



## Non-Native Species Newsletter: Autumn Edition 2014

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The plan listed a range of options that could be deployed against quagga mussel, if it were first found in a contained waterbody. It concluded that, should quagga mussel be found in a river, eradication options were unfeasible.

Monitoring by Herts & North London and Kent & South London Areas subsequently discovered quagga mussel in a variety of reservoirs in the Thames and Lee Valley ([see briefing note 2](#)). Sampling by the Zoological Society of London recently discovered quagga mussel at Richmond, on the River Thames, downstream of the confluence with the Wraysbury River. Thames Water is also performing its own monitoring programme at its assets, and promoting good biosecurity on its reservoirs.

### Quagga alert: don't move a mussel!

The long-anticipated arrival of the quagga mussel *Dreissena bugensis rostriformis* was confirmed in GB on 1 October.

The mussel was first discovered by Sam Ho, Monitoring Officer, Herts & North London Area. Sam, a member of the Invasive Species & Biosecurity Network (ISBN), observed that the sampling site on the Wraysbury River was encrusted with a mussel she hadn't previously observed. On inspection, Sam suspected the new organism was quagga mussel, which was subsequently confirmed by Cambridge University.

Horizon scanning studies of future invasive species threats had identified quagga mussel as a particularly high risk of arrival. Identification material had been circulated to monitoring teams and a contingency plan for control options was commissioned by Defra.



## Where did it come from?

Quagga mussel is the most recent new arrival from a list of species that have spread from the Ponto-Caspian Region of Eastern Europe, mostly facilitated by the canal systems that have linked the Rhine with the Danube since 1992. Over recent years, we have observed the arrival of other Ponto-Caspian species, such as the Bloody-red mysid *Hemimysis anomala*, and the invasive shrimps *Dikerogammarus villosus* and *D. haemobaphes*. Future threats include a variety of other shrimps, crustaceans and goby fish.

We can only speculate how quagga mussel arrived in GB. The veliger larvae can be carried in ballast water, but they are intolerant of saline conditions which reduces the risk of this pathway. The adult mussels often stick to boat hulls and other submerged objects and the larvae can be transferred on damp boating or angling equipment. Once established in a reservoir, water transfers will spread the mussel throughout the water supply network.

## What impact will it have?

Quagga mussel is not the first Ponto-Caspian mussel to arrive in GB. Zebra mussel *Dreissena polymorpha*, was introduced in 1825, probably attached to timber imports. Since its arrival it has colonised much of its potential range, particularly in Central and Eastern regions. Both quagga and zebra mussels coat the surface of pipes and tunnels, causing blockages and increasing pumping costs. The mussels also preclude the inspection of brick-lined tunnels, and need to be removed beforehand. The shells also interfere with sand filters used in the water treatment process.

Both zebra and quagga mussels are very efficient at filtering green algae, which can reduce competition for blue-green algae and result in toxic blooms. Improved water clarity can increase the growth of higher plants, which creates its own management challenges.

Improved water clarity can be detrimental to some fisheries, and the combination of profuse weed growth and encrustations of mussels can degrade the fishing experience for many anglers.

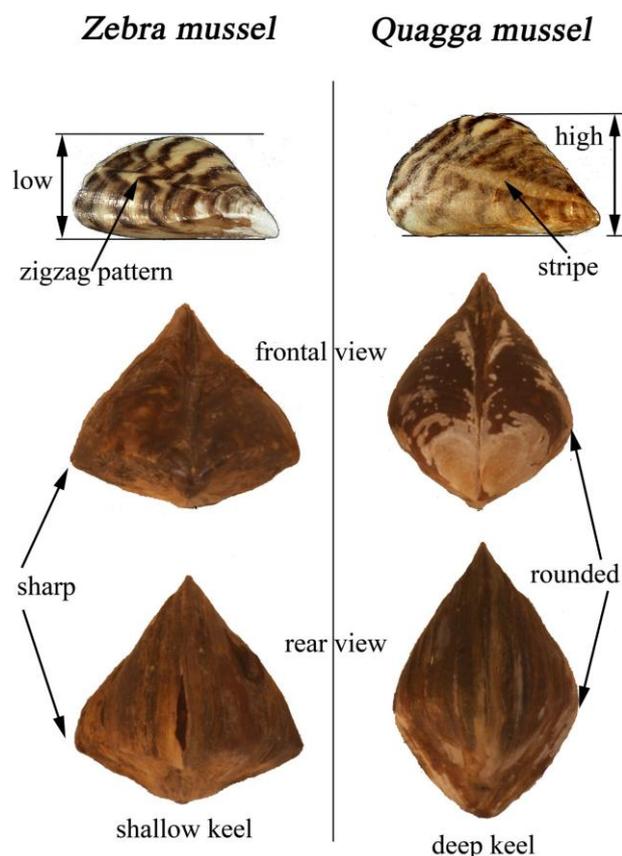
## We've got zebra mussel already. What difference will quagga make?

Quagga mussel is likely to replace zebra mussel in many waterbodies. It can out-compete zebra mussel in many habitats, particularly deeper water. Its ability to survive at depths that preclude zebra mussel, and

its better ability to utilise nutrients, means that it will achieve densities that zebra mussel could never achieve in many waterbodies. Unlike zebra mussel, it can colonise the soft substrate of lakes, reservoirs, canals and rivers, precluding native fauna.

## How do I recognise quagga mussel?

An [identification sheet](#) and an [Alert poster](#) are available from the [Non-Native Species Secretariat website](#).



## What should I do?

Don't move a mussel! Our best response to the arrival of quagga mussel is to ensure that we don't facilitate its spread, and encourage others to do likewise.

We should all be adopting good biosecurity whatever we do and wherever we are. Invasive non-native species exploit our activities to spread into new habitats, but there are simple and pragmatic measures we can adopt that significantly reduce that risk. The ['check-clean-dry' campaign](#) is an effective measure against a range of invasive species, diseases and parasites. Recent research has shown that hot water significantly improves the efficacy of the cleaning process. A 15 minute emersion in water at 45

degrees Celsius kills a wide variety of invasive species threats, including quagga mussel.

The veliger larvae of quagga and zebra mussels are microscopic. Washing, particularly with hot water, or thorough drying, are effective methods of biosecurity. If an object has been submerged long enough to develop a biofilm (and therefore feels slippery) it is ten times more likely to harbour veliger larvae, if they are present, and therefore any objects that have been in the water for more than a few hours carry a particular risk of spread. Advice on [cleaning submerged structures](#) is also available at the NNSS website.

We should also encourage our contractors and partners to adopt 'check-clean-dry'. Angler and leisure craft users have an important role to play in reducing the risk of spread, and we should seek opportunities to encourage them to adopt good biosecurity. Specific advice for [anglers](#) and [water vessel users](#) is also available on the NNSS website.

Contact: [Trevor Renals](#), 7-24-5033

## Joint Team working leads to management plan for Japanese knotweed.

A site visit with a Housing Association Officer in Newport, Isle of Wight for a relatively straightforward knotweed problem lead to the discovery of a more serious and immediate concern.



The knotweed had pushed up through minor cracks in the retaining wall at Lukely Brook, Isle of Wight, which over time would weaken the defence. Working with the Asset Performance team, we were able to advise the landowner of the seriousness of the situation and a knotweed management strategy has now been put in place.

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## Knotweed 'ASBOs', explained.

You may have seen recent publicity about 'knotweed ASBOs'. In fact, ASBOs have now been superseded by Community Protection Notices.

The community protection notice can be used against individuals who are acting unreasonably and who persistently or continually act in a way that has a detrimental effect on the quality of life of those in the locality. The Anti-social Behaviour, Crime and Policing Act 2014 does not explicitly refer to Japanese knotweed or other, similar invasive non-native plants, as the new anti-social behaviour powers are intended to be flexible. However, frontline professionals can stop or prevent any behaviour that meets the legal test in the powers.

The notice can be used to require someone to control or prevent the growth of Japanese knotweed or other plants that are capable of causing serious problems to communities. The test is that the conduct of the individual or body is having a detrimental effect of a persistent or continuing nature on the quality of life of those in the locality, and that the conduct is unreasonable. Under section 57 of the Act, "conduct" includes "a failure to act".

Local councils and the police (in most cases it will be the local council) will have the power to issue notices for invasive non-native species like Japanese knotweed. The notice can place restrictions on a person's behaviour (in the case of an individual, as long as they are aged 16 or over) and, if necessary, force them to take steps to rectify the behaviour that is having a detrimental effect on the quality of life of the community. This means if an individual, or organisation, is not controlling Japanese knotweed or other invasive plant and could be reasonably expected to do so, the notice could be used after a mandatory written warning has been served beforehand to get them to stop the anti-social behaviour. The notice would state what behaviour or action is having a detrimental effect on the quality of life of those in the local community.

The requirement(s) set out in the notice could include a requirement to stop a specified action or behaviour, a requirement to make reasonable efforts to make good any outstanding issues within a specified period of time and/or a requirement to take reasonable steps to prevent future occurrence of the problem. Breach of any requirement of a community protection notice, without reasonable excuse, would be a criminal offence, subject to a fixed penalty notice (which attracts a penalty of £100) or prosecution. On summary conviction, an individual would be liable to a level 4 fine. An organisation, such as a company, is liable to a fine not exceeding £20,000.

## T..M..G.., another site bites the dust.

Matt Brazier's intrepid topmouth gudgeon zappers have been at it again, this time at a fishery near Romsey.



Topmouth gudgeon *Pseudorasbora parva* is our most damaging invasive non-native fish and is subject to an eradication programme. The Non-Native Species Management Team has developed techniques from methods used in Norway and the United States that eradicates topmouth gudgeon using rotenone, a chemical derived from plant extracts. Monitoring has shown swift recovery of the invertebrate fauna following treatment.

The 'virtual' team is a partnership between a network of specialist Area Fisheries staff and staff from the National Fisheries Service, based at Brampton.

Topmouth gudgeon (TMG) degrade fisheries by competing for food, space and spawning habitat. They deplete zooplankton populations, which can cause algal blooms.



It is essential that we locate and eradicate all sites that harbour TMG. [An identification sheet for TMG](#), and a variety of other threats is available from the NNSS website. We should encourage Android phone users, particularly anglers, to download the 'Aqua Invader' phone app, freely available from the [naturelocator website](#). This app allows users to record the presence of suspected TMG (and a variety of other invasive non-native animals) by taking a geo-located image, which is verified by experts before being made available via the National Biodiversity Network gateway.

Contact: [Matt Brazier](#), 07768865202

## A bumper year for floating pennywort.

2014 has been one of the warmest years on record. This has contributed towards profuse floating pennywort growth at many locations, particularly in Anglian, London area and in the Midlands.

The problem has been exacerbated by the winter floods, which dispersed floating pennywort *Hydrocotyle ranunculoides* from the rivers in which it had colonised, and potentially released plants from flooded garden ponds. Clearly, this is an invasive non-native species that will benefit from the scenarios predicted for climate change in the UK.

Environment Agency crews have been hard at work along the Ely Ouse and River Cam removing tons of Floating Pennywort from the rivers and watercourses.



Using floating weed harvesters and lifters, the Environment Agency teams have removed over 1000 tonnes of wet cut invasive weed, while another team followed up behind, hand removing and spraying the smaller pieces of weed, using a mix of 38ml of a bioactive formulation of glyphosate per litre and 10ml of top film per 10 litre tank.

Floating Pennywort is normally found in tropical aquaria and garden ponds. It is, however, being found more and more in our rivers across the country. It forms very dense mats of vegetation which can grow rapidly (up to 20cm per day) out from the riverbanks.

Few people have accounted for as much floating pennywort as Darren Trumper, Ops Delivery team leader at Ely depot. "Floating pennywort has become a major problem for us all in the River Cam and Ely Ouse", he stated.

"Some of the Floating Pennywort mats we are removing from the riverbanks along the Ely Ouse are 22 metres long and 10 metres wide, and can be a depth size of about 30mm. In one location the teams removed a mat weighing 1.7 tonnes!"

"An especially worrying factor in the infestation is the invasion of the River Cam Washes, which is a Site of Special Scientific Interest (SSSI) and crucial to all kinds of wildlife.

"The rivers and its tributaries in our area provide the perfect breeding ground for floating pennywort which has formed dense mats that block out oxygen and light, which was very good aquatic habitats for fish, native plants and also deprive all kinds of birds and creatures from feeding from the waters."

Native to North America, Floating Pennywort is a fast growing invasive species of freshwater plant. It is

widespread and well established in the south and east of England and appears to be spreading rapidly north and westwards.

To see a film of the Environment Agency's work to remove weed from our rivers please visit their YouTube channel at: <http://www.youtube.com/user/EnvironmentAgencyTV>

## Are you preparing for Biosecurity month?

March 2015 will provide a focus on the importance of biosecurity and what we can do to improve it. A variety of events are planned. What will your Area do to promote Biosecurity Month?

One aspect of Biosecurity Month will address a common theme that was identified during the recent review of biosecurity facilities; too much clutter! Many stores and drying areas were cluttered with spare PPE and other equipment, which reduced air circulation, thus increasing drying times and hampered efforts to clean and organise kit.

Areas need to plan their Biosecurity Month activities now, so that venues and presentation areas can be booked. Facilities teams have been informed that the event is taking place. You should also seek the cooperation of your local Comms teams.

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## Pilot studies to determine future facilities for biosecurity.

The recent survey of biosecurity facilities at our offices and depots by the Invasive Species & Biosecurity Network (ISBN) has highlighted the need to improve the resources available to field staff.

Alan Dale, Senior Technical Advisor, Facilities Management, has secured £25,000 from The Carbon Reduction Fund to improve the biosecurity facilities currently available at three pilot sites; Templeborough, Fradley and Blandford. These sites represent a good cross-section of the sites surveyed, and the challenges that will need to be addressed if we are to provide good facilities for cleaning and drying clothing, plant and equipment.

A crucial aspect to the solutions we develop will be finding options that are carbon efficient and not wasteful of water. Once the pilot studies have been completed we will have a better understanding of what options will best deliver solutions at our other sites, and the cost that will incur.

Contact: [Trevor Renals](#), 7-24-5033

## **New Waste Regulatory Position Statement for disposing of invasive non-native plant material**

Mechanical control is an important tool in managing invasive plants, and restoring damaged habitats. Our new RPS provides pragmatic guidance on how to dispose of the waste material.

As the suite of herbicides available for use becomes increasingly small, we need alternative methods to manage invasive non-native plants. In many situations, mechanical control provides the most effective method of management.

RPS 178 allows operators to bury up to 1000 tonnes of plant material and associated silt. As a condition of the RPS, waste minimisation and reuse options must be considered first, and the activity must be risk assessed. There are other conditions to ensure that the activity doesn't result in the spread of the invasive species, or in the burial of harmful waste and subsequent threat to groundwater.

The position statement has already facilitated the disposal of over 800 tonnes of silt, water primrose and Australian swamp stonecrop from Braemore Marsh SSSI, in the New Forest. The site had been subjected to repeated herbicide treatments since 2009, which had failed to prevent the spread of water primrose. The variable water levels, coupled with repeated wet summer periods, prevented effective chemical control. Grazing cattle had also trodden the rhizomes deep into the enriched silt on the pond, which significantly increased the volume of silt that required excavation. Disposing of the waste had precluded the mechanical control option until the position statement was agreed, as the volume was too great to be spread to land without further risk of spread.



We won't know how effective the Braemore Marsh project has been until next year. We hope the mechanical control will protect the SSSI and nearby River Avon from water primrose infestation, as well as enhancing the interest features of the site.

Contact: [Trevor Renals](#), 7-24-5033

## **Merry Christmas!**

Whether you'll be spending your Christmas with native holly, ivy and mistletoe, or non-native spruce, pine, fir or PVC, I hope it is a happy and relaxing one.

