



This information note is one of a series produced by the Community Woodlands Association. It outlines the main issues with *Rhododendron ponticum*, describes the planning process and the main control techniques for eradication programmes, and signposts to sources of more detailed information, including other CWA information notes or publications by other bodies. The note draws heavily on an online workshop hosted by CWA in 2021 which was led by Gordon Gray Stephens (Native Woods Co-op) and Grant Holroyd (Knoydart Forest Trust), and on Scottish Forestry's guidance for delivering invasive non-native plant control projects. The principles and techniques of rhododendron control are widely applicable, but references to grants apply only to Scotland.

Introduction

Rhododendron ponticum is the most significant non-native invasive species of forests and woods in Scotland, and has proved difficult and expensive to tackle. It is exceptionally adaptable, growing well everywhere from upland peat to coastal sand dunes, but is particularly prevalent in the west coast Atlantic Rainforest zone, where along with deer and sheep, it is the major threat to the health of native woodlands. It forms a dense and impenetrable understorey, crowding and shading out ground flora and preventing tree regeneration.



It was introduced in the 1760's as an ornamental plant and is valued by some as cover for game birds and as an effective visual screening and sound barrier. The stems make good firewood and can be turned into charcoal.

Other species of *Rhododendron* are less invasive, but some ornamental varieties have been grafted onto *R. ponticum* root stock; and shoots from the rootstock often take over from the grafted scion.

R. ponticum has no value as fodder for livestock or native herbivores (and can be poisonous) and as far as we know its seed is not eaten by animals. There are no native species present in the UK that provide natural control of *R. ponticum* although it is known to be a host for *Phytophthora ramorum* and can be killed by *Phytophthora kernoviae*. *P. ramorum* is currently causing catastrophic losses of larch across the UK. If Scottish Forestry issue a Statutory Plan Health Notice (SPHN) requiring felling of infected larch they are likely to also require the removal of infected rhododendron plants plus any within a two metre buffer zone.

Liability: The Wildlife & Natural Environment (Scotland) Act 2011 made it an offence to plant or cause any non-native plant species to grow in the wild and the associated [Code of Practice](#) helps landholders to understand their legal responsibilities and exercise due diligence in relation to invasive non-native species.

Planning eradication/control projects

Whilst eradicating *Rhododendron* is generally desirable, and may be essential for some objectives, such as restoring native woodlands, it may not always be feasible for logistical or financial reasons. Sometimes, it is only practicable to control areas to establish tree crops or to maintain clear paths and viewpoints, although control projects will require ongoing and open-ended commitment.

Effective eradication of *R. ponticum* can generally only be achieved by working at a landscape scale, where control takes place as part of a carefully planned and co-ordinated project involving multiple land owners.

Experience suggests that it can take several years to set up a fully-funded eradication project working with multiple land owners and that it can take 20 years or more to achieve full eradication. Long-term planning, vision, good inter-personal skills and motivation is required.

- Identify the scale of your problem, in terms of area, growth stage and density of the bushes. Do you own the problem or are your neighbours the primary seed source?
- Identify stakeholders, especially your neighbours, and constraints such as designations and water supplies. Develop a consultation and communication plan that will bring your neighbours and other community members on-side to approach the problem at a landscape scale.
- Identify any permissions/licence requirements from government agencies, e.g. SEPA in relation to spraying chemicals close to water.
- Identify the most appropriate eradication or control methods, including follow-up treatments and any requirement to plant replacement trees & shrubs.
- Identify likely funders; what are their requirements for dealing with the problem across land ownerships?
- Identify contractors, volunteers, tools and equipment and account for all costs, allowing for contingencies that could not be picked up in the initial survey.
- Compartmentalise the area so that you can prioritise action, apply appropriate control methods to each section and work through the area in a logical fashion without missing any areas.

Funding

The current [Forestry Grant Scheme options](#) focus on biodiversity outcomes and applications will be more successful if they are in priority or designated areas and in collaboration with neighbouring landowners to deliver eradication over a landscape-scale area.

The [Priority areas](#) are quite restricted in extent, and all lie within the rainforest zone: Tarbert on Kintyre, Taynuilt and Barcaldine, Morvern around Loch Sunart to Knoydart and Loch Maree. In other areas you will need to get letters of support from NatureScot or Scottish Forestry, and funding is very constrained.

Landscape scale projects may be supported by [Heritage Lottery](#) funding, whilst the [Scottish Forestry Community Fund](#) can assist with recruiting, equipping and training volunteers. Future funding in the west of Scotland may be available through rainforest restoration projects.

Collaboration with neighbours is essential: without an eradication / replacement plan agreed with your neighbour, the problem will be poised for reinvasion every year.



(Images © Gordon Gray Stephens & Bob Black.)

Eradication / control methods

The appropriate method for eradicating *R. ponticum* will depend on the site and on the stage and scale of growth.

Pulling up seedlings:

This works best where seedling density is scattered and individual plants not more than 75cm tall. Taller plants could be tackled with the assistance of a spade or mattock to cut roots. The plants will regrow only if a section of stem and root collar is left behind: they do not regenerate from roots. If small plants are growing from a layered stem, the whole of that stem will need to be pulled out, back to the source plant.

Excavators can be used for digging out larger plants on sites that permit machine access and if there are no conflicting conservation interests. Excavated root balls must be shaken free of soil so that roots dry out and the plant dies.

Chemical Control

The standard method for tackling scattered bushes and regrowth is foliar application with glyphosate with a suitable adjuvant (Mixture B or Mixture B NF) to ensure the chemical sticks to the leaves and gets through the thick, waxy cuticle. This is appropriate for bushes lower than 1.2m in height, where all of the leaves can safely be reached with a knapsack sprayer.

Cut, burn/mulch and chemical follow-up

This method is used for dense areas where the plants are too big to spray the leaves and too dense to get easy access to individual stems. Cutting is by chainsaw or clearing saw on rough and steep ground, but excavator mounted flails or remote-control mulching machines can be used on machine accessible ground.

If mulching is not employed, cut stems will need to be removed, burned or windrowed to ensure easy access for follow-up treatment a year or two later. Experience suggests that when using a chainsaw to cut bushes, up to $\frac{3}{4}$ of the time is spent stacking the cut material.

Burning is fun for volunteers and the smoke keeps midges at bay, but it is not always necessary: windrowed stacks of brash can help guide follow-up spraying or be used as dead-

hedging to protect tree regeneration. Windrows can be a fire risk and should not be created near existing woodland.

Lever and Mulch method

This involves cutting stems at about chest height and using the cut stem as a lever to break out the roots, or at least the root collar. Once the levers are snapped out and removed, the remains of any root collar are hammered or micro-mattocked to remove the potential for new shoots to grow. The stump is then covered in a thick mat of old leaves that is held down by cut twigs and branches. The exclusion of light from the root collar should reduce regrowth to a minimum.

As with the cut/burn method above, if stems are big enough and it is cost effective, some stem material can be harvested as firewood.

Stem injection

This is a preferred method in many cases, as even bushes over 2m tall can be effectively treated, with records of >90% effectiveness. The main technique is "drill and fill": battery operated drills are used to drill holes into the stem which are filled with a glyphosate ecoplug. Alternatively a chainsaw or hatchet can be used make cuts in which are then filled with herbicide. The stumps of any stems cut to get access to the bushes need to be treated with herbicide as well as the chainsaw cuts.

Stem injection requires a minimum 14% glyphosate solution (1-part concentrate to 7-parts water) and 25% is frequently specified. The chemical will be taken into the root system and the plant killed, but only if treatment gets all around the stem and every stem is treated below the lowest live branch. Stems 2 to 3cm in diameter only need a single injection. Stems to 20cm in diameter will need 4 interventions arranged around the stem or 3 to 4 parallel boring cuts. The addition of a suitable dye will help make the treated stems visible. Dead stems can be cleared for firewood or left to rot. This system uses a lot less chemical than foliar spray applications. A link to a useful video is provided in the resources section below.

All methods need follow up treatment to kill any plants that have regrown and to remove

new seedlings: *R. ponticum* seed remains viable in the soil for up to a year.

Training and ongoing management

Large community-driven projects offer scope to create opportunities for local employment over a number of years, and this should be considered during project development.

Staff, contractors and volunteers using chemicals should be suitably trained or closely supervised by trained personnel to reduce risk to themselves, others and to the wider environment.

Relevant qualifications include PA1: Principles of safe handling and application of pesticides, PA6a: Safe Use and Handling of Pesticides Using a Knapsack and/or Lance to Land and PA6inj: Safe Use of Stem Injection Equipment.

Treating *R. ponticum* in very steep terrain (river gorges) will require people appropriately trained in rope-access techniques. Increasingly this is specified as rope access trained (IRATA).

Revegetation of the area will be improved if deer are controlled to low or very low numbers. Without adequate control of herbivores, replacement vegetation will be moss-dominated and the site will be a perfect seedbed for *R. ponticum* seed blown in from adjacent areas.

You may need to factor in some re-planting of trees or ornamental replacements, especially if you are working with garden neighbours and community members concerned about losing the aesthetic appeal of flowering Rhododendrons. Temporary screening may be required for some roadside properties

All methods involve big up-front costs followed by years of follow-up treatment. If contractors are employed to spray regrowth it is helpful if they live locally and can prioritise the work when the weather is right. The project will then move to a longer term maintenance phase where vigilance is still required.

Recruiting volunteers from local communities helps to get boots on the ground to find missed

bushes, re-seeding or re-generating bushes and deal with them appropriately.

Rhododendron clearance at Knoydart: before, after and 15 years later.



(Images © Knoydart Forest Trust)

Other invasive non-native species

Scotland has a considerable number of other non-native invasive species, including Japanese knotweed and giant hogweed, which have specialist control requirements and techniques.

Cherry laurel (*Prunus Laurocerasus*) is the plant most similar to *R. ponticum* in habit and control options. It has a deeper rooting system so lever-mulch is unlikely to be effective, but stem injection is a suitable control method.

Snowberry (*Symphoricarpos* spp) and *Spiraea japonica* are thin-stemmed, densely rooting shrubs that can be dealt with by volunteers. Uprooting the plants works, but with mature bushes it can be arduous. Gloves should be worn to avoid picking up chemicals from bark.

Care must be taken to ensure the plants dry out and die rather than taking root again. Repeat visits during the growing season (3 times in the first year and then every year for up to 5 years) might be required to achieve complete eradication. Foliar application of glyphosate is effective on dense stands. Tall stands may need to be cut back to 20 to 50cm tall and allowed to re-grow before spraying towards the end of the growing season.

Other shrubby invasives include cotoneaster (Butterfly Conservation are working on a population in a remote part of Mull to restore habitat for slender Scotch burnet moth), prickly heath (*Gaultheria mucronate*) and salal (*Gaultheria shallon*). Control by up-rooting or foliar application of herbicide.

Resources

Community Woodlands Association (advice and support for community woodlands)

<http://www.communitywoods.org>

Forestry Commission Scotland: Guidance for Delivering Invasive Non-native Plant Control

<https://forestry.gov.scot/publications/27-guidance-for-delivering-invasive-non-native-plant-control-projects/download>

Forestry Commission: Managing & Controlling Rhododendron (2006)

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/698576/managing_and_controlling_rhododendron.pdf

Forest Research: Controlling Rhododendron through the use of herbicides

<https://www.forestresearch.gov.uk/research/controlling-rhododendron-through-the-use-of-herbicides/>

Alliance for Scotland's Rainforest: Resources page

<https://savingscotlandsrainforest.org.uk/resources>

Natural Trust for Scotland: "Stemming the Tide"

<https://drive.google.com/file/d/1g8HzL03oRexungwH7bsfUPSWtio8u7AO/view>

Pearl Mussel Project: Video from West of Ireland

<https://www.youtube.com/watch?v=3JeZUTBSO8Y>

Trees for Life: Rhododendron Control

<https://treesforlife.org.uk/into-the-forest/habitats-and-ecology/forest-restoration-techniques/rhododendron-control/>

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