



Best Practices for Invasive Species Management in Garry Oak and Associated Ecosystems: *Daphne (Daphne laureola)*

Assess the site characteristics and your available resources to help you decide where to take management action, what actions to take. These decisions should be made within the context of the overall restoration objectives for the site (and according to the overall restoration plan for the area or site, if one exists).

a) Deciding where to take action

The highest priority in deciding where to take action should be placed on preventing further spread of this invasive plant. If individual plants are appearing in a new area, focus on early removal of those before they seed and spread. If an invasion has already occurred, start on the periphery and move towards the centre, to first contain the invasion and then reduce its footprint.

b) Deciding what action to take, and when

Circumstances	Method	When	Notes or Caveats
Large patches of seedlings	Cutting with a weed-eater	In the summer*, at least 3 years after removing mature plants	<ul style="list-style-type: none"> • CAUTION: This method releases vapours that can cause respiratory and skin irritation. Wear protective gear, including gloves, goggles and an adequate breathing mask. Ensure others without protective gear are not in the vicinity. • This is less labour-intensive than hoeing or pulling, and causes less soil disturbance than these other methods • Damage can occur to native plants, and the duff layer may be swept away, exposing the bare soil • Seed or plant afterwards with native species
Medium-sized to smaller-sized patches of seedlings	Cutting the stem with a hand tool (grass whip, weed whip, or hedge shears)	In the summer*, at least 3 years after removing mature plants	<ul style="list-style-type: none"> • Wear protective clothing and avoid direct skin contact with the plant • This produces less of the toxic vapour than a weed-eater and has less impact on the duff layer, but this is more also labour-intensive • Seed or plant afterwards with native species • Cut below the lowest point where leaves occur • Hedge shears can get at places where the swinging blade of a grass or weed whip cannot (i.e. under dense shrub)
Individual seedlings or shrubs (pre-invasion) to small patches of seedlings or scattered young shrubs	Pulling	When the soil is moist, before the plants go to seed	<ul style="list-style-type: none"> • Wear protective clothing and avoid direct skin contact with the plant • Try to cause minimal soil disturbance (plants under 30 cm are generally easy to pull and doing so results in little soil disturbance) and avoid breaking the stem off above ground • Probably too labour-intensive to be used on large patches of plants unless a large labour pool is available • Seed or plant afterwards with native species

Circumstances	Method	When	Notes or Caveats
Mature plants and young shrubs, in any size of invasion (small to large)	Cutting the stem below the soil line	In the summer*	<ul style="list-style-type: none"> Protective clothing should be worn, and avoid direct skin contact with the plant Cut the bottom of the stem where there is an obvious colour change between stem and root. The easiest method: push or kick bypass loppers (these have the sharpest points; others are too blunt) into the ground at the base of the plant and close them to cut the stem below ground. Then inspect the cut stem for the colour change if you are unsure that the cut was low enough (the usual result is a diagonal cut that bisects the area of colour change, made quickly and with minimal soil disturbance). Seed or plant afterwards with native species If the invasion is large, expect dense germination from the seed bank after treatment and refrain from planting native species until after the initial pulse of <i>Daphne</i> germination (which usually occurs within the first two to three years). Treat the initial pulse as described above for seedlings.

* These methods are known to work in the summer. While they may also work at other times, there are currently no data for their success in other seasons.

In deciding which method(s) to choose, also consider:

- Your budget to acquire the necessary tools and equipment for the methods chosen,
- Worker health and safety and the need to comply with WorkSafe BC regulations,
- The health and safety of others nearby (other workers, bystanders, neighbours),
- The number and skill level of the people that will be assisting you, and
- The long term commitment required for successful weed management.

Control methods should be followed by a planting or seeding treatment in order to speed up re-establishment of native species. Consult with someone knowledgeable about this first; ensure that your plant and seed stock originate from sources that follow ethical guidelines; and take genetic issues into consideration. It is advisable to monitor the treated area afterwards to ensure that whatever native species have been seeded or planted have established successfully.

c) Deciding how to dispose of dead plant material

Dead plant material from this species should be removed from the site for safe disposal, and should be transported off-site wrapped in tarps to prevent the seeds from being distributed en route. Never transport *Daphne* cuttings or plants inside an enclosed vehicle because noxious compounds in the bark, leaves and fruit can cause respiratory irritation. For the same reason, *Daphne* should never be burned. It may be composted, but be aware that the compost will likely have viable seeds and should be treated appropriately to avoid dispersal to new areas.

d) Recognizing uncertainty

In making these decisions, there will be things you are unsure about. This is normal, and should not cause undue concern. The important thing is to be *aware* of the things you are most uncertain about, document them, and plan your actions in a manner that will help you learn and reduce this uncertainty.

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¹ Webb, C., M. Campbell, T. Kohler, D. McPhie and M. MacCarl. 2006. Control Methods for *Daphne laureola* Seedlings. Chapter 3.1, in: Species and Ecosystems at Risk; Fort Rodd Hill and Fisgard Lighthouse National Historic Sites of Canada, Summer 2006. Prepared by the Western and Northern Service Centre, Parks Canada, 38 pp + viii.