Invasive Shrimp, *Dikerogammarus villosus*
Briefing Note 5, May 2012

Introduction

Previous briefing notes are available on the Non-native Species Secretariat (NNSS) website[1]. These provide background information on the potential impacts of *D. villosus* (killer shrimp) and how the response is being managed in Great Britain. Additional information on biosecurity, identification, awareness raising, risk assessment and a *D. villosus* factsheet can also be found on the NNSS website. This note provides an update on developments since Briefing Note 4.

D. villosus was originally identified at Grafham Water, Cambridgeshire in September 2010 and subsequently at Cardiff Bay and Eglwys Nunydd in South Wales November 2010. In March 2012, a further population was found during dedicated monitoring at Barton Broad, in the Norfolk Broads.

Grafham Water, Cardiff Bay and Eglwys Nunydd

Operators at all three sites have continued to keep up their excellent biosecurity effort, including maintaining 'Check, Clean, Dry' signage, raising awareness and making it easier for water users to follow good biosecurity practice.

Alongside this two international experts were invited to Cardiff Bay & Eglwys Nunydd in March to assess and advise on the biosecurity measures in place to ensure they were still appropriate for these two sites.

The Broads

How was the new population found?

Since the initial identification of *D. villosus* in England and Wales, extensive monitoring, both general and targeted, has been undertaken (involving over 4,300 sites) to identify other locations where the shrimp might be present. The population at Barton Broads was identified as part of this dedicated monitoring programme.

[1] www.nonnativespecies.org/alerts/killershrimp

What is the extent of the population in the Broads?

The full extent of *D. villosus* in the Broads is still being investigated. Initial results show that in addition to the population at Barton Broad, the shrimp is also present in the connected River Ant (Figure 1). It is expected to spread through the main rivers of the Broads over time. However, the majority of the substrate throughout the Broads is of a peat or silt composition and unsuitable for supporting significant populations of *D. villosus*. The main potential colonisation sites in the Broads will be zebra mussel (*Dreissena polymorpha*) beds and man-made structures such as staithes, boatyards, hard bank revetments, bridges etc.

Our priority is to stop the shrimp spreading to sensitive waters in the Broads area and away from the Broads to other waters where it may do more damage.

What is the potential impact in the Broads?

Broadland contains a complex mosaic of rivers, lakes and wetland habitats supporting a rich diversity of wildlife. Aquatic wildlife notably in standing waters (e.g. dykes and broads) will be most at risk as *D. villosus* may significantly reduce the abundance of native invertebrates. If *D. villosus* becomes widespread in the system and present in sufficient numbers, then there may be indirect effects on food availability for certain bird species and fish.

D. villosus is expected to become more widespread in the Broads but the occurrence of significant populations will be localised and linked to substrate availability. Consequently, impacts on features of nature conservation importance within the Broads are likely to be limited overall.

Nevertheless it remains important to reduce the risk of spread of *D.villosus* particularly to those unimpacted parts of the Broads separated from the main waterways and further afield where more widespread, suitable substrate is available e.g. gravel extraction sites and naturally stony river beds e.g. the upper Wensum valley.

Was a new population expected?

While it is unfortunate that a new population of *D. villosus* has been found, it is not unexpected. Because of additional monitoring it is possible that we will detect populations that had previously gone unnoticed and we cannot say which of any populations found were introduced first or how long they may have been there.

What is being done about it?

An operations team including Natural England, the Environment Agency and Broads Authority has been established to oversee the response in the Broads and as with the other sites, will report to the national Task Group. In partnership with stakeholders the local team is:

- Assessing the extent of *D. villosus* in the Broads.
- Raising awareness and developing communication links with relevant partners.

- Undertaking a risk assessment to identify ways in which *D. villosus* may be accidentally spread, both within the Broads and to other parts of Great Britain.
- Developing and implementing a biosecurity plan for the Broads and promoting the Check, Clean Dry biosecurity campaign.

The Broads authority webpage is a useful source of more information for those in the Broads: http://www.broads-authority.gov.uk/managing/urgent-environmental-news.html

Surveillance and monitoring:

The Environment Agency, Natural England and Countryside Council for Wales, in partnership with stakeholders, continue to monitor an extensive network of over 4,300 sites for *D. villosus*. Apart from the 4 locations mentioned, *D. villosus* has not been found at any other sites.

Research and evidence:

The Scientific and Technical Advice Group (STAG) continues to provide expert advice and is maintaining an overview of current research activity. A key role for the STAG at present is to help guide the risk assessment being undertaken in the Norfolk Broads and provide other scientific advice that might be relevant.

With funding from Defra and other sources, the following research activities are underway:

- Preliminary investigation into what, if any, measures might be feasible to help control *D. villosus* (Cefas). Report expected in May 2012.
- Review of the efficacy of aquatic invasive species biosecurity advice in other countries and recommendations for how this might be applied in GB (Cefas). Report expected in May 2012.
- Investigation in to how other invasive Ponto-Caspian species may be introduced to Great Britain and recommendations for reducing risk (Cefas). Report expected in May 2012.
- Modelling the potential spread of *D. villosus* in Great Britain and discussing its ecological impact (Cambridge University). Report expected May 2012.
- Investigation into diseases that might be carried by *D. villosus* (Cefas). Report expected June 2012.
- The Freshwater Biological Association has produced an identification guide to invasive freshwater shrimps and isopods, including *D. villosus*, which can be found here: http://www.fba.org.uk/downloads

Experts from the Netherlands and Isle of Man were also invited by the STAG group to a meeting at Cardiff Bay to discuss various aspects of the response, particularly in relation to the potential for movement of *D. villosus*, through the rivers that feed into Cardiff Bay.

Biosecurity and communications update:

Anyone undertaking activities in the aquatic environment (both freshwater and marine) should adopt good biosecurity practice. This will help prevent introductions and slow the spread of invasive non-native species that may already be present, including *D. villosus*. Previous Briefing Notes provide more information on biosecurity, including "Check, Clean, Dry" - the national aquatic biosecurity campaign.

Update on biosecurity / "Check, Clean, Dry" developments since Briefing Note 4:

- Many organisations are helping to promote CCD to key user groups such as anglers and boaters and to the wider public, for example via press releases and radio interviews.
- The Green Blue and Non-native Species Secretariat manned a "Check, Clean, Dry" stand at the London Dinghy Show in early March 2012, visited by over 2000 people.
- Good practice biosecurity guidance for outboard motor users is now available on the Non-native Species Secretariat's website.
- "Check, Clean, Dry" videos for boat owners, anglers and canoeists have been developed to support the campaign. These can be made available for stakeholders to put on their own websites or to be used when briefing club members, etc.
- Fixed "Check, Clean, Dry" signs are now available in rigid plastic and aluminium to be installed around water bodies.

The Green Blue and NNSS promoting Check, Clean, Dry at the Dinghy Show, Alexandra Palace

What your organisation can do to help:

- Make sure your members are aware of and follow good biosecurity practice every time they visit a water body
- Put up posters / signs at your water body, slipways, clubhouses etc
- Circulate leaflets to stakeholders
- Put "Check, Clean, Dry" information in your newsletters / bulletins
- Put a link to "Check, Clean, Dry" (www.nonnativespecies.org/checkcleandry) on your website)
- Show your members the "Check, Clean, Dry" videos and / or put them on your website
- Include "Check, Clean, Dry" information in your training / inductions

Resources available to raise awareness of *D. villosus* and support the "Check, Clean, Dry" campaign

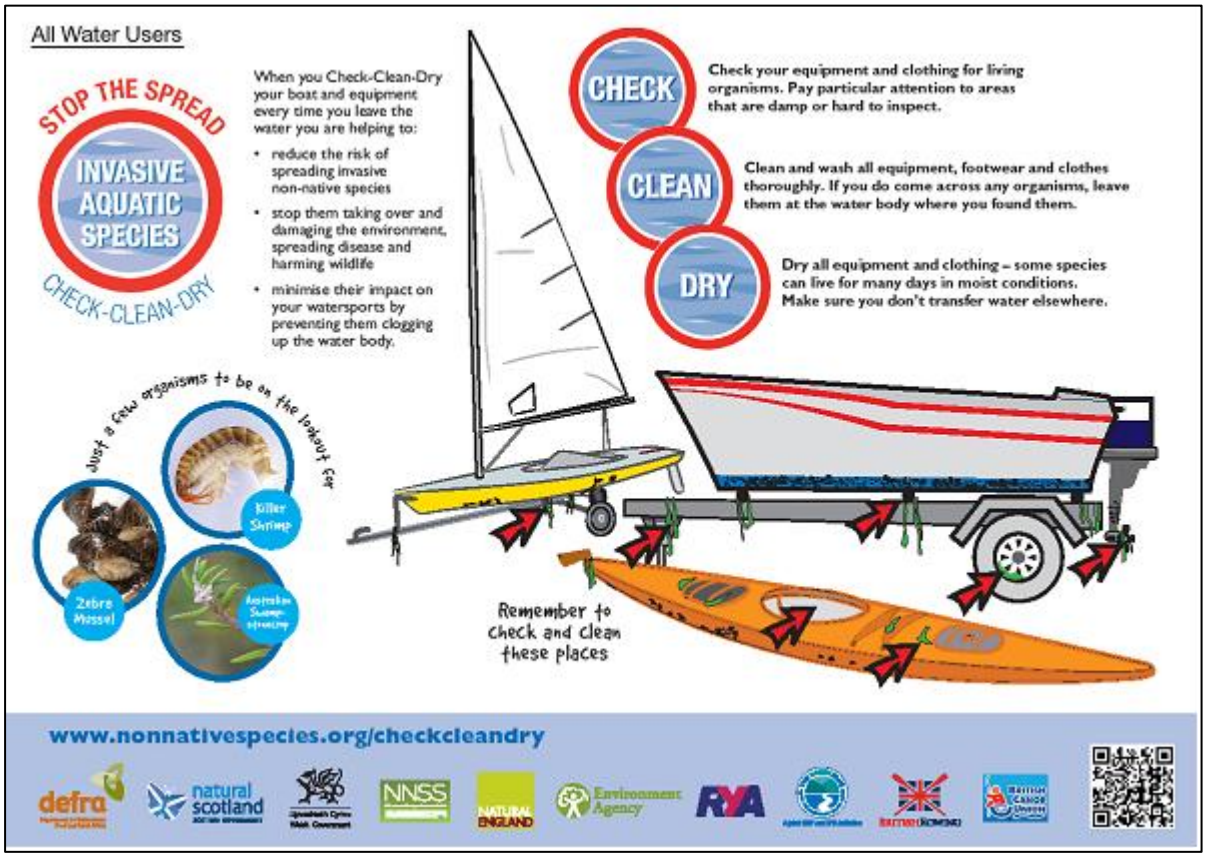
The following resources are available through the respective web pages or by contacting the Non-native Species Secretariat at: nnss@fera.gsi.gov.uk:

D. villosus

- Website – www.nonnativespecies.org/alerts/killershrimp
- Alert poster
- Identification guide
- Briefing notes
- Biosecurity guidance for anglers, boat owners and submerged structures
- Reporting website (http://www.brc.ac.uk/risc/alert.php?species=killer_shrimp) and email address alert_nonnative@ceh.ac.uk

"Check, Clean, Dry":

- Website: www.nonnativespecies.org/checkcleandry
- A4 poster / leaflet
- Pop-up stand
- Fixed signs for boaters
- Videos for angling, boating and canoeing



New fixed sign to help raise awareness of boat and canoe owners (similar signs for anglers are underway)

ACKNOWLEDGMENT:

The GB Non-native Species Programme Board and the Task Group would like to express their gratitude to all those involved in responding to the shrimp at the affected sites, all those experts who have given freely of their advice and knowledge and all those colleagues and partners who are helping to raise awareness and promote biosecurity practice. Whilst there is still much to do and key questions that still need answers, together we have achieved a great deal through voluntary commitment and partnership to protect our waters from a species that has been un-stoppable in continental water bodies.

Further information

If you have any queries or would like further information about the shrimp and the actions taken to control its spread, or if you feel your organisation can help, please visit: www.nonnativespecies.org/alerts/killershrimp

You can contact the GB Secretariat at the above address or by email at: nnss@fera.gsi.gov.uk

FIGURE 1 – Map showing initial survey results for *D. villosos* in the Broads: