Molluscs World

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Searching for *Ena montana*

Thames freshwater mussels

Marine mollusc strandings

The Conchological Society of Great Britain & Ireland

Helping to understand, identify, record and conserve molluscs

From the Hon. Editor

This issue features two reports of field meetings organised as part of an ongoing project initiated by Keith Alexander to monitor the status of the snail *Ena montana*. Keith, Tom Walker and others have visited a number of the sites where this locally distributed species has been recorded in the past, including the two covered by the reported field meetings. I have myself visited some of the more easterly sites which have mostly proved negative, apart from a wood near Weston, Hertfordshire where I observed just one adult (see above). Several of the sites where the species was common have now disappeared due partly to housing development (for example the well-known site at Buntingford) but the field meetings also report some more encouraging news.

A further two articles in this issue focus on the stranding of marine molluscs on the Scottish coast. For some molluscs, such as cuttlefish, the stranding is related to their normal life cycle, however in other cases such accumulations are probably due to other environmental issues. It would be interesting to read in these pages of any other similar observations, especially over the coming winter months. Such observations are probably more likely to be posted on social media interest groups and fora, but please also consider submitting something for your magazine.

I am particularly grateful to Ian Killeen for his article summarising the survey work undertaken to monitor the freshwater mussel populations in the River Thames. This article demonstrates that *Mollusc World* can remain a useful place for the dissemination of important material that may not necessarily appear in peer reviewed journals.

As usual, my thanks are due to all those who have submitted material for this magazine. Don't forget to use the darker months of winter (at least for those of us in the northern hemisphere!) as an opportunity to write something for the magazine. Please keep up the good work!

Peter Topley

Mollusc World is intended as a medium for communication between Conchological Society members (and subscribers) on all aspects of molluscs, in addition to the material found on our web site where a number of early back copies are available for viewing. Mollusc World will also be of interest to all those enquiring about this subject or the work of the Society. We welcome all contributions in whatever form they arrive (see page 31 for further details).

The Conchological Society of Great Britain & Ireland

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Front Cover:
Searching for *Ena montana* on trees in Howe Wood, Oxfordshire (Tom Walker, Martin Bell and Mags Cousins) (see p. 27) (photo: Peter Topley)

Tree-climbing *Pomatias elegans*

Tom Walker

> *'Pomatias elegans* is a markedly calciphile species, living in hedge bottoms, among leaf litter and plant roots, often subterraneously, especially in cold weather. It may creep on the surface when temperature and humidity are both high…'.
> Graham, A. (1988) *Molluscs: prosobranch and pyramidellid gastropods*. Brill: Backhuys: 182.

A walk in Sulham and Mosshall Woods, near Reading, Berkshire (SU647755) in June 2021 revealed a molluscan surprise. On an ash tree, 0.5 m up the trunk, was a specimen of *Pomatias elegans*. The animal was very much alive, actively climbing up the trunk (figure 1). Not only was this the first time that I had seen the 'animal' of this species, I had never previously observed a living specimen above ground level. And it was not alone. Continuing the walk, about 100 m further on were two more, one at 1.5 m up an oak tree (figure 2) and the third at 0.3 m on another ash (figure 3). All were 'out of their shells' and climbing up their respective tree trunks. The weather was mild and overcast. There had been heavy rain during the previous two days, but none on the day of the walk. Temperature was not noted at the time, but on-line records show that it was around 15ºC with a humidity of 80º.

figure 1: *Pomatias elegans* at 0.5 m on an ash tree. Sulham and Mosshall Woods, Berkshire.

Pomatias elegans, the round-mouthed snail, is distributed widely in the south of England but becomes less common north of the Midlands. Its range corresponds closely to the chalklands of Britain; being a calciphile species it requires chalk to construct its heavy shell. Dead shells are frequently encountered in the leaf litter of woodlands and hedgerows, and live specimens, with the operculum tightly withdrawn into the shell aperture, are also common. As Graham wrote, it is normally a surface or subterranean dwelling mollusc. Over the years I have seen many hundreds, if not thousands, of this species among leaf litter in woods and hedgerows, but, if alive, always with a closed operculum, so it might be supposed that the snail is normally active during the hours of darkness. Yet here were three specimens active in the middle of the afternoon.

A walk in most British woods will reveal molluscs climbing up the tree trunks. This list gives those species I have either observed myself, or found in a brief survey of the literature. Others can undoubtedly add a few more.

figure 2 (left): *P. elegans* on an oak tree at 1.5 m height; figure 3 (right): on another ash tree at 0.3 m.

Enidae	*Ena montana*, *Merdigera obscura*
Discidae	*Discus rotundatus*
Clausiliidae	*Balea heydeni*, *B. perversa*, *Clausilia bidentata*, *Cochlodina laminata*
Vitrinidae	*Vitrina pellucida*
Helicidae	*Cepaea hortensis*, *C. nemoralis*, *Cornu aspersum*, *Helicigona lapicida*
Geometridae	*Cernuella virgata*
Hygromidae	*Monacha cantiana*, *Trochulus hispidus*, *T. striolatus*, *Zenobiellina subrufescens*

Why do snails climb trees? There are several theories, but proof seems to be lacking. Some species are more commonly observed on trees after wet weather, so perhaps they are seeking dryer habitats. Moss, lichens, algae and fungi growing on tree trunks are an attractive food of some snails. Another reason may be to escape predators that live on the ground, although many of those predators may also be able to ascend trees. One suggestion, when I showed these images at a recent Conchological Society meeting, was that the animals could be diseased; perhaps they are carrying a parasite that forces the snails upwards where they are more likely to be predated and the parasite can transfer to another host?

A definite explanation for the finding of *Pomatias* on trees during my walk is unlikely to be found. The weather on the day was dry, and if they had ascended to escape the rain of the previous days it seems probable that they would not be actively climbing a day later. The temperature was not high and the humidity was typical of a closed-canopy woodland in the south of England. The diet of this species does not seem to be well documented but it is thought be a detritivore, so access to live flora on trees seems improbable, although cannot be excluded. Could they have been escaping predators? Yes, possibly, but if this is the reason then it is to be expected that tree-climbing would have been previously observed. What about disease? To the naked eye the animals appeared healthy but none were taken for analysis, so this cannot be determined.

While the reasons for why three specimens of *Pomatias elegans* were climbing trees is not known, at least they can now be added to the list of those species which may, very rarely, be found off the ground and on tree trunks.

The River Thames freshwater mussel population

Ian Killeen

Background

There are 15 species of native unionid bivalves in Europe other than *Margaritifera margaritifera*, none of which can be considered to be secure throughout its range based on IUCN threat assessments. A seminal paper on the conservation of European bivalves, written by 49 authors with combined expertise on the range of European species, concluded that large bivalve species play an important role in aquatic ecosystems, that they are in serious decline, and that there are large gaps in the scientific knowledge needed to restore these species to a sustainable condition (Lopes-Lima *et al*. 2017). Furthermore, data gathering for the IUCN Red List assessments (e.g. van Damme 2011a, b, c) also highlighted the dearth of published information on freshwater mussel distribution, abundance and population structures, and that there was an urgent need for more detailed and systematically collected data.

The lack of data is not necessarily a reflection of lack of survey or of poor quality data. Many mussel surveys have been carried out across Europe but these surveys are designed to suit the needs of, e.g. the funding conservation body, or for Environmental Impact Assessments (EIA) and considered to be sensitive. Thus, such work is not regarded as suitable for publication in peer-reviewed journals and therefore the results of these surveys reside in grey literature which is not easily accessible to, or brought to the attention of, the wider scientific community.

It is in this context that I present a summary of the results of work carried out in the River Thames ten years ago for the English Environment Agency (EA), with their permission.

The Thames mussel survey

In 2011 the EA commissioned a survey of the River Thames between Lechlade (Gloucestershire) and Hurley (Berkshire) to obtain information on the distribution and species composition of freshwater (unionid) mussels, with particular focus on the depressed river mussel *Pseudanodonta complanata* (figures 1 and 2), a Priority species on the UK Biodiversity Action Plan (BAP). The BAP has since been superseded although it helped to inform the Section 41 species list arising from the Biodiversity 2020 national strategy (see http://publications.naturalengland.org.uk/publication/4958719460769792 for more details and a link to the list, dated 2014).

figure 1: *Pseudanodonta complanata*.

figure 2: Characteristic umbonal rugae of *P. complanata*.

Methodology

Surveys of large lowland rivers like the Thames (figures 3 and 4) are potentially difficult due to their size, channel width and depth, accessibility, presence of locks, leisure and tourist use, and so on.

figure 3: Wide section of the River Thames at Port Meadow, Oxford.

figure 4: Wide section of the Thames below Benson lock and weir upstream of Wallingford.

figure 5: Sampling marginal areas.

For this survey, which was carried out in two phases in September 2011 and early March 2012, all work was undertaken on the river from a boat. Potential sites were identified by searching for suitable substrates (ideally silty sand) in marginal areas with good accessibility and safe working conditions in depths ranging from 0.3 to 0.8 m (figure 5). Usually this was in small embayments, on marginal shelves or adjacent to stands of sedge. Steeply sloping margins, and substrates comprising compacted clay were avoided. Surveys in a number of UK rivers have shown that unionid populations are greatest along the margins (e.g. McIvor 1999) and therefore it was reasonable to focus distribution surveys in such zones.

Various methods have been used in Britain to assess *Pseudanodonta complanata* and other unionid species distribution and abundance. Examples in recent studies include a survey of the River Great Stour in Kent (Aldridge 2010), which employed a combination of cross-channel dredging and ten-minute hand searches (CPUE – catch per unit effort). Willing (2009) surveyed the Wye which included using a bathyscope, and the Environment Agency (2009) surveyed the Shropshire Union Canal using a combination of hand netting and dredging from the banks. Most, usually quantitative, assessments of freshwater mussel populations are carried out by sampling quadrats, e.g. Aldridge *et al*. (2007), and this was the method used for the 2011/2012 Thames survey.

A 0.5 m x 0.5 m steel quadrat was placed on the river bed and all mussels within the quadrat were collected by hand. This method was considered adequate to find all mussels over 40 mm in length and at least some smaller individuals. The mussels were collected into a sampling net, identified to species and measured (length in mm). The mussels were then returned to the substrate within the quadrat. The number of quadrats sampled at each site varied from five to ten depending upon the density of mussels found, but where possible at least 100 mussels were sought. The presence of zebra mussels (*Dreissena polymorpha*) on unionid mussels was also noted. However, it is not possible to establish a complete demographic profile of the population as mussels < 2–3 cm in length are likely to be missed by hand searching quadrats, especially in turbid water. To determine if there is recruitment, all surface substrate within the quadrats needs to be collected and analysed. This was not carried out for this study.

Results

A total of 93 sites were sampled over a river distance of 135 km. The site locations, including the presence/absence of *Pseudanodonta*, are shown in figure 6.

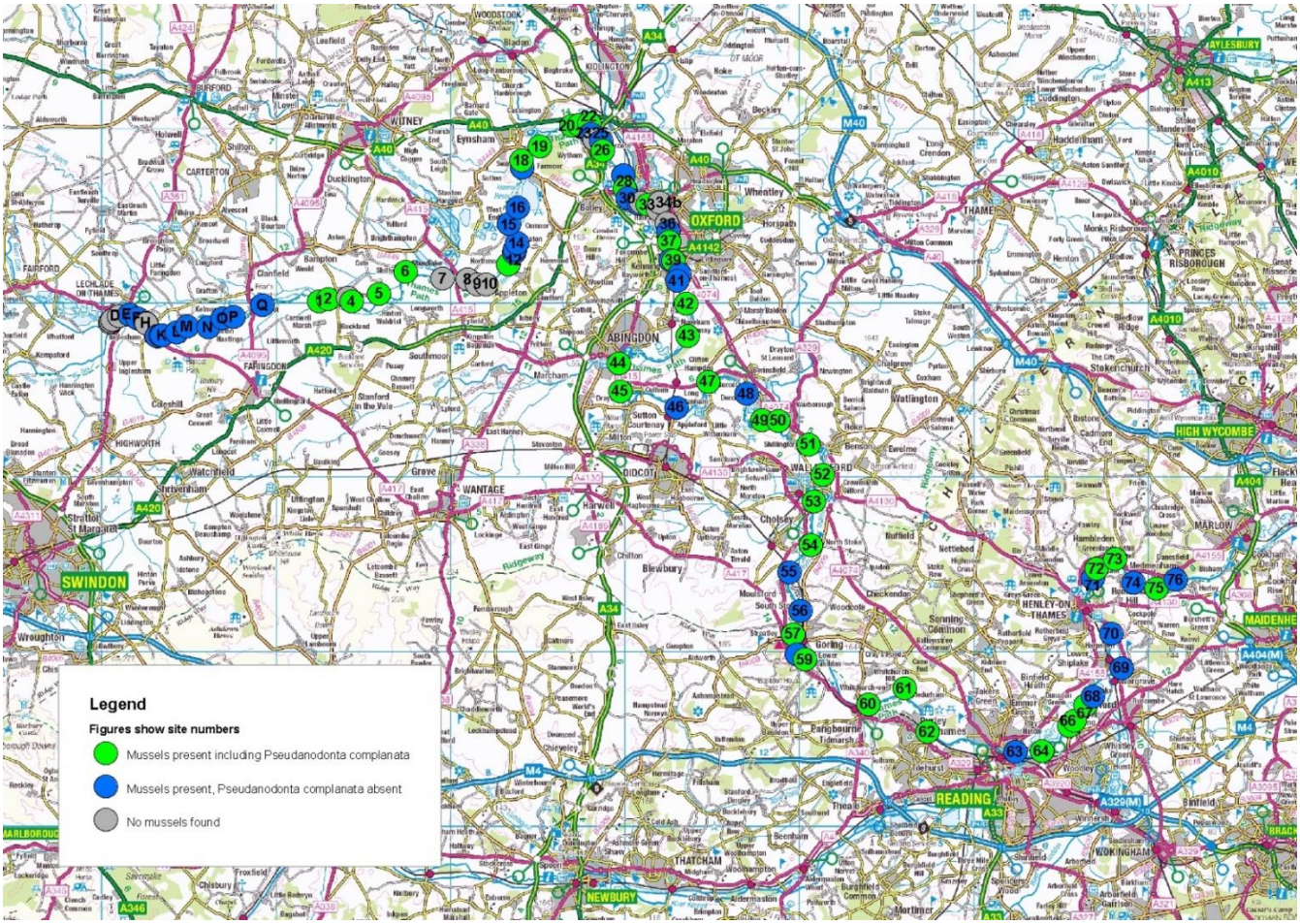


figure 6: Map of all sample sites showing the presence/absence of *Pseudanodonta complanata*.

figure 7: Typical quadrat sample.


figure 8: Large *Andodonta anatina* individuals.


figure 9: Quadrat sample from Port Meadow, Oxford, dominated by *Unio tumidus*.


figure 10: *Unio tumidus in situ*.

Mussels were found at 83 of the 93 sampling sites (figure 6). Five of the negative sites were at the upstream end of the survey length between Lechlade and Buscot. This may in part be due to less than ideal survey conditions, but given that even the positive sites had very few mussels suggests that unionid mussels are genuinely less abundant in the upper part of Thames. There were also relatively long sections of the river, particularly upstream of Oxford, where no suitable or accessible mussel habitat could be found.

Four large unionid mussel species were recorded in the main channel of the River Thames: the duck mussel (*Anodonta anatina*), the painter's mussel (*Unio pictorum*), the swollen river mussel (*Unio tumidus*) and the depressed river mussel (*Pseudanodonta complanata* (figures 7–10). In Wolvercote Mill Stream, a ponded backwater tributary upstream of Oxford, a single large living individual of the swan mussel (*Anodonta cygnea*) was also found.

From Buscot downstream as far as Hurley a total of 6313 unionid mussels were collected. The average density of mussels was 49.6 m^{-2} (median = 41 m^{-2}). Nine sites had densities of mussels in excess of 100 m^{-2}: the highest were 177 m^{-2} at Port Meadow, Oxford, and 155 m^{-2} at a site downstream of Dorchester. There were no clear patterns of river sections with respect to either high or low mussel densities. The mean value of 49.6 m^{-2} is comparable with densities recorded in previous EIA surveys between Nuneham and Dorchester of 53 m^{-2} in 2006, and in west London of 62 m^{-2} in 2010.

The depressed river mussel was recorded at 39 of the 93 sample sites (42%) covering a range of 125 km from Rushy Lock to Hurley. The percentage of *P. complanata* as part of the overall mussel numbers was low, ranging from 0.7% to 8.7% (mean 2.19%) at the sites where it was present (figures 6 and 11). This seems relatively typical for the Thames based upon evidence from other surveys. The other three species of unionid mussel were recorded at virtually every site. *Unio tumidus* was the commonest species, comprising almost 45% of all mussels found, followed by *Anodonta anatina* with 29% and *Unio pictorum* with 24% (see figure 11).

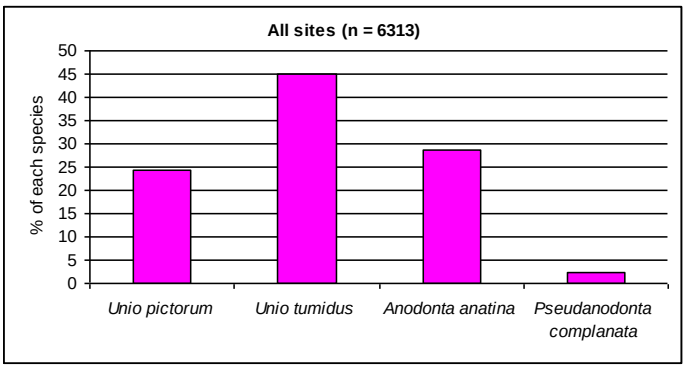
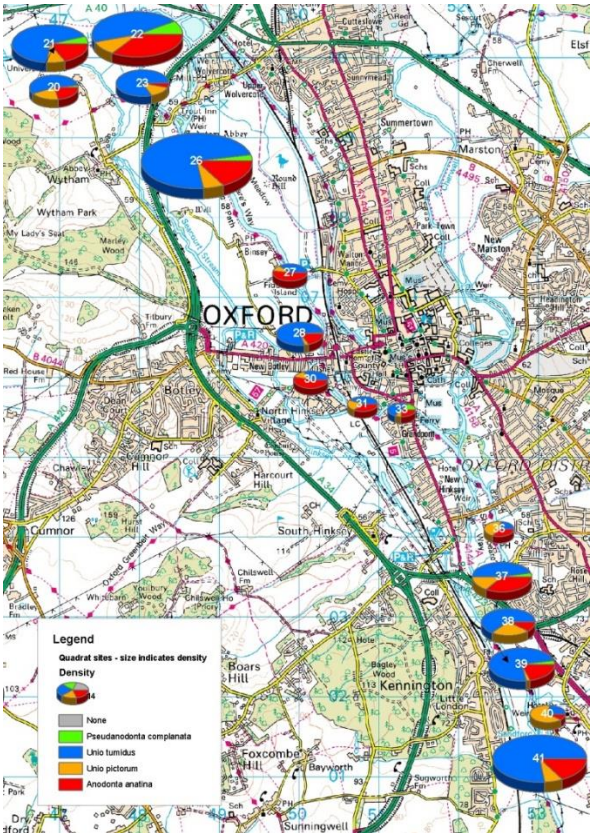


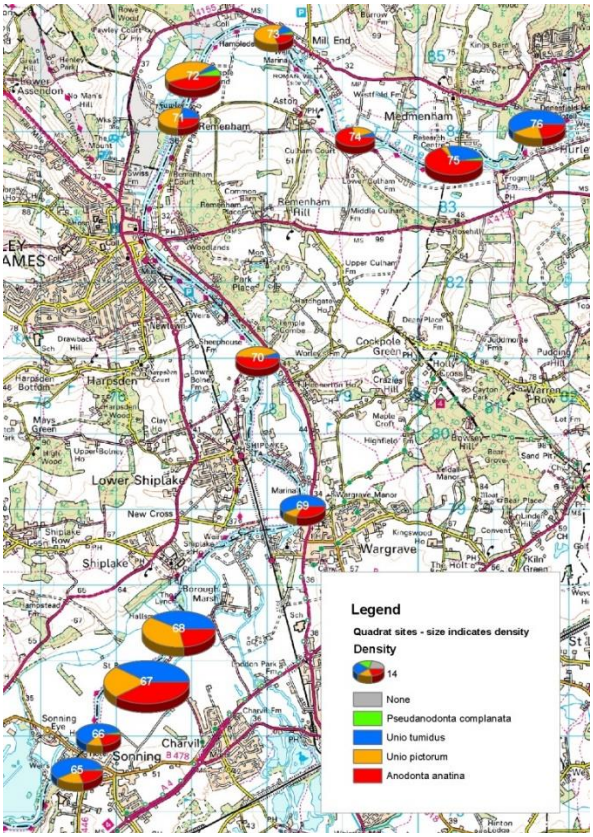
figure 11: Relative percentage of each mussel species.

There was great variation between sites in the percentage composition of each species. At some sites, one particular species dominated the mussel fauna, e.g. at five sites around Oxford *Unio tumidus* comprised over 75% of all mussels found (figure 7). However, there were no clear geographical trends of any one species dominating particular sections of river although some sections, e.g. upstream and downstream of Oxford, had a high proportion of *U. tumidus* and some, especially at the furthest downstream sites, higher proportions of *Anodonta anatina* were more frequent (figures 12 and 13).

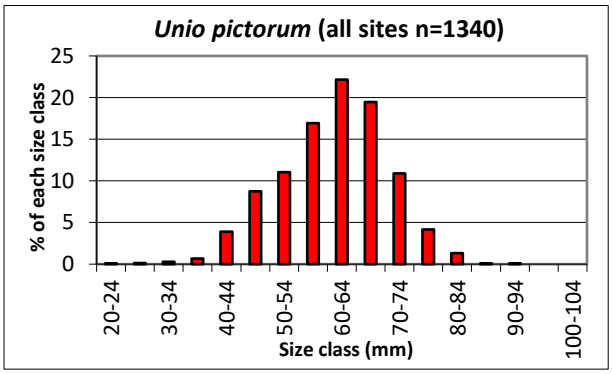
Size frequency histograms are given for all four mussel species (figures 14-17). The specimens of *Pseudanodonta complanata* found ranged from 34 to 71 mm in shell length with a normal population distribution curve. There were too few specimens to determine whether there was any geographical difference in population demography. Similarly, there was no strong correlation between this species' abundance and habitat type: it was found in clean coarse sand, silty sand and in muddy habitats.

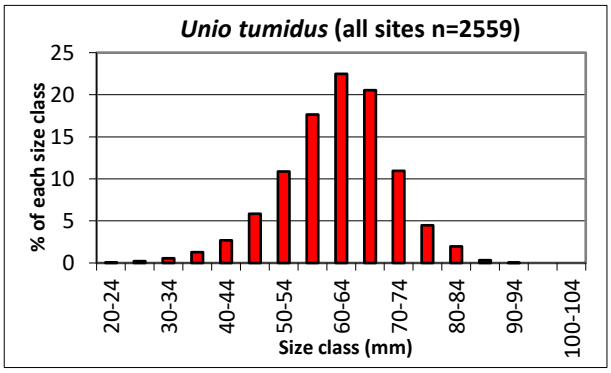
Normal population distribution curves were also derived from the length measurements of the other three species. However, for the two *Unio* species a section upstream of Bablock Hythe (upstream of Oxford) had a much higher proportion of individuals in the smaller size (age) classes compared to those further downstream. This could be a result of management (e.g. channel dredging) or ecological factors. There is a less marked trend with *Anodonta anatina* although the middle reaches (from Swinford, through Oxford to Abingdon) have a higher proportion of larger (older) individuals.

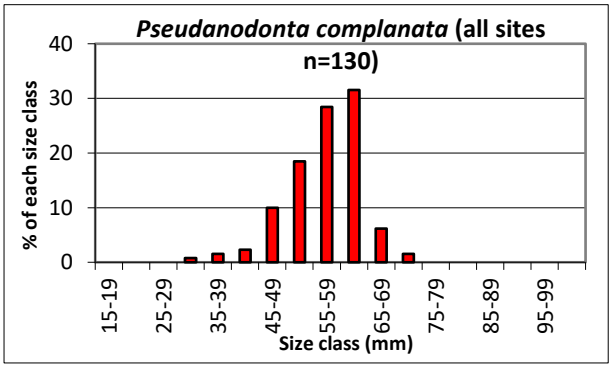


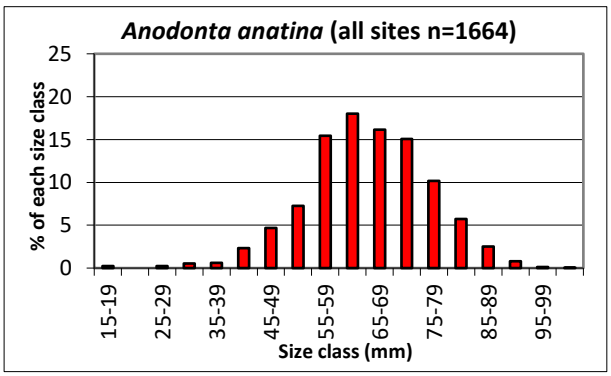


figures 12 and 13: Two examples of maps showing proportions of each mussel species per site. The size of the pie graphs is relative to the number of mussels recorded









figures 14-17: Size frequency histograms for each species.

Zebra mussels

The zebra mussel *Dreissena polymorpha* was recorded attached to the shells of living unionid mussels at 34 of the 93 sites. There were only four occurrences upstream of Oxford, at sites between Kelmscott and King's Weir (Godstow). From Kennington to Hurley zebra mussels were recorded at 30 of the 37 sites. At the positive sites, 112 unionid mussels out of a total of 3195 (3.5%) were found with zebra mussels attached. *Anodonta anatina* was the most frequently infested species (77 individuals), followed by *Unio tumidus* (18) and *U. pictorum* (17). No *Pseudanodonta* were found with zebra mussels attached. At one of the furthest downstream sites, 15 *A. anatina*, two *U. tumidus* and one *U. pictorum* were infested. Most individual unionids were found with a single zebra mussel, but at a site near Reading one small (51 mm) *Anodonta* had seven zebra mussels attached.

figure 18: *Unio tumidus* with zebra mussels attached.

figure 19: Zebra mussel on *Anodonta anatina*.

Conclusions

The 2011/2012 survey concluded that the River Thames between Lechlade and Hurley supported large populations of the four species of river mussels with locally high densities (greater than 150 m^{-2}). A highly conservative estimate taking only 15 m of the overall channel width populated with mussels at a density of 50 m^{-2} provides an estimate that each 100 m section of river supported on average 75,000 mussels – a hugely significant portion of the river's biomass, but also giving the Thames very high conservation value for freshwater mussels.

Although the densities of the depressed river mussel *Pseudanodonta complanata* are low compared to some rivers in England, the species is spread over a large distance (Rushey Lock to Surbiton at least) and in a range of habitats. Therefore, the population has to be considered to be of national and possibly international significance. Updated information would be useful in the light of more recent publications reporting declines in the species in central Europe (Ćmiel *et al*. 2019, Ożgo *et al*. 2020).

There are numerous threats to mussel populations: river modification, river management (dredging and weed cutting), water quality decline, tourism and development pressure (e.g. marinas), and competition or direct mortalities due to exotic species. Numerous studies carried out over the last 20 years have demonstrated the negative impact on unionid populations from the invasive zebra mussel. Repeated surveys (e.g. Aldridge *et al*. 2004) in the River Thames, River Great Ouse and Barden Lake showed the serious threat from zebra mussels. They showed that the proportion of unionid mussels infested by zebra mussels had increased significantly in all sites studied during 1999–2004. Sousa *et al*. (2011) suggested that due to its deep-burrowing behaviour, *P. complanata* may be the least susceptible to *Dreissena* colonisation among European unionids. However, in a recent Polish study, Ożgo *et al*. (2020) recorded over 90% of the *P. complanata* (and > 90% of *Unio tumidus*) colonised by zebra mussels.

Aldridge (2000) and McIvor & Aldridge (2007) particularly highlighted the effects of channel management. Conditions within the sediments seem to be decisive for the survival of juvenile mussels and thus for the age structure of the populations. Aldridge *et al*. (2004) showed the serious threat from zebra mussels. Mouthon (1996) showed *Unio tumidus* and *Pseudanodonta complanata* to be the large mussel species least tolerant of biodegradable pollution and Weber (2005) showed negative influences from sporadically occurring low oxygen and high ion concentrations in the water. More recently, a mass mortality of mussels at a site in Poland was attributed to very high phosphate and nitrite levels in the water after large quantities of sediment were mobilised by motor boat engines (Ćmiel *et al*. 2019). Of the mussel fauna, *P. complanata* was the most affected.

It is difficult to fully assess the impact of channel management on the distribution and abundance of the population of the freshwater mussel species in the River Thames as the sampling in this study has not been random. It has focused on selecting sites and habitats most likely to support good numbers of freshwater mussels. Generally these sites are relatively shallow (less than 1 m deep) and gently sloping away from the bank edge, in embayments, under trees, amongst stands of marginal plants such as *Carex* and *Glyceria*, or on shoals on the insides of bends. All of these places tend to have relatively uncompacted substrates, they are less likely to be subject to channel dredging operations, and boats do not drive over or into them and are less likely to moor within them. During the survey it was apparent that there were extensive sections of river margins that supported very little mussel habitat or only had low numbers of mussels, the long straight sections upstream of Newbridge are a good example of this. In these straight sections in particular the river bed often slopes steeply away from the edge, the substrate tends to be more compacted or composed of stiff clay rather than siltier or sandier material (making it difficult for mussels to bury themselves), they are more prone to damage from mooring boats, and possibly are dredged over a greater part of the channel width.

A change in channel management whereby no dredging is carried out within 5 m of each bank may allow more suitable mussel habitat to develop. However, the key to protecting the mussel population is to ensure that the existing high

quality habitat as described above is allowed to remain unaffected by channel management activities.

Although the four mussel species were classified as 'Least Concern' when assessed using IUCN criteria for the British Red Data List (Seddon *et al*. 2014), it was recognised that although still widespread across their range, there had been a significant decline in records since the 1960s. This demonstrates a difficulty with the current regional red data assessment categorisation. Furthermore, if populations continued to be lost and there was evidence to show that zebra mussels are a significant threat, then the status of all unionids would need to be re-evaluated and updated.

Proposal for a European standard

Following the publication of the paper by Lopes-Lima *et al*. (2017) on the conservation status of freshwater mussels in Europe and the acknowledgement of the crisis these species are facing, an EU-funded COST project was applied for and was approved for a four-year period commencing in 2019. This project is titled *Conservation of freshwater mussels – a pan-European approach* (CONFREMU CA18239). The authors of the paper cited above and other experts from 28 different countries are involved in the COST project.

In 2017 an EU CEN standard EN 16859: 2017 – *Water quality – guidance standard on monitoring freshwater pearl mussel* (Margaritifera margaritifera) *populations and their environment* was published (see Boon *et al*. 2019 for a summary). The impact of producing this CEN standard has been significant and has resulted in a more standardised approach to assessment and a greater understanding of the knowledge required to make assessments for that species.

As a standard approach to collecting the information required to undertake accurate assessments of unionid populations is not available, a sister standard to include the other native European large bivalve species would be of equal value in their protection. At a meeting of more than 60 delegates from the CONFREMUS project in Brussels in January 2020, the value of a CEN standard for monitoring and assessment of these European bivalves was discussed and a formal proposal was made to CEN. This has been accepted and an international drafting group has been set up to meet and work on the text for the new CEN standard on freshwater mussel monitoring and assessment.

Acknowledgements

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More snails from Cyprus, old and new

Janet Ridout Sharpe

Peter Topley's recent article on molluscs in northern Cyprus (Topley 2021) has encouraged me to share my own involvement with Cypriot snails and perhaps provide some insight into the origin and distribution of some of the species. My interest in the non-marine Mollusca of the island was sparked back in the late 1970s when I was asked to look at an assemblage of shells from a Neolithic site, Ayios Epiktitos Vrysi, on the north coast of Cyprus about 7 km east of Kyrenia. My protestation that I knew nothing about Cypriot molluscs fell on deaf ears and I was told I would 'pick it up' as I went along. More than 40 years later, and with a number of reports on archaeological molluscan assemblages from Cyprus (prepared for the late Professor Eddie Peltenberg's team at the University of Edinburgh) under my belt, that may have been the case – but with many a slip along the way.

Back in the beginning, the internet was still in the future and identification guides were virtually non-existent. I will always be grateful to Tom and Celia Pain, who helped me a great deal in the early days with the identification of the marine shells. Otherwise my main resource was a lengthy but non-illustrated document dealing with the molluscs from pre-Bronze Age sites at Cape St Andreas in the north-east 'tail' of Cyprus, published in that most unlikely of journals, the Cyprus *Fisheries Bulletin* (Reese 1978), whereas following the partition of Cyprus in 1974 my subsequent work dealt with material from the south-west of the island. Over the years more and more books and online resources have become available and I can now look back on some embarrassing misidentifications from those early days.

Of particular note was a flattened shell with a wide umbilicus that was (I thought) a dead ringer for the central European species *Xerolenta obvia* but which I was later able to identify as the endemic *Xeropicta ledereri mavromoustakisi* (figure 1). A major challenge was to put a name to the large helicid snail that was common in the archaeological deposits, not helped by the bleaching of shells that were several thousand years old. A process of elimination eventually led me to *Helix chassyana*, which was thought to be endemic in Cyprus (figure 2). Subsequent correspondence with Ondřej Korábek (University of Prague) confirmed this identification at first, but in his molecular analysis of eastern Mediterranean helicids (Korábek *et al*. 2015) he synonymised it with *Helix nucula*, although he pointed out that the individuals from Cyprus were genetically distinct from their conspecifics elsewhere. I might add at this point that few molluscan analyses from archaeological sites in Cyprus consider the non-marine shells and it is not hard to see why!

Looking back over the species I have recorded from archaeological sites in northern and south-western Cyprus and comparing them with the list of present-day species that I have collected (table 1), some interesting points emerge. The archaeological assemblages that I have examined were all from early sites, ranging from the Cypriot Pre-Pottery (Aceramic) Neolithic (*c*. 7050–6640 BC) to the Chalcolithic or Copper Age (c. 3600–2500 BC). The only large helicids from these sites were *Helix chassyana/nucula* and another endemic, *Levantina bellardi* (until recently, *Assyriella bellardii*). The former is still frequent on the island and the latter still exists, although I have not found recent examples myself. Compared with *Levantina spiriplana* (Topley 2021: figure 24), the shell is relatively smooth and globular, with a strongly everted lip that partially covers the wide umbilicus (figure 3).

figure 1: *Xeropicta ledereri mavromoustakisi* from Aceramic Neolithic Mylouthkia; traces of spiral banding can be seen on the ventral surface (scale in mm).

figure 2: *Helix nucula* syn. *chassyana* from Ceramic Neolithic Ayios Epiktitos Vrysi; traces of colour banding are visible on the right shell (scale in mm).

figure 3: *Levantina bellardi* from Ceramic Neolithic Ayios Epiktitos Vrysi; dorsal and ventral views (scale in mm).

The helicid fauna today is dominated by *Cornu aspersum* and, in particular, *Eobania vermiculata* so it seems likely that these species, which may have originated in North Africa (Holyoak & Holyoak 2017: 480), were introduced to Cyprus during or after the Bronze Age. *Xeropicta krynickii* was being disseminated throughout the eastern Mediterranean by the Late Bronze Age (Welter-Schultes 2007) but this species showed up in Aceramic Neolithic deposits at Mylouthkia and so it may have been introduced to Cyprus by the first farmers. *Levantina malziana* and *Theba pisana* were also not found in pre-Bronze Age deposits. In contrast to the umbilicate *L. spiriplana* that Peter found in the north, my specimens (from Paphos) have a closed umbilicus and represent the former subspecies *malziana* which has now been raised to species level (Bank & Neubert 2017). It has been suggested that *Levantina* was brought to Cyprus by the Crusaders in the 14th century after they withdrew from Jerusalem and the Levant (Ketamaier & Glaubrecht 2015). *Helix cincta* may be a relatively recent arrival; Peter found it in North Cyprus and it is common in Turkey, but I did not see it in the south-west. Other fairly recent introductions may include the widespread *Cochlicella acuta* and *Xerotricha apicina*, and *Xerocrassa cretica* from

the Greek islands and western Turkey appears to have gained a foothold in western Cyprus (Welter-Schultes 2012: 519). Some shells that I collected at Lemba, north of Paphos, in 1990 appear to be identical to those of *Cernuella virgata*, although the presence of this species has not yet been confirmed in Cyprus. The polygyrid snail, *Polygyra plana* from the Bahamas, which is currently establishing itself in hotel gardens in southern Cyprus (Ridout Sharpe 2014; Brokenshire 2016, 2017) may be the latest newcomer but it is certainly not going to be the last.

How do snails end up in archaeological sites and what can they tell us? An interesting example is provided by some small shells found in Neolithic roundhouses at Ayios Epiktitos Vrysi. Large numbers of *Truncatella subcylindrica* and two other semi-marine/brackish species (*Ovatella firminii* and *Myosotella myosotis*, form *denticulata*) were found in fill deposits above floors, suggesting their introduction with roofing material (thought to consist of layers of reeds and mud), whereas the floor deposits themselves contained *Galba truncatula* which may have been introduced with freshwater or marshland vegetation used as floor covering.

Most snails were probably simply adventitious and entered the sites seeking food and shelter, or were accidentally introduced on vegetation or other materials. There is no evidence to suggest that *Helix chassyana/nucula* was eaten by the inhabitants, although it should be pointed out that this species is a subterranean aestivator and may not be contemporary with the deposits in which it was found (Mienis 2011). Some species made use of loose, anthropogenic deposits to escape the heat and lay their eggs: the endemic *Helicopsis cypriola* (figure 4) was represented by thousands of tiny hatchlings in some deposits. *Cecilioides tumulorum* was frequent in pits and middens. Another ferussaciid, the toothed endemic *Calaxis cypria*, shares the same subterranean habit. Many Cypriot snails are typical of a Mediterranean environment, although the island has become more arid over time (figure 5). Freshwater species can be found in archaeological sites where today there are only dry river beds. I found no present-day freshwater molluscs but *Melanopsis buccinoidea* was the most frequent species in archaeological deposits, which also yielded *Theodoxus anatolicus*, *Galba truncatula*, *Ancylus fluviatilis* and *Gyraulus piscinarum*.

figure 4: *Helicopsis cypriola*, recent specimens from Souskiou (scale in mm).

Two of the recent Enidae that Peter recorded in North Cyprus were also found in Neolithic deposits at Ayios Epiktitos Vrysi (table 1) but did not occur in archaeological sites in the Paphos area in the south-west where they were replaced by *Euchondrus parreyssi*, which is thought to be restricted to western Cyprus (Welter-Schultes 2012: 182), and another endemic, *Paramastus cyprius*, which were found in both archaeological and modern contexts (figure 6).

figure 5: Outskirts of Paphos where I collected *Eobania vermiculata*, *Levantina malziana* and *Xerocrassa cretica* in September 2003.

figure 6: *Euchondrus parreyssi* (left) from Chalcolithic Lemba and recent *Paramastus cyprius* (right) from Souskiou (scale in mm).

Despite its fragile shell, *Monacha syriaca* was found well-preserved in archaeological deposits in the south-west, which also yielded the occasional specimen of *Monacha obstructa* with its characteristic closed 'pseudo-umbilicus' (figure 7). This last species no longer occurs in Cyprus (Bank & Neubert 2017) and the distribution of some other species appears to have changed over time. For example, *Levantina bellardi* today appears to be restricted to northern Cyprus (Welter-Schultes 2012: 604) whereas some 5000 years ago it was also present at coastal sites in the south-west.

Conversely, *Helicopsis cypriola*, which is now confined to the west and south-west, and *Pseudoxerophila confusa*, now confined to the south (Welter-Schultes 2012: 555, 571), were both found in Neolithic deposits in northern Cyprus.

figure 7: *Monacha obstructa* (left) with its characteristic 'pseudo-umbilicus' from Aceramic Neolithic Mylouthkia and *Monacha syriaca* (right) from Chalcolithic Souskiou Vathyrkakas (scale in mm).

No clausiliid species were represented archaeologically and I came across no recent examples during my opportunistic searches although, unfortunately, these were limited to the areas around the sites, roadside verges and hotel gardens. It would be interesting to hear from other readers who may have collected non-marine molluscs in Cyprus to augment the findings of Peter and myself. Despite Cyprus having been a popular tourist destination for well over a century, we still know remarkably little about the island's snail fauna.

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table 1: Cypriot non-marine Mollusca recorded from archaeological and recent sites.

Family	Species	North Cyprus	South-west Cyprus		
		Ceramic Neol.[1] (c.4220-4150 BC)	Aceramic Neol.[2] (c.7050-6640 BC)	Chalcolithic[3] (c.3600-2500 BC)	Recent[4] (Present day)
Neritidae	*Theodoxus anatolicus*			+	
Melanopsidae	*Melanopsis buccinoidea*	+	+		
Cochliopidae	*Eupaludestrina* sp.			+	
Hydrobiidae	*Pseudamnicola malickyi*			+	
Truncatellidae	*Truncatella subcylindrica*	+		+	+
Lymnaeidae	*Galba truncatula*	+		+	
Planorbidae	*Ancylus fluviatilis*			+	
	Gyraulus piscinarum			+	
Ellobiidae	*Myosotella myosotis*	+		+	
	Ovatella firminii	+			
Succineidae	*Oxyloma elegans*			+	
Chondrinidae	*Granopupa granum*	+	+	+	+
Enidae	*Euchondrus limbodentatus*	+			
	Euchondrus parreyssi		+	+	+
	Multidentula stylus	+			
	Paramastus cyprius			+	+
	Zebrina fasciolata			+	
Lauriidae	*Lauria cylindracea*		+	+	
Orculidae	*Orculella sirianocoriensis*	+		+	
Truncatellinindae	*Truncatellina cylindrica*	+			
Achatinidae	*Rumina saharica*			+	+
Ferussaciidae	*Calaxis cypria*		+	+	+
	Cecilioides tumulorum	+	+	+	
Oxychilidae	*Carpathica cretica*			+	
	Daudebardia rufa	+	+		
	Schistophallus camelinus	+	+	+	
	Schistophallus cyprius			+	+
Pristilomatidae	*Vitrea cyprina*		+	+	
Helicidae	*Helix chassyana/nucula*	+	+	+	+
	Cornus aspersum				+
	Eobania vermiculata				+
	Levantina bellardi	+		+	
	Levantina malziana				+
	Theba pisana				+
Geomitridae	?*Cernuella virgata*				+
	Cochlicella acuta				+
	Helicella juglans				+
	Helicopsis cypriola	+	+	+	+
	Pseudoxerophila confusa	+	+	+	+
	Trochoidea liebetruti	+			
	Xerocrassa cretica				+
	Xeropicta akrotirica			+	
	Xeropicta krynickii	+	+	+	+
	Xeropicta ledereri mav.	+	+	+	+
	Xerotricha apicina				+
Hygromiidae	*Metafruticicola berytensis*				+
	Metafruticicola nicosiana			+	+
	Monacha obstructa		+	+	
	Monacha syriaca		+	+	+
Polygyridae	*Polygyra plana*				+
Trissexodontidae	*Caracollina lenticula*	+		+	+

[1] Ayios Epiktitos Vrysi (east of Kyrenia)
[2] Mylouthkia (Lemba group)
[3] Lemba group: Mylouthkia, Kissonerga, Lemba Lakkous; also Souskiou Laona and Souskiou Vathyrkakas (Paphos area)
[4] Modern: Lemba, Paphos, Souskiou (Paphos area)

Field meeting at Dolebury Warren in the Mendip Hills of Somerset, May 29th 2021

Keith Alexander

Two members and a prospective member gathered at Dolebury Warren as part of the Society's national survey of *Ena montana*. Alfred Kennard had reported this snail 'opposite Langford' in 1810 and Janet Boyd had reported it specifically from Dolebury Warren in 1994 and 1997, but no subsequent records are known. Dolebury Warren forms part of the northern scarp of the Carboniferous Limestone of the Mendip Hills and is capped by an Iron Age hillfort. The hill was used as a rabbit warren in the post-medieval period and the upper parts support extensive limestone grassland habitat and have been designated as a SSSI specifically for this feature – this area is owned by the National Trust and managed as a nature reserve by the Avon Wildlife Trust. The lower northern slopes are however fenced out from grazing livestock and wooded, and in the ownership of the Woodland Trust who kindly permitted us to park our cars in their gated compound by Warren House. The western part of the woodland has mixed broadleaved woodland of ash, oak, small-leaved lime and hazel, while the eastern areas have mature plantations of conifers with some beech. The wood is classified as 'secondary' by Natural England and is not included in the Ancient Woodland Inventory as a result. However, the western area is clearly shown as partially wooded on the first edition OS map and was then open to the rough pasture of the upper slopes – it almost certainly has origins as ancient wood pasture.

The morning was spent exploring the semi-natural woodland of the western part of the Woodland Trust ownership. A specimen of *E. montana* was fairly quickly spotted amongst the tall field layer vegetation along the main access ride through the woodland – it was about 30 cm above ground level on a large leaf of common dock (figure 1). Although the literature mentions the snail as being known from field layer vegetation this does seem to be unusual. The next example was found in a much more typical situation on a hazel stem. This stem was quite small, with a girth measured at 12.5 cm at the point where the snail was found, 1.04 m above ground level.

figure 1: *Ena montana* on the underside of a dock leaf amongst tall herbaceous vegetation along an open sunny ride within Dolebury Warren Wood.

As we walked on through the wood more *E. montana* were spotted on woody stems of hazel and ash (figure 2), but none were found by sweep-netting the ground vegetation. The heights above the ground were measured and the highest individual was at 3.5 m and the range of stem girths being used by snails varied from 6 to 40 cm. Few larger trees were present and so the upper range of preference cannot be given but it was striking that small girth stems were well-favoured by the snails. The stems with snails were all live with just a single exception, a hazel stem which had been cut at 74 cm above ground level, within the last two years judging by the condition of the cut. No *E. montana* were found on old dead stems. A total of 12 live snails were found after about 1 to 2 hours of searching plus a single dead shell found amongst ground litter. Our conclusion was that *E. montana* has a substantial population within this woodland, although the most seen on any one stem was two, and all specimens found were full grown – no juveniles were observed.

figure 2: *Ena montana* in a more conventional situation on the smooth-barked trunk of a young ash tree.

Other species of interest encountered were *Helicigona lapicida* associated with a section of dead branch lying on the ground and a large specimen of *Limax cinereoniger* also beneath old, decayed wood lying on the ground. A few samples of debris were retained by Tom Walker for sorting under a microscope and these added one further species, *Acanthinula aculeata*. The total for the morning was 20 species of slugs and snails.

The next section of the Woodland Trust's woodland is dominated by mature conifers but has another section of woodland – Mendip Lodge Wood (privately owned but crossed by a public footpath) - at the eastern end. Although regarded as Ancient Semi-Natural Woodland (ASNW) on Defra's MAGIC website, this area is in a much less favourable condition than Dolebury Warren Wood. It is dominated by a thick understory of mature cherry laurel, with tall spindly ash and sycamore high above. Arthur Chater had reported *E. montana* here in 1987 but no further records are known. A specimen was quickly spotted on a sycamore trunk inside the edge of the wood and one more on an ash deeper into the wood. *E. montana* clearly survives in this broadly unfavourable wood and its presence demonstrates tolerance of quite significant disturbance and modification. This woodland was also notable for a substantial presence of *Zenobiella subrufescens* found by beating a thicket of *Cotoneaster* and by sweep-netting the cherry laurel foliage. This species appeared to be absent from Dolebury Warren Wood. A single specimen of *Balea heydeni* was also found by sweep-netting ride-side *Carex pendula* – an unusual situation for this species.

The two woodlands present an interesting juxtaposition, with ancient woodland molluscs tolerant of grazing (*E. montana*, *H. lapicida* and *L. cinereoniger*) within the 'secondary' but almost certainly ancient wood pasture of Dolebury Warren Wood and an ancient woodland mollusc intolerant of grazing (*Z. subrufescens*) but very tolerant it seems of the planting of non-native evergreen shrubs within the ancient semi-natural woodland site of Mendip Lodge

Wood. *E. montana* was the only indicator species present in both woodland types.

Following such a successful *E. montana* hunt, the field party decided to ascend the hill and sample the limestone grassland of the hill summit ridge, within the SSSI (figure 3). The grassland here has developed on deep soil and so was found not to be as calcareous as one might expect. Shells of *Cecilioides acicula* were quickly found in rabbit scrapes together with a few examples of *Vallonia excentrica*, plus a *Vertigo pygmaea* typically on the underside of a lying branch. *Balea heydeni* were numerous in the lower canopy branches of open-grown oaks along the more sheltered wooded edges – none had been found in the shadier woodland conditions of Dolebury Warren Wood downslope. Small patches of rock rubble revealed a single dead *Cernuella virgata* and a few live *Candidula intersecta* – it is unclear why these normally abundant calcareous grassland species should be so scarce here, possibly reflecting an extended period without the livestock grazing needed to keep the turf in suitable condition (cattle were grazing on the top during the visit). The richest area for molluscs was found to be a section of hillfort ditch with exposed limestone bedrock and a large patch of rock rubble – *Helicigona lapicida* was present here together with a few *Pyramidula rupestris*. Other typical calcareous grassland species such as *Pupilla muscorum* and *Abida secale* could not be found anywhere, presumably reflecting the predominance of deep soil and/or a history of variable grazing levels. These are both species of open dry calcareous grassland on shallow rocky soils. The SSSI citation does acknowledge invertebrate interest ('The hill has an interesting invertebrate fauna, and several local species have been recorded') but does not provide any useful detail.

figure 3: Alastair Stevenson (left) and Tom Walker searching for molluscs on the summit calcareous grassland of Dolebury Warren.

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Cuttlebones washed ashore in the Firth of Forth

Adrian T. Sumner

On 11th February 2021 I visited my nearest beach at North Berwick, some 20-odd miles east of Edinburgh on the south shore of the Firth of Forth. This was very shortly after Storm Darcy, followed by a high spring tide, and lots of seaweed was piled up at the top of the beach (figure 1). Nothing unusual about that, but then I spotted something else that I couldn't recall having seen there before – a small cuttlebone. And then another, and more and more. (Later, my son reminded me that he had found one several years ago and shown it to me – his memory is better than mine!).

figure 1: Seaweed piled up on a beach at North Berwick after Storm Darcy.

Over the next few days I visited some other local beaches and found more cuttlebones; eventually I found more than 70. Simon Taylor kindly confirmed that these belonged to *Sepia officinalis*, although some were very small. Most were between about 32 mm and 105 mm long (figure 2) but there were a couple of fragments of larger ones, which I estimate from their widths would have been somewhere in the region of 180 mm long. Thus only two of the specimens appeared to be fully grown and the rest seemed to be juveniles. This is consistent with observations from the English Channel, where *S. officinalis* lives for about two years and has two overlapping generations (Cooke 2020). Many of the cuttlebones had triangular marks on them, the result of being pecked at by birds (figure 3).

This finding raised two questions: where did the cuttlebones come from and how did they get here? The second question is probably the easier one to answer. As mentioned already, Storm Darcy had occurred in the previous few days with strong winds from the east and north-east. Since cuttlebones float, they would be blown towards the south-west.

In fact, I found cuttlebones on beaches mainly exposed to the north-east. The high spring tide that followed would strand the cuttlebones at the top of the beaches, to remain there until washed away by the next spring tide, buried in the sand or collected by a passing naturalist. The presence of piles of seaweed on the beach turned out to be irrelevant to the stranding of cuttlebones; since the seaweed doesn't float, it is deposited mainly where the waves and not the wind take it. On parts of beaches sheltered from the north-east winds there were piles of seaweed without cuttlebones, and at Broadsands west of North Berwick, which faces north-east, hardly any seaweed was washed up but plenty of cuttlebones were present (figure 4).

It is more difficult to work out where the cuttlebones might have come from. The NBN Atlas shows very few records of *Sepia officinalis* on the east coast of mainland Britain north of Essex, and the Ocean Biodiversity Information System (OBIS) shows only a few scattered records in the northern

figure 2: Some cuttlebones from Sepia officinalis, collected from a beach at North Berwick after Storm Darcy.

figure 3: Birds' beak marks on cuttlebones.

parts of the North Sea. Since cuttlefish are often found in lobster pots (Cooke 2020), I contacted the Firth of Forth Lobster Hatchery which put me in touch with one of the local fishermen, who assured me that they never found cuttlefish locally. The lower thermal tolerance of cuttlefish appears to be between 7 and 10ºC (Guerra 2006, Xavier *et al.* 2016, Cooke 2020). While Scottish waters are probably colder than this in winter, I have not been able to find good data on this. However, cuttlefish migrate to deeper waters in winter where conditions might be better for them. They can also migrate for considerable distances, up to hundreds of nautical miles (Guerra 2006). Could it be that cuttlefish have been moving north in the North Sea during summer and that they die when the water gets too cold for them in winter? This is not the first time that cuttlebones have been washed ashore in quantity on the east coast of Scotland. In March 2013 there was a wreck of puffins and other sea birds and, among other invertebrates, cuttlefish were washed ashore (Harris & Elkins 2013). Once again, this happened as a result of stormy weather with easterly winds. Somewhere out there in the northern parts of the North Sea there must be cuttlefish.

figure 4: Broadsands, west of North Berwick. A north-easterly facing beach on which negligible seaweed was washed up but where many cuttlebones were found.

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Cast iron snail *June Chatfield*

Hillier Gardens in Braishfield, Hampshire often stage exhibitions of sculptures, frequently on a natural history theme; here is a cast iron sculpture from 2015 of a snail in a crawling pose.

Mass stranding of marine life on the Solway coast

Jim Logan

figure 1: Mass stranding of bivalves at Mossyard Beach, 18/2/21.

Peter Garson, a friend of mine, emailed me on 15th February 2021 to say that masses of shells had been washed up on the shore at Mossyard Farm, Gatehouse of Fleet, Castle Douglas, Dumfries and Galloway (NX551514), many freshly dead. Two days later I was able to visit Mossyard and see for myself (figure 1).

When I went there, I discovered vast numbers of bean razor shells (*Pharus legumen*), many pod razor shells (*Ensis siliqua*), a few common otter shells (*Lutraria lutraria*), and two rayed trough shells (*Mactra stultorum*), many freshly dead with flesh inside (figure 2). There were also hundreds of empty tests of young sea potatoes (*Echinocardium cordatum*) (figure 3). I found similar but smaller strandings of *P. legumen* on the neighbouring Cardoness and Sandgreen beaches.

figure 2: Dead razor shells, Mossyard stranding 18/2/21.

figure 3: Dead heart urchins, Mossyard stranding 18/2/21.

Later Pete Robinson and Edna Elliot McCall visited Mossyard and found other dead marine life washed up along with the bivalves: 20+ masked crabs (*Corystes cassivelaunus*), three starfish (*Asterias rubens*), ten+ lugworms (*Arenicola* sp.), one ragworm (*Nereis* sp.) and ten sea mice (*Aphrodita aculeata*). At these locations many shells, some with tissue still attached, were washed up.

However, at Carsluith about 6 miles [9.7 km] west of Mossyard a mass of tissue, mainly what looked like the foot muscles of razor shells, was found in a strip about 200 m long at the very top of one end of the beach (figure 4). Among them I saw several dead, dried out starfish (*Asterias rubens*). No shells of the razors were found there. I believe that the very cold weather the previous week (-5˚C in my garden) could have frozen the beach at low tide. It had been a spring tide of 8.37 m so a lot of shore would have been exposed at 6.00 am. When the tide came in the seawater would have been chilled on contact with the frozen beach. As the tide went out the cold water, which was now denser than the main body of water, would have slid under it so that the sand dwelling animals could have suffered cold shock and died. The recent rough weather then dislodged them and they were washed up on the beach.

A similar event occurred at Sandhead in 2011 when large numbers of canoe shells (*Scaphander lignarius*), razor shells (*Ensis* sp.) and bubble shells (*Philine aperta*) were found washed up freshly dead on the beaches after a particularly cold spell.

figure 4: Rotting tissue from razor shells on Carsluith beach.

Despite an appeal in the local papers, I have not heard of any strandings on other Dumfries and Galloway beaches this year. Unfortunately, Covid restrictions prevented me from visiting beaches elsewhere along the Solway coast. I cannot think why the event should have been so localised.

Field meeting at Carmel Woods NNR, Carmarthenshire

Ben Rowson, Dai Herbert & Mags Cousins

On 12th June 2021 (postponed from 2020), the Society held a field meeting at Carmel Woods NNR, near Llandeilo, Carmarthenshire. Despite minimal attendance (only three people) we enjoyed a productive day searching parts of the site. Conditions were perfect for snailing: fine, dry weather with the leaf litter warm and damp underfoot. We investigated the site by hand-searching the abandoned quarries (figure 1) and woods (figure 2), sieving leaf-litter, netting the lake and a small stream, and briefly using a suction sampler in grassland and around a small sinkhole. Additional sightings included a fine display of the chlorophyll-free bird's nest orchid (*Neottia nidus-avis*) in the shade of the woods (figure 3).

figure 1: Carmel Woods NNR: Mags logs slugs.

figure 2: Dai collects leaf litter from a karst cliff.

figure 3: Bird's nest orchid, *Neottia nidus-avis.*

The landscape east and west of Carmel is a karstic exposure of a long band of Carboniferous limestone that runs from Kidwelly into the Black Mountains. This is riddled with caves, a couple of examples occurring at Carmel, and has been quarried since medieval times, although quarrying has now ceased (figure 4). The Cernydd Carmel region (361 ha) was designated a SSSI in 1986 and a SAC in 1994 for its ancient ash woodland, bogs, dry and wet heath, and the unique habitat of Pant-y-llyn (meaning 'hollow of the lake'). Pant-y-llyn is fed and drained not by streams but by an underground aquifer. It contains around 0.5 ha of open water, to a depth of 3-4 m in the winter, yet regularly dries out completely in the summer. It is widely regarded as the only example of a 'turlough' in mainland Britain, such ephemeral lakes being characteristic of karst landscapes in the Burren and other regions of Ireland (Blackstock *et al*. 1993).

Approximately 85 ha of the Cernydd Carmel SAC (at SN5916 and SN6016) is designated as Carmel Woods NNR. The eastern part, including Pant-y-llyn, is managed by Natural Resources Wales (NNR) and the western portion by the Wildlife Trust of South & West Wales (WTSWW). The Conchological Society was among the groups that successfully argued for its establishment as a nature reserve in the 1990s (M. J. Willing, pers. comm.). Both the Conchological Society and the Welsh Invertebrate Database hold previous mollusc records from Carmel Woods, obtained via the NBN, totalling 14 species. For this report, these were supplemented by additional mollusc records from the lake in Blackstock *et al*. (1993) and the report by Graham Rutt (2014). Early records of woodland species by Ian Morgan and others have been recognised in chainsaw log sculptures commissioned by WTSWW, one of which features a fine *Acicula fusca* (figure 5) – surely the only sculpture of this species in the UK?


figure 4: Glangwenlais limestone quarry, Carmel Woods NNR.


figure 5: *Acicula fusca* sculpture.

Through our field meeting (and a previous reconnaissance in April 2021) we made 103 new records, adding considerably to the list of molluscs recorded from the NNR and SAC (table 1). Altogether a total of 61 species have now been recorded (35 terrestrial snails, 12 slugs, nine freshwater snails, and five bivalves). Of these, 43 (70%) were first recorded in 2021, many vouchered by specimens at Amgueddfa Cymru – National Museum Wales (AC-NMW). For example, we added *Clausilia bidentata* (figure 6) and *Cochlodina laminata* to *Balea heydeni*, probably completing the clausiliid complement for an ancient woodland in west Wales. *Acicula fusca* and *Zenobiellina subrufescens* (figure 7) are still thriving in the leaf litter. It was good to find the marsh slug *Deroceras laeve* on the banks of the turlough, an ideal habitat for this species, although the presence of *D. invadens*, *Tandonia budapestensis*, *Arion owenii* and *Arion flagellus* (all spreading slug species) is not as welcome. Terrestrial species that we did not re-find, despite checking suitable habitat, included *Pyramidula umbilicata*, *Acanthinula aculeata* and *Limax cinereoniger*. These probably still occur somewhere on the reserve, as do *Lehmannia marginata* and *Vitrina pellucida*, two very common but as yet unrecorded woodland species that we could have missed on such a dry day.


figure 6: *Clausilia bidentata*.


figure 7: *Zenobiellina subrufescens*.

The water level of Pant-y-llyn was high in April 2021 and even higher in June (after the exceptionally wet May that intervened) (figure 8). This hampered access for sampling on both occasions. Nonetheless, the freshwater mollusc fauna appears to have changed somewhat over the years. The tables in Blackstock *et al*. (1993) and Rutt (2014) show that it is not unusual not to find the same species in successive years. Yet in 2021 we found the lakeshore dominated by *Physella acuta*, *Potamopyrgus antipodarum* and *Lymnaea stagnalis*. The first two are spreading non-natives, neither of which was recorded previously (unless *P. acuta* had been mistaken for *Physa fontinalis* in Rutt, 2014). *Lymnaea stagnalis* is also thought to be a recent arrival prior to 2019. Then (as now) it was present in large numbers, dying in apocalyptic scenes as the water receded into the swallow-hole (figure 9) (J. Bevan, pers. comm.). We did not find *Stagnicola* or either *Gyraulus* species, but *Stagnicola* at least is tolerant of temporary desiccation. These species may survive in parts of the lake we could not reach, or even in the caverns that feed the lake. There are at least four small bivalve species living in Pant-y-llyn, the *Euglesa* being identified to species for the first time. It could be interesting to see whether a detailed survey of their distribution in the lake would reflect the vegetation zonation described by Blackstock *et al*. (1993).


figure 8: Water level in Pant-y-llyn turlough, 22nd April 2021.

figure 9: *Lymnaea stagnalis* at the swallow-hole, 2019.
(Photos: Jamie Bevan)

We wish to thank Jamie Bevan (NRW) and Rebecca Killa (WTSWW) for providing access to the site and for vital background information, and Martin Willing (CSGBI) and Anna Holmes (AC-NMW) for confirmation of bivalve identifications. Information on SSSI/SAC designations is from the NRW website.

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Table 1. Checklist of molluscs recorded from Carmel Woods NNR.

No.	Species	Found 2021	First recorded
1	*Acicula fusca*	+	1988 (I. K. Morgan)
2	*Carychium tridentatum*	+	2021
3	*Oxyloma elegans*	+	2021
4	*Succinea putris*	+	2021
5	*Cecilioides acicula*	+	1986 (I. K. Morgan)
6	*Clausilia bidentata*	+	2021
7	*Cochlodina laminata*	+	2021
8	*Balea heydeni*	+	2009 (K. Alexander)
9	*Cochlicopa* cf. *lubrica*	+	2021
10	*Cochlicopa* cf. *lubricella*	+	2021
11	*Vallonia* cf. *excentrica*	+	2021
12	*Acanthinula aculeata*		1987 (I. K. Morgan)
13	*Pyramidula umbilicata*		2003 (J. H. Bratton)
14	*Vertigo pygmaea*	+	2021
15	*Lauria cylindracea*	+	2021
16	*Merdigera obscura*	+	2021
17	*Discus rotundatus*	+	2021
18	*Punctum pygmaeum*	+	2021
19	*Vitrea contracta*	+	2021
20	*Vitrea crystallina*	+	2021
21	*Aegopinella nitidula*	+	2021
22	*Aegopinella pura*	+	2021
23	*Oxychilus alliarius*	+	2021
24	*Oxychilus cellarius*	+	2021
25	*Oxychilus navarricus helveticus*	+	2021
26	*Euconulus fulvus fulvus*	+	2021
27	*Arianta arbustorum*	+	2021
28	*Cepaea hortensis*	+	2021
29	*Cepaea nemoralis*	+	2019 (D. G. Herbert)
30	*Cornu aspersum*	+	2008 (S. McWilliam)
31	*Ashfordia granulata*	+	2021
32	*Trochulus hispidus*	+	2021
33	*Trochulus striolatus*	+	2021
34	*Zenobiellina subrufescens*	+	2009 (K. Alexander)
35	*Xeroplexa intersecta*	+	2021
36	*Arion ater*	+	2021
37	*Arion flagellus*	+	2021
38	*Arion subfuscus*	+	2008 (S. McWilliam)
39	*Arion distinctus*	+	2021
40	*Arion owenii*	+	2021
41	*Arion intermedius*	+	2021
42	*Tandonia budapestensis*	+	2021
43	*Boettgerilla pallens*	+	1985 (I. K. Morgan)
44	*Limax cinereoniger*		1986 (I. K. Morgan)
45	*Deroceras reticulatum*	+	2021
46	*Deroceras invadens*	+	2021
47	*Deroceras laeve*	+	2021
48	*Potamopyrgus antipodarum*	+	2021
49	*Lymnaea stagnalis*	+	2019 (J. Bevan)
50	*Ampullaceana balthica*	+	1991 (Blackstock *et al.* 1993); 2004 (J. H. Bratton)
51	*Galba truncatula*	+	2021
52	*Stagnicola* sp.		1991 (S. Rundle; Blackstock *et al.* 1993)
53	*Gyraulus albus*		1991 (S. Rundle);1992 (Blackstock *et al.* 1993)
54	*Gyraulus laevis*		1991 (Blackstock *et al.* 1993); 2013 (Rutt 2014)
55	*Physa fontinalis*		2012 (Rutt 2014)
56	*Physella acuta*	+	2021
57	*Euglesa hibernica*	+	2021
58	*Euglesa milium*	+	2021
59	*Euglesa personata*	+	2021
60	*Euglesa subtruncata*	+	2021
61	*Sphaerium lacustre*	+	2012 (Rutt 2014)

The 'ladies who conch' – Part 2

Brian Goodwin

Women in the Conchological Society of Great Britain and Ireland (CSGBI)

I ended Part 1 (*Mollusc World*, **55**: 8–15) with Jane Saul, who was not a member of CSGBI. Part 2 begins with what I have called the 'Late Victorian' period from 1876, the date of the formation of the Conchological Society[1], up to Queen Victoria's death in 1901 and continues with 'The 20th century', concentrating on the period up to 1976 – thereby covering the first 100 years of the Conchological Society. I also thought it would be interesting to record some specific milestones and highlights in relation to CSGBI members.

Late Victorian (1876–1901)

The last 25 years of the Victorian era coincided with the first 25 years of the Conchological Society. Even towards the end of Victoria's reign, many scientific clubs and societies were still bastions of male insularity and the election of women to membership was not always allowed. To take just one example, the Linnean Society only admitted women to Fellowship from 1904[2]. I am pleased to report that our Society was more accommodating, although an early Hon. Secretary, T.W. Bell, did have some difficulties with 'terminology', as recorded in the journal for the meeting of 4th February 1886 (figure 1).

NEW MEMBERS.

The following gentlemen were nominated for membership:—Messrs. Thos. Stanton Hillman, Lewes, Sussex; Alexr. Somerville, B.Sc., F.L.S., Glasgow; J. R. B. Tomlin, Cambridge; Dr. C. W. Viner, Bath; Mrs. Fitzgerald, Folkestone; Jno. Hy. James, Truro; Frank Coulson, Glasgow; F. W. Wotton, Cardiff; Geo. Wm. Shrubsole, Chester; G. B. Sowerby, London; Thos. Rogers, Manchester; Edgar A. Smith, London; Miss Helen L. Taylor,

figure 1: Mrs Fitzgerald and Miss Taylor are nominated for membership of CSGBI as 'gentlemen'.

Having been nominated in distinguished 'gentlemanly' company that also included J.R. le B. Tomlin, G.B. Sowerby and B.B. Woodward, both Mrs Fitzgerald and Miss H. L. Taylor were duly elected, still as 'gentlemen', at the following meeting! At a subsequent meeting, when Miss S. Hockin was included in the nominees, the Society minute book has 'Gentlemen' crossed out and substituted with 'under-named'.

Several women conchologists were active and in contact with the 'Gang of Four'[3] when the Leeds Conchological Club came into being. In fact, the first exhibit (figure 2) at the inaugural meeting on 12th October 1876 was a *Unio tumidus* from the River Frome, Stapleton, near Bristol, collected (and sent to William Nelson) by Miss F. M. Hele.

Specimens exhibited:
By William Nelson:
Unio tumidus, river Frome, Stapleton, near Bristol: coll. Miss F.M. Hele.

figure 2: The first ever exhibit at a CSGBI (Leeds Conchological Club) meeting.

Although not specifically recorded as such, it seems likely that Nelson's other exhibits: *Unio tumidus* var. *ovalis*; *Helix* (= *Cernuella*) *virgata* var. *alba*; and *Bulimus obscurus* (= *Galba truncatula*) var. *alba*, all from Somerset or Bristol, were also sent in by Miss Hele. **Fanny Hele** seems to have been in regular contact with J.W. Taylor and he included her as a dedicatee in his *Monograph* in relation to *Hyalinia lucida* (= *Oxychilus draparnaudi*) (Volume 3:18, see figure 6) – one of only three females to be so honoured. The other two were Mrs Maria Emma Gray (included with her husband John Edward Gray in figure 3 and also shown as a young woman in Part 1: figure 19) and the Marchioness Paulucci (figure 4).

figure 3: Maria Emma Gray and husband, John Edward Gray.

figure 4: Marchioness Paulucci.

(Both from Taylor 1894–1921.)

Peter Dance (2006) wrote a short article on Fanny Hele in *Mollusc World*, mainly in relation to her aptitude for finding the variety *exalbida* of the common garden snail *Cornu aspersum*. She might equally well have been lauded for her ability to find reversed or sinistral shells. I have traced records for at least six: three *Helix aspersa* (= *Cornu aspersum*) and two *Helix* (=*Cepaea*) *hortensis* – all from the Bristol area – together with one *Planorbis* (= *Hippeutis*) *complanatus*) from Wye in Kent. I will return to Fanny and her siblings in due course.

It is impossible to be certain who the first woman to actually attend a meeting was, as comprehensive records of attendees were not kept. Moreover, the way the minutes were recorded often leaves room for doubt. For example, we know that at the meeting on 23rd January 1895, 'on behalf of Mrs Henry Crowther[4] were exhibited a series of distorted examples of *Limnaea peregra* [= *Ampullaceana balthica*], collected by Mr. Joseph Whitwham, in a now-destroyed pond in Greenhead Park, Huddersfield'. It is apparent that Whitwham (who seems to have been a member of the Leeds Branch but not the 'parent' Society) was not at the meeting, but whether Mrs Crowther was is not so certain. Perhaps the 'on behalf of' was 'code' for the fact that she was not actually a member of the Society but may have been present as a guest. Other interpretations are possible.

Membership, however, is more easily determined. The earliest volumes of the *Journal of Conchology* did not include membership lists, but the published *Proceedings* (minutes of meetings) reveal that the first woman to join CSGBI was a Mrs Mary Skilton[5] of Brentford, who was nominated on 27th March 1884 and elected on 1st May 1884.

When I saw them listed in the *Journal of Conchology* (Volume 5: 352), I initially assumed that 'the Dales' were the first family to join (6th June 1888) and that the three 'misses' might therefore be the first junior members (see figure 5).

> The undernamed were duly elected members of the Society: Rev. E. S. Dewick, M.A., F.G.S., Alfred Bell, H. H. Brindley, B.A., H. F. Dale, (Mrs.) Violet Dale, (Miss) M. L. Dale, (Miss) E. E. Dale, (Miss) A. M. Dale, William Dean, and Charles A.

figure 5: The 'Dale family' elected as CSGBI members, 6th June 1888.

However, a search of census returns revealed that while 'the Dales' were a family and Henry Frank Dale and Mrs Violet Dale were indeed a married couple, misses Ellen E., Mary Louisa and Alice Maud were not Henry's daughters but his sisters. Henry already boasted B.Sc., F.R.G.S., F.R.M.S., F.L.S., and F.E.S. after his name (together with A.A., whatever that might be!) so he seems to have had broad interests in natural history and was listed in the 1881 census as a 'student of Geology and Botany'. What prompted the female members of the family to join a group application for membership is not known.

Briefly, the collective input of four 'Dales' more than doubled the female membership in June 1888 (from three to seven). Soon after, Henry and Violet moved to Colorado, USA, where they continued as members for several years, but of the others only Alice Maud maintained her membership past the initial year. Her resignation was reported in October 1898, by which time the number of women on the list remained stubbornly stuck around the mid-teens.

Another family who were notable early contributors to the journal (although not all were members of the Society) were the Hele sisters, of whom Fanny has already been mentioned**.** John Carroll Hele and his second wife Sarah (née Osborne) from West Teignmouth, Devon, had eight children, four boys and four girls. The family was relatively well off – the father was listed as a 'ship owner' in the 1851 census and as a 'land proprietor' in 1861 – and the four boys all followed careers in law, farming, medicine and dentistry while, presumably, the girls were expected to stay at home. Three of the four girls developed an interest in conchology – Juliana Maria Mary (b. 1828), Jessie (b. 1837) and Fanny Maria (b. 1841 (figure 6).

figure 6: Fanny Maria Hele (from Taylor 1894–1921).

In the 1850s, the eldest sister Juliana married a surgeon, became **Mrs Fitzgerald**, and moved to Folkestone in Kent where she continued 'conching'. Juliana, Jessie and Fanny were already engaged in conchology when the Society was established and their names can frequently be found in the pages of the journal in its early years. Mostly they published short notes – including on species and varieties new to Britain, as well as discoveries of sinistral shells. Juliana and Fanny both seem to have been 'well connected' and counted such as Hazay, Boettger and J.W. Taylor among their friends and correspondents.

As to the first female to be published, Mrs J. Fitzgerald had a short note in the *Quarterly Journal of Conchology* (Volume 1 (2): 29) in May 1874, before the Leeds Conchological Club was launched – 'Occurrence of *Zonites glaber* (Studer) [= *Morlina glabra*] at Folkestone.' The same volume had a short article on 'Land Shells of Capri' and two further short notes by Mrs Fitzgerald, together with three short notes by her sister Fanny.

The *Journal of Conchology* succeeded the *Quarterly Journal of Conchology* (as Volume II) in 1879, at first without any female contributors. The first woman to publish in the journal was (again) Mrs Fitzgerald, who had two notes on p.177 in Volume 4 in April 1881 (figure 7).

> Hyalina Draparnaldi, (Beck,) in England.—This shell puzzled me for a long time, I received at first from some friends specimens from Guernsey; later on some from Miss F. M. Hele, of Bristol. I also collected specimens myself near Bristol in 1877, and the same autumn found one specimen at Torquay, in Devon. As I had no specimens of *Hyalina Draparnaldi* to compare them with, I was content all this time to leave them in my collection as *Zonites cellarius* var. *major*, but a short time since I sent some to my good friend Dr. Bœttger, who immediately pronounced them to be *Draparnaldi*, so this gives a new shell to our country, and from three different localities.—(Mrs.) J. Fitzgerald, Folkestone.
>
> Succinea Pfeifferi, (Rossm.) at Folkestone.—I find this species here tolerably abundantly. Dr. Bœttger says it is the true shell beyond all doubt. (Mrs.) J. Fitzgerald, Folkestone.

figure 7: The first contributions by a female conchologist to the *Journal of Conchology*, Volume 4, April 1881. (*Hyalina Draparnaldi = Oxychilus draparnaudi*.)

In his history of roughly the first 100 years of the CSGBI, Terry Crowley (1975) listed (Appendix 4) all the obituaries that had appeared in the *Journal of Conchology* up to that date. There were 160 recorded, of which just three were women. The first of these was **Miss Amy Warren**, who lived from c. 1840–1932 but was only a member of CSGBI from 1890 to 1897. Her brief, and somewhat belated, obituary appeared in 1938 (McMillan 1938). Although she did not publish a great deal, she collected extensively and her shells eventually found their way to the National Museum, Dublin albeit, as Nora McMillan (1970) noted, 'in a state of confusion'.

Another notable female collector in the early years of the Society was **Juliana Emma Linter** (1844–1909), whose main period of activity was slightly later than that of Jane Saul (see Part 1, *Mollusc World*, **55**: 13–14) and who is included at this point because she was one of the first female members of CSGBI, joining in 1889. She resigned in 1899 (for unknown reasons), rejoined in 1903, and then remained a member until her death. The Conchological Society Archive has just one photograph of Miss Linter (figure 8) – a likeness that in my mind cries out for the epithet 'redoubtable'!

Until very recently Linter had received little published biographical recognition but, shortly after I began writing this account, there appeared (via ResearchGate) an article by Morgenroth *et al*. (2018). The article deals in particular with her collection of land snails that is lodged at the Royal Albert Memorial Museum and Art Gallery, Exeter, but also includes family history and other biographical details so I will not repeat any of that here. However, I noticed an

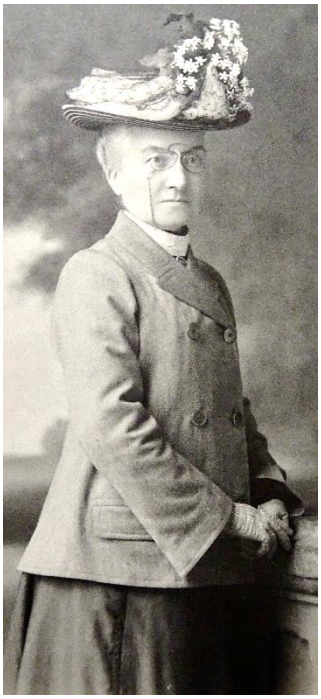

figure 8: Juliana Emma Linter (1844–1909) (photo from CSGBI Archive).

interesting connection between Miss Linter and another of our 'ladies who conch'. When Sir David Barclay's collection went on sale in 1891, Juliana Linter purchased a rare specimen of *Cyclostoma* (= *Tropidophora*) *deburghiae* – named after Marianne de Burgh who we met in Part 1 (figure 9).

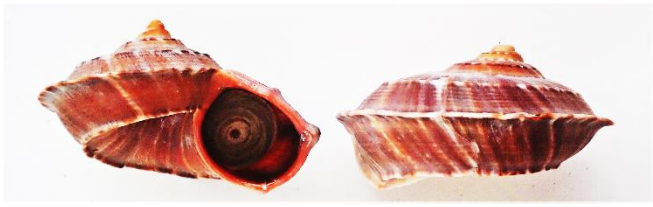

figure 9: *Tropidophora deburghiae* (Reeve, 1861) (width c. 46 mm). N.E. Madagascar. (Photo: Peter Topley)

Another possible connection relates to the Hele family. Juliana Linter was born in 1844 at Teignmouth in Devon and the 1851 census gives the family address as 39 Sack (possibly Saxe) Street. She therefore lived just 500 m away from the Hele family whose abode was on the Strand, Teignmouth. Since Fanny was born in 1842 and Juliana in 1844, it is intriguing to imagine them meeting on local conchological excursions but I have been unable to trace any evidence of this.

The 20th century[6]

While most of the women conchologists encountered so far were at least comfortably off, if not downright wealthy, those who came to the forefront during the 20th century were generally from much more modest backgrounds. Women joined the Society soon after its inception and immediately began contributing to the *Journal of Conchology*, but it was not until much later that they became involved in its running. As the Edwardian era ushered in the 20th century, women were still denied the vote and few female Conchological Society members had made much of an impression on our recorded history. Most, it seems, were essentially 'corresponding members' who collected shells and received the journal but rarely, if ever, attended meetings. However, there were certainly two exceptions – Miss Jessie Robertson and Mrs Annie Gill.

The second female 'obituary' in the *Journal of Conchology* (Kennard 1944) relates to the death of **Miss Jessie D. Robertson** (1867–1942) and was a rather perfunctory paragraph in 'Editorial Notes', despite the fact that she was a regular attendee at meetings of the London Branch of the Society. It is included here in its original form (figure 10).

WE regret to announce the death of Miss Jessie D. Robertson. She joined the Society in 1921 and was a constant attendant at the meetings of the London Branch. She collected largely in England and also in the South of France, and her duplicates were given freely to the members whilst her genial presence was an asset at the meetings. She bequeathed her collection to the Freemason's School at Bushey and her collection of shell snuff-boxes to individual members of the London Branch.

A. S. KENNARD.

figure 10: A.S. Kennard's 'obituary' of Miss Jessie Robertson (1867–1942).

Jessie was born on the 2nd August 1867 to Scottish parents, Agnes and Robert Ross Robertson, which no doubt explains her second name of 'Duncan'.

Robert is recorded as a storekeeper in an ammunition factory in the 1871 census, when the family (comprising one step-son, one step-daughter, four sons and two daughters) was living in Caversham Road, St Pancras, Middlesex. Jessie seems to have had a good education – over three years with Miss Spendlove (Ionian Avenue) and then with Miss Flexman (Brecknock Road) before she moved on to North London Collegiate School for Girls in Camden at the age of nine. By 1881 Robert and Agnes with five children (including two born since the previous census) were living at 316 Camden Road, Islington, Middlesex. Robert was now manager of the factory, and three servants and a next-door neighbour who was a Member of Lloyds suggest at least a moderately comfortable existence.

Even after Robert Ross died in 1887, Agnes and several daughters, including Jessie, were able to live on their 'own means'. In 1911, Jessie and her sister Maggie were living with their elder brother Charles (an 'asphalte representative' – possibly a posh description of a travelling salesman) at the grandly named Buckingham Mansions on Finchley Road, Hampstead. Jessie was later to be found living on her own in Meadway Court, Hendon, an affluent area not far from Hampstead Heath. The Register of Deaths records her demise as Q3, 1942 so the notice in the journal was rather belated as well as extremely brief.

Mrs Annie Gill (1861–1939) was born Annie Elizabeth Malden in Ipswich, Suffolk. She married Herbert Gill in 1889 in Barton upon Irwell, Salford, where they started married life in Clifton Street. Herbert was employed as a 'commercial clerk' at the time of the 1891 census, and then in 1901 as a 'printer manager'. The couple had one son, Cyril Herbert, born in 1893. The family's circumstances seem to have been fairly modest and I have no idea how Annie became interested in conchology. She was elected a member of the Society on 9th September 1908 but never held any office nor, as far as I can tell, published anything. However, what she did do was produce an extraordinary number of exhibits for Society meetings, covering the length and breadth of the molluscan 'kingdom'.

It is easy to forget that, when the Society was first formed, the main focus of most meetings was the exhibition, inspection and discussion of shells brought or sent. This continued well into the 20th century, often with a particular emphasis on a pre-determined genus or family.

What soon became clear as I trawled through the minutes of meetings recorded in the journal was that Mrs Gill was the most regular exhibitor over a period of well over a decade. During the years from 1910 to around 1924, I found a minimum of 77 occasions at which she was a named exhibitor. On some occasions she produced more than one exhibit (e.g. 13th November 1918 – 'a large series of

figure 12: CSGBI AGM 1929 with Annie Gill (far right), next to Elsie Morehouse (photo courtesy of Buxton Museum and Art Gallery).

Cominella' and 'a fine series of *Pleurodonte* (sensu stricto)'). Occasionally, husband Herbert also attended, perhaps as a 'porter' to handle, for example, 'four drawers of *Opisthobranchiata*'. The exhibit descriptions reveal the scope of her collection: land, freshwater, marine, British and worldwide, varieties, growth series, opercula, gastropods, bivalves, cephalopods.

Although she did not publish, and does not seem to have left any correspondence, we do have examples of her signature (figure 11), and she is pictured in both the 1910 and 1929 AGM photos: an almost apologetic appearance in 1910, half hidden in the back row, but by 1929 a prominent member on the 'front bench' (see figure 12, far right sitting).

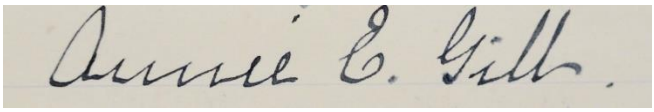

figure 11: Annie Elizabeth Gill's signature.

I have been unable to trace Mrs Gill's activities after the 1920s but it seems that she gradually withdrew from 'conchological society' in general and CSGBI in particular. Council minutes for 11th February 1939 include a report of her death but there was no obituary. The final question regarding Annie Gill is, what became of her collection? All I have discovered so far is that a Mr J. Wharton bought part of it, directly from Mrs. Gill, and subsequently (late 1960s) passed on some of the shells to his niece Pam Leighton, a friend of Nora McMillan[7]. Annie Elizabeth Gill died from heart failure, exacerbated by an attack of bronchitis, on 16th January 1939.

As the 20th century progressed, women took on an ever-expanding role in conchology that mirrored that in society generally. They were often collectors but increasingly scientists and/or authors. Most significantly, they became involved in running things.

The third and last female obituary recorded by Crowley (1975) in the first century of the Society did not appear until 1969, when **Elsie May Morehouse** (1884–1968) was accorded the honour (McMillan 1969). Elsie May is another largely unrecognized contributor to the Society and to conchology in her local patch of Yorkshire. She appeared in the AGM group photo of 1929 (figure 12, second right, sitting next to Mrs Gill) and is shown in a portrait taken in about 1950 (figure 13).

figure 13: Elsie May Morehouse (1884– 1968), taken about 1950 (photo from the CSGBI Archive).

Elsie's parents, Anne and John Woodward Andrews, were originally from Nottinghamshire and Yorkshire respectively. As John was a commercial traveller the family moved around and Elsie May, an only child, was born in Hints, Staffordshire on 1st May 1884. By the 1891 census, when Elsie was six, they were settled in Doncaster. Here, on the 15th September 1908, she married John William Morehouse, a County Court clerk – known as 'Jack' to Elsie. In due course a daughter, Kathleen Mary, arrived and Elsie and her husband spent the rest of their lives at Westbrook, 23 Queen's Road, Doncaster. Elsie became interested in molluscs, while her daughter became a lecturer in biology at Doncaster Technical College and specialised in mycology and conchology. Both were active members of the Yorkshire Naturalists' Union (YNU) and Kathleen ('Kay' to the family at least) was, like her mother, a member of CSGBI.

Elsie was a keen collector, amassing a large assemblage that now resides at Doncaster Museum, but she was also an organiser. She was first elected to the YNU in 1926 and became a leading light of the Conchological Section over the next 40 years. For more than 35 years she acted as a 'special referee', having taken over from J.W. Taylor, and she served as Section President, wrote dozens of reports of excursions for the YNU's publication *The Naturalist*, and gave many lectures.

Elsie also made a significant contribution to the Conchological Society, mainly through her role as a member of Council. Having joined the Society in 1927, she was elected to Council in 1934 and served continuously for a period of 23 years until 1957. It is clear from letters in the CSGBI Archive in Leeds (especially ones to the Secretary J. Wilfrid Jackson) that Elsie May took her role on the Council very seriously and she recruited many new members from among the Yorkshire conchological fraternity.

Elsie Morehouse died in 1968 and Nora McMillan (1969) compiled her CSGBI obituary, with assistance from daughter Kathleen. Unfortunately, Kathleen herself died relatively shortly afterwards, from complications following an operation to remove a leg. Although Kathleen Mary Morehouse (1912–1975) was accorded an obituary in the YNU's *The Naturalist* (Dearing 1976), I can find no record of one for her mother there, despite her stalwart efforts on behalf of the Union. The only acknowledgement seems to be a very brief report at the 107th Annual Meeting on 7th December 1968 at Bradford (figure 14).

Deaths

We record with regret the death of the following members: Miss J. Grainger, W. R. Grist, Mrs. E. M. Morehouse, M. M. Sayer, Mrs. M. E. Stott, W. O. Steel, S. Sunderland and J. N. Tomlinson.

figure 14: YNU's notice of the death of Elsie May Morehouse.

Backtracking slightly, the year 1962 was a momentous one. Telstar relayed the first live transatlantic TV signals; Nelson Mandela was arrested; and the world came perilously close to nuclear war as the Cuban Missile Crisis unfolded. Decca Records turned down the Beatles; Andy Warhol painted a can of soup; and James Watson, Maurice Wilkins and Francis Crick won the Nobel Prize for their determination of the structure of DNA. In a conchological context, it was important as the year that the Ray Society published *British Prosobranch Molluscs*, which soon became known as 'Fretter & Graham' or, in some circles, 'The Big Blue' (weighing a little under 1.8 kg with 755 pages and a blue cover)[8]. **Vera Fretter** (1905–1992) can truly be described as a conchological colossus and her collaboration with Alastair Graham rivals any of the other famous conchological partnerships, such as Alder & Hancock or Forbes & Hanley. Both were competent artists and it seems that Vera was mainly responsible for the whole animal illustrations, while Graham did the dissections and histological preparations. Similarly, there was a broad (but not exclusive) division of labour regarding prosobranch biology: she dealt with reproduction and larvae, while he concentrated on feeding and digestion.

Vera was born, the youngest of four sisters, to Henry (a butcher) and Olive Fretter in Woolwich on 5th July 1905 (not as on the death certificate, which says 7th June). None of the girls married, and the two eldest, Doris (a pharmacist) and Elsie (a medical photographer) seem to have remained in Woolwich. Freda, born on Boxing Day 1899, became a teacher and seems to have spent some time in the USA before returning to Maidstone as a headteacher. She died in 1989 in Berkshire, so perhaps had moved back to live with (or near) Vera. When Vera died in 1992 she left an estate valued at £503,944. Of this, £200,000 was left to the Royal Society for use in marine biological research, £500 to the World Wildlife Fund, and her household chattels to the National Trust.

Vera's working life has been reasonably well documented (Chatfield, 1993[9]; Graham, 1993; Baker & Padilla, 2004; Morse, 2004) so I will confine my comments to record that, after her Ph.D. on feeding and digestion in chitons, she worked primarily on the functional anatomy of prosobranchs in relation to their ecology and physiology. She published more than 80 papers, and all those that I have read have been models of clarity and precision. Always ready for a new challenge, towards the end of her career, and mainly after she had formally retired, she became involved in the study of limpets from hydrothermal vents. 'Fretter & Graham' has inspired more than one generation of workers – John Crothers, in a review, reported that it had been responsible for his conversion from an interest in crabs to prosobranchs – and it continues to do so to this day. 'Fretter & Graham' would be a strong contender for my Desert Island book.

Quite a lot has already been written about Stella Turk and Nora [Fisher] McMillan so I will restrict myself to some brief biographical detail and a short account of their roles within the Society.

Stella Maris Turk (1925–2017) could hardly have been more appropriately named – *stella maris* in Latin translates as 'star of the sea'. Born in the Scilly Isles (maiden name Treharne), she spent most of her long life in Cornwall where she worked in adult education and made a major contribution in the field of biological recording. Living where she did, she was never at the centre of the Society's hub of operations but she did play a major role in relation to marine mollusc recording, serving as Marine Recorder from 1967 to 1973, and not only contributing many records herself but also organising and encouraging a myriad of other local enthusiasts. Figure 15 shows her receiving the Stamford Raffles Award from Sir Solly Zuckerman in 1979. The official record states that this was 'for contributions to the study of seahorse life and marine molluscs' – but, surely, 'seahorse' is an anagrammatical typo for 'seashore'! She was awarded an honorary M.Sc. from Exeter University, and in 2003 an MBE. Further details can be had from Chatfield (2014, 2018), Light (2003) and her CSGBI obituary (Light 2018), while Light (2019) gives details of Exeter University's memorial research facility on Penryn Campus.

Fittingly, this compilation ends with one of the key figures in the history of the CSGBI: **Nora McMillan** (1908–2003). Eleanor Fisher, who became Nora MacMillan and eventually, to her friends at least, 'Mrs Mac', was born on 16th March 1908 in Belfast. As a young girl she joined Belfast Naturalists' Field Club where she came under the influence of eminent naturalists such as Robert Welch, Robert Lloyd Praeger and Arthur Stelfox. Figure 16 (captioned 'At food!') shows a young Nora (left) on a beach excursion at Portstewart in September 1935.

figure 15: Stella Turk receiving the Stamford Raffles Award from Sir Solly Zuckerman in 1979 (photo from the CSGBI Archive).

figure 16: Left to right – Nora Fisher, Ranald MacDonald, Dr J. Wilfrid Jackson, Mrs and Mr Davidson. Portstewart beach, 15th September 1935.

(Photo courtesy of Buxton Museum and Art Gallery)

After a few years working at Belfast Municipal Museum, in 1933 she joined the staff at Liverpool Museum. She was forced to leave in 1937 as a consequence of the scandalous action of becoming married (to William McMillan)! After some part-time posts, she rejoined the Museum (in more enlightened times) in 1956. To my astonishment, while researching this article I found that no official obituary seems to have been written, which Chatfield (2014) ascribed to the fact that 'she was a very private person who left no immediate family' and because her publications 'have not yet been collated'. Fortunately, many biographical details are available and can be found in McMillan (1964), Nunn (2006), Chatfield (2014) and Harfield (2014), but some facts regarding her importance to the history of our Society bear repeating or, in some cases, recording for the first time.

Nora joined CSGBI in 1930 when she was still living in Belfast and just 22 years old. When she died, aged 92 on 23rd August 2003, her membership amounted to 73 years. While this is not the longest continuous period of membership[10], it may well be the longest for a woman. What can be recorded with certainty is that Nora holds at least five other 'female CSGBI firsts' (figure 17).

CSGBI 'Female Firsts'		
Post	**Name**	**Year**
Secretary	Nora McMillan	1946
Curator/Librarian	Nora McMillan	1946
Marine Recorder	Nora McMillan	1952
President	Nora McMillan	1956/1957
Treasurer	Marjorie Fogan	1967
Journal Editor	Nora McMillan	1969

figure 17: CSGBI 'Female Firsts'.

When her Presidency ended, Nora McMillan automatically became the first female Vice-President (no woman was ever an 'elected' V.P.). To round off what is almost a 'full house' of 'female firsts', Nora (as Nora Fisher) was also one of the first two women to become Council members. She was elected, along with Elsie May Morehouse, in 1934/5. Like Stella Turk, Nora was awarded an honorary M.Sc. (in her case from Liverpool University) and an MBE. 'Mrs Mac's' exceptional achievements seem a fitting place to end this short history of the role of female conchologists in the subject in general and in the Society in particular, and I will finish by repeating my original toast …

'Here's to the ladies who conch.'

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Endnotes

[1] Strictly speaking our Society only became the 'CSGBI' at the 39th meeting on 30th May 1878, having started life in 1876 as 'The Leeds Conchological Club'.

[2] For a more detailed account of the exclusion of women from scientific societies it is well worth consulting the excellent volume by Allen (1976), pages 167–169 from Chapter 8, 'The field club', being particularly relevant. The extremely messy saga at the Linnean Society is laid out in all its inglorious detail in Gage & Stearn (1988: 88–93).

[3] The four founders of the Leeds Conchological Club, namely: John W. Taylor, William Nelson, William Denison Roebuck and Henry Crowther.

[4] For the record, her actual name was Martha Jane (née Clarke).

[5] A separate article on Mary Skilton is being prepared for a future issue of *Mollusc World*.

[6] It should be noted that living conchologists are not included in this article.

[7] Some further research I had planned on Mrs Gill was thwarted by the restrictions imposed by the Covid-19 pandemic. I hope when conditions allow to return to this.

[8] A revised and updated edition of 'BPM' appeared in 1994, shortly after Fretter's death. I found the second edition a bit 'clunky', with large sections of the original effectively reprinted, but with newer work on the same subjects featured in 'Part II: Updated topics' rather than being incorporated. Serious conchologists should, of course, possess both editions!

[9] Interestingly, at the time of writing, the Conchological Society's website section on 'Eminent conchologists' has nearly 70 entries, of which only four relate to females, namely Stella Davies, Vera Fretter, Hazel Meredith and Kathleen Smythe. It seems remiss that we have so far failed to celebrate others on our main public interface, in particular Nora McMillan and Stella Turk.

[10] I believe that honour rests with J. Wilfrid Jackson (1880–1978) who was a member for 78 years from 1901 until his death. If anyone can top that, please let me know – my email address is bjgoodwin44@icloud.com.

Marine molluscs from Cyprus: a correction and two species of *Gibbula* compared. a letter from *Adrian Brokenshire*

[This item stems from Adrian kindly suggesting corrections to two errors in my article 'Molluscs in North Cyprus' (*Mollusc World* **56**:11–17). Firstly figure 32(left) in my article shows *Patella caerulea*, not *P. rustica*. We then had a correspondence about figure 37, which Adrian correctly identified as *Gibbula albida*, not *G. ardens* (which I wasn't convinced about until he kindly sent me specimens of the two species for direct comparison). Adrian also provided the following helpful comparison table for the two species, which I thought might be of interest to some of our members. Ed.]

Gibbula ardens (Salis-Marschlins C. U. von, 1793) is very variable, with many forms from high to low spired, multi-coloured, to plain colours, pale to even black and the shape can also be quite varied. To this end I have included some small material from Cyprus (small because larger ones aren't so common) with obvious differences, identified by me as *G. albida* (figure 1) or *G.ardens* (figure 2) ...I have also included the differences listed as a check list that I have noted over the years.

figure 1: *Gibbula albida*. On strand, Moulia Rocks beach, nr. Kato, Paphos, S. Cyprus. Coll. Adrian Brokenshire, 2007. Scale = mm. (photo: Peter Topley)

figure 2: *Gibbula ardens*. On strand, Potami Bay, Protaras, Paralimni District, SE Cyprus. Coll. Adrian Brokenshire, 2016. Scale = mm. (photo: Peter Topley)

	Gibbula albida	*Gibbula ardens*
1	Spire high compared to shell width	Spire of variable height; can be very high or very low.
2	Shell chalky/limy	Shell silky/shiny
3	Colours pale/muted	Colours pronounced
4	Whorls angled but straight-sided	Whorls slightly angled but rounded
5	Apex normally white. In shells with more red the apex weathers pink.	Apex dark, reflects shell body colours (brown/black etc). Rarely white except where apex is worn.
6	Umbilicus white, often extends part way across shell base.	Umbilicus white, rarely extends across shell base.
7	Shell base white. patterns are small, speckly and look random.	Shell base: white is in large 'blocks' which follow spiral pattern of shell ornament.
8	More white pattern shows on the main body of the shell than in *G. ardens*.	Less white on main body of shell than in *G. albida*.
9	Deep sutured.	Shallow sutured.

Field meeting at Howe Wood and Greenfield Copse, Watlington, Oxfordshire, July 10th 2021

Tom Walker

In the article on page 13 Keith Alexander reported on his *Ena montana* field meeting in Somerset. This is part of a programme which he initiated to survey all the known historic sites where this, now relatively scarce, species has been previously recorded. I agreed to take on the South Chiltern Hills area, mostly in Oxfordshire but extending northeast into Buckinghamshire. During 2020 I visited most sites where the species has been recorded over the last 100 years, one of which was Howe Wood in Oxfordshire (SU7091). The snail was first recorded in the west end of the wood in 1965 (observer not known) and again in 1967 by June Chatfield and Michael Kerney.

The wood is on the north-west facing escarpment of the South Chilterns. It was originally part of a royal park created by Richard of Cornwall in the 13th century, but was sold by Charles I in 1632 to William Stonor who built the nearby manor house. Since then the estate has changed hands many times, and in 1946 Howe Wood and the adjacent Greenfield Copse were donated to the National Trust. It currently consists of broad-leaved woodland, predominantly ash, but with some beech, oak and other trees. Although it is classified as ancient woodland, the presence of lynchets indicates that at some time in the past this section of the hillside had been cultivated.

In August 2020 my visit failed to find any *Ena* in the west part of the wood where it had previously been recorded, but did find numerous individuals, both living and dead, in the middle of the wood and extending to its eastern end. The purpose of the current visit was to establish its continued presence and to assess its easterly extent. Three Society members and one guest met on a dry overcast morning. There had been a lot of rain in the preceding days, so the conditions for mollusc hunting were good. We started in Greenfield Copse, immediately to the east of Howe Wood, and once on the escarpment found our first *Ena montana*, 50 cm up the trunk of an ash tree sapling 40 cm in circumference (figure 1).

figure 1: Martin Bell, Peter Topley and Mags Cousins in Greenfield Copse (see also front cover).

Further wandering down the hillside, and then west into Howe Wood, revealed an abundance of this species and we stopped recording individual specimens – there were far too many. During the morning we saw at least 100 specimens, and that was only on the trees we examined in a large wood, so it is likely that there are several thousand present overall and that in an area of approximately 10 ha – the species is certainly not scarce here! The most we saw on one tree was five specimens, although many trees had only a single individual. The highest up the trunk that we measured was 2.80 m above the ground. The snails were almost all on young ash saplings up to around 1 m in girth, the bark of which had not yet become 'crevassed', although one was on a dead beech log and one on a cherry tree. The 2020 visit also recorded them on beech and sycamore. The great majority were adult shells, although some young juveniles were noted. What was interesting about these young shells is that they were coated in debris (figure 2), in much the same way that the related *Merdigera obscura* coats itself – is this to disguise the shell to avoid predation?

figure 2: Juvenile *Ena montana*, 4 mm in length, on an ash tree. Note that it is covered in 'debris', unlike adult shells (see figures 1 and 2 in Keith Alexander's report).

We recorded the presence of other molluscs in Greenfield Copse and Howe Wood. A total of 16 shelled species typical of woodland were found, together with at least five slug species – none of those among the group were slug specialists for reliable identification. There were no 'unusual' mollluscs.

After lunch we moved 1 km north-east to Queen Wood, an area not previously searched and with no *Ena* records. Our search was very disappointing, with virtually no molluscs, and certainly no *Ena*. The cause of this soon became clear. Howe Wood and Greenfield Copse lie just below the plateau of this line of hills, with the bedrock being Late Cretaceous nodular chalk. Queen Wood lies on the top of the plateau and is Pliocene clay with flint formation. The lack of chalk seems to have dramatically altered the mollusc population. We therefore abandoned our search early and called an end to the day's molluscing.

What conclusions can be drawn from our observations? It is clear that *Ena montana* is present in Howe Wood and Greenfield Copse in great abundance – could this be the most abundant current population anywhere in Britain, or were we just lucky that conditions were optimal for the shell to reveal itself? Certainly it is not threatened here in the near future. But what of looking further ahead? The continued existence of the wood seems assured since it is currently owned by the National Trust. However, a more pressing problem may be that of ash dieback disease. As mentioned above, the great majority of specimens were on ash saplings with smooth bark – none was seen on mature ash trees with rough bark. But many of the trees, both mature and saplings, were affected with ash die-back, identified by Mags Cousins. This is a fungal disease which is currently affecting about 80% of ash trees in Britain. It takes some years for the disease to kill a mature tree, but it may act more rapidly in young trees; hopefully there will continue to be a sufficient supply of ash saplings and other suitable tree species in these woods to support the *Ena* population for many years to come. It would be very sad if this location for *Ena montana* were to disappear.

Scalariform *Cepaea* from London and Pembrokeshire

Ben Rowson

Abnormally scalariform (loosely-coiled) snail shells have attracted attention since at least the 1770s, when Ignaz von Born based his genus *Cornu* on a scalariform specimen of *Cornu aspersum* (ICZN 2015). The publication of rare 'monstrosities' is less fashionable than it once was (Colville 1998), but some, such as sinistral shells, are still eagerly reported (e.g. Norris 2006, Brokenshire 2016). Their curious appearance can also capture the imagination of the public and the media. Such was the case with a sinistral *C. aspersum* found by David Reid in south-west London in 2016, nicknamed 'Jeremy' and promoted on BBC Radio 4. From this individual, estimated to be 'one in a million', much was later learnt by mating it with another sinistral *Cornu* that was brought to light (Davison *et al*. 2020). Could something similar work with scalariform snails?

The Conchological Society is often a first port of call about such discoveries. In May 2013, Rosemary Hill was alerted to a scalariform *Cepaea nemoralis* found by the staff of a garden centre in Beckenham, south-east London (Hill 2013). Rosemary was only allowed to keep it on the condition that she did not sell it on eBay, such shells having a small cash value. This snail, nicknamed 'Curly', was also instructive. It spent a large amount of time hanging from the top of the jar it lived in, before mating with a normally-coiled partner. Both partners laid eggs but all the offspring coiled normally. Remarkably, in the same year another correspondent found a scalariform *Cornu aspersum*, nicknamed 'Kerlie'. This, too, produced normal offspring (Hill 2013).

In 2021 the Society has again heard about two scalariform shells, one spotted in 2020 and one in 2021. Andrew McMahon sent Martin Willing and I a photograph of an unidentified 'coney' snail taken in Brompton Cemetery, West London, in August 2020. This was clearly a scalariform adult *Cepaea hortensis* (figure 1), but the specimen was not collected.

figure 1: A scalariform *Cepaea hortensis* from Brompton Cemetery, West London. (Photo: Andrew McMahon)

On 28th May 2021 I was contacted by Naomi Morris about a 'funny snail' from her father's neighbour's garden in St Nicholas, near Fishguard, Pembrokeshire. This one was *Cepaea nemoralis* (figure 2). I wrote back to explain how unusual the snail was, suggesting it was at least 'one in 10,000', and asked if we could have the specimen for the National Museum of Wales. As far as I am aware, it was the only scalariform *Cepaea* yet reported from Wales. Unfortunately I was told the snail had escaped back into the garden. While I was away on holiday the following week, a friend contacted me to say that a printout of the email I had sent to Naomi had appeared on the social media network Reddit, with my name redacted. The post must have been selected as some kind of daily highlight on the forum 'r/Cardiff' – all of which was a little strange. Nonetheless, the snail and my response had attracted great interest, receiving over 21,000 upvotes and over 600 comments from contributors! The comments were both interesting and entertaining, with most in favour of handing the snail to the Museum. Thankful that I at least had some public support, I resigned myself to the snail being 'one that got away'.

figure 2: 'John', a scalariform *Cepaea nemoralis* from St Nicholas, near Fishguard, Pembrokeshire.

Then on 9th June Naomi emailed me to say that it had returned to the hollyhocks, and put me in touch with its original finder, Linda Jackson. I phoned Linda and we agreed to meet for a handover in a Haverfordwest car park. The snail, nicknamed 'John', had become a minor celebrity in her village and many people had been to see it. The snail was also featured in the local weekly newspaper (Hotchin 2021). It was given to the Museum c/o myself on the condition that I would keep it alive and show it to people until it died of natural causes. I have done my best to do so, for example exhibiting the snail at the Society's online meeting in July 2021.

Over the following summer, the scalariform snail moved and behaved normally except in one respect. During the day it habitually rested hanging, spire downwards, from the lid of the large plastic box it shared with three normal *C. nemoralis* from Linda's garden. These three also habitually rested spire downwards, but on the underside of dandelion leaves laid on the box bottom. I suspect that the taller spire of the scalariform shell simply prevented it from being comfortable under the leaves, driving it up towards an overhang with more space underneath. This was proven by suspending some dandelion leaves a little higher up, with space for 'John's' shell underneath.

Just how rare is the scalariform phenomenon? Many conchologists never find a scalariform shell. Robert Cameron told me he has never encountered one among half a million *Cepaea* (comprising a mix of *C. hortensis* and *C. nemoralis*) seen over several decades. He has seen one sinistral example of each. Although relatively common in a

few groups, such as the Planorboidea, scalariformity is unheard of in others. In the Helicoidea, scalariform individuals seem to be slightly more common than sinistral ones, perhaps partly because scalariform shells are more likely to be noticed, especially by casual observers. Taylor (1894–1921) furnished scalariform examples of all seven helicoid species in his unfinished monograph (*Helix pomatia*, *Cornu aspersum*, the two *Cepaea* species, *Arianta arbustorum*, *Theba pisana* and even *Helicigona lapicida*). He and Welch (1902) both discussed the large numbers of scalariform, sinistral and other abnormal *Cepaea nemoralis* shells known from the dunes at Bundoran, Co. Donegal, and at Blackpool and Southport, Lancashire. Most of these were Holocene subfossils from wind-blown deposits that had been exploited by canny locals selling shell necklaces to Victorian daytrippers. This industry probably helped unearth many more 'sports' than occurred at any one time in the living population, although Taylor (1894–1921) suspected some past genetic fixation ('a local race of reversed shells') at Bundoran. The Bundoran shells photographed by Welch (1902) were from the collection of J. R. Le B. Tomlin, now at the National Museum of Wales. Other than these, I have been unable to find any scalariform *Cepaea* in the Museum's collection, among many thousands of British and Irish *Cepaea* collected over the last 150 years. Ed Bishop, who collected for some 50 years, clearly did not find one although he did have two slightly scalariform *Cornu aspersum*. Błoszyk *et al*. (2015) investigated over 15,000 shells of *Helix pomatia* across Poland, finding only one sinistral and two scalariform individuals. However, they cited accounts of much higher frequencies of both forms (up to one in 100, or even one in 50) in farmed ('breeding') populations of this species.

The underlying causes of scalariformity sometimes include early injury or mite infestation, and at other times reflect heritable genetic changes, as studies on *Cornu aspersum* by Arthur Stelfox suggested (Cameron 2016: 111). Early authors often suggested foreign grains might be involved, likening it to pearl formation (Taylor 1894–1921, Welch 1902). Similarly, sinistrality is also thought to result from environmental causes as well as certain well-studied genetic mutations. As breeding from 'Jeremy' helped to show, in *C. aspersum* and *Cepaea* sinistrality may only rarely be genetic (Davison *et al*. 2020). The relatively late and variable onset of scalariformity (Welch, 1902) perhaps weighs against genetic determination too. In captive populations such as those described by Błoszyk *et al*. (2015), both genetic and environmental causes may be exacerbated while selection against them is relaxed. In the wild, it seems scalariform shells just appear independently, unpredictably – and very rarely. So while the public's curiosity seems undimmed, we remain some way from understanding scalarity's cause.

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50 years ago: from *The Conchologists' Newsletter* (no. 38, Sept. 1971)

The *Conchologists' Newsletter* was this publication's predecessor and ran from January 1961 to December 2002.

Report from a Weather Ship — *R.N. Elliott*

My present employment on Ocean Weather Ship 'Weather Reporter' involves sailing to various points in the Atlantic Ocean, keeping station there, taking weather observations by means of a series of radiosonde balloons and assisting trans-Atlantic air traffic fix their positions by means of various navigational radio aids. We also act as air-sea rescue ship, to bale any unfortunates out of 'the drink'. …

Last trip we had on board a scientist from an oceanographical institute doing a marine survey … I was usually hovering, marginally hopeful, when the dredge was hauled inboard. On one occasion I was fortunate, two small animals, approximately 10 mm x 7 mm and shaped like an old-fashioned peg top were in the net. Chris identified them for me as *Clione limacina* [a 'sea angel' in the clade Gymnosomata, a large group of small, swimming sea slugs.] … The specimen mentioned in this letter was taken at 400 metres 59˚N, 19˚W approximately 180 nautical miles on a bearing of 300˚ from Rockall.

Shell Exhibition — *T.E. Crowley*

… [T]he exhibition of shells recently held by Mrs Saul at her home near Little Malvern was well designed to catch the imagination of the visitor … The set theme, 'Man and Mollusc' involved a great deal more than a striking series of marine Mollusca; there were examples of shells as ornamentation, as useful objects from trumpets through window panes to buttons; shells as menaces to human and animal health, as food, pests, art-forms, currency and medicine … An exhibition of this kind involves a great deal of work but judging by the interest which seems to have been aroused, must have brought a corresponding feeling of satisfaction to Mr & Mrs Saul and their assistants.

Shell Gallery before the Blitz – and myself in peril on the sea *S. Peter Dance*

There is much to savour in Brian Goodwin's two-part article on 'Conchologists in conflict' (*Mollusc World* **54**: 8–13, December 2020 and **56**: 20–25, July 2021). In the second part he outlines the effects of aerial bombardments on British cities during World War 2, with graphic details of the effects of the Blitz on London. In particular he mentions damage caused by the incendiary bombs that fell on the Natural History Museum during air raids between September 1940 and April 1941. The front cover of the December 2020 issue of *Mollusc World* shows the extensive damage to the Shell Gallery caused by a direct hit from an incendiary bomb on the night of 16th October 1940. I can offer a footnote to this event, in the form of a photo issued, as a postcard, by the Natural History Museum, showing the Shell Gallery as it was in about 1925 (figure 1). The model of a giant squid was certainly a casualty. Speaking as a former member of the staff of the Mollusca Section of the Natural History Museum (1957–66), I am fairly confident that most of the shell collection displayed in the photo survived intact, possibly because it may have been moved elsewhere for safety, but more research is required to prove this.

I also offer another footnote to the second part of Goodwin's article in which he describes how I found myself 'in peril' on the sea in March 1954. I take this opportunity to expand on his account. Having languished for 30 months on duty as a radar operator with the RAF in Egypt during the Suez Campaign, 1951–54, it was time for my repatriation to the UK. Taking me home was HMT *Empire Windrush*, the same vessel that had brought the first wave of immigrants from Jamaica to the UK in 1948. Early in the morning of 28th March, when just a few miles off Algiers, the engine room exploded and half an hour later the *Empire Windrush* was ablaze from stem to stern. The crew and almost 1500 servicemen and their dependants were ordered to abandon ship. Here I have to correct Goodwin's statement that 'Peter ended up in the water' because I did not, for I was lucky enough to be allocated a place on one of the few serviceable lifeboats. My luck did not extend to my personal belongings which were all consumed by the conflagration. Among them were hundreds of shells of a snail I had found on and under shrubs around the radar installation. I had already sent some to the Rev. Bert Biggs, who described them in 1959 as a subspecies new to science, *Eremina desertorum dancei* (Biggs 1959). The sea claimed hundreds of Dance's desert snail that day, but was merciful to the young man whose name they were destined to bear!

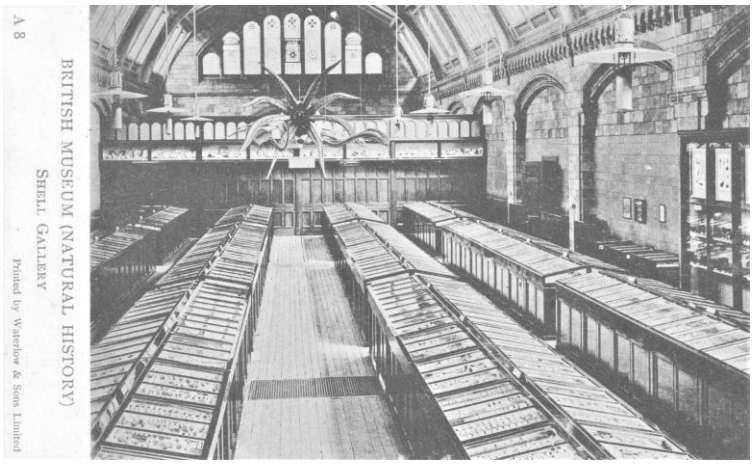

figure 1: The Shell Gallery, Natural History Museum, London. Postcard issued by the museum c. 1925 (author's collection).

Reference
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The Uruguayan spire snail (*Heleobia charruana)* in Bermondsey *Peter Topley*

An addendum in the recently published FSC guide to the freshwater snails of Britain and Ireland (Rowson et al., 2021) notes that this South American species, which is tolerant of a wide range of salinity, 'is already common or dominant between Battersea and Woolwich, East London'.

My son and daughter-in-law currently live in this area near the Thames in Bermondsey, so I paid them a visit in August armed with the usual hand lens/collecting tubes, with the addition of protective gloves and sanitiser! Sam and I shared the Thames shore with 'mudlarks' looking for historical items amongst the more recently discarded small 'laughing gas' canisters and other litter. There was no sign of any snails on any of the larger stones but on the wooden piles of the embankment wall on weed (figure 1) were two *Heleobia charruana* (d'Orbigny, 1841) as well as a number of *Potamopyrgus antipodarum* (figure 2; confirmed by Ben Rowson). The only other recent mollusc shells on the shore were those of the bivalves *Dreissena polymorpha* and *Corbicula fluminea*. Thus the only mollusc species seen were those resulting from introductions dating from the early 19th century to the present day.


figure 1: Wooden piles of the embankment wall of the Thames at Bermondsey, London, habitat of *H. charruana* (arrowed), 14/8/2021.

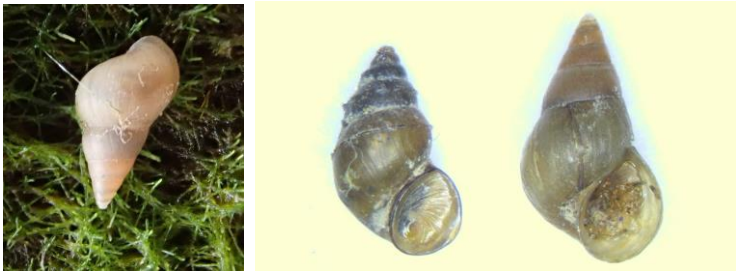
figure 2: *H. charruana* on weed (left); *P. antipodarum* (l.) and *H. charruana* (r.) (height c. 6 mm) from the Thames at Bermondsey (right).

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About the Conchological Society

The Conchological Society of Great Britain and Ireland is one of the oldest societies devoted to the study of molluscs. It was founded in 1876 and has around 300 members and subscribers worldwide. Members receive two publications: Journal of Conchology which specialises in Molluscan Biogeography, Taxonomy and Conservation and this magazine. New members are always welcome to attend field meetings and indoor meetings before joining.

The Conchological Society of Great Britain & Ireland

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In view of the high cost of postage for distribution from the UK, members living in the Republic of Ireland and Europe will be asked to pay an additional postage charge of £8, and members living in the Rest of the World an additional postage charge of £17.
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How to submit articles to Mollusc World

Copy (via e mail, typed or handwritten) should be sent to the Hon. Magazine Editor (contact details above). If sending copy using e-mail please include a subject line 'Mollusc World submission'. When emailing several large file attachments, such as photos, please divide your submission up into separate emails referencing the original article to ensure receipt. Electronic submission is preferred in Microsoft Word. Images and Artwork may be digitised, but we recommend that a digital image size 200Kb- 1Mb (JPEG preferred) be sent with your submission. All originals will be treated with care and returned by post if requested. Authors should note that issues of the magazine may be posted retrospectively on the Conchological Society's web site. **Copy intended for the March 2022 issue should be with the Hon. Editor prior to 31st Jan. 2022**; inclusion in a particular issue is at the Hon. Editor's discretion and depends upon the space available but contributions are always welcome at any time.

Membership update

The following Conchological Society members have not previously been included in either this column of Mollusc World or in the latest edition of the Members' Guide. Please note that to be included here members must sign a data protection consent form. If you have not been included and now wish to be please contact Catherine Jagger at CIRCA subscriptions (details above).

Codes after a member's contact details denote their interests:
A applied conchology; **B** conchological books; **C** conservation; **E** ecology and pollution; **G** general malacology including genetics and physiology; **Mb** British marine; **Mf** foreign marine **Nb** British non-marine; **Nf** foreign non-marine; **P** photography; **W** conchological poetry and prose.

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Conchological Society of Great Britain and Ireland
Diary of Meetings

Please check website (www.conchsoc.org) for further details/updates, including other meetings arranged at shorter notice.

Conchological Society indoor meetings

We hope that it will be possible to recommence 'live' meetings in the Natural History Museum next year but, at the time of going to press, their policies for 2022 have not yet been agreed. Irrespective of whether a meeting is live, it will also involve a Zoom facility for those unable to reach London. Details of whether a meeting is 'live' plus Zoom or Zoom only, will be circulated to members prior to each meeting, together with instructions on how to access the NHM and /or the online Zoom. News updates will also appear on the Society's website.

It is ESSENTIAL to let Catherine Jagger at CIRCA (shellmember@gmail.com) know of your intentions to attend on Zoom or at the NHM, at least a week before each meeting. She will then send you joining instructions and an agenda. If you do not respond on time, it may not be possible to make the necessary access arrangements. Zoom meetings will open from 13.45 and please ensure that you join before the 14.00 start as late admissions may be impossible.

Saturday 11th December 2021: ZOOM MEETING with online exhibits and lecture
Guest speaker: Ian Killeen, **'Thirty years of *Margaritifera* research – Pearl Anniversary'.**
14.00 –16.00 approx. (13.45 Zoom sign in)

Saturday 19th February 2022; INDOOR MEETING with exhibits and lecture (NHM with Zoom link)
Guest speaker: Rosemary Winnall MBE 'The nature of Wyre – a celebration of an ancient woodland'
14.00 –17.00 (13.45 Zoom sign in): Angela Marmont Centre, Natural History Museum, London SW7 5BD

Saturday 9th April 2022: ANNUAL GENERAL MEETING AND ADDRESS (NHM with Zoom link)
Guest speaker: John Whicher, 'Sowerby's Mineral Conchology. Tales of the unexpected'.

James Sowerby's *Mineral Conchology of Great Britain*, a comprehensive catalogue of invertebrate fossils, was published over a 34-year time-span starting in 1812. The finished worked contains 650 coloured plates distributed over 7 volumes. John will revisit the subsequent history of several species he described with outcomes he would probably not have expected.

14.00 –17.30 (13.45 Zoom sign in): Angela Marmont Centre, Natural History Museum, London SW7 5BD

Saturday 23rd July 2022; ZOOM MEETING with online exhibits and lecture
Guest speaker: Dr. Jeremy Biggs (Director, Freshwater Habitats Trust)
'Understanding and protecting freshwater Mollusca: the work of the Freshwater Habitats Trust'
14.00 –16.00 approx. (13.45 Zoom sign in)

Saturday 15th October 2022; INDOOR MEETING with exhibits and lecture (NHM with Zoom link)
Guest speaker: Dr. Corina Ciocan (Brighton University) 'Fibreglass boats and oysters don't mix! Hazardous contaminants in the aquatic environment GRP (Glass reinforced plastic) accumulation & impact on bivalves'
14.00 –17.00 (13.45 Zoom sign in): Angela Marmont Centre, Natural History Museum, London SW7 5BD

Further Advance Notice for later in 2022
A Regional Meeting is being planned to take place in Liverpool during **November 2022**; date yet to be fixed when further details will be posted. Indoor meeting also on **10th December**; details TBA

FIELD MEETINGS: Please refer to the website and later issues of this magazine for updates.

We are always happy to receive any suggestions for speakers for indoor meetings, or offers to lead field meetings, and also any suggestions about Society participation in the meetings of local and other societies.

Meeting Programme compiled by Martin Willing. Contacts for meetings related matters are either Martin Willing (martinjwilling@gmail.com) OR Rosemary Hill (secretary@conchsoc.org).
If you have any meetings-related questions please, in the first instance, make contact via email with Martin Willing.