

Conservation Officer's Report 2015 (submitted March 2016)

INVASIVE SPECIES: RESPONSE TO CONSULTATION FROM JNCC

Schedule 9 of the Wildlife & Countryside Act (1981) contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in [Schedule 9](#) in England and Wales.

The Schedule was last reviewed in 2006 (see 'Wildlife – Non-native species' @: <http://jncc.defra.gov.uk/page-1377>) and so in March 2015 JNCC announced that it was launching a new non-native species review consultation. To do this, JNCC set up a working group comprising Natural England and Natural Resources Wales together with representatives of the environmental NGOs and of the horticulture and pet trade bodies. (The review excluded Scotland.)

The Conchological Society was invited to consider potential additions to add to the schedule; rather surprisingly the only mollusc already present was the slipper limpet *Crepidula fornicata*. With limited time the Society decided to team up with Buglife to consider possible options and then complete standardised proposal documents. Our initial 'long-list' of non-native species living in England and Wales included, for non-marine, the zebra mussel *Dreissena polymorpha*, the quagga mussel *Dreissena rostriformis bugensis*, the Asiatic clam *Corbicula fluminea*, the ghost slug *Selenochlamys ysbryda*, the bladder snail *Physella acuta* and the vulgar or spanish slug *Arion vulgaris*; marine possibilities were the American jack-knife clam *Ensis directus (americanus)*, the Portuguese Oyster *Crassostrea gigas*, the Philippine clam *Ruditapes philippinarum*, the quahog clam *Mercenaria mercenaria* and the American whelk-tingle *Urosalpinx cinerea*. Consultations amongst Society members included in-depth consideration by Ben Rowson, Simon Taylor and Bas Payne.

The long list was rapidly 'whittled down' because, to be successful, proposals needed to demonstrate clear published or other objective evidence demonstrating that species had caused negative impacts to native species in Britain and/or elsewhere. Several of the long-list species including *P. acuta*, *E. directus*, *M. mercenaria* and *U. cinerea* were quickly rejected as these species are now long established residents in UK without any clear evidence that they were causing serious problems; the latter two species may even have declined in the UK in the last few decades. *S. ysbryda*, a potential problem to earthworm populations, was dismissed for lack of evidence, whilst both *R. philippinarum* and *C. gigas* are deliberately introduced and controlled commercial species subject to separate legislation. In early August 2015 Buglife, the Conchological Society and the National Museum of Wales (the latter for involvement with *A. vulgaris*) jointly submitted proposals for the remaining four species *C. fluminea*, *A. vulgaris*, *D. polymorpha* and *D. rostriformis bugensis*, all of which appear on DAISIE (Delivering Alien Invasive Species Inventories for Europe), the first three of which are also on their list of the '100 top invasive species' in Europe (see <http://www.europe-aliens.org/speciesTheWorst.do>). The submissions to JNCC for the four invasive candidates can be viewed on the Conchological Society website. (*Note: to be undertaken before publication of this report in Mollusc World I have the submissions from Buglife*)

RESPONSES TO NATIONAL BIODIVERSITY NETWORK (NBN)

As members will be aware, the Conchological Society makes its mollusc recording data available to colleagues and the wider public through NBN, and its data Gateway (<https://data.nbn.org.uk/>). NBN

has been actively reviewing its strategy under its new CEO, John Sawyer. We have contributed to this by replying to two NBN consultations during the year - the first, in February, about NBN's strategy, and the second, in October, about data access. Bas Payne led on coordinating both of these replies following wide consultation with other Council members. The Society very much supports NBN's policy to encourage recording and open access to data. John Sawyer's unexpected death in November 2015 is a sad loss; we hope that NBN will continue in the same direction.

THE GULF WEDGE CLAM *RANGIA CUNEATA*

The non-native Gulf Wedge Clam *Rangia cuneata* was discovered as a new and possibly unwelcome species to Britain during river surveys in Lincolnshire in August 2015. A brief summary of the bivalve's then known range, habitat and associated molluscan community was described shortly after in the *Journal of Conchology* (*Journal of Conchology* (2015) **42**: 189–192). The initial find left many unanswered questions and concerns that the appearance of this clam could lead to environmental and ecological problems. As a result the Non Native Species Directorate (NNSD) commissioned a Rapid Risk Assessment (*reference to be supplied – report not yet released*), but this raised many questions about the clam's recent arrival. In order to try to discover more, the Environment Agency in Spalding is now working with the Society. Further collaborative work will take place in 2016 to try to learn more about this unusual bivalve including:

- How long has *Rangia* been living in the South Forty Foot Drain (SFFD: the water body where it was first discovered);
- How widespread is it both in the SFFD and elsewhere in the River Witham system;
- Is it living in saline tidal areas near Boston;
- Has it spread into adjoining river systems;
- What can current and historic salinity records tell us about its salinity tolerance;
- How might it have been introduced into the SFFD (study of boat traffic and other activities that have affected the water body over about the last 10 years).

This work will be undertaken as a Conchological Society partnership with not only the Environment Agency, but also the National Museum of Wales (for assistance with DNA profiling) and Bangor University (help with shell aging by means of sclerochronology, a dating technique broadly similar to 'tree-ring dating').

LAUNCH OF THE 'RESPONSE FOR NATURE'

I wrote in my last annual report (*Mollusc World* (July 2015) 38: 10–15) about the RSPB led 'State of Nature' initiative and associated report which was launched in 2013 and to which the Conchological Society was an active contributory partner. After that came the 'Response for Nature', a follow-up initiative also led by the RSPB, which sought to explore what actions were needed to address some of the issues, problems and challenges highlighted by the State of Nature. The Response for Nature was launched in October 2015 with parallel events taking place in London, Wales, Scotland and Northern Ireland, each releasing a report specifically linked to that country. Peter Topley attended the event in London with Adrian Sumner representing us at that in Scotland. For a more detailed account about the Response for Nature and its launch event in London see *Mollusc World* (March 2016) 40: 19.

ADVICE & HELP

Throughout the year a wide range of conservation advice has been provided to individuals, government agencies, NGO organisations, amateur scientists and general enquires from the public. Selected examples of such work:

A. Help with identification:

- Pisidia from a school pond in Bournemouth (were thought to include the rare *P. tenuilineatum*, unfortunately not confirmed);
- A new population of *Vertigo moulinsiana* located by a member of the Sussex Wildlife Trust in the Arun valley;
- A variety of ‘problem helicellids’ from Sites of Nature Conservation Importance (SNCIs) on the South Downs;
- A batch of species collected by the London Natural History Society from Tooting Common;
- Confirmation of a new Roman snail, *Helix pomatia*, site from a country park in south Somerset;
- Clarification of a number of slug records (most with assistance from Ben Rowson) including suspected *Arion lusitanicus* in Devon, *Ambigolimax nyctelius* and *A. valentianus* sent in by a potential junior member living in Surrey, a mystery *Testacella* from Dorset (could have been either *T. scutulium* or *T. sp. ‘tenuipenis’* but lack of dissection prevented resolution).
- *Theba pisana* confirmed as a species that had arrived in a shop arriving in imported dried flowers;
- Clarification of *Helicella itala* specimens causing confusion for recorders from the Outer Hebrides Biological Recording Group;
- Confirmation of identification of samples of *Cochlicella acuta* and *C. barbara* from archaeological and historical samples from a coastal site in Cornwall;
- Damaged swan mussels *Anodonta cygnea* shells found on the banks of a lake near Malvern were identified with the suggestion that they showed characteristics of brown rat, *Rattus norvegicus*, attack. The suggestion was endorsed by David Aldridge who has documented the effects of rat predation on populations of unionid mussels in rivers and drains sites in East Anglia.

B. Multiple issues with *Vertigo moulinsiana*

- Natural England (Worthing) was assisted in interpreting sites at Fishbourne Fen (near Chichester) between 1998–2010 on the small and isolated population of *Vertigo moulinsiana* living there. Information was supplied on population numbers, habitat features, extent and the presence of non-native species all required for site assessment.
- Dr Brian Coles was supplied with fresh-dried *Vertigo moulinsiana* needed for an international study investigating genetic variation in the species throughout its range.
- In August 2015 planners working for the Environment Agency were assisted in preparing plans for a flood alleviation scheme near Perranporth in Cornwall. There were concerns that their proposed works might affect a population of *Vertigo moulinsiana* recorded in the area (*J. Conch.* (2003) **38**: 79–86). By good fortune David Holyoak, who knew the precise locations of these *V. moulinsiana*, was present in Cornwall at the time. He generously provided detailed advice on the location of populations of the snail and also commented on the likely value of early surveys. Reassuringly it transpired that the proposed works were for areas unlikely to support this rare snail.

ASSISTANCE WITH ACADEMIC ACTIVITIES AND RESEARCH

1. A *Myxas glutinosa* mystery!

In March 2015 I was contacted by researchers from Queen Mary University, London who were undertaking biological surveys of rivers, streams and other water courses on West Dartmoor. These studies involved assessing the impact of former mining waste (particularly heavy metals such as tin & lead) on freshwater biota. I was sent a rather shrivelled specimen plus images of both the site and specimen, which was suspected of being a Glutinous Snail, *Myxas glutinosa*. This was clearly exciting news as Natural England consider this species to be extinct (Natural England 2010) and only a single extant population is known in mainland UK in Llyn Tegid in Gwynedd (*Journal of Conchology* (2014) 41: 673–683). Additional examination of the specimen by Richard Preece further confirmed the *Myxas* possibility, an exciting prospect and one demanding action. As a result I duly headed for Devon in April 2015 to survey a small stream running off the moor near Mary Tavy. The stream certainly seemed a possible *Myxas* location having crystal clear water, good growths of *Ranunculus* sp. and *Calitriche* sp. and clean stones (supporting frequent *Ancylus fluviatilis*). These were free from the algal growth that might have indicated eutrophication, a decidedly unfavourable condition for *Myxas*. A thorough search of stones and vegetation over about 100m of stream at the site of the initial discovery produced numerous *Radix balthica*, some with depressed spires, but disappointingly no *Myxas*. You don't strike lucky every time!

2. Badgers and Snails

Help was given to a student undertaking an undergraduate study at Brighton University. This involved the collection of samples of badger faeces from sites in Brighton and then sorting them to assess diet. Amongst a wide variety of other items, the samples produced numerous shell fragments and some complete shells and slug 'plates'. I was contacted to assist. Microscopic examination of the samples (fortunately sterilised prior to delivery!) revealed that at least 12 species were present some undoubtedly deliberately eaten by the badgers with other much smaller species, possibly accidentally ingested accidentally with other food or soil. A more detailed article describing this work will appear in a forthcoming *Mollusc World*.

3. Liver flukes, snails and cattle

From June 2015 I was invited to advise an undergraduate geography student from Edinburgh University working on molluscan-related dissertation research. The work involved studies on the distribution and habitats of lymnaeid species acting as secondary hosts for the liver fluke *Fasciola hepatica*. This was linked to the grazing patterns of longhorn cattle (logged with GPS collars) on the Knepp Castle Estate just south of Horsham in West Sussex (<http://www.knepp.co.uk/>). Snail fluke infection was confirmed by dissection. I was able to assist in a variety of ways; providing literature sources, possible survey and identification techniques as well as suggesting a range of further snail species that might also act as fluke secondary hosts in addition to *Galba truncatula*.

Until recently the Knepp Estate was devoted to traditional arable and dairy farming. It shifted focus in 2001 to start on a series of regeneration and restoration projects mainly focussed on nature conservation and low-intensity meat production. The 're-wilding' of much of this large estate involved reintroducing a range of traditional breeds of grazing animals including cattle, horses and pigs as well as deer. With so many free-ranging ungulates, issues relating to liver fluke were an obvious concern; the student's work was part of the estate's 'Wildland Project'. In March 2016 the

fluke study was nearing completion; the student intends to present a summary of this work in a Conchological Society publication.

WORK WITH GOVERNMENTAL CONSERVATION BODIES AND NGOS

1. An overview of *Vertigo moulinsiana* in the Hampshire/ Dorset/Wiltshire River Avon

The River Avon catchment (lying in Hampshire/Dorset/Wiltshire) is a key area in southern England for the European Union Habitats & Species Directive (EUHSD) Annex IIa species *Vertigo moulinsiana*; the snail is a qualifying feature of the River Avon SAC (Special Area of Conservation). The river and its tributaries have been the subject of numerous *V. moulinsiana* surveys and subsequent monitoring since about 1996. The majority of these were undertaken by Ian Killeen or me with one larger survey undertaken jointly. In early 2015, following discussions with David Heaver, the Natural England's Senior Invertebrate Officer, I volunteered (on behalf of the Society) to undertake a review of 13 readily available Avon catchment *V. moulinsiana* survey reports covering the period 1997 – 2015. It is not appropriate to cite all of these with this short note, but a more detailed report will be prepared for future release to the Society. Time gaps between surveys and their differing scope made the provision of an accurate contemporary overview challenging. In all cases where a population of the snail has been lost from a site, it has subsequently failed to recolonise. A total of 73 sites in the catchment have supported the snail since about 2000 (47 on main river plus 26 sites on the tributaries Bourne, Wylde, Nadder and Nine Mile Stream). The analysis is worrying and reveals a confirmed loss of the snail at 63% of sites, with a current confirmed presence at only 15%. A further 22% have not been re-surveyed for between 6 and 20 years and it likely that many of these will also have been lost. The snail's decline seems to be attributable to two main causes; water table fall and low river flows in the mid-2000s followed, ironically, by prolonged winter flooding in the period 2011 – 2014. This desk study reveals the importance of long term repeat monitoring but also highlights problems arising from time gaps between surveys. Coherent plans for systematic regular site visits for threatened species like *V. moulinsiana* would allow environmental events (like drought and flooding) to be linked more clearly with population changes.

2. PROVISION OF NEGATIVE SURVEY RESULTS

Scottish Natural Heritage (SNH) was supplied with a large body of data relating to sites that had been surveyed for the rare EUHSD) Annex II listed species *Vertigo geyeri*, but unusually the locations of sites that had proved *negative* for the snail. Data was supplied from a considerable number of locations extending from Mull of Kintyre northwards to sites in the vicinity of the Applecross Peninsula as well as the Hebridean Islands of Islay, Lismore and Skye. All of the negative sites flushes were not 'second-rate' but specifically sampled as they *appeared* to be ideally suited to *V. geyeri* (in most cases unshaded base-rich flushes). Just why the snail occupies or is absent in any particular flush is unknown; are occupied pockets recent colonisations or remnants of possibly larger populations that have decreased over time? The information provided is being used in relation to the 'Habitat Map of Scotland' initiative <http://www.snh.gov.uk/about-scotlands-nature/habitat-map-of-scotland/>. This request also highlights an aspect of recording that is often overlooked; that of the sites that have been surveyed for particular species but have failed to produce them. As well as avoiding survey duplication such information might highlight subtle habitat features required at occupied sites.

ANISUS VORTICULUS AND THE A47 'ACLE STRAIGHT' - AN ONGOING SAGA

Background: The A47 'Acle Straight' trunk road connecting Acle and Great Yarmouth in Norfolk is notoriously dangerous, with long straight lengths and a narrow carriageway; serious accidents are a regular feature. For decades there have been calls for road improvements, mostly to develop a dual carriageway but, to date, no action has been forthcoming. Unfortunately, the road runs through areas of coastal plain grazing marsh including Damgate and Halvergate Marshes (both Sites of Special Scientific Interest (SSSIs) and also in a SAC). These are areas of high conservation value for a very wide range of rare and vulnerable aquatic and wetland plants and animals. Mollusca are well represented and in one very small area (under an acre) of Damgate Marshes close to Acle are a few ditches supporting the little whirlpool ram's-horn snail *Anisus vorticulus*. This is an EUHSD Annex IV 'European Protected Species', the only non-marine mollusc in the UK to have such strict protection. The existence of this snail has been known at this site for at least 20 years, the first confirmed find possibly by Duncan Painter in 1995 with the first survey reference appearing in 1998 (Willing & Killeen 1998). Since then the site has been visited many times by Roy Baker and Derek Howlett who have logged their finds in several Ted Ellis Trust and other reports. More recently the Highways Agency commissioned a full survey of all ditches lying adjacent to the road between Great Yarmouth and Acle, a survey that I completed in 2008 (an unpublished report for Atkins 2008). This work studied 58 ditches, but only found low numbers of *A. vorticulus* in three adjacent ones at the site of the earlier finds.

New proposals: On 21st July 2015 I was very surprised to be contacted by the BBC and asked to express my views on proposals to undertake a translocation of *A. vorticulus* from sites at Acle. At 6.55am the following morning I spoke on BBC Radio 5 Live for about 4 minutes. Making my Conchological Society credentials clear, I expressed surprise at knowing nothing of the plans. I suggested that if only the A47 second carriageway was built slightly north of its current path at Acle then the few *A. vorticulus* ditches could be avoided. I expressed the view that a translocation option was uncertain, highly speculative and followed on from unsuccessful trials in the Arun Valley. Here RSPB led experiments at Pulborough Brooks and Amberley Wild Brooks over a 5-year period had failed to establish *A. vorticulus* populations by transferring surplus stock from occupied to unoccupied ditches.

My interview corresponded to a flurry of related press articles; the following links being typical of those following the story:

http://www.edp24.co.uk/news/politics/tiny_snails_could_hold_up_dualing_of_a47_acle_straight_1_4158954

<http://www.telegraph.co.uk/news/uknews/road-and-rail-transport/11751038/New-A47-to-be-built-at-a-snails-pace.html>

In early September a meeting was held in Norwich to discuss the translocation proposals and was attended by representatives from Highways England, AECOM, Abrehart Ecology, Buglife, the Ted Ellis Trust, the Conchological Society (represented by Roy Baker and Derek Howlett) and Natural England. At this it was revealed that the AECOM company had produced a feasibility study on *A. vorticulus* translocation on behalf of Highways England based on this document:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/454014/Feasibility_Study_Lesser_Whirlpool_Ramshorn_Snail_DRAFT_Redacted.pdf

The meeting reported that AECOM were planning to start translocation work before the end of 2015 although they still had to apply for a licence from Natural England for this to take place. The Conchological Society together with Buglife will be taking a particular interest in how this arguably controversial initiative develops. Further details will follow.

BRITISH WILDLIFE

Three molluscan 'wildlife reports' were published during 2015 (*British Wildlife* **26:2** 134 – 137; **26:4** 288 – 290; **26: 6** 439 - 442). As in previous years these were able to cover a range of molluscan news, issues and discussions partly drawing upon and discussing the Society's non-marine and marine reports as well as a selection of reports and papers from *Mollusc World* and *The Journal of Conchology*.

RIVERS TRUSTS

In my last two annual reports I described collaborative work with the Arun and Rother Rivers Trust (ARRT) and 2014 saw further 'molluscan inputs'. One initiative is of interest. In March 2015 the ARRT, with guidance from The Wild Trout Trust, set about enhancing a short section of the Burton Mill Stream (a chalk stream tributary of the River Rother located near Petworth, West Sussex). The plan was to add gravel patches to small areas of the stream to enhance its suitability as a spawning area for brown and sea trout. Environmental impact assessment revealed the presence of numerous unionid mussels. As a result, before the gravel was placed it was decided to undertake a systematic sweep of the stream bed upstream and at the location of gravel placement to 'rescue' as many large unionid mussels as possible. This was to prevent them being buried by gravel or crushed by feet moving the gravel-loaded boat downstream from the collection site to point of delivery.

The results are surprising; a total of 169 live mussels were temporarily 'rescued' (167 *Anodonta anatina*, 1 *Anodonta cygnea* and 1 *Unio pictorum*; estimated at mussel density of about 1.7 m⁻²). The mussels were located whilst wading using a 'glass-bottomed bucket' along a stream length X breadth of approximately 20 m X 5 m. As expected, the mussels were not evenly distributed, but occurred in pockets in sandy sediments often wedged between stones. Smaller juvenile mussels, which are much harder to see, were undoubtedly under-recorded so the true mussel population size would have been higher.

Over the stretch of stream that we undertook the work, large freshwater mussels would appear to be the major component in the stream's total biomass (probably exceeding that for fish!). All mussels were measured before release to the stream, after the work was finished. The results for the *A. anatina* are fascinating. The mean length of the shells was 91.5 mm with 34% exceeding 100 mm (maximum 130 mm). Study of literature sources indicate that this species reaches a typical length of about 75 mm with upper limits between 120 and 130 mm. This suggests that the mussel population in this stretch of the Burton Mill Stream has been undisturbed for a considerable period of time. This work highlights the importance of undertaking environmental assessments before commencing river 'enhancement' works so that, where possible unionid mussel populations can be captured and returned.

ASSOCIATIONS WITH OTHER ORGANISATIONS:

The Conchological Society has active associations with many other conservation organisations. Some examples of particular collaborations with our key partners are given below.

A. Buglife

The Conchological Society works closely with Buglife (the Invertebrate Conservation Trust). We undertake joint ventures such as the invasive species submissions described above. We receive advice and news on conservation matters. In 2015 following a Buglife invitation, the Conchological Society sent a list of responses to questions asking how the organisation could assist us. Our suggestions included the possibility of help to re-establish 'steering groups' which used to meet to discuss the conservation of non-marine BAP species between our Society and government conservation agency representatives. These groups were disbanded when national governments (in England, Wales, Scotland and Northern Ireland) established their own priority lists about 10 years ago. We also suggested a parallel new initiative, the establishment of a marine molluscan steering group for 'species of conservation concern'. We also suggested that help might be given to us to assist in launching some monitoring schemes to involve the public in assessing changes in the fortunes of selected common species (ones where identification is relatively straightforward). Negotiations with Buglife are still on-going and outcomes will be reported in a later report.

On 26th June 2015 Adrian Sumner attended the Buglife meeting in Oban on 'Celebrating Scottish Invertebrates'. He gave a talk on 'Recording Slugs and Snails in Scotland', emphasising the extensive data obtained by and held by the Conchological Society in that country. He also highlighted the difficulties of obtaining good recording coverage in Scotland which has relatively few capable recorders but large sparsely populated areas of remote and often inaccessible countryside and shoreline.

B. Atlas of Living Scotland

Adrian Sumner attended a meeting about the new 'Atlas of Living Scotland'. This project, which is based on the existing "Atlas of Living Australia", aims to be a comprehensive database for all matters to do with Scottish species, including not only species records, but also descriptions and images. The Atlas is still under development, and a beta-version can be visited at www.als.scot. In some ways this initiative is an alternative (some might say replacement) for NBN Gateway in Scotland. The Society clearly needs to follow developments in this initiative.

C. Invertebrate Link (IL)

IL (www.royensoc.co.uk/InvLink/Index.html) meets biannually and gives us links with representatives from NGOs and governmental conservation bodies. It also allows us to advertise our work to these bodies through the distribution of an annual report summarising our recording and conservation activities.

D. Sussex Wildlife Trust's Conservation & Biological Recording Committees

I have been able to represent molluscan interests and contribute an annual records report to *Adastra*, the annual review of wildlife recording in the county (www.sxbrc.org.uk). For 2015 this was able to highlight long-term on-going studies of *Vertigo moulinsiana* and *Anisus vorticulus* taking place in West Sussex and confirmation of the first populations of invasive *Dreissena polymorpha* in

East Sussex. The report also drew attention to the possibility of finding long distance non-native 'rafting' molluscs attached to flotsam cast up on the long southerly facing Sussex beaches (allowing references to recent Conchological Society publications : *Mollusc World* 38: 21–23 & *Journal of Conchology* 42: 41–49)

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NATURAL ENGLAND 2010. Lost Life: England's lost and threatened species – NE233. Publications. Natural England.org.uk/32023

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