invasivespecies Ireland

Best Practice Management Guidelines

Himalayan balsam

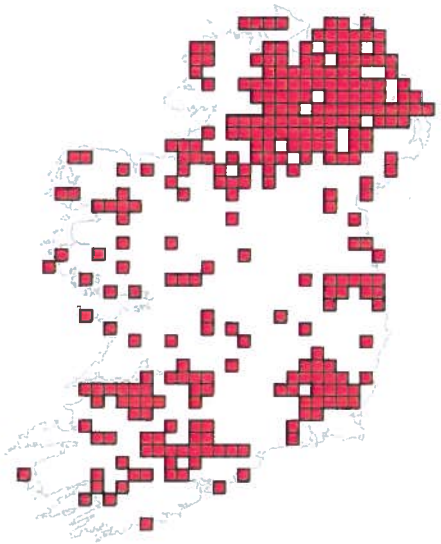
(*Impatiens glandulifera*)

1. Aim of this advice

The aim of this plan is to provide best practice management guidance on the control of Himalayan balsam (*Impatiens glandulifera*) on the island of Ireland.

2. Introduction

Himalayan balsam is an attractive, non-native invasive terrestrial plant species. Since it was introduced, it has spread to most parts of Northern Ireland and the Republic of Ireland. The species is particularly frequent along the banks of watercourses, where it often forms continuous stands. It can also establish in damp woodland, flushes and mires. It is the tallest annual (species of plant that completes its life cycle in one year) in Ireland and due to its rapid growth, it shades out most of our native species. Individual plants reach 2m in height, have translucent fleshy stems, pink-purple slipper-shaped flowers and large oval pointed leaves with obvious teeth around their edges. Each tooth carries a small globular 'gland' and produces large numbers of flowers which are followed by 'seed pods' about 25mm long. When mature and dry, the fruits split open explosively if touched, flinging the seeds a considerable distance from the parent plant. Each plant produces about 2,500 seeds which fall to the ground, and with several parent plants close together, seeds can occur at a density of between 5000-6000 seeds per square metre. The seeds float, making watercourses a prime route for dispersal of the species. Seeds can also begin to germinate in water on their way to new sites.



Distribution of Himalayan balsam in Ireland. Source of data: National Biodiversity Network; accessed 07 April 2008.

3. Impacts

The risk assessment carried out by the Invasive Species in Ireland project identified Himalayan balsam as one of the highest risk (most unwanted) non-native invasive species in Ireland. This is largely due to its impact on native waterside vegetation within designated sites. Since the species is rapidly expanding its range, a major concern is Himalayan balsam will dominate waterside vegetation and damp ground, at the expense of native species across Ireland.

There appears to be no direct detrimental impact on animal life. However, recent research suggests it competes for pollinators such as bumblebees with the native riverbank species, and so reduces seed set in these other plants.

In the autumn, the plants die back, leaving the banks bare of vegetation and vulnerable to erosion leading to knock on effects such as increased siltation of fish spawning grounds.

4. Legal status - Northern Ireland

Himalayan balsam will be listed on the revised Schedule 9 of the Wildlife (Northern Ireland) Order 1985 and therefore it will be an offence to plant or cause it to grow in the wild, upon its inclusion.

5. Legal status - Republic of Ireland

At present, there are no specific legislative provisions that directly govern Himalayan balsam control or removal in the Republic of Ireland. However, the Wildlife (Amendment) Act 2000 states that anyone who plants or otherwise causes to grow in a wild state in any place in the State any species of (exotic) flora, or the flowers, roots, seeds or spores of (exotic) flora shall be guilty of an offence.

6. Managing Himalayan balsam

To reduce costs and additional effort it is important to prevent Himalayan balsam from spreading around a site contaminating unaffected areas. This is best achieved by:
• Production of a detailed Himalayan balsam management plan.
• Ensuring that all relevant staff are briefed and aware of Himalayan balsam issues, the management plan and their responsibilities.

For sites that do not have Himalayan balsam present, efforts should be put in place to prevent the species arrival. The most common ways a site can become infected are:
• Importation of infected soil.
• Contamination on vehicles and equipment.
• Colonisation from upstream or adjacent areas.
• Illegal dumping of contaminated soil.

7. Encouraging native species

Himalayan balsam is known to reduce native plant diversity with some figures estimated a loss of about a third. This effect can be detected at both small and riverbank scales. It is possible to successfully control or eradicate Himalayan balsam from infested sites. However, while removal of Himalayan balsam increases plant diversity, the species that respond most dramatically are other non-native plants. It is recommended that efforts are made to enhance native species, as part of a control programme.

8. Himalayan balsam on adjacent sites

It is particularly important to consider Himalayan balsam in the wider environment around a particular site. If this species is growing in an adjacent site, or upstream of a site on a riverbank, then no matter how good on-site control is, recolonisation is likely. An understanding of the wider area is necessary to determine if eradication or control efforts are likely to be successful. In some situations, eradication of all Himalayan balsam on site might not be possible due to the likelihood of re-colonisation. Work in partnership with neighbouring landowners to tackle Himalayan balsam .

For all sites, the following steps may be useful to ensure success and prevent spread:

1. Find out how much Himalayan balsam there is on the property and map it.

2. Ensure that everyone working on the site is aware of and adheres to good site hygiene such as:
• Marking out of contaminated areas.
• Ensuring that vehicles with caterpillar tracks do not work within contaminated areas.
• Treating contaminated soils carefully.
  - Limit use of tracked machinery at infested sites.
  - Cleaning machinery or equipment that could be contaminated.

3. Attempt to establish the length of time Himalayan balsam has been on site. Long-standing infestations over many years will have larger seed banks.

4. Write a Management Plan to guide your work and make sure all staff working in the area are aware of it and the impacts of Himalayan balsam .

5. Follow-up control work will be necessary to ensure that any regrowth and seedlings are not missed.

9. Control options

9.1. Mechanical/physical control

Mechanical control, by repeated cutting or mowing, is effective for large stands, but plants can regrow if the lower parts are left intact. The plant must be cut below the lowest node to stop regeneration. Access to the sides of riverbanks can be difficult and inaccessible stands can quickly recolonise accessible cleared areas, so vigilance is needed if an area is to be effectively cleared. Regular grazing also suppresses this species.

Small infestations (most common in gardens) can easily be controlled by hand-pulling as the species is shallow rooted. Padded gloves should be worn to avoid risk of injury to hands. Seeds are not very robust and only survive for up to 18 months so a two year control programmes can be successful in eradicating this plant if there is not further infestation from upstream or adjacent sites.

To avoid additional spread do not disturb plants if seeds pods are visible (usually sometime after May). Programmes should be undertaken in April or early May. If hand pulling after this time, bag plant tops to prevent seed spread.

9.2. Chemical control

Himalayan balsam can be controlled by spraying the foliage with glyphosate. The plants should be sprayed in the spring before flowering but late enough to ensure that germinating seedlings have grown up sufficiently to be adequately covered by the spray. Glyphosate is sold under a number of brand names. Small infestations and individual plants can be controlled by using glyphosate in a weed wiper. This has the advantage of preserving native plants and grasses which would otherwise be killed by the glyphosate. The herbicide 2,4-D amine controls many broadleaved annual weeds and may also be used to control this species but is not recommended for use near waterbodies. This selective herbicide will not kill grasses. It may be preferable to glyphosate in situations where the weed has not reduced complete cover of the grasses. A long-lance sprayer may assist in the spraying of less accessible areas out of the reach of conventional knapsack sprayers.

Always follow health and safety procedures outlined by the herbicide manufacturer and take appropriate precautions when working near water.

10. Himalayan balsam Management Plan Template

Use this template to help formulate your own management plan outlining how you are going to proceed and what you will need.

Site Name: _____
Site Manager/Owner: _____

Site details

Address:	
Telephone:	
Email:	
Agencies/persons involved:	
Date:	

Date of introduction:	
Total site area:	
Total area colonised:	
Previous site management:	

Designation	**On site**	**Near site**	**None present**
Details: Establish if there is a requirement to apply for a license/notify before proceeding with plan.			

Actions and resources

Management options	**Responsibility**	**Date to undertake**

Resources needed	**Responsibility**	**Date to undertake**

Monitoring and evaluation

Name of person/s	**Date to undertake**	**Report to**	**Additional treatments date (if required)**

11. Summary of actions needed for effective management

1. Confirm Himalayan balsam identification.

2. Carry out a survey and produce a distribution map indicating the location across the site. Including rivers/streams is important.

3. Consider surrounding properties and potential for reintroduction. Talk to adjacent land owners and make them aware of the issues and what you plan to do, if possible work in partnership. Identify potential contamination routes to your site and mitigate against these. You may be unable to prevent reintroduction from upstream without the help of other landowners.

4. Decide should the programme aim for continuous control on a yearly basis or eradication from the site. Base your decision on an understanding of the biology, size of infestation, potential for reintroduction and other relevant sensitivities in the area.

5. Consider if you can successfully and safely carry out the work or if professional practitioners, with relevant training and certificates should undertake the work. Remember relevant health and safety legislation and procedures when working near water.

6. Identify if sufficient resources are/will be available to complete the work within the planned timescale. If work will take more than 1 year to complete, ensure you have sufficient funds to complete the work.

7. Ensure disposal options for the plant material are in place prior to work commencing.

8. Develop and produce a site specific control/management plan. Use the template provided in this document to guide you.

9. Monitor for regrowth and/or reintroduction during site visits. If applicable, ensure new members of staff are aware of your Himalayan balsam plan and report sightings.

12. Himalayan balsam treatment times

Mechanical control	J	F	M	A	M	J	J	A	S	O	N	D
Glyphosate	J	F	M	A	M	J	J	A	S	O	N	D

- Optimum treatment time.
- Suboptimum treatment time but can be effective. Refer to text for details.

Please consider sharing your experience of a management plan with others. The Invasive Species in Ireland website will feature case studies to help guide others undertaking similar work.

The Invasive Species Ireland Project is undertaken, in partnership, by EnviroCentre and Quercus.

www.envirocentre.co.uk

www.quercus.ac.uk

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Northern Ireland Environment Agency
An Agency within the Department of the Environment

www.ni-environment.gov.uk

Comhshaol, Oidhreacht agus Rialtas Áitiúil
Environment, Heritage and Local Government

www.npws.ie

For more information on the Invasive Species Ireland Project please see the website at www.invasivespeciesireland.com

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