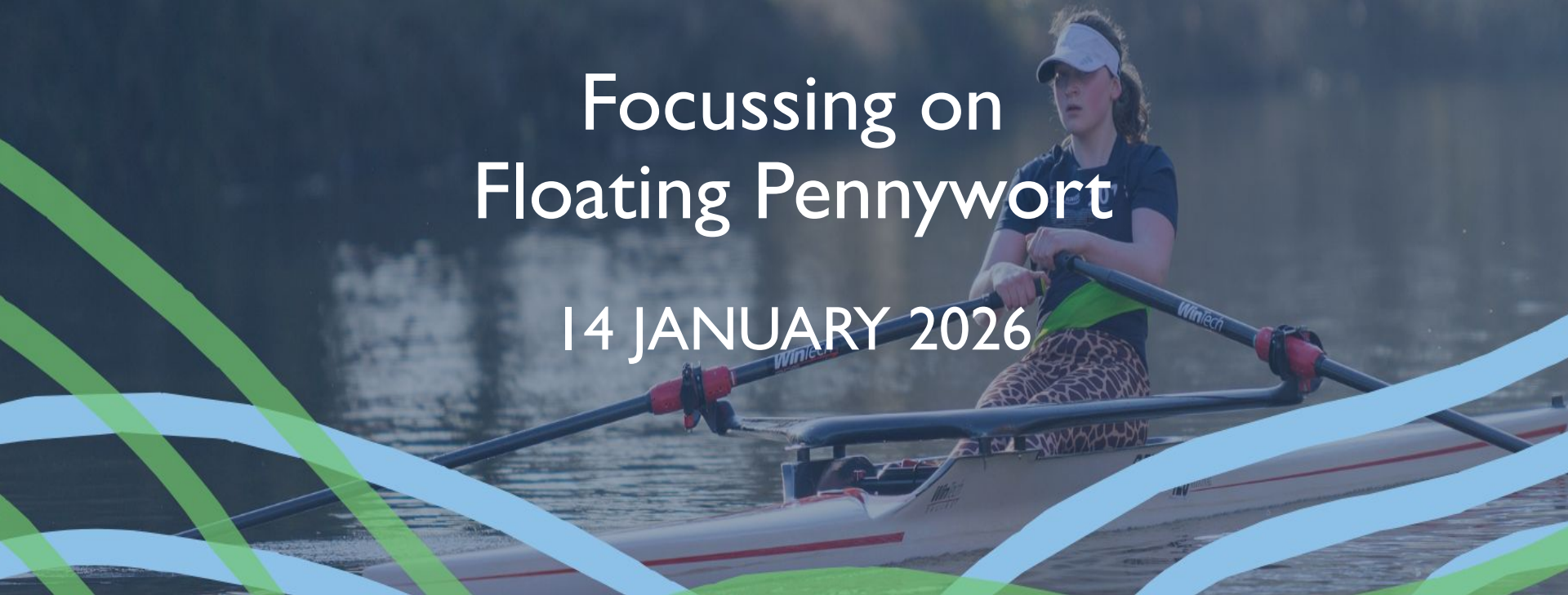




Welcome to the first of the 2026 Environmental Sustainability Webinars

Focussing on Floating Pennywort

14 JANUARY 2026





With Thanks to Sport England for
Funding British Rowing's
Floating Pennywort Programme



FLOATING PENNYWORT A Threat to Rowing!

Vanessa Coldwell, MSc-DIC
(British Rowing)

Floating Pennywort - *Hydrocotyle ranunculoides*

- Invasive Non-native species and the law
- Identification and Similar Species
- Distribution
- Stakeholders and Landownership
- Control and Removal Methods
- Equipment and Handling
- Ongoing monitoring
- Biosecurity
- Case Studies

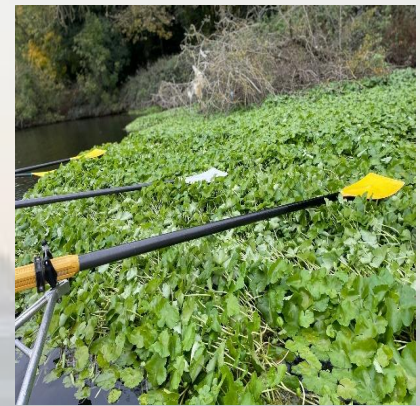


Courtesy of RPS group Plc (*H. ranunculoides*)



Courtesy of GBNNSS (*H. ranunculoides*)

Invasive Non-Native Species (INNS)



Courtesy of William McIlroy,
Doncaster RC

- **Definition:**

- Invasive: “an animal or plant that has come into an environment from somewhere else and has a harmful effect on animals, plants, etc. already living in that environment” [*Cambridge Dictionary*]
- Non-native species: “a plant or animal that lives or grows in a place where it did not originally live or grow” [*Cambridge Dictionary*]; a species introduced to a country deliberately or accidentally through human intervention since the end of the last ice age (c.10,000 years ago) [see *GB non-native species secretariat (NNSS)*]

- **How invasive non-native species can impact people - why should we care?**

They can lead to:

- Loss of Biodiversity
- Altered Ecosystems
- Impacts on Human Health and native wildlife health (including through Disease Transmission)
- Negative Economic Impacts
- Damage to Infrastructure

Invasive Non-Native Species

- How Floating Pennywort (FP) as a invasive non-native species can impact people:
 - [**CABI**] FP “impacts commercial fisheries and blocks pipes and pumps which damages waterworks and can lead to flooding.”
 - [**EA Blog**] “Unchecked growth can lead to loss of native species, deoxygenation, increased flood risk and can negatively impact recreational activities.”
 - [**Angling Trust**] FP “presents a major threat to angling and native fish populations, particularly in slow-flowing rivers and lake systems.” “These mats prevent light from reaching the water column below [...] and can cause localised reductions in oxygen concentration. The loss of native plants reduces habitat complexity, removing valuable habitat for insects and juvenile fish, decreases food availability and reduces water quality. These thick mats also reduce access for fishing, congregating along the edges of watercourses. In winter, these mats die back and break off presenting a potential risk of flooding.”

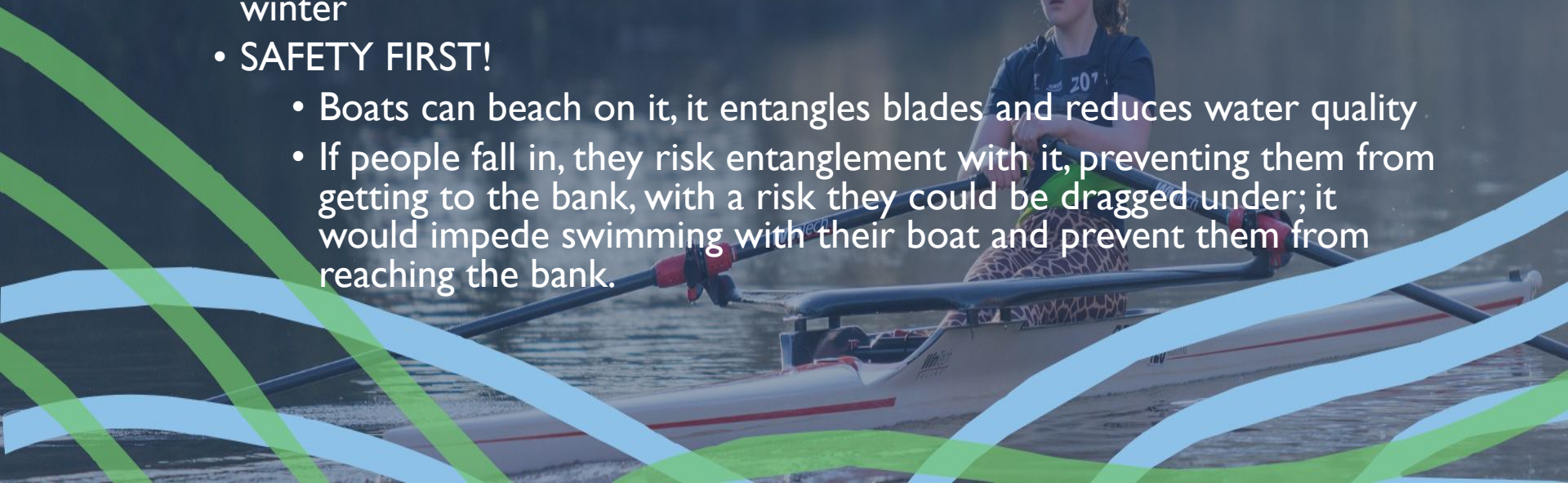
Invasive Non-Native Species



F. Coldwell at Lincoln RC
(University 4-)

- **How Floating Pennywort as an invasive non-native species can impact people – the rowing community**

- Economic impact on clubs
 - Limits or prevents members from rowing on their stretch of water, can negatively impact revenue from reduced retention of members and cancellation of events, including Learn-to-Row courses
- It can increase flood risk by blocking pipes and through die-back in winter
- **SAFETY FIRST!**
 - Boats can beach on it, it entangles blades and reduces water quality
 - If people fall in, they risk entanglement with it, preventing them from getting to the bank, with a risk they could be dragged under; it would impede swimming with their boat and prevent them from reaching the bank.



Invasive Non-Native Species

- THE LAW:

- **Wildlife and Countryside Act 1981*** –
Floating Pennywort and Water Fern
(*Azolla filiculoides*) are **Schedule 9**
(**Part II**) listed species

- Floating Pennywort (FP) is listed as a species of special concern – therefore it is illegal to keep/grow/cultivate/sell/exchange/plant/cause to grow in the wild FP (unless already on your land) - see **(The retained) EU Regulation 1143/2014** and **Invasive Alien Species (Enforcement & Permitting) Order 2019** (www.nwcu.police.uk/floatingpennywort)

- How the law* applies to individuals & landowners:

- the landowner is responsible for preventing its spread into the wild;
- it is an offence to sell the plant or seeds/propagules;
- it is an offence for someone to advertise/possess/transport the plant for sale



Courtesy of GBNSS (*Azolla filiculoides*)

Invasive Non-Native Species

OTHER LEGISLATION

- UK-WIDE:
The Invasive Alien Species (Enforcement and Permitting) Order 2019 – it is an offence for a person to plant or cause to grow in the wild or sell (including advertising/transporting for sale) Floating Pennywort
[came into force 01-Dec-2019 (<https://www.nonnativespecies.org/>)]
Floating Pennywort is a **Schedule 2** listed species
- SCOTLAND:
Wildlife and Natural Environment Act (Scotland) 2011 – it is illegal to plant any non-native plant in the wild in Scotland (www.rhs.org.uk)
- **Wildlife and Countryside Act 1981 (Prohibition on Sale etc. of Invasive Animal and Plant Species) (Scotland) Order 2019** - it is an offence for a person to sell Floating Pennywort
[came into force 01-Apr-2019 (<https://invasivespeciesscotland.org.uk/news/>)]

Floating Pennywort (*Hydrocotyle ranunculoides*)

- An aquatic invasive plant which can grow up to 20cm/day, can double its biomass in 4-7days* with maximum growth in late summer and which chokes canals and (slower flowing) rivers. It roots in the 'shallow margins of slow-flowing water bodies'.*
"The plant is capable of forming extensive mats from the smallest root fragment"*
- Identification – leaves are shiny, kidney shaped, lobed and up to 7cm (can be up to ~9cm) across, often broader than long, dissected to the middle where connected to the stem and floating or emergent – i.e. above surface; stems are thick and fleshy; roots are fine, short and grow from nodes along the stems (www.nonnativespecies.org)
- ID sheet available to download here:
https://www.nonnativespecies.org/assets/Uploads/ID_Hydrocotyle_ranunculoides_Floating_Pennywort-1.pdf

'National Wildlife Crime Unit' – information care of 'GB Non-Native Species Secretariat'

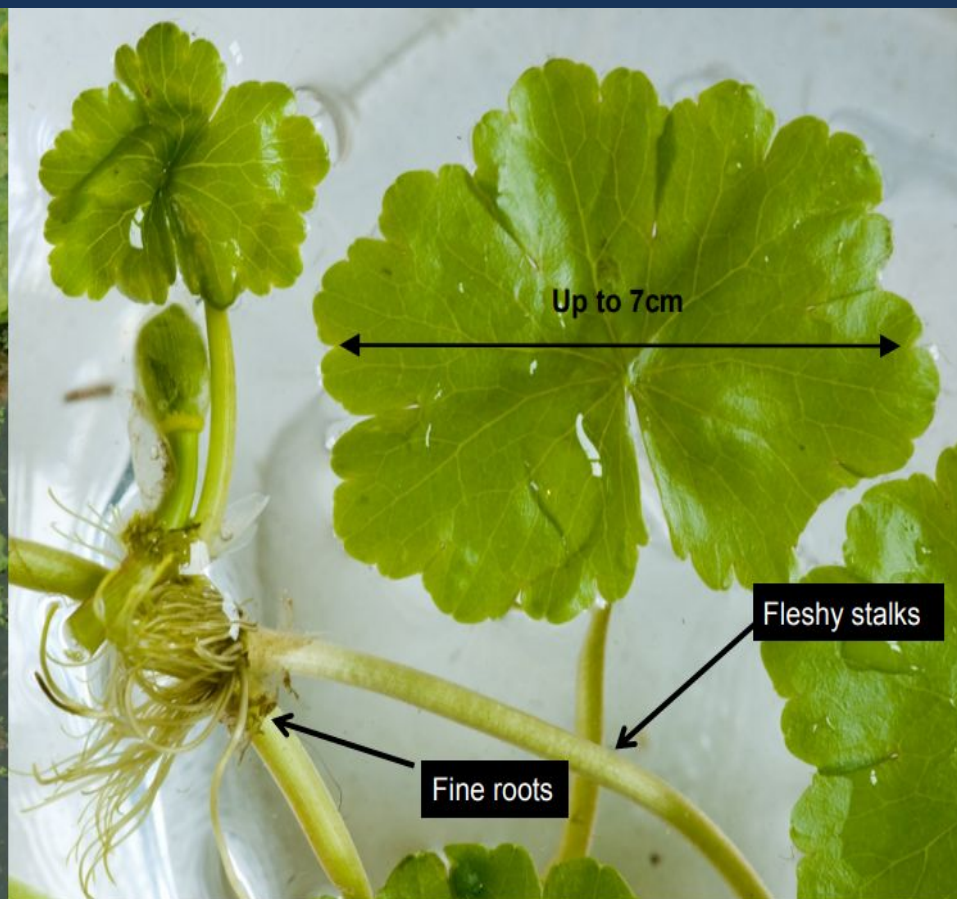
[Photos courtesy of 'RPS group Plc' (left) and GBNSS (right)]



https://www.nwcu.police.uk/wp-content/uploads/2017/10/ID_Hydrocotyle_ranunculoides_floating_pennywort.pdf

*Plant Protection Service, NL & Centre for Ecology and Hydrology, UK - June 2011 (on www.nonnativespecies.org)

‘National Wildlife Crime Unit’ – information care of ‘GB Non-Native Species Secretariat’



https://www.nwcu.police.uk/wp-content/uploads/2017/10/ID_Hydrocotyle_runcunculoides_floating_pennywort.pdf

Photos courtesy of ‘RPS group Plc’ (left) and GBNNSS (right)

Similar Species

Hydrocotyle vulgaris is similar in appearance to the invasive *H. ranunculoides* but can be distinguished by the shape of its leaves.

The leaves of *H. sibthorpioides* are smaller than those of *H. ranunculoides*, but very similar in shape.

Hydrocotyle vulgaris (marsh pennywort)
[leaf complete, only 1-5cm wide, **native**]

Hydrocotyle sibthorpioides (lawn marsh pennywort) [very similar leaf shape but only up to 2cm wide, **non-native**]

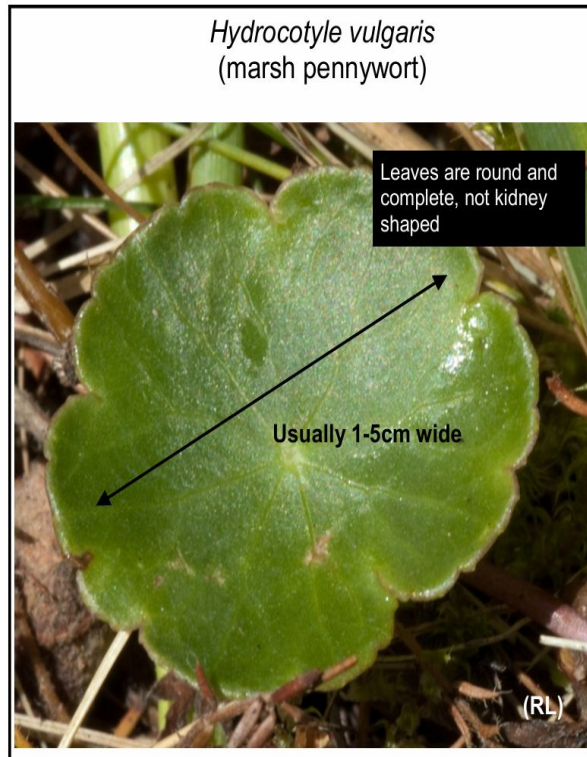


Photo courtesy of 'GBNNS'

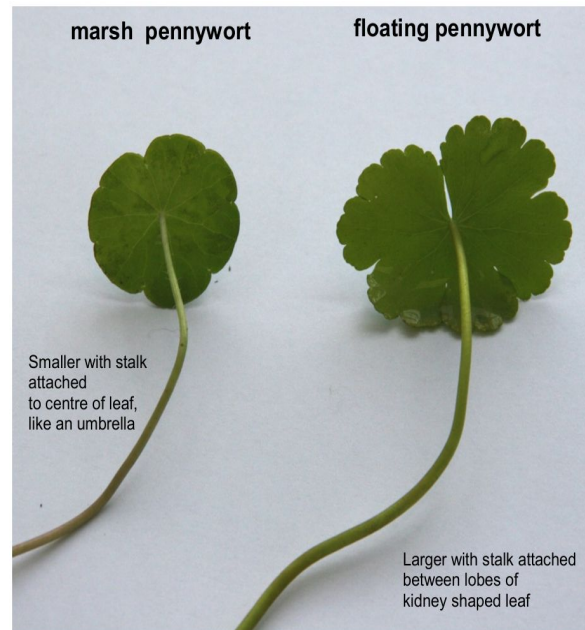
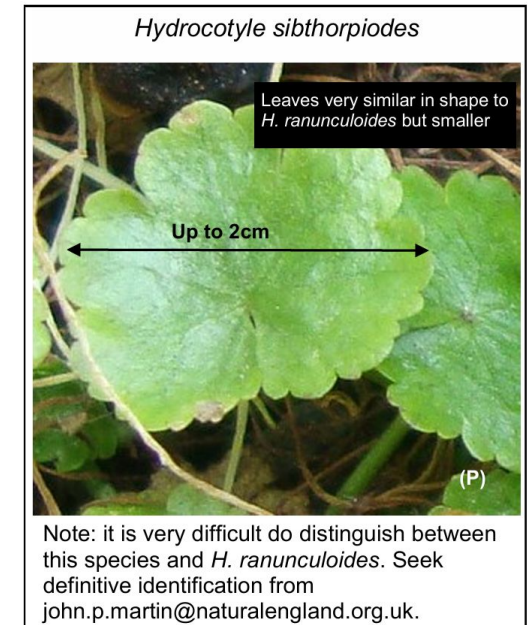


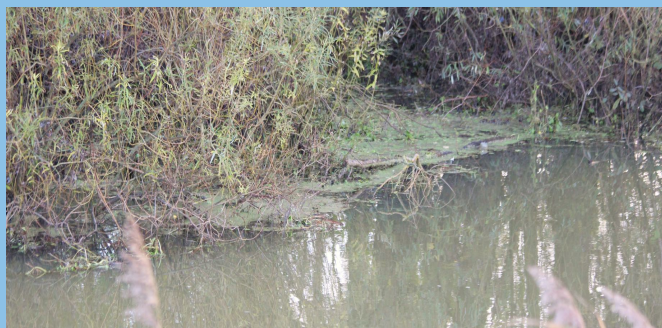
Photo courtesy of 'RPS group Plc'

https://www.nwcu.police.uk/wp-content/uploads/2017/10/ID_Hydrocotyle_ranunculoides_floating_pennywort.pdf



What to look out for:

Early signs



V. Coldwell c.250m downstream of
Lincoln RC



Establishing

This process
can take place over
1 – 2 seasons
depending on the
river/canal width*



V. Coldwell c.500m downstream of
Lincoln RC

Dense Mat



William McIlroy,
Doncaster RC

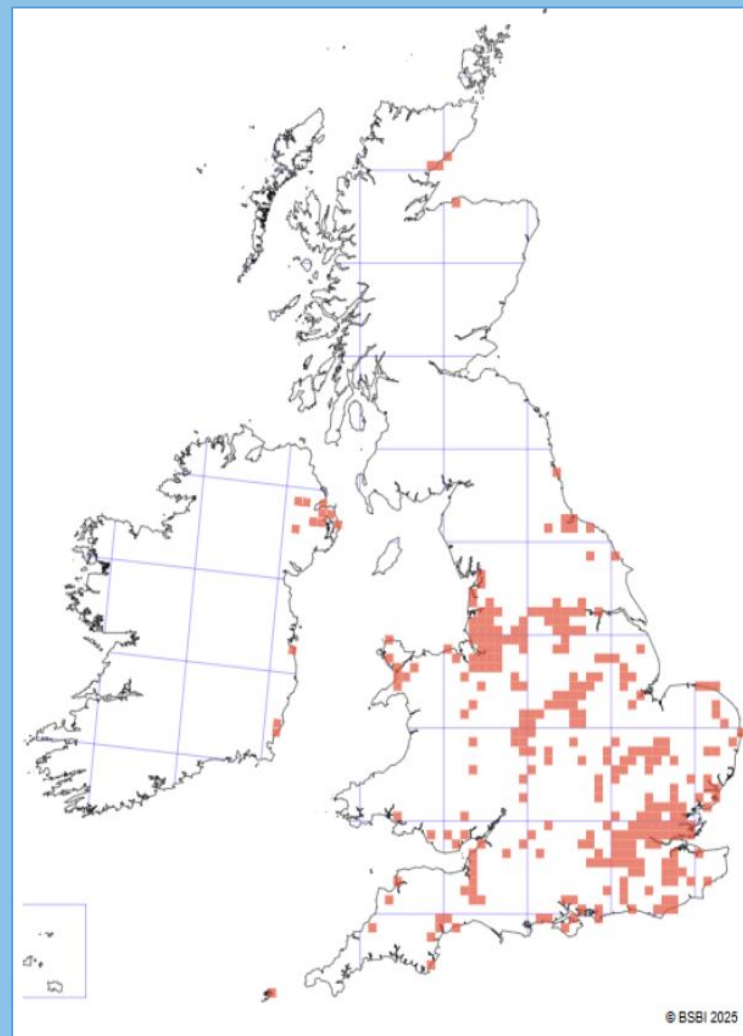


GB Non-Native Species Secretariat (GBNNS)

* Based on information from: Hussner, A. and Lösch, R. (2007) 'Growth and photosynthesis of *Hydrocotyle ranunculoides* L. fil. in Central Europe', *Flora - Morphology, Distribution, Functional Ecology of Plants*, Volume 202 (8) pages 653-660. Available at: <https://doi.org/10.1016/j.flora.2007.05.006> (Accessed: 09-Jan-2026).

Floating Pennywort (*Hydrocotyle ranunculoides*)

- Native range: Americas
- **UK Distribution:** **England:** Nationwide (concentrated in NW & SE). **Wales:** Along the English border (N/S). **Scotland:** NE of Inverness & Islay (Western Isles). **Northern Ireland:** Focussed around Belfast (East).
- **Clubs** currently known to be affected:
 - Broxbourne (River Lea)
 - Lea (River Lea)
 - Northwich (River Weaver)
 - Doncaster (River Don)
 - Lincoln (River Witham)
 - Boston (River Witham)
 - Leicester (River Soar)
 - Loughborough (River Soar)
- Report sightings to:
Vanessa.Coldwell@BritishRowing.org and
nonnativespecies.org/recording

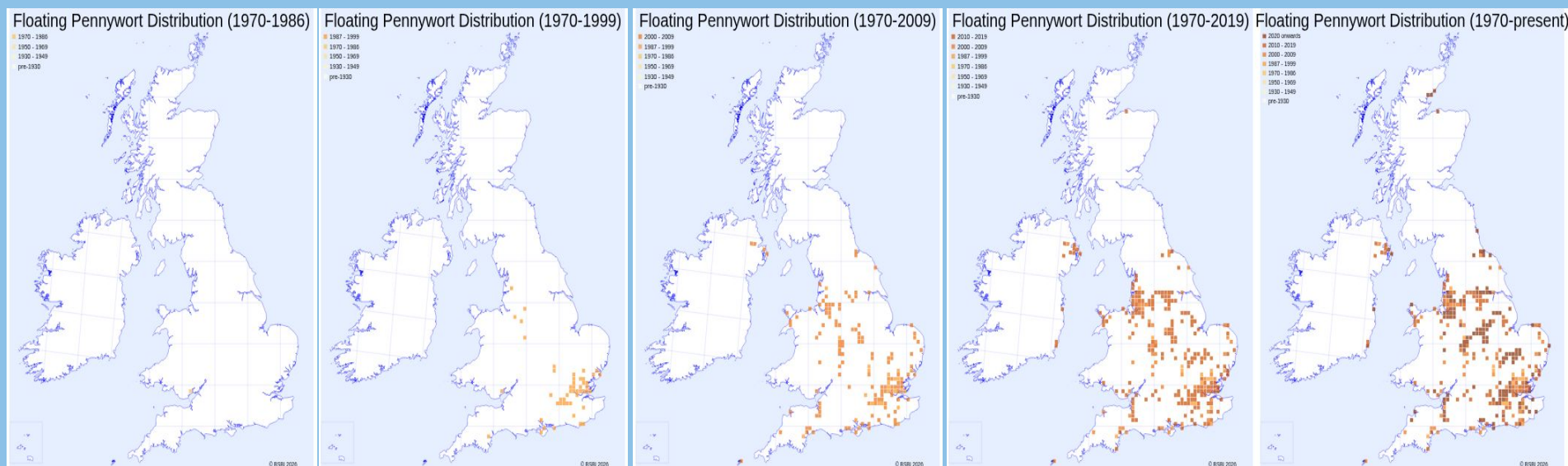


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<https://bsbi.org>

Floating Pennywort – UK distribution

Distribution Maps Sequence

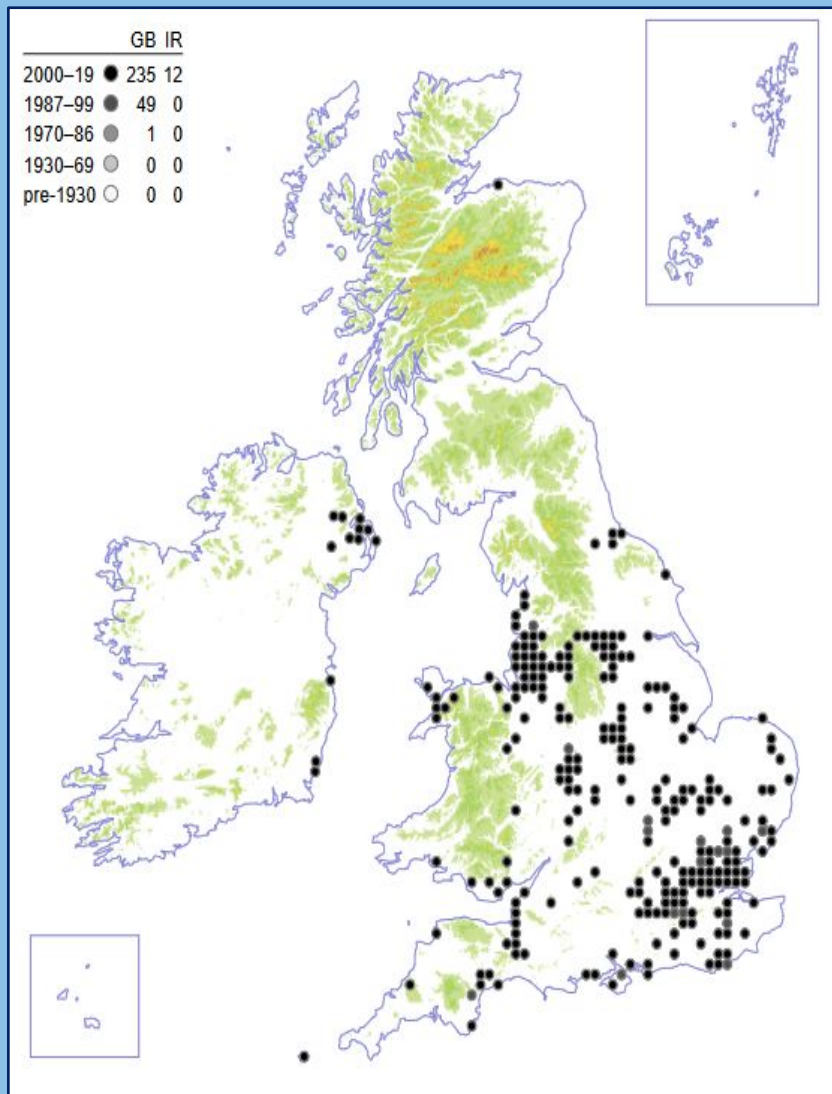


Distribution maps from <https://bsbi.org> (Botanical Society of Britain & Ireland (BSBI))



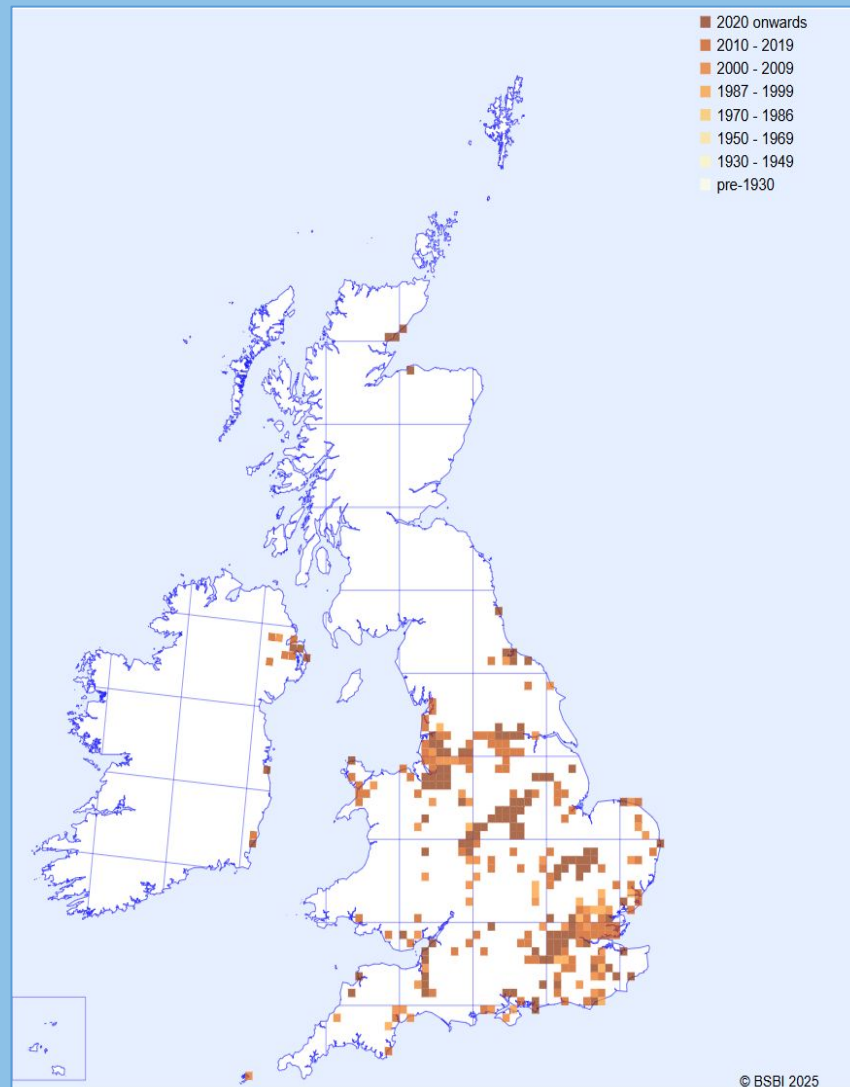
Floating Pennywort – UK distribution

2020



<https://plantatlas2020.org/atlas/2cd4p9h.hh5>

2025



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<https://bsbi.org/taxa/2cd4p9h.hh5/hydrocotyle-ranunculoides>

Stakeholders and Potential Partners

- Rowing Clubs & British Rowing
- Canoe/Kayak Clubs & Paddle UK
- Paddleboard Centres & Paddle UK
- The Angling Trust
- Canal and River Trust (CRT)
- Environment Agency (EA)
- Centre for Agriculture and Biosciences International (UK) (CABI)
- Centre for Ecology and Hydrology (CEH)
- Utilities companies (Water, power)
- Local larger landowners e.g. football clubs/universities/
housing developers/farmers

Land Ownership



Courtesy of Garry Speed, Lincoln RC

- On non-tidal rivers, generally whoever owns up to the bank also owns the river bed to the mid-point of the river channel.
 - Riparian owners (who own land adjoining/including a watercourse) are responsible for clearing blockages which impede flow.
- The water is managed by an authority such as:
 - Environment Agency / Canal and River Trust / National Trust
- Get landowner's permission before going onto anyone's land or cutting away vegetation growing from their land
- Contact local council, Land Registry or navigation authority to check land-ownership

Waterways Authorities

- Different agencies/charities oversee navigation on different stretches of water – check who oversees which through:
 - Rivers Trust
<https://theriverstrust.org/our-work/farm-advice>
 - Canal and River Trust -
<https://canalrivertrust.org.uk/business-and-trade/inland-marina-development-guide/feasibility/land-ownership-and-covenants>
 - Environment Agency (Government)
 - National Trust (Charity)

Control & Removal & Disposal methods



STOP
THE
SPREAD

- **CONTROL:**

- Biological Control: Weevil
- Chemical Control (terrestrial): Glyphosate + Adjuvant (ineffective)
- Cutting and pulling (**mechanical** and **hand**)

- **REMOVAL:**

- Rakes to drag loose material out of river onto banks – to 10m from highest water's edge (in case of a subsequent flooding event)
- *NB: Please record square metres or estimated wet (or dry) weight of FP removed per session/month and report this to British Rowing (vanessa.coldwell@britishrowing.org and sustainability@britishrowing.org)*

- **DISPOSAL:**

- CRT can remove this – pre-agree location and date
- Vehicle with a trailer can take FP to agreed location for drying and burning or safe composting



STOP
THE
SPREAD

Launch dragging raft of Floating Pennywort

(Photos courtesy of Northwich RC and their Pennywort Team)



Removing Floating Pennywort

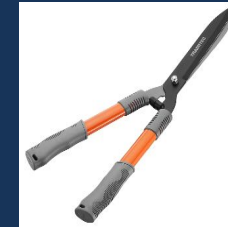
1. Set up a club-wide clean up on several occasions through the year – this can be dove-tailed with e.g. Invasive Species Week **AND** short regular weekly or fortnightly clean-ups of target areas
2. Make it a fun social activity and Green Cross-Training!
3. Secure landowner permission for the location where you'll haul out the Floating Pennywort and coordinate your date with e.g. Canal and River Trust to support you with its removal/disposal
4. Conduct a written Risk Assessment prior to the work commencing
5. Brief all participants on how the day and removal will work and on safety points and check on any specific members' health considerations
6. Set up tarpaulins as far from the bank as practical but close enough for any river life ('bycatch') to find its way back to the river and high enough to minimise any chance of a flooding event reaching the removed material
7. Start at the top of your stretch and work your way downstream to avoid recontamination
8. River Team: Cut and Float rafts of Pennywort to just upstream of agreed location to haul the Pennywort out onto the Tarpaulin, using launches/paddleboards/canoes to then 'steer' rafts to the bank;
Bank Team: rake it out; River Team: use nets to catch any fragments left in the water
9. Clean all equipment and boats ('Check-Clean-Dry') to prevent recontamination to other areas
10. Have a Barbecue to celebrate a job well done!

Equipment

- Weed Rake / Long Handled Fork / Robust Garden Rakes
- Slasher* / Garden Shears
- Launch / Canoes / Paddle Boards
- Telescopic Landing/Dipping nets to remove small fragments from the water
- Tarpaulin to place on the bank as a barrier between the Pennywort and the soil and to catch fragments
- Boom or Drift Net downstream to catch anything loose in the water
- Life Jackets / Buoyancy Aids
- Waders / Wellies / Waterproofs
- First Aid Kit / First Aider / Sanitiser
- Cleaning equipment to cleanse tools after use before transportation to prevent spread of FP elsewhere
- SAFETY: *Do not use swinging tools in close proximity to other people or with wet hands or loose fitting/non-grip gloves



V. Coldwell – photos of tools used at Lincoln RC



Handling

- Floating Pennywort can make people sick
 - Do not ingest
 - Wash hands thoroughly after touching it or wear (waterproof) gloves
 - Do not touch face, mouth or eyes until you can wash your hands
- Floating Pennywort can be heavy
 - Dense mats have been estimated to weigh around 70kg per square metre (wet weight) – take care to not lift too much at a time

Monitoring and Awareness raising

- Regular Patrols - recommend fortnightly, year-round, remain vigilant
- If on the water for regular training and any is spotted, report immediately to club committee members/captain/FP contact person to organise removal and alert us at British Rowing
- If you spot it for the first time, also report on 'iReport'/'INNS Mapper' where records are collated nationally
 - Links in <http://www.nonnativespecies.org/recording>
 - INNS Mapper: <https://innsmapper.org/home> and
 - iRecord: <https://irecord.org.uk/enter-non-native-records>
- Spread the Word!
Have a poster up in the club for FP identification and club's contact person in the event it is spotted



Ways FP is spread & how to reduce this

- **Cruisers/Launches/Narrowboats/Paddleboards/Rowing boats/Kayaks/Canoes**

- Biological matter can get caught on propellers, fins, rudders and be carried upstream and downstream along rivers, along canals, from/to lakes

- **Reduce spread through BIOSECURITY “Check-Clean-Dry”**

- Avoid passing across submerged or floating patches
- Check boats, especially fins and rudders after outings and before using boats on different stretches of water (same river/canal or different ones) – e.g. before going to a race and before returning home from a race
- Wash boats thoroughly after outings and dry thoroughly (minimum of 48 hours) to kill off any remaining INNS
- REPORT any Floating Pennywort seen on your home stretch or elsewhere to British Rowing and through ‘iRecord’, ‘INNS Mapper’ and where applicable, the CRT’s local office
- **Free Check Clean Dry materials** available for clubs to help raise awareness amongst members and other water users, contact BR or nnss@apha.gov.uk





QUESTIONS

If you have any questions
or see this plant
please contact me:

vanessa.coldwell@britishrowing.org
and sustainability@britishrowing.org

These slides are available on the BR
website.



Website

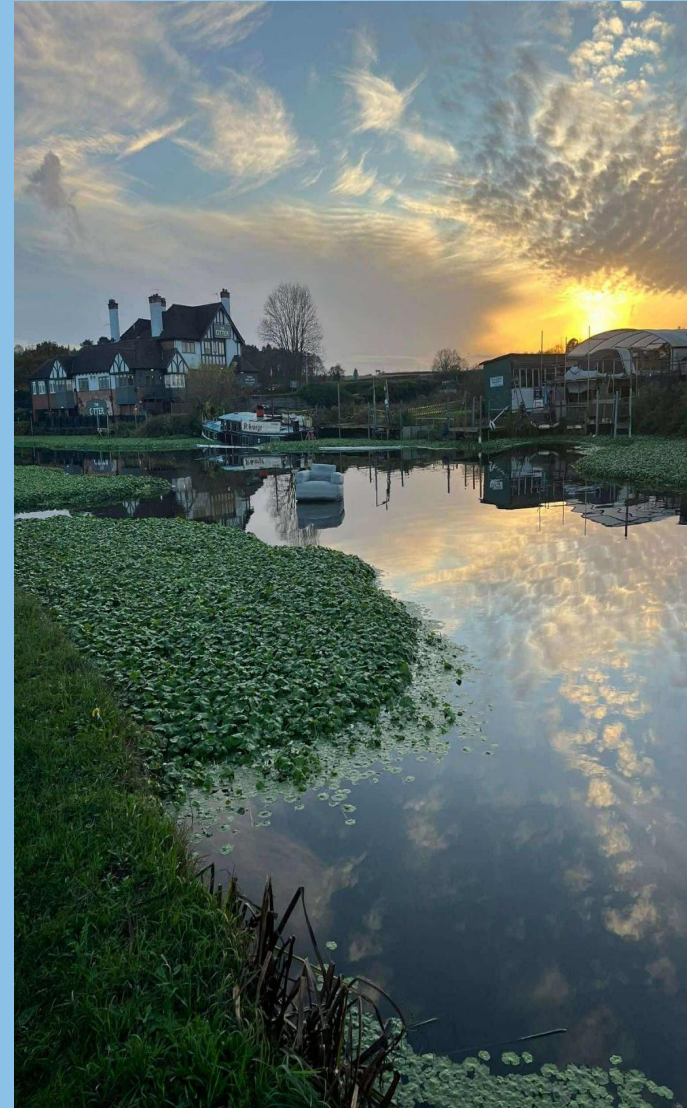


Presentation

Reporting Invasive Non-Native Species:

<http://www.nonnativespecies.org/recording>

ACT NOW!!!



Courtesy of Phil Gunning,
Loughborough BC