



Gorse Management in State Parks

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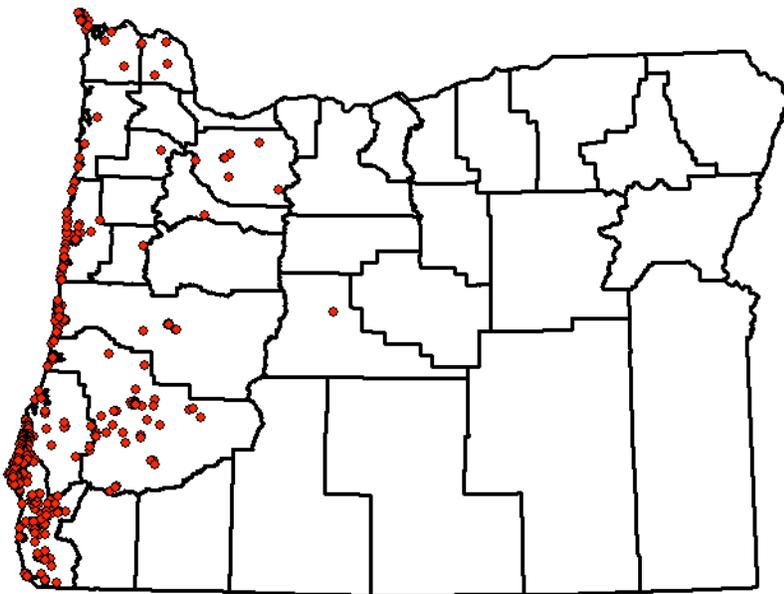
History

Gorse was intentionally introduced into the southern Oregon's coastal ecosystem in the late 1800's. It is now rated one of the top 100 worst invasive species worldwide according to the World Conservation Union. It is the most successful invasive plant we have along the coast. Gorse is native to western and central Europe, where it is cultivated for hedgerows, and used as forage for livestock in areas of poor soil. Gorse is a weed in more than 30 countries. In Australia and New Zealand, where it has taken over hundreds of thousands of hectares of land, seven insects have been released as biological control agents; results are pending.

Biology

Gorse plants flower year round and produce hundreds of heat-tolerant seeds with long-term viability (30+ years). They change soil chemistry by fixing Nitrogen (which prevents nutrient exchange and acidifies the soil). Gorse plants live for an estimated 30 years. Plants grow outward, leaving a center of dry, dead vegetation. Individual plants can be up to 30 feet in diameter forming dense, impenetrable thickets. The combination of dead plant matter and high oil content creates a fire hazard. Fire plays a role in gorse ecology; fire cracks the hard, waxy, impermeable seed coat and burns away the accumulated litter associated with mature plants. This opens an area of light and moisture for seedlings. Plants recover quickly after fire, with regrowth occurring from the stems or root crown.

Range in Oregon



Known Gorse Distribution in Oregon

Source: Oregon State University Extension

State Parks with Gorse

- Fort Stevens State Park
- Washburne State Park
- Bullards Beach State Park
- Seven Devils Wayside
- Face Rock SSV
- China Creek Wayside
- Devils Kitchen Wayside
- Bandon SNA
- Floras Lake State Natural Area
- Cape Blanco State Park
- Port Orford Cedar Wayside
- Paradise Point SRS
- Hubbard Creek (Humbug Mtn.)
- Tseriadum SRS
- Samuel Boardman SP
- Harris Beach State Park

Gorse Control Strategy – 2015



State Park Gorse Management History

Year(s)	Park	Management Techniques
1949-52	Samuel Boardman SP	Mechanical removal, herbicide
1979	Harris Beach State Park	Mechanical removal, herbicide
1997 – 2010	Devils Kitchen Wayside	Mow, herbicide, plant turf grass
	Seven Devils Wayside	Mow, herbicide
	Face Rock SSV	Mow, herbicide, plant turf grass
	China Creek Wayside	Mow
	Cape Blanco State Park	Mow, herbicide, plant pasture grass, biocontrol
	Hubbard Creek (Humbug)	Hand Removal by volunteers
	Paradise Point SRS	Herbicide
	Floras Lake Natural Area	Herbicide, biocontrol
	Port Orford Heads	Herbicide
	Tseriadum SRS	Manual removal, herbicide
	Fort Stevens State Park	Herbicide
	Harris Beach State Park	Chainsaw, burn brush piles, plant turf grass
	Bullards Beach	Mow, herbicide, plant competitive spp.
	Bandon SNA	Natural Resource Management Plan started
	Washburne State Park	Chainsaw, herbicide
	Bullards Beach	Mow, herbicide, plant competitive species
2011	Bandon SNA	Mow/mulch
	Harris Beach SP	Mow/mulch
	Floras Lake SNA	Herbicide, manual removal
2012	Bandon SNA	Herbicide
	Harris Beach SP	Herbicide
	Floras Lake SNA	Herbicide, manual removal
	Bullards Beach	Herbicide
2013	Harris Beach SP	Herbicide
	Floras Lake SNA	Herbicide
	Bullards Beach	Herbicide
2014	Bullards Beach	Mow/Mulch, manual removal and herbicide
	Harris Beach	Herbicide
	Floras Lake SNA	Mow/Mulch, manual removal and herbicide
	Devils Kitchen	Mow/Mulch, manual removal
2015	Bullards Beach	Mow/Mulch, manual removal and herbicide
	Harris Beach	Herbicide
	Floras Lake SNA	Mow/Mulch and Herbicide
	Devils Kitchen	Mow/Mulch, herbicide
	Sevens Devils	Mow/Mulch, manual removal and herbicide
	China Creek	Mow/Mulch, manual removal and herbicide

Gorse Control Strategy – 2015



Under the leadership of the individual park manager, State Parks has been removing gorse from public lands for 7 decades. In 2010, the Parks Commission and Director Tim Wood approved hiring four Natural Resources staff to focus on the park lands outside of the developed footprint, thereby increasing the emphasis on natural resources management, including invasive weed control. Staff have been focusing on a broad and strategic invasive species control with higher priority placed on species, such as gorse, that are capable of significantly modifying an ecosystem.

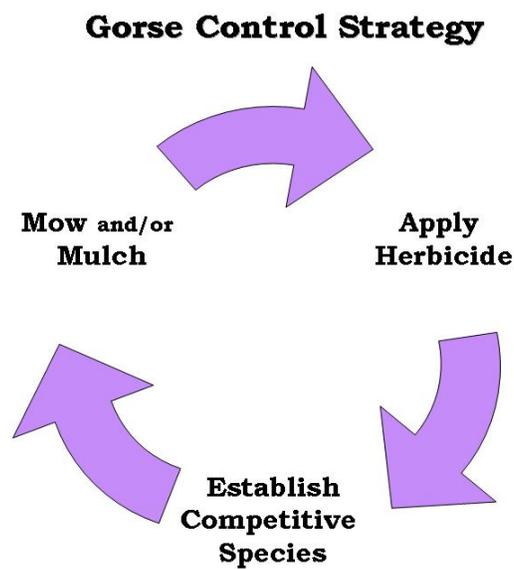
Management

For the past century a variety of management techniques have been attempted in different countries to control gorse. These include mechanical removal, grazing, mowing, tilling, burning, chemical control, biological control, and various combinations of these techniques. Major lessons learned over the years include: (1) combining methods is most effective, (2) management must be ongoing, and (3) planting competitive species increases success.

Control Strategy

An effective control program requires integrating several methods. Decisions are based on degree of infestation; type of land infested, and desired future conditions. The most effective control program combines mowing/mulching, herbicides, and establishing competitive species. This three step management technique can be started in three growing seasons; however, follow-up may take decades.

After reviewing the available literature and talking to partners around the state and in other countries, OPRD determined that the best management practices are to control gorse in three stages. First, control established plants. Second, control new plants emerging from seeds that are said to last more than 30 years in the soil. Third, plant the area to a desired competitive species as soon as possible after controlling the gorse; particularly if it has been a monoculture of gorse for many years.



Gorse Control Strategy – 2015



Chemical control. Studies have shown that several herbicides will control gorse. Research and practical experience show that full coverage (thoroughly wetting foliage) of gorse plants is as important as the choice of herbicides. Therefore, mowing the gorse and allowing the plant to re-sprout will give the applicator better coverage of the limited surface area. This also reduces the amount of herbicide needed per unit area to be effective as well as reducing overspray on non-target species. Adding a good quality surfactant improves herbicide activity. Spraying the re-growth after it is 12 to 18 inches high provides best kill as the herbicide has more surface area to penetrate the leaves and ultimately reach the roots.

OPRD has chosen Triclopyr amine (aka Garlon 3A/Element 3A/Renovate) as our herbicide of choice. It has relatively low toxicity, it is a broad-leaf specific herbicide and the amine formula of Triclopyr is approved for wetlands. This provides advantages for restoration on natural areas:

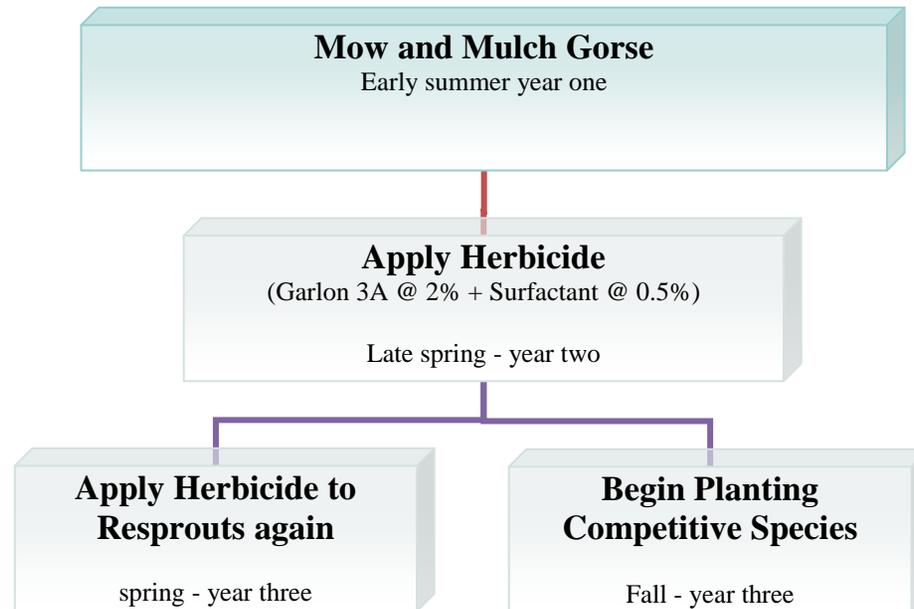
- low impact on humans and animals, including fish.
- kills the target plants but allows competitive grasses to survive. With its selective abilities, we are starting our restorations with grasses to compete and shade gorse seedlings.

A wetland approved surfactant is essential to enhance the efficacy of the herbicide. We use Agridex.

Method

- Determine the resources you have and how much area you can expect to follow through with to carry out all the steps that are required for success. Start with the most strategic areas first (least infested, highest quality).
- Growing season #1: Mow gorse before seed set and after blossom drop. Mulch woody debris. Use a Flail Mower head and leave the mulch in place to cover the seed bank. This not only suppress the seed bank by omitting light, but contributes to seedbank decay.
- Growing season #2: Broadcast spray re-sprouted gorse with a 2% solution of Triclopyr amine, add wetland approved surfactant at 0.5% to the herbicide. Take care to wet all foliage.
- Growing season #3: If there is a flush of annual weeds add a step to mow these before seed set (usually mid-summer). Plan at least one more application of herbicide to kill gorse seedlings (use a 2% solution of Triclopyr amine and a 0.5% solution of surfactant. (late summer)
- Growing season #3: Begin planting of competitive native grass species. (fall)
- Plan yearly application of broadleaf specific herbicide at 2% concentration to control emerging seedlings.
- If non-native grasses begin to take over the area, consider a late fall spray of Plateau (Imazapic) at 6 oz. acre without surfactant. This will not harm native dune grass.
- If you are working around healthy natives and haven't planted competitive spp. the only course of action is to spot spray. Recommended herbicide Garlon 3A with surfactant.

Gorse Control Strategy – 2015



- Determine the resources you have and how much area you can expect to follow through with to carry out all the steps required for success.
- Start with the most strategic areas first (least infested, highest quality).
- Mow gorse before seed set and after blossom drop. Mulch woody debris. Or if minimal amount of gorse go directly to next step.
- Broadcast spray re-sprouted gorse with a 2% solution of Triclopyr amine; take care to wet all foliage. Add wetland approved surfactant at 0.5% to the herbicide.
- If there is a flush of annual weeds add a step to mow or spray these before seed set.
- Plan at least one more application of herbicide to kill gorse seedlings (use a 2% solution of Garlon 3A and a 0.5% solution of surfactant.)
- Begin competitive planting.
- Follow up yearly with herbicide of gorse seedlings/resprouts.