QTS

## Cambois Data Centre Campus

# Enabling Works Phase A

## Invasive Non-Native Species Method Statement

Document Ref. 4.7, Rev 00

# Cambois Data Centre Campus – Enabling Works Phase A

## Invasive Non-Native Species Method Statement

Document Ref: 4.7

Revision: 00

April 2025


**Prepared By:**

Arcadis Consulting Limited

80 Fenchurch Street

London EC3M 4BY

United Kingdom

**Prepared For:**

QTS

14-15 Conduit Street

London W1S 2XJ

United Kingdom

# Enabling Works Phase A

# Invasive Non-Native Species Method Statement

## Version Control

| Revision No. | Date Issued | Description | Author | Checker | Approver |
|---|---|---|---|---|---|
| 0A | January 2025 | Planning submission | SD | SJ | SJ |
| 00 | April 2025 | Update to discharge Planning Condition 53 | SD | SJ | SJ |

# Contents



# Figures



# Appendices

# Acronyms and Abbreviations

| Abbreviation | Meaning |
|---|---|
| CIEEM | Chartered Institute of Ecology and Environmental Management, |
| ECoW | Ecological Clerk of Works |
| GIA | Gross internal area |
| INNS | Invasive Non-Native Species |
| NCC | Northumberland County Council |
| km | kilometres |
| sqm | square metres |

# 1 Introduction

## 1.1 Overview

1.1.1 This Invasive Non-Native Species (INNS) method statement has been prepared by Arcadis Consulting (UK) Limited to accompany a reserved matters planning application (RMA) and submission of details to discharge the relevant planning conditions to proceed with Enabling Works Phase A (the Proposed Development) at the Land at the former Power Station Site on the Northern Side of Cambois, Cambois, Northumberland, NE22 7BL (the Site).

1.1.2 The RMA seeks approval of reserved matters (access) for development comprising Phase A Enabling Works including site preparation, earthworks and other works required prior to the construction and operation of the data centre campus pursuant to the outline planning permission (OPP) (NCC reference. 24/04112/OUTES) obtained in April 2025 for:

*"Outline planning application, with all matters reserved, for the erection of up to ten data centre buildings of Class B8 use totalling up to 540,000 square metres (sqm) gross internal area (GIA) in addition to ancillary structures, substation, emergency generators and other associated works".*

1.1.3 The INNS method statement for the Enabling Works Phase A has been developed to comply with OPP planning condition 52:

*"No enabling works or development shall commence until a Non-native Invasive Species Method Statement that includes methods to eliminate Japanese knotweed, Japanese rose, New Zealand pigmyweed, pirri-pirri bur, Himalayan balsam, Buddleia, garden lady's mantle and sea buckthorn has been submitted to and approved by the LPA. The Method Statement shall be fully implemented as approved."*

1.1.4 This report provides information on the INNS species that have been recorded within the Site. The objective of the report is to provide suitable methods to control, eradicate and dispose of INNS within the Site.

## 1.2 Site Location and Description

1.2.1 The Site location and extent of the Enabling Works Phase A planning application boundary and Proposed Development boundary is shown in **Inset 1.** The redline boundary shows the extent of the RMA (Enabling Works Phase A boundary) and is referred to as the 'Site'. The blue line boundary depicts the outline planning application boundary and is referred to as the "Survey Area".

1.2.2 The Survey Area and Site comprise previously developed land that was used for the storage of coal for the former Blyth Power Station at Cambois, Northumberland. The Site is located approximately 2 kilometres (km) north of Blyth town centre and approximately 29km north of Newcastle-Upon-Tyne city centre. The Site is located wholly within the NCC administrative boundary.

*Inset 1-1 Site location*

# 1.3 Legislation and Policy

1.3.1 INNS are regulated via a combination of the Invasive Alien Species (Permitting and Enforcement) Order 2019 and Section 14/Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

1.3.2 Section 14 of the Wildlife and Countryside Act 1981 (as amended) (Wildlife and Countryside Act, 1981) applies to the introduction of animals and plants. In respect of plants, it makes it illegal to plant or otherwise cause to grow in the wild the species it lists in Schedule 9.

1.3.3 All species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) (HMSO, 1981) are also classed as controlled waste under the Environmental Protection Act 1990 (HMSO, 1990). As such, any waste containing propagules of a plant species listed in Schedule 9 must be transported by a waste carrier licenced to carry such material and disposed of at a licensed landfill site under the Environmental Protection (Duty of Care) Regulations 1991 (HMSO, 1991).

1.3.4 The Invasive Alien Species (Permitting and Enforcement) Order 2019 ((HMSO, 2019) strengthens the legislation in relation to widely spread species of European Union concern; requiring effective management measures to be put in place to minimise their impacts. A person who plants or otherwise causes to grow in the wild any specimen which is of a species of plant which is included in Part 2 of Schedule 2 is guilty of an offence.

1.3.5 Contravening this legislation carries penalties that vary depending on their severity but at their worst could lead to a prison sentence. Further information is provided and updated on the government website (DEFRA, 2024).

1.3.6 Legislation covering the handling and disposal of invasive species include the following:

- The Control of Pesticides Regulations 1986 (HMSO, 1986);
- The Environmental Protection Act 1990 (as amended) (HMSO, 1990);
- The Town and Country Planning Act 1990 (as amended) (HMSO, 1990);
- The Environmental Protection (Duty of Care) Regulations 1991 (HMSO, 1991);
- The Water Resources Act 1991 (as amended) (HMSO, 1991);
- The Hazardous Waste Regulations 2005 (HMSO, 2005;
- The Waste Management Licensing Regulations 1994 (HMSO, 1994);
- The Environmental Permitting Regulations 2010 (as amended) (HMSO, 2010); and
- The Control of Substances Hazardous to Health (COSHH) Regulations 2002 (HMSO, 2002).

# 2 Invasive Non-Native Species on Site

## 2.1 Introduction

2.1.1 The following invasive non-native species are located within the Site (Enabling Work Phase A boundary):

- New Zealand pygmyweed (*Crassula helmsii*);
- Pirri-pirri burr (*Acaena novae-zelandiae*);
- Buddleia (*Buddleja davidii*);
- Lady's mantle (*Alchemilla mollis*); and
- Sea buckthorn (*Hippophae rhamnoides*).

2.1.2 The following invasive non-native species are located within the wider Survey Area and should be considered when in close proximity to the works:

- Japanese knotweed (*Reynoutria japonica*); and
- Japanese rose (*Rosa rugosa*).

2.1.3 Himalayan balsam (*Impatiens glandulifera)* was not found within the Survey Area, but adjacent in the land to the west.

### Activities with Potential to Cause Spread of Invasive Plants

2.1.4 The following works activities have the potential to cause invasive plants to spread, resulting in a possible breach of legalisation.

- Ground-breaking works;
- Movement of works vehicles/machinery/personnel;
- Movement of soils/materials;
- Abstraction and discharge of water/crossing of water;
- Watercourse diversions;
- Incursions due to lack of suitable fencing and signage; and
- Vegetation removal, maintenance and management.

## 2.2 Control Measures

### Ecological Clerk of Works

2.2.1 An Ecological Clerk of Works (ECoW) must be appointed to monitor the control of INNS within the Site. As defined by the Chartered Institute for Ecology and Environmental Management (CIEEM) (2019), an ECoW is a professional that can work on a site with construction contractors to:

- Advise on protecting valued biodiversity features on construction sites;
- Provide practical, site-specific, and proportionate assistance on how their clients can achieve compliance with environmental legislation;
- Avoid unexpected costs, delays to project timetables, or adverse publicity that may have future negative commercial implications, and ultimately risk of enforcement action and/or potential prosecution; and
- Manage ecological operatives engaged in ecological mitigation activities – such as undertaking ecological watching briefs and translocation of protected species.

### Toolbox Talk and Site Walkover

2.2.2 Prior to commencement of works, the ECoW must provide a toolbox talk to all site workers. The toolbox talk provides a basic overview of the life history, habitat requirements, identification and legislation related to protected and invasive species. The toolbox talk covers the environmental measures to be followed to avoid breaches of legislation and/or adverse effects that could occur within or in the vicinity of the working area.

2.2.3 A pre-works walkover will be undertaken by the ECoW prior to INNS works starting at any location. Other ecological receptors on Site could be sensitive to direct and indirect impacts associated with INNS management such as vegetation removal, pond drain down and noise disturbance from movement of works vehicles/machinery/personnel. The ECoW must consider and implement the appropriate and agreed mitigation measures outlined in the Construction Environmental Management

Plan (CEMP) (**RMA Document Ref. 4.8**) and **Chapter 5 Ecology** in *Volume 1 - Environmental Statement (*NCC reference. 24/04112/OUTES Document Ref: 3.1).

## 2.3 Japanese Knotweed

2.3.1 Japanese Knotweed is an herbaceous perennial with hollow stems and distinct raised nodes. It has large roughly triangular leaves. It has an extensive system of rhizomes and forms thick, dense colonies. Japanese Knotweed is well established and extremely invasive throughout the UK mainly in urban areas, near water courses, canals and on waste land. Japanese Knotweed can spread rapidly damaging buildings and hard surfaces. **Appendix A** provides an identification guide for this species.

*Inset 2-1 Japanese knotweed*

### Methods of Dispersal

2.3.2 Japanese Knotweed spreads naturally via its underground rhizome network (network of horizontal underground stems) and over longer distances using vectors such as footwear, tools, machinery and vehicles to transport rhizome and stem fragments. An entire plant can grow from a fragment of rhizome as small as 10mm. Although Japanese Knotweed produces seed, in the UK their seed is almost always sterile therefore this is not perceived as a means of dispersal in this country.

### Options for Removal

2.3.3 Japanese Knotweed rhizomes have the capacity to penetrate to 3m deep and 7m beyond the leading edge of the foliage in ideal conditions. To remove a stand of Japanese Knotweed and its ability to develop new plants, material must be excavated that contains all the rhizomes from the stand. A cordon of at least 10m from the last obvious stems must be clearly marked and the soils excavated from this leading edge. The depth and breadth of material excavated should be guided by the Site ECoW as environmental factors, such as the presence of hard standing, influences the spread of rhizomes.

- Excavation and Mechanical Segregation- Excavation and mechanical segregation/sifting of the excavated soil to remove the Japanese Knotweed material.
- Excavation and Containment- Soil containing Japanese Knotweed material can be buried on Site, if a suitable and contained location is available, as advised by the on-Site ECoW. It is advisable to apply a non-persistent herbicide to the spoil before burial to further inhibit any Japanese Knotweed

growth. Soil that is contaminated with Japanese Knotweed must be buried to a depth of at least 5m. If a depth of 5m cannot be achieved, the material must be wrapped completely in an appropriate root barrier membrane and buried at a depth of at least 2m.

- Excavation and Removal- Removal of vegetation and contaminated soils off site (see Disposal, below, for requirements for disposing of controlled waste off Site).
- Stockpiling of Excavated Material and Herbicide Treatment- The area impacted by Japanese Knotweed can be excavated and stockpiled in another area of the site, if feasible, as advised by the on-site ECoW, for subsequent herbicide treatment. This allows the development of the originally contaminated area to proceed immediately. Treatment on Site reduces costs, for example, those incurred during transportation; however, adequate space to stockpile the material on site for a minimum of a 12-month period (usually more) is required, which cannot be located near a water course and the stockpile must be monitored regularly and any regrowth treated. This site must be free from disturbance and should be secured using barriers and suitable signage.
- Chemical Control- The most widely used herbicide for effective treatment of Japanese Knotweed is glyphosate, which kills the rhizomes. Japanese Knotweed found on Site will be subjected to being injected or sprayed with an approved chemical herbicide until the stand has been assessed by a qualified ecologist as being successfully eradicated.

2.3.4 As per official UK Government Guidance (UK Government,2016) when using the approved chemical herbicides, it may be necessary to:

- Ensure anyone spraying or injecting chemicals holds a certificate of competence for herbicide use or works under direct supervision of a certificate holder.
- Carry out a Control of Substances Hazardous to Health assessment;
- Keep a record of treatments

## Actions to Prevent Spread

2.3.5 To prevent spread, all activities to remove these plants should be contained within a clearly demarcated cordon of a distance to be determined on Site, by the ECoW. Before leaving this cordoned area, all footwear, tools and machinery that have come in contact with the plant, and its surrounding contaminated substrate, should be cleaned of material. These activities should be detailed in an agreed biosecurity protocol for the Site.

## Disposal

2.3.6 Where significant construction activities are taking place there is an opportunity to bury Japanese Knotweed waste on site. Where appropriate this treatment method is quick and effective. To bury invasive non-native plant waste without a permit, you must follow the conditions in the Treatment and disposal of invasive non-native plants: RPS 178 (UK Government, 2019).

2.3.7 Taking Japanese Knotweed to landfill is a quick and effective method of ensuring it has been removed from site; however, as Japanese Knotweed is classed as a ‘controlled waste’ the financial costs of haulage and disposal are high, and this is considered a less sustainable treatment method.

2.3.8 Any leftover chemicals through a registered waste carrier to a permitted waste disposal facility and may need:

- An environmental permit
- A waste exemption
- A trade effluent consent

## 2.4 Japanese Rose

2.4.1 Japanese rose is a perennial, deciduous shrub, known to grow along coastlines and sand dunes, due to its tolerance of poor soils. Japanese rose hybridises easily which can make identification difficult. It sends out long underground rhizomes, which forms a dense network which can destabilise the land and is also hard to remove. Flowers are a purplish pink with five petals, however white variants can occur. Japanese rose is able to grow into dense stands and is known to out compete native vegetation. **Appendix A** provides an identification guide for this species.

*Inset 2-2 Japanese rose*

### Methods of Dispersal

2.4.2 Japanese rose spreads via seeds which are often distributed by birds and mammals.

### Options for Removal

2.4.3 Cutting and herbicide application are the most common methods applied in the control of Japanese rose. Best practice depends on local nature given conditions and available resources. In most places the most effective control will require a combination of these treatments

- Mechanical control- Cut down and chip all above-ground vegetation and remove all roots and topsoil to a depth of 20cm for up to 2m from each plant. It is important to make sure all of the root system is removed, or it may grow back. Young seedlings can be pulled.
- Chemical Control- Targeted application of glyphosate as per instructions on chemical container.

### Actions to Prevent Spread

2.4.4 To prevent spread, all activities to remove these plants should be contained within a clearly demarcated cordon of a distance to be determined on Site, by the ECoW. Before leaving this cordoned area, all footwear, tools and machinery that have come in contact with the plant, and its surrounding contaminated substrate, should be cleaned of material. These activities should be detailed in an agreed biosecurity protocol for the Site.

### Disposal

2.4.5 Japanese rose is also regulated under the Environmental Protection Act 1990 (HMSO, 1990) where it is classified as controlled waste. As a result, if it has to be transported off site it must be done so securely, accompanied by the relevant Duty of Care documents and disposed of at a licensed landfill facility. Due to the overall quantity of waste to be generated from the removal of invasive plant species by the Project, a bespoke Invasive Plants Waste Management Plan should be prepared. Every effort must be made to retain viable soils on Site where possible.

## 2.5 New Zealand Pigmyweed

2.5.1 New Zealand pigmyweed is an aquatic perennial succulent species, found in freshwater habitats, such as ditches, ponds and wetland. It is found around the edges in shallow water or submerged, it forms dense, impenetrable mats, and it can also grow on damp mud around seasonal pools. Unsubmerged, the plant has flowers with four small, white, triangular petals (no flowers when submerged). Leaves are arranged along the stem in opposite pairs. New Zealand pigmyweed can quickly spread, being able to thrive in both standing and running water, and high or low nutrient environments. **Appendix A** provides an identification guide for this species.

*Inset 2-3 New Zealand Pigmyweed*

### Methods of dispersal

2.5.2 New Zealand pigmyweed reproduces vegetatively. Fragments of this species can easily be spread on clothing or equipment. Fragments as small as one node (5mm) can regrow. This species has been known to produce seeds although the viability of seeds found in the UK is uncertain.

### Options for Removal

2.5.3 There are a number of different methods by which New Zealand pigmyweed can be controlled. However, fragments as small as 5mm with a single node are capable of growing, and therefore mechanical control comes with extreme risk of spreading the plant. Therefore, mechanical methods should only be used when there is absolutely no other possible course of action.

- Chemical Control- A glyphosate formulation specifically designed for use in aquatic environments is applied directly to the emergent growth or to the submerged growth after the water body is drained.
- Mechanical Removal-The Centre for Ecology and Hydrology recommends against practicing just physical control on this plant. The fragments that are produced by cutting and tearing can regrow and spread the infestation downstream or re-infest the treated area.

2.5.4 Mechanical removal of dead plant material which has been treated with herbicides is recommended to reduce oxygen depletion by decomposing plant material.

### Actions to Prevent Spread

2.5.5 To prevent spread, all activities to remove these plants should be contained within a clearly demarcated cordon of a distance to be determined on Site, by the ECoW. Before leaving this cordoned area, all footwear, tools and machinery that have come in contact with the plant, and its surrounding contaminated substrate, should be cleaned of material. These activities should be detailed in an agreed biosecurity protocol for the Site.

### Disposal

2.5.6 New Zealand pigmyweed is also regulated under the Environmental Protection Act 1990 (HMSO, 1990) where it is classified as controlled waste. As a result, if it has to be transported off Site it must be done so securely, accompanied by the relevant Duty of Care documents and disposed of at a licensed landfill facility.

## 2.6 Pirri-pirri Burr

2.6.1 Although pirri-pirri burr is not listed on Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) or The Invasive Alien Species (Enforcement and Permitting) Order 2019, it is a particular issue on the Northumberland Coast. The spread of piri-piri burr is noted as a concern in the Site Improvement Plan for the Northumberland Coastal European sites (Natural England, 2015b).

2.6.2 Pirri-pirri burr is a perennial low-growing shrub/ herb forming dense mats of imparipinnate dark green leaves with protruding ball-like terminal inflorescence which can be a range of colours. This becomes a ball of spiny, hooked seeds (burs) which are usually reddish in colour. It is mainly found in habitats with free drainage sandy soil, such as sand dunes, heaths, cliffs, conifer plantations, paths and roadsides. **Appendix A** provides an identification guide for this species.

*Inset 2-4 Pirri-pirri burr*

## Methods of Dispersal

2.6.3 Pirri-pirri burr is highly invasive, and it is extremely efficient at colonising new areas through its burs, which readily attach to the fur of animals of clothing and footwear of humans.

## Options for Removal

2.6.4 There are a number of treatments that have been used to control and eradicate pirri-pirri burr, including chemical, mechanical and manual. When working with this species it is paramount that good biosecurity is in place; all clothing and equipment should be meticulously checked before leaving a site to prevent accidental spread.

- Chemical Control- Targeted application of glyphosate as per instructions on chemical container. This treatment is most suitable when the plant is growing over a large area, and there are no other species of interest nearby that may be killed through non-target application of glyphosate.
- Mechanical Control- Treatment of areas of plant growth with a roto-burier, effectively uprooting and exposing roots and burying assurgent growth. Will destroy other vegetation present, so reseeding may need to be considered to prevent other opportunistic species from taking over. Has potential to be used in summer to smother active growth or in winter to expose rhizomes and roots to damp and frost.
- Manual Control- Excavating plants by hand then disposing of the material either through composting or burning. Extreme care must be taken when carrying out disposal method as broken stolon (long shoots with nodes) can propagate and form new colonies.

## Actions to Prevent Spread

2.6.5 To prevent spread, all activities to remove these plants should be contained within a clearly demarcated cordon of a distance to be determined on Site, by the ECoW. Before leaving this cordoned area, all footwear, tools and machinery that have come in contact with the plant, and its surrounding contaminated substrate, should be cleaned of material. These activities should be

2.6.6 detailed in an agreed biosecurity protocol for the Site.

### Disposal

2.6.7 Pirri-pirri burr is not currently covered by any specific legislation in the UK. However, care must be taken to prevent the spread of this species across or off-site during disposal. These activities should be detailed in an agreed biosecurity protocol for the Site.

## 2.7 Buddleia

2.7.1 Although buddleia is not listed on Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) or The Invasive Alien Species (Enforcement and Permitting) Order 2019, it is a non-native species that rapidly forms large dense thickets becoming the dominant vegetation on sites. These out-compete native vegetation reducing the biodiversity of sites.

2.7.2 Buddleia (or butterfly bush) is a deciduous shrub with arching branches that can reach 15 feet in height. The lilac/purple (sometimes white) flowers occur in dense pyramidal shaped panicles, which produce large quantities of nectar. The opposite leaves are lance shaped, deep green above and white-tomentose below. In the UK, butterfly bush grows in gardens, but also often present on brownfield sites, wasteland, and construction sites. Other species of buddleia are sold in garden centres around the UK and they are a popular flower with many homeowners. **Appendix A** provides an identification guide for this species.

*Inset 2-5 Buddleia*

### Methods of Dispersal

2.7.3 The seeds of the buddleia are very small, barely a couple of millimetres in length. Each flower panicle can produce hundreds of seeds, and these are quickly scattered by the wind as the flowers die off. Has the ability to reproduce asexually via stem and root cuttings. Seeds show lengthy dormancy, remaining in the seed bank for several years.

### Options for Removal

2.7.4 There are a number of treatments that have been used to control and eradicate buddleia, including chemical, mechanical and manual. When working with this species it is paramount that good biosecurity is in place; all clothing and equipment should be meticulously checked before leaving a site to prevent accidental spread. Effective management requires a combination of herbicide application, mechanical removal, and careful monitoring, particularly in sensitive or protected areas.

- Chemical/ Mechanical Control- usually, the most effective method of treatment is to directly inject/plug herbicide (glyphosate) into the plant. Cutting the plant back to stump and pushing herbicide plugs into holes drilled into the stump will prevent regrowth over time. It is also possible to paint the cut stumps with herbicide to prevent re growth.
- Manual Control- Excavating plants and roots by hand then then dry the branches and roots before disposal.

### Actions to Prevent Spread

2.7.5 To prevent spread, all activities to remove these plants should be contained within a clearly demarcated cordon of a distance to be determined on Site, by the ECoW. Before leaving this cordoned area, all footwear, tools and machinery that have come in contact with the plant, and its surrounding contaminated substrate, should be cleaned of material. These activities should be detailed in an agreed biosecurity protocol for the Site.

### Disposal

2.7.6 Buddleia is not currently covered by any specific legislation in the UK. However, care must be taken to prevent the spread of this species across or off-Site during disposal. These activities should be detailed in an agreed biosecurity protocol for the Site.

## 2.8 Lady's Mantle

2.8.1 Although lady's mantle is not listed on Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) or The Invasive Alien Species (Enforcement and Permitting) Order 2019, it is a non-native species. It grows vigorously and can quickly become abundant in dry grasslands where it can rapidly outcompete other species including nationally threatened lady's-mantles such as *Alchemilla monticola*.

2.8.2 Lady's mantle is a vigorous perennial herb of free draining soils with a pH ranging from acidic to calcareous. It forms a clump of softly hairy, light green leaves with scalloped and toothed edges. Small, bright yellow flowers are borne in large sprays just above the foliage.

*Inset 2-6 Lady's mantle*

## Methods of Dispersal

2.8.3 Lady's mantle has been widely grown as an ornamental in British gardens for over a century. It spreads vigorously by seed and vegetative growth and so escapes are likely to have originated directly from gardens or as a result of the dumping of garden waste. In dry grasslands it can spread rapidly, presumably by seed dispersed by wind, machinery and animals.

## Options for Removal

2.8.4 There are a number of treatments that have been used to control and eradicate lady's mantle, including chemical and manual. When working with this species it is paramount that good biosecurity is in place; all clothing and equipment should be meticulously checked before leaving a site to prevent accidental spread.

- Chemical Control- Targeted application of glyphosate as per instructions on chemical container. This treatment is most suitable when the plant is growing over a large area, and there are no other species of interest nearby that may be killed through non-target application of glyphosate.
- Manual Control- Excavating plants by hand then disposing of the material either through composting or burning. Extreme care must be taken when carrying out disposal method as broken stolon (long shoots with nodes) can propagate and form new colonies.

## Actions to Prevent Spread

2.8.5 To prevent spread, all activities to remove these plants should be contained within a clearly demarcated cordon of a distance to be determined on Site, by the ECoW. Before leaving this cordoned area, all footwear, tools and machinery that have come in contact with the plant, and its surrounding contaminated substrate, should be cleaned of material. These activities should be detailed in an agreed biosecurity protocol for the Site.

### Disposal

2.8.6 Lady's mantle is not currently covered by any specific legislation in the UK. However, care must be taken to prevent the spread of this species across or off-Site during disposal. These activities should be detailed in an agreed biosecurity protocol for the Site.

## 2.9 Sea Buckthorn

2.9.1 Although sea buckthorn is not listed on Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) or The Invasive Alien Species (Enforcement and Permitting) Order 2019, it is a non-native species that rapidly forms large dense thickets out-shading native dune plants. These out-compete native vegetation reducing the biodiversity of sites.

2.9.2 Sea buckthorn is a deciduous and hardy shrub that can grow between 2 and 4m high. It has a rough, brown or black bark and a thick, greyish-green crown. The male and female flowers appear on separate plants. The female plants produce orange berry-like fruit 6-9mm in diameter and spherical. **Appendix A** provides an identification guide for this species.

*Inset 2-7 Sea buckthorn*

### Methods of Dispersal

2.9.3 Spreads locally by dioecious, wind pollinated, flowers in winter and fruits in autumn it also spreads by suckering (shoots which grow from a bud at the base of the shrub).

### Options for Removal

2.9.4 There are a number of treatments that have been used to control and eradicate sea buckthorn, including mechanical and manual. When working with this species it is paramount that good biosecurity is in place; all clothing and equipment should be meticulously checked before leaving a site to prevent accidental spread.

- Mechanical/ Manual Control- Cut down to ground and remove all roots and topsoil to a depth of 20cm for up to 2m from each plant. It is important to make sure all of the root system is removed, or it may grow back. Disposal of the material through burning. Considerations to other ecological

constraints to be given as burning within the site may not be appropriate. Specialist INNS contractor can recommend alternative disposal methods if not appropriate.

### Actions to Prevent Spread

2.9.5 To prevent spread, all activities to remove these plants should be contained within a clearly demarcated cordon of a distance to be determined on Site, by the ECoW. Before leaving this cordoned area, all footwear, tools and machinery that have come in contact with the plant, and its surrounding contaminated substrate, should be cleaned of material. These activities should be detailed in an agreed biosecurity protocol for the Site.

### Disposal

2.9.6 Sea buckthorn is not currently covered by any specific legislation in the UK. However, care must be taken to prevent the spread of this species across or off-Site during disposal. These activities should be detailed in an agreed biosecurity protocol for the Site.

## 2.10 Himalayan Balsam

2.10.1 Himalayan balsam was not found within the Site but was recorded off-site in the woodland to the west of the Site leading towards Brock Lane. This species is listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and The Invasive Alien Species (Enforcement and Permitting) Order 2019. The ECoW and specialist contractor should be mindful of its nearby presence and will be vigilant when checking for its presence on Site. If this species is found within the Site the following methods of control are effective in its management.

2.10.2 Himalayan balsam is an annual plant with reddish-translucent hollow stems. It can grow up to 2.5m tall. The flowers have a short spur with a helmeted upper petal and are pink to white in colour. They also produce a strong balsam smell. Himalayan Balsam is well established and extremely invasive throughout most of lowland UK, particularly along watercourses, waterbodies, and hedgerows. **Appendix A** provides an identification guide for this species.

*Inset 2-8 Himalayan balsam*

## Methods of Dispersal

2.10.3 Whilst Himalayan balsam is an annual plant, its high level of seed production and vigorous seed dispersal means that it is highly invasive. Each plant produces at least 500 seeds, which can be propelled up to 7m from the parent plant by seed pods that are explosive to touch and can remain viable for up to two years.

## Options for Removal

2.10.4 There are a number of treatments that have been used to control and eradicate Himalayan balsam, including chemical, mechanical and manual. Control of this species should generally be carried out before flowering and it is especially important to carry out any management before seeding. When clearing Himalayan balsam in early summer, you will often get some new plants germinating later in the summer, so it is important to go back and repeat treatment two or three times before the winter. When working with this species it is paramount that good biosecurity is in place; all clothing and equipment should be meticulously checked for seeds before leaving a site to prevent accidental spread.

- Manual Control- Hand-pulling, prior to seed formation and ensuring that waste material is either dried, burnt or carefully composted. Must be undertaken so that whole plant is uprooted and normally best done if pulled from low down the plant. Whilst labour intensive, if done in the correct manner hand pulling can be a very effective strategy where an infestation is relatively low. This method is potentially the gentlest for native species (so a good choice in sensitive areas).
- Mechanical Control- Regular strimming, brush-cutting or flailing of stems, prior to seeding. All stems must be completely severed below the lowest node or joint. Cutting can be done before the flowering stage in June. Cutting too early will promote greater seed production from the plants that re-grow.
- Chemical Control- Glyphosate is usually sprayed onto the foliage of Himalayan balsam. Chemical control is often most practical for high density stands of Himalayan balsam, where cutting or hand pulling would be difficult.

## Actions to Prevent Spread

2.10.5 To prevent spread, all activities to remove these plants should be contained within a clearly demarcated cordon of a distance to be determined on Site, by the ECoW (usually 3-4m from the nearest plant). Before leaving this cordoned area, all footwear, tools and machinery that have come in contact with the plant, and its surrounding contaminated substrate, should be cleaned of material. These activities should be detailed in an agreed biosecurity protocol for the Site.

## Disposal

2.10.6 Ideally cut/pulled/sprayed plants should be left on site but is crucial to prevent them from re-growing or producing seed. Do not discard plants with developed seed heads. With a small amount of Himalayan balsam, it is best to leave plants in an exposed place where it is not in contact with the ground to dry out and die quickly. These plants may need to be scattered, rather than collected into piles for composting, so the roots can dry out quickly to kill the plant. Where there is a large amount of

waste plants, they can be left in piles to compost if they are securely covered with a tarpaulin to prevent re-growth. If they have set seed, they can be burnt on site, to do this it is likely that a waste exemption from The Environment Agency will be required.

2.10.7 Himalayan balsam is also regulated under the Environmental Protection Act 1990 (HMSO, 1990) where plant material (including soil contaminated with seeds) is classified as controlled waste. As a result, if it has to be transported off Site it must be done so securely, accompanied by the relevant Duty of Care documents and disposed of at a licensed landfill facility.

# 3 Monitoring

3.1.1 Monitoring aims to check for regrowth after completed remediation such as herbicide treatment or a full excavation. Monitoring visits will be carried out at suitable times of the year. The monitoring visits will cover all locations within the contracted area and use the same procedure as when the Site was initially surveyed.

3.1.2 During active treatment, it is important to monitor the area and wider area of the site for emergent or re-established non-native invasive species. It is recommended that monitoring happens twice per year, when undertaking the treatment. If re-establishment has occurred, then the method of eradication may need to be re-assessed. If new growth occurs, then this can be treated as soon as it appears. A suitably qualified ECoW will undertake these checks throughout the construction period.

3.1.3 All site staff will have undertaken a toolbox talk on the invasive species and will remain aware of the potential for new re-growth within and in close proximity to the works. If staff find evidence of INNS, they will raise this immediately to the Enabling Works Contractor and ECoW on site.

3.1.4 Due to the overall quantity of waste to be generated from the removal of invasive plant species by the Project, a bespoke Invasive Plants Waste Management Plan will be produced by a specialist INNS contractor. Every effort must be made to retain viable soils on Site where possible.

3.1.5 Records of treatment must be kept for up to a period of 2 years to comply within the conditions in the treatment and disposal of invasive non-native plants regulatory position statement by the Environment Agency (2023).

# 4 Summary

4.1.1 The following invasive non-native species are located within the Site (Enabling Work Phase A boundary):

- New Zealand pygmyweed;
- Pirri-pirri burr;
- Buddleia;
- Lady's mantle; and
- Sea buckthorn.

4.1.2 The following invasive non-native species are located within the wider Survey Area and should be considered when in close proximity to the works:

- Japanese knotweed;
- Japanese rose.

4.1.3 Himalayan balsam was not found within the Site or Survey Area, but adjacent in the land to the west.

4.1.4 Under Schedule 9 of the Wildlife & Countryside Act 1981 (as amended) and the Invasive Alien Species (Permitting and Enforcement) Order 2019, it is an offence to disturb or spread the invasive species. Work activities associate with the Proposed Development have the potential to cause invasive plants to spread, resulting in a possible breach of legalisation.

4.1.5 The measures outlined within this report are recommended for treating the INNS identified within the Site and for avoiding impacts to INNS outside of the Site. Specialist contractors will provide specific method statements to include recommended timings for chemical/mechanical/manual treatments and provide a monitoring schedule during and post-treatment of the INNS.

4.1.6 If measures to control and eradicate INNS within the Site are not successful after 2-3 years, then the management of the INNS may need to be re-assessed.

4.1.7 In all instances, good site practice should be adhered to throughout all stages of the development which includes the following, a tool box talk prior to works beginning, ECoW supervision and a biosecurity protocol.

# 4 References

Chartered Institute of Ecology and Environmental Management (CIEEM) (2019). Accredited ECoW. Available at: https://cieem.net/i-am/current-projects/accredited-ecow

Department for Environment, Food & Rural Affairs (DEFRA) (2024) Guidance Invasive non-native (alien) plant species: rules in England and Wales (online). Available at: Invasive non-native (alien) plant species: rules in England and Wales - GOV.UK

Environment Agency (2023) Guidance: Treatment and disposal of invasive non-native plants: RPS 178. (online) https://www.gov.uk/government/publications/treatment-and-disposal-of-invasive-non-native-plants-rps-178/treatment-and-disposal-of-invasive-non-native-plants-rps-178

HMSO (1981). The Wildlife and Countryside Act 1981 (as amended). (online) Available at: https://www.legislation.gov.uk/ukpga/1981/69

HMSO (1986) The Control of Pesticides Regulations 1986. (online) Available at: https://www.legislation.gov.uk/uksi/1986/1510/contents/made

HMSO (1990) Environmental Protection Act 1990. (online) Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents

HMSO (1990) Town and Country Planning Act 1990. (online) Available at: https://www.legislation.gov.uk/ukpga/1990/8/contents

HMSO (1991) The Environmental Protection (Duty of Care) Regulations 1991. (online) Available at: https://www.legislation.gov.uk/uksi/1991/2839/made

HMSO (1991) Water Resources Act 1991. (online) Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents

HSMO (1994) The Waste Management Licensing Regulations 1994. (online) Available at: https://www.legislation.gov.uk/uksi/1994/1056/contents/made

HSMO (2002) The Control of Substances Hazardous to Health Regulations 2002. (online) Available at: https://www.legislation.gov.uk/uksi/2002/2677/regulation/7/made

HMSO (2005) The Hazardous Waste (England and Wales) Regulations 2005. (online) Available at: https://www.legislation.gov.uk/uksi/2005/894/contents

HMSO (2010) The Environmental Permitting (England and Wales) Regulations 2010. (online) Available at: https://www.legislation.gov.uk/ukdsi/2010/9780111491423/contents

HMSO (2019) The Invasive Alien Species (Permitting and Enforcement) Order 2019 (online) Available at: https://www.legislation.gov.uk/uksi/2019/527

Natural England (2015b) Improvement Programme for England's Natura 2000 Sites (IPENS) Site Improvement Plan: Northumberland Coastal.

Non-Native Species Secretariat (NNSS) (2025) ID Sheets (online) Available at: ID sheets » NNSS

Property Care Association (PCA) (2024) UK Code of Practice for the Management of Invasive Non-Native Plants (online) Available at: FINAL_Guidance Note - Invasive Weeds: UK Code of Practice for Management of Non-Native Plants

Reducing and Preventing Invasive Alien Species Dispersal (2018) Good Practice Management Guide for Himalayan Balsam (*Impatiens glandulifera*) (online) Available at Good_Practice_Management_-_Himalayan_balsam.pdf

Reducing and Preventing Invasive Alien Species Dispersal (2018) Good Practice Management Guide for Pirri-pirri Bur (*Acaena novae-zelandiae*) (online) Available at: Good_Practice_Management_-_Piri-piri_bur.pdf

Reducing and Preventing Invasive Alien Species Dispersal (2018) Good Practice Management Guide for New Zealand Pygmyweed (*Crassula helmsii*) (online) Available at: RAPID_Good_Pratice_Management_New_Zealand_Pygmyweed_EN.pdf

The Knotweed Killers (2024) Invasive Alien Plant Species ID Guide: Butterfly Bush. Available at: Butterfly Bush-BMR | knotweed Ireland

The Knotweed Killers (2021) Invasive Alien Plant Species ID Guide: Sea Buckthorn. Available at: Sea-buckthorn - Hippophae rhamnoides - Invasive Species Control

UK Government (2016) Guidance: How to stop Japanese knotweed from spreading. (online) Available at: https://www.gov.uk/guidance/prevent-japanese-knotweed-from-spreading

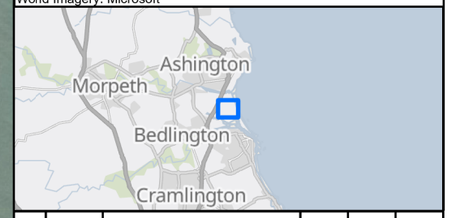
UK Government (2019). Treatment and disposal of invasive non-native plants: RPS 178. Available at: Treatment and disposal of invasive non-native plants: RPS 178 - GOV.UK


Legend

- Site Boundary
- Survey Boundary
- Sea Buckthorn*
- Lady's Mantle*
- Buddleia
- New Zealand pygmyweed
- Pirri pirri burr*
- Japanese knotweed
- Japanese rose

*Lady's Mantle, Pirri pirri bur and Sea Buckthorn are widespread in the areas marked on the map and the locations are representative of approximate locations

Notes GB Background: Contains OS data © Crown Copyright and database right 2025
Contains data from OS Zoomstack
World Imagery: Microsoft




| Rev | Date | Description | Drawn | Check | Approv |
|---|---|---|---|---|---|
| 01 | 24/04/25 | INITIAL ISSUE | RM | SD | KP |

PROJECT:
# CAMBOIS DATA CENTRE CAMPUS

Site
Former Coal Stocking Yard, Cambois

Client
14-15 Conduit Street W1S 2XJ

ARCADIS

Registered office:
Cymru House
St Mellons Business Park
Cardiff AUK
CF3 0EY

Coordinating Office:
Cymru House
St Mellons Business Park
Cardiff AUK
CF3 0EY

www.arcadis.com

Title:

## Figure 16
## Invasive Species

| | | | |
|---|---|---|---|
| Designed | S. Davies | Date: 24 APR 25 | Signed |
| Drawn | R. Millman | Date: 24 APR 25 | Signed |
| Checked | S. Davies | Date: 24 APR 25 | Signed |
| Approved | K. Prebble | Date: 24 APR 25 | Signed |
| Scale: | 1:5,000 | Datum: | AOD |
| Original Size: | A3 | Grid: | OS |
| Suitability Code: | S2 | Project Number: | 30226946 |

Suitability Description:
For Information

Drawing Number: 30226946-ARC-EGN-ZZ-DR-ZZ-00069-S2
Revision: P01

Print Date: 04-25-25 16:49:17

C:\Users\Rob.Millman\ARCADIS\30226946 - Project Wind - Internal Site - 01 GDV Team\01 Aprx\06 RM Application\30226946-ARC-EGN-ZZ-DR-ZZ-00069-S2-P01-Invasive Species.aprx

# Appendix A

## Identification Sheets of INNS

# Pirri Pirri Bur (*Acaena noave-zelandiae*)

Originating from Australia and New Zealand, this invasive plant was introduced to Britain via seeds in imported wool. It is a popular rockery plant and has spread into the wild through the disposal of garden waste and through the spread of seeds by sheep, dogs and people – the hooked burs catch on to clothing or animal fur and can easily be transported from site to site.

It is now found in many open environments such as sand dunes, forest edges and alongside tracks. Pirri pirri bur is a short, creeping plant which forms dense mats, and generally grows to a height of around 2-15 cm. The small leaves are dark green and glossy with toothed margins. The ball-like heads are very distinctive and around 6-9mm in diameter, and have many tiny white flowers in June and July. It's probably most visible in the late summer and autumn however, when it develops the dark red, spiny seeds.

Where it becomes established and forms dense mats, it can prevent the native vegetation from growing. It can also become matted in the feathers of ground nesting birds.

If you see this plant, please take a note of where it is growing, and a photo, and send it to NESBReC@aberdeenshire.gov.uk

Further information at www.nennis.org

August 2020

Produced by Olaf Booy, Max Wade and Vicky White of RPS

# New Zealand Pigmyweed

## Species Description

**Scientific name:** *Crassula helmsii*
**AKA:** *Tillaea aquatica*, Australian Swamp-stonecrop, Briweg Seland Newydd (Welsh), *Tillaea recurva*
**Native to:** Australia and New Zealand
**Habitat:** Aquatic up to 3m deep in still or slow flowing water bodies or terrestrial around pond or lake margins

Can be submerged, emergent and terrestrial. Readily recognisable when growing at the edges of water bodies by its fleshy leaves. Submerged leaves are less easy to see and recognise. Reproduces from very small stem fragments but does not produce viable seed in the UK.

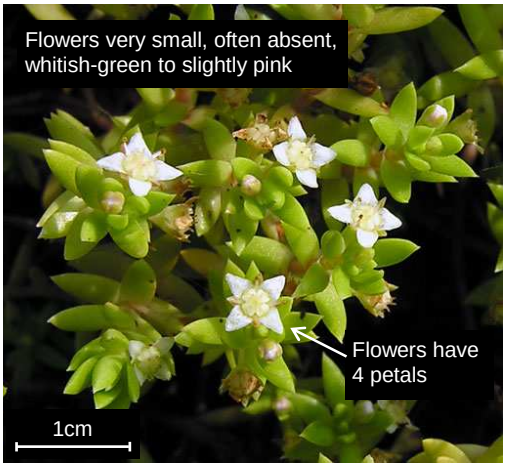
Introduced in 1911 as an oxygenating plant for ponds and, since the 1970s, has spread rapidly. Forms dense mats and can impede drainage, causing flooding. Displaces other aquatic plant species and reduces amenity use of the waterbody.

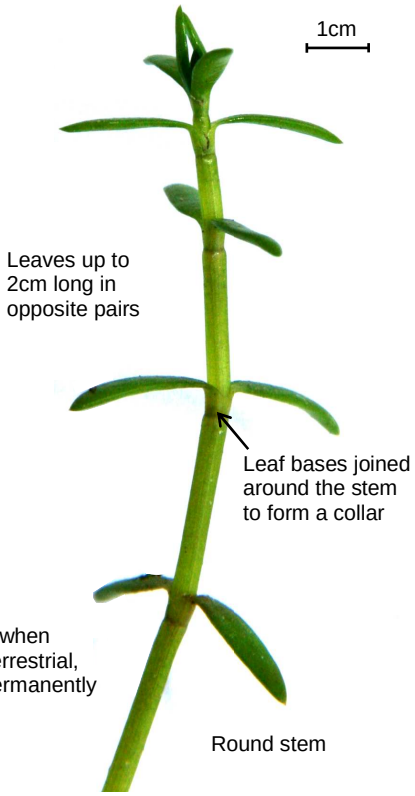
New Zealand Pigmyweed is listed under Schedule 9 to the Wildlife and Countryside Act 1981 with respect to England, Wales and Scotland. As such, it is an offence to plant or otherwise cause this species to grow in the wild.

For details of legislation go to www.nonnativespecies.org/legislation.

## Key ID Features

Forms dense mats within the water body

# Identification of terrestrial, emergent and submerged forms

Terrestrial: Growing away from the water's edge or left stranded as water level falls, creeping stems and aerial, fleshy leaves.

Emergent: Densely packed leaves in water, intermediate between terrestrial and submerged form (occurs in water <0.6m deep).

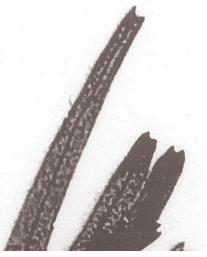
Submerged: Elongated stems with leaves sparse and flat, able to form extensive mats on bed of the water body.

# Similar Species

A group of species known as water-starworts are most likely to be confused with New Zealand pigmyweed. Water-starworts are distinguished from New Zealand pigmyweed by their non-fleshy leaves, which are usually notched at the tip (hold up to light or use hand lens), and lack of collar at leaf base.

**Water-starworts**
**Native**
**(*Callictriche* species)**


**Water-starwort leaf with typically notched tip, a hand lens is usually required to see this properly**



**New Zealand Pigmyweed**
**For comparison**

**New Zealand pigmyweed collar around stem at base of leaves**

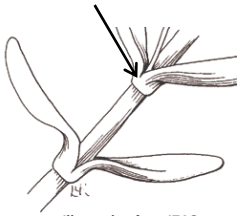


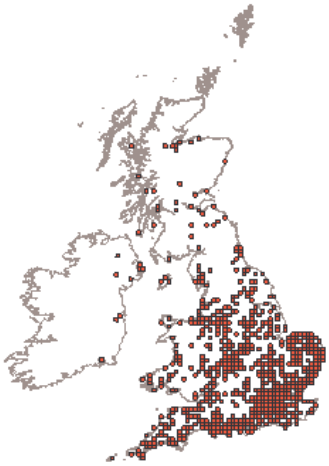
Illustration from IFAS, Centre for Aquatic Plants, University of Florida, Gainesville 1990

**Fleshy leaves without notched tips**

# Distribution

Widespread in England and Wales. Spreading northwards, though much less common in Scotland. Very common in the south-east of England.

Source: NBN Gateway. Check website for current distribution.




References and further reading:

Blamey, M, Fitter, R and Fitter, A (2003) *"The Wild Flowers of Britain and Ireland. The Complete Guide to the British and Irish Flora."* A & C Black

Preston, C D and Croft, J M (1997) *"Aquatic plants in Britain and Ireland".* Harley Books

Preston, C D, Pearman, D A and Dines, T A (editors) (2002) *"New Atlas of the British and Irish Flora".* Oxford University Press

Stace, C (1999) *"Field Flora of the British Isles".* Cambridge University Press


Photos from: Olaf Booy, Richard Lansdown (RL), Peter Llewellyn, Max Wade

ID Guide

# Butterfly Bush

MEDIUM RISK

(*Buddleja-davidii*)

**Common Names:** Summer lilac, Orange eye, David's buddleja, Black Knight

**Family:** Scrophulariaceae (figwort)

**Status in Ireland**
Butterfly Bush is an Invasive species and falls under the broader framework of managing species that may threaten biodiversity and natural habitats. Special attention must be given to the management of invasive species within or near Natura 2000 sites.

**Description / Profile**
The Butterfly Bush was originally introduced as an ornamental plant due to its attractive flowers and ability to attract pollinators, it has escaped cultivation and spread into the wild. Due to its invasive nature, control measures are often necessary, particularly in ecologically sensitive areas or where it is encroaching on infrastructure. Legal and biosecurity requirements in Ireland apply to prevent its spread.

**Size**
Butterfly Bush can grow up to 5 metres in height and 3 metres wide.

**Leaves**
Butterfly Bush  leaves are Lance-shaped (lanceolate) with a pointed tip, dark green on the upper surface, with a greyish or silvery underside. The leaves are slightly rough to the touch, with a velvety feel on the underside from tiny hairs (pubescence). Leaves grow in pairs directly opposite each other on the stem.

Butterfly Bush Leaf

**Stems**
Butterfly Bush stems are woody, with an upright, arching growth habit. Young stems are greenish, often tinged with purple, and mature into a grey-brown colour. The stems are initially smooth, becoming more textured and woody with age. Stems can be brittle and prone to breakage.

Butterfly Bush Stem

**Flowers**
Flowers are Clusters of small, tubular flowers that form elongated cone-shaped panicles. Colour variations range from purple, violet, and blue to white, pink, or even orange, although purple is the most common. Flowers are fragrant with a sweet scent. The plant can bloom from summer to early autumn.

Butterfly Bush Flower

**Seeds**
After the flowers fade, they develop into dry seed capsules that are slender and elongated, typically around 1 cm in length. The capsules contain small, lightweight seeds less than 1 mm long typically with thin, papery wing-like structure which aids in wind dispersal.

Butterfly Bush Seed Capsule

**Roots**
The root system is primarily fibrous, meaning it consists of many thin, thread-like roots that spread out from the base of the plant. The roots tend to remain shallow, often growing in the upper layers of soil. In some cases, the plant may produce new shoots from the root system, particularly if the main stem is cut or damaged.

Butterfly Bush Root

ID Guide

# Sea-Buckthorn

*(Hippophae rhamnoides)*

**Habitat**: Terrestrial, sea shores and cliffs
**Family name:** Elaeagnaceae

Sea-Buckthorn Fruit

**Description:** Sea-Buckthorn is a species of flowering plant in the family Elaeagnaceae, native to the cold-temperate regions of Europe and Asia. It is a spiny deciduous shrub.

Sea-Buckthorn Stand on Sand Dune

Sea-Buckthorn is a deciduous and hardy shrub that can grow between 2 and 4 m high. It has a rough, brown or black bark and a thick, greyish-green crown.

Sea-Buckthorn Leaves

The leaves are alternate, narrow and lanceolate, with silvery-green upper faces.

flowers grow on different shrubs.

The sex of seedlings can only be determined at the first flowering, which mostly occurs after three years.

The male inflorescence is built up of four to six apetalous flowers, while the female inflorescence normally consists of only one apetalous flower and contains one ovary and one ovule.

Sea-Buckthorn Flower

Hippophae rhamnoides is divided into eight subspecies: *ssp. carpatica, caucasia, fluviatilis, mongolica, rhamnoides, sinensis, turkestanica and yunnanensis*.

Sea-Buckthorn Flower

Sea-Buckthorn Stem

These subspecies vary in size, shape, number of main lateral veins in the leaves and quantity and colour of stellate hairs. They also have different areas of distribution and specific utilizations.

Fertilization occurs solely via wind pollination, which is why male plants need to be planted near the female plants to allow for fertilization and fruit production.

Sea-Buckthorn Stem

The plants have a very developed and extensive root system, and the roots live in symbiosis with nitrogen-fixing *Frankia bacteria*.

The roots also transform insoluble organic and mineral matters from the soil into more soluble states. Vegetative reproduction of the plants occurs rapidly via root suckers.

Sea-Buckthorn Fruit

The oval or lightly roundish fruits grow in compact grapes varying from pale yellow to dark orange and contain high amounts of vitamin C, vitamin E, carotenoids, flavonoids and health-beneficial fatty acids, as well as higher amounts of vitamin B12 than other fruits.

Sea-Buckthorn Seeds


Web: www.jkc.ie Email: info@jkc.ie

Produced by Alison Jukes, Vicky Ames, Max Wade and Kelly McKee of RPS

# Japanese Rose

## Species Description

**Scientific name:** *Rosa rugosa*
**AKA:** Rhosyn Japan (welsh)
**Native to:** East Asia
**Habitat:** Hedgerows, sand dunes, sea-cliffs, road verges and waste ground

This vigorously suckering, deciduous shrub has many slender thorns on its stems and with its characteristic purplish-pink flowers is readily distinguishable from other roses found in the wild. Typically resulting from garden escapes or material thrown out from gardens. It is often well-naturalised, forming extensive and dense thickets, which can smother native species, so reducing biodiversity and dominating amenity planting.

Although introduced into cultivation in the UK in the late 18th century, it was not successfully grown until the mid-19th century. It is very common in gardens, parks and amenity plantings, often established in mass plantings. It was first recorded in the wild in Cumberland in 1927. Its distribution in the wild is increasing.

Japanese rose is listed under Schedule 9 to the Wildlife and Countryside Act 1981 with respect to England and Wales. As such, it is an offence to plant or otherwise allow this species to grow in the wild.

For details of legislation go to www.nonnativespecies.org/legislation.

## Key ID Features

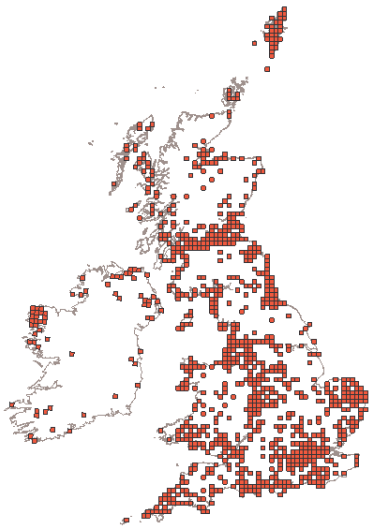


# Identification throughout the year

Japanese rose is easy to identify when it is flowering in June to July or has fruits in autumn. It is more difficult to identify in winter as it is deciduous, although its upright stems with numerous slender thorns will help to distinguish it from many other species throughout the year.

# Distribution

Japanese rose is scattered throughout low-land Britain, increasing in distribution.



Source: NBN Gateway. Check website for current distribution

# Similar Species

There are some common native species of rose which could be confused with Japanese rose. These include:

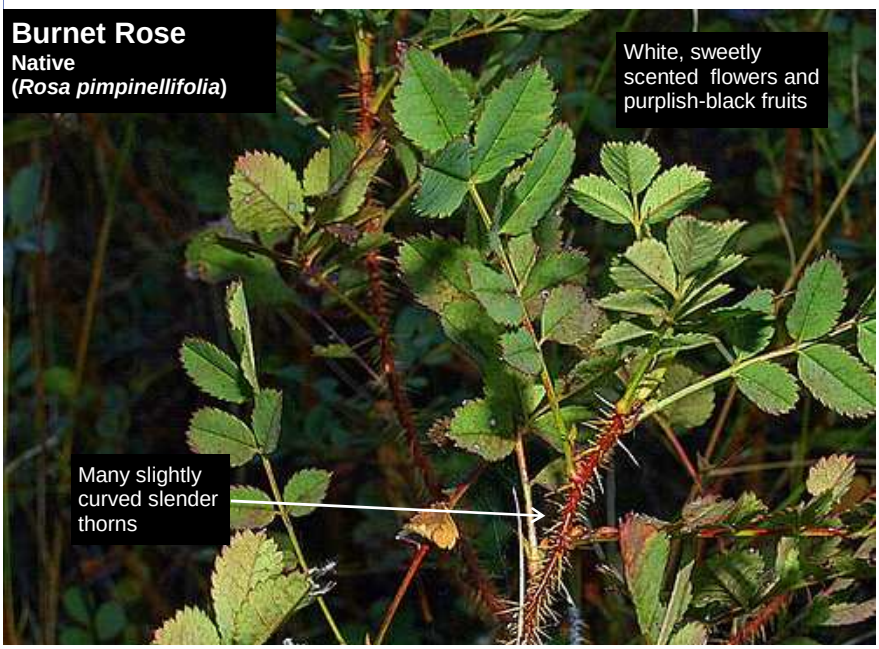
**Burnet rose *(Rosa pimpinellifolia/spinosissima),*** which has many fine thorns on its stem but white flowers and purple-black fruits and produces vigorous suckers;
**Dog-rose (*Rosa canina*)**, which has pale pink flowers, red oval fruits and curved thorns; a trailing plant of hedgerows and woodland;
**Sweet-briar (*Rosa rubiginosa*)**, which has bright pink flowers, red oval fruits and curved thorns and grows in scrub; and
**Field-rose (*Rosa arvensis*)**, which has white flowers, red oval fruits and curved thorns, and is a trailing plant of hedgerows and woodland.

Japanese rose also forms hybrids with other species, which can make identification difficult.


**Dog-Rose**
**Native**
**(*Rosa canina*)**



**Burnet Rose**
**Native**
**(*Rosa pimpinellifolia*)**




References and further reading:

Graham, G.G. and Primavesi, A.L. (2005) *"Roses of Great Britain and Ireland*". BSBI Handbook No. 7, BSBI, London

Preston, C D, Pearman, D A and Dines, T A (editors) (2002) "*New Atlas of the British and Irish Flora*". Oxford University Press

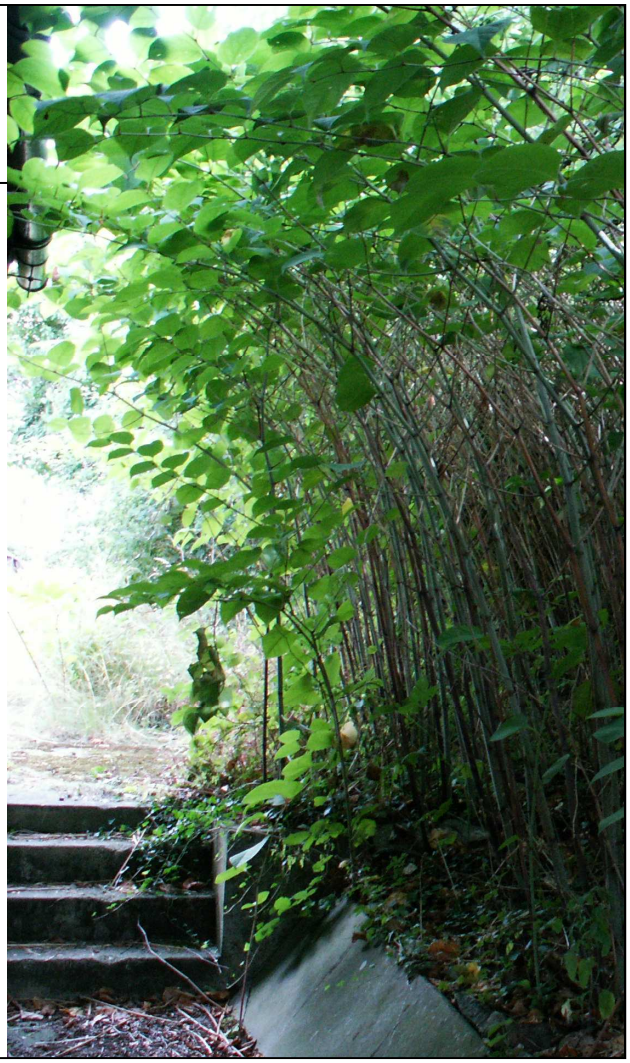
Stace, C (1997) "*New Flora of the British Isles*". Cambridge University Press

Photos from: J. Bognar, Kata Tolgyesi, Max Wade

www.nonnativespecies.org

Produced by Olaf Booy, Max Wade and Vicky White of RPS

# Japanese Knotweed



## Species Description

**Scientific name:** *Fallopia japonica*
**AKA:** Japanese Bamboo, Pysen saethwr (Welsh), *Polygonum cuspidatum*, *Reynoutria japonica*
**Native to:** Japan, Taiwan, northern China
**Habitat:** Common in urban areas, particularly on waste land, railways, road sides and river banks

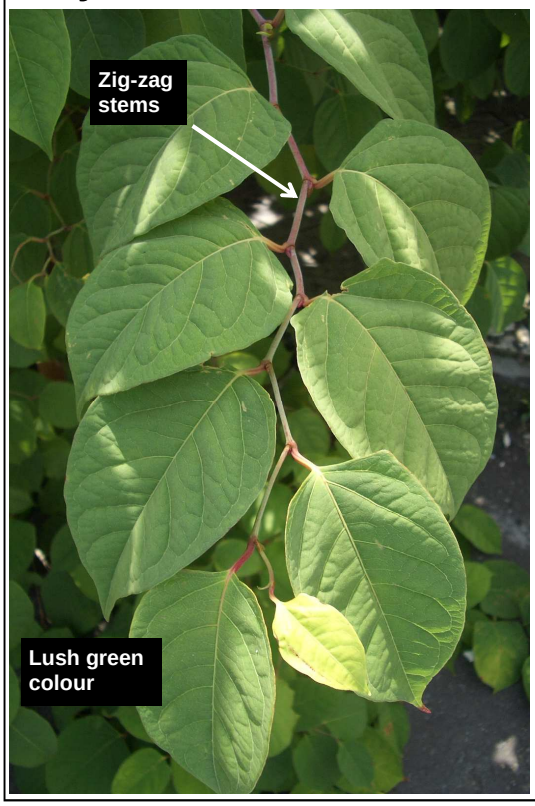
Tall herbaceous perennial with bamboo like stems. Often grows into dense thickets. Characteristic leaves and stems, persistence of last year's dead canes and distinctive rhizome (underground root-like stems) enables year round identification.

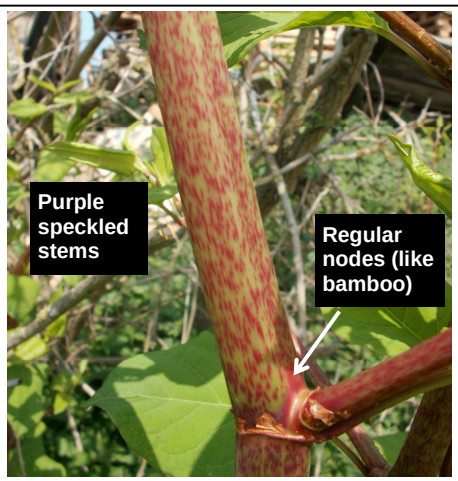
Introduced in the early 19th century as an ornamental plant. Now common and wide-spread across the UK. Spreads rapidly in the wild by natural means and as a result of spread by humans. Spread is solely by vegetative means, either fragments of rhizome or stem. Does not produce seed in the UK. Negative impacts include outcompeting native flora, contributing to river bank erosion and increasing the likelihood of flooding. Can also cause significant delays and cost to development as well as structural damage (it can grow through asphalt and some other surfaces).

Japanese Knotweed is listed under Schedule 9 to the Wildlife and Countryside Act 1981 with respect to England, Wales and Scotland. As such it is an offence to plant of otherwise cause Japanese knotweed to grow in the wild. Under the Environmental Protection Act 1990, Japanese Knotweed is classified as controlled waste.

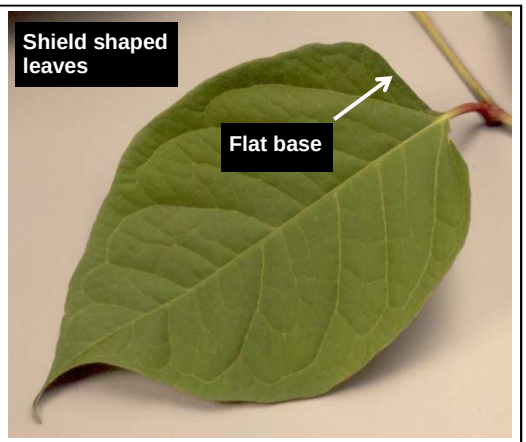
For details of legislation go to www.nonnativespecies.org/legislation.

## Key ID Features



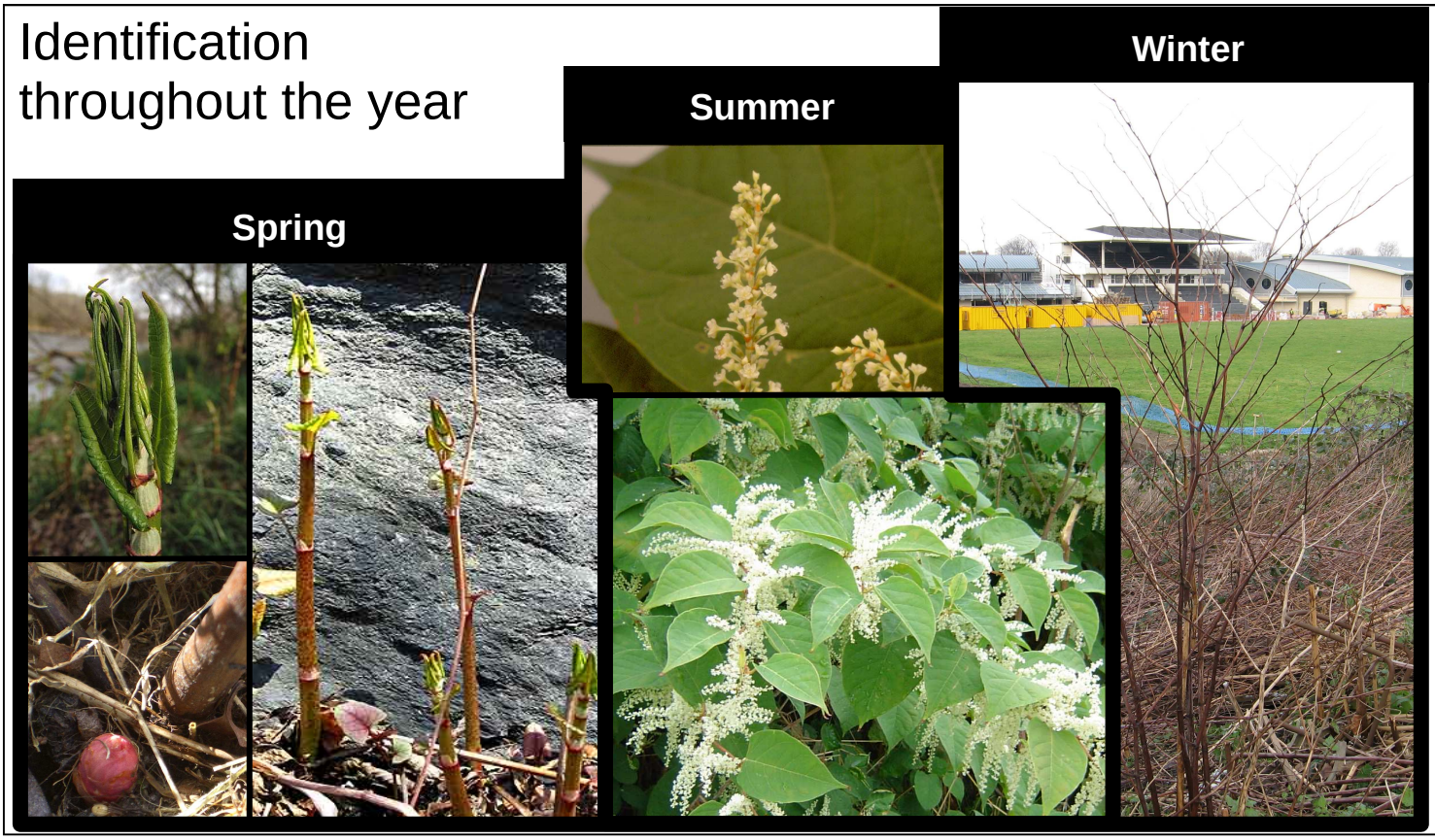







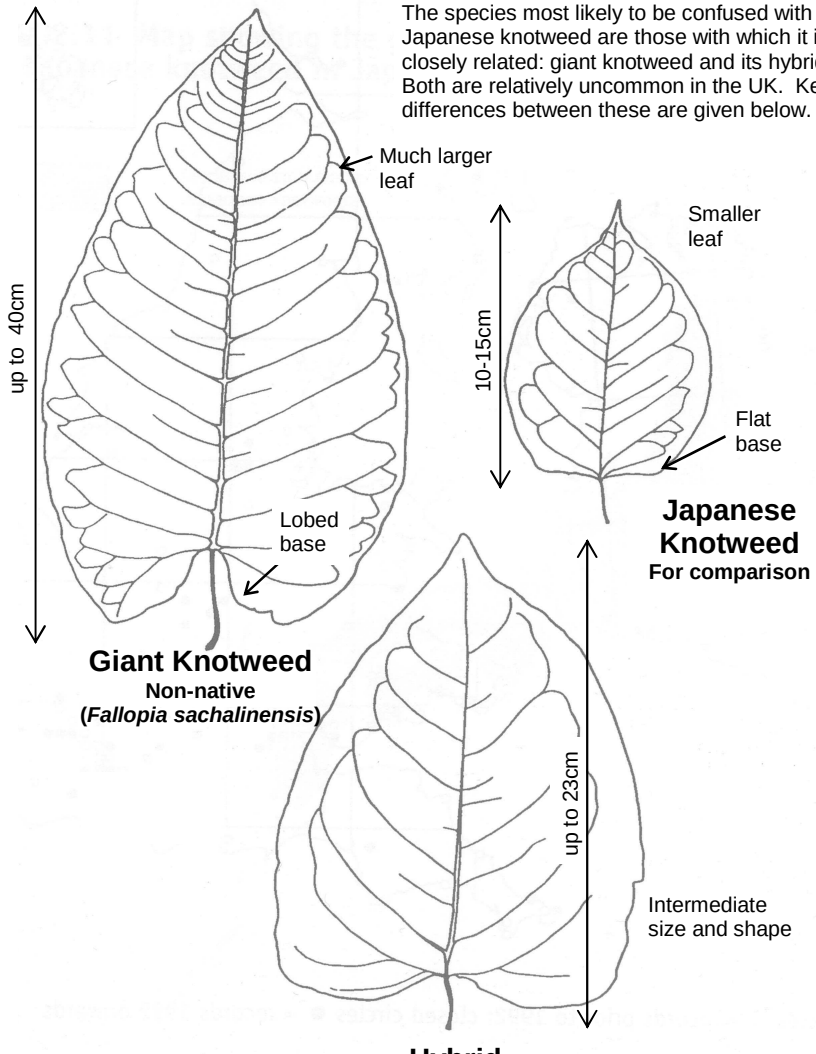


# Identification throughout the year




# Similar Species

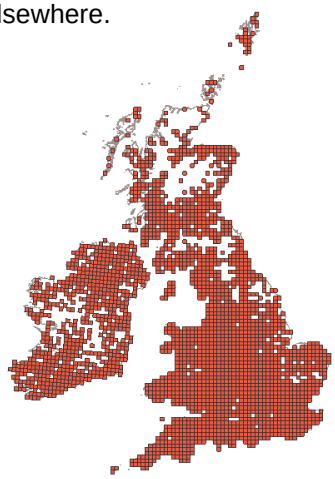
The species most likely to be confused with Japanese knotweed are those with which it is closely related: giant knotweed and its hybrid. Both are relatively uncommon in the UK. Key differences between these are given below.




Source: Child and Wade (2000). The Japanese Knotweed Manual

# Distribution

Widespread and common across the UK. Notably extensive infestations are found in the south-west of England, south Wales and Greater London, however similarly extensive populations can also be found elsewhere.



Source: NBN Gateway. Check website for current distribution

References and further reading:

Blamey, M, Fitter, R and Fitter, A (2003) *"The Wild Flowers of Britain and Ireland. The Complete Guide to the British and Irish Flora."* A & C Black

Child, L E and Wade, P M (2000) "The Japanese Knotweed Manual". Packard

Environment Agency (2006) "*The Japanese Knotweed Code of Practice".* Environment Agency

Preston, C D, Pearman, D A and Dines, T A (editors) (2002) *"New Atlas of the British and Irish Flora".* Oxford University Press

Stace, C (1999) *"Field Flora of the British Isles".* Cambridge University Press

Photos from: Olaf Booy, Helen Parish, Max Wade, Vicky White

NNSS
GB non-native species secretariat

For more information visit **www.nonnativespecies.org**

Produced by Olaf Booy, Max Wade and Vicky White of RPS

# Himalayan Balsam

## Species Description

**Scientific name:** *Impatiens glandulifera*
**AKA:** Policeman's Helmet, Indian Balsam, Jac y Neidiwr (Welsh)
**Native to:** West and central Himalayas
**Habitat:** Found mostly on river banks and in damp woodland, can grow in other damp habitat

A tall, attractive, annual herb with explosive seed heads. Although easy to identify as a mature plant with its pink-purple flowers, fleshy stem and characteristic leaves, the seedlings and last year's dead stems of this annual are more difficult to spot.

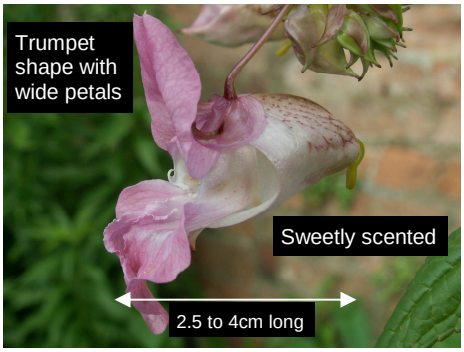
Introduced as a garden plant in the early 19th century and first recorded in the wild in 1855. Often favoured by the general public for its aesthetic appeal and is still deliberately planted on occasion. Now widespread in the UK, especially along urban rivers. Spreads solely by seeds, which are small and easily carried by wind or water.

Out-competes native species in ecologically sensitive areas, particularly river banks. Where it grows in dense stands along river banks it can impede flow at times of high rainfall, increasing the likelihood of flooding. Die back of extensive stands over winter can leave river banks bare and exposed to erosion.

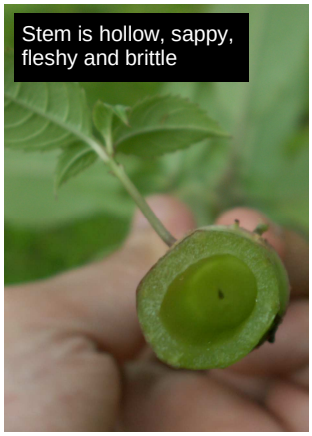
Himalayan balsam is listed under Schedule 9 to the Wildlife and Countryside Act 1981 with respect to England and Wales. As such, it is an offence to plant or otherwise allow this species to grow in the wild.

For details of legislation go to www.nonnativespecies.org/legislation.

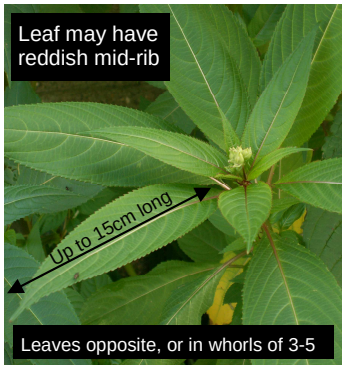

## Key ID Features



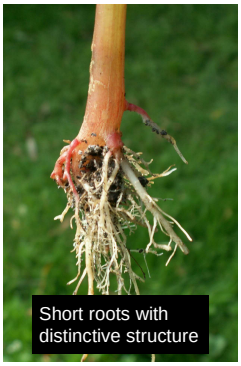






# Identification throughout the year

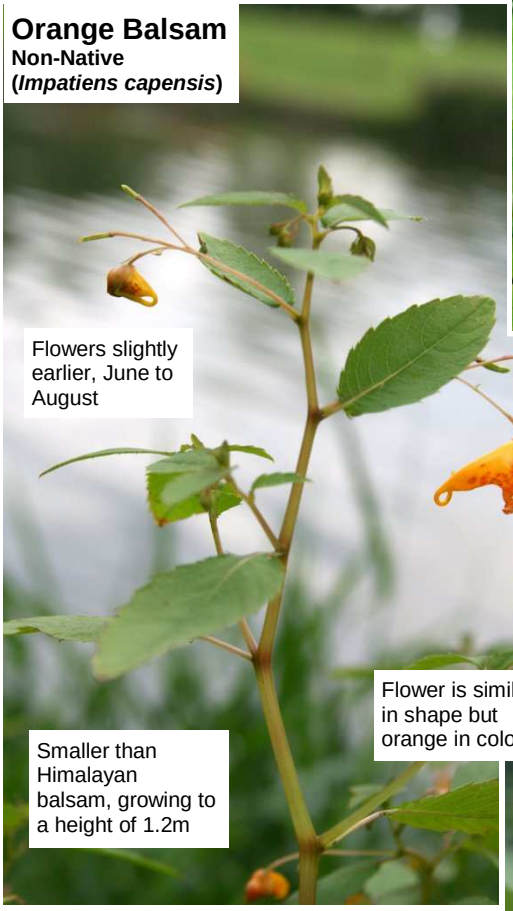
Can be identified at most times of the year: March-June by its seedlings, stem and leaf shape, from July to September by its stem, leaf shape and flowers. More difficult to identify over winter (October to February), look for hay like remains and distinctive root structure.


Hay like remains in winter


Root structure in winter

# Similar Species

**Orange Balsam**
**Non-Native**
**(*Impatiens capensis*)**




Smaller leaves, with fewer serrations

Flowers slightly earlier, June to August

Orange balsam is much less aggressive than Himalayan balsam, forming smaller less dense stands

Flower is similar in shape but orange in colour

Smaller than Himalayan balsam, growing to a height of 1.2m

# Distribution

Widespread and common across the whole of the UK. Primarily on riverbanks and in other damp areas.

Source: NBN Gateway. Check website for current distribution


References and further reading:

Blamey, M, Fitter, R and Fitter, A (2003) *"The Wild Flowers of Britain and Ireland. The Complete Guide to the British and Irish Flora".* A & C Black

Preston, C D, Pearman, D A and Dines, T A (editors) (2002) *"New Atlas of the British and Irish Flora".* Oxford University Press

Stace, C (1999) *"Field Flora of the British Isles".* Cambridge University Press


Photos from: Olaf Booy, Mike Harris, Max Wade

# Appendix B

## Example General Biosecurity Protocol

**This is an example only, provided for the purpose of informing the preparation of a project biosecurity protocol and not intended for use in its current form.**

## Prevent the Spread of Invasive Non-native Plant Species

Where entry into fenced areas containing invasive species is unavoidable, the contractor will provide wash down facilities (bucket of water and a stiff brush as a minimum). All machinery, footwear and tools that come into direct contact with soil/plant material within fenced areas will be thoroughly washed down in the designated wash down area before commencing work elsewhere on Site/being removed from Site. This will reduce the risk of spreading contaminated plant material within/beyond the Site.

Ideally, the wash down facilities should be situated immediately outside to the fenced area. Wash down locations will be situated at least 10m from any drains, ditches or other watercourses/waterbodies. All wash down locations will be agreed on Site between the ECoW and contractor.

The contractor will surface the designated wash-down area with an appropriate root barrier membrane which will be protected with a layer of inert substrate such as sand, laid immediately beneath the membrane. A low plastic bund will surround the wash down area to collect and contain any contaminated material and to prevent heavy rainfall from washing fragments across the Site. Contaminated water will be allowed to drain from the wash-down area into the fenced area. Any material arising from the wash down area will be treated as contaminated and disposed of as contaminated waste in accordance with the protocol on Disposal of Potentially Contaminated Material, below.

When the works are complete, the plastic bund should be pressure-washed. The root barrier membrane at the designated wash-down area/s will be removed and disposed of as contaminated waste in accordance with protocol on Disposal of Potentially Contaminated Material, below. Work within fenced areas should be undertaken using hand tools only (where practical). Heavy duty boards (or similar) will be used where practical where works are required within fenced areas to avoid footwear/machinery coming into direct contact with soil.

Any soil/other material excavated from within fenced areas and all arisings and debris remaining after washing will be contained and either returned to the fenced area or disposed of offsite, in accordance with the protocol on Disposal of Potentially Contaminated Material, below.

Where soil/other material requires removal from the fenced areas, vehicles will be confined to designated haulage routes. The contractor will clearly demarcate these routes with appropriate fencing. No materials or soil from elsewhere on Site are to be stored within the fenced areas. The contractor will maintain a record of any movements of soil/material to/from fenced areas to assist with ongoing monitoring of the spread/management of invasive plants.

## Disposal of Potentially Contaminated Material

Where removal/excavation of soils containing invasive species is required, the contractor will remove the top 100mm of soil (containing the seed bank) and store separately from other site materials (e.g., within tonne bags or on a geo-textile membrane).

These soils will be either:

- Re-used in areas away from watercourses/waterbodies that are to be restored/managed as mown grassland (where frequent mowing will prevent plants developing to the flowering stage).
- Re-used in areas beneath hard infrastructure (where appropriate) as seeds will not be able to germinate without light; or
- Disposed of off-site.

Any material excavated/removed from within fenced areas for offsite disposal should be considered potentially contaminated with invasive plants and treated as controlled waste. These materials may only be disposed of using a registered waste carrier at a suitably licensed landfill site in accordance with the Environment Protection Act (1990), Waste (England and Wales) Regulations 2011 and the Site Waste Management Plan. The contractor will ensure that the appropriate environmental permits are in place. Material for offsite disposal should be appropriately covered/enclosed to prevent escape during transport. All vehicles should be thoroughly cleaned after disposing of controlled waste.

Arcadis (UK) Limited

5th Floor
401 Faraday Street
Birchwood
Warrington
WA3 6GA
United Kingdom

T: +44 (0)1925 800 700

arcadis.com