



Water
Management
Alliance

Non-Native Invasive Plants: A Widespread Problem

Non- Native Invasive Plants – What are they?

Many invasive plant species are non-native and have a method of reproduction, growth or persistence which makes them extremely successful within the environment. They are a nationwide problem and are spreading throughout the UK. All these species are potentially very difficult to control as they have no native pests. Many of the UK's native plant species are suffering as the consequence of being out-competed for light and nutrients where they are prevalent. These plants left unmanaged pose a serious implication for the biodiversity of an area.



Japanese Knotweed — One of the most persistent and difficult to eradicate non-native invasive

Do's and Don't for Eradication

Do...

- **take immediate action!**
- seek advice on the correct management of the plant from IDB Conservation officers;
- obtain advice from the Environment Agency if planning to use herbicides on or near a watercourse;
- remove all non-native invasive plant debris from near a watercourse after cutting operations;
- seek advice from the Environment Agency on disposal of plant material.

Don't...

- **delay in doing something!**
- dispose of cut material in the nearest water body!
- Allow the plant to spread to nearby water bodies;
- Use non-native invasive plants in habitat restoration projects.

Important Information for Landowners and Tenants

As a landowner or the tenant of an area, it is not an offence to have these invasive species on your land, but it is an offence under the **Wildlife and Countryside Act (1981)**, to spread these species around the countryside. It is therefore better to take positive steps to eradicate plants before they establish, become out of control and become expensive to manage in the future...

Which Plants Pose a Problem?...

Some of the species are terrestrial but may be found on the banks of rivers, streams and ditches...

Japanese Knotweed

This is a widespread and troublesome bankside species due to its high regeneration capacity. It forms fleshy red/green stems with red/purple flecks and can grow between 2-3m tall. There is an underground root system which can extend 7m from the plant and reach a depth of 3m or more. A piece of rhizome as small as a little fingernail can grow into a new plant.

Control This species is notoriously difficult to control once it has become established. The best method of control is that of stem injection using roundup (1:10 dilution) in August or September, when the shoots are more than 1.5m tall.

A scythe is the only recommended method of cutting and should be carried out every 2-4 weeks to reduce above and below ground biomass. **STRIMMING SHOULD NOT BE UNDERTAKEN** as this will only lead to the spread of the plant. All stems should be burnt on site or removed to landfill (licence required). Digging out the plant at the root requires a clump of at least 7m radius from the stem of the plant. The soil then needs to be sieved (20mm sieve) on site to ensure all pieces of the rhizome are removed before the soil can be reused on site. All stem fragments and rhizome must be buried at below 10m deep or disposed of in landfill (licence required).



Japanese Knotweed in leaf during the summer



Himalayan Balsam

An annual plant which will grow 2-3m in height. Each plant will produce approx 800 seeds, which are released explosively and can travel up to 7m distance. The seeds are easily transported by water.

Control The aim should be to prevent seeds from being spread in autumn. This can be achieved by spraying with glyphosate before June to prevent flowering or by topping the flower heads during the summer months. Cutting, mowing, strimming or pulling the plant will be effective. Cutting or pulling should be repeated annually until plants are eradicated. Plants can be burned or composted, unless seeds present. eradicated.

Himalayan Balsam in Flower
(Photograph courtesy of the Environment Agency)

Giant Hogweed

A perennial plant which takes around 4 years to mature and flower. It forms dense colonies and suppresses growth of native plants leading to banks bare of vegetation and erosion problems. Each flower head produces several thousand seeds which can be easily dispersed along watercourses.

Control The aim should be to prevent flowering and ensuring seeds are not spread. Cutting or strimming is NOT recommended as the sap will cause a major skin reaction. Spraying with Roundup or digging out the crown below ground to 20 cm provides good control.

Fully protective clothing should be worn when dealing with this plant.



The leaves of the Giant Hogweed
(Photograph courtesy of the Environment Agency)

DO NOT TOUCH GIANT HOGWEED SAP!! IT IS EXTREMELY HARMFUL TO YOUR SKIN!!

Some of the other non- native invasive species are aquatic...

Floating Pennywort

This species is found in slow moving dykes and ditches and forms dense, interwoven mats of vegetation. The species grows quickly and stems can grow up to 20cm in a day! The plant is currently relatively restricted in its distribution around London and Essex, however it has recently been reported in the Waveney valley and in a ditch in Coltishall. It is difficult to control due to its vigorous growth, relative resistance to chemical control and vegetative reproduction.

Control

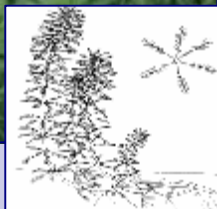
Cutting and removal is a very good method of management, but it will not control or reduce the vigour of the plant. Cut or dredged material should be left on the bank, well away from the water. Cutting should be followed up with hand pulling or spot treatment with chemicals such as 2,4-D amine. Glyphosate will be less effective.



Floating Pennywort (Photograph courtesy of Jonathan Newman, Centre for Aquatic Plant Management)



Parrots Feather in Broadland (Sketch courtesy of Jonathan Newman, Centre for Aquatic Plant Management)



Parrot's Feather

Will be found in slow moving or still waters rich in nutrients. It produces emergent and submerged shoots which give it its characteristically feathery appearance. The stems are brittle and a new plant can be propagated vegetatively from small stem fragments. It can also grow as a terrestrial plant when a pond or ditch dries up!

Control

Cutting and dredging can be used very effectively in small areas, but all fragments should be removed to prevent regrowth and downstream spread.

Chemical control can be achieved by applying Dichlobenil in spring to shallow water and damp ground. Glyphosphate is less effective on this species unless used with an appropriate wetting agent.

Australian Swamp Stonecrop

This plant, also known as *Crassula*, owes its success to its ability to colonise virtually any suitable still or slow moving freshwater habitat of highly variable water chemistry. It shows vigorous, year round growth and can establish equally well on damp ground or in water up to 3m deep. It is easily spread and a new plant can easily develop from a small fragment of plant. It quickly out-competes native vegetation and maintains dominance in an area by rapid growth and the uptake of almost all available nutrients.

Control

The plant is best treated in the early stages of infestation as any delay will make the problem **several orders of magnitude** worse in each successive year!

Cutting is NOT recommended but dredging out marginal and emergent material can be effective as the plant is shallow rooted. The area should be enclosed by some appropriate means to prevent the spreading of plant fragments by livestock. Dredged material should be piled in heaps and be covered with thick black polythene or at least 20cm soil.

Chemical control of submerged can be achieved with dichlobenil during March and emergent material can be sprayed between March and October. At least two applications will be necessary each year to keep the plant under control.



Australian Swamp Stonecrop in the Wensum Valley

Water Fern



Water Fern (Sketch courtesy of Jonathan Newman, Centre for Aquatic Plant Management)

This plant has a characteristic red colour over winter or when the plant is stressed. In the summer months it is usually green. It can reproduce by vegetative means or sexually by spore production. A thick infestation may pose a threat to livestock who may attempt to walk on apparently “dry land” without appreciating that there is deep water underneath! The dense cover of floating weeds reduces the light level beneath the surface so that submerged weed and algae die off resulting in deoxygenation problems. Free floating weeds can also be drawn into water intakes and may block pumps and filters.

Control The weed can be harvested with weed buckets but this will require frequent operation. If spores have been released within a year, then it may be necessary to carry out repeated control operations until all spores have germinated and been controlled.

Herbicides are probably the most effective form of control. Floating fronds of water fern can be sprayed with glyphosate, but surviving fronds will require a subsequent treatment if the weed is to be eliminated. This is best carried out where winds or currents have gathered floating fronds of weed together. Where spores have been released, it may be necessary to carry out repeated operations until all spores have germinated and have been controlled.

Health and Safety Issues!...

- Take care using herbicides and ensure all mixing and application is carried out in accordance with the manufacturers instructions. Before using herbicide near a watercourse, obtain a licence from the Environment Agency and should be carried out by a trained operative.
- There is often a high risk of slipping on banks and muddy surfaces when carrying equipment or chemicals.
- Take extreme care when working with Giant Hogweed. The sap can cause SERIOUS skin blistering.

Disposal of Non-Native Weeds...

- The correct disposal of plant material is vital. It is best to contact the Environment Agency for disposal advice as there are Regulations covering the composting, burning and burial of different plant materials and some such as Japanese Knotweed, will require transfer to a licensed landfill site or burning on site.

Who to contact if you find any of these species...

To report an infestation for monitoring purposes (to the nationwide invasive species database) or to gain more specific detailed advice on control methods contact...

Centre for Aquatic Plant Management

CEH Wallingford,
Maclean Building,
Crowmarsh Gifford,
Wallingford, OX10 8BB
Tel: 01491 692556
Website:

www.nerc-wallingford.ac.uk/research/capm/index.htm

www.wlma.org.uk

For general information and advice contact...

Environmental Officer

Water Management Alliance,
Kettlewell House,
Austin Fields Industrial Estate,
Kings Lynn,
Norfolk,
PE30 1PH
Telephone: 01553 819600
Email: info@wlma.org.uk



For advice on gaining an herbicide license or for plant disposal information, contact...

Environment Agency

General Enquiries: **08708 506506**

and ask to be put through to the Conservation Dept in Ipswich (for queries concerning Broads and Norfolk Rivers IDBs) Brampton (for queries concerning Kings Lynn IDB) or Lincoln (for queries concerning South Holland IDB).