



# **Giant Rhubarb (*Gunnera tinctoria*) Invasive Species Action Plan**

## 1. Introduction

The risk assessment undertaken as part of the Invasive Species Ireland project prioritised *Gunnera tinctoria* for preparation of an Invasive Species Action Plan. *G. tinctoria* has negative impacts on the environment, biodiversity, native flora and fauna and landscape character. This species acquired a score of 19 out of a possible 25 from stage 1 of the risk assessment process owing, in part, to its potential impact on protected habitats and species leading to non-compliance with EU legislative obligations under the Water Framework and Habitats Directives.

## 2. Aim of plan

The aim of this Invasive Species Action Plan is to prevent further spread of *G. tinctoria* in Ireland and put in place mechanisms to prevent new introductions to the island. The management plan sets out actions required for successful implementation and guidance on methods for eradication/control of *G. tinctoria* populations in Ireland. This can be achieved through the implementation of control options, raising awareness of this species, developing policy and identifying actions needed to deal with further spread.

## 3. Key priorities

### 3.1. Prevention of further spread

- Restrict the sale of *G. tinctoria* through garden centres, supermarkets and other retail outlets.
- Raise public awareness of the economic and environmental impacts *G. tinctoria* could have in Ireland in combination with education efforts targeted at key stakeholder groups linked to the import and spread of this and other invasive plant species.
- Encourage the removal and proper disposal of domestic plantings and promote the use of native species.
- To inform management by recommending methods to gather accurate baseline distribution of this species. This can be achieved by encouraging recording of the plant by the general public, gardeners, naturalists and water course users such as agriculturalists, anglers and canoeists.

### 3.2. Eradication

- Guide the eradication of the plant at its known wild populations.
- Engage with stakeholders to provide advice and help, where appropriate, to eradicate populations in private gardens.

## 4. Invasion history

*G. tinctoria* is an introduced species that has become invasive in the west of Ireland. Although the exact date of its introduction to Ireland is unknown, Preager first recorded it in the wild in Ireland in 1939 on Achill Island. Pollen analysis suggests that it could have been present on Achill Island for 70-100 years (Hickey and Osborne 1998).

## 5. Nomenclature

**Common name:** Giant rhubarb

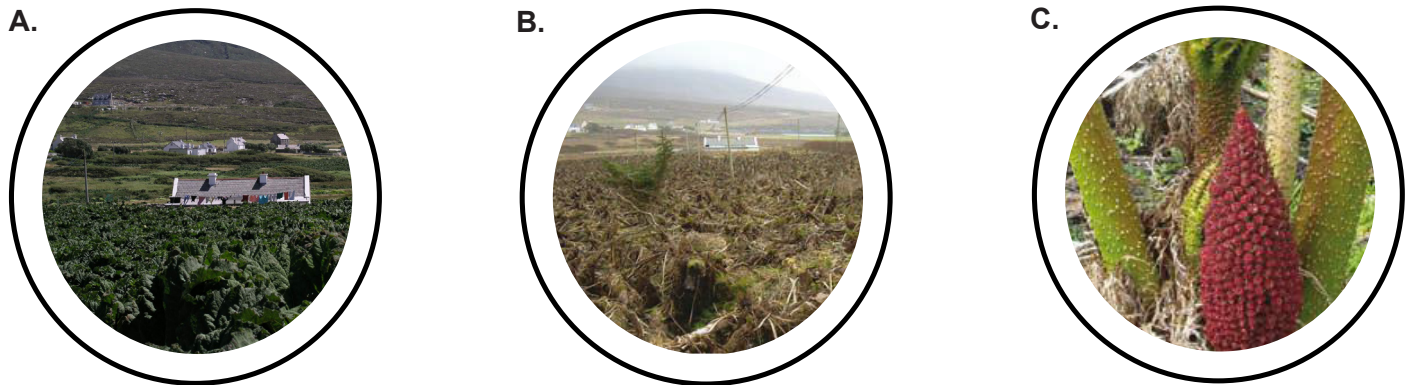
**Also known as:** None identified

**Synonyms:** *G. chilensis*, *Panke tinctoria*

## 6. Identification features

*G. tinctoria* is a large herbaceous perennial, which can grow up to 2 m tall, with leaves of up to 2 m in diameter (Figure 1A). It is a rhizomatous plant with the rhizomes of mature plants can be up to 1.5-2 m long growing above ground. It is deciduous with the leaves dying off in autumn (October) leaving the large brown rhizomes exposed (Figure 1B). Growth starts in early spring (March), prior to the emergence of native species. It can reproduce by both sexual (seed) and asexual (vegetative) means. Inflorescence

development occurs early in the spring (Figure 1C), with the fruits maturing in late summer/early autumn. Large numbers (up to 250 000 seeds per mature plant) of drupe like, red or orange seeds are produced. Small fragments of the rhizome have the potential to establish new plants.



**Figure 1.** *G. tinctoria* at Achill Island Co. Mayo. **1A.** Field in Dooega in August showing a large invasive population. **1B.** The same site in February showing rhizomes. **1C.** Developing inflorescence and initial growth of new leaves. Photos courtesy Cristina Armstrong

## 7. Impacts

To date there has not been a detailed assessment of the impact of *G. tinctoria* on native ecosystems. Previous studies indicate there is a reduced number of native species growing underneath large *G. tinctoria* colonies (Hickey and Osborne, 2001). In grassland sites Hickey and Osborne (1998) found that former species-rich sites were replaced with a sparse cover of dicotyledonous species not found in un-colonised sites. Of particular concern are impacts associated with peat bog (Figure 2A) and waterside vegetation (Figure 2B), as large dense colonies can rapidly dominate and displace important native species. On coastal cliffs, the main impact is caused by increasing the threat of erosion and loss of maritime species.

Apart from the ecological impacts associated with loss of biodiversity, there are also the visual and landscape impacts to consider:

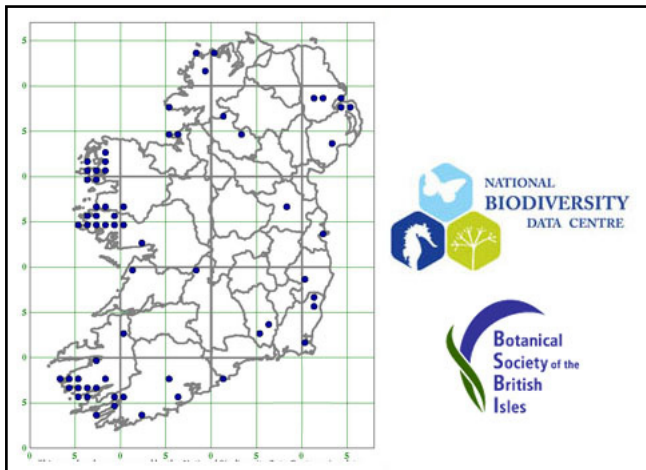
- Large areas of land are also no longer suitable for agriculture or amenity purposes, due to the dense stands of *G. tinctoria*.
- *G. tinctoria* growth may also lead to the blockage of drainage channels and increase risk of flooding.
- During the growing season, *G. tinctoria* is spectacular in appearance, but the large dense colonies create a visual impact on the Irish landscape.
- In winter, large brown rhizomes are exposed along with accumulated rubbish.
- Winter die back of *G. tinctoria* has led to reports a strong rotting smell.



**Figure 2.** **2A.** *G. tinctoria* growing along a river surrounded by heath on Achill island. **2B.** *G. tinctoria* growing along a river on Clare island. Photos courtesy Cristina Armstrong

## 8. Known distribution and spread potential in Ireland

The known distribution of *G. tinctoria* in Ireland is shown in Figure 3. This species is currently considered invasive on the west of Ireland. It is not yet invasive in other areas of the country due possibly to climatic and environmental conditions. This could also reflect the early stages of the invasion process.



**Figure 3.** Distribution of *G. tinctoria* in Ireland. This map has been prepared by the National Biodiversity Data Centre using data supplied by the Botanical Society of the British Isles (July 2008). For up-to-date maps, please refer to the National Biodiversity Data Centre [www.biodiversityireland.ie](http://www.biodiversityireland.ie).

The plant invades a variety of habitats, such as grassland, waterways, roadsides, quarries, bog, heath, coastal cliffs and especially old former agricultural fields, where it may form large continuous stands. Due to the size of the plant access to sites infested with *G. tinctoria* is difficult, making control measures problematic. The likely vectors of spread for *G. tinctoria* are waterways, birds, and by anthropogenic activities such as the clearing of ditches, road building, and movement of soils for housing development. As *G. tinctoria* is found to thrive in quarries it can easily spread into new areas through the transport of aggregates. The majority of the seeds are dispersed near the parent plant, but some may be transported along waterways or are possibly eaten by birds, which can further aid seed dispersal.

Predictions based on our current knowledge of the habitats most susceptible to invasion and the proximity to current populations will allow us to identify priority areas for control and prevention. If eradication is the ultimate goal all locations must be known, as plants left untreated or not removed will facilitate reintroduction. Sites close to water must be carefully observed, as connecting waterways could act as corridors for re-infestation. It is also important in choosing the best treatment method, as sites too close to, or on waterways will be restricted in terms of the herbicides that can be used. If a site is chosen for *G. tinctoria* eradication or management other invasive aquatic plants should be included in the plan.

### Action 1. Establish accurate baseline distribution

In order to progress action on the ground, it is essential to have information on its distribution easily available. Recording programmes for invasive species should be encouraged on an annual basis and records should be submitted to the National Invasive Species Database and made readily available through the two biodiversity record centres on the island of Ireland. The biodiversity record centres should be resourced to gather information on invasive species and disseminate this information on request and/or online methods to key stakeholders for example, Local Biodiversity Officers and site managers.

## 9. Prevention of new introductions and further spread

### Action 2. Enforcement and raise awareness of legislative powers

Legislation is already in place to prevent the release of invasive species in both Northern Ireland and the Republic of Ireland:

Northern Ireland - under Article 15 (2) of The Wildlife (Northern Ireland) Order 1985 if any person plants or otherwise causes to grow in the wild any plant which is included in Part II of Schedule 9, he shall be guilty of an offence.

Republic of Ireland - under Section 52 (7) of The Wildlife (Amendment) Act 2000 any person who plants or otherwise cause to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores of flora except under and in accordance with a licence granted in that behalf by the Minister shall be guilty of an offence.

### Action 3. Amend existing legislation

Legislation should be strengthened to ensure a total ban on import and possession of *G. tinctoria*. To this end:

- *G. tinctoria* should be added to Schedule 9 Part II of the Wildlife (Northern Ireland) Order 1985.
- The Minister of the Environment in the Republic of Ireland has power to prohibit the possession or introduction of any species that may be detrimental to native species. *G. tinctoria* should be brought to the attention of the Minister and the required prohibition enacted.

### Action 4. Highlight, support and promote Invasive Species Codes of Practice

A priority action to prevent the spread and release of invasive species is to promote the uptake of the Invasive Species Codes of Practice and support these with literature and information leaflets for both industry and the general public.

### Action 5. Public sector bodies adopt Invasive Species Codes of Practice

All public sector organisations should lead by example and adopting Invasive Species Codes of Practice in their relevant work areas. This is a key priority to the success of each of the codes. Government agencies should also incorporate the sentiment of the codes into tenders and procurement procedures and ensure that suppliers are abiding by the codes, where possible.

### Action 6. Work in partnership with quarries and the construction industry to limit these activities as pathways for spreading invasive species

The construction and quarry industries are key pathways to the movement of this species. Guidance and advice should be made freely and readily available to all stakeholders on methods to prevent the spread of invasive non-native species via this pathway. Training may be required to ensure compliance with guidance and relevant legislation.



## 10. Eradication and control

### Action 7. Prioritise sites for eradication across the island of Ireland and initiate programme of measures

*G. tinctoria* has a relatively restricted distribution across the island of Ireland (Figure 3). We are still at an early stage of colonisation and action is needed sooner rather than later to prevent widespread economic impacts, loss of biodiversity and a need for large scale and expensive programmes in the future. State agencies and local authorities should prioritise sites for eradication based on a transparent framework to guide a co-ordinated eradication programme. It would be cost effective to undertake this for all the high risk invasive plant species identified in the Invasive Species Ireland risk assessment present on the site.

At a local level, information on the distribution of *G. tinctoria* is important for the design of local management plans. The distribution of *G. tinctoria* on Achill and Clare Island have been mapped using a GPS (Global Positioning System) and GIS (Geographic Information System) software (using 1:5000 maps in the field). Distribution mapping is of vital importance as it will provide a baseline for the implementation of management plans, and will allow for the future monitoring of spread or the success rates of any control efforts.

There are several methods commonly used as means of tackling the problem of invasive plant species: physical removal, chemicals, and biological control, or a combination of these. Integrated management, using a combination of control measures are generally considered to be the best (Myers and Bazley 2003).

#### 10.1 Mechanical control

Due to the size of *G. tinctoria* and its potential to reproduce from small fragments, physical removal has largely been over-looked as a possible means of control. There is the added problem of the disposal of the material removed. However, it should not be dismissed as a potential means of control. Physical removal using spades is clearly a viable option for small plants, or where a small number of plants are present, plant material missed in the first removal can be monitored and subsequently removed. With the appropriate machinery and manpower large areas could be cleared quickly. The possible use of physical control is currently under investigation on Achill Island, using deep burial to dispose of the unwanted plant material.

When physical removal is used on a large scale it will leave a “blank canvas” and this must be accounted for during the planning stages, as the area may become susceptible to reinvasion by *G. tinctoria* or a variety of other unwanted species. It may be necessary to implement a restoration protocol for the cleared site after physical removal. Managers should be aware of and compliant with relevant waste legislation.

#### 10.2 Chemical control

Chemical control can be effective in treating large areas and is generally considered efficient and cost-effective (Motooka *et al.*, 2002, Carlile 2006). The major drawback of using chemicals is the impacts they can have on the environment, affecting not only the target species but other species in the neighbouring area. The use of chemical control on *G. tinctoria* has been investigated both in Ireland and New Zealand. Further experimentation and monitoring on the use of chemical control methods is currently being carried out on Achill Island.

Experiments carried out to date on Achill Island have found that effective short-term reductions in the growth of *G. tinctoria* can be achieved with the use of glyphosate based herbicides, using the manufacturers recommended concentrations. Herbicide has also been re-applied where there was re-growth, to examine the effectiveness of two applications. Other herbicides are also being trialled to examine their effectiveness in controlling *G. tinctoria* and will inform any subsequent versions of this plan.

### 10.2.1 Methods and timing of application

The timing of herbicide application is an important factor for any successful control measures. Plants treated early in the growing season (March-May) had little impact in preventing the growth of *G. tinctoria*. Initially plants showed evidence of leaf necrosis, but soon new healthy leaves were produced and grew to the same proportions as untreated plants. Plants treated at the end of the growing season (Aug-Sept) showed no re-growth after one year, but after two years re-growth was observed. Despite no leaf or flower growth the rhizomes do remain in the ground. The presence of a viable rhizome indicates a potential for re-growth and subsequent reapplications of herbicide will be required.

Spraying is generally carried out using a backpack sprayer and all leaves are thoroughly sprayed until the point of “run-off”, using the manufacturers recommended concentrations. Spraying must be carried out on still, cool, dry days. Rainfall soon after application may wash the herbicide off the leaves, a common feature of the climatic conditions in this area and reapplication would be necessary. Protective clothing and a mask must be used at all times when handling herbicides.

The cut and paint method involves cutting the petiole (the leaf stalk) at the base and immediately applying the herbicide on to the cut surface using a brush or sponge (Figure 4). This has been the method of choice in large monostands on Achill, due to the size of the plants effective spraying using a backpack sprayer would prove difficult and potentially dangerous to the persons carrying out the spraying. Large stands of *G. tinctoria* can be very difficult to access, and by cutting the petioles it clears the area and allows further access into the sites. This method is also cost-effective as small quantities of herbicide are involved.

Injection of herbicides involves using a drill to make small wells in the rhizome that are then filled with herbicide. Several wells should be made along the rhizome as translocation can be slow and the herbicide may only penetrate small sections of the rhizome. This method is more labour intensive, but the effects on the neighbouring environment are minimised. Again, this method has been tested on Achill Island with the same success rate as the cut and paint method. To gain access into the site the petioles can be cut as in the cut and paint method described above.



**Figure 4.** Cut petioles herbicide application shown in blue. Photos courtesy Cristina Armstrong

**Note:** Prior to undertaking any spraying operation in or near water in Northern Ireland the NIEA Water Management Unit must be contacted. It is essential that the user is fully trained to the required pesticide spraying level (e.g. PA1, PA6 aw). The user must fully comply with the Pesticide Product Label. In the UK the use of Pesticides is regulated by the Pesticide Safety Directorate (PSD). The Pesticide Control Service (PCS) of the Department of Agriculture and Food is responsible in Ireland. Historically, several pesticides have been available for use in or near waterbodies in the UK and Ireland. It is expected that certain chemicals will be subject to restrictions in the near future. Please refer to PSD website (<https://secure.pesticides.gov.uk/pestreg/ProdSearch.asp>), the PCS website (<http://www.pcs.agriculture.gov.ie/pest.asp?searchType=functCrop>) or contact the relevant organisation directly for the most up-to-date list of herbicides approved for aquatic use.

### 10.2.2 Additional considerations on the use of chemical control in terrestrial ecosystems

The Invasive Species Ireland Steering Group has developed policy in relation to the application of herbicides in aquatic environments. This policy does not extend to terrestrial ecosystems but managers are directed to it for reference and information on considerations required especially if embarking on a programme of works on or near an aquatic system. This document is available to download from the Invasive Species Ireland website [www.invasivespeciesireland.com](http://www.invasivespeciesireland.com).

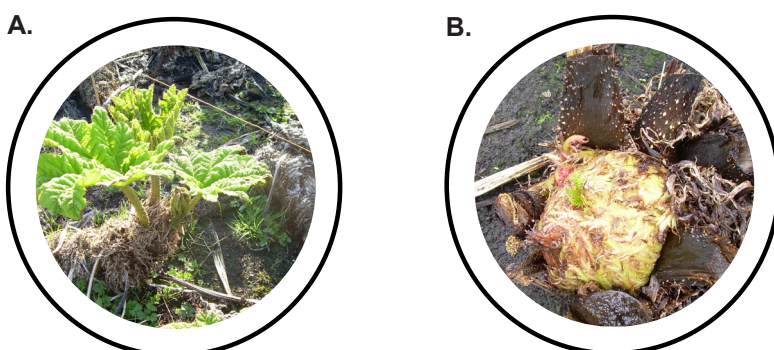
For terrestrial systems, managers and practitioners should be aware of potential impacts the use of herbicides can have on the environment and on human health and safety. All users and programme managers are required to follow the label of the chosen herbicide. The following are some generic guidelines to be aware of and are not intended to replace manufacturers guidelines:

- Wear appropriate protective clothing as required by manufactures guidelines and health and safety considerations.
- Where there is potential for public access to the site measures to inform the public are required. Signage should be erected to deter access.
- Mists from herbicide sprays on hot days can drift in high winds and may impact on non-target plants and animals.
- Runoff from treated areas may kill non target plants and animals in both the terrestrial and aquatic environments.
- Careless washing of equipment can contaminate soil, drinking water, surface water and ground water.
- Boundaries should be clearly defined to prevent spraying outside the intended area. Clearly defining boundaries will also assist personnel orientate themselves and ensure even application.
- Managers should always consider techniques to minimise the volume of herbicides allowed to enter into the environment.
- Ensure proper and safe storage of herbicides.
- Ensure proper and safe disposal of herbicides.

If you are unable to comply with the requirements set out here or on the manufactures guidelines, the use of herbicides is inappropriate and should not be considered until compliance can be achieved.

### 10.3 Monitoring

Ongoing monitoring of the site or sites after herbicide application is necessary to assess the success of the control method used. Initial monitoring should include where possible, mapping the area to document the distribution of *G. tinctoria*, assessment of the population size and a description of the habitats invaded and the native species affected. Monitoring of the herbicide applications should record the success rate by measuring, re-growth, germination of seedlings and sources of reintroduction to the site and surrounding area. To carry out monitoring it is necessary to establish what constitutes an individual plant. To be consistent the best method is to count the number of growing tips, which can be considered as a single unit. The growing tip (Figure 5A and 5B) is the cone shaped end of the rhizome where all the leaves and flower head emerges; a rhizome may, however, have more than one growing tip.



**Figure 5. 5A.** Growing tips and emerging leaves. **5B.** Emerging leaves. Photos courtesy Cristina Armstrong.



## 11. Resourcing the plans

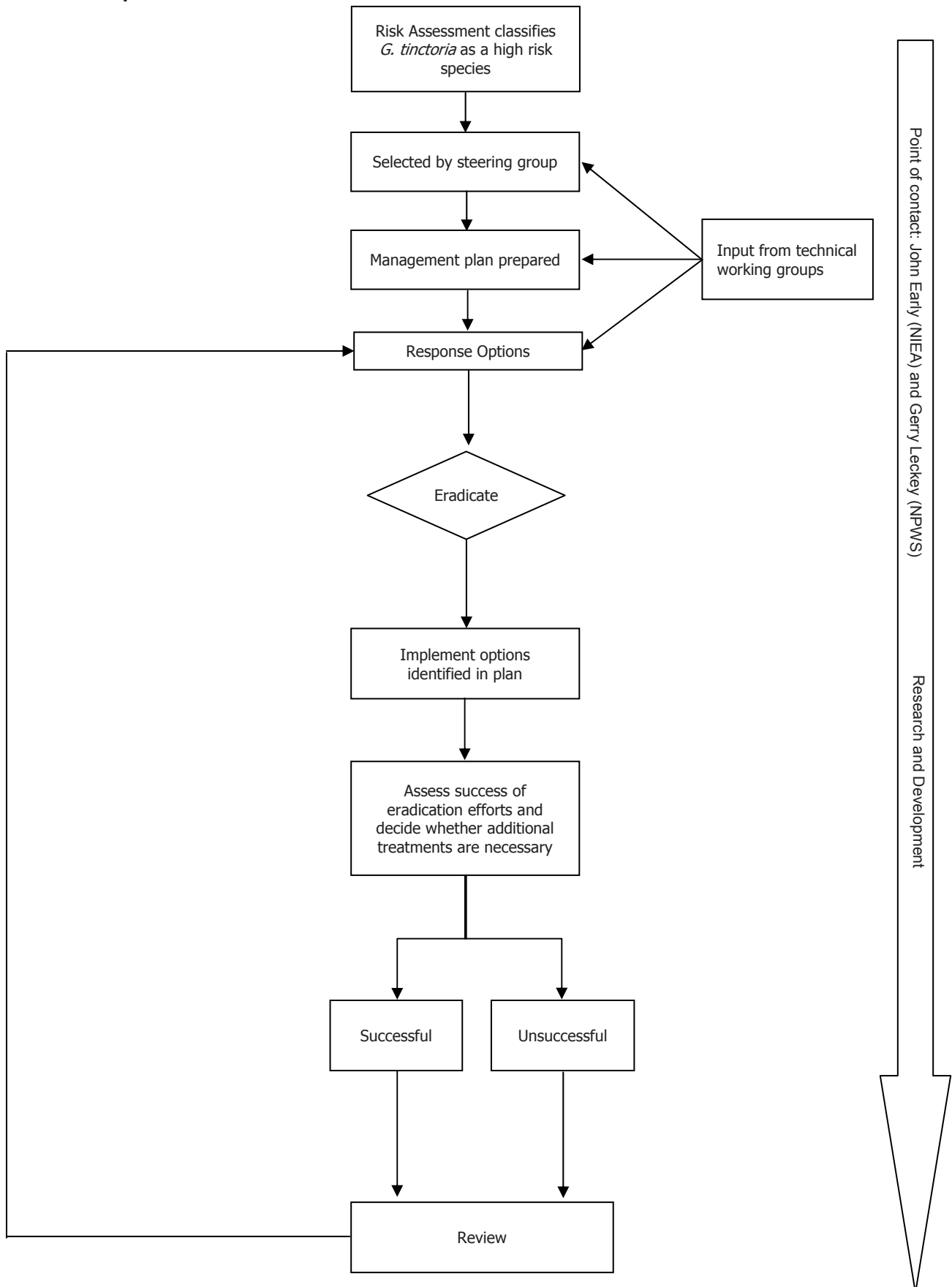
### Action 8. Ensure adequate resources are in place to facilitate implementation of this plan

Action is needed both at a national and local level to manage existing populations of *G. tinctoria* and to prevent further spread. The most cost effective way forward to progress control and eradication is to develop links with local interest groups and local authorities. A means and a willingness by which to divert funds and resources for control work is needed. Small patches of *G. tinctoria* can have minimal costs associated and are estimated up to £500. Larger infestations, that have been established for a number of years will require significantly more funds. For example, initial work on Clare Island, Co. Mayo is costing €14,000 for 2009 programme of work.

## 12. Recommended actions and timetables

No.	Action	Responsibility	Timescale
1	Establish accurate baseline distribution	Government Agencies in partnership with the National Biodiversity Data Centre, Cedar and other stakeholders engaged in the collection of biodiversity data	Annual programme required. Programmes should aim to build on that of the 2009 Invasive Species Survey co-ordinated by the National Biodiversity Data Centre
2	Enforcement and raise awareness of legislative powers	State agencies in partnership with relevant stakeholders	Initiate in 2009
3	Amend existing legislation	State agencies	2009 - 2010
4	Highlight, support and promote invasive species codes of practice	State agencies, Invasive Species Ireland, relevant stakeholders	2009 - 2012
5	Public sector bodies adopt invasive species codes of practice	All public bodies	2009 - 2010
6	Work in partnership with quarries and the construction industry to limit these activities as pathways for spreading invasive species	NPWS, NIEA, local authorities and other relevant stakeholders	2009 - 2010
7	Prioritise sites for eradication across the island of Ireland and initiate programme of measures	NPWS, NIEA, local authorities and other relevant stakeholders	2009 - 2010
8	Ensure adequate resources are in place to facilitate implementation of this plan	NPWS, NIEA and relevant stakeholders	Immediately after successful completion of Action 7

### 13. Decision process



#### 14. Template management plan

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

Site Manager(s)/Owner(s): \_\_\_\_\_

Site Name(s): \_\_\_\_\_

Central grid reference: \_\_\_\_\_

License to remove acquired?

Yes ☐ No ☐

#### 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)

### Current identified impacts

Impacts	Minimal	Moderate	Severe

### Human sensitivities/vested interests at site

Issue	Human receptor

### Identify requirements and best practice for collaboration with stakeholders

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### 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)

## 15. Summary of actions needed for effective management

1. Confirm identification of species. Refer to recognised experts to confirm identification, if required.
2. Develop and produce a site specific management plan. Use the template provided in this document to guide you. A key part of this will involve surveying and producing a distribution map indicating the species distribution on the site.
3. Consider all designated sites on or nearby the management area. You may need to apply for a license under nature conservation legislation to proceed and/or undertake an Appropriate Assessment under the terms of Article 6 of the Habitats Directive. Remember that actions taken outside a designated site may have an impact on a nearby designated site and are thus subject to the same considerations.
4. Consider surrounding properties and households. Talk to adjacent land owners and make them aware of the issues and what you plan to do. It may not be possible but always attempt to get their support. Control programmes will have a higher chance of success with support from the local community. Raise awareness of the issues and ensure alerts are placed in appropriate media e.g. the Invasive Species Ireland website.
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. Also consider if the programme can be co-ordinated with voluntary clubs and local societies and ensure their support and understanding of the issues.
6. Ensure safe disposal of plant material, including the cleaning of any machinery or equipment that may be contaminated.
7. Remember relevant health and safety legislation and procedures.
8. 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.
9. Monitor for missed plants/reintroduction during site visits. If applicable, ensure new members of staff are aware of the action plan and report sightings.



## 16. References

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Preager, R. L. 1939. A further contribution to the flora of Ireland. *Proceedings Royal Irish Academy* 45:231-254.

### Removal

Removal is not recommended as a form of control for large plants. However, it is very effective with smaller plants, in particular new seedlings.



Large brown rhizomes are a visible feature in the winter

**Gunnera** has a rhizome which can easily be broken into pieces that have the potential to re-sprout. Care must be taken not to leave any fragments behind.

Once the plants have been removed they must be disposed of carefully. The rhizomes will not compost, although it is safe to compost the leaves. **DO NOT** dispose of plants by dumping in another area. Options available include leaving them in a black plastic bag, burning, drying out or deep burial.



## GUNNERA IS SPREADING AND DAMAGING OUR COUNTRYSIDE. PLEASE HELP CONTROL THE INVADER!



Comhshaoil, Oidhreacht agus Rialtas Áitiúil  
**Environment, Heritage and Local Government**



For further information:

[www.mayococo.ie/heritage](http://www.mayococo.ie/heritage)  
[www.invasivespeciesireland.com](http://www.invasivespeciesireland.com)

An action of the County Mayo Heritage Plan 2006–2011

## INVASIVE ALIEN PLANT



## GIANT RHUBARB (*Gunnera tinctoria*)

**Gunnera** is an alien invasive plant that was first introduced to Ireland over 100 years ago. It is predominantly found in western coastal counties. **Gunnera** is spreading rapidly and something must be done.

The aim of this leaflet is to provide information on the damaging effects of this plant and the methods that can be used to control it.



## WHERE HAS GUNNERA COME FROM?

**Gunnera tinctoria** is a plant native to South America. It was introduced to Ireland over 100 years ago, possibly as an ornamental plant. Its natural habitat has very similar climatic conditions to those found in the west coast of Ireland.

In the west of Ireland, **Gunnera** is predominant along roadsides and waterways, on coastal cliffs and disused farmlands and quarries.



**Gunnera tinctoria** growing between heather and along a river.

## WHAT DOES IT LOOK LIKE?

**Gunnera** is a large herbaceous plant that forms dense colonies. It can grow up to 2 meters in height. It has large leathery umbrella-shaped leaves, with spikes on the back of the leaves and along the stems. The size of the leaves and their early spring emergence prevent native plants from germinating or growing due to shading. Despite its similar appearance, **Gunnera** is not related to rhubarb.

The plant has a large rhizome, which can grow up to 2 meters in length along the ground. The rhizome is the visible stump which is exposed when the leaves die back in winter.

**Gunnera** can resprout from tiny fragments of the rhizome and can reproduce by seed; each flower head can produce over 250,000 seeds a year. This allows the plant to spread rapidly and makes it difficult to eradicate.



**Gunnera tinctoria**



**Gunnera tinctoria** seedling growing in gravel



Large fruiting head in flower (left).  
seeds (right). Seeds turn red/orange when ripe.

## WHAT CAN YOU DO TO CONTROL IT?

### Chemical Control

To date trials have taken place using herbicides containing glyphosate i.e. RoundUp. Success has been achieved both here in Ireland and in New Zealand.

### When to apply?

Late in the growing season (late Aug/Sept), when the plants are fully grown, before the leaves die back.

### How much?

Using the recommended concentration, thoroughly spray the leaves on both sides if possible. If the plants are very close to waterways, or are not possible to spray due to the size of the plants, the leaves can be cut at the base and herbicide applied directly to the stumps. Herbicide should be applied immediately after cutting, with a brush or sponge. It is possible that herbicide will need to be reapplied to larger plants.

### Remember:

Fine weather is necessary for application of herbicides. If spraying wait until a calm day to prevent spray drift. Use safety clothing and a mask when using herbicides. Always follow the manufacturer's advice and instructions. If you propose to spray in lands that are designated for nature conservation i.e. SACs (Special Areas of Conservation), NHAs (Natural Heritage Areas) or SPAs (Special Protection Areas) you must seek consent from the National Parks and Wildlife Service (Telephone: Ballycroy 098 49996, Connemara 095 41054).



**Gunnera** applied with RoundUp (left). Blue dye to show herbicide applied using Cut and Paint technique (right).





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



[www.envirocentre.co.uk](http://www.envirocentre.co.uk)



[www.quercus.ac.uk](http://www.quercus.ac.uk)

and is funded by the National Parks and Wildlife Service and the Northern  
Ireland Environment Agency.



[www.ni-environment.gov.uk](http://www.ni-environment.gov.uk)



[www.npws.ie](http://www.npws.ie)

For more information on the Invasive Species Ireland Project please see the  
website at [www.invasivespeciesireland.com](http://www.invasivespeciesireland.com)

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**Use of any of the information described should be cited as:** Armstrong, C., Osborne, B., Kelly, J. and Maguire, C.M. 2009. Giant Rhubarb (*Gunnera tinctoria*) Invasive Species Action Plan. Prepared for NIEA and NPWS as part of Invasive Species Ireland.