Lincolnshire ADA Branch Environment Committee

‘Quick Wins’

Biodiversity Manual

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ADA Lincolnshire Branch Environment Committee Secretary
01.04.17

Contents

Industry Challenges

The challenge for all engaged in the management of our watercourses is to deliver the core service of efficient drainage and flood alleviation whilst also providing habitat for the flora and fauna that share our watercourses – and increasingly importantly, being able to demonstrate the delivery of environmental benefits alongside efficient watercourse management.

Across our region, we have a huge divergence of landscape and watercourse types, from the chalk streams on the edge of the limestone ridge to the man-made arterial drainage system in the fens. These watercourses can, and do, support a surprisingly complex natural environment in an intensively farmed landscape – it's the watercourses that make it possible for threatened species like the barn owl to thrive in Lincolnshire when the species has disappeared from so much of the rest of our country.

It's notable that some of the watercourses providing the healthiest habitat and most diverse ecology are also intensively managed to provide efficient drainage – but importantly, they are managed sympathetically.

Providing these environmental benefits doesn't have to be hugely expensive and time consuming. Over the past few years the authorities that make up ADA Lincolnshire Branch have shared their own examples of delivering environmental benefit – often at little cost and with the benefit of reducing maintenance activities.

Underlying all of these examples is a change in mindset. Efficient drainage and environmental enhancement do not have to be mutually exclusive; and it's been a privilege to spend time with drainage board managers who demonstrate this change in mindset that allows for mutually inclusive environmental enhancement, whilst delivering the core role of moving water efficiently and safely.

Peter Lundgren
ADA Lincolnshire Branch Environment Committee Chairman

Purpose of the Guide

This guide is designed for ADA Lincolnshire Branch members who are looking to implement effective, low cost environmental enhancements to help to fulfil their Biodiversity Action Plan targets. The guide includes a range of techniques and ideas from channel maintenance to actions for specific species. This is a working document and would benefit from the addition of new examples over time.

Association of Drainage Authorities Lincolnshire Branch

Environment Committee Terms of Reference

The ADA Lincolnshire Branch Environment Committee is established to provide a forum for Lincolnshire IDB members and officers to meet and discuss environmental issues which impact on, or have relevance to IDB operations and where appropriate, offer guidance and advice.

This will be achieved through quarterly meetings, encompassing:

1. Publishing regular minutes and information bulletins to inform ADA Lincolnshire Branch members and other relevant bodies of current issues.

2. Reviewing current and proposed environmental legislation, allowing informed, unified comments and guidance to be formulated.

3. Identifying and promoting examples of Best Environmental Practice.

4. Providing practical training to encourage the integration of Best Environmental Practice into operational procedures.

5. Representing ADA Lincolnshire Branch interests at relevant environmental committees and conferences.

6. Providing a forum for the internal monitoring of biodiversity and water level management targets.

7. Promoting the work of ADA Lincolnshire Branch Environment Committee.

The term of office for Committee Chair, Vice Chair and Secretary is 3 years. The current term of office has been extended by one year to 31/03/18.

Approved on 03/03/15

Barn Owls

Why?

Operation Barn Owl began in 1988 as a collaboration between the Association of Drainage Boards, the Wildlife Conservation Partnership and volunteer barn owl advisors. At that time, there were just 200 pairs of barn owls in Lincolnshire, but the potential of drainage ditches as linear habitats for barn owls and a range of other species had been recognised. Barn owls often lack suitable locations to nest and roost.

Where?

Barn owls hunt in tussocky grassland, often alongside watercourses. IDB watercourses therefore provide an excellent hunting habitat.

What can be done?

Alternate side cutting

Cutting alternate sides of a watercourse on alternate years allows field voles (the barn owl's favourite prey) shelter and protection throughout the year, particularly in the weeks immediately post-cut. It also allows grass to become thick and tussocky, which is the favoured habitat for field voles, common shrews and wood mice, which together make up 82% of a barn owl's diet. Keeping on top of vegetation by cutting on alternate years also prevents the invasion of brambles and scrub. If there's a healthy population of voles, a healthy population of barn owls should follow.

Erection of nest boxes

Ideally, nest boxes should be located in large, open fronted barns. In the absence of these however, nest boxes can be erected alongside watercourses on pumping station buildings, mounted on poles or mounted in trees, importantly, away from roads. Nest boxes give barn owls shelter in inclement weather and a safe place to rear their chicks immediately adjacent to their hunting ground.

Checking barn owl boxes

Checks of barn owl boxes give an excellent opportunity to monitor the population of barn owls. As barn owls are protected, this must be carried out by appropriately licenced individuals. If there are birds in the box at the time of the check, birds are ringed (if not already) and their presence recorded. This also allows the location and movement of birds to be mapped.

Photograph: Witham First DIDB

Who can help?

The Wildlife Conservation Partnership sell nest boxes which are multi-functional with a central compartment for barn owls and two roof compartments suitable for kestrels (£230 approx. cost). IDB efforts have already been invaluable in supporting populations but it's important that momentum and populations are maintained.

Bats

Why?

In Britain all bat species and their roosts are legally protected, by both domestic and international legislation.

Where?

Bats feed on insects found over watercourses, or in the vegetation surrounding them. British bats roost in a variety of places including holes in trees, caves, in buildings, bridges and bat boxes. Bats need different types of roosting places depending on the time of year and species of bat.

What can be done?

Bat boxes

Bat boxes can be installed for Pipistrelle bats (although Daubentons do not use these). Boxes should be located under bridges, on pumping stations (away from owl and kestrel boxes) or on large trees. Bat boxes should be located in a southerly direction so that they get the sun for most of the day.

Photographs: Bat Conservation Trust

Who can help?

Black Sluice IDB have installed bat boxes & Lincolnshire Bat Group would be able to advise on suitable box types, and locations.

http://www.lincsbatgroup.co.uk/

Breeding Waders

Why?

Drainage and agricultural improvement of grassland to provide better grazing and forage has greatly reduced suitable areas for feeding and nesting birds. Lapwings, redshanks and snipe are all species whose population decline is thought to be at least partly attributed to this.

Where?

Wet grassland regularly supports waders and wildfowl feeding, and importantly, provides an area where they can breed.

What can be done?

Ridge and furrow

Ridge and furrow patterns containing scrapes and pools have been shown to be the best way of creating suitable conditions for breeding waders. Digging out a set of linear channels results in long wet margins which are more likely to be sustained during the wader breeding season. They provide a long 'edge' habitat which would retain wet margins even during periods of dry weather.

Photographs: Water Management Consortium

Who can help?

Water Management Consortium have installed scrapes as a part of the Lincolnshire Coastal Grazing Marshes project.

Channel Restoration

Why?

Watercourses which have been over-widened or over-deepened may experience a reduction in water velocity and hence become choked with sediment and vegetation.

Where?

Channel restoration may be suitable in locations where the channel has been over-widened, over-deepened and potentially has little gravel substrate.

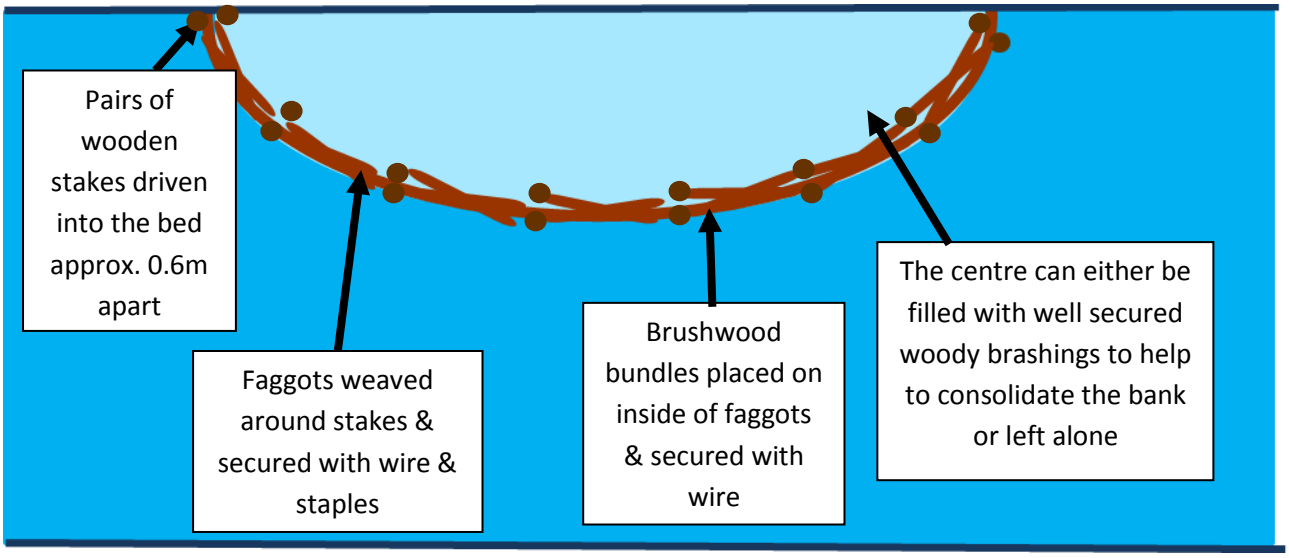
What can be done?

Channel narrowing

Narrowing the watercourse can be achieved by extending the current bank into the channel. It's imperative that the structure (particularly the upstream and downstream ends) are adequately attached to the existing bank to prevent detachment of the structure in high flows. Narrowing the channel increases the velocity of the water, and instead of accumulating on the watercourse bed, silt accumulates behind the faggots.

Photograph: Witham Third DIDB

Photograph: Environment Agency



Raising the bed

Watercourses which have been over deepened through dredging can be improved by raising the bed. This can be achieved through introducing stone and gravel at key locations. This reduces the cross section of the watercourse, increasing velocity and reducing silt deposition in these locations. This can also provide suitable habitat for gravel loving species and spawning and juvenile trout. Riffles should be a minimum of 15 metres in length. It should be noted that each riffle will increase upstream water level by 15-30 cm. This increased head of water can increase local groundwater levels.

Deflectors

Deflectors can be used to concentrate the flow of water, locally increasing its velocity and scouring sediment. They can also be used in pairs to create pools. Please note that professional advice should be sought before installing flow deflectors-inappropriate siting of flow deflectors can cause excessive erosion and mobilisation of fine sediments.

Who can help?

The Environment Agency have carried out narrowing of the channel at a number of locations on the Witham including Belton House and Syston. More information can also be found within the 'Wild Trout Survival Guide' http://www.wildtrout.org/product/wild-trout-survival-guide.

Grass Snake

Why?

The loss of grassland and wetlands habitats, along with a lack of open compost heaps and rotting vegetation has caused a decline in populations of reptiles in the UK, including grass snakes. Grass snakes are legally protected under the Schedule 5 of the Wildlife and Countryside Act 1981.

Where?

Grass snakes are often found alongside water. They lay their eggs in heaps of organic waste.

What can be done?

Compost heaps

Natural nesting sites include piles of vegetation deposited by flood water, or cavities within rotting tree trunks. In the absence of these, compost heaps can be used. These heaps should consist of loose material that grass snakes can easily enter. They should be south facing and exposed to direct sunlight. Heaps can be created from weed from the watercourse, reeds, leaves, grass etc. You could also cover the heap with an old carpet or tarpaulin for extra protection. These sites should not be disturbed from June to September, or over winter, when grass snakes hibernate.

Photograph: Froglife

Who can help?

North Level IDB & South Holland IDB have both installed these features.

Kingfisher

Why?

As a fairly rare, easily disturbed bird, the kingfisher is afforded the highest degree of legal protection under the Schedule 1 of the Wildlife and Countryside Act 1981. Due to the modification of watercourses, they can struggle to find suitable nesting sites near to good fishing spots.

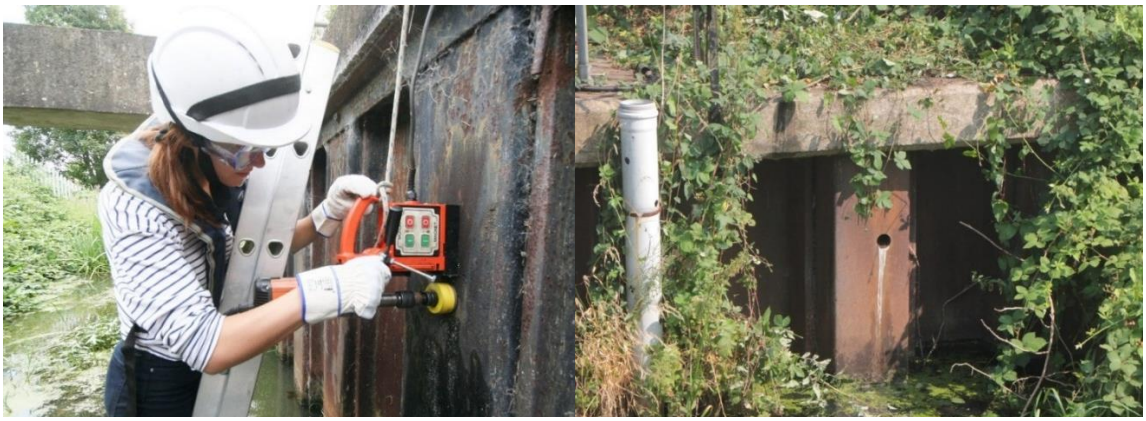
Where?

Kingfishers are seen alongside watercourses which have plenty of fish. They perch on branches or railings above the watercourse and dive in for fish.

What can be done?

Artificial nesting holes

Artificial nesting holes can be drilled into sheet piling. The hole goes all the way through the piling, so that the kingfisher can excavate into the bank behind and create a nest. A trail of tipex can then be painted underneath the hole to mimic kingfisher droppings, encouraging them to nest in the holes.



Photographs: Upper Witham IDB

Alternatively, sheet piles can be incorporated into re-profiling works to provide kingfishers with a vertical face to excavate behind.

Photographs: Witham Fourth IDB

Who can help?

Upper Witham IDB, Witham Fourth IDB and Middle Level IDB have all installed these features.

Invertebrates

Why?

Invertebrate populations within the UK have declined drastically. This is due to a combination of factors, including a reduction in wildflower meadows and people 'tidying up' gardens, woodland and open space, meaning that lying dead wood is no longer common.

Where?

Beetles, spiders and other insects use piles of dead, damp and rotten wood as a place to shelter and feed.

What can be done?

Solitary bee habitat

Holes can be drilled into untreated fence posts to provide solitary habitat for bees.

Bug hotel

Bug hotels can be built by stacking up old pallets and filling with logs, twigs, leaves, bricks and bark.

Photograph: Wild About Gardens

Who can help?

Witham Third DIDB and North Level IDB have both installed bug hotels.

http://www.wildaboutgardens.org.uk/thingstodo/inaweekend/bug-mansion.aspx

Otter

Why?

The European otter is categorised as 'near threatened' on the IUCN Red List of Threatened Species due to its ongoing population decline, however in western Europe species are recovering. Otters are legally protected under the Schedule 5 of the Wildlife and Countryside Act 1981.

Where?

Otters can be found in a wide range of aquatic habitats including lakes, rivers and streams. They predominantly feed on fish, however also feed on crustaceans and amphibians.

What can be done?

Artificial otter holt

After finding field signs of otters in the locality, cut back the bank and build a breezeblock rectangle with an entrance pipe, exit pipe and a concrete lid. An additional pipe can also be installed to house a camera. The bank should then be reinstated, leaving the pipes visible for the otters to enter and exit the holt.

Photographs: Witham Fourth IDB

Who can help?

Witham Fourth IDB and Middle Level IDB have both installed otter holts.

Reed Margin

Why?

Reedbed has suffered widespread loss due to drainage, agricultural improvement and abandonment over the last century, and the remaining areas are often small and fragmented. Reed margins are important for a number of birds and small mammals. Reed warblers, sedge warblers, reed bunting, mallard, tufted ducks, moorhens and coot all use marginal vegetation to nest, shelter and forage in.

Where?

Alongside watercourses, ponds or in wetland areas.

What can be done?

Leaving marginal vegetation uncut

Wherever appropriate, leave the marginal vegetation along the watercourse uncut. This provides shelter and protection to a wide range of birds, mammals, fish and invertebrates, and has the added benefit of protecting the toe of the bank from erosion.

One side cutting

As above, leaving only one side uncut. This may be a more appropriate measure in smaller watercourses.

Leaving patches of uncut vegetation

Where it's not appropriate to leave long lengths of uncut vegetation, it's possible to leave patches of uncut vegetation.

Photographs: Witham First DIDB

Who can help?

The Drainage Channel Biodiversity Manual
http://webarchive.nationalarchives.gov.uk/20150908000001/http://publications.naturalengland.org.uk/publication/50004

Sand Martins

Why?

Sand martins have experienced an overall decline of 20% since 1970.

Where?

Sand martins usually nest in natural sheer cliff faces on river bends or in man-made sites such as gravel or sand pits. They use vertical earth and sand banks soft enough for burrowing, in open areas.

What can be done?

Create a vertical bank

When creating a bank, the face must be vertical and rise at least 1.5 m above normal water level. It should be as long as possible, ideally over 5 m. Wooden stakes, boulders or gabions may be used to protect the toe of the bank, but if erosion is prevented the bank may become unsuitable. Where natural erosion is insufficient, vegetation should be cleared from the cliff face over the winter, to ensure that the birds' flight path is clear. Re-cutting of a new sheer face may be necessary in the winter where erosion is not occurring.

Photograph: Witham Third DIDB

Who can help?

Nicholas Watts, Welland and Deepings IDB. John Badley, RSPB.

Water Voles

Why?

Water voles are Britain's fastest declining mammal, with their population having reduced by 97% over the past century. The American mink is largely responsible for its decline as water voles have no defence mechanism against them. Lincolnshire has a nationally important population of water voles. Water voles are legally protected under the Schedule 5 of the Wildlife and Countryside Act 1981.

Where?

Water voles are often found in the banks of watercourses-especially those with long lengths of marginal vegetation.

What can be done?

Vegetation maintenance

Leaving a continuous strip of uncut vegetation (CA1 in the Channel Management Handbook) can provide benefits for water voles in providing shelter and protection. Cutting banks on alternate years provides fresh, succulent growth for water voles to feed on. Leaving marginal vegetation also provides benefits for invertebrates and birds.

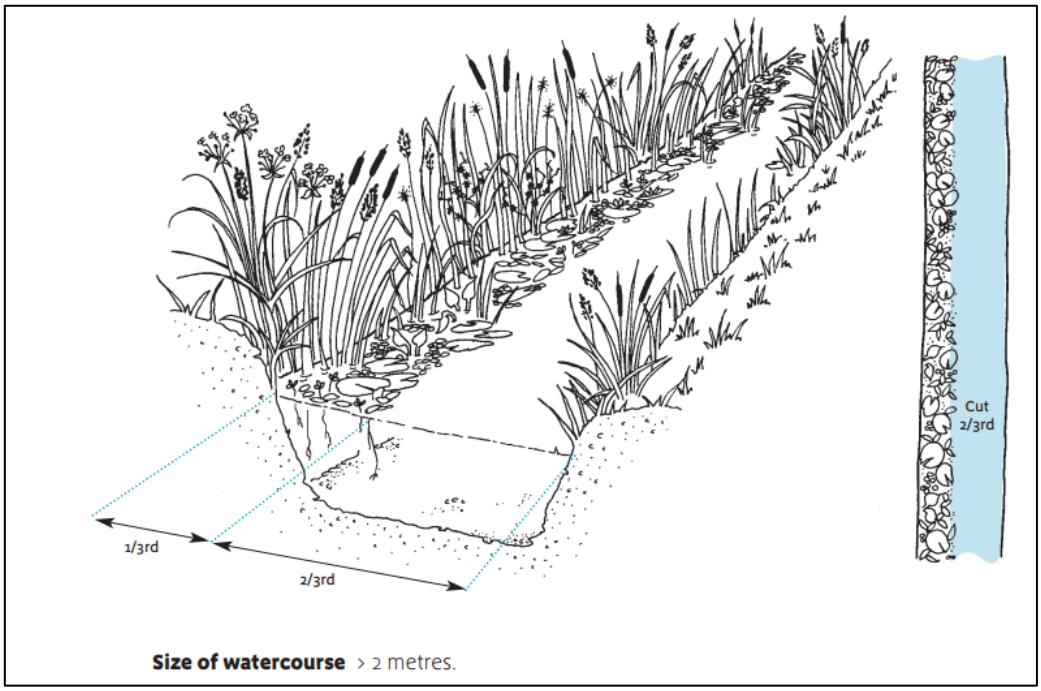


Image: Drainage Channel Biodiversity Manual

American mink control

American mink are an invasive species to the UK and can decimate populations of water voles. Locating traps on floating rafts is one of the most effective methods of catching mink.

Who can help?

Please see https://basc.org.uk/wp-content/plugins/download-monitor/download.php?id=613 for advice on mink control.

Wildflowers

Why?

97% of wildflower meadows in the UK have been lost since the 1930s. This has impacted upon populations of butterflies, bees, other pollinating insects and birds.

Where?

Wildflowers can grow almost anywhere, but prefer low nutrient soils in a sunny location.

What can be done?

Wildflowers can be planted almost anywhere. If there is a location which is regularly mown, consider planting wildflowers, reducing the maintenance of the site with the added benefit of helping invertebrates! In Lincolnshire, the Lincolnshire Wildlife Trust have been running 'Lincolnshire's Wildflower Meadow Network'.

Image: Upper Witham IDB

Who can help?

Upper Witham and Witham Fourth District IDB have planted wildflower meadows in some of their pumping station compounds. The Lincolnshire Wildlife Trust has guidance on how to grow a wildflower meadow.

http://www.lincstrust.org.uk/sites/default/files/meadow_booklet_lwt_dec_2016.pdf

Grow Wild also has guidance on how to plant a meadow, along with providing wildflower kits to plant in public spaces.

https://www.growwilduk.com/how-grow-wild-flowers

Invasive Non-Native Species (INNS)

The identification and eradication of INNS is important for the protection of our native species. INNS have been introduced to the UK and have expanded their population, often to the detriment of native species. Early identification of INNS is critical in the control of their spread. Invasive Non-Native Species guides have been produced by the Greater Lincolnshire Nature Partnership (GLNP) and their distribution to staff will help to achieve early identification.

Invasive species locations should be reported to the GLNP to help determine population trends and distribution.

Please note that in the final version these will be added into the PDF for increased clarity

Floating Pennywort

Floating pennywort

Hydrocotyle ranunculoides

Invasive species identification guide

GLNP
GREATER LINCOLNSHIRE NATURE PARTNERSHIP

Where is it found?

Floating on the surface or emerging from still or slowly moving freshwater. Can be free floating or rooted.

Similar to.....

Marsh pennywort (see bottom left photo) – this has a smaller more rounded leaf that attaches to the stem in the centre rather than between two lobes. Will always be rooted and never free floating.

Key features

- Lobed leaves
- Fleshy green or red stems
- Floating or rooted
- Forms dense interwoven mats

Leaf

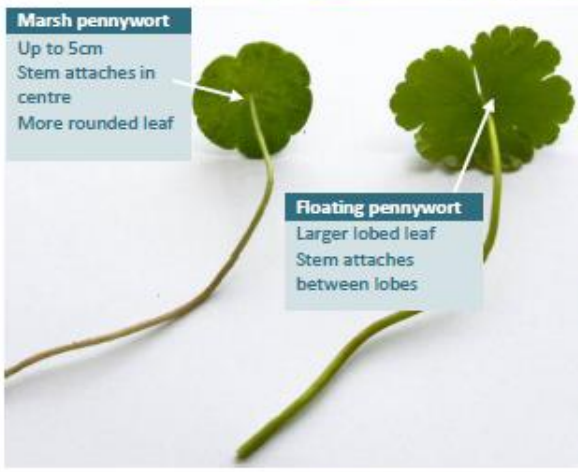
Leaves can be up to 7cm in diameter. Lobed leaves can float on or stand above the water.

Marsh pennywort

Up to 5cm
Stem attaches in centre
More rounded leaf

Floating pennywort

Larger lobed leaf
Stem attaches between lobes



Roots

Fine white roots

Photos

© GBNNSS

Invasive species ID guide: Floating pennywort

Management

Floating pennywort is extremely difficult to control due to rapid growth rates (up to 20cm from the bank each day).

Chemical control: Can use glyphosphate but plant does not rot down very quickly after treatment so vegetation should be removed after two to three weeks in flood risk areas. Regular treatment necessary throughout the growing season.

Mechanical control: Regular cutting from May-October will prevent complete dominance. Cut material needs to be removed from the water immediately. Hand pulling or spot chemical treatment should follow cutting to reduce re-growth. Pulling can work well on small infestations.

Environmental control: Shading on southern banks may limit the growth of floating pennywort in specific areas, and Increasing rooting depth to below 1m may reduce the ability of *H. ranunculoides* to root at the margins.

Biological control: A weevil (*Listronotus elongatus*) has been found to be a floating pennywort specialist and is currently assumed not to pose a threat to the native European species – marsh pennywort (*H. vulgaris*). Further work is being done to explore the effectiveness of this method.

If using chemicals near a watercourse or conservation area you will need permission from the relevant authority (Environment Agency or Natural England).

Report sightings

All sightings of floating pennywort should be reported to the Lincolnshire Environmental Records Centre (LERC).
www.glnp.org.uk/getting-involved/your-sightings/

Reporting and management of non-native invasive species contributes to the Lincolnshire Biodiversity Action Plan (LBAP).
www.glnp.org.uk/partnership/nature-strategy/

For further information on control of non-native invasive species please visit the GLNP website and go to the 'Getting involved' pages.
www.glnp.org.uk/getting-involved/

Photos ©GBNNSS

Giant Hogweed

Giant Hogweed

Heracleum mantegazzianum

Invasive species identification guide

GLNP
GREATER LINCOLNSHIRE NATURE PARTNERSHIP

Where is it found?

This species is found in a variety of habitats but is most common on river banks.

Similar to.....

Native hogweed, which is much smaller when mature and only grows up to 2m with flower heads spanning up to 15cm.

Key features

- Can grow up to 5m in height
- Leaves can span up to 3m in width
- Sap can cause blistering of skin after exposure to sunlight

Flower

Small white flowers

Umbrella shaped flower heads can span up to 80cm

Stem

Green with purple blotches and sharp bristles

Leaf

Sharply divided/serrated leaves that can span up to 3m

Photos

© GBNNSS

Invasive species ID guide: Giant Hogweed

Seeds and Seedlings

Seeds have dark stripes (oil ducts) 2 on one side, 4 on the reverse.

Appearance

Up to 5m high

Management

Warning The sap of giant hogweed contains a toxic chemical which sensitises the skin and leads to severe blistering when exposed to sunlight. **This reaction can recur for many years.**

The seeds of this plant are thought to remain viable for up to seven years, and possibly as long as 15 years. Once a plant has produced seed, it should be assumed that the seeds will be present in the surrounding area for at least this length of time. Seeds will also be washed downstream. Regular checks will be required to keep the plant under control.

Mechanical control: Hand cutting should never be undertaken unless the operator is wearing full protective clothing to prevent skin contamination by the sap. Machine operators should take similar precautions because the sap can be spread onto machinery and subsequently come into contact with skin. Cutting before flowering will, at best, produce only temporary control and ensures that the plant regrows in the following season. Cutting after flowering has no benefit once the seeds have been formed, except to clear away the dying vegetation. Small infestations can be controlled by digging out the whole plant.

Chemical control: In April and May will be effective with the use of appropriate substances. Expert advice and further information should be sought.

If using chemicals near a watercourse or conservation area you will need permission from the relevant authority (Environment Agency or Natural England).

Report sightings

All sightings of giant hogweed should be reported to the Lincolnshire Environmental Records Centre (LERC).
www.glnp.org.uk/getting-involved/your-sightings/

Reporting and management of non-native invasive species contributes to the Lincolnshire Biodiversity Action Plan (LBAP).
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Photos ©GBNNSS

Himalayan Balsam

Himalayan balsam

Impatiens glandulifera

Invasive species identification guide

GLNP
GREATER LINCOLNSHIRE NATURE PARTNERSHIP

Where is it found?

Mostly on river banks and in damp woodland, but can grow in any damp habitat.

Similar to...

Rosebay willowherb - the only plant that may be confused with Himalayan balsam, can easily be told apart at a distance as these plants are arranged like a spear. Himalayan balsam has a less regular, drooping appearance.

Key features

- Distinctive large pinkish flowers from June to August
- Grows up to 2m tall
- Large narrow leaves with serrated edges up to 15cm long
- Hollow fleshy stems and exploding seed pods

Stem

Hollow, sappy, fleshy and brittle
Up to 2m high
Green to red

Flowers

Pink (rarely white)
2.5-4cm long
June to August

Leaves

Serrated edge
Up to 15cm long
May have red mid-rib

Photos

© GBNNSS

Invasive species ID guide: Himalayan balsam

Management

Himalayan balsam has a two to three year eradication period with an annual, short lived seed bank.

Mechanical control: As an annual plant the best method of controlling Himalayan balsam is removal:

- This is most effective during June or July before the plant has produced its exploding seed heads (shown with a flower in the top left image).
- If the plant is removed earlier in the season re-growth is likely.
- Plants should be cut below the lowest node (above right) to avoid re-growth.
- Plants can easily be pulled by hand as the roots are shallow (above left).
- Cut or pulled plants can be safely left on site to decompose if they have not produced seed heads, though this must be done in a dry open area.
- Make sure you carry on checking for re-growth after removal, if possible once a fortnight until August / September when the plant would have seeded.

Report sightings

All sightings of Himalayan balsam should be reported to the Lincolnshire Environmental Records Centre (LERC).
www.glnp.org.uk/getting-involved/your-sightings/

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All photos ©GBNNSS www.nonnativespecies.org

Japanese Knotweed

Japanese knotweed

Fallopia japonica

Invasive species identification guide

GLNP
GREATER LINCOLNSHIRE NATURE PARTNERSHIP

Where is it found?

Common in urban areas, particularly on waste ground, railways, road sides and river banks.

Similar to...

Species with which it is closely related: giant knotweed and its hybrid. Both are relatively uncommon in the UK but have much larger leaves.

Key features

- Hollow pink/red speckled stem (1-2.5m high)
- Young leaves can be red, whilst mature leaves (10-15cm) are green
- White clustered flowers in September/October

Stem

In the early spring red/purple shoots appear from the ground and grow rapidly forming canes.

Flowers

Clusters of spiky flower heads covered in tiny creamy-white flowers

Leaves

Young leaves are red and more pointed, mature leaves are green and rounder.

Photos

© GBNNSS

Invasive species ID guide: Japanese knotweed

Management

As a perennial plant with extensive underground rhizomes Japanese knotweed is particularly difficult to eradicate. Seeking professional advice will be appropriate in most circumstances.

Chemical control: Spraying with herbicide is a common technique. Multiple applications are needed in a year, and over several years, for success. This should be followed by a monitoring period to ensure there is no regrowth.

Mechanical control: Cutting back can be used in conjunction with herbicide spraying. However there are several points to note:

- The plant can grow back from pieces that weigh less than 1g so care must be taken to ensure that cutting back does not actually spread the plant.
- As the plant can grow back from such small pieces garden composting or natural decomposition is not adequate. Cut material should be burnt.
- The plant is listed on Schedule 9 of the Wildlife and Countryside Act. This means that any disposal offsite has to be at a licensed hazardous waste site.

Other methods used by professionals include stem injection of herbicide and digging out the rhizomes. There are established working practices that professionals will follow, and it is recommended that their advice is sought.

If using chemicals near a watercourse or conservation area you will need permission from the relevant authority (Environment Agency or Natural England).

Report sightings

All sightings of Japanese knotweed should be reported to the Lincolnshire Environmental Records Centre (LERC).
www.glnp.org.uk/getting-involved/your-sightings/

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All photos ©GBNNSS www.nonnativespecies.org

New Zealand Pigmyweed

New Zealand pigmyweed

Crassula helmsii

Invasive species identification guide

GLNP
GREATER LINCOLNSHIRE NATURE PARTNERSHIP

Where is it found?

Aquatic habitats up to 3m deep, in still or slow flowing water bodies or on land around ponds and lakes.

Similar to.....

Native water-starworts, these have non-fleshy leaves that are usually notched at the tip.

Key features

- Small white flowers with four petals (July to September) - not present on submerged plants
- Narrow leaves up to 2cm long, that are fleshy and succulent-like when standing out of the water

Leaf

Up to 2cm
Fleshy when out of water and will be more straggly in the water

Flowers

Four white petals, appearing on plants growing out of the water between July and September

Photos

© GBNNSS

Invasive species ID guide: New Zealand pigmyweed

Source

Garden centres and domestic ponds

Management

Mechanical control: Removal of plant material after chemical treatment is recommended; this is beneficial to prevent the negative impacts of rotting vegetation. However fragments of New Zealand pigmyweed as small as 5mm can regrow. Therefore it may not be advisable to attempt mechanical control methods without chemical treatment first. Small sections can easily break off and cause infestations elsewhere on the watercourse.

Chemical control: This is effective, but different substances may be required to treat plants on land and those submerged in water. Infestations will require regular treatment and dead plant matter should be removed.

Environmental control: This can be effective for small patches. Shading with black plastic or carpet may work if left in place for a sufficient length of time (eight weeks to six months)

If using chemicals near a watercourse or conservation area you will need permission from the relevant authority (Environment Agency or Natural England).

Report sightings

All sightings of New Zealand pigmyweed should be reported to the Lincolnshire Environmental Records Centre (LERC).
www.glnp.org.uk/getting-involved/your-sightings/

Reporting and management of non-native invasive species contributes to the Lincolnshire Biodiversity Action Plan (LBAP).
www.glnp.org.uk/partnership/nature-strategy/

For further information on control of non-native invasive species please visit the GLNP website and go to the 'Getting involved' pages.
www.glnp.org.uk/getting-involved/

Photos ©GBNNSS

Water Fern

Water fern

Azolla filiculoides

Invasive species identification guide

GLNP
GREATER LINCOLNSHIRE NATURE PARTNERSHIP

Where is it found?

Still and slow flowing water bodies (e.g. ponds, drainage channels, ditches, canals)

Similar to...

Duckweed - this has much smaller single round leaves and the roots attached to each single leaf are light green to white. Some species of duckweed are invasive and may be found alongside water fern.

Key features

- Small free-floating water plant that forms dense green or red mats
- Plants can be present year round, but often die back in winter

Colour

Can vary considerably through the year. Green in spring/ summer often turning red during cold weather in autumn/winter

Leaves

Up to 2.5cm long and fern like, rough granular appearance, water repellent surface

Roots

Black / brown roots hang beneath floating leaves, easily break off

Photos

© GBNNSS

Invasive species ID guide: Water fern

Management

Chemical control: Spraying with herbicides containing glyphosate is widespread, although expert advice may be necessary to ensure safe and successful application

Biological control: A small North American weevil, *Stenopelmus rufinasus*, has been very effective in South Africa against this species and it is now available for use in the UK. The weevil is only known to feed on this plant species,so it should not pose a threat to any of our native plant species. Contact professionals for further advice on using this method.

Mechanical control: Plant removal can be effective if repeated frequently. However the plant easily propagates from small residual particles that break off during removal. Once a dense mat has formed the plant releases spores into the water due to stress if removal is attempted. These spores can overwinter so even if the main plant/mat is physically removed further removal and monitoring is necessary.

If using chemicals near a watercourse or conservation area you will need permission from the relevant authority (Environment Agency or Natural England).

Report sightings

All sightings of water fern should be reported to the Lincolnshire Environmental Records Centre (LERC).
www.glnp.org.uk/getting-involved/your-sightings/

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Photos ©Martin Redding

Species Monitoring

GPS Data Loggers

GLNP have been trialling the use of simple GPS data loggers for recording species (£68 approx. cost). The GPS can be attached to the dash of the machine and can be used to record one species at a time by pressing the button in the centre of the device. https://www.amazon.co.uk/G-Log-760-Recorder-motion-crushproof/dp/B00EBGTODS

Record Centre

Lincolnshire Environmental Records Centre (LERC) is managed by the GLNP. LERC collates wildlife and geological information for Greater Lincolnshire from various sources and makes it available for various uses. This data is crucial to aid conservation management of sites, to help organisations prioritise action, and to understand the distribution of species and trends over time. You can submit ad-hoc environmental records online here:

http://glnp.org.uk/getting-involved/your-sightings/

Alternatively, you can submit your records to:

E-mail: info@glnp.org.uk

Address: Banovallum House,
Manor House Street,
Horncastle,
Lincolnshire,
LN9 5HF

Telephone: 01507 528398