

INVASIVE NON-NATIVE SPECIES

**A pocket ID guide
to identifying invasive
non-native species
on the Gwent Levels**

WHAT IS THIS GUIDE FOR?

An **Invasive Non-Native Species (INNS)** is any species not native to UK that can spread causing damage to the environment, the economy, our health and the way we live.

The connected reens and ditches of the Gwent Levels are very important for wildlife, but also mean that INNS could spread quickly. We want to ensure that the threats posed by invasive non-native species to the Gwent Levels' natural wildlife are understood, managed and that future impacts are minimised.

The key to protecting the Gwent Levels is preventing INNS from establishing and where feasible controlling or managing those that are already established. This guide will help you to identify some of the INNS already found on the Gwent Levels and some possible new-comers for which you should be on high alert.

It also gives advice on how to take action that will help prevent the spread of INNS.



Volunteers clearing Himalayan balsam

© CATHERINE CHATTERS

Get INNS-volved!

Do your bit to help tackle INNS:

BIOSECURITY

Biosecurity helps prevent the spread of INNS and can be as simple as cleaning your boots or drying your equipment thoroughly.

Check out the non-native species secretariat biosecurity pages or complete the free biosecurity e-learning on the www.nonnativespecies.org/elearning/



Biosecurity helps prevent the spread of INNS

© GENNS

FOLLOW NATIONAL CAMPAIGNS

Check - Clean - Dry



CHECK your gear after leaving the water for mud, aquatic animals or plant material. Remove anything you find and leave it at the site.



CLEAN everything thoroughly as soon as you can, paying attention to nets, waders, and areas that are damp and hard to access. Use hot tap water, if possible.



DRY everything for as long as possible before using elsewhere as some invasive plants and animals can survive for two weeks in damp conditions.

www.nonnativespecies.org/checkcleandry/

“BE PLANT WISE”

- **Know** what you can grow
- **Compost** with care
- **Stop** the spread

www.nonnativespecies.org/beplantwise/



SPOTTED AN INVASIVE NON-NATIVE SPECIES?

If you think you have spotted any of the species in this booklet then we want to know about it.



It's super easy to send a record with your smartphone using the LERC Wales biological recording app.

Take a photo if you can.

Android

<https://play.google.com/store/apps/details?id=uk.ac.ceh.lercwales>

Apple

<https://apps.apple.com/gb/app/lerc-wales/id1353170866>

You can also send your record in manually via the Local Record Centre:

www.sewbrec.org.uk/

References: Fennel, Jones & Wade, 2018. Practical Management of Invasive Non-Native Weeds in Britain and Ireland. Packard Publishing. ISBN: 9781853411656



Japanese knotweed

Reynoutria japonica var. *japonica* (*Fallopia japonica*)

© SNOWDONIA NATIONAL PARK AUTHORITY

HABITAT

Common on waste land, railways, road sides and river banks.

KEY ID FEATURES

- Grows in dense thickets reaching 2.5-3m in height.
- Stems are purple-speckled, bamboo-like growing in a zig-zag shape.
- Leaves are shield shaped and lush green. New growth is spear shaped.
- Large tassels of white flowers are produced in summer.

DISTRIBUTION

Widespread and common across the UK.

IMPACTS

Outcompetes native flora, contributing to river bank erosion, increasing flood risk and damage to existing structures (it can grow through asphalt, concrete and brickwork).



© GENNS

DO'S & DON'TS

- **DO** see NRW's webpage 'Japanese knotweed: what you need to know' for information on preventing the spread and control of Japanese knotweed:
www.naturalresources.wales
- **DO** safely contain and dispose of Japanese knotweed at a licensed disposal site in line with waste legislation.
- **DON'T** try to dig up, flail, mow or chip Japanese knotweed. Even a tiny fragment of the cut rhizome can re-grow.
- **DON'T** spread soil contaminated with Japanese knotweed rhizome - the knotweed will re-grow.
- **DON'T** take Japanese knotweed to recycling centres that receive garden waste as it will contaminate the compost.
- **DON'T** break the law - Don't dump garden waste contaminated with Japanese knotweed in the countryside. If you cause Japanese knotweed to spread you may be guilty of an offence under the Wildlife and Countryside Act, 1981.



© GENNS



© GENNS



© GENNS



American mink

Mustela vison

© RYZHKOV SERGEY

HABITAT

Aquatic habitats, including coastal, but mainly rivers and lakes.

KEY ID FEATURES

- Body length 30-50cm with glossy dark brown/black fur, and white patches on chin and throat. Tail is about half body length.
- Scats are 6-8cm long, pungent, sausage-like, but twisted and drawn out to a point.
- Mostly nocturnal or active at dusk.

DISTRIBUTION

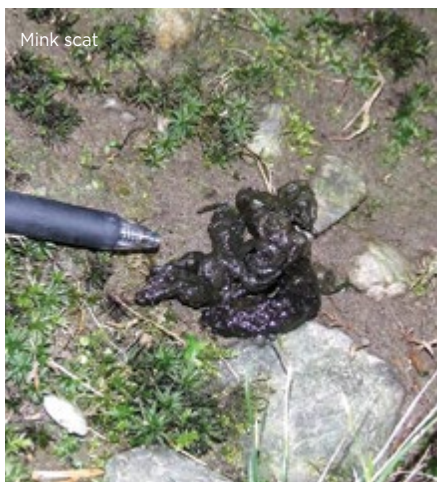
Widespread throughout Britain's aquatic habitats.

IMPACTS

Predates native wildlife including water voles, sea birds, domestic fowl and fish.

DO'S AND DON'TS

- **DON'T** break the law - If you catch/trap a mink you cannot release it back into the wild, it's illegal under the Wildlife & Countryside Act 1981.
- **DO** - Mink control should only be undertaken by professionals and as part of mink control projects.



Mink scat

© SNOWDONIA NATIONAL PARK AUTHORITY



Himalayan balsam

Impatiens glandulifera

© GBNNS

HABITAT

River banks, damp woodland and other damp habitats.

KEY ID FEATURES

- A tall (up to 2m) annual plant with scented pink flowers.
- Grows in dense stands.
- Slender leaves with serrated edges grow on hollow, brittle stems which are often pink-red.
- In late summer ripe seed heads explode. In winter it can be identified from hay-like remains and distinctive, persistent roots.

DISTRIBUTION

Widespread and common across the whole of the UK.

IMPACTS

Out-competes native species by forming dense stands, which can impede river

flow increasing flood risk. Die back over winter can leave river banks bare and exposed to erosion.

DO'S & DON'TS

- **DON'T** break the law - It is a criminal offence under the Invasive Alien Species (Enforcement & Permitting) Order 2019 to plant or cause the growth of Himalayan balsam. This could happen through moving soils or other plant material that contain seeds of the plant.
- **DON'T** disturb the seedpods. Before seed heads ripen, hand pull and leave on a sheet to dry or cut / strim below the first node and leave to dry. Can be composted or burned (in line with local restrictions) once completely dried.
- **DO** - Himalayan balsam must be securely contained and disposed of at a licensed waste disposal site if it is to be removed from the site.



Signal crayfish

Pacifastacus leniusculus

© TREVOR RENALS

HABITAT

Most freshwater habitats.

KEY ID FEATURES

- Lobster-like appearance similar to the native white-clawed crayfish, but adult is much larger (up to 16cm).
- It is red/brown with a small turquoise/white blotch on the 'hinge' of the claw.
- The underside of the adult's claws are bright red.

DISTRIBUTION

Wide spread throughout England. More sparsely distributed in Wales.

IMPACTS

Huge impact on native crayfish as they spread disease, outcompete and predate. Undermines riverbanks through burrowing and eats native fish eggs and aquatic invertebrates.

DO'S & DON'TS:

- **DON'T** break the law - Do not keep, transport, sell, release, exchange or use live signal crayfish, it's illegal under the Invasive Alien Species (Enforcement & Permitting) Order 2019, unless you have a licence from NRW or a permit from the Animal and Plant Health Agency.
- **Do** dispatch any signal crayfish you catch at the place where they were caught. If you are not able to dispatch them, put them back where they were caught.
- **DO** be a responsible water user follow the Clean-Check-Dry guidance. Signal crayfish can carry 'crayfish plague', a fungus like disease that is lethal to the endangered native crayfish. This can be introduced on wet boots and other equipment.
- **Do** report any sightings, with a photo, using the LERC Wales app.



Parrot's feather

Myriophyllum aquaticum

© GBNNSS



HABITAT

Still or slowly flowing nutrient-rich water.

KEY ID FEATURES

- Bright blue-green, feather-like leaves growing in whorls.
- Small, white flowers at base of leaves between May and August.
- Brown roots present around nodes of submerged stems.

DISTRIBUTION

Widespread in England and Wales.

IMPACTS

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

DO'S & DON'TS

- **DON'T** buy from any outlets for aquariums and water gardens. It is against the law for it to be sold.
- **DO** check whether this plant is present in your pond/aquarium - it's really a monster in disguise.
- **DO** dispose of invasive non-native plants responsibly - leave to dry in a sunny area 3m away from water. Can be composted or burned (in line with local restrictions) once completely dried.
- **DON'T** break the law - **Be Plant Wise** - don't dump invasive non-native aquatic plants in the wild or transfer to other ponds. If you cause parrot's feather to spread you may be guilty of an offence under the Invasive Alien Species (Enforcement & Permitting) Order 2019.



Reeves's muntjac

Muntiacus reevesi

© GBNNSS

HABITAT

A wide range of woodland habitats, arable farmland and even urban parks and gardens.

KEY ID FEATURES

- Small, stocky deer with reddish fur and short legs.
- Its tail has a white underside.
- Males have short simple antlers and two blackish lines that run across the forehead towards the snout.

DISTRIBUTION

Widespread across most of England and Wales.

IMPACTS

Large populations of muntjac displace native roe deer. Most significant impact is caused by browsing. They feed on growing crops and woodland regeneration affecting the structure of the shrub and ground layers and the

animals that depend on them for food or shelter, such as birds and butterflies.

DO'S & DON'TS

- **DON'T** break the law – you may be guilty of an offence under the Invasive Alien Species (Enforcement & Permitting) Order 2019 if you release muntjac into the environment.



© GBNNSS



Red-eared, yellow-bellied & Cumberland terrapins

Trachemys scripta elegans

© DVUR_ZOO

HABITAT

A wide range of still to slow flowing freshwater habitats.

KEY ID FEATURES

- A distinctive red stripe behind the eye, with striped markings along legs and clawed feet.
- Can grow to 30cm in length.

DISTRIBUTION

No breeding populations have been confirmed, but non-breeding individuals have been recorded in some parts of the UK including the Gwent Levels and Cardiff.

IMPACTS

They are opportunistic omnivores, and predate on native amphibians, fish, water birds, invertebrates and amphibians.

DO'S & DON'TS

- **DON'T** breed, sell or exchange. If you have a pet terrapin it can live out its natural life with you.
- **DON'T** break the law - you may be guilty of an offence under the Invasive Alien Species (Enforcement & Permitting) Order 2019 if you release your terrapin into the environment.
- **DO** see NRW's species licensing webpage for more information on invasive alien species, including terrapins (see back page for link).



© BRENT MYERS



Water hyacinth

Eichhornia crassipes

© RPS GROUP PLC



HABITAT

Ponds, fishing lakes, ditches and canals.

KEY ID FEATURES

- A floating water plant with wide, thick, glossy, oval leaves with a buoyant bulb at its base.
- It has one pink/purple flower spike.
- It is a very fast grower, forming dense mats that can spread quickly across whole lakes and ponds.

DISTRIBUTION

Around 25 sites across Great Britain but rarely survives the frosts.

IMPACTS

Causes flooding by blocking watercourses and drainage channels. Can cover vast areas in a short time, choking the entire water body and outcompeting native species.

DO'S & DON'TS:

- **DON'T** break the law - Be plant wise - don't dump invasive non-native aquatic plants in the wild or transfer to other ponds. If you cause it to spread you may be guilty of an offence under the Invasive Alien Species (Enforcement & Permitting) Order 2019. You are not banned from having these in your pond if you already have them, but you are required to take care to compost them well.
- **DON'T** buy from any outlets for aquariums and water gardens. It is banned from sale in the UK.
- **DO** dispose of invasive non-native plants responsibly - leave to dry in a sunny area 3m away from water. Can be composted or burned (in line with local restrictions) once completely dried.



Chinese mitten crab (aka moon crab)

Eriocheir sinensis

© GBNNSS

HABITAT

Tidal streams, rivers and estuaries. Adults migrate to estuaries and the sea to breed.

KEY ID FEATURES

- Pincers covered in a mat of fine hair, giving the appearance of mittens.
- Body is olive green-brown, up to 8 cm wide.
- Legs long and hairy.

DISTRIBUTION

Scattered across England and North Wales. Only one South Wales record to date (2020).

IMPACTS

They can travel large distances from the sea, including river systems and across dry land. This means that all waterbodies in Britain, including the Gwent Levels reed and ditch network, have the potential to be invaded. They

damage banks/flood defences by burrowing into them, silt up gravel beds used for fish spawning and outcompete the native white-clawed crayfish.

DO'S & DON'TS

- **DON'T** buy from any outlets for aquariums and water gardens. It is against the law to sell, exchange, use or keep live specimens.
- **DON'T** break the law. If you catch any mitten crabs they must be dispatched at the place where they were trapped/caught. If you are not able to dispatch them, put them back where they were caught.
- **DO** report any sightings, with a photo, using the LERC Wales app.



Floating pennywort

Hydrocotyle ranunculoides

© CCW



HABITAT

Still or slowly moving freshwater.

KEY ID FEATURES

- Shiny, kidney-shaped leaves with crinkled edge.
- Forms thick mats of floating or emergent leaves.

DISTRIBUTION

Scattered in England with records in North Wales. Previously on the Gwent Levels but recently eradicated.

IMPACTS

Out competes native species by blocking out light, deoxygenating the water, obstructing air-breathing insects from reaching the water surface, and reducing water temperatures. Can cause accidents when animals and humans mistake water covered with floating pennywort for land.

DO'S & DON'TS:

- **DON'T** buy from any outlets for aquariums and water gardens – it is against the law for it to be sold.
- **DO** check whether this plant is present in your pond/aquarium – it's really a monster in disguise!
- **DO** dispose of invasive non-native plants responsibly – leave to dry in a sunny area 3m away from water. Can be composted or burned (in line with local restrictions) once completely dried.
- **DON'T** break the law - **Be Plant Wise** - don't dump invasive non-native aquatic plants in the wild or transfer to other ponds. Remember, if you cause floating pennywort to spread you may be guilty of an offence under the Invasive Alien Species (Enforcement & Permitting) Order 2019.



Zebra mussel

Dreissena polymorpha

© PAUL BECKWITH BWW

HABITAT

Slow rivers, canals, docks, reservoirs, lakes, water pipes and cooling systems

KEY ID FEATURES

- Similar in shape to marine mussels, but smaller in size (usually about 30mm).
- Has distinctive 'D' shape shell, with stripes of light and dark bands of blue/brown/yellow-white bands.

DISTRIBUTION

Common across England, rare in Wales and Scotland.

IMPACTS

It attaches in groups to anything solid underwater such as masonry, stones or wooden posts. Shells block pipework, and affect lock gates and other hard structures in water. Filters food from the water so efficiently that there is little food left in the water for mayfly larvae,

caddisfly larvae, and small fish.

DO'S & DON'TS

- **DO** be a responsible water user. Follow the guidance and Check - Clean - Dry your kit and equipment.



© GENNYS



Asian hornet

Vespa velutina

© CHARLES J SHARP

HABITAT

Nests usually high in trees and man-made structures.

KEY ID FEATURES

- Distinctive hornet, smaller (25mm) than our native species.
- Dark velvety body, except for the 4th segment which is yellow. Bright yellow tips to legs.

DISTRIBUTION

Only a handful of confirmed UK records to date. None in Wales, but recorded in Gloucestershire.

ALERT SPECIES

Please report any suspected sightings with a photo using the free Asian Hornet Watch app for i-phone or Android or the iRecord app and website www.brc.ac.uk/irecord



IMPACTS

A highly aggressive predator of native insects like the rare shrill carder bee, which is found on the Gwent Levels.

DO'S & DON'TS

- **DON'T** disturb an active nest.
- **DANGER!** This hornet stings. Seek advice from the GBNNS Alert Species webpage.

Asian
hornet



European
hornet



Asian hornet abdomen is almost entirely dark except for the 4th segment.



Demon shrimp & killer shrimp

Dikerogammarus haemobaphes

© ENVIRONMENT AGENCY

HABITAT

Freshwater and brackish habitats.

KEY ID FEATURES

- Larger than native shrimps (up to 30mm from head to tail).
- Has a cone shaped protrusion on the tail and a striped back.
- Easily attaches to clothing and equipment.

DISTRIBUTION

Eastern European invaders found predominantly in the Midlands, Thames Valley and Norfolk, but also found in Cardiff Bay, Wales. First recorded in 2010.

IMPACTS

These predators quickly dominate habitats outcompeting native species for food.

DO'S & DON'TS

- **DO** be a responsible water user. Follow the guidance and Check - Clean - Dry your kit and equipment.



© ENVIRONMENT AGENCY



Giant hogweed

Heracleum mantegazzianum

© RPS GROUP PLC

HABITAT

Along streams, rivers, on waste land and rough pastures.

KEY ID FEATURES

- Aptly named 'giant', this member of the cow-parsley family has flowering stems 2-3 m high with flowers up to 80 cm in diameter.
- The lower leaves are often 1m or more in size.
- The species reproduces entirely by seeds with a single plant producing about 20,000 seedlings.

DISTRIBUTION

Widespread across England, Scotland, Wales and Northern Ireland.

IMPACTS

Out-competes native species by forming dense stands reducing species diversity. The plant produces phytotoxic sap, which in contact with human skin and

combined with UV radiation causes recurring skin burns that can be severe.

DO'S & DON'TS:

- **DON'T** touch - hazardous!
Always wear protective gear - see Welsh Government's 'Giant hogweed: controlling it on your land' guidance.
- **DON'T** break the law. It is an offence under the Invasive Alien Species (Enforcement and Permitting) Order 2019 to plant or cause the growth of giant hogweed in the environment. This could happen through moving contaminated soils or plant materials.





Winter-flowering heliotrope

Petasites fragrans

© RPS GROUP PLC

HABITAT

Rough grassland – along roadsides, woodland margins and railway banks.

KEY ID FEATURES

- Forms large patches of heart shaped leaves. In winter has clusters of tiny mauve-pink vanilla-scented flowers.
- Spreads via branching underground stems not via seed dispersal.
- Can spread over 1m a year.

DISTRIBUTION

Locally common in England and Wales.

IMPACTS

Spreads to form dense stands that outcompetes native species, reducing biodiversity.

DO'S & DON'TS

- **DON'T** spread soil contaminated with winter heliotrope -even a tiny fragment of the cut rhizome can re-grow.
- **DO** hand pull or dig-up and leave to dry on a sheet. Can be composted or burned (in line with local restrictions) once completely dried.



© GENNYS

POSSIBLE
NEW-COMER



Curly waterweed

Lagarosiphon major

© PETER MEININGER



HABITAT

Still or slow-flowing nutrient rich water.

KEY ID FEATURES

- Dark green in colour with many branches.
- Leaves grow in tight spirals around the stem.
- Grows up to 3m in length.

DISTRIBUTION

Widespread in England and Wales.

IMPACTS

Rapidly dominates a water body outcompeting native species, reducing biodiversity. Can also block intakes and reduces flood storage capacity.

DO'S & DON'TS:

- **DON'T** buy from any outlets for aquariums and water gardens. Often labelled 'oxygenating plant'- it is against the law for it to be sold.
- **DO** check whether this plant is present in your pond/aquarium - it's really a monster in disguise!
- **DO** dispose of invasive non-native plants responsibly - leave to dry in a sunny area 3m away from water. Can be composted or burned (in line with local restrictions) once completely dried.
- **DON'T** break the law - **Be Plant Wise** - don't dump invasive non-native plants in the wild or transfer to other ponds. If you cause curly waterweed to spread you may be guilty of an offence under the Invasive Alien Species (Enforcement & Permitting) Order 2019.



New Zealand pigmyweed

Crassula helmsii

© GBNNFS



HABITAT

Aquatic (either submerged or emergent) in still or slow flowing water bodies or terrestrial around pond or lake margins.

KEY ID FEATURES

- Leaves up to 2cm long in opposite pairs.
- Distinctive mats of fleshy leaves when emergent or terrestrial. Submerged leaves are less recognisable.
- Has small white flowers.

DISTRIBUTION

Widespread in England, less common in Wales.

IMPACTS

Dense mats outcompete native flora and can impede drainage, causing flooding.

DO'S & DON'TS:

- **DON'T** buy from any outlets for aquariums and water gardens. It is banned from sale in the UK.
- **DO** check whether this plant is present in your pond/aquarium - it's really a monster in disguise.
- **DO** dispose of invasive non-native plants responsibly - leave to dry in a sunny area 3m away from water. Can be composted or burned (in line with local restrictions) once completely dried.
- **DO** be a responsible water user. Follow the guidance and Check - Clean - Dry your kit and equipment
- **DON'T** break the law - **Be Plant Wise** - don't dump invasive non-native aquatic plants in the wild or transfer to other ponds. If you cause New Zealand pigmyweed to spread you may be guilty of an offence under the Wildlife and Countryside Act, 1981.



Water primrose

Ludwigia grandiflora

© GBNNSS



HABITAT

Wetlands and the margins of watercourses, ditches, ponds and lakes.

KEY ID FEATURES

- Creeping plant along water margins that spreads out into water, creating floating mats.
- Reproduces from seed and from small stem fragments.
- Has lots of yellow flowers in summer and small oval leaves.

DISTRIBUTION

30 sites (29 in England, 1 in Wales), and believe that ten of these sites have been eradicated successfully (2020).

IMPACTS

The dense floating mat reduces light levels and can cause oxygen depletion, leading to a loss of native plants and wildlife. Problems caused by clogging of waterways and drainage systems.

DO'S & DON'TS:

- **DON'T** buy from any outlets for aquariums and water gardens - it's against the law for it to be sold.
- **DO** check whether this plant is present in your pond/aquarium - it's really a monster in disguise!
- **DO** dispose of invasive non-native plants responsibly - leave to dry in a sunny dry area 3m away from water. Can be composted or burned (in line with local restrictions) once completely dried.
- **DON'T** break the law - **Be Plant Wise** - don't dump invasive non-native plants in the wild or transfer to other ponds, or you may be guilty of an offence under the Invasive Alien Species (Enforcement & Permitting) Order 2019.

ALERT SPECIES

Please report suspected sightings with a photo using the iRecord app and website: www.brc.ac.uk/irecord





Water lettuce

Pistia stratiotes

© GBNNS



HABITAT

Nutrient rich lakes, ponds, canals and slow-moving rivers.

KEY ID FEATURES

- Looks like a small lettuce.
- It floats on surface in rosettes, up to 30 cm across, with thick, soft hairy, bluish-green leaves.

DISTRIBUTION

Scattered records, mainly in southern England, 1 record in South Wales - but doesn't survive our current climate.

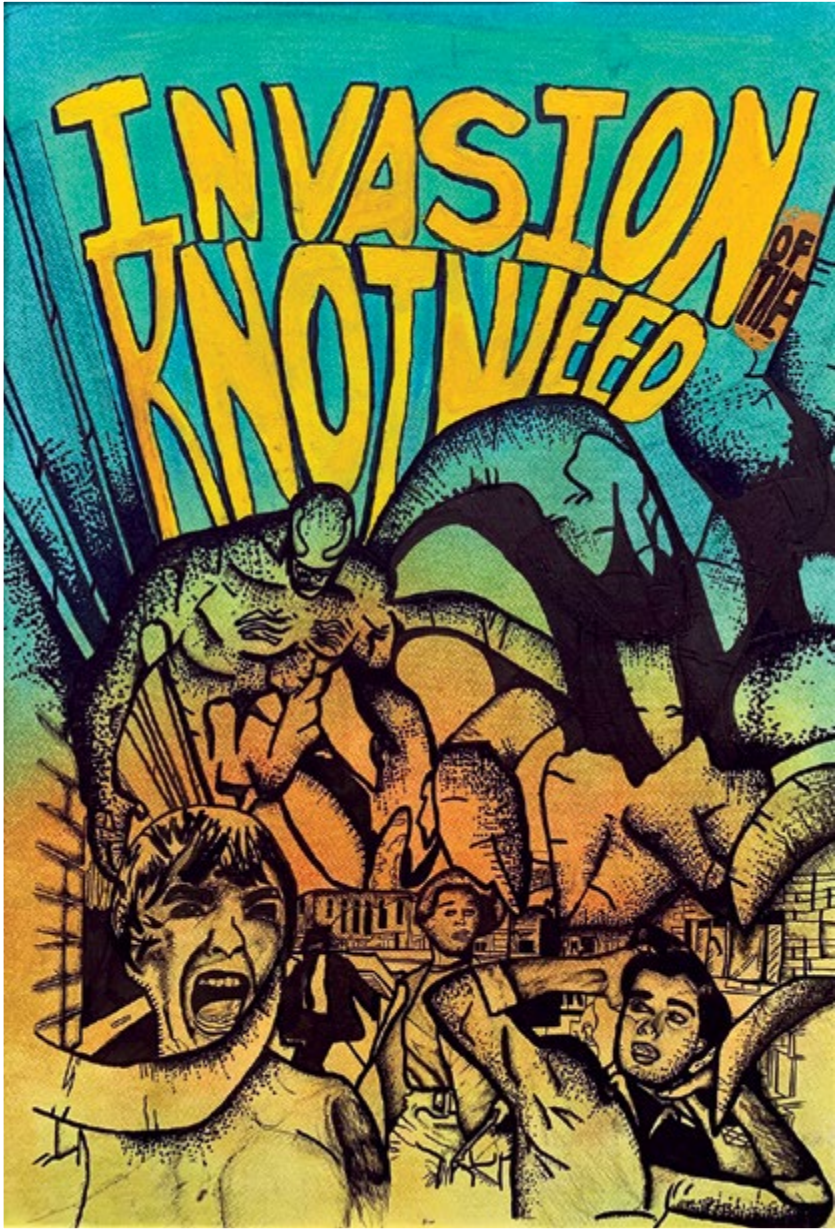
IMPACTS

Rapidly forms a carpet on water surface excluding light and oxygen, reducing biodiversity. Can also block intakes and reduces flood storage capacity.

DO'S & DON'TS

- **DON'T** buy from any outlets for aquariums and water gardens, it's often labelled 'oxygenating plant'.
- **DO** check whether this plant is present in your pond/aquarium - it's really a monster in disguise!
- **DO** dispose of invasive non-native plants responsibly - leave to dry in a sunny dry area 3m away from water. Can be composted or burned (in line with local restrictions) once completely dried.
- **DON'T** break the law - **Be Plant Wise** - don't dump invasive non-native aquatic plants in the wild or transfer to other ponds. If you cause water lettuce to spread you may be guilty of an offence under the Wildlife and Countryside Act, 1981.

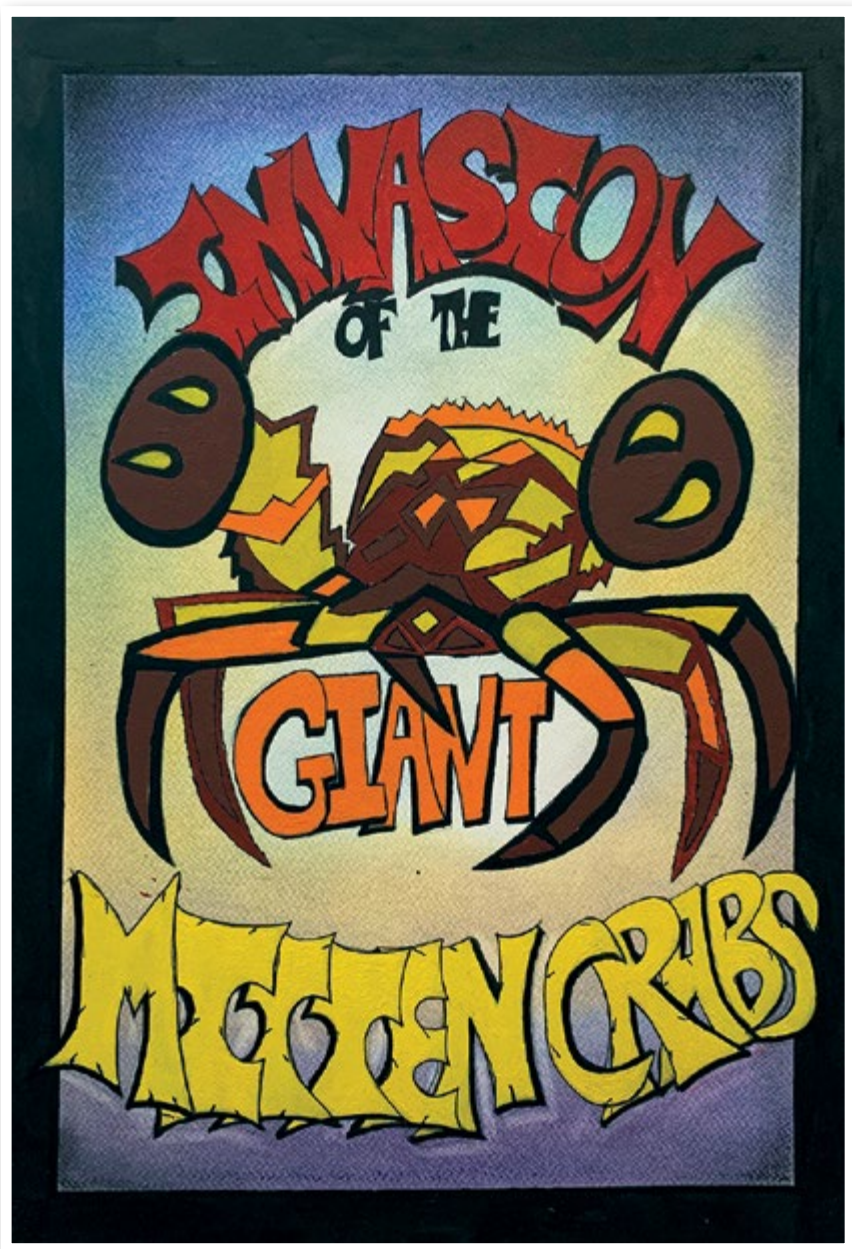
Artwork produced by design students at Coleg Gwent for the Living Levels 'Alien Invasion' Project. View more at www.livinglevels.org.uk/inns



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© JACQUELINE EDWARDS



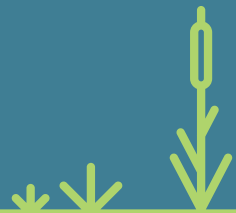
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For more information on recording INNS, species information, current projects, and treatment please visit the Great Britain non-native species secretariat website:

www.nonnativespecies.org

See Natural Resources Wales (NRW) Invasive Alien Species Licensing pages for further information on plants and animals covered by the Invasive Alien Species (Enforcement & Permitting) Order 2019:

www.naturalresources.wales



www.livinglevels.org.uk