive species shall take emerging priorities into consideration, including:

(a) Federal agencies shall consider the potential public health and safety impacts of invasive species, especially those species that are vectors, reservoirs, and causative agents of disease. The Department of Health and Human Services, in coordination and consultation with relevant agencies as appropriate, shall within 1 year of this order, and as requested by the Council thereafter, provide the Office of Science and Technology Policy and the Council a report on public health impacts associated with invasive species. That report shall describe the disease, injury, immunologic, and safety impacts associated with invasive species, including any direct and indirect impacts on low-income, minority, and tribal communities.

(b) Federal agencies shall consider the impacts of climate change when working on issues relevant to the prevention, eradication, and control of invasive species, including in research and monitoring efforts, and integrate invasive species into Federal climate change coordinating frameworks and initiatives.

(c) Federal agencies shall consider opportunities to apply innovative science and technology when addressing the duties identified in section 2 of Executive Order 13112, as amended, including, but not limited to, promoting open data and data analytics; harnessing technological advances in remote sensing technologies, molecular tools, cloud computing, and predictive analytics; and using tools such as challenge prizes, citizen science, and crowdsourcing.

Sec. 5. *National Invasive Species Council.* Section 3 of Executive Order 13112 is amended to read as follows:

“**Sec. 3. *National Invasive Species Council.*** (a) A National Invasive Species Council (Council) is hereby established. The mission of the Council is to provide the vision and leadership to coordinate, sustain, and expand Federal efforts to safeguard the interests of the United States through the prevention, eradication, and control of invasive species, and through the restoration of ecosystems and other assets impacted by invasive species.

(b) The Council’s membership shall be composed of the following officials, who may designate a senior-level representative to perform the functions of the member:

- (i) Secretary of State;
- (ii) Secretary of the Treasury;
- (iii) Secretary of Defense;
- (iv) Secretary of the Interior;
- (v) Secretary of Agriculture;
- (vi) Secretary of Commerce;
- (vii) Secretary of Health and Human Services;
- (viii) Secretary of Transportation;
- (ix) Secretary of Homeland Security;
- (x) Administrator of the National Aeronautics and Space Administration;
- (xi) Administrator of the Environmental Protection Agency;
- (xii) Administrator of the United States Agency for International Development;
- (xiii) United States Trade Representative;
- (xiv) Director or Chair of the following components of the Executive Office of the President: the Office of Science and Technology Policy, the Council on Environmental Quality, and the Office of Management and Budget; and

(xv) Officials from such other departments, agencies, offices, or entities as the agencies set forth above, by consensus, deem appropriate.

(c) The Council shall be co-chaired by the Secretary of the Interior (Secretary), the Secretary of Agriculture, and the Secretary of Commerce, who shall meet quarterly or more frequently if needed, and who may designate a senior-level representative to perform the functions of the Co-Chair. The Council shall meet no less than once each year. The Secretary of the Interior shall, after consultation with the Co-Chairs, appoint an Executive Director of the Council to oversee a staff that supports the duties of the Council. Within 1 year of the date of this order, the Co-Chairs of the Council shall, with consensus of its members, complete a charter, which shall include any administrative policies and processes necessary to ensure the Council can satisfy the functions and responsibilities described in this order.

(d) The Secretary of the Interior shall maintain the current Invasive Species Advisory Committee established under the Federal Advisory Committee Act, 5 U.S.C. App., to provide information and advice for consideration by the Council. The Secretary shall, after consultation with other members of the Council, appoint members of the advisory committee who represent diverse stakeholders and who have expertise to advise the Council.

(e) Administration of the Council. The Department of the Interior shall provide funding and administrative support for the Council and the advisory committee consistent with existing authorities. To the extent permitted by law, including the Economy Act, and within existing appropriations, participating agencies may detail staff to the Department of the Interior to support the Council’s efforts.”

Sec. 6. *Duties of the National Invasive Species Council.* Section 4 of Executive Order 13112 is amended to read as follows:

“**Sec. 4. *Duties of the National Invasive Species Council.*** The Council shall provide national leadership regarding invasive species and shall:

(a) with regard to the implementation of this order, work to ensure that the Federal agency and interagency activities concerning invasive species are coordinated, complementary, cost-efficient, and effective;

(b) undertake a National Invasive Species Assessment in coordination with the U.S. Global Change Research Program’s periodic national assessment, that evaluates the impact of invasive species on major U.S. assets, including food security, water resources, infrastructure, the environment, human, animal, and plant health, natural resources, cultural identity and resources, and military readiness, from ecological, social, and economic perspectives;

(c) advance national incident response, data collection, and rapid reporting capacities that build on existing frameworks and programs and strengthen early detection of and rapid response to invasive species, including those that are vectors, reservoirs, or causative agents of disease;

(d) publish an assessment by 2020 that identifies the most pressing scientific, technical, and programmatic coordination challenges to the Federal Government’s capacity to prevent the introduction of invasive species, and that incorporate recommendations and priority actions to overcome these challenges into the National Invasive Species Council Management Plan, as appropriate;

(e) support and encourage the development of new technologies and practices, and promote the use of existing technologies and practices, to prevent, eradicate, and control invasive species, including those that are vectors, reservoirs, and causative agents of disease;

(f) convene annually to discuss and coordinate interagency priorities and report annually on activities and budget requirements for programs that contribute directly to the implementation of this order; and

(g) publish a National Invasive Species Council Management Plan as set forth in section 5 of this order.”

Sec. 7. *National Invasive Species Council Management Plan.* Section 5 of Executive Order 13112 is amended to read as follows:

“**Sec. 5. *National Invasive Species Council Management Plan.*** (a) By December 31, 2019, the Council shall publish a National Invasive Species Council Management Plan (Management Plan), which shall, among other priorities identified by the Council, include actions to further the implementation of the duties of the National Invasive Species Council.

(b) The Management Plan shall recommend strategies to:

(1) provide institutional leadership and priority setting;

(2) achieve effective interagency coordination and cost-efficiency;

(3) raise awareness and motivate action, including through the promotion of appropriate transparency, community-level consultation, and stakeholder outreach concerning the benefits and risks to human, animal, or plant health when controlling or eradicating an invasive species;

(4) remove institutional and policy barriers;

(5) assess and strengthen capacities; and

(6) foster scientific, technical, and programmatic innovation.

(c) The Council shall evaluate the effectiveness of the Management Plan implementation and update the Plan every 3 years. The Council shall provide an annual report of its achievements to the public.

(d) Council members may complement the Management Plan with invasive species policies and plans specific to their respective agency’s roles, responsibilities, and authorities.”

Sec. 8. *Actions of the Department of State and Department of Defense.* Section 6(d) of Executive Order 13112 is amended to read as follows:

“(d) The duties of section 3(a)(2) and section 3(a)(3) of this order shall not apply to any action of the Department of State if the Secretary of State finds that exemption from such requirements is necessary for foreign policy, readiness, or national security reasons. The duties of section 3(a)(2) and section 3(a)(3) of this order shall not apply to any action of the Department of Defense if the Secretary of Defense finds that exemption from such requirements is necessary for foreign policy, readiness, or national security reasons.”

Sec. 9. *Obligations of the Department of Health and Human Services.*

A new section 6(e) of Executive Order 13112 is added to read as follows:

“(e) The requirements of this order do not affect the obligations of the Department of Health and Human Services under the Public Health Service Act or the Federal Food, Drug, and Cosmetic Act.”

Sec. 10. *General Provisions.* (a) Nothing in this order shall be construed to impair or otherwise affect:

(1) the authority granted by law to an executive department or agency, or the head thereof; or

(2) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.



THE WHITE HOUSE,
December 5, 2016.

Federal Noxious Weed Act

Sec. 2814. Management of undesirable plants on Federal lands

(a) Duties of agencies

Each Federal agency shall -

- (1) designate an office or person adequately trained in the management of undesirable plant species to develop and coordinate an undesirable plants management program for control of undesirable plants on Federal lands under the agency's jurisdiction;
- (2) establish and adequately fund an undesirable plants management program through the agency's budgetary process;
- (3) complete and implement cooperative agreements with State agencies regarding the management of undesirable plant species on Federal lands under the agency's jurisdiction; and
- (4) establish integrated management systems to control or contain undesirable plant species targeted under cooperative agreements.

(b) Environmental impact statements

In the event an environmental assessment or environmental impact statement is required under the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) to implement plant control agreements, Federal agencies shall complete such assessments or statements within 1 year after the requirement for such assessment or statement is ascertained.

(c) Cooperative agreements with State agencies

(1) In general

Federal agencies, as appropriate, shall enter into cooperative agreements with State agencies to coordinate the management of undesirable plant species on Federal lands.

(2) Contents of plan

A cooperative agreement entered into pursuant to paragraph (1) shall -

- (A) prioritize and target undesirable plant species or group of species to be controlled or contained within a specific geographic area;
- (B) describe the integrated management system to be used to control or contain the targeted undesirable plant species or group of species; and
- (C) detail the means of implementing the integrated management system, define the duties of the Federal agency and the State agency in prosecuting that method, and establish a time frame for the initiation and completion of the tasks specified in the integrated management system.

(d) Exception

A Federal agency is not required under this section to carry out programs on Federal lands unless similar programs are being implemented generally on State or private lands in the same area.

(e) Definitions

As used in this section:

(1) Cooperative agreement

The term "cooperative agreement" means a written agreement between a Federal agency and a State agency entered into pursuant to this section.

(2) Federal agency

The term "Federal agency" means a department, agency, or bureau of the Federal Government responsible for administering or managing Federal lands under its jurisdiction.

(3) Federal lands

The term "Federal lands" means lands managed by or under the jurisdiction of the Federal Government.

(4) Integrated management system

The term "integrated management systems" means a system for the planning and implementation of a program, using an interdisciplinary approach, to select a method for containing or controlling an undesirable plant species or group of species using all available methods, including -

- (A) education;
- (B) preventive measures;
- (C) physical or mechanical methods;
- (D) biological agents;
- (E) herbicide methods;
- (F) cultural methods; and
- (G) general land management practices such as manipulation of livestock or wildlife grazing strategies or improving wildlife or livestock habitat.

(5) Interdisciplinary approach

The term "interdisciplinary approach" means an approach to making decisions regarding the containment or control of an undesirable plant species or group of species, which -

- (A) includes participation by personnel of Federal or State agencies with experience in areas including weed science, range science, wildlife biology, land management, and

forestry; and

(B) includes consideration of -

- (i) the most efficient and effective method of containing or controlling the undesirable plant species;
- (ii) scientific evidence and current technology;
- (iii) the physiology and habitat of a plant species; and
- (iv) the economic, social, and ecological consequences of implementing the program.

(6) State agencies

The term "State agency" means a State department of agriculture, or other State agency or political subdivision thereof, responsible for the administration or implementation of undesirable plants laws of a State.

(7) Undesirable plant species

The term "undesirable plants" means plant species that are classified as undesirable, noxious, harmful, exotic, injurious, or poisonous, pursuant to State or Federal law. Species listed as endangered by the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) shall not be designated as undesirable plants under this section and shall not include plants indigenous to an area where control measures are to be taken under this section.

(f) Coordination

(1) In general

The Secretary of Agriculture and the Secretary of the Interior shall take such actions as may be necessary to coordinate Federal agency programs for control, research, and educational efforts associated with Federal, State, and locally designated noxious weeds.

(2) Duties

The Secretary, in consultation with the Secretary of the Interior, shall -

- (A) identify regional priorities for noxious weed control;
- (B) incorporate into existing technical guides regionally appropriate technical information; and
- (C) disseminate such technical information to interested State, local, and private entities.

(3) Cost share assistance

The Secretary may provide cost share assistance to State and local agencies to manage noxious weeds in an area if a majority of landowners in that area agree to participate in a noxious weed management program.

(g) Authorization of appropriations

Appendix 7

There is authorized to be appropriated such sums as may be necessary in each of fiscal years 1991 through 1995 to carry out this section.

(Pub. L. 93-629, Sec. 15, as added Pub. L. 101-624, title XIV, Sec. 1453, Nov. 28, 1990, 104 Stat. 3611.)

BOARD OF COMMISSIONERS

COUNTY OF COOS

STATE OF OREGON

In the Matter of Declaring a Weed)
Control District Matching the)
Geographical Boundary of Coos County)

ORDER

08-05-048L

THIS MATTER HAVING come before the Board of County
Commissioners at a regular meeting held on May 7, 2008; and

WHEREAS, noxious weeds have become so thoroughly established
and are spreading so rapidly on state, county and federally owned
lands, as well as on property in individual ownership and in
transition to county ownership through tax delinquency, that they
are hereby declared a menace to the public welfare; and,

WHEREAS, on March 28, 2001, the Coos County Board of
Commissioners created an Interim Noxious Weed Advisory Board, and
assigned said Board the tasks to develop a list of noxious weeds
in Coos County and a priority of their problems, to recommend to
whether to declare a noxious weed control district, and if such a
district were declared, to recommend whether the district should
have a district board of directors and a full or part time
manager, and, if so declared, to identify sources of money to pay
for district operations and management; and,

WHEREAS, the Interim Advisory Board recommended that the
district should be declared; that the district have a board of
directors and full or part time manager; and has identified Title
II and Title III money from P.L. 106-393 as enough money to
finance minimal operations of the district for the life of that

ORDER 08-05-048L

1 | law, plus other potential sources of money; and has created a
2 | list of noxious weeds, by priority; and

3 | WHEREAS, county governing bodies have authority through ORS
4 | 570.515 to declare a weed control district for the purpose of
5 | attempting to control noxious weeds and of preventing the seeding
6 | and spread of noxious weeds and other plants as the governing
7 | body may declare noxious;

8 | NOW, THEREFORE, BE IT ORDERED that the Board of County
9 | Commissioners declares the creation of a Noxious Weed Control
10 | District over all land and water within the boundaries of Coos
11 | County, and creates a district board of directors (Noxious Weed
12 | District Advisory Board), which membership shall consist of five
13 | persons interested in resource land ownership and management;

14 | AND IT IS FURTHER ORDERED that said Board shall perform its
15 | duties according to a Statement of Bylaws, attached to this Order
16 | as Attachment "A". Said Board shall have oversight of ordinary
17 | operations of a Noxious Weed Control District and may recommend
18 | changes to the Statement of Bylaws or changes in district
19 | administrative staff to the Board of Commissioners, but may not
20 | adopt said potential changes without the approval of a majority
21 | of the Board of Commissioners;

22 | AND IT IS FURTHER ORDERED that the Coos County Board of
23 | Commissioners adopts the list of noxious weeds as drafted by the
24 | Coos County Interim Noxious Weed Advisory Committee (Attachment
25 | "B"), and directs that the Noxious Weed District Advisory Board
26 | may from time to time amend the noxious weeds list and
27 | priorities;

28 | AND IT IS FURTHER ORDERED that the Coos County Board of
ORDER 08-05-048L

Commissioners designates money from Title II and Title III of P.L. 106-393 and any grants or other revenues that may come from governments, voluntary private donors, companies, corporations, and cooperatives to operate the district in lieu of levying a tax as required by ORS 570.560 and ORS 570.562, as those Oregon Revised Statutes predate tax limits more recently passed by Oregon voters;

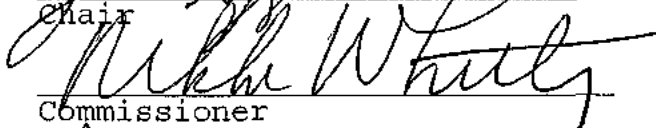
AND IT IS FURTHER ORDERED that the Highway Department's Sign and Spray Lead is appointed to have the authority to enforce ORS 570 and perform the related duties of administrator/inspector;


AND IT IS FURTHER ORDERED that the Coos County Board of Commissioners declares that this order supersedes and replaces a Coos County Board of Commissioners' unnumbered Resolution of March 18, 1976, and all other Board of Commissioners' Orders and Resolutions pertaining to creation of a noxious weed control district and to creation, appointment to, and all operations of previous noxious weed districts and those districts' advisory boards or committees.

DATED this 20th day of May, 2008.

BOARD OF COMMISSIONERS


Chair


Commissioner


Commissioner

Approved as to form:


Office of Legal Counsel

ATTACHMENT "A"
BYLAWS
COOS COUNTY NOXIOUS WEED ADVISORY BOARD

**SECTION 1: APPOINTMENT AND EMPLOYMENT OF COOS COUNTY NOXIOUS
WEED DISTRICT ADMINISTRATOR/INSPECTOR**

Highway Department's Sign and Spray Lead is appointed by the Coos County Board of Commissioners to have the authority to enforce ORS 570 and perform the related duties of district administrator/inspector. The weed administrator/inspector shall be an employee of Coos County and shall be subject to the Coos County Personnel Policies and Procedures Manual.

SECTION 2: WEED ADVISORY BOARD DUTIES AND COMPOSITION

The Coos County Weed Advisory Board shall have five (5) members who shall be residents of Coos County and who shall be appointed by the Board of Commissioners and serve at the pleasure of the Board. Advisory Board members shall serve as volunteers, without financial compensation. The Advisory Board shall serve as an advisory body with the authority to assist and advise the Board of Commissioners as to the following:

- a. Advise, assist and make recommendations to the Board of Commissioners concerning the control and eradication of noxious weeds;
- b. Assist the weed district administrator/inspector in the development of weed education and control programs;
- c. Assist in identifying and monitoring weed problem areas;
- d. Assist administrator/inspector in dissemination of information and data for education and publicity as to the consumer costs due to noxious weeds in the losses to livestock and land productivity.

SECTION 3: TERMS OF WEED ADVISORY BOARD MEMBERS

Upon effective date of the Order, two of the five member Advisory Board shall be appointed by the

Board of Commissioners for an initial term to expire December 31, 2008, and three members shall be appointed by the Board for an initial term to expire December 31, 2010. Thereafter, each member shall be appointed for a term of three years. If a member is removed by the Board or resigns, any replacement member shall serve for the remainder of the term of the member being replaced.

SECTION 4: WEED ADVISORY BOARD OFFICERS

At the first meeting of the Advisory Board, and at every first meeting of the Board annually thereafter, Advisory Board members shall by majority vote designate a chairman and a vice chairman.

SECTION 5: WEED ADVISORY BOARD ACTION

Three voting members shall constitute a quorum. No recommendation shall be made by the Weed Advisory Board unless a quorum is present. A majority of members present at a meeting must vote in favor of any proposed decision or action of the Weed Advisory Board before the recommendation is made to the Board of County Commissioners.

SECTION 6: ADVISORY BOARD MEETINGS

The Advisory Board shall meet at the call of the chairman as necessary to perform the duties required at Section 2 of these bylaws. The Weed District administrator/inspector shall assist the chairman in scheduling meetings. The chairman shall preside at all meetings of the Weed Advisory Board, unless the chairman is not present in which case the vice chairman shall assume the duties of the chairman, and shall conduct the meetings in accordance with Roberts Rules of Order. Such procedural rules may be modified by the Board if a majority of board members decides modifications would facilitate conducting of Board meetings and business. Meeting minutes shall be kept by the Weed Advisory Board administrator/inspector, or by a

person designated by the administrator/inspector at the approval of the Weed Advisory Board. Meeting minutes shall be delivered to the Board of Commissioners as soon after Advisory Board meetings as practicable.

SECTION 7: FINANCES

A fund established within the Coos County budget shall finance the Coos County Noxious Weed Advisory Board, the Coos County Noxious Weed District and the noxious weed administrator/inspector position. The fund will contain all receipts made to the fund by the Board of Commissioners and the Coos County Budget Committee and all appropriations from said fund, according to budgeting, receipting and appropriations rules of Coos County.

Coos County Noxious Weed Lists

November 5, 2001

1. "A" designated weed – a weed of known economic importance which occurs in the county in small enough infestations to make eradication/containment possible; or is not known to occur, but its presence in neighboring counties make future occurrence in Coos County seem imminent.
2. "B" designated weed – a weed of economic importance which is abundant in parts of the county, but which may have limited distribution in some areas.
3. "T" designated weed – a priority noxious weed designated by the Coos County Weed Board as a target weed species on which the board will implement a county-wide management plan.

"A" List

Common Name	Scientific Name
Yellow Starthistle	<i>Centaurea solstitialis</i>
Wooly Distaff Thistle	<i>Carthamus lanatus</i>
Purple Starthistle	<i>Centaurea calcitrapa</i>
Japanese Knotweed	<i>Polygonum cuspidatum</i>
Butterfly Bush	<i>Buddleia davidii</i>
Portuguese Broom	<i>Cytisus striatus</i>
Spanish Broom	<i>Spartium junceum</i>
Pampas Grass	<i>Cortaderia selloana</i>
Spotted Knapweed	<i>Centaurea manulosa</i>
Diffuse Knapweed	<i>Centaurea diffusa</i>
Biddy Biddy	<i>Acaena novae-zelandiae</i>

"B" List

Common Name	Scientific Name
French Broom	<i>Cytisus monspessulanas</i>
Himalayan Blackberry	<i>Rubus discolor (procerus)</i>
Bull Thistle	<i>Cirsium vulgare</i>
Milk Thistle	<i>Silybum marianum</i>
Gorse	<i>Ulex europaeus</i>
Purple Loosetrife	<i>Lythrum salicaria</i>
Scotch Broom	<i>Cytisus scoparius</i>
Tansy Ragwort	<i>Senecio jacobea</i>
Canada Thistle	<i>Cirsium arvense</i>
Italian Thistle/Slender-Flowered Thistle	<i>Carduus tenuiflorus</i>
Meadow Knapweed	<i>Centaurea pratensis</i>

Appendix 8

"T" List

Common Name

Gorse

Canada Thistle

Butterfly bush

Portuguese Broom

Spanish Broom

Tansy Ragwort

Spotted Knapweed

Scientific Name

Ulex europaeus

Cirsium arvense

Buddleia davidii

Cytisus striatus

Spartium junceum

Senecio jacobea

Centaurea manu

BOARD OF COMMISSIONERS

COUNTY OF COOS

STATE OF OREGON

In the Matter of the Adoption of Amended Bylaws for the)	RESOLUTION
Coos County Noxious Weed District Advisory Board)	17-10-156L
)	
)	

NOW BEFORE THE Board of Commissioners sitting for the transaction of County business on the 7th day of November, 2017 is the matter of adopting the amended bylaws for the Coos County Noxious Weed District Advisory Board; and

WHEREAS, on May 7, 2008 during a routine public meeting, the Board of Commissioners discussed, deliberated, and voted in favor of Order 08-05-048L, thus forming a Noxious Weed Control District over all land and water within the boundaries of Coos County, and creating a district board (Noxious Weed Control District Advisory Board); said Board to perform its duties according to Bylaws therein adopted; and said Board to have oversight of ordinary operations of the Noxious Weed Control District and authority to recommend changes to the Statement of Bylaws and changes in district administrative staff to the Board of Commissioners, but not to adopt said potential changes without the approval of a majority of the Board of Commissioners; and

WHEREAS, the Coos County Noxious Weed Control District Advisory Board has reviewed the Advisory Board Bylaws and made a number of recommended changes; the Advisory Board has passed a motion to request that the Board of Commissioners adopt the Amended Bylaws with the recommended changes; and

//

//

1 WHEREAS, on this 7th day of November, 2017, the Coos County Noxious Weed
2 Control District Advisory Board has put before the Board of Commissioners its recommended
3 Amended Bylaws for adoption by the Board of Commissioners pursuant to the authority granted
4 therein;

5 NOW, THEREFORE, IT IS HEREBY RESOLVED that the Coos County Noxious Weed
6 Control District Advisory Board act in accordance with the authority and limitations set forth in
7 the Bylaws attached hereto as Exhibit A and incorporated herein by reference;

8
9 AND IT IS FURTHER RESOLVED that the Coos County Board of Commissioners
10 declares that this resolution supersedes and replaces any and all other Board of Commissioners'
11 Orders and Resolutions pertaining to adoption of Bylaws for a Noxious Weed Control District
12 Advisory Board.

13
14 Dated this 7th day of November, 2017.

15
16 BOARD OF COMMISSIONERS

17 Approved as to form:

18 [Signature]
19 Office of Legal Counsel

20 [Signature]
Chair

21 [Signature]
Commissioner

22 [Signature]
Commissioner

EXHIBIT "A"

COOS COUNTY
NOXIOUS WEED CONTROL DISTRICT
ADVISORY BOARD
BYLAWS

On May 7, 2008 during a routine public meeting, the Board of Commissioners discussed, deliberated, and voted in favor of Order 08-05-048L, thus forming a Noxious Weed Control District pursuant to ORS 569.360, to cover all land and water within the boundaries of Coos County, and creating a district board (Noxious Weed Control District Advisory Board).

SECTION 1 OPERATION

The Noxious Weed Control District Advisory Board (Advisory Board) has oversight of ordinary operations of the Coos County Noxious Weed Control District and authority to recommend changes to the Board of Commissioners, but not to adopt said potential changes without the approval of a majority of the Board of Commissioners.

SECTION 2 PURPOSE

The Advisory Board serves at the pleasure of the Board of Commissioners. The Advisory Board members shall serve as an advisory body with the authority to assist and advise the Board of Commissioners as to the following:

1. Assisting the county in effective education, outreach, and treatment of noxious weeds;
2. Advocating for effective weed control programs;
3. Cooperating with local interest groups and state and federal agencies thereby promoting partnerships;
4. Assisting in accessing funding;
5. Reporting and making recommendations to the Coos County Board of Commissioners with respect to noxious weeds in the county;
6. Assisting the county with identification of appropriate additions to and deletions from the Coos County Noxious Weed List; and
7. Assisting the District Inspector (the Coos County Public Works Department's Sign and Spray Lead) with the performance of his/her duties set forth in ORS 570.010 et seq.

SECTION 3 MEMBERSHIP

1. Appointment. The Advisory Board shall consist of seven (7) members who shall be residents of Coos County and who shall be appointed by the Board of Commissioners.
2. Representation. The Advisory Board shall be comprised of representatives from farm industry/background, forest industry/background, natural resources (including watersheds), urban property owner(s) (inside city or urban zoned areas) and one member at large who may be a county staff person.

3. Each member shall be appointed for a term of four (4) years. If a member resigns or is removed by the Board, any replacement member shall serve for the remainder of the term of the member being replaced.
4. Duties/expectations. Members will complete tasks assigned by the Chair and will carry out assignments for the committees to which they have been appointed. Members are expected to be knowledgeable about the essential matters confronting the committee, including policy guidelines. Members are expected to assist each other in orientation and education related to committee responsibilities.
5. Termination.
 - a. All Advisory Board members serve at the pleasure of the Board of Commissioners. The Board of Commissioners may remove a committee member on its own motion or upon the recommendation of the Advisory Board.
 - b. The Advisory Board may determine by majority vote that a member should be removed (e.g. failing to attend meetings (see below); the Chair of the Advisory Board shall report that recommendation to the Board of Commissioners for consideration.
 - c. If an Advisory Board member resigns, the resignations shall be announced at the next regularly scheduled meeting. A copy of the resignation shall be forwarded to the Board of Commissioners to allow replacement of the member.

SECTION 4 MEETINGS

1. Attendance. All Advisory Board members are expected to attend regularly scheduled meetings. More than three unexcused absences by any member during any twelve (12) month period may result in removal of the member by the Board of Commissioners. The Advisory Board shall advise the Board of Commissioners when a member has failed to meet the required attendance.
2. Meetings.
 - a. Public meeting law. The rules contained in Robert's Rules of Order shall govern the Board in all cases to which they are applicable and in which they are not inconsistent with these Bylaws or other County procedures. All meetings will be open to public and held in accordance with ORS 192.610 et seq.
 - b. Regular meetings. The Advisory Board will hold one monthly meeting unless otherwise advertised. The meetings shall generally be held the first Tuesday of the month at 3:00 p.m. The meetings are advertised on the Board of Commissioners regular weekly meeting notice.
 - c. Special meetings and work sessions. Special meetings and work sessions may be called by the Chairman or the Board of Commissioners. These meetings will be noticed in the same manner as the regular scheduled meetings. Work sessions shall not be set up for decisions by the Advisory Board unless ratified at the next regular scheduled Advisory Board meeting.

- d. Quorum. A quorum shall constitute a majority of the seven (7) members appointed by the Board of Commissioners. If a quorum is lacking, no official action (decisions or recommendations) may be taken and any items that require a vote of the membership shall be tabled to the next regular scheduled meeting.
 - e. Conflicts of Interest. Advisory Board members that have an issue arise in which a member may have a conflict of interest, said member shall divulge that potential conflict of interest to County Counsel for an opinion of the validity of the conflict, and inform the Advisory Board. If determined to be a conflict regarding the issue before said member, that member will refrain from participation in discussion or voting on that issue.
 - f. Minutes. The secretary or other designated member of the Advisory Board shall take minutes for the meeting. Minutes will include a description of the members present, motions, proposals, resolutions, and orders proposed and their disposition, the results of all the votes and the vote by each member by name, the substance of any discussions on any matter, and reference to any documents discussed at the meeting. A draft set of minutes will be made available prior to each meeting for adoption. The minutes shall be filed with the County Clerk's office to ensure records are managed and kept within the County. Effort will be made to post minutes on the website.
 - g. Agenda. The Chairman or his/her designee shall set the agenda for each meeting. The agenda and all materials shall be forwarded to the Administrator/Inspector and the Board of Commissioners at the time it is provided to the membership. The general order of business will be set as follows:
 - i. Roll call;
 - ii. Reading and approval of minutes from the prior meetings;
 - iii. Public comment;
 - iv. Old business;
 - v. New business;
 - vi. Reports from members serving on committees;
 - vii. Proposed items for next agenda; and
 - viii. Adjourn
3. Officers.
- a. At the beginning of every calendar year, when a quorum is present, the Advisory Board members shall by majority vote, designate a Chairman, Vice-Chairman, and Secretary. Officers shall serve a maximum of two years in their positions.
 - b. Chair responsibilities. The Chair will act as a leader of the meetings and enforce the Advisory Board directives, guidelines and membership rules.
 - c. Vice-Chair responsibilities. The Vice-Chair shall serve as Chair in the event the Chair is unable to attend the meetings. If both the

Chair and Vice-Chair are unable to attend and there is a quorum, the Secretary shall assume the role of Chair.

4. Committees. The Advisory Board may authorize the Chair to appoint members to standing or special committees as necessary to deal with specific problems or issues.

SECTION 5 REPORTS

The Advisory Board shall report to the Board of Commissioners at least once a year at a regular scheduled Board of Commissioners meeting on the progress of this program. The Advisory Board may be required to attend a County budget meeting to ensure the funding is in place to carry out the mission of the Advisory Board.

SECTION 6 FINANCES

The Advisory Board is a volunteer Board appointed by the Board of Commissioners. Compensation may be made for training, travel and supplies. These may be made as reimbursements or upfront payments and shall be approved by the Board of Commissioners. Any county employed staff member that attends the meetings shall receive normal compensation. The Advisory Board will work on securing funding through grants to aid the county in controlling and eradicating noxious weeds. This may include trainings for both the general public as well as the Advisory Board members.

SECTION 7 COOPERATIVE WEED MANAGEMENT AREAS

The Advisory Board shall advise and/or assist with or serve as part of Cooperative Weed Management Areas (CWMAs) that affect Coos County. A member of the Advisory Board may participate in any CWMA that will allow for the control and/or eradication of noxious weeds. There shall be a written agreement between the CWMA partners and the County to ensure funding and participation are agreed upon.

SECTION 8 COST-SHARE PROGRAMS

The Advisory Board shall participate, if funding is available, in cost-share programs. The cost-share program assists private landowners to help control noxious weeds in Coos County. The target list of weeds that have been identified by the Advisory Board and adopted by the Board of Commissioners shall be the priority for control and eradication. The Advisory Board shall assist in developing policies and procedures for the cost-share program. Coos County shall partner with Oregon State University Extension and/or Coos Soil and Water when possible to administer the cost-share program. If partnering with another agency, a written agreement shall be drafted and adopted by the Board of Commissioners.

SECTION 9 OTHER PROGRAMS AND COMMITTEES

The Advisory Board shall participate in other programs and committees that fulfill the mission of the Coos County Noxious Weed Control District and comply with these Bylaws.

INTERGOVERNMENTAL AGREEMENT

This agreement is entered into by and between Curry County, a Political Subdivision of the State of Oregon, hereinafter referred to as "County", and the Curry County Soil and Water Conservation District, hereinafter referred to as "District".

RECITALS

- A. On June 2, 1948, the Board of Curry County Commissioners ordered that Curry County be a Weed Control District for the purpose of destroying and preventing the seeding and spreading of certain noxious weeds.
- B. On January 31, 1983, the Board of Curry County Commissioners approved a motion appointing the District Board of Directors for the Curry County Soil and Water Conservation District as the Weed Control Advisory Board for Curry County.
- C. In July of 1987 at a regular Board meeting the Curry County Board of Commissioners reaffirmed that the District Board is also the Weed Control Advisory Board for Curry County.
- D. County maintained an active weed control program for a number of years.
- E. In the early 1990's County experienced significant revenue shortfalls, and the weed control program was no longer funded.
- F. Recently representatives of the District have contacted the County Commissioners expressing an interest in administering activities under the County Weed Control District, and for applying for related grants.
- G. By the authority granted in ORS 190.010, units of local government may enter into agreements with other units of local governments for the performance of any or all functions and activities that a party to the agreement, its officers, or agents have the authority to perform.
- H. County desires to enter into a cooperative agreement with District so that District can administer the weed control program for Curry County.

NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

1. OBLIGATIONS OF DISTRICT

District agrees to do the following:

CURRY COUNTY, GOLD BEACH, OR
RENEE KOLEN, COUNTY CLERK
FEE \$0.00

06/10/2004 #2004-C-235
09:40:11AM 1 OF 4

- a. Administer the weed control program in Curry County. In this role, it shall employ all necessary people to carry out the functions of weed control in Curry County. District shall pay all personnel related expenses from funds described below.
- b. Apply to the Oregon Department of Agriculture and such other agencies as it may deem appropriate for grants to operate the weed control program. Grant dollars shall be payable to District directly without need for County to be a pass through agency. District shall be obligated to comply with all grant requirements. District shall not be obligated to provide District assets and non-weed related revenues to administer the weed control program.
- c. Prepare appropriate budgets for weed control and comply with all requirements of applicable local budget law.
- d. Comply with all applicable Federal, State and local laws, including ORS 570.500 to 570.600. To the extent applicable, ORS 279.312, 279.314, 279.316, and 279.320 are made a part of this contract. District shall comply with ORS 656.017, which requires it to provide workers compensation coverage for all its subject workers.
- e. Submit to County written annual reports on the activities of District related to weed control.
- f. Enter into such subcontracts as may be needed for efficient operation of the weed control program.
- g. To appoint such subcommittees as may be necessary to facilitate the weed control program. It is understood by the parties that until further order of the Board of Curry County Commissioners, the Board of Directors for the District is the Weed Control Advisory Board for Curry County.

2. OBLIGATIONS OF COUNTY

County agrees to the following:

- a. To delegate authority to District for the administration of the weed control program in Curry County.
- b. To authorize District to receive directly all grant funds related to the weed control program.

- c. To offer support to District in grant applications when requested to do so. It is understood by the parties that County is under no obligation to provide general fund revenues in support of the program.

3. HOLD HARMLESS AND LIABILITY INSURANCE

- a. District agrees to defend, indemnify and hold harmless County and its officers, employees and agents from any claim, liability or damage arising under this agreement.
- b. District shall, at its own expense, at all times during the term of this agreement, maintain in force a comprehensive general liability policy. The liability coverage shall be a minimum of \$500,000 per occurrence (combined single limit for bodily injury and property damage claims) or \$500,000 per occurrence for bodily injury and \$100,000 per occurrence for property damage. District shall provide County with a certificate of insurance.

4. TERM AND TERMINATION

The term of this agreement shall begin when it has been executed by both parties, and shall continue indefinitely until terminated by either party as provided below. Termination shall occur when either party gives the other party ninety days prior written notice of termination. Such notice may be with or without cause. In the event of termination, all assets acquired from grants for weed control shall be returned to County for weed control use, unless said grants specifically provide for other disposition.

5. MISCELLANEOUS PROVISIONS

- a. District shall not assign this agreement, or any part thereof, without written consent from County. Any such attempted assignment in violation thereof shall be void.
- b. No term or provision of this agreement shall be deemed waived, and no breach excused, unless such waiver or consent is in writing and signed by the party claimed to have waived or consented.
- c. Any notices required to be given under this agreement shall be in writing and shall be given by personal delivery, mail or facsimile transmission. Notice to District shall be directed to Jenya Kielpinski, P.O. Box 666, Gold Beach, Oregon, 97444. FAX (541) 247-0408. Notice to the County shall be directed to the Office of Legal Counsel, P.O. Box 746, Gold Beach, Oregon, 97444. FAX (541) 247-2718.

- d. If any provision of this agreement is held by any court of competent jurisdiction to be invalid, such invalidity shall not affect any other provisions of this agreement. This agreement will then be construed as if the invalid provision had never been included in the agreement.
- e. No modification of this agreement shall be valid unless in writing and signed by the parties.
- f. This agreement signed by the parties constitutes the final and complete agreement of the parties and supersedes all prior and existing written or oral understandings except as continued in effect by the terms of this agreement.

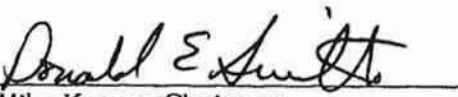
BOARD OF CURRY COUNTY COMMISSIONERS


Marilyn Schafer, Chair 6/7/04
Date

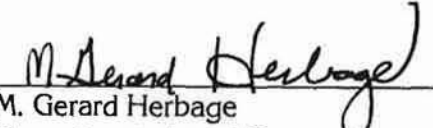

Ralph H. Brown, Vice-Chair 6/7/04
Date


Lucie La Bonte, Commissioner 6/7/04
Date

CURRY COUNTY SOIL AND WATER CONSERVATION DISTRICT


Mike Knapp, Chairman 5-25-04
Date
Donald E. Smith
Sec - TREASUR.

Reviewed as to Form:


M. Gerard Herbage
Curry County Legal Counsel

Curry County Weed Advisory Committee Bylaws

Section 1: Duties and Composition

The Curry Soil and Water Conservation District (SWCD) is recognized as the “Weed Control Advisory Board for Curry County” through an intergovernmental agreement between Curry County and the SWCD (filed 06-10-2004). As such, the SCWD has authority to administer the weed control program for Curry County. In performance of these duties, the SWCD is able to employ people, apply for and administer program funding, enter into subcontracts, and appoint subcommittees to facilitate the weed control program.

The SWCD Board of Directors has appointed a subcommittee to accomplish tasks and objectives associated with the weed control program of Curry County. This subcommittee shall be called the “Curry County Weed Advisory Committee,” hereafter called the Curry WAC. The Curry WAC shall have five members who will be appointed upon consent of the SWCD Board of Directors. Curry WAC members shall serve volunteers, without financial compensation unless otherwise agreed to.

The Curry WAC has the following objectives:

1. Educate the public about the damage caused by noxious weeds to the natural environment, land productivity, livestock, and water quality. Promote responsible and efficient stewardship of land and water in Curry County.
2. Maintain an assessment of noxious weed populations in Curry County and submit this information to the state Weedmapper database.
3. Coordinate weed control activities and projects, or make recommendations to the SWCD Board of Directors. This includes applying for grants, working with landowners, developing projects, and implementing projects. The Curry WAC may recommend that the SWCD enter into subcontracts or pay employees for weed control activities, but shall not do so itself without consent of the SWCD Board of Directors.

Section 2: Officers

At the first meeting of the Curry WAC, and at every first annual meeting of the board thereafter, Curry WAC members shall by majority vote designate a Chair and a Vice Chair.

Section 3: Action

Three voting members shall constitute a quorum. No recommendation shall be made by the Curry WAC unless a quorum is present or otherwise consulted. A majority of members present at a meeting must vote in favor of any proposed decision or action of the Curry WAC before the decision is recorded, or a recommendation is made to the SWCD. Voting members of the board may designate their vote to a non-voting member/advisor if they so choose.

Section 4: Meetings

The Curry WAC shall meet quarterly to perform the duties required in Section 1 of these bylaws. The Chair shall preside at all meetings of the Curry WAC, unless the Chair is not present in which case the Vice Chair shall assume the duties of the Chair. Procedural rules may be modified by the Curry WAC if a majority of WAB members decides modifications would facilitate conducting of Curry WAC meetings and business. Meeting minutes shall be kept by a person designated by the Curry WAC.

Section 5: Finances

The Curry WAC shall be responsible for seeking funding to accomplish their objectives outlined in Section 1.

Curry SWCD shall handle all fiscal responsibilities associated with the weed program. The SWCD shall sign as grantee and fiscal agent on all grant applications, unless the SWCD approves a partner to act as the grantee. Bills associated with the weed program shall be approved by the Curry WAB Chair, Vice Chair, or the grant manager for the grant the bill is being charged to. Bills shall be submitted to the SWCD office manager by 10:00 am on the Friday before an SWCD meeting. Approval for payment of bills will be addressed at SWCD meetings which are held on the fourth Tuesday of each month.

Section 6: Projects

Meeting minutes of the Curry WAC shall be submitted to the SWCD Office Manager for typing and filing. The SWCD Office Manager shall make a copy of these minutes available to the SWCD Board of Directors at their next scheduled meeting. Minutes should include attendance, record of any decision or recommendation of the Curry WAC, and reports on any active projects.

The WAB Chair or designated representative will provide an overview of activities and projects annually to the Curry County Commissioners. This can be completed in association with the Lower Rogue Watershed Council and South Coast Watershed Council reports given near the beginning of each calendar year.

Appendix 10

These bylaws have been reviewed and accepted by the following entities:

Curry County Soil & Water Conservation District

Date

Chair, Curry County Noxious Weed Advisory Board

Date

Curry County Noxious Weed List

Noxious weeds, for the purpose of the Curry County Weed Advisory Board, shall be designated “A”, “B”, and/or “T” as in the Oregon Department of Agriculture Weed Rating System.

1. “A” designated weed

A weed of known economic importance which occurs in the county in small enough infestations to make eradication/containment possible; or is not known to occur, but its presence in neighboring counties or California make future occurrences in Curry County seem imminent.

2. “B” designated weed

A weed of economic importance that is abundant in the county, but may have limited distribution in some watersheds.

3. “T” designated weed

A priority noxious weed designated by the Curry County Weed Advisory Board as a target weed species on which the Board will focus its efforts through integrated management.

(*These weeds are NOT listed on the Oregon Department of Agriculture’s Noxious Weed Control Classification System)

“A” designated weeds

Common Name	Scientific Name
Biddy-biddy	Acaena novae-zealandiae
Butterfly Bush	Buddleia (Buddleja) davidii
Diffuse Knapweed	Centaurea diffusa
Wooly Distaff Thistle	Carthamus lanatus
Leafy Spurge	Euphorbia esula
Patterson’s Curse	Echium plantagineum
Portuguese Broom	Cytisus striatus
Purple Loosestrife	Lythrum salicaria
Purple Starthistle	Centaurea calcitrapa
Scotch Thistle	Onopordum acanthium
Spanish Broom	Spartium junceum
Spotted Knapweed	Centaurea maculosa
Squarrose Knapweed	Centaurea virgata
Yellow Starthistle	Centaurea solstitialis

“B” designated weeds

Common Name	Scientific Name
Bull Thistle	Cirsium vulgare
Canada Thistle	Cirsium arvense
*Cape Ivy	Delairea odorata
English Ivy	Hedera helix
*European Beach Grass	Ammophila arenaria
French Broom	Cytisus monspessulanas
Giant Knotweed	Polygonum sachalinense
Gorse	Ulex europaeus
Himalayan Blackberry	Rubus armeniacus
Italian Thistle	Carduus pycnocephalus
Japanese Knotweed	Polygonum cuspidatum
Meadow Knapweed	Centaurea moncktonii
Milk Thistle	Silybum marianum
Jubata Grass	Cortaderia jubata
Poison Hemlock	Conium maculatum
Scotch Broom	Cytisus scoparius
Tansy Ragwort	Senecio jacobaea

“T” designated weeds

Biddy-biddy	Acaena novae-zealandiae
Butterfly Bush	Buddleia (Buddleja) davidii
English Ivy	Hedera helix
French Broom	Cytisus monspessulanas
Gorse	Ulex europaeus
Himalayan Blackberry	Rubus armeniacus
Japanese Knotweed	Polygonum cuspidatum
Jubata Grass	Cortaderia jubata
Portuguese Broom	Cytisus striatus
Scotch Broom	Cytisus scoparius
Spanish Broom	Spartium junceum
Yellow Starthistle	Centaurea solstitialis

Under Consideration

Cotoneaster	Cotoneaster franchetii, lacteus
Mimosa	Acacia dealbata
Red Valerian	Centranthus ruber
Sweet Fennel	Foeniculum vulgare

Noxious weed control district functions in the western states, examples

Many western states mandate county weed control districts in every county to provide for a uniform method of weed control statewide. For example, the state weed laws of Colorado, Idaho, Montana, North Dakota, South Dakota, and Wyoming mandate a county weed control district or program in every county, whereby control programs are at the discretion of the county in California, Nevada, Oregon, Utah, and Washington.

In the states that mandate weed districts, these districts generally function as local governmental entities that elaborate on state authority and achieve compliance with their respective state weed laws. Overall, such weed districts have an established legal and personnel infrastructure, generally employing taxation (and other sources) to support weed control on county roads and lands, enforcement, and coordination of weed control programs. Many districts employ seasonal crews and operate as contractors to federal and state agencies, performing weed control on rights of way and other sites under state or federal jurisdiction. Other duties of weed districts can be extensive and are included here.

- Monitoring all lands and waterways within the district to detect and control weeds;
- Personal visits on private lands to assist landowners with weed control;
- Contracting with private landowners to spray private lands;
- Providing consultation and technical assistance to multiple-level stakeholders;
- Conducting interagency meetings and administering herbicide test plots;
- Conducting herbicide training programs with Extension;
- Delivering public education and outreach and writing and submitting grants;
- Offering herbicide cost-share assistance to landowners;
- Selling herbicides to landowners and renting-out spray equipment; and
- Hosting multi-jurisdictional “spray days” where herbicides are provided to cooperators and volunteers to collectively treat a large, prioritized site.

Response to comments received regarding the first draft (November 2017) of the Gorse Management Plan
22 January 2018

- 1) References to OR Statute, 569 statements like: “...meaning legal requirements enforce the control of gorse on all state and local lands” are misleading.
 - a. Response: revision on **pg 10**.
- 2) A gorse management plan should not just include Coos and Curry - the plan is lacking overall in references to Douglas and Lane counties.
 - a. Response: title of plan revised and revisions made throughout the plan to account for these counties. First revision on **pg 5** to clarify an expansion in the scale of the plan could be made in the next revision of the plan.
- 3) Acknowledgement that some areas will not be able to controlled or tackled. Gorse is too established and inaccessible. Goal must be realistic and efforts prioritized which means some areas will be left as is- solid stands of gorse.
 - a. Response: revision on **pg 17 and 18**, and control emphasized on only *high-priority sites* on **pg 19, Action 2.1.1**
- 4) Acknowledging that the [restoration] goal is not a landscape back to native systems from 100+ years ago; restoration goals might be to restore native plants in wildland areas and non-invasive plants on working landscapes, residential areas and similar managed landscapes.
 - a. Response: revision throughout the plan, changing “native plant communities” to “desired plant communities” in select sections of the plan.
- 5) In the prevention table, include reference to collaborative effort to establish a local weed wash station.
 - a. Response: revision on **pg 15, action 1.2.7**.
- 6) In the control large gorse populations section, include reference to urban housing (like donut hole) infestations and collaboratives in alternative housing
 - a. Response: revision on **pg 23, action 3.1.11**.
- 7) Include sheep (not just goats) in table referencing improve control
 - a. Response: revision on **pg 18 and pg 20, action 2.4.3 and 2.4.4**.
- 8) Bullet point [of cooperator in Roles and Responsibilities section] doesn’t reflect scope of commitments. I suspect other group/agency commitments are off a bit or not accurate. Why include this section? Just reference Declaration of Cooperation commitments? Or better align the two sections.

- a. Response: the two sections were aligned and moved to **Appendix 14**.
- 9) Move things like detailed discussions of laws, Community Wildfire Protection Plans, Oregon Solutions Declaration of Cooperation-Stakeholder responsibilities, and similar information into appendices
 - a. Response: western states weed district functions moved to **Appendix 11**, enacted laws moved to **Appendix 13**, stakeholder roles and responsibilities and Declaration of Cooperation commitments were aligned and moved to **Appendix 14**, additional information section moved to **Appendix 15**, and literature review of gorse management techniques moved to **Appendix 16**.
- 10) Management techniques section does not reflect the methods accurately that GAG is promoting. Please see our table on the website (or attached here). Include this table instead? Or at least only residence what GAG is promoting. For instance the chemical section mentions many herbicides that OR has found to be minimally effective. In the management techniques section, I recommend using the approaches as defined by our Science team.
 - a. Response: the Excel document of “Available Gorse Management Strategies,” approved by GAG Science Team, was added on **pg 25**. The short literature review of gorse management techniques was moved to **Appendix 16**.

Enacted laws and relevant regulations and standards

The laws and relevant policy that are applicable to the development and implementation of the Gorse Management Plan are listed here. These regulations and standards may not be a complete list of all relevant federal, state, and local weed control laws and policies.

Federal. The major federal laws and statutes regulating invasive and noxious weeds include:

- Federal Seed Act of 1939, amended (7 U.S.C. 1551 et seq.)
- Executive Order on Invasive Species, Exec. Order No. 13751 (81 Fed. Reg. 236, Dec. 8, 2016); see Appendix 6
- Federal Noxious Weed Act of 1974, amended (7 U.S.C. 2814); see Appendix 7
- Plant Protection Act of 2000 (7 U.S.C. 7701-7772)
- National Environmental Policy Act of 1969, amended (42 U.S.C. 4321 et seq.)

State and local government.

- Weed Control, Oregon Revised Statutes, 2009, Section 569 et seq.
- Noxious Weed Quarantine, Oregon Administrative Rules, 603-052-1200 et seq.
- Coos County Weed Control District Ordinance, 2008, Order 08-05-048L; see Appendix 8
- Coos County Weed Advisory Board Amended Bylaws, 2017, Resolution 17-10-156L; see Appendix 9
- Intergovernmental agreement between Curry County and Curry County Soil and Water Conservation District, June 2004, and associated bylaws; see Appendix 10

Policies, rules, and plans. The Gorse Management Plan supports and addresses the policy and priorities of multiple-level noxious weed management rules, strategies, and plans, and other resource management planning documents, including fire management and protection plans:

- Curry County Community Wildfire Protection Plan (2008)
- Coos County Community Wildfire Protection Plan (2011)
- Coos-Curry Strategic Approach to Private Lands Conservation, 2018-2023; USDA, Natural Resources Conservation Service, Coquille Service Center
- Oregon Statewide Strategic Plan for Invasive Species, 2017-2027
- Oregon Statewide Action Plan for Invasive Species, 2017-2019
- Oregon Conservation Strategy, Oregon Department of Fish and Wildlife (2016)
- DOI Weed Control Program Policy, 609 DM 1 (June 26, 1995)
- DOI Integrated Pest Management Policy, 517 DM 1 (May 31, 2007)

- DOI, BLM policy on weed control: Chemical Pest Control (BLM Manual 9011), Use of Biological Control Agents of Pests on Public Lands (BLM Manual 9014), and Integrated Weed Management (BLM Manual 9015)
- DOI, BLM Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States, Programmatic Environmental Impact Statement (2007)
- USDA, Forest Service Invasive Plant Final Environmental Impact Statement (2005)
- USDA, Forest Service National Strategic Framework for Invasive Species Management, FS-1017 (Aug. 2013)
- USDA, Forest Service Pacific Northwest Region Noxious Weed Policy and Strategic Plan (1999)
- USDA, Forest Service Southwest Oregon Interagency Fire Management Plan, Rogue River Siskiyou National Forest (2013)
- USDA, National Forest System Invasive Species Management Policy, FSM 2900 (Dec. 5, 2011)
- USDA, National Forest System Pesticide-use Management and Coordination Policy, FSM 2150 (Mar. 19, 2013)
- USDA, National Forest System Forest Health Protection, FSM 3400 (May 20, 2009)

STAKEHOLDER ROLES AND RESPONSIBILITIES

The federal government and private landowners are the majority landholders in Coos and Curry counties. The proportions of land ownership within the counties are included here.

Land ownership percentages of Coos County (approx. 1,040,000 total acres):

- 47% private,
- 41% BLM lands,
- 5% USFS lands, and
- 6% state lands.

Land ownership percentages of Curry County (approx. 1,050,000 total acres):

- 34% private,
- 7% BLM lands,
- 59% USFS lands, and
- 1% state lands.

The proposed roles and responsibilities of public and private landowners and other stakeholders are included below. These responsibilities are entirely optional and reported only to provide ideas and approaches to consider now or on future strategic directions. These suggested roles and responsibilities, which are simply ideas to consider, are general and support or may be shared with the specific commitments agreed to by the members of the Oregon Solutions Gorse Project Team, or the Gorse Action Group (GAG). The specific commitments agreed to and signed by GAG members are documented in the Oregon Solutions Declaration of Cooperation (DOC), created in December 2017 (see Appendix 1), and indicated below in italics and four-in-one bullet points.

The suggested responsibilities listed below are simply ideas to consider, while the specific commitments in italics, which have been agreed to and signed by GAG members, are collaborative actions acknowledged by members under a pledge of cooperation. Additional partners will be recruited to sign on to the DOC and it is anticipated that pledged commitments will be annually updated.

1. Federal Government and Agencies and Tribes

- Promote the status of gorse as a noxious weed, its impacts, and importance of control.
- Participate in GAG and/or the South Coast CWMA.
- Implement the Gorse Management Plan on federal lands and partner with federal and non-federal landowners on control efforts under the CWMA.

- Provide technical and financial assistance to CWMA cooperators in the planning and delivery of projects.
- Prioritize small populations and outliers; prioritize control on roadsides and stream or water corridors, and other priority sites including gorse-free areas.
- Provide financial assistance on the development of new biocontrol agents.
- Develop NRCS conservation plans with private landowners to provide for weed control and restoration and implement plans using USDA Farm Bill funding.
- Submit local weed management plans and protocols, and existing cooperative agreements dealing with noxious weed management to CWMA coordinator.
- Evaluate the implementation of objectives of the Gorse Management Plan and suggest improvements for effective delivery on federal and non-federal lands.

Bureau of Land Management

- ❖ *Control gorse on BLM lands*
- ❖ *Serve as a member of the GAG Science Team and continue participation in GAG*
- ❖ *Report infestations via EDDMaps or share data with ODA annually*
- ❖ *Report infestations found on other ownerships to landowners*

U.S. Fish and Wildlife Service

- ❖ *Serve as a leading member of the GAG*
- ❖ *Control gorse infestation on Refuge lands utilizing USFWS priorities and guidelines*

Coquille Indian Tribe

- ❖ *Provide database, mapping and GIS support services*
- ❖ *Continue to participate as member of the Gorse Action Group (GAG)*

2. State Government and Agencies

Local management units of the Oregon Departments of Transportation, Forestry or State Lands, Fish and Wildlife, and Parks and Recreation

- Participate in GAG and/or the South Coast CWMA.
- Implement the Gorse Management Plan on lands under state control and partner with federal and non-federal landowners on control efforts under the CWMA.
- Submit existing written agreements dealing with weeds to CWMA coordinator.
- Submit weed management plans and protocols to CWMA coordinator.
- Evaluate the implementation of objectives of the Gorse Management Plan and suggest

improvements for effective delivery on federal and non-federal lands.

Oregon Parks and Recreation Department

- ❖ *Serve as a member of the GAG Science and Communications teams*
- ❖ *Serve as a co-lead in the development of a useful coastal map to help guide prioritized control*
- ❖ *Assist in the development of herbicide guidance documents for gorse*
- ❖ *Continue to control gorse infestations on State Parks lands utilizing OPRD priorities and guidelines*
- ❖ *Demonstrate successful control strategies, such as those used at Bullards Beach, Coquille Point, Harris Beach, Cape Blanco State Airport*

Oregon Department of Transportation

- ❖ *Explore the potential of establishing commercial vehicle wash station in Bandon*
- ❖ *Develop a gorse treatment plan for road shoulders and rights of way along Highway 101 and other state maintained roadways.*
- ❖ *Use best practices for cleaning mowing equipment to help prevent the spread of gorse along roads and highways*

South Slough National Estuarine Research Reserve

- ❖ *Continue to serve as a member of the Gorse Action Group*
- ❖ *Address gorse outbreaks or infestations on lands managed by the reserve*
- ❖ *Work with the GAG communications and outreach team to identify training needs, develop training, and evaluate the effectiveness of training products and services*
- ❖ *Provide a venue for training at the South Slough Visitors Center*
- ❖ *Assist the GAG with Pacific Northwest regional outreach*

Oregon Department of Agriculture

ORS 569.185 outlines the authority of the Oregon Department of Agriculture for integrated noxious weed management activities.

- ❖ *Continue to serve as a leading member of the GAG Science Team*
- ❖ *Serve as co-lead for database and mapping development*
- ❖ *Take a leadership role in gorse early detection rapid response (EDRR) efforts for outlier sites.*

- ❖ *Serve as one of several coastal managers for Invasive Species Hotline and EDDMapS gorse reports*
- ❖ *Continue to assist in the development of integrated BMP's and herbicide guidance documents promoting effective gorse control*
- ❖ *Support efforts to obtain release permits for future biological control agents and support research for potential new agents*
- ❖ *Develop case studies (e.g. Wahl, grazing study) to highlight the most effective gorse management options*
- ❖ *Continue to provide feedback in the development of GAG public outreach messaging and materials*

Oregon State University Extension Service

- ❖ *Serve as a member of the GAG Science Team*
- ❖ *Develop and promote coastal pesticide applicator trainings*
- ❖ *Assist landowners in the development of basic gorse management plans*
- ❖ *Promote updating the Pacific Northwest Weed Management Handbook to include GAG gorse control recommendations*

Oregon Regional Solutions, Southern Oregon Region, Office of Governor Kate Brown

- ❖ *Assist in identification of resources and funding for specific projects*
- ❖ *Assist with coordination and outreach to relevant State of Oregon agencies*
- ❖ *Play a role as convener for project implementation*

State Representative, House District 9, Caddy McKeown

- ❖ *Support and promote the efforts of the Gorse Action Group within the Legislative body, including the Coastal Caucus and the House Committee on Agriculture and Natural Resources*

3. Local Government, Organizations, and Community

Gorse Action Group

- Promote the status of gorse as a noxious weed, its impacts, and importance of control.
- Secure funding and oversee the implementation of the Gorse Management Plan.
- Facilitate and promote the development and implementation of projects and programs that support strategic actions.
- Build and maintain partnerships and formal networks to improve strategic gorse management.

- Evaluate the implementation of objectives of the Gorse Management Plan and suggest improvements for effective delivery on federal and non-federal lands.

South Coast CWMA, Watershed Councils, and Soil and Water Conservation Districts

- Promote the status of gorse as a noxious weed, its impacts, and importance of control.
- Coordinate the implementation of the Gorse Management Plan and conduct cooperative gorse and other noxious weed projects on federal and non-federal lands.
- Delineate the CWMA into gorse management zones based on infestation severity. Develop multi-scale integrated management plans for each zone and implement under the CWMA.
- Develop and work from annual action plans based on available funding and the highest priority management activities decided among stakeholders.
- Apply for grants and secure funding.
- Gather and review weed management plans and existing agreements dealing with weeds of all local state and federal management units and municipalities within the boundaries of the CWMA to identify areas of improvement and cooperation.
- Formalize partnerships with cooperators via written agreements to ensure participation, funding, and sharing of costs, equipment, and resources that ultimately reduce the overall cost of gorse control for cooperators.
- Adopt a CWMA plan for all noxious weeds and lands within the CWMA boundaries.
- Evaluate the implementation of objectives of the Gorse Management Plan and suggest improvements for effective delivery on federal and non-federal lands.

Coos County Office of Emergency Management

- ❖ *Serve as a member of the GAG Science Team*

Coos Forest Protective Association

- ❖ *Work with landowners to encourage the use of best practices to reduce fire danger by eliminating gorse and buildup of tinder and debris*
- ❖ *Implement Best Management Practices in activities*
- ❖ *Report infestations via EDDMaps or share data with ODA annually*

Coos Watershed Association

- ❖ *Serve as a member of the GAG Science, Communication and Engagement, and Funding teams*

- ❖ *Host, manage, and populate the Gorse Action Group Website, a clearinghouse and repository for all things gorse*
- ❖ *Promote and manage EDDMaps West to report gorse infestations, particularly new sightings and outliers*
- ❖ *Serve as one of several coastal managers for Invasive Species Hotline gorse reports*
- ❖ *Engage interested parties, submit grants to fund, and co-lead the new South Coast Cooperative Weed Management Area (SCWMA), which will cover Coos and Curry counties*
- ❖ *Monitor and control outlier populations of gorse in the Coos Watershed.*

Coquille Watershed Association

- ❖ *Serve on the Donut Hole team*
- ❖ *Act as liaison with SCWMA*
- ❖ *Identify and apply for funding to control and prevent the spread of gorse in the Coquille and neighboring watersheds*

Curry County Office of Emergency Management

- ❖ *Serve as a member of the GAG*

Curry Soil & Water Conservation District

- ❖ *Continue to pursue grant funds to control outlier gorse populations and collaborate in larger control/restoration efforts in Curry County.*
- ❖ *Continue to serve as a member of the Science Team, specifically the mapping subgroup*
- ❖ *Promote the GAG through the website including assisting with content updating and by distributing outreach materials*

Douglas County Soil & Water Conservation District

- ❖ *Engage with the GAG*
- ❖ *Apply for grants to control gorse populations in the Sutherlin area, the most inland (eastern) active population of gorse in Oregon*
- ❖ *Be a point person for the development of a coastal Quarry Certification Program*

Lane County Public Works

- ❖ *Serve as a member of the GAG Science Team*
- ❖ *Promote further Lane County partnerships with GAG*

- ❖ *Assist in mapping and control of Lane County gorse populations*

Oregon Natural Resources Conservation Service

- ❖ *Serve as a member of the GAG Team*
- ❖ *Offer technical and financial assistance for gorse control to cooperating farmers and ranchers*
- ❖ *Work with GAG members and Agency partners in exploring a potential gorse Conservation Implementation Strategy (CIS)*
- ❖ *Seek additional NRCS Program financial assistance (RCPP, Two Chiefs)*

South Coast Watershed Council

- ❖ *Promote and coordinate projects that lead to the suppression and eradication of gorse within the Council's Service Area (New River south to the California border), particularly those projects that have a direct benefit to watershed health*
- ❖ *Promote the activities of the GAG through outreach and education*
- ❖ *Continue to serve as a member of the GAG's Funding and Coordination subcommittees*

County Board of Commissioners

- Administer and enforce state and county noxious weed laws where applicable.
- Maintain the County Noxious Weed Control District Advisory Boards.
- Approve and revise public policies to contribute to gorse control and a framework for comprehensive noxious weed control to protect natural ecosystems for the county and its citizens.
- Ensure the Gorse Management Plan is implemented on county road rights of way and other county owned or managed land.

Coos County Board of Commissioners

- ❖ *Continue to support the Noxious Weed Advisory Board*
- ❖ *Continue our efforts to control gorse on our 15,000 acre county forest*
- ❖ *Support the Firewise Communities' Program for GAG related activities*
- ❖ *Consider County codes requiring gorse control on properties lying within certain distances of Urban Growth Boundaries and structures outside of city boundaries.*

Curry County Board of Commissioners

- ❖ *(Commitments not listed at the time of this writing)*

County Noxious Weed Control District Advisory Boards

- Promote the status of gorse as a noxious weed, its impacts, and importance of control.
- Facilitate coordination and communication on gorse and other noxious weeds between the Board of Commissioners and the weed districts, GAG/CWMA, and public and private land managers.
- Participate in and advocate for GAG and the CWMA.
- Facilitate the implementation the Gorse Management Plan.
- Seek support or recognition of the Gorse Management Plan by the Board of Commissioners.
- Develop and recommend local management policies to the Board of Commissioners that contribute to the objectives of the Gorse Management Plan.
- Review existing weed district policies, procedures, and ordinances that elaborate on state weed law and propose necessary revisions to the Board of Commissioners that aim to accomplish the purposes for which the county weed control district exists.
- Advocate for the weed district and establish sustainable funding to control gorse on county road rights of way and other county owned or managed land.
- Develop and seek adoption of a county noxious weed management plan to document details of the county weed district and control program.
- Evaluate the implementation of objectives of the Gorse Management Plan and suggest improvements for effective delivery on federal and non-federal lands.
- Encourage and directly invite public engagement and participation in monthly meetings.

Coos County Noxious Weed Control District Advisory Board

- ❖ *Serve as leading member of the GAG Science Team*
- ❖ *Carry-out the responsibilities of the Coos County Noxious Weed Control District (ORS 569.360) as approved and directed by the Coos County Board of Commissioners*
- ❖ *Assist in the development of best practices and herbicide guidance documents*
- ❖ *Work with local farm supply stores to encourage vendors to carry products described in gorse management guidance documents*
- ❖ *Coordinate/administer countywide herbicide cost-share program as funds permit*
- ❖ *Promote prevention practices amongst agencies, contractors, loggers, ranchers, etc.*

County Noxious Weed Control District

- Participate in GAG and the CWMA.
- Perform duties in accordance with ORS 569.370 where applicable and pertinent county ordinances, policies, and procedures.
- Explore and recommend ways that might assist funding and operation of the weed district, such as contracting with public and private landowners, cost sharing arrangements from chemical companies for tours or special efforts including herbicide demonstration plots, herbicide sales, special research projects, equipment rentals, etc.

Municipal corporations, irrigation districts, electric utilities, and railroads

- Conduct control of gorse on railroad rights of way, public lands, and public rights of way such as drainage or irrigation ditches and power transmission lines.
- Conduct weed control and coordinate management with partners under the CWMA.
- Submit existing weed management plans and protocols and relevant written agreements dealing with noxious weeds to CWMA coordinator.

Municipalities and Donut Hole leadership

City of Bandon

- ❖ *Continue to serve as a leading member of the GAG, Communications & Outreach subcommittee and other GAG sub-committees as needed.*
- ❖ *Commit to joint planning efforts, with Coos County and other regional stakeholders, to address concerns within the City's urban growth boundary and the greater Bandon area.*
- ❖ *Work as the liaison with the Bandon Rural Fire Protection District.*
- ❖ *Continue to develop and improve Best Management Practices for municipal activities.*
- ❖ *Become more of a resource and education source for private property owners within the City of Bandon.*
- ❖ *Continue to partner in the effort to control & eradicate gorse.*

NeighborWorks Umpqua

- ❖ *Commit to coordinate with Donut Hole Team on outreach*
- ❖ *Commit to provide technical assistance and advice in the development opportunities within the Donut Hole area with focus on providing workforce housing*
- ❖ *Continue as a member of the Donut Hole sub-committee, or "Action Team"*
- ❖ *Be available to act as fiscal agent for funding as appropriate*

- ❖ *Continue as a member of the Communications & Outreach Action Team*
- ❖ *Commit to facilitate a Community Impact Measurement Survey to current owners/occupants within the Donut Hole area*

Al Johnson- WRCA Steering Committee Member, Retired Land Use Attorney

- ❖ *Continue to help, on a volunteer basis, with master planning, workforce housing, and long-term gorse solutions for the Donut Hole*

Hedley Prince (Individual) - Donut Hole Property Owner

- ❖ *Host meetings with other Donut Hole property owners beginning on November 2nd, 2017*
- ❖ *Lead formation of organization to represent property owners is a high priority*
- ❖ *Seek positive publicity for gorse removal and development in the Donut Hole*
- ❖ *Seek lower cost gorse removal methods*

Natural resource conservation and management groups and key businesses

- *Promote the status of gorse as a noxious weed, its impacts, and importance of control.*
- *Participate in GAG or the CWMA.*
- *Contribute local and regional perspectives to gorse management.*
- *Contribute to the implementation and evaluation of the Gorse Management Plan.*
- *Promote and contribute to gorse projects and programs under GAG or the CWMA.*
- *Support or develop gorse funding proposals in line with GAG or CWMA priorities.*

Bandon Dunes Golf Resort

- ❖ *Continue to be available for knowledge sharing*
- ❖ *Serve as an on the ground example of a working landscape dealing with gorse control*

Wild Rivers Coast Alliance

- ❖ *Provided match funding and capacity funding to facilitate the Gorse project communication and management*
- ❖ *Continue support for convening, communication and gorse removal projects*

By-the-Sea Gardens, LLC

- ❖ *Be a local source for applicator and contractor trainings*
- ❖ *Explore the potential of establishing a gorse wash station in Bandon*

- ❖ *Continue to assist in the development of best practices and herbicide guidance documents*
- ❖ *Serve as outreach liaison for the forest industry*
- ❖ *Promote prevention practices amongst contractors, loggers, etc.*

Private landowners and general public

- Increase awareness and community involvement in gorse activities.
- Advocate for GAG and participate in the CWMA.
- Prevent and control gorse on private lands with partners through the CWMA.
- Identify gorse and other weeds threatening private property
- Undertake any necessary planning and mapping.
- Work with NRCS and Soil and Water Conservation Districts to implement conservation plans that provide for weed control and restoration.
- Attend monthly county weed board meetings and advocate for weed programs.

ADDITIONAL INFORMATION

Gorse description

Gorse is a dense, woody, spiny, evergreen, leguminous (pea family) pioneer shrub, usually <10 feet tall with bright yellow, pea-like flowers, leaves modified into spines 2 – 7 inches long, and legumes (pods). Flowers bloom in spring and early summer, and are up to 1 inch long. Flowers may be present throughout the year on some sites. Plants are capable of resprouting from the basal stem region. Reproduction is strictly by seed with 1 – 6 seeds produced in pods <1 inch long and covered in hairs. Pods turn brown or black when mature, and upon drying, disperse seeds by ejecting them several feet from the plant. A mature plant can produce 6,000 – 18,000 seeds annually. Seeds are large (2 – 4 mm long) and heavy. Dense stands have a persistent seed bank, which vary from site to site, with some seeds remaining viable in the soil for 30 years or more. Large soil seedbanks often accumulate, making long-term control difficult. Shrubs can live for 30 years or more.

Gorse seed dispersal

Gorse seeds are produced in pods, which dehisce explosively upon drying, propelling seeds a short distance. Seeds are not dispersed by wind and birds do not seem to be an important mode in spreading seed. Seeds do not physically adhere to animals or humans and lack other specialized adaptations for long distance dispersal. Because the seeds are large and obvious, gorse would be an unlikely contaminant of crop seeds, although it could be transported overseas on imported animals or in livestock feed (USDA-FAS GRIN, as cited by CABI Invasive Species Compendium database, <http://www.cabi.org/isc/>).

The primary means of seed dispersal to new areas is by water transport in streams and in soil and mud attached to vehicles, machinery, and boots of hikers or field crews that visit or work in infested areas. Priority is given to the removal of gorse within 30 feet of roads and adjacent to streams. Good hygiene-practices to remove all seeds, mud, and soil from equipment and boots is crucial to prevent spread to gorse-free areas.

Environmental requirements

Gorse forms infestations on a wide range of soil types. The plant is very competitive on nutrient poor soils given its ability to fix nitrogen. Generally gorse displays a poor tolerance of temperature extremes and drought stress, rarely surviving in arid or semi-arid ecosystems or on sites where cold and warm extremes occur. Gorse commonly forms dense thickets in high light conditions and generally exhibits low shade tolerance. While gorse is capable of

colonizing the forest understory, under low light conditions the plant is suppressed and produces scant foliage and few flowers.

Gorse survival may depend primarily on temperature. The plant prefers wet, mild marine-influenced climates and cannot on continental sites where heat and cold extremes occur. According to a 20-year PRISM climate data set (1995-2015; <http://prism.oregonstate.edu/>), mean monthly temperature in Coos County varies from 39 to 67°F and from 36 to 71°F in Curry County. Mean annual precipitation in Coos County is 62 inches per year and 129 inches per year in Curry County. Climate information for Douglas and Land counties were not obtained at the time of this writing.

Short literature review of gorse management techniques

A reliable approach for gorse control requires an integration of all available control techniques, including chemical control, physical removal, reseeding, establishing forest trees, grazing by goats or sheep, native plant competition, and controlled burning. The selection and timing of specific methods and combinations depend on the conditions of both the site and the infestation.

The management techniques provided here are general in scope and effectiveness along the Oregon coast is not known to this author. Information in this appendix was largely derived from the following sources:

1. DiTomaso, J. M., G. B. Kyser et al. 2013. Gorse (*Ulex europaeus* L.) Weed Report. *In*: Weed Control in Natural Areas in the Western United States. Weed Research and Information Center, University of California. 544 pp.
2. Prasad, R. 2003. Management and control of gorse and Scotch broom in British Columbia. Technology Transfer Note # 30. Natural Resources Canada, Pacific Forestry Centre. Victoria. British Columbia. 6 pp.
3. Zouhar, Kris. 2005. *Ulex europaeus*. *In*: Fire Effects Information System (online). USDA Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (Producer). Available: <https://www.feis-crs.org/feis/> (2017, October 26)

A great deal of research and management has been done in Australia (and New Zealand) to control the spread of gorse. Comprehensive information on successful gorse control methods practiced in Australia can be found in the National Best Practice Manual:

1. Gouldthorpe, J., et al. 2009. Chapter 2: Gorse Control. *In*: Gorse National Best Practice Manual: Managing gorse (*Ulex europaeus* L.) in Australia (Second edition). National Gorse Taskforce and Tasmania Department of Primary Industries, Parks, Water and Environment, Hobart, Tasmania, AU: State of Tasmania. p. 21-47. Available: <http://weeds.ala.org.au/WoNS/gorse/> (2017, November 14)

Prevention and cultural controls. Cultural control is the manipulation of the environment, for example through revegetation, or land management practices to improve desired plant competition and resist invasive plant growth and germination. Cultural control is necessary to reduce invasibility by encouraging native plant growth and recruitment. Modifying land use to attain this condition includes employing natural processes that sustain ecosystems such as natural disturbance and removing such stressors that inhibit native vegetation as heavy livestock grazing, for example.

On heavily infested sites, cultural control techniques may include prescribed grazing with goats and then revegetation or planting in areas with inadequate native species. Goats have a preference for woody plants over forbs and grasses. Although grazing by itself does not kill gorse, goats will eat the shoots and flowers, which reduces seed production, and strip the bushes, reducing them to stumps under sufficiently intense grazing pressure. Goat grazing is most effective after fire. Often the strategy is to burn mature gorse bushes, which reduces the amount of old biomass (and spines) and stimulates the growth of green shoots, and then introduce goats to defoliate the resprouts and young plants. Goat grazing for several years after burning can be very effective in the objective of reducing gorse abundance (fuels), seed production, and spread. Gorse may recover or reestablish when grazing is removed, so follow-up control is necessary over time, such as herbicide spraying and seeding of competitive vegetation, if appropriate. To our knowledge, a grazing prescription for gorse control in Oregon, or recommendations on grazing intensity, timing, frequency, and duration does not appear to be available.

Once gorse dominates an ecosystem, it can be very difficult to control without massive resource investments. Although restoration may be essential to reduce risk and mitigate impacts and prevent further degradation or avoid potential collapse of the system on some sites, large scale restoration efforts are often challenged by numerous obstacles. Difficulties include inherent site and funding limitations, lack or expense of native seeds, and alteration of soil chemicals that have exceeded recovery thresholds. The chemical changes and modifications to soil properties caused by gorse may include acidification and nitrification or decreased availability of soil phosphorus.

Physical and mechanical controls including burning. Physical control is the removal of weeds by methods relating to physics and such subjects as mechanics (motion), heat, and light. Such methods include the use of heat-treatment with clear plastic solarization or with fire to remove top growth. Other controls include complete darkening or shading to reduce sunlight exposure with black plastic, mulching, or dense vegetation, such as cover crops. The principal physical controls by mechanical means include pulling, cutting, and tilling.

Small areas: Uproot entire plants before they reach 2 feet in height and where practical as gorse can resprout from cut stems. Hand pulling is appropriate for seedlings and young plants < 2 feet in height. Small shrubs can be dug out or removed with a weed wrench. Covering the soil and small gorse plants with black plastic tarps or opaque landscape

fabric for a season will block sunlight or trap the heat from sunlight (solarization), respectively. This type of mulching effectively kills gorse plants and completely controls the recruitment of new seedlings (and native plants). Covering areas with landscape fabric appears to be limited to small, selected areas and is not an option on sites with desired plants where the covering will kill native plants and seeds. Grazing animals often pull out seedlings, roots and all.

Cut and treat plants when > 2 feet in height. Small-scale, manually conducted cutting at ground level with chainsaws or brush or clearing saws can selectively remove individual shrubs where it is important to conserve desired plants. Timing of strategic cutting of gorse is often done before flowering to prevent seed production and deplete root reserves. Regrowth is common after cutting and applying a herbicide is the preferred practice. Cut-stump treatments involve cutting the plant as low as possible and immediately applying a herbicide to the cut stems before they seal up, effectively killing the roots. Burying the cut stems with soil or mulching cover may also suppress resprouting. Tractor mowing in an area with desired plants may be appropriate when the desired vegetation has senesced.

Large areas: Broad scale mechanical control or clearing with heavy equipment can be effective on sites with large stands where there is little or no desired vegetation and soil disturbance is not a consideration. In these situations, mowing with a swath, chaining, bulldozing, mechanical crushing or mulching, ripping, or cultivation may be appropriate. Broad scale control on these sites also may include fire through the use of prescribed burns. The objective of mechanical clearing or burning is to reduce mature biomass and fuel loads, and to stimulate both regrowth from stumps and germination of the seed bank for follow-up treatments. Many years of follow-up management will be necessary for lasting control. This can include goat grazing of seedlings and regrowth, herbicide spraying, tilling, or establishing competitive plants, as well as short-rotation burning to deplete the seed bank, for example.

In some cases, burning is used several months after mechanical or herbicide control. The objective is to desiccate gorse fuel and produce high-severity ground fires, which increases the mortality of plants including seeds contained in the surface layer. Fire is a complex process and requires site-specific evaluation and stringent controls. Care must be taken with mechanical clearing and burning to ensure machinery, equipment, tools, and boots do not transport seed to new areas.

Biological control. Biocontrol agents for gorse in Oregon consist of a seed-feeder and a foliage-feeder that show potential to reduce reproduction and plant vigor in the long-term. The gorse seed weevil *Exapion ulicis* has the potential to reduce seed production and the gorse spider mite *Tetranychus lintearius* is expected to kill branches and reduce overall plant vigor. While establishment of both agents have been confirmed in Oregon, they have failed to provide consistent and substantial control of gorse. The preparation of two foliage-feeding agents for field release in Oregon (gorse soft shoot moth *Agonopterix umbelana* and gorse thrips *Sericothrips staphylinus*) is currently underway by Oregon State University, Oregon Department of Agriculture, and the US Department of Agriculture (APHIS-PPQ and Forest Service). The gorse pod moth *Cydia succedana* has been released in New Zealand and may show potential as a seed-feeder for gorse control, although it is not clear to this author whether this potential agent is worth pursuing in Oregon.

Chemical control. Chemical control is most effective when applied under optimal conditions and at optimal times of the year, often during active growth. The chosen herbicide should produce a high level of gorse mortality with a minimal need for re-treatment, while having minimal effects on non-target species. Carriers, surfactants, and other adjuvants are often mixed with herbicides to boost their effectiveness. The performance of herbicides on dense infestations can vary with local site conditions. On these sites, small scale herbicide trials may be a first step to determine relative efficacy and non-target impacts.

A variety of herbicides are effective on gorse. According to the Gorse Action Group's website, the foliar-applied herbicides commonly used to control gorse along the Oregon coast include triclopyr, Capstone (aminopyralid + triclopyr), glyphosate, metsulfuron, and Crossbow (triclopyr + 2,4-D). Such foliar herbicides are often applied in combinations as either tank mixes or prepackaged mixtures (for example Capstone and Crossbow) and with herbicide additives such as carriers, surfactants, and other adjuvants. Herbicides are applied using different methods tailored to site conditions, consisting of ground based methods and aerial application. For details on these herbicides or others labeled for gorse control on non-crop sites, such as rangelands and pastures, forests and roadway rights-of-way, contact your county weed district or Extension office.

Small areas: Spot treat small infestations and whole, young plants with foliar herbicide applications before plants reach 2 feet in height. Off-target damage to native plants is minimized with spot treatments, which are applied using ground-based methods such as

hand sprayers on backpacks, trucks, all-terrain vehicles, or even horses. Hand applications of cut-stump treatments (generally on plants > 2 feet in height) have minimal effects on non-target species and may be the most effective way of killing gorse on most sites. Several herbicides are effective on freshly cut stumps, such as triclopyr, picloram, and glyphosate.

Large areas: Broad scale chemical control includes boom spraying and aerial applications of foliar herbicides. Aerial applications involve spraying herbicides from aircraft, usually a helicopter. Aerial treatments and boom spraying may impact non-target species, so such broad scale herbicide treatments are often limited to monospecific stands of cut stumps or in late summer and early fall when any native plants are senescent.

Gorse *Ulex europaeus*

Gorse is a spiny, evergreen shrub native to the Mediterranean region. It was introduced on the West Coast of the United States as an ornamental in the late 1800s. Gorse was first found in Oregon in Benton County in 1916. Gorse infestations are concentrated along the Oregon coast, particularly south of Florence (Figure 3, next page). Some infestations exist inland, in the Willamette Valley and elsewhere.



Figure 1.—Gorse infestation. Photo: Ken French, Oregon Department of Agriculture.

Gorse is a legume, a member of the pea family. Gorse produces abundant seed contained in hairy pods 0.5 to 0.75 inch long that are brown when ripe. Seed can remain viable in the soil for 30 years. Disturbances such as land clearing, timber harvesting, or fire stimulate germination of buried seed. Gorse also can spread vegetatively: if cut, it can resprout quickly. Thus, once established, gorse is very difficult to eradicate.

Gorse easily colonizes newly disturbed sites, poor sites, or sites without vegetation. It often is found along roadsides. On the southwest Oregon coast, gorse has taken over sand dunes, and its dense, impenetrable



Figure 2.—Gorse flowers and spines. Photo: Ken French, Oregon Department of Agriculture.

stands make the areas unusable for recreation. Gorse outcompetes native vegetation, reducing native plant diversity and degrading wildlife habitat. Dense gorse stands also pose a significant fire hazard because the foliage is highly flammable and

dead foliage collects as litter within and at the base of the plant. Gorse contributed to the Bandon Fire of 1936, in which the entire town nearly burned to the ground.

Description

Gorse can grow up to 15 feet tall and 10 to 30 feet in diameter, forming a dense, compact shrub (Figure 1). Gorse has bright yellow, pealike flowers 0.5 to 0.75 inch long at the end of branches (Figure 2). Branches are dark green with conspicuous spines. Juvenile leaves are trifoliate, and spines develop as the branch matures.

Management options

Prevention

Several methods will control gorse. Most effective is a combination of chemical, mechanical, and biological methods. Well-established gorse may be impossible to eradicate; however, it can be reduced significantly.

Prevention is key to reducing new gorse infestations. First, be sure to clean mechanical equipment to rid equipment of seed before using the equipment on other sites. If you spot new gorse plants on your property, immediate pull or treat to prevent a large infestation. Note the location on a map so that, after treatment, you can go back and monitor the area annually to determine whether control has been successful and to re-treat if necessary.

Biological control

Two biological controls for gorse, approved for release in Oregon, are a seed weevil and a spider mite. The seed weevil consumes gorse flowers, seeds, and spines. The spider mite feeds on leaves, killing branches but rarely the entire shrub. Unfortunately, the seed weevil and the spider mite have not been effective for controlling gorse.

Chemical control

Note: Before you apply herbicide on forest land, you must file a “notification of operations” with the Oregon Department of Forestry at least 15 days in advance.

The following information about herbicides is only a brief summary; consult your local Extension agent or Oregon Department of Agriculture representative for specific recommendations for your situation. Read and follow the herbicide label carefully. Before spraying over

or around seedlings, ensure the chemicals pose no hazard.

In any herbicide treatment program, rotate among chemicals to prevent developing herbicide-resistant strains of the weed. For details on chemical control, refer to the current edition of the *PNW Weed Management Handbook*, available through OSU Extension <http://extension.oregonstate.edu/catalog/>

Mechanical control

Hand pulling and digging are effective on individual or small groups of plants up to 3 feet tall. On steeper ground, cutting by hand may be necessary. Be sure to remove as much of the root system as you can, and wear protective clothing and gloves.

Chopping, cutting, and mowing can work in areas accessible to machinery. Tracked vehicles or four-wheel-drive tractors with a heavy-duty mower or masticating head are used typically. Several mowings or cuttings may be necessary to reduce plant reserves, the seed bank, and the overall density of plants. Once an area is mowed or cut, grazing with goats can further reduce gorse plants; or, after enough new plants have resprouted or germinated, herbicides can be used. To prevent spreading gorse seed, thoroughly clean equipment and vehicles **on site** before moving equipment to new areas.

Grazing

Goats can graze small seedlings or sprouts if foliage is tender. On mature shrubs, goats will graze only branch tips. Continual grazing in an area reduces the number of plants and seed production. To eradicate gorse in localized areas, however, grazing needs to be combined with mechanical and chemical control measures.

For more information

Gorse, PNW 379. Parker, R. and L. Burrill. 4 pp. 2001. Extension services of Washington State University, Oregon State University, and University of Idaho. <http://cru.cahe.wsu.edu/CEPublications/pnw0379/pnw0379.pdf>

Table 1.—Herbicide recommendation for gorse.

Chemical	Concentration	Timing
triclopyr ester	0.5 to 2% concentration; apply with handgun. Use higher rate for large shrubs.	Spring – after blooms fall off.
triclopyr amine	0.5 to 2% concentration; apply with handgun. Use higher rate for large shrubs. Add 0.25 to 0.5% of a suitable surfactant to improve results.	Spring – after blooms fall off.
triclopyr + 2,4-D ester	0.5 to 2% concentration; apply with a handgun. Use higher rate for large shrubs.	Spring – after blooms fall off.
picloram (restricted use)	0.5% concentration; apply with a handgun. Adding a surfactant at 0.25 to 0.5% improves results.	Spring – after blooms fall off.
glyphosate	5% concentration with suitable surfactant; apply with a hand wand.	Spring – after blooms fall off.
triclopyr ester	Basal spray of 15% concentration in an oil carrier. Thoroughly soak lower stems.	Winter/spring.
metsulfuron (Escort)	2 to 4 oz of product per 100 gal of water, with a suitable surfactant.	Spring – after blooms fall off.

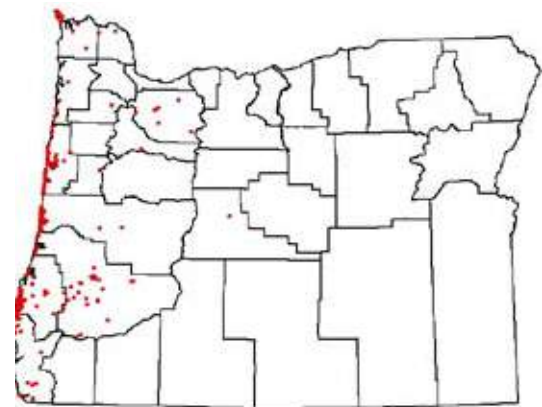


Figure 3.—Gorse distribution in Oregon.
Map: Weedmapper.

Use pesticides safely!

- Wear protective clothing and safety devices as recommended on the label. Bathe or shower after each use.
- Read the pesticide label—even if you've used the pesticide before. Follow closely the instructions on the label (and any other directions you have).
- Be cautious when you apply pesticides. Know your legal responsibility as a pesticide applicator. You may be liable for injury or damage resulting from pesticide use.

Trade-name products and services are mentioned as illustrations only. This does not mean that the Oregon State University Extension Service either endorses these products and services or intends to discriminate against products and services not mentioned.

© 2008 Oregon State University. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties. Oregon State University Extension Service offers educational programs, activities, and materials without discrimination based on age, color, disability, gender identity or expression, marital status, national origin, race, religion, sex, sexual orientation, or veteran's status. Oregon State University Extension Service is an Equal Opportunity Employer. Published September 2008.