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Floating pennywort - Hydrocotyle ranunculoides		
Description	Native to North and South America. A floating, aquatic plant with fleshy stems and roundish kidney shaped, bluntly toothed leaves.	
UK Status	Present at least at fifteen known sites in Northern Ireland; Has been recorded from still or slow-flowing water in lakes, ponds, rivers, streams, ditches and canals. For current distribution visit NBN Atlas Northern Ireland.	
Pathways	Introduced as an ornamental for garden ponds and aquaria from which it spread to natural habitats through deliberate and accidental releases. Spreads mainly via translocation of small fragments, which can produce new plants. Nonstandardised naming and misidentification in the trade, can lead to <i>H. ranunculoides</i> being traded under an incorrect name.	
Aim	To contain and, where possible, reduce the extent of floating pennywort with localised eradications being carried out in high priority areas.	
Objectives	<ol> <li>Ensure strict biosecurity when working in proximity to <i>H. ranunculoides</i> to avoid further spread.</li> <li>Eradicate small population <i>H. ranunculoides</i> locally, prioritising especially vulnerable sites (e.g. ASSIs) and in areas where plant fragments are likely to escape to other water bodies.</li> <li>Where populations are discovered in new, high priority sites (e.g. ASSIs) attempt eradication, and revisit later in the season and in subsequent years.</li> <li>Reduce distribution across N.I. by 50% by 2030.</li> <li>Widespread restoration of native species and habitats</li> </ol>	
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Border and pathway actions	<ul> <li>Under the EU Invasive Alien Species Regulation 1143/2014, it is an offence to plant this species, or otherwise cause it to grow, in the environment.</li> <li>Under the EU Invasive Alien Species Regulation it is also an offence to import into the EU, keep, grow or cultivate, transport (to, from or within the EU; except to facilitate eradication), place on the market, use or exchange this species - unless there are specific exemptions or a permits.</li> <li>ID sheet developed and deployed to border staff - Border Force, Border Inspection Posts (BIPs), Plant Health Inspection Branch (PHIB), etc.</li> </ul>	

	Ligicon with the Wildlife Crime Northern Iroland (DAWNII) group	
	<ul> <li>Liaison with the Wildlife Crime Northern Ireland (PAWNI) group to ensure species is not being traded or smuggled into N.I.</li> </ul>	
Stakeholder communications	<ul> <li>Continue to raise public and other stakeholder awareness of invasive non-native aquatic plants and provide advice including guidance on control methods and identification information.</li> <li>Awareness campaigns (Check/Clean/Dry and Be Plant Wise) to alert water users, gardeners and retailers to the threat the species poses.</li> <li>Gardeners who have it growing in their private ponds, must act responsibly and not cultivate it or its seed to spread further inside or outside of their land-holding and if in a sensitive area, they may be asked to remove it completely to avoid risk. Owners should consider safely removing and disposing of any plant covered by the IAS Regulation by composting or burning or transfer to landfill in line with 'Be Plant Wise' campaign <a href="http://invasivespeciesireland.com/what-can-i-do/be-plant-wise/">http://invasivespeciesireland.com/what-can-i-do/be-plant-wise/</a></li> <li>Traders are not permitted to purchase or sell this species.</li> </ul>	
	Early detection and rapid response	
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Surveillance	<ul> <li>A new, dedicated surveillance mechanism is not necessary as a number of existing recording schemes allow reporting of this species:</li> <li>In Northern Ireland species records are entered to CEDaR online recording via <a href="http://www2.habitas.org.uk/records/ISI">www2.habitas.org.uk/records/ISI</a> or via the Invasive Species Ireland website - <a href="http://invasivespeciesireland.com/report-sighting/">http://invasivespeciesireland.com/report-sighting/</a>. Entering a record generates an email to the Northern Ireland Environment Agency (NIEA) Invasive Non-Native Species (INNS) Team.</li> <li>The Botanical Society of the British Isles Map Scheme compiles comprehensive distribution maps for plants across the UK.</li> <li>The Biological Records Centre (<a href="www.brc.ac.uk">www.brc.ac.uk</a>) collects presence records of all wildlife species in the UK through a network of voluntary recorders on <a href="mailto:iRecord">iRecord</a> online or by the <a href="iRecord app">iRecord app</a>. The BRC provides the opportunity to download distribution data and visualise it as customisable maps, via the National Biodiversity Network Atlas Northern Ireland (<a href="https://northernireland.nbnatlas.org/">https://northernireland.nbnatlas.org/</a>).</li> <li>Relevant Government agencies such as Dfl Roads/Rivers, AFBI, Loughs Agency, Forest Service and Northern Ireland Environment Agency record the presence of invasive nonnative species as a part of their work and will then initiate management measures for WSS on their own sites.</li> <li>Non-Governmental Organisations (e.g. Rivers and Fishery Trusts and Boards, Wildlife Trusts, etc.) undertake surveys of freshwater habitats and report incidental sightings of</li> </ul>	

	<ul> <li>invasive non-native species and will then initiate management measures for WSS on their own sites.</li> <li>All N.I. Councils to also record and report presence of invasive non-native species on their estates and initiate management measures for WSS on their own sites.</li> </ul>
Rapid response	<ul> <li>In certain areas of N.I. a rapid eradication following a confirmed sighting may be appropriate, particularly in cases where it is first discovered in a new catchment. Once widely established sustainable control is extremely difficult.</li> </ul>

## Long-term management

- When floating pennywort is not yet widespread within a catchment it should be managed to reduce its impacts and contain it.
- Management options include: mechanical, chemical and environmental. The plant can be cut with weed cutting buckets or boats; re-cutting will be necessary through the growing season. Raking is usually more effective than cutting as it also removes some of the roots. Hand-picking the remaining fragments following mechanical removal increases effectiveness. Care must be taken not to facilitate spread so the use of capture nets to prevent downstream infestation is essential. Shading (planting trees) can assist in reducing establishment.
- Guidance on the management of floating pennywort is available on the Invasive Species Ireland website - <a href="https://invasivespeciesireland.com/species-accounts/established/freshwater/floating-pennywort">https://invasivespeciesireland.com/species-accounts/established/freshwater/floating-pennywort</a>

## Research

 Research is currently being undertaken to investigate options for the biological control of this species. Should this prove to be feasible then it could offer a cost effective and sustainable approach to help manage the species in the longer term.

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