Produced by Jamie Glossop, Vicky Ames, Max Wade and Kelly McKee of RPS

Chinese Mitten Crab

Species Description

Scientific name: *Eriocheir sinensis*
AKA: Moon crab, Cranc menigog (Welsh)
Native to: China
Habitat: Tidal streams, rivers and estuaries. Adults migrate to estuaries and the sea to breed.

The Chinese mitten crab was first recorded from the River Thames in 1935 having been discharged from the ballast tanks of ships. It is now well-established in the Rivers Thames, Humber, Medway, Tyne, Wharfe and Ouse.

Chinese mitten crabs prefer to moult in freshwater but are unable to lay eggs at low salinities. Adults therefore migrate down rivers in the autumn to gather in estuaries to breed. Once eggs hatch in spring, juveniles and adults migrate back up the river. They can travel large distances and have been recorded up to 1,500km from the sea in their native China. They are also able to cross dry land and have been found in isolated freshwater ponds.

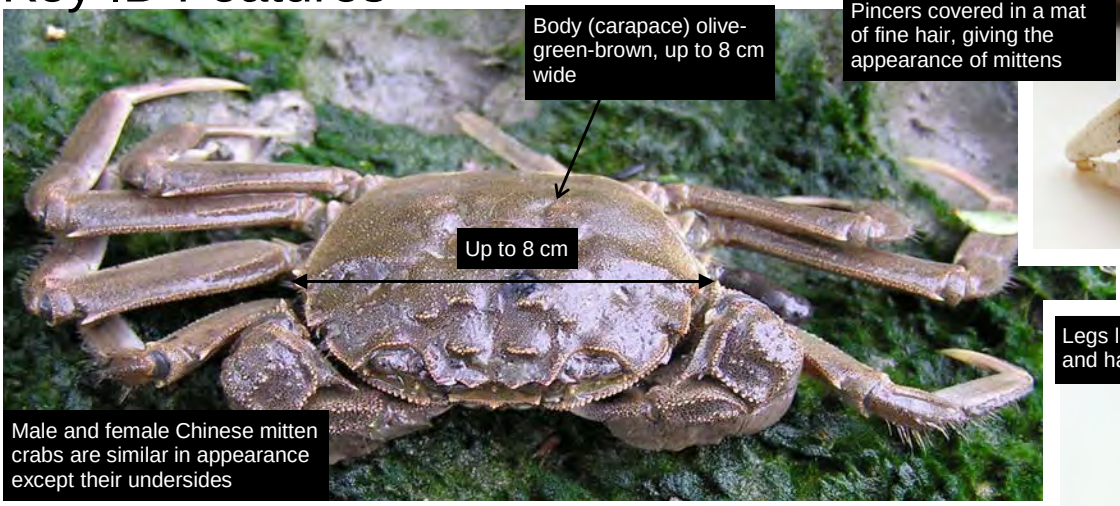
Its ability to travel large distances up river systems and cross dry land means that all waterbodies in Britain have the potential to be invaded.

Chinese mitten crabs burrow into river banks, affecting their integrity and so can cause considerable damage. It has been placed on the IUCN 100 of the world's worst alien species list.

Chinese mitten crab 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 release or allow the escape of this species into the wild.

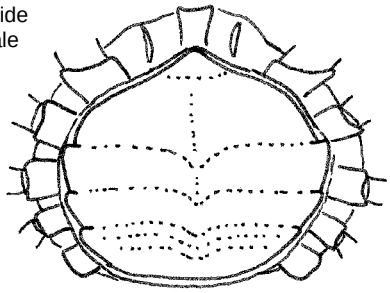
For details of legislation go to www.nonnativespecies.org/legislation.

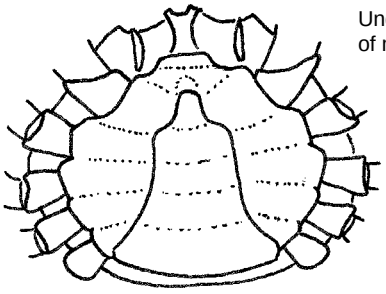
Key ID Features



Male and female Chinese mitten crabs are similar in appearance except their undersides

Underside of female





Underside of male

Identification throughout the year

Chinese mitten crabs do not vary through the year. After adults gather to breed in estuaries, females carry the eggs overwinter until they hatch in spring.

Field Signs

They burrow into river banks causing holes about 3 cm in diameter. Dead bodies (carapaces) may be found though positive identification would require the mittens to be present.

Distribution

Present in the Rivers Thames, Humber, Medway, Tyne, Wharfe and Ouse.

Source: various

There are no other freshwater crabs present in Britain. As adults migrate to estuaries in autumn there is a possibility of confusion with native marine crabs such as the shore crab. However none of our native crabs possess the distinctive hairs (mittens) on the claws.

Similar Species

References and further reading:

Gilbey, V, Attrill, MJ and Coleman, RA (2008)
Juvenile Chinese mitten crabs (*Eriocheir sinensis*) in the Thames estuary: distribution, movement and possible interactions with the native crab *Carcinus maenas*. *Biological Invasions* 10 pp. 67-77

Photos from: FERA, Joseph Crofts, Richard Sands, Rob Brown

NNSS
GB non-native species secretariat

www.nonnativespecies.org

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

Creeping Water-primrose

Species Description

Scientific name: *Ludwigia peploides*
AKA: Often incorrectly identified as *L. grandiflora* and labelled in garden centres as *Jussiaea*; Briallen d ŵr (Welsh)
Native to: South America
Habitat: Still or slow-flowing water

Quite distinctive in floating form, more care is needed to distinguish it from other species when it is growing in the margins of water bodies. Best searched for when in flower (July to August). Spreads primarily by plant fragmentation but also by seeds. There are few native species in the UK that are similar.

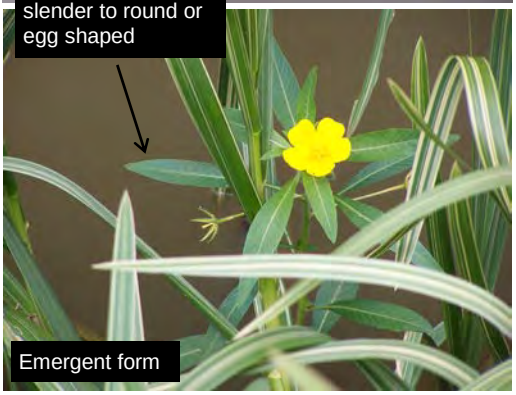
Only known from a few sites in the UK and it has been eradicated from some of these. *L. hexapetala* is the only other non-native species of Ludwigia known to occur in the UK, although water-primrose (*L. grandiflora*) has often been incorrectly recorded. Distinguishing between non-native species of *Ludwigia* is very difficult. If this is required expert consultation may be necessary.

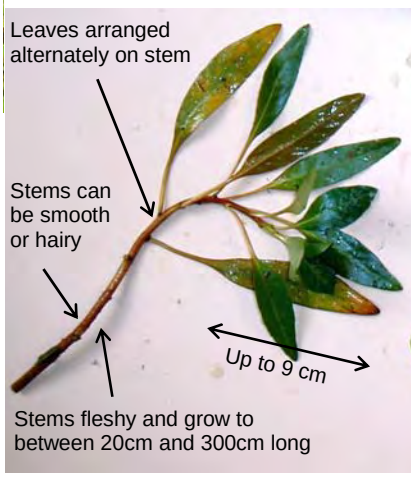
Introduced to Europe as an ornamental and water garden plant. Causes severe negative impacts, including out-competing native species and clogging waterways.

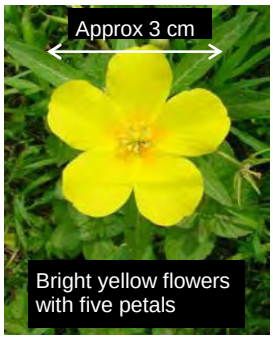
Water primrose is listed under Schedule 9 to the Wildlife and Countryside Act 1981 with respect to England and Wales. As such, it is an offence to plant or otherwise allow this species to grow in the wild.

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

Key ID Features







Identification throughout the year

Flowers from July to August. Vegetation dies back in winter leaving distinctive brown stems.

Distribution

Has been present at a limited number of sites across the British Isles although it has been eradicated from some of these.

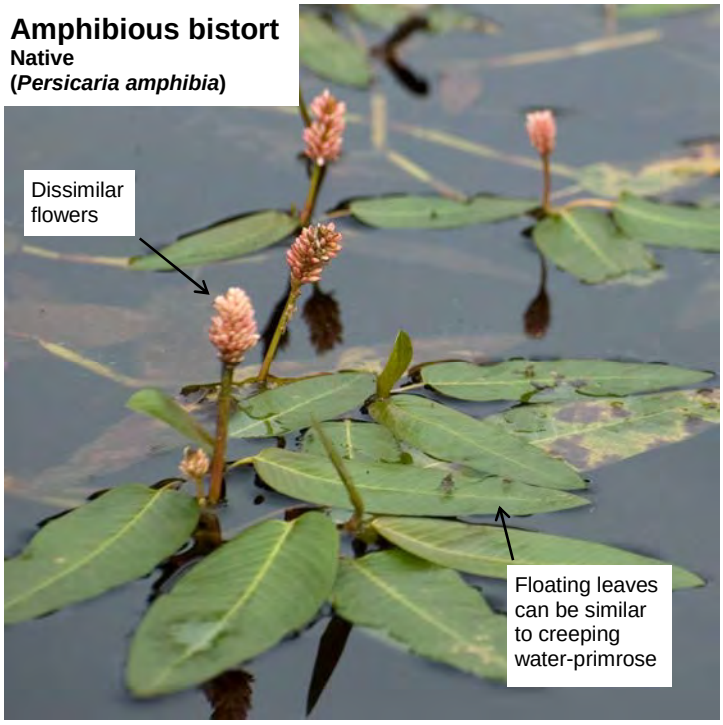
Source: redrawn from Defra 2007

Similar Species

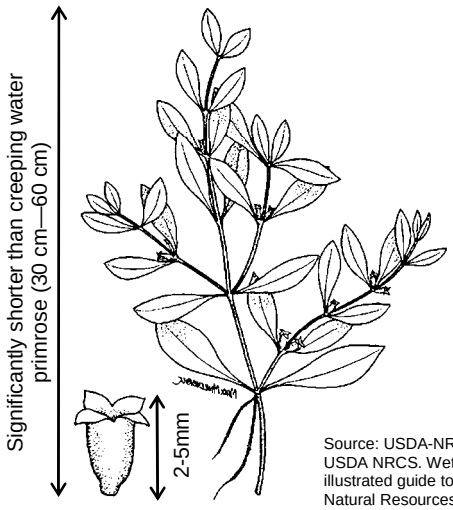
There are few similar species with which creeping water-primrose could be confused. The leaves of aquatic forget-me-nots (*Myosotis* species) have a distinctive midrib with less distinctive branching veins, unlike creeping water-primrose. When the floating leaves of amphibious bistort (*Persicaria amphibia*) first appear they resemble creeping water-primrose, but are significantly larger when full grown with dissimilar flowers. Hampshire purslane (*Ludwigia palustris*) is a very rare plant of boggy areas. Although closely related to creeping water-primrose, it is considerably smaller.

Water forget-me-not
Native
(*Myosotis scorpioides*)

Amphibious bistort
Native
(*Persicaria amphibia*)



Hampshire-purslane
Native
(*Ludwigia palustris*)



Source: USDA-NRCS PLANTS Database
USDA NRCS. Wetland flora Field office illustrated guide to plant species. USDA Natural Resources Conservation Service

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

Defra (2007). "*Eradication strategies for invasive non-native* Ludwigia *species—PH0422*". Defra

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: Stephen Buchan, Alain Dutartre, Niall Moore, William Olsen, Donna Storz

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

Floating Pennywort

Species Description

Scientific name: *Hydrocotyle ranunculoides*
AKA: Dail-ceiniog arnofiol (Welsh), *Hydrocotyle nova zealandiae*
Native to: North America
Habitat: Emergent or floating on the surface of still or slowly moving freshwater

Free-floating or rooted. The characteristic leaves and growth form help to make this plant easy to identify. It is found mostly in the south-east of England and occasionally in the north-west of England and Wales. Spreading rapidly.

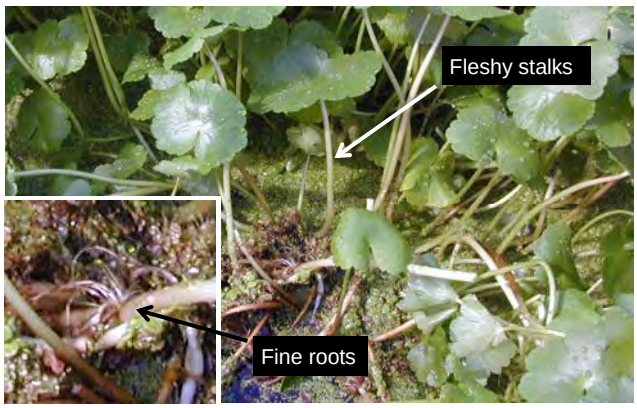
First naturalised in 1990 as a result of discarded plants from garden ponds. Can grow up to 20cm per day and may quickly dominate a waterbody forming thick mats and impeding water flow and amenity use. May out-compete native species by blocking out light, causing deoxygenation, obstructing air breathing insects from reaching the water surface and reducing water temperatures.

Floating pennywort 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

Grows horizontally



Shiny, kidney-shaped leaves with crinkled edge, frequently broader than long

Identification throughout the year

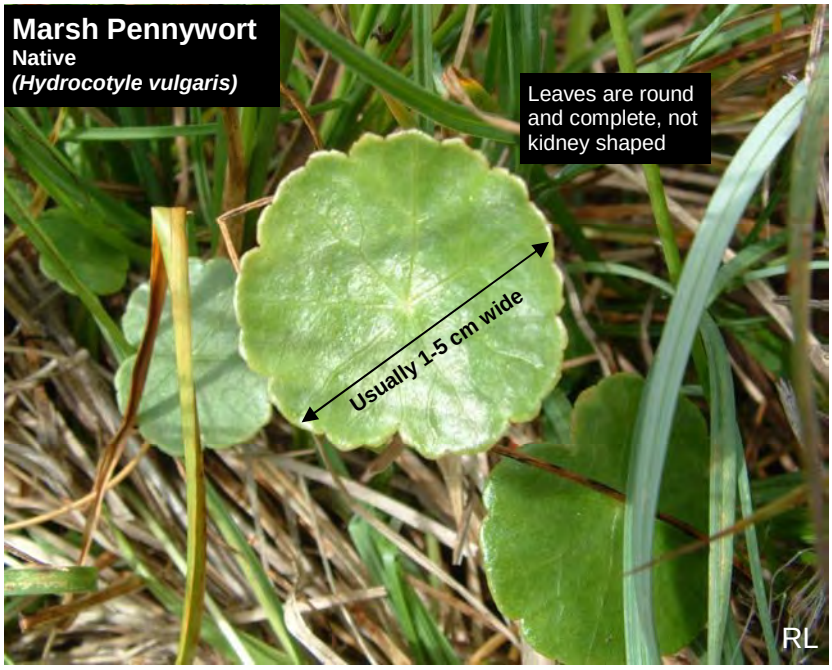
Varies little throughout the year, although in the winter it is most likely to be found at the water's edge. Tiny white flowers are rare, but if present, they appear between July and August.

Distribution

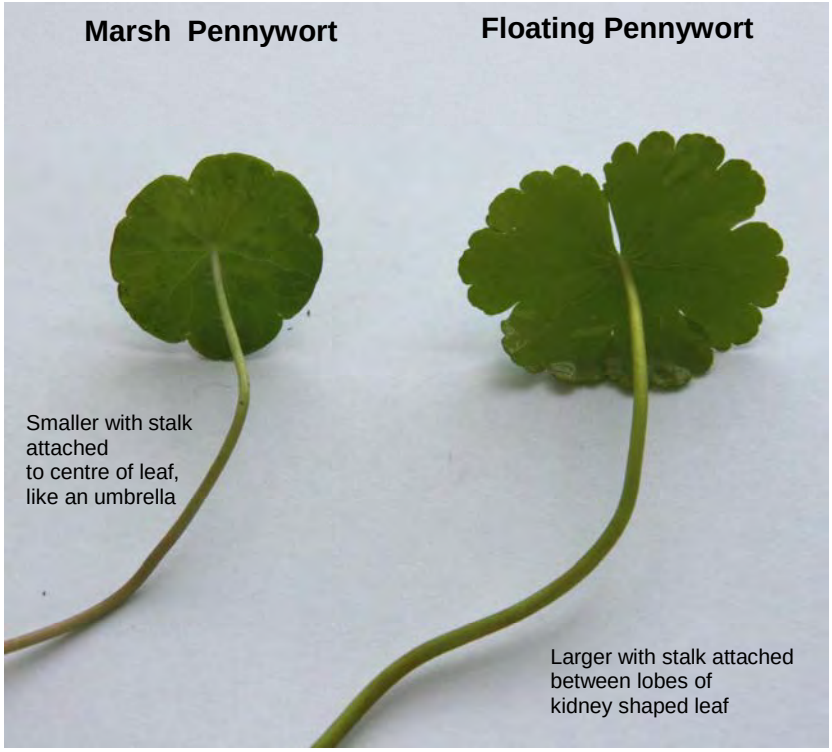
Common in the south-east of England, and spreading to other parts of the British Isles.

Source: NBN Gateway. Check website for current distribution

Similar Species



Grows on damp ground in bogs and fens. Always rooted in the ground, never free-floating



Floating Pennywort can form dense mats that need to be physically removed

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), Mike McCabe, British Waterways

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GB non-native species secretariat

www.nonnativespecies.org

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

Giant Hogweed

Species Description

Scientific name: *Heracleum mantegazzianum*
AKA: Efwr enfawr (Welsh)
Native to: Caucasus mountains in south west Russia and Georgia
Habitat: Widespread, most common on river banks

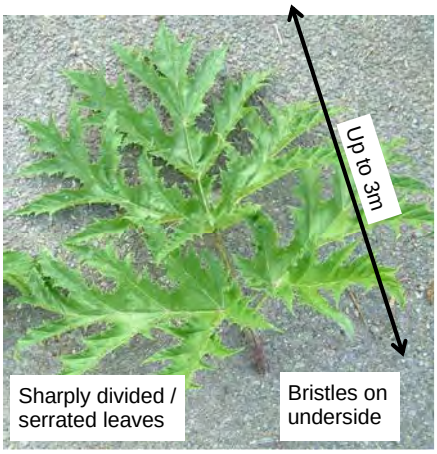
Easy to identify when fully grown by height, size of leaves and size of flowers. Can be confused with native hogweed when not fully grown or when growth is stunted (e.g. regrowth after cutting).

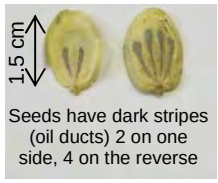
Introduced as an ornamental. First recorded wild in the UK in the late 19th century. Spreads solely by seeds, mainly through deliberate planting, wind dispersal and in water courses. Now common across much of the UK. Contact with any part of this plant must be avoided as even minute amounts of sap can cause blistering of the skin following exposure to sunlight. Other negative impacts include out-competing native flora, river bank erosion and increase in flood risk. Can cause delays/ additional costs on development sites where the plant must be removed as controlled waste in order to comply with legislation.

Giant hogweed 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. Under the Environmental Protection Act 1990, giant hogweed is also classified as controlled waste.

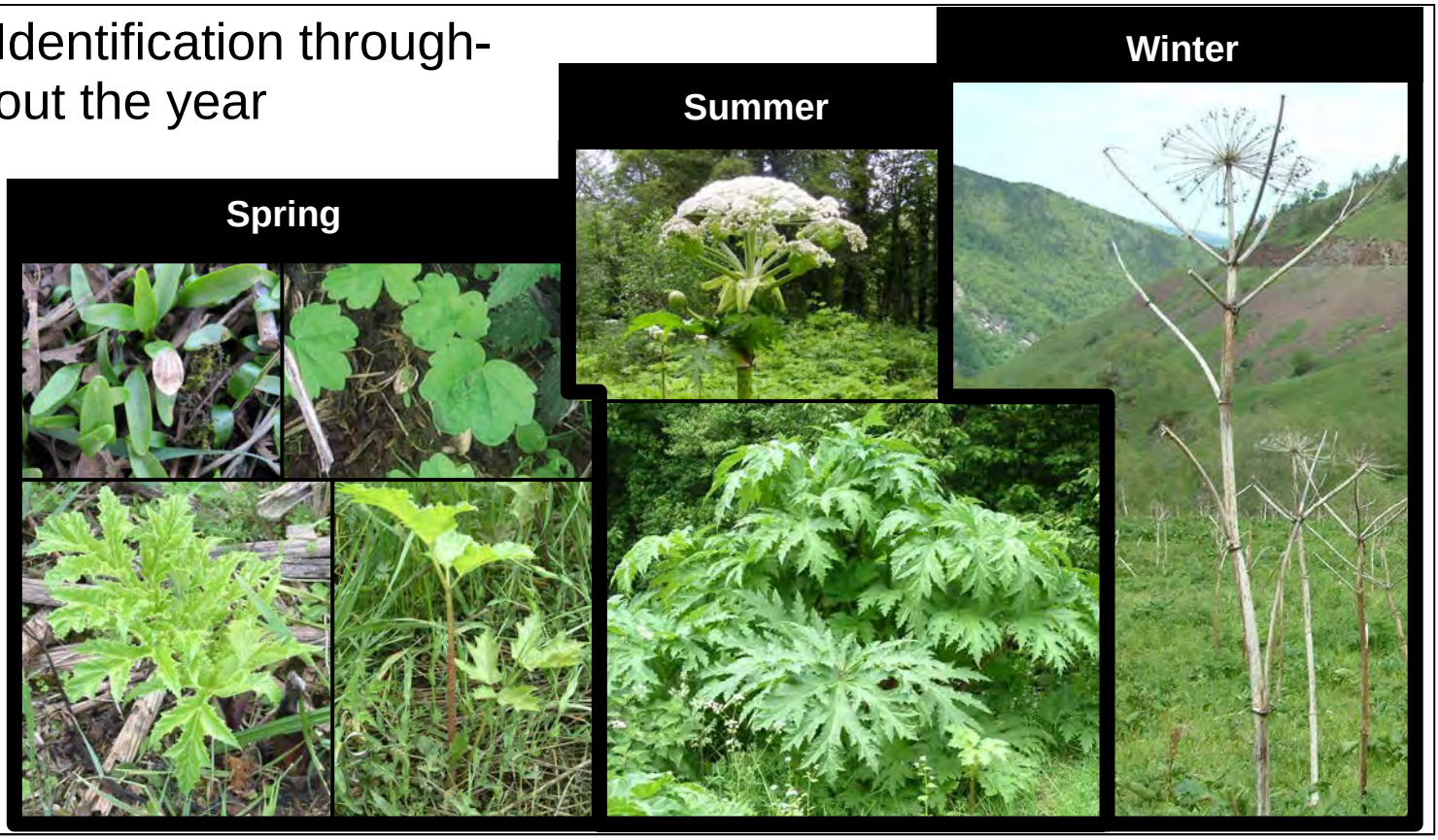
For details of legislation go to www.nonnativespecies.org/legislation.

Key ID Features





Identification throughout the year

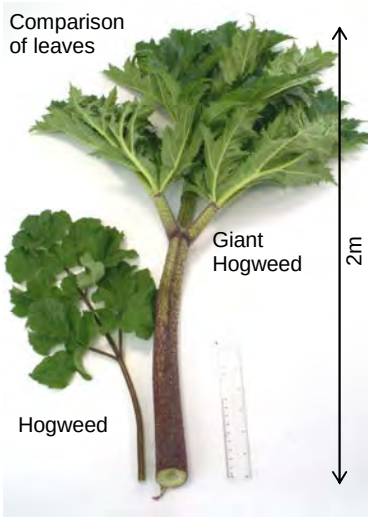


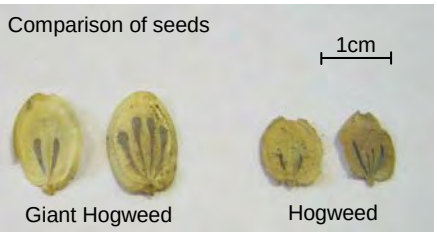
Similar Species

When in full height it is difficult to confuse giant hogweed with any other plant. While still growing or stunted, possibly as a result of disturbance, it can be confused with some other native plants. The most likely species with which it might confused is hogweed.

Key differences between hogweed and giant hogweed include the height, width of stem, size of leaf, size of flower head and size of seed.

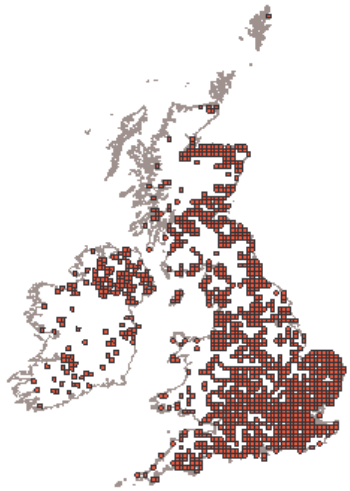
Hogweed
Native
(*Heracleum sphondylium*)





Distribution

Widespread and common across much of the UK. Extensive infestations are found particularly in Scotland and the north of England. Less abundant in Cornwall. Often associated with large rivers.



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

Booy, O and Wade, P M (2007) "*Giant Hogweed Management in the United Kingdom*". RPS Group plc

Pyšek P, Cock, M J W, Nentwig, W & Ravn, H P (2007) "*Ecology and Management of Giant Hogweed (*Heracleum mantegazzianum*)".* CAB International

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

Photos from: Olaf Booy, Steve Smith, Vicky White

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.

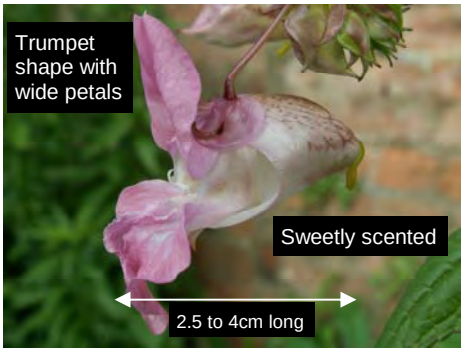
Introduced as a garden plant in the early 19th century and first recorded in the wild in 1855. Often favoured by the general public for its aesthetic appeal and is still deliberately planted on occasion. Now widespread in the UK, especially along urban rivers. Spreads solely by seeds, which are small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

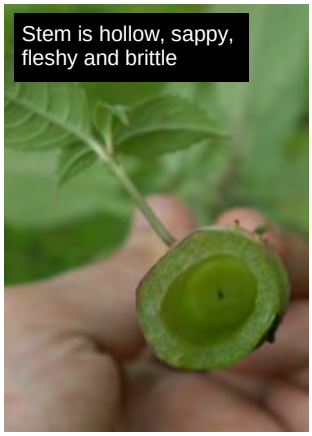
Out-competes native species in ecologically sensitive areas, particularly river banks. Where it grows in dense stands along river banks it can impede flow at times of high rainfall, increasing the likelihood of flooding. Die back of extensive stands over winter can leave river banks bare and exposed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

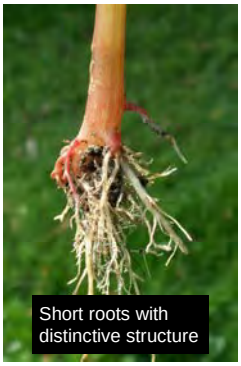
Himalayan balsam is listed under Schedule 9 to the Wildlife and Countryside Act 1981 with respect to England and Wales. As such, it is an offence to plant or otherwise allow this species to grow in the wild.

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

Key ID Features



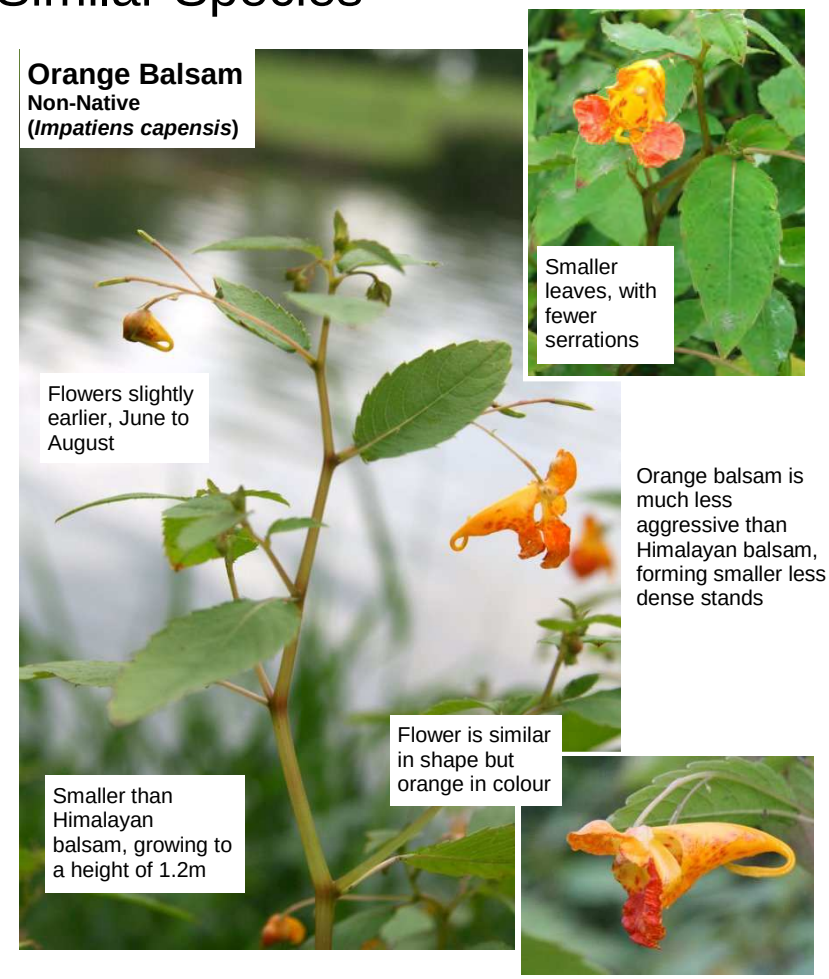




Identification throughout the year

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.

Similar Species



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

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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

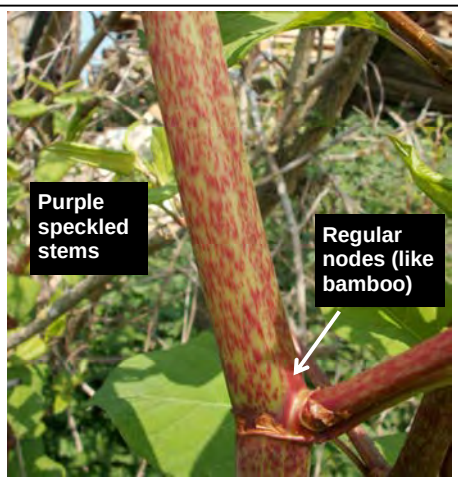
Tall herbaceous perennial with bamboo like stems. Often grows into dense thickets. Characteristic leaves and stems, persistence of last year's dead canes and distinctive rhizome (underground root-like stems) enables year round identification.

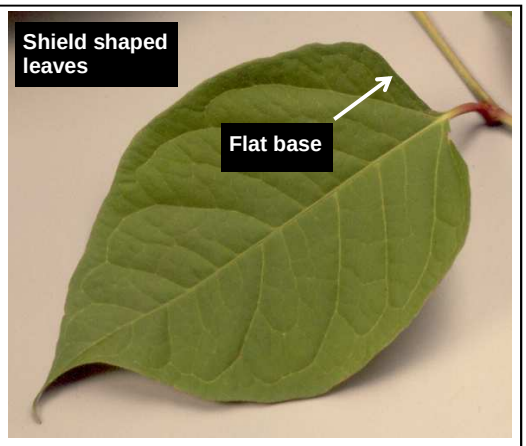
Introduced in the early 19th century as an ornamental plant. Now common and wide-spread across the UK. Spreads rapidly in the wild by natural means and as a result of spread by humans. Spread is solely by vegetative means, either fragments of rhizome or stem. Does not produce seed in the UK. Negative 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 other-wise cause Japanese knotweed to grow in the wild. Under the Environmental Protection Act 1990, Japanese Knotweed is classified as controlled waste.

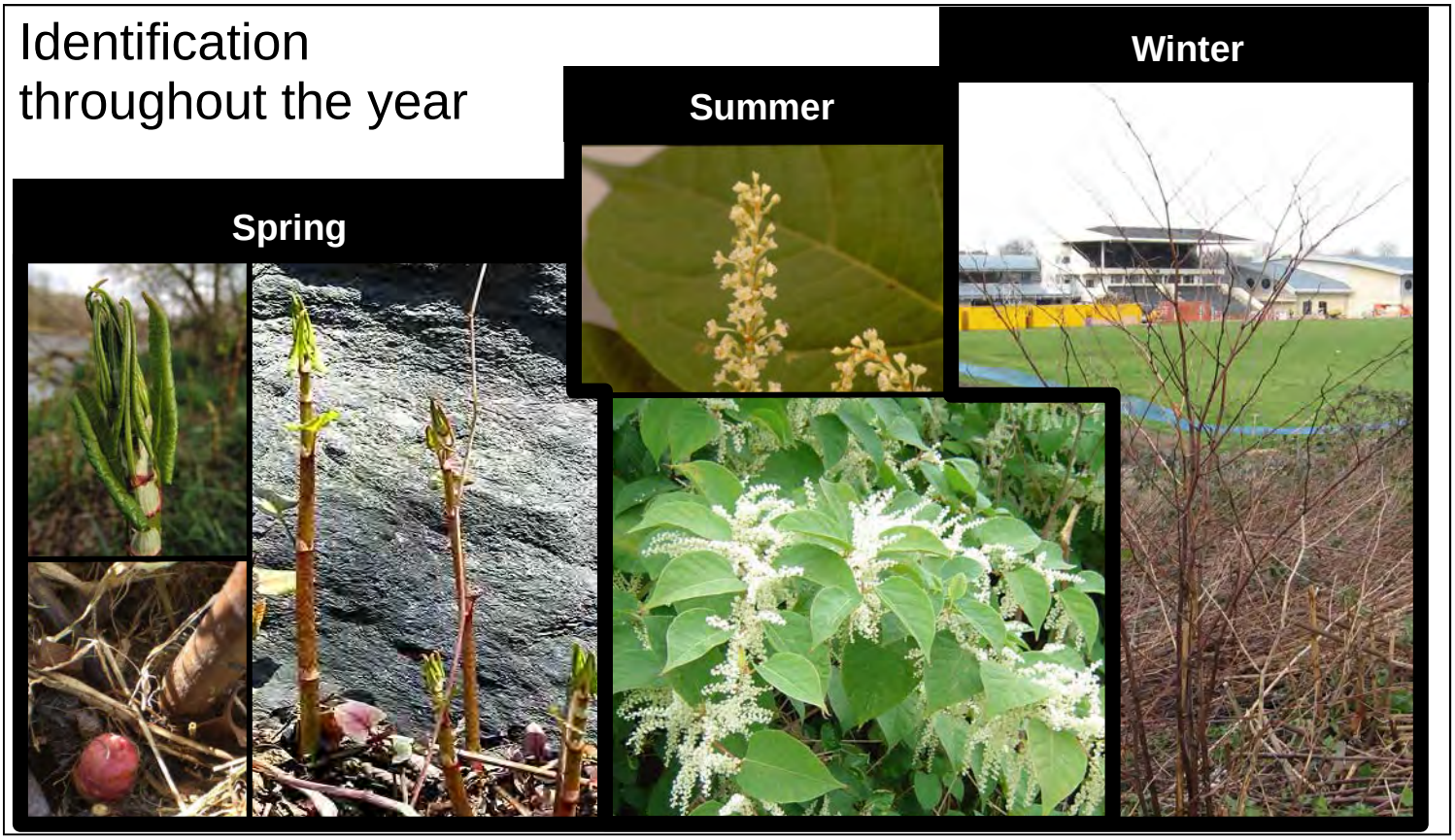
For details of legislation go to www.nonnativespecies.org/legislation.

Key ID Features



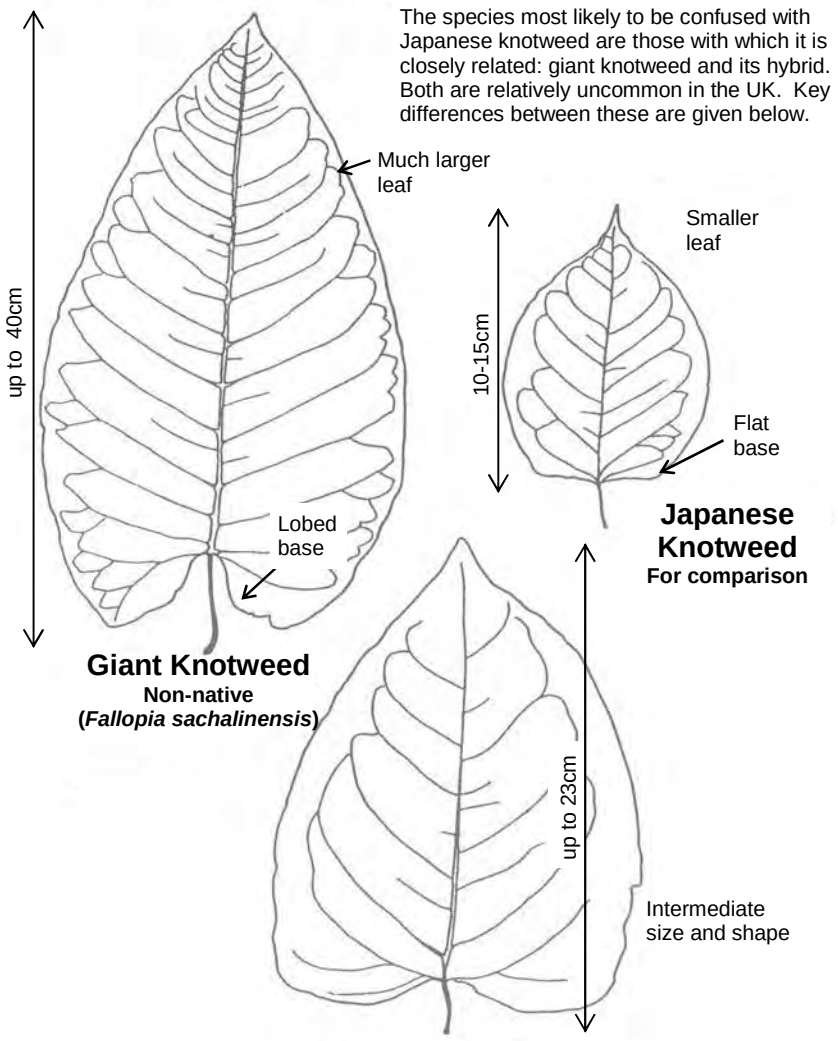


Identification throughout the year



Similar Species

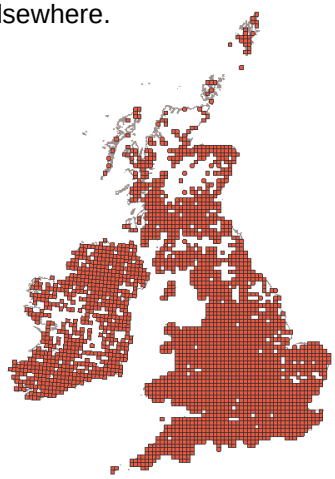
The species most likely to be confused with Japanese knotweed are those with which it is closely related: giant knotweed and its hybrid. Both are relatively uncommon in the UK. Key differences between these are given below.



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

www.nonnativespecies.org

Produced by the Non-native Species Secretariat with assistance from the Freshwater Biological Association and Environment Agency

Killer Shrimp

Species Description

Scientific name: *Dikerogammarus villosus*
AKA: Killer Shrimp
Native to: South-east Europe
Habitat: Still or flowing freshwater and brackish water, often among hard surfaces or vegetation.

A highly invasive shrimp, considerably larger than native fresh-water shrimp species. It often has a striped appearance.

The first report of this species in GB was on the 3 September 2010 at Grafham Water, Cambridgeshire. It is a voracious predator, killing invertebrates and small fish. It quickly dominates habitats it invades and can significantly alter their ecology.

It is spread in ballast water and also by people on kit used in the water, including angling gear, boats, kayaks and trailers. Good biosecurity is essential to reduce the risk of spreading this species.

As a non-resident species it could be an offence to release or allow the escape of this species into the wild.

Suspected records of this species should be sent with a photograph to: alert_nonnative@ceh.ac.uk

Key ID Features

Additional Information about this species can be found at:

www.nonnativespecies.org

Recording

If you suspect you have found this species please send a record, including a photograph to:

alert_nonnative@ceh.ac.uk

Non-native European Distribution

Source: Daisie. Map © V. Panov (2008)

Similar Species

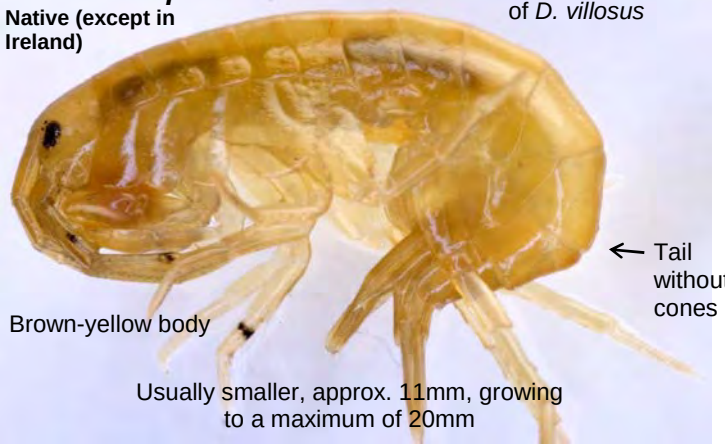
Dikerogammarus villosus
Non-native
For comparison

Tail with distinctive cones

Usually considerably larger than native species. Can grow to 30mm from tip of tail to tip of head, more commonly 10-20mm.

Gammarus pulex
Native (except in Ireland)

Lacks dark stripes of *D. villosus*



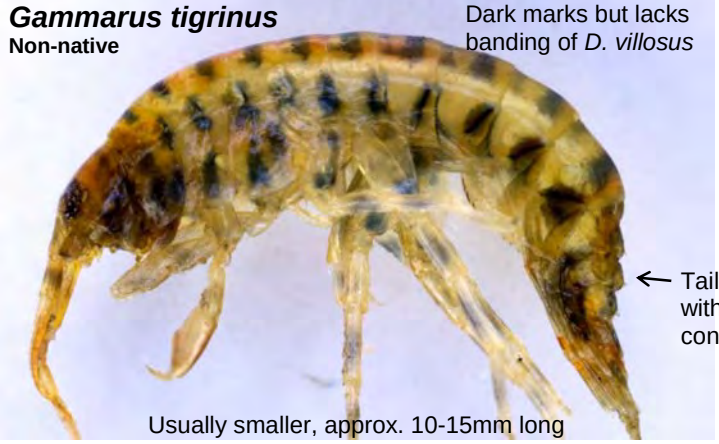
Tail without cones

Brown-yellow body

Usually smaller, approx. 11mm, growing to a maximum of 20mm

Gammarus tigrinus
Non-native

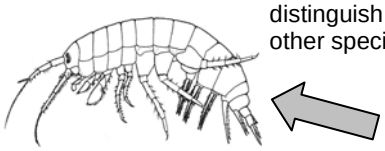
Dark marks but lacks banding of *D. villosus*

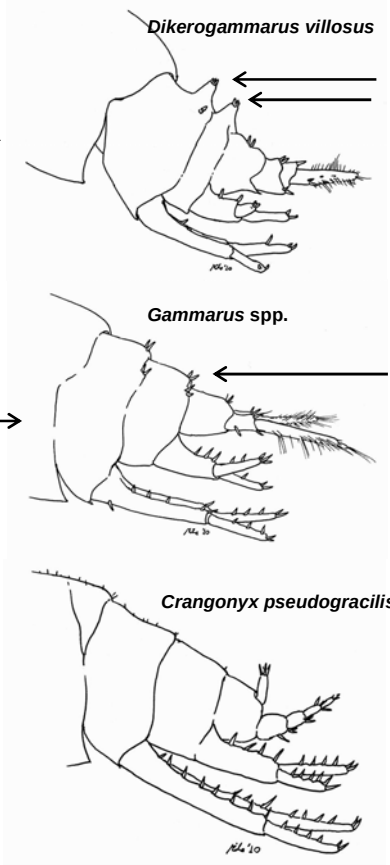


Tail without cones

Usually smaller, approx. 10-15mm long

Tail features can be used to distinguish *D. villosus* from other species as follows:





Line drawings © M.Dobson/FBA

References and further reading:

Daisie Factsheet (www.europe-aliens.org)

Nobanis Factsheet (www.nobanis.org)

www.habitas.org.uk/invasive/

Photos from: Phase4 Environmental Limited, Michal Grabowski

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.

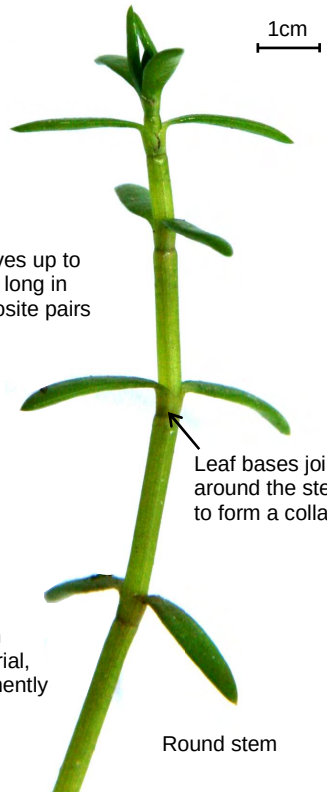
Introduced in 1911 as an oxygenating plant for ponds and, since the 1970s, has spread rapidly. Forms dense mats and can impede drainage, causing flooding. Displaces other aquatic plant species and reduces amenity use of the waterbody.

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.

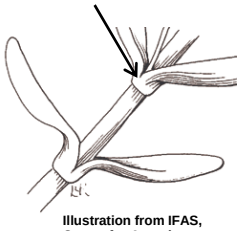
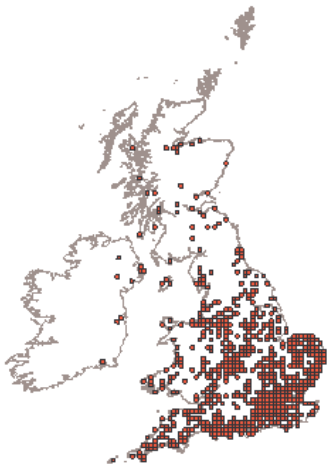


Illustration from IFAS, Centre for Aquatic Plants, University of Florida, Gainesville 1990

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

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

Parrot's Feather

Species Description

Scientific name: *Myriophyllum aquaticum*
AKA: Brazilian Watermilfoil and Myrdd-ddail (Welsh), *Myriophyllum brasiliense*, *Myriophyllum proserpinacoides*
Native to: Central and South America
Habitat: Still or slowly flowing water

Emergent growth, blue-green colour and feather-like leaves make this a distinctive water plant. Present year round. Unlikely to be found in fast flowing water.

Aquatic perennial, grows in emergent and submerged form. Both forms are similar in appearance. Most often found in nutrient rich waters. Grown in water gardens in UK since 1878, first recorded in the wild in 1960. Initial spread by improper disposal of garden and aquarium plants. Still found in some garden centres, often under one of its pseudonyms. Spreads by vegetative fragmentation, no seeds are produced in the UK.

Causes flooding by blocking watercourses and drainage channels. Can rapidly dominate a water body displacing native species.

Parrot's feather 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 allow this species to grow in the wild.

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

Key ID Features

Changes form depending on the conditions, varying between submerged to emergent foliage. Both forms are similar in appearance. Emergent leaves are stiff, bright green and the most distinctive form. Submerged leaves are more fragile and, after death, decompose quickly.

Leaves bright to blue-grey green

Leaves form in whorls of 4-6

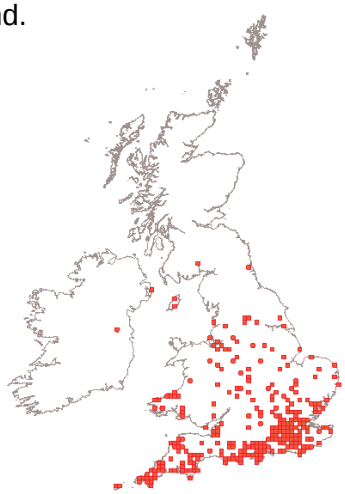
Forms inconspicuous flowers at base of leaves between May and August. Small (2mm) and white. Can be difficult to see.

Identification throughout the year

Dies down in winter, can be found submerged throughout the year. Emergent shoots appear in spring when the plant becomes more conspicuous. Blue-green colour of leaves is useful for identification. Flowers are present from May to August, but are inconspicuous.

Distribution

Mainly a lowland plant. Widespread in south of England, spreading northwards. Rare in Northern Ireland and Scotland.



Source: NBN Gateway. Check website for current distribution

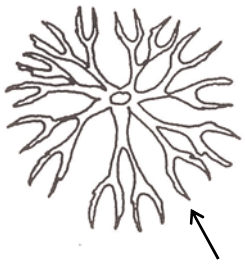
Similar Species

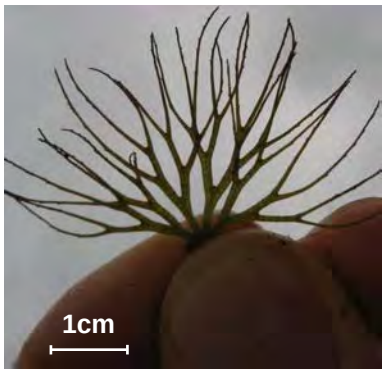
The emergent stems of parrot's feather distinguish it from native water-milfoil species (spiked water-milfoil *Myriophyllum spicatum,* alternate water-milfoil *Myriophyllum alterniflorum* and whorled water-milfoil *Myriophyllum verticillatum*) which are never emergent, although the native species can produce short emergent flower spikes. Parrot's feather is also rarely, if ever, found in fast flowing water, unlike some native water-milfoil species. Submerged parrot's feather is difficult to distinguish from these species and expert assistance may be required.

Other species that can be confused with parrot's feather:

Hornwort species

Native
(*Ceratophyllum* species)





Leaves have 'tuning fork' ends

Mares Tail

Native
(*Hippuris vulgaris*)

Leaves not divided

Parrot's Feather

(and other *Myriophyllum* species)
For comparison

Fanwort

Non-Native
(*Cabomba caroliniana*)

Floating leaves, when present, are linear and inconspicuous, with an alternate arrangement, submerged leaves are finely divided

Leaves in pairs up the stem (not in whorls)

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, Alisdair Mason, Kristian Peters, Max Wade

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

Signal Crayfish

Species Description

Scientific name: *Pacifastacus leniusculus*
AKA: Cimwch dir Croyw (Welsh)
Native to: North America
Habitat: Most freshwater habitats

Their small lobster-like appearance makes crayfish easy to recognise. Distinguishing non-native species from the threatened native white-clawed crayfish is essential. Compared to the native species, the signal crayfish is much larger and its claws are red underneath with a small turquoise / white blotch on the surface. There are several other non-native crayfish species, but these are relatively rare.

Introduced for food in the late 1970s and 1980s but spread quickly across much of the UK. Distribution in Scotland is limited. Spreads up and downstream and may cross land to colonise adjacent water bodies. Human transfer, although illegal, still continues. Negative impacts include the almost complete loss of the native crayfish through the spread of disease and direct competition. Also undermines riverbanks through burrowing and can predate on native fish eggs and aquatic invertebrates.

Signal crayfish 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 release or to allow the escape of this species into the wild. In the UK it is an offence to keep any crayfish without a license, except in some parts of southern England. If trapping of signal crayfish is planned, an application should be made to the relevant environmental protection agency.

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

Key ID Features

Turquoise / white blotch on the 'hinge' of the claw

Identification throughout the year

Least active during winter when much time is spent in a state of torpor often in burrows in riverbanks. Peak activity is during the summer. Mating takes place in autumn and early winter and females carry the developing eggs in a dense cluster attached to the underside of their tail over the winter. When the eggs hatch, young remain attached to the female. Release of the young usually begins in May-June. The life cycle then proceeds through a series of moults.

Field signs

- Burrows in banks of water body
- Parts of dead animals including claws and body shell either on shoreline or stream edge, in bird or rodent nests, or discarded by predators
- Unlike natives, active during daylight hours

Similar Species

The only native crayfish in the UK is the white-clawed crayfish, which is under serious threat from non-native species. It is therefore essential to be able to distinguish between this and non-native species.

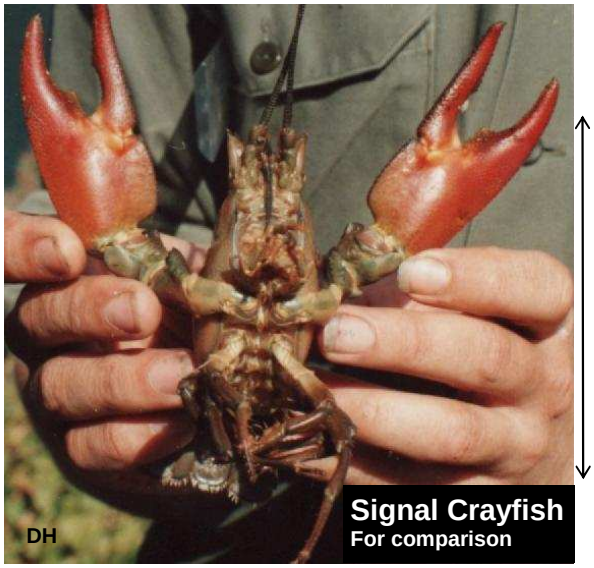
White-clawed Crayfish
Native
(*Austropotamobius pallipes*)

approx. 10cm
(from tip of tail to front of head)

Claws are dirty white to pink on the underside

White-clawed crayfish are considerably smaller than signal, generally have a brown to olive colour, unlike the red / brown of the signal and are usually more docile and less aggressive than the signal crayfish.

The cervical groove (line between head and body) of the white-clawed crayfish has spikes whereas the same groove in the signal crayfish is smooth.

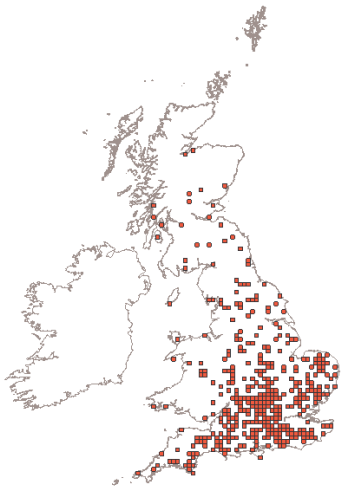


Signal Crayfish
For comparison

up to 16cm
(from tip of tail to front of head)

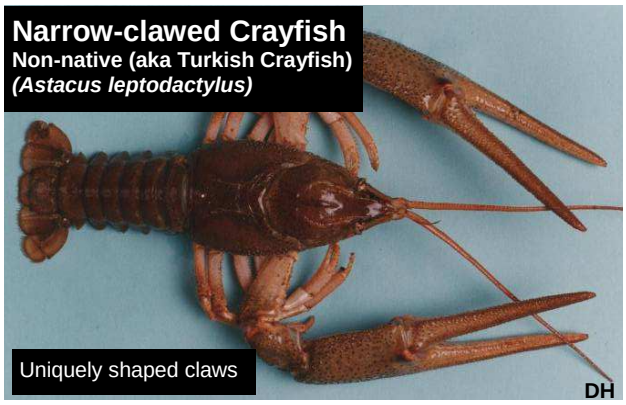
Distribution

Wide spread throughout England and Wales. Limited to a few water bodies in Scotland.



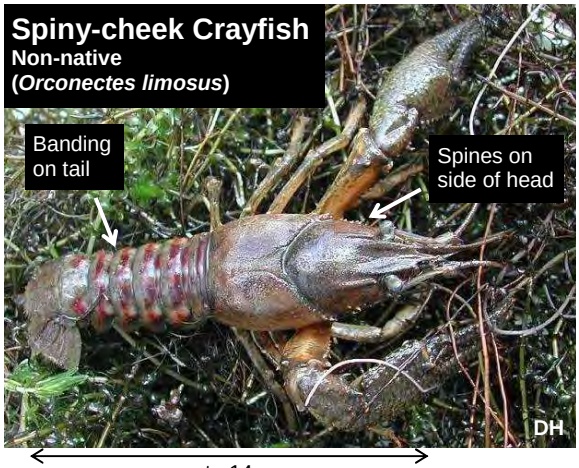
Source: NBN Gateway. Check website for current distribution

A number of other non-native crayfish have been introduced into the UK though they are less prevalent than the signal crayfish, these include:



Narrow-clawed Crayfish
Non-native (aka Turkish Crayfish)
(Astacus leptodactylus)

usually up to 15cm, but can be larger
(from tip of tail to front of head)



Spiny-cheek Crayfish
Non-native
(*Orconectes limosus*)

up to 14cm
(from tip of tail to front of head)

References and further reading:

Pőckl , M, Holdich, D and Pennerstorfer, J (2006) *"Identifying Native and Alien Crayfish Species in Europe*". Craynet

Souty-Grosset, C, Holdich, D, Noël, O, Reynolds, J and Haffner, P, (eds) (2006). *Atlas of crayfish in europe*. Museum national d'histoire naturelle, Paris

Photos from: Dawn Alvarez, David Holdich (DH), Stephanie Peay (SP)

Produced by Peter Brown, Olaf Booy and Mark Hill

American Skunk-cabbage

Species Description

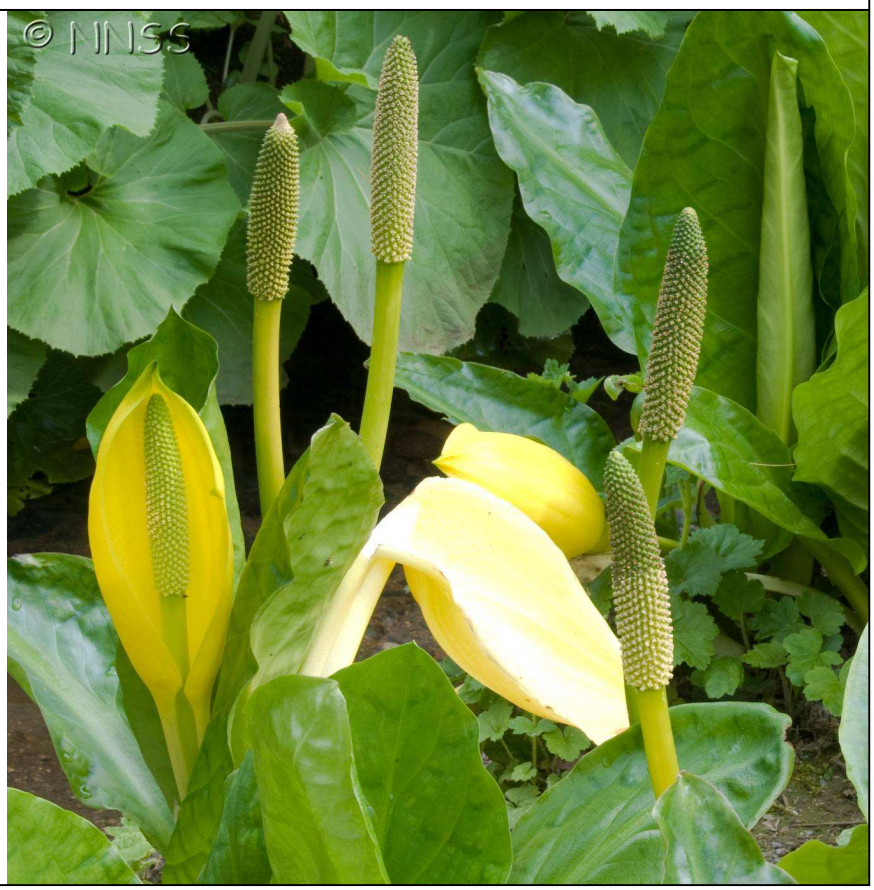
Scientific name: *Lysichiton americanus*
AKA: Western Skunk-cabbage
Native to: Western North America
Habitat: Wet woodland, streamsides, muddy pond margins

Yellow flowers are produced in spring (late March to May) that resemble those of wild arum (lords-and-ladies). They emit a strong odour like that of a skunk. The plant has a basal rosette of stemmed leathery leaves, usually up to about 70cm long. It is a tall herb growing up to 1.5m in height. Green berries are produced in the summer.

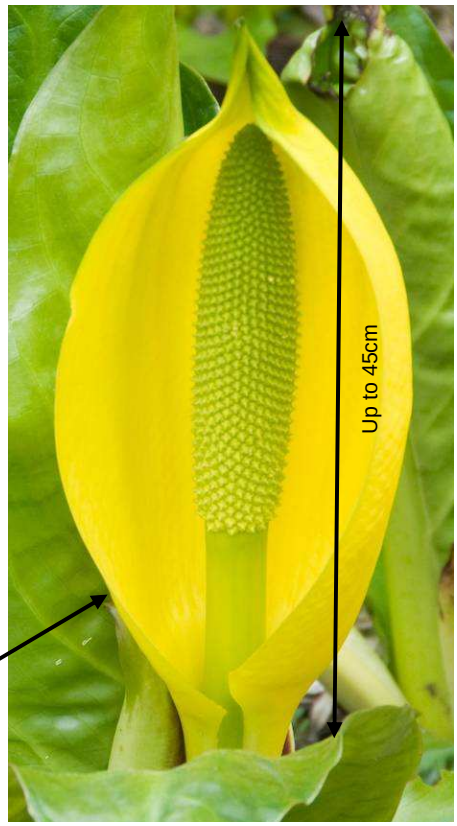
American skunk-cabbage needs a wet site but has no specific soil requirements - it can occur in soils from light sand to heavy clay that are acid, neutral or alkaline. It is a hardy perennial lowland plant, but can grow at altitudes of up to 1400m.

Seeds may be dispersed via waterways but also probably by birds and mammals, as occurs in the native range.

American skunk-cabbage is able to form dense stands and may negatively impact on some native plants, out-competing them by shadowing.



Key ID Features



1 or 2 (sometimes up to 4) bright yellow spathes (look like large petals)

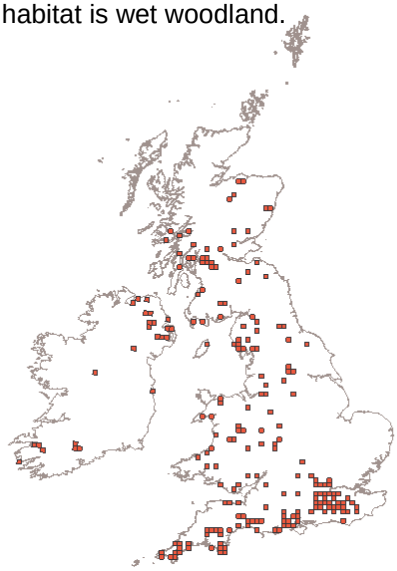
Leaves 40-70cm long (sometimes up to 1.5m)

Identification throughout the year

Most easily identified when in flower (late March to May). When not in flower large cabbage-like leaves, often on swamp mud, may be used for identification.

Distribution

Widespread but not generally common. Its normal habitat is wet woodland.



Source: NBN Gateway. Check website for current distribution

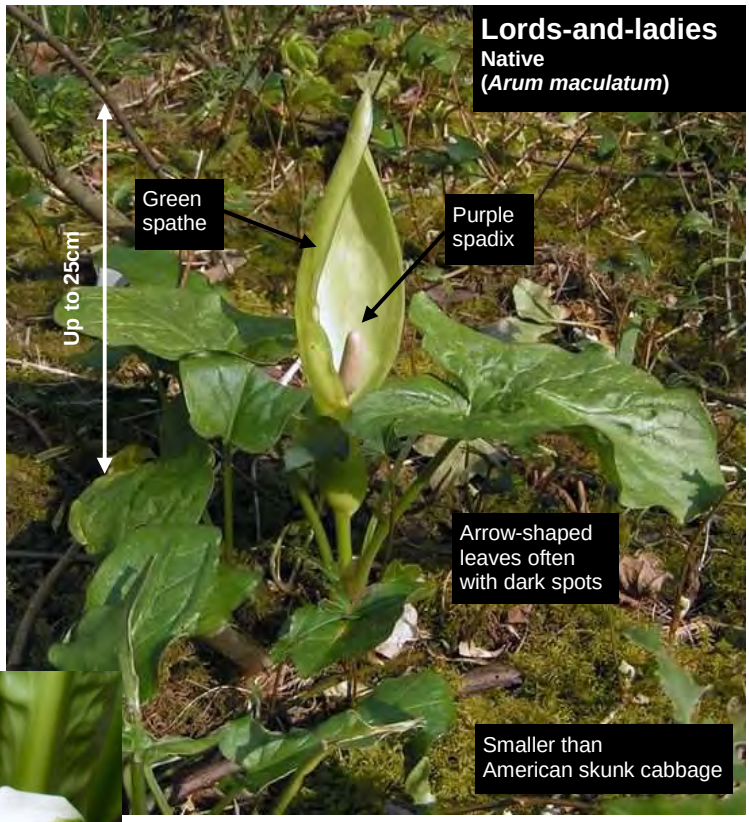
Similar Species

Asian Skunk-cabbage
Non-native
(*Lysichiton camtschatcensis*)

Very similar plant but slightly smaller. Occurs in similar habitats. Hybrids between American and Asian skunk-cabbages can occur.

Flowers more or less scentless

Lords-and-ladies
Native
(*Arum maculatum*)



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

Photos from: Sannse, RPS and GBNNSS

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

Water Fern

Species Description

Scientific name: *Azolla filiculoides*
AKA: Fairy Fern, Cyfrdwy (Welsh)
Native to: North and Central America
Habitat: Still and slow flowing water bodies (e.g. ponds, drainage channels, ditches, canals)

Very small free-floating water plant that forms dense mats. Unmistakeable when in its red form and relatively easy to distinguish from duckweeds in its green form. Can be seen most months of the year. Spreads mainly vegetatively though can produce minute spores.

Introduced for ornamental use in ponds and aquaria. First recorded in 1883 and has spread rapidly throughout England in the last 50 years. Infrequent in Scotland and Northern Ireland. Can be inadvertently carried on water plants from garden centres. Out-competes native species by forming a dense covering on the surface of the water, blocking out light, causing deoxygenation, preventing air-breathing insects from reaching the surface and reducing water temperatures. Dense and continuous stands can be a health hazard as the water surface appears solid.

Water fern 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

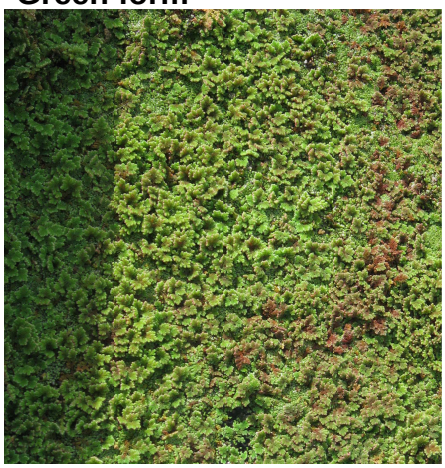
Usually green but often has a reddish tinge and can be completely red when exposed to stresses (such as cold temperatures, brackish waters or shading)

Forms dense mats but can also be present as a few fronds amongst emergent or other floating vegetation

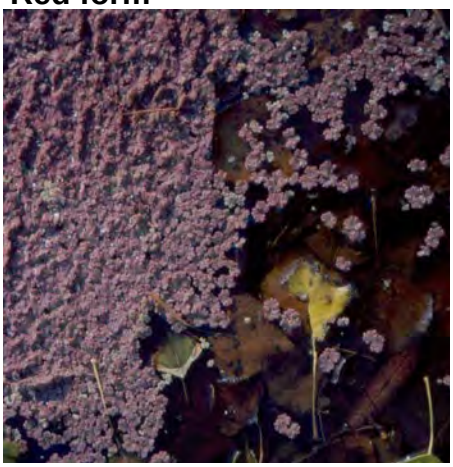
Identification throughout the year

Plants can be present year round, but often die back in winter. Colour can vary considerably through the year. Green in spring/ summer often turns red during cold weather in autumn/winter.

Green form

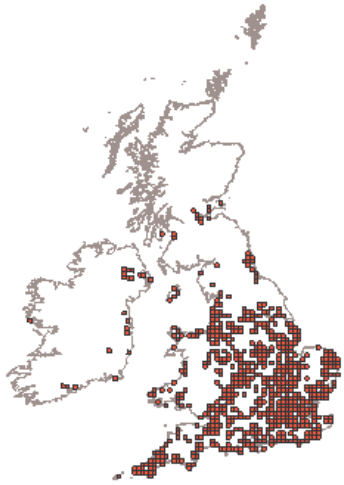


Red form



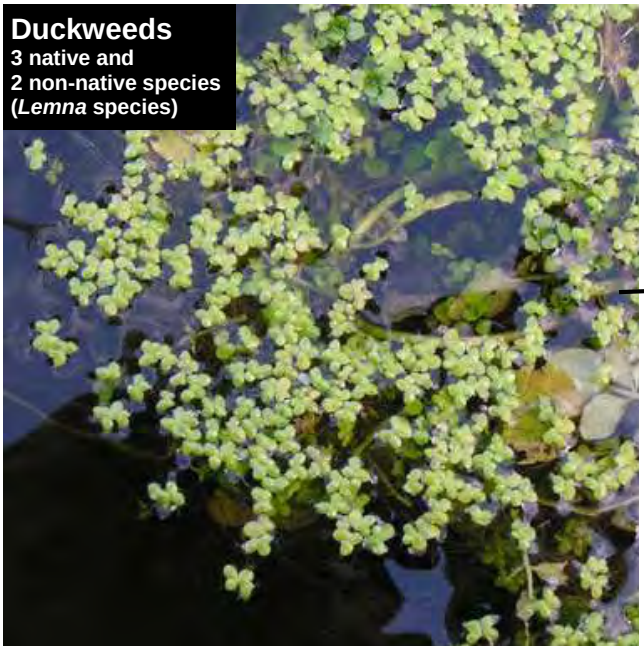
Distribution

Sporadic distribution in southern and central England. Has spread north to Yorkshire and into Wales but relatively few locations in Scotland and Northern Ireland.



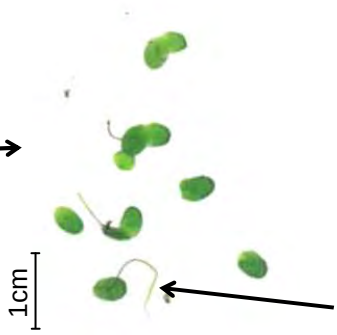
Source: NBN Gateway. Check website for current distribution

Similar Species



Duckweeds
3 native and
2 non-native species
(*Lemna* species)

Common Duckweed
Native
(*Lemna minor*)



Light green colour

Smaller than water fern (only 1.5 - 4mm across)

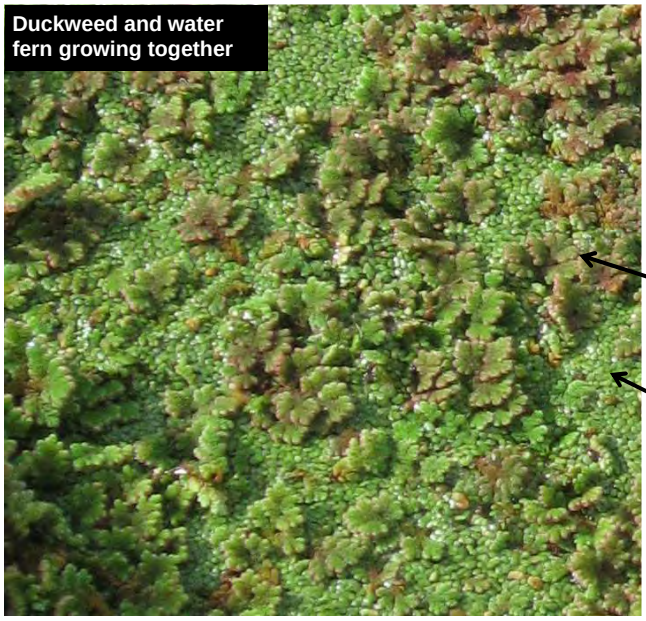
Single round leaves, not branched

White to light green root attached to each leaf

Water Fern
For comparison

Multiple dark brown roots

Leaves are much larger (up to 2.5cm) and branching



Duckweed and water fern growing together

Water fern

Duckweed

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

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

Photos from: Olaf Booy, Anne Halpin, Peter Llewellyn, Alisdair Mason, Max Wade