

Meet at 13:00h in the Cliff Car Park, grid ref. TF 678423. Participants coming by train can be picked up at Kings Lynn railway station. The last train that can be met should arrive by 12 noon. The last train from Kings Cross, London is 10:15h according to the *winter timetable*, therefore participants should check the train times closer to the meeting before travelling. Participants travelling by road should come in on the A149 to Hunstanton and take the road signposted to the cliffs. You can see the lighthouse from the car park. There may be a charge.

Please tell Celia your travel arrangements.

Low tide is about 15.30. We plan to follow the tide down. This attractive town is on the edge of the Wash; there are low cliffs, a very, very long sandy beach and *Mytilus* beds further out. All British species of *Ensis* are living here, including the alien *E. americanus*. It is a long time since the Society ran field meeting here, it will be good to update our records.

**FIELD – Saturday & Sunday
16-17 August**

Northern Ireland.
Leader: Roy Anderson.
(02890 582686) (home),
roy.anderson@ntlworld.com

**YCS – Saturday
6 September**

Haxby.
Contact: David Lindley
(0113 2697047) (home),
david.lindley3@btinternet.com

Meet at 10:30h at Terry Crawford's house, 2 Crooklands Lane, Haxby, York, grid ref. SE 610586 for Haxby ponds and general area.

**FIELD – Monday to Thursday
15-18 September**

Lleyn Peninsula,
North Wales.
Marine meeting.

Leader: Tom Clifton
(01248 853359) (home)
(07767 494355) (mobile)
clifftom4048@uwclub.net

Meet in Benllech, Anglesey at a time to be arranged.

The purpose of this meeting is primarily to survey an area on the south shore of the Lleyn Peninsula at Traeth Crugan. This region has shown to be unique in the range of live species which can be found from shore based surveys and it would be interesting to see if some conclusions can be reached as to why this area is so different from others. It is believed that it was the site of the mouth of a glacial river which drained water from a south moving ice field which was trapped by the Lleyn Peninsula. The mouth of this river was thought to exit near Pwllheli and that an area of submerged banks at Traeth Crugan, which now forms a large lagoon at low tide, may have been the south shore of this river.

The group will also be able to survey an area on the north Lleyn at Porth Towyn and Porth Ysgaden. Porth Towyn has always produced among the best shell sand to be found in this area; it would be nice to know where the animals are living.

There will also be a chance to survey an area in the Menai Strait known as the Swellies, this is where the Strait narrows to pass under the Menai Bridge and provides an excellent catchment area for specimens carried up the Strait on the tides.

More details will be supplied later.

**NHM – Saturday
4 October 2008**

11:00h in the Demonstration Room.

Note the revised earlier start time. No Council meeting. Please bring plenty of

exhibits and demonstration material. Lecture to start at 14:00h.

We welcome as Guest Speaker Adele Grindon from Nottingham University on the subject of 'Archaeology, DNA patterns and the colonisation of Ireland by snails'.

**FIELD – Saturday & Sunday
11-12 October**

Forest of Dean/Wye Valley.
Malacolimax tenellus search.
Leader: David Long
(01242 527673) (home)

Meeting point to be arranged, at 10:30h.

**YCS – Saturday
11 October 2008:**

Weedley Springs.
Contact: David Lindley
(0113 2697047) (home),
david.lindley3@btinternet.com

Meet at 10:30h near the church in West End near South Cave, VC 61, grid ref. SE 915309 for Weedley Springs and 1km recording

**Saturday 25 October 2008:
all-day Council meeting at
NHM**

**INDOOR – Saturday
15 November**

All-day meeting at National Museum of Wales, Cathays Park. Further details to be announced.

**WKSHP – Saturday
29 November**

The annual workshop held in Woking offers members the opportunity to receive tuition on identifying difficult groups. Bookings to Judith Nelson (01483 761210)(home) Provisional subject: to be announced.

**NHM – Saturday
6 December 2008**

14:00h in the Demonstration Room, preceded by Council meeting.

Molluscan quiz devised by Jane Bonney.

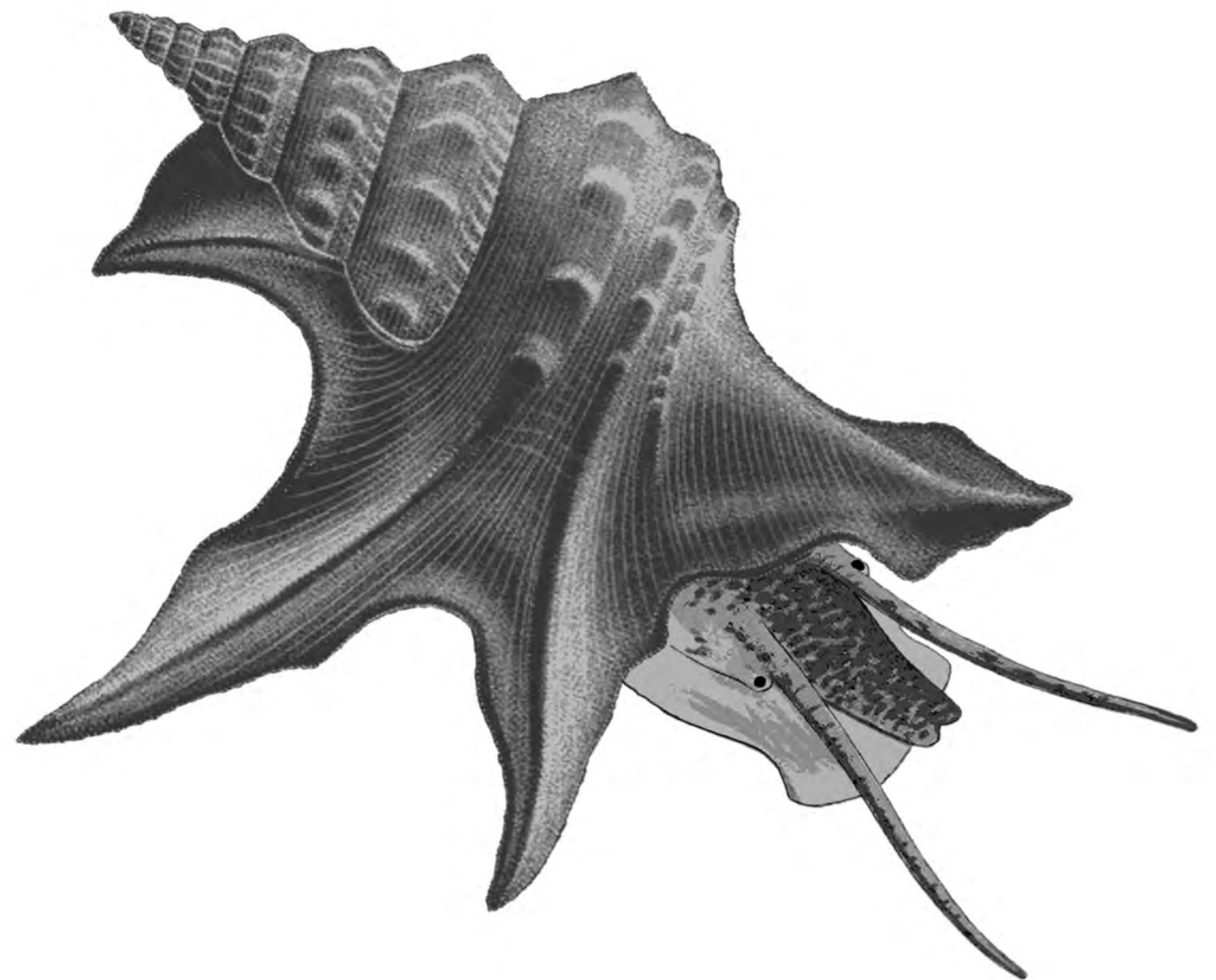
contents

- 2
Society information
Society website
- 3
CSGBI Regional meeting
Ben Rowson
**Wildlife Surveys in
NT Gardens**
Matthew Oates
- 4
Planorbis carinatus
J Hudson
- 5
**Colour patterns in
fossil Neritidae**
Malcolm Symonds
- 8
**Poster of *Unio tumidiformis*
Castro 1885**
Joaquim Reis
- 9
Holbrook Millpond revisited
Ian Killeen
- 10
Rhosilli Field Meeting Report
Celia Pain
- 12
**Archenhills & Mill Copice
Field Meeting**
Rosemary Winnall
- 14
J. Davy Dean's Zonitidae
Ben Rowson
- 17
Pease Dean Field Meeting
Adrian T Sumner
- 18
Molluscs in Roman Art
Peter Topley
- 20
Papillifera papillaris
S Peter Dance
- 21
Sphaerium corneum
Ian Killeen
- 23
**Inventaire National du
Patrimoine Naturel**
Ian Killeen
- 24
Lymnaea palustris
Ron Carr
- 25
Man & Molluscs
Adrian T Sumner
- 26
**Book review of
Snail Trail by Sarah Lucas**
Jane Bonney
- 27
Diary

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THE MAGAZINE OF THE CONCHOLOGICAL SOCIETY OF GREAT BRITAIN & IRELAND

Editorial

A few years ago I wrote an article for the *Conchologists' Newsletter* on 'lumping' in the Lymnaeidae. Out of this arose a study with Ron Carr which recognised *Lymnaea (Stagnicola) fusca* and *L. palustris* as distinct taxa, both of which occurred in Britain and Ireland. In 2002 Ron had recognised *Cermuella aginnica* as occurring in Britain. Then in 2004 Roy Anderson described *Arion occultus* as a new species of slug, and also in 2004 Killeen *et al.* recognised *Sphaerium nucleus* as part of our fauna. Whilst the Society has embraced the new nomenclature published by Anderson in 2005, there appears to be a reluctance to either search for or separate these recently recognised species. In this issue of *Mollusc World*, Ron Carr observes "Since the separation of the two British species (of *Lymnaea*),

provision of additional distributional data for either species has attracted little interest from recorders. Recently published records often still refer to "*L. palustris* agg", the few specimens supplied for anatomical examination have being mainly submitted by non-malacologists". I can report that I have only received one enquiry from a member concerning the *Sphaerium* species. Therefore I have written an article which I hope will stimulate some interest.

In *Mollusc World* 15, we featured the work of Joaquim Reis who was awarded the Society's prize for best poster with a conservation theme at last year's World Congress of Malacology in Antwerp. In this issue we have reproduced Joaquim's prize winning

poster on *Unio tumidiformis* (see page 8).

Finally, could I just remind everyone that all articles for *Mollusc World* and all correspondence concerning articles must in the first instance be sent to me and not sent directly to the designer (Emma Pitrakou). There have been occasions when articles had been sent directly to Emma and my first knowledge of them was when I received the proofs for checking! Emma is an excellent designer and the attractive product we have today is due to her skill and imagination. It is not at all fair to expect her to do the job of forwarding articles to me for editing!

Ian Killeen

Mollusc World

This magazine is intended as a medium for communication between members on all aspects of Molluscs from archaeology to life in the sea, field collecting at home and abroad and even eating molluscs. If you look back on the content over the last three years we include articles, field meeting reports, research news, results from the mapping schemes and identification keys. We welcome all contributions in whatever form they arrive.

How to submit articles:

Copy (handwritten, typed or electronic) should be sent to the Editor at the address below. If sending electronic copy using e-mail please include a subject line "*Mollusc World* submission" and send a separate mail without any attachments advising that the e-mail was sent. Electronic submission is preferred in Microsoft Word, but if other programmes (e.g. Works) are used, please indicate the programme used with the accompanying e-mail.

Images and Artwork may be digitised, but we recommend that a digital image size no larger than 8" x 6" and 300 dpi be sent with your submission. For line art we recommend that you send hard copy, all originals will be treated with care and returned by "snail-mail".

Please send articles to:

Ian Killeen, 53 Charleville Square, Rathfarnham,
Dublin 14, Ireland.
E-mail: iankilleen@eircom.net

About the 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 over 300 members worldwide. Members receive two publications *Journal of*

Conchology which specialises in Molluscan Biogeography, Taxonomy and Conservation and *Mollusc World*, our newsletter for members. New members are always welcome to attend field meetings and indoor meetings before joining.

How to become a member

Subscriptions are payable in January each year, and run for the period 1st January to 31st December.

Ordinary membership	£33.00
Family/Joint membership	£35.00
Institutional membership (UK & Ireland)	£47.00
Institutional membership (Overseas)	£50.00
Student membership	£15.00

Payments in sterling only, to membership secretary at address below. £1 discount given to payments before March 31st each year. For UK residents we suggest payment by standing order, and if a UK tax payer at standard rate we encourage you to sign a Gift Aid form.

Overseas members can pay by IBAN transfer to the following account:

The Conchological Society, National Westminster Bank,
Bolton, BL1 1BN

IBAN GB12 NWBK 0130 9906 5238 46 BIC NWBK GB2L

Contact: Mike Weideli, 35 Bartlemy Road, Newbury, Berks,
RG14 6LD

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CSGBI REGIONAL MEETING Amgueddfa Cymru – National Museum Wales, Cardiff

Sat 15 – Sun 16 November 2008

This is an early announcement with some important information for those wishing to attend. Please note that the dates above have now been finalised. Further information will follow in a later issue of *Mollusc World* and on the Society's website. Attendance is free, but the more advance notice we have of numbers the better. If you plan to come, or have any enquiries, please contact Ben Rowson at the address below.

CALL FOR PRESENTATIONS

We would welcome short (10-20 mins) presentations on any molluscan subject. Powerpoint/laptop/projector facilities will be available. To offer a presentation, please let us know as soon as you can and indicate whether you need additional facilities.

WORKSHOPS

We are planning two identification workshops, relevant to both beginners and those with more experience. MARINE: PYRAMIDELLID MICROGASTROPODS (*Odostomia* & *Brachystomia*) using the Cardiff collections to help members agree on the identity of particular taxa. NON-

MARINE: SLUGS. Living specimens from around the British Isles can be compared, and there will be introductions to dissection and recent name changes. Graham Oliver has also offered to examine difficult British bivalves brought to the meeting. The collections and library will also be available for other purposes (again, please let us know in advance).

TRAVEL & ACCOMMODATION

Attendees will need to make their own travel and accommodation arrangements. IMPORTANT: Cardiff's Millennium Stadium hosts major sporting fixtures that can cause disruption elsewhere in the city. They do not release dates until June so we cannot guarantee that the meeting will not coincide with a match. Thus we strongly recommend booking your accommodation as early as possible. Also please note that on match days, roads around the Museum may be closed, and parking, coach and rail services disrupted. More details will be released when we have them – in the meantime, don't let this put you off!

Hope to see you in Cardiff,

Ben

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Email: ben.rowson@museumwales.ac.uk

Mobile: 07817 377 484 www.museumwales.ac.uk

Wildlife Surveys in National Trust Gardens

The National Trust needs to learn more about the wildlife occurring in its 130 formal gardens, attached to historic mansions. Recent surveys of a small sample of gardens discovered four species of invertebrate new to Britain: a Mediterranean door snail, a bug on mistletoe, an obscure leaf litter fly and a paper wasp. Also, grassland fungi surveys identified several National Trust lawns as being of national importance, particularly for wax cap fungi. It is likely that many Trust gardens are of importance for rare or declining species, perhaps especially invertebrates (e.g. mining bees and dragonflies). Clearly, it is the resident and regularly visiting species that count, rather than odd vagrants.

Obviously, these places are gardens, rather than nature reserves, but the Trust will do whatever it can to encourage wildlife in its gardens, especially rare species, so long as this does not unduly compromise garden management.

The Trust wishes to hear from naturalists visiting its gardens, particularly specialists in the less widely recorded wildlife groups. Entrance to gardens is free to

members. Some care will need to be taken over recording methods, such as using nets publicly and entering garden ponds: do please contact the Trust property in advance should your recording techniques necessitate such disturbance (see NT web site or Members Handbook). Many properties will welcome detailed surveys by specialists and can enable free entrance, including on days when gardens are not open to the public.

Full details of existing survey knowledge, garden by garden, and information for surveyors are on the Trust web site.

See www.nationaltrust.org.uk/wildlifeingardens
Records of interest are welcome via a special email address: gardenswildlifesurvey@nationaltrust.org.uk

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Planorbis carinatus in Pembrokeshire (West Wales)

J. Hudson (CCW) 5 Croft Villas, Camrose, Haverfordwest, Pembrokeshire

Pembrokeshire (VC45) lies on the western coast of south Wales and has an extremely oceanic climate. Much of the north of the county is underlain by ancient acidic shales and volcanic rocks, whereas younger sandstones and limestones occur in the south. The Western Cleddau is a soft-water river, rising barely a mile and a half from the sea in North West Pembrokeshire but follows a winding course south eastwards for some 17 miles to reach tidal water at Haverfordwest. North of Haverfordwest the river occupies a wide floodplain. In this stretch of the river there are pools and riffles as well as some large meanders where extensive gravel shoals form. It was here that shells of *Planorbis carinatus* were first found in November 2006.

Previously the most westerly records of *Planorbis carinatus* in Wales were from the Llanelli area in east Carmarthenshire. Empty shells of *P. carinatus* were initially found downstream from St Catherines Bridge, near Haverfordwest in Pembrokeshire (SM9428619502) as a result of hand searching among river flood detritus on gravel shoals on November 18th 2006. This site is at least 60 km (in a direct line) west of any previous records for the species. Initial field examination suggested that the shells were those of *P. carinatus*. The shells were then examined using a binocular microscope and were identified as *P. carinatus*. M.D. Sutton examined the shells and concurred with this identification. The Atlas of the land & freshwater molluscs of Britain & Ireland was consulted¹ and it appeared that the species had not previously been recorded from Pembrokeshire. The Conchological Society was notified of the find and a specimen sent for determination by

Adrian Norris who confirmed both the identification and fact that this was indeed a new species for the county.

Subsequent searches along this stretch of river found numerous adult and juvenile animals present under stones along the river channel edge. Other gastropod associates included *Physa fontinalis*, *Succinea/Oxyloma* spp. and *Ancylus fluviatilis*. Further searches at a number of points along this river showed that whilst the species occurs elsewhere it appears to be largely restricted to those sections of the river that are not densely shaded by trees and may have a rather restricted distribution. The Eastern Cleddau River which meets the Western Cleddau in its tidal reaches has not yet been searched. It seems quite likely that *P. carinatus* could occur here too.

Some of the small tributaries feeding the Western Cleddau as well as a number of other small brooks were also searched but no further specimens of *P. carinatus* were found. Despite the failure to find *P. carinatus* in any of these smaller streams it is perfectly possible that the species may be present and that future searches may locate the species in at least some of them.

The finding of a relatively large species of freshwater snail in a well monitored SAC river well beyond its recorded range should give encouragement to the expectation that *P. carinatus* may be found elsewhere in Pembrokeshire and west Wales. The species does not appear to be particularly demanding in its habitat requirements though it is usually found in waters with a fairly diverse molluscan fauna. Similar medium to large rivers and streams throughout

this area may well be suitable for *P. carinatus* and should be searched for the species.

The author would like to thank the following people for assistance with various aspects in the production of this paper; Matt Sutton & Sam Bosanquet of CCW for initial help with identifications, Adrian Norris the Society's non-marine Recorder for determination and Nick Hudson for comments on the text.

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1. Kerney, M.P. 1999 *Atlas of the land & freshwater molluscs of Britain & Ireland*. Harley Books, Colchester.

Map source: © Crown Copyright. All rights reserved NERC 100017897 2004

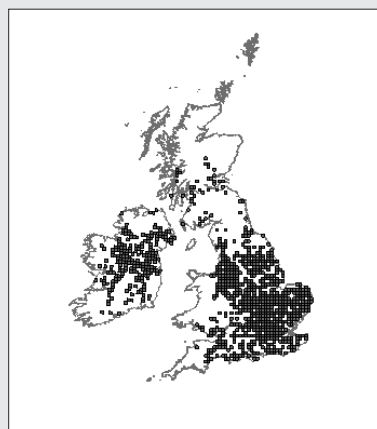


Fig 1. *Planorbis carinatus*

Fig 2. UK distribution of *Planorbis carinatus*

Changes in colour pattern in fossil Neritidae Malcolm Symonds

Colour polymorphism in gastropods has been the subject of numerous detailed studies and it is clear that various factors are involved. For example it has been shown that in *Littorina saxatilis* (Olivi, 1792) colour morphs are genetically established and the variation in frequency of a particular colour morph in different habitats is determined by natural selection through the agency of visual predators (Ekendahl & Johannesson, 1997). With the trochid *Austrocochlea constricta* (Lamarck, 1822), on the other hand, experiments have established that variation in colour pattern is influenced by diet (Underwood & Creese, 1976). Some nerite species exhibit an especially wide range of colour patterns, often within a single population subject to broadly similar environmental conditions. Grüneberg (1976, 1978, 1979 & 1982) carried out detailed studies of just such a variable species, *Clithon (Pictoneritina) oualaniensis* (Lesson, 1831). He eventually concluded that both genotypes and phenotypes were involved and that the wide range of colour patterns in this species resulted from the interaction of hereditary and environmental factors, for which he coined the term "pseudo-polymorphism".

In other nerite species the colour pattern usually varies within a narrow range but environmental influence can result in a more significant change. Gunderson and Minton (1978) carried out experiments with the Caribbean species *Puperita pupa* (Linné, 1758), which is a fairly common inhabitant of intertidal rock pools and has a distinctive pattern of zebra stripes (Fig. 1). The relationship between this species and *Puperita tristis* (d'Orbigny, 1842), which has a shell similar in shape to *P. pupa* but an entirely different colour pattern consisting of

white dots on a black background (Fig. 2), had for some time been a matter of speculation with some authorities considering *P. tristis* to be a separate species and others regarding it as a subspecies or merely a colour morph of *P. pupa*. Gunderson and Minton found a colony of *P. tristis* in Jamaica living in freshwater pools above the tide line. They took specimens of *P. pupa* from saltwater pools and moved them to the *P. tristis* colony. The translocated specimens showed an abrupt change with new growth displaying the colour pattern typical of *P. tristis*. They also found that colonies living in pools with freshwater influence but within the splash zone, where the water was brackish, had an intermediate colour pattern with black lines which split and crossed giving an irregular netted appearance (Figs 3 & 4). These tests indicated that *P. tristis* was an ecophenotype of *P. pupa* and this was further substantiated by DNA analysis, which suggested that only one species was involved. Specimens of *P. pupa*, which show an abrupt change of colour pattern at some stage in the shell's development, occur naturally, presumably as a result either of a variation in the salinity of its environment, for instance from a stream changing course, or the transportation of the mollusc to a different environment, for example by a storm. Figure 5 illustrates a change of colour pattern from the striped form of *P. pupa* to an intermediate form although, unfortunately, this change is not as dramatic as in the specimens resulting from Gunderson and Minton's experiments and figured by them.

Most fossil molluscs lose their colour pattern during the process of fossilisation. In some families this is due, in part, to the shell being formed of aragonite, which is more soluble

than calcite. In the Neritidae the shell is composed of crossed-lamellar aragonite with an outer layer of more stable calcite, which protects the colour pigments, and this is the only fossil family in which preservation of the colour pattern can confidently be expected (Hollingsworth & Barker, 1991). Some fossil species have a considerable range of colour patterns comparable to recent species such as *C. oualaniensis*. One example is *Clithon pictus* (Férussac, 1825) and figures 6 to 9 show a selection of colour patterns in specimens from the Aquitainian (Miocene, age approximately 20 million years) of south west France.

Fossil molluscs were often transported and sorted by currents prior to deposition in which case it is no longer possible to be sure where they were actually living. A good example is the well-known fossil shell bed, forming part of the Blackheath Beds (Early Eocene, age approximately 50 million years), at Abbey Wood, in the London Borough of Bexley. This bed is formed from an ancient shell-bank composed mainly of sand with flint pebbles and fossil molluscs and vertebrates. The molluscs are from a variety of habitats and consist of marine, brackish and freshwater species; the vertebrate remains include shark's teeth and terrestrial mammal teeth. The most common neritid is *Clithon (Pictoneritina) pisiformis* (Férussac, 1823), which has a pattern of thin, dark, transverse lines on a light background (Fig. 12). The lines are waved or zigzag with the precise pattern varying from one individual to another. Rare specimens have three pale spiral bands around the shell (Fig. 10). Rundle (1971) in his definitive thesis on the mollusca of the Blackheath/Oldhaven Beds of Kent figured a similar specimen and considered it to be merely a variation in pattern from the more common

form of *C. pisiformis*. This is supported by the specimen in Figure 11, in which the zigzag pattern in the initial part of the teleoconch abruptly changes in the body whorl to the banded form.

Another species which has both unbanded (Fig. 13) and banded (Fig. 14) forms is *Clithon (Pictoneritina) planulatus* (Edwards, 1866) from the Hatherwood Limestone which forms part of the Headon Hill Formation on the Isle of Wight (Late Eocene, age approximately 35 million years). In contrast to the Abbey Wood shell bed, the Hatherwood Limestone was laid down in a fairly stable environment. The lower limestone is thought to have formed mainly in freshwater marshes, although the basal bed indicates a brackish influence; the upper limestone represents slightly saline environments (Paul, 1989). *C. planulatus* is common at two levels: the basal bed of the lower limestone and the "Theodoxus planulatus Bed" in the upper limestone. Curry (1960) stated that about 50% of *C. planulatus* specimens were banded but this actually depends on the bed in which they occur. A sample, which Bill Pocock and I took from the basal bed at Headon Hill in 2006, produced 99% banded specimens; on the other hand, in the "Theodoxus planulatus Bed" the banded form is in the minority. Figure 15 shows a juvenile shell with a banded shell changing abruptly to an unbanded form but such examples are, in my experience rare, perhaps because of the environment at the time which would have given limited scope for molluscs to be transported to a different habitat. However in some deposits abrupt changes of colour pattern are not uncommon; for example figures 16 to 18 show colour pattern changes in *Clithon (Pictoneritina) passyanus* (Deshayes, 1864) from the Bartonian of Chavençon in the Paris Basin (Middle to Late Eocene, age approximately 40 million years).

Obviously with fossil gastropods it is not possible to carry out the same tests and experiments as with living material; indeed it is often impossible

to establish exactly where and in what habitat the fossil specimen lived. However it is usually considered safe to assume in the case of fossil species which are closely related to recent species, that they occupied similar environments to their living relatives. Where a fossil nerite shows an abrupt change of colour pattern, as in Figures 11 and 15 to 18, it seems to me to be a reasonable assumption that this may well have been the result of a sudden change in some aspect of its environment, such as salinity as in the case of *P. pupa*. In some cases the change in colour pattern coincides with damage to the outer lip which would be consistent with violent movement during a storm.

I am very grateful to Daniel Ledon for supplying the specimens, which I have figured, from France.

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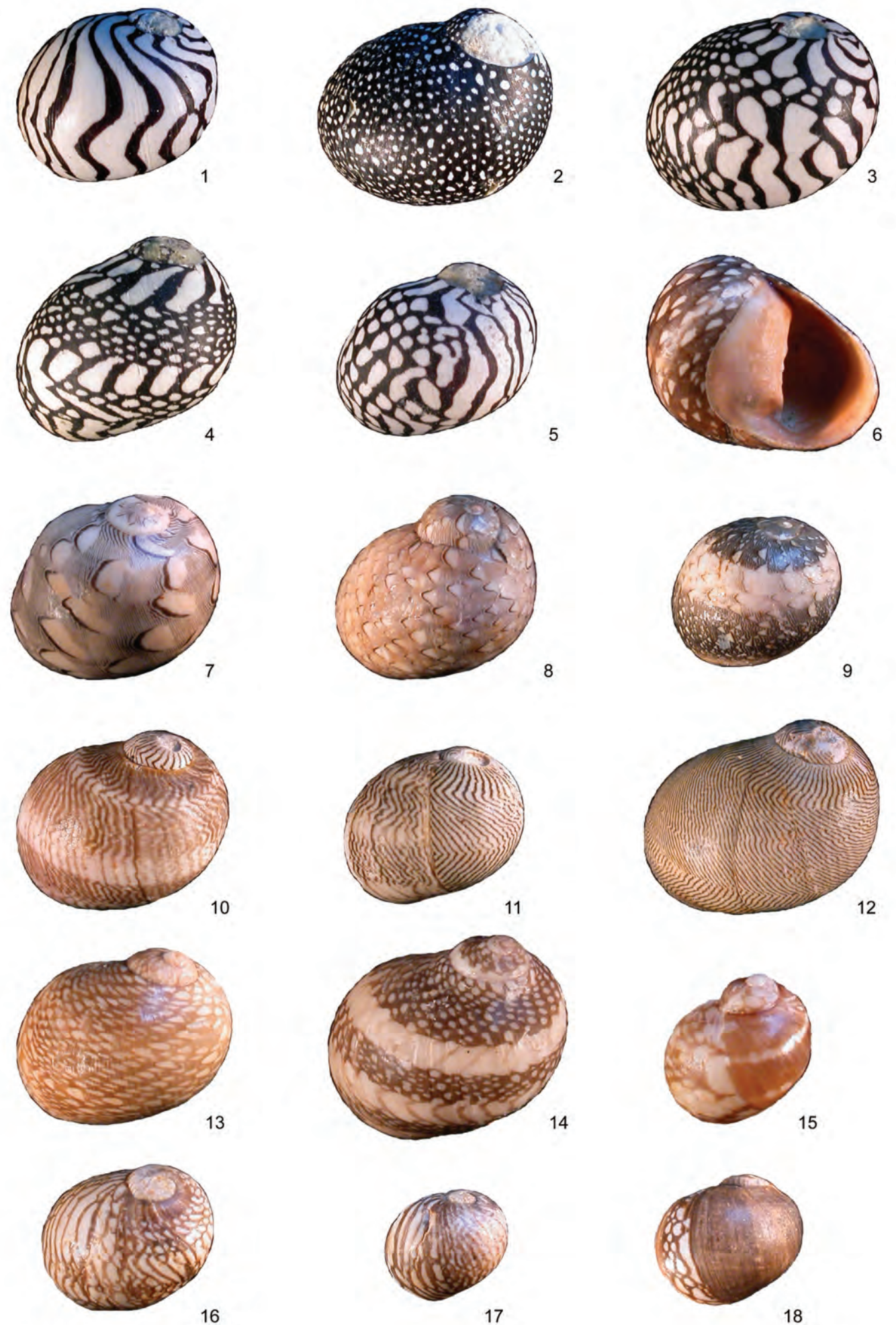
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Figures:

- 1 to 5. Manzanillo, Costa Rica.
1. *Puperita pupa*. Intertidal rock pool. Height 7 mm.
2. *Puperita "tristis"*. Rock pool, upper shore near stream mouth. Height 9.5 mm.
3. *Puperita pupa*. Intermediate form. Rock pool, upper shore, brackish water. Height 9 mm.
4. *Puperita pupa*. Intermediate form. Rock pool, upper shore, brackish water. Height 8.8 mm.
5. *Puperita pupa*. Showing change of pattern. Rock pool, upper shore, brackish water. Height 5.6 mm.
- 6 to 9. Aquitainian, Saint-Avit, south west France.
6. *Clithon pictus*. Height 8.8 mm.
7. *Clithon pictus*. Height 7.8 mm.
8. *Clithon pictus*. Height 8 mm.
9. *Clithon pictus*. Height 6.2 mm.
- 10 to 12. Blackheath Beds, Abbey Wood, London.
10. *Clithon (Pictoneritina) pisiformis*. Banded morph. Height 7.8 mm.
11. *Clithon (Pictoneritina) pisiformis*. Showing change of pattern. Height 5.6 mm.
12. *Clithon (Pictoneritina) pisiformis*. Common form. Height 9.2 mm.
- 13 to 15. Hatherwood Limestone, Headon Hill, Isle of Wight.
13. *Clithon (Pictoneritina) planulatus*. Unbanded. Height 8 mm.
14. *Clithon (Pictoneritina) planulatus*. Banded. Height 9.6 mm.
15. *Clithon (Pictoneritina) planulatus*. Showing change of pattern. 4.8 mm.
- 16 to 18. Bartonian, Chavençon, Paris Basin.
16. *Clithon (Pictoneritina) passyanus*. Height 6.2 mm.
17. *Clithon (Pictoneritina) passyanus*. Height 4.8 mm.
18. *Clithon (Pictoneritina) passyanus*. Height 5.5 mm.



Unio tumidiformis Castro 1885: A highly endangered endemic species (Bivalvia: Unionidae) from the south-western Iberian Peninsula

Reis, Joaquim¹; Araujo, Rafael²

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Introduction
 The family Unionidae is highly threatened worldwide, constituting the most endangered animal group in the United States (Strayer et al. 2004). In Europe several endangered species were recognized (*Margaritifera margaritifera*, *M. auricularia*, *Unio crassus*, *U. pumilus*), but a poor understanding of the systematics and taxonomy of the group jeopardizes the efficiency of conservation efforts. Haas (1940, 1969) considered *Unio crassus* batavus Maton & Rackett, 1807 as one of the species occurring in the Iberian Peninsula. This taxon had been cited from the Iberian Peninsula by Morelet (1845) as *U. batavus*, Castro (1885) and Locard (1889) as *U. tumidiformis* Castro, 1885; *U. euphygus* Castro, 1885; *U. sadoicus* Castro, 1885 and *U. macrophygus* Castro, 1885. Azpeitia (1993) as *U. baeticus* Kobelt, 1897; *U. callipygus* Drouët, 1893 and *U. jourdeuili* Ray, 1882; Reis (2006) and Pérez-Quintero (in press) as *U. cf. crassus*, Reis et al. (submitted) recognized the endemic character of the Iberian *U. crassus* sensu Haas based on molecular phylogenetic analyses, and established the central European *U. crassus* as its sister group. Following these findings, we redescribed and studied the life history of this species that is correctly designated as *Unio tumidiformis* Castro, 1885 (Reis & Araujo, in press).

Methods
 We revised the collections in the Museo Nacional de Ciencias Naturales (Madrid, Spain), Museo Bocage (Lisboa, Portugal), Museu Zoológico da Universidade de Coimbra (Coimbra, Portugal), Museu do Instituto Zoológico Dr. Augusto Nobre (Ponte de Lima, Portugal) and Museo Nacional de Historia Natural (Paris, France) and made extensive samplings throughout the Iberian Peninsula. Distinctive shell traits were registered and measured while anatomical characters were studied by dissection and observation under a binocular lens. Glochidia were studied under an optical microscope and by SEM. We determined the reproductive period by looking for gravid females in the field and by histological analysis. Suitable fish hosts were determined by artificial infestation in aquaria and the metamorphosis analyzed via SEM observations of infected fish gills.

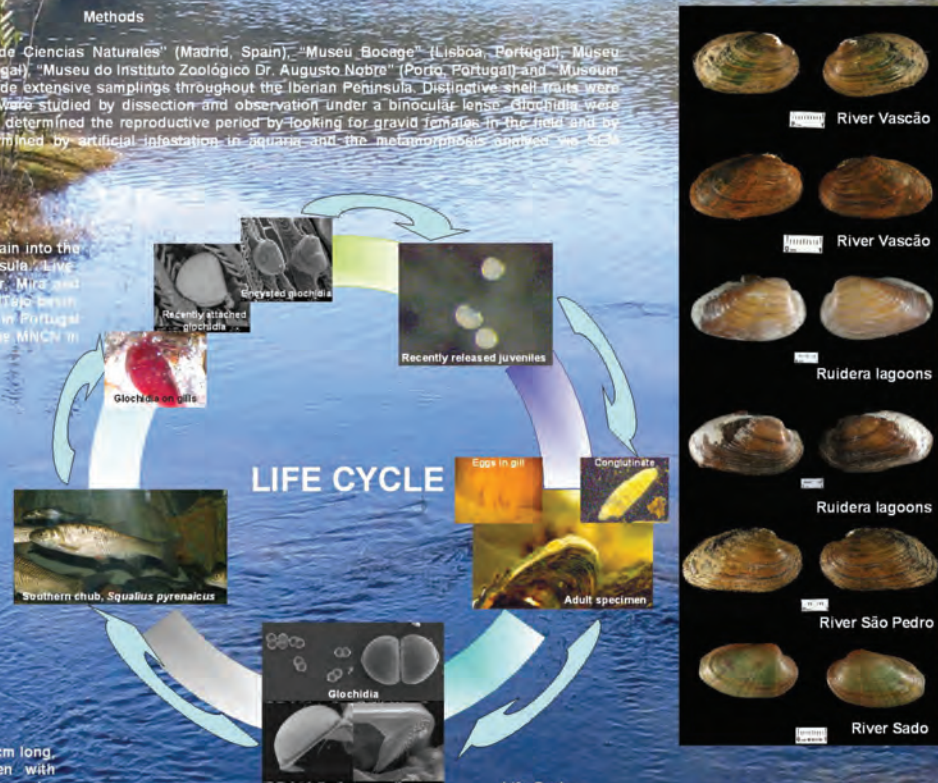
Distribution
Unio tumidiformis is restricted to river basins which drain into the Atlantic ocean on the south-western Iberian Peninsula. Live populations were found in the Guadiana, Guadalquivir, Mira and Sado basins. The occurrence of the species in the remaining basins based on the citation by Morelet (1845) in the river Ota in Portugal and on shells from 4 localities in Spain preserved at the MNHN in Madrid, could not be confirmed.



Morphology and Anatomy
Unio tumidiformis has a short oval shell, rarely over 5 cm long, yellow to dark green or brown in color and often with conspicuous radial lines mainly on the posterior end. The umbo sculpture consists of a series of strong wavy rugae, "W" or double "V" shaped and parallel to the longitudinal axis of the shell. This character is shared with most races of central European *Unio crassus*. Unlike most Iberian *Unio* that present a laminar pseudocardinal tooth on the right valve, in *U. tumidiformis* this tooth is generally short, slightly curved forming a concavity to the dorsal side of the shell, and with a regular serrated edge. The internal anatomy is similar to that of other Iberian *Unio*.

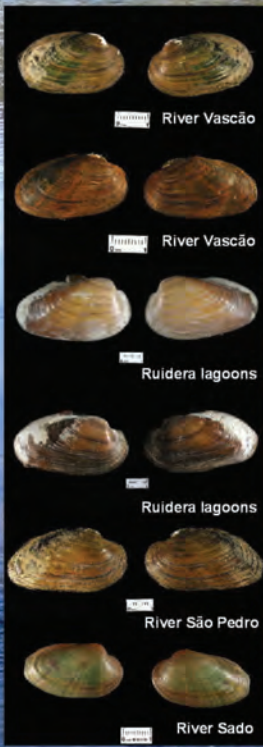


Habitat
Unio tumidiformis was found mainly in small temporary Mediterranean-type streams, buried preferably in fine sediment near the banks. During the dry season it was often found in isolated pools. It was often associated to streams with well developed riparian vegetation creating abundant shadow over the water. It was also found in the lagunary system of the Ruidera lagoons but was never found in large river channels such as the lower Guadiana or Guadalquivir.



Life Cycle
Unio tumidiformis is a dioecious species. Glochidia were found in females from March to August. They are triangular in shape with a typical Anodontine tooth at the edge, being slightly smaller than glochidia from central European *Unio crassus*: length: 201.55 µm (sd = 4.83; n = 16), height: 158 µm (sd = 3.54; n = 17) and width: 72.13 µm (sd = 4.07; n = 2). The glochidia are released forming a loose conglutinate with the shape of the brooding chambers. Artificial infestation experiments in aquaria indicated that the chub (*Squalius* spp.) is the only suitable host for the glochidia, which attach almost exclusively to the gills. Juveniles dropped off after 9 to 12 days at a constant temperature of 22°C.

Conservation
 Very few known populations of *Unio tumidiformis* show signs of stability (Sado basin: river Marateca; Guadiana basin: rivers Bullaque, Vascão, Vidigão, São Pedro and Ruidera lagoons). All are severely threatened by more and more frequent and increasingly severe droughts, which have in the last few years greatly reduced some populations. *U. tumidiformis* retains the conservation status of its sister species *Unio crassus* in the E.U. Habitats Directive.



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Holbrook Millpond revisited Ian Killeen



There are relatively few species of land or freshwater molluscs on the British list which have their type localities in Britain. Those that do include species described by Alder, da Costa, Montagu, Jenyns and so on. Thus a site which is the type locality for 2 species is most unusual. In 1823 the Reverend Revett Sheppard described *Turbo leachii* based on specimens sent to him by Dr Leach. The species was recorded as "found sparingly in Campsey Mere, and Holbrook stream and millpond. In the same paper (Sheppard 1823) he also described *Tellina henslowana* based upon specimens collected by Professor Henslow from an unknown location and again sent to him by Leach. Sheppard notes that the species was found "sparingly in the stream at Holbrook". These species are now known as *Bithynia leachii* and *Pisidium henslowanum* and Holbrook millpond and stream in Suffolk is accepted as the type locality for both.

The following is taken from Killeen (1992): The Rev. Revett Sheppard (1778-1830) made the first major contribution to the knowledge of the mollusc fauna of Suffolk. He was born at Campsey Ash, and was educated at Ipswich and Cambridge before ordination as a priest in 1805. He was curate of Wrabness, Essex (where he died), perpetual curate of Willisham (1809-30), and Rector of Thwaite (1825-30). There are no clues as to the origin of Sheppard's interest in molluscs, although it may well have been stimulated by the Rev. William Kirby (1759-1851), the famous entomologist and naturalist and Rector of Barham, whom Sheppard held as a revered friend. Sheppard published two works on molluscs in the *Transactions of the Linnean Society*. The first was on 'British Species of *Mytilus*' (Sheppard, 1822), in which he described forms of *Anodonta* living at Barham and Campsey Ash. The second (Sheppard, 1823) gives a catalogue of seventy species, thirty-six of which are described in detail in Latin along with habitat and locality data. Sheppard's collection was purchased by Philip Brookes Mason of Burton-on-Trent. This now forms part of the A. S. Kennard collection, which is housed in the British Museum (Natural History). However, the type material of *Bithynia leachii* and *Pisidium henslowanum* is no longer present (M. P. Kerney pers. comm.).

Michael Kerney visited Holbrook millpond in 1970 and recorded 24 species of freshwater molluscs including *Bithynia leachii* and *Pisidium henslowanum* (Kerney 1971). I also visited the site during the 1980s as part of the Suffolk mollusc Atlas project and again recorded both species (Killeen 1992). In early 2007 I had reason to revisit Holbrook millpond when Peter Glöer asked if I could collect him some topotypic material of *Bithynia leachii*.

The village of Holbrook lies on the peninsula formed by the estuaries of the River Stour and River Orwell, c. 8km south of Ipswich. The pond is c. 300m long and most is surrounded by woodland. The outlet stream to the mill passes under a road at the eastern end of the pond. There has been some recent felling to create more open areas for angling. Patches of *Glyceria maxima*, *Phragmites australis* and *Sparganium erectum* are sparsely distributed around the margins. The substrate is mostly mud, dead vegetation and detritus. There was little evidence of other aquatic macrophytes at the time of the visit. Subsequent to my visit some parts of the pond were dredged (Adrian Chalkley pers. comm.).

Bithynia leachii was found to be extremely common and although the most of the specimens appeared to be adult, the shell height was rarely more than 5mm. Many of the shells were corroded and pitted. *Pisidium henslowanum* was also present but in very low numbers (Kerney 1971 recorded it in 'fair numbers').

The other molluscs found were much the same as recorded by Kerney and by myself in the 1980s with the exception of *Radix auricularia* and unionid mussels which were not searched for (although they were subsequently recorded by Adrian Chalkley from dredge spoil). The fauna included *Pisidium hibernicum* which is uncommon in the county but is particularly unusual in ponds (in Suffolk). However, on this occasion an additional species, the limpet *Ferrissia wautieri* (= *Ferrissia clessiniana*) was recorded.

Ferrissia wautieri was previously unknown in Suffolk but I was subsequently contacted by Adrian Chalkley, one of the county's recorders, who sent me photographs of

Ferrissia collected from a farm pond at Elmsett (c. 13km west of Holbrook) in 2006. Adrian also recorded the species from four ponds at Center Parcs Holiday village at Elvedon, in the north-west of the county in late 2007. I had carried out surveys there in the 1980s and Adrian has also been surveying there for a number of years. Thus *Ferrissia* is clearly a recent arrival at these sites rather than having gone un-noticed. This suggests that recorders should continue to look out for this species along with others that may go overlooked. A good example is the planorbid *Menetus dilatatus* which I have seen specimens of from 3 southern England locations over the last 2 years.

I thank Adrian Chalkley for kindly providing information

on his Suffolk records and also for going to Holbrook and taking the photographs for me (after I had managed to lose mine from the computer!).

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Photo captions: Holbrook Millpond and Mill (photos Adrian Chalkely)

Report of the Conchological Society field meeting to Rhosilli, Gower, Glamorgan 15 - 17th June, 2007 Celia Pain

Thirteen members and friends met at Rhosilli at 10.00am on Friday 15th June. Present were Ron Boyce, Rosemary Hill, Rupert Honnor, Jan and Nick Light, John Llewellyn-Jones, Celia Pain, Bill and Carol Pocock, James and Caitlin Potter, Janet Sawyer, and Raymond Walker. After introductions and the Health and Safety briefing we walked down to Rhosilli Bay by the cliff path. The party split into two and the more vigorous walked the three miles along the beach to Burry Holms. The rest of us investigated the molluscs to be found under the cliffs towards Worms Head. As promised there were live *Acteon tornatilis* and their egg strings buried in the sand. About 4pm we made our way up to the National Trust Gower HQ and shop to the schoolroom where Rupert set up his microscope. We looked at what people had found and listed them. Many people have samples to process at home. We had a very welcome tea on the terrace of the Worms Head Hotel, it has a stupendous view down Rhosilli Bay and Worms Head. We had an early meal in the Worms Head Hotel dining room and sampled such delights as lava bread and cockle starters, fresh fish etc. Ben and Rhian Rowson from the National Museums and Galleries of Wales who were holidaying in the area joined us for the meal.

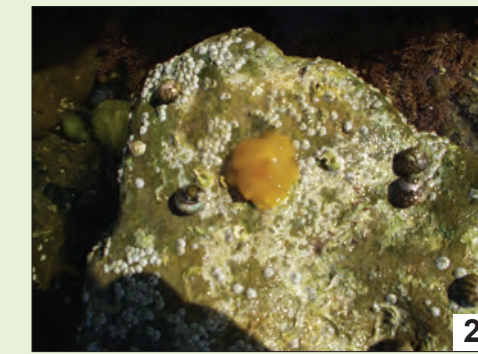
On Saturday 16th June we met at 10.00 again. Present were Ron Boyce, Tom Clifton, Rosemary Hill, Rupert Honnor, Jan and Nick Light, John Llewellyn-Jones, Celia Pain, Bill and Carol Pocock, James and Caitlin Potter and Janet Sawyer. Sadly Mr Raymond Walker from Swansea was not able to join us. After the Health and Safety briefing we walked down the path towards the causeway. As the terrain was very rough we tended to work in small groups. Jan Light led a cave party of Tom Clifton and Bill Pocock to the base of the promontory. This yielded cave species: *Melarhaphé neritoides*, *Leucophytia bidentata*, *Myosotella denticulata* and *Otina ovata*, much to the delight of the finders! Bill took some shell sand from the cave and looked through it at home, he was very pleased to find *Paludinella littorina*. In future we shall have to find where this species is living at Rhosilli. Nick Light made it to the end of The Worm and back. Probably the prize find was several showy yellow *Berthella plumula* found by Caitlin and John Potter and John Llewellyn Jones. Ron and Rosemary found *Polycera quadrilineata*. The NT schoolroom was full of excited people at 16.00 showing off their finds, and Tom Clifton demonstrating how he prepares shipwoms. Celia had trouble compiling a list! Sunday was not an official part of the

field meeting, but several of us gathered at Oxwich Bay to see what we could find. Ron Boyce, Rosemary Hill, John Llewellyn-Jones, Celia Pain, Bill and Carol Pocock and Janet Sawyer braved the driving rain. By the time we had walked to the Three Cliffs end of Oxwich Bay the sun had come out and we were too hot! Some of us looked in the caves, hoping to find *Otina ovata*, but could not find any. I did find one in the shell sand from there. There were lots of sea potatoes *Echinocardium cordatum* on the lower shore, we looked for *Tellimya ferruginosa* on them but did not find any, however there were lots in the shell sand. We noticed that thick-lipped dog whelks *Hinia incrassata* were occurring in pairs, we found that they were inhabited by hermit crabs. There was always a large and a small one together, we surmise that they were mating!

A man on the Rhosilli beach told us that there had been commercial dredging of razor shells, and certainly there did not seem to be so many razors as there used to be, see also Mullard, J., 2006. Gower. London, Collins. New Naturalist Library, 13-978-0-00-716066-2. Exactly what effect this will have on populations of molluscs and other marine animals living in Carmarthen Bay remains to be seen. It does not look good.



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Picture captions

- 1 *Acteon tornatilis* and worm tubes, Rhosilli Bay
- 2 *Berthella plumula* from Worms Head
- 3 Rhosilli Bay with field meeting members
- 4 Sheltered side of Worms Head
- 5 Rhosilli Bay tide line

List of live species

A complete list may be found on the Conchological Society website.

L = Live, S = Shell; Abundance: C = Common (100 – 1000), F = Frequent (10 – 100). O = Occasional (2-10), R = Rare (1 only)

Location	Rhosilli Bay	Rhosilli Cliffs & Oxwich Bay Worms Head	17.6.07
Date	15.6.07	15-16.6.07	
CHITONS			
<i>Lepidochitona cinerea</i>		SO	LR
<i>Acanthochitona fascicularis</i>		LR	
GASTROPODS			
<i>Diodora graeca</i>		SF	LR
<i>Patella vulgata</i>	SO	LC	LC
<i>Helcion pellucidum</i>			LO
<i>Osilinus lineatus</i>	SO	LF	LO
<i>Gibbula cineraria</i>	SF		LC
<i>Gibbula magus</i>	SR		LF
<i>Gibbula umbilicalis</i>	SO	LO	
<i>Calliostoma zizyphinum</i>	SR		LC
<i>Lacuna pallidula</i>		LO	SO
<i>Littorina obtusata</i> agg			LC
<i>Littorina saxatilis</i>	SO		LF
<i>Melarhaphé neritoides</i>		SR	LC
<i>Rissoa parva</i>	SR	LC	LO
<i>Rissoa interrupta</i>	SR	LC	SF
<i>Onoba semistriata</i>	SR	LO	SO
<i>Littorina obtusata</i> agg		LO	
<i>Littorina saxatilis</i>		LO	SO
<i>Melarhaphé neritoides</i>	SR	LO	
<i>Rissoa parva</i>		LO	SO
<i>Crepidula fornicata</i>	LR	SR	SO
<i>Polinices pulchellus</i>	LO	SR	SO
<i>Nucella lapillus</i>	SO	LC	SO
<i>Buccinum undatum</i>	LO		LC
<i>Colus jeffreysianus</i>	SR	SR	LC
<i>Hinia incrassata</i>	SO	LO	
<i>Hinia reticulata</i>	SO	SR	LO
<i>Brachystomia scalaris</i>	LO	LR	
<i>Turbonilla lactea</i>		SR	SR
<i>Turbonilla acuta</i>			SO
Cephalaspids			
<i>Acteon tornatilis</i>	LC		
<i>Berthella plumula</i>		LO	SO
Nudibranchs			
<i>Polycera quadrilineata</i>		LR	
BIVALVES			
<i>Mytilus edulis</i>	SO	LA	LA
<i>Modiolarca tumida</i>	SR	LR	
<i>Ostrea edulis</i>	SR	LR	LR
<i>Pododesmus patelliformis</i>		LO	SR
<i>Spisula solida</i>	LC	SC	SO
<i>Spisula subtruncata</i>	LC		SF
<i>Angulus tenuis</i>	LF		LF
<i>Fabulina fabula</i>	SF		LF
<i>Donax vittatus</i>	LF		SO
<i>Pharus legumen</i>	LF		SF
<i>Chamelea gallina</i>	LF		LF
<i>Tapes decussatus</i>			LF
<i>Hiatella arctica</i>		LO	SF

Another threat to Gower biodiversity is the dredging of aggregate on the Helwick Bank that runs parallel to the south coast of Gower. There is removal of the gravel to a depth of two metres, and the remaining sediments are smothered in the silt that has been removed from the gravel. A complete change of the bottom habitat may result.

FIELD MEETING

Archenhills and Mill Coppice, near Suckley, Worcestershire (GR SO709517) 13th October 2007

Rosemary Winnall

We gathered at the Talbot Inn at Knightwick and it was good to meet friends we had not seen for a while, and to make the acquaintance of new ones! We commiserated with Harry Green who was not well enough to attend and lead the outing this time. We shared cars to drive round to the interesting old and moated Suckley Court, from where we set off over the fields to the oak woodland, with kind permission of the owner Mr. Edward Hollaway. A family of Ravens (*Corvus corax*) noted our arrival and watched our progress from their look-out in the tall hedgerow trees.

We gained the edge of the wood and soon unearthed a number of different slugs, which provided discussion about the variation within the taxa and the care required to check for juveniles. *Limax maximus*, *Deroceras reticulatum*, *Tandonia budapestensis*, *Lehmannia marginata*, *Arion ater* agg., *Arion intermedius*, *Arion subfuscus* were identified. We spotted evidence of recent pheasant feeding nearby and we became concerned that many of the woodland molluscs might have already been eaten by these rapacious birds!

A careful search around at the bottom of some trees and on the mossy banks, produced the snails *Cochlicopa* cf. *lubrica*, *Nesovitrea hammonis*, *Trochulus hispidus* (formerly *Trichia hispida*), *Vitrea crystallina* (see photo), *Discus rotundatus*, *Oxychilus alliarius*, *Oxychilus helveticus*, *Cepaea nemoralis*, *Vitrina pellucida* (see photo), and *Euconulus fulvus* during the morning. Then someone shouted 'Land Caddis', and we stopped to admire the recently vacated tube made meticulously of sandy grains. (*Enoicyla pusilla*, the Land Caddis, is a Worcestershire trichopteran speciality). The ash trees near here were bespeckled with many resting *Clausilia bidentata*, as well as the occasional *Merdigera obscura* (formerly *Ena obscura*). David usefully discovered a single



Macrogastra rolpheii which we were able to compare with the former species.

The lunch stop area proved less interesting for molluscs, but we were pleased to discover that we were sitting next to a few Broad-leaved Helleborines (*Epipactis helleborine*)! A few fungi were spotted too, including *Pluteus salicinus* on willow and the poisonous *Inocybe geophylla* var. *lilacina* which gave some colour to the winter woodland floor.

The afternoon amble began with one of us flushing a Woodcock (*Scolopax rusticola*) which provided another record for the wood. *Cepaea hortensis* and *Arion distinctus* were added to the list before we slithered down a steep bank into a stream valley which we thought might yield a few more species. *Potomopyrgus antipodarum* and



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Pisidium nitidum were discovered in the brook, in spite of the light being very poor. We were delighted to find a leech which was identified later by John as *Glossiphonia complanata*. We searched for and eventually found the delicate *Ancylus fluviatilis* on one of the rocks in the stream bed. Some leaf litter was collected and the snails *Acanthinula aculeata*, *Carychium tridentatum* and *Punctum pygmaeum* were later identified by Rosemary and Ron and added to the species list for this site.

We climbed back up the slope to search around the base of some veteran oak trees where eventually we located *Aegopinella pura* which we were able to compare with *A. nitidula* (see photo of David sieving leaf litter near here). We returned through the outgrown hawthorn scrub passing badger latrines on the way. We were interested to discover a range of plant galls including those caused

by gall wasps *Neuroterus albipes* and *Neuroterus anthracinus* in oak leaves, and by flies *Dasineura urticae* in nettle and *Phytomyza glechomae* in ground ivy (*Glechoma hederacea*).

On the way back to the car we stopped at a pool in the corner of a field (see photo). Whilst Ellen was dipping her net into the water, Rosemary H. spotted some late hoverflies (*Eristalis pertinax*) on ragwort and John found 3 mite galls - *Aculus tetanothrix* on *Salix alba*, *Eriophyes laevis* on alder and *Phytoptus avellanae* on hazel. We disturbed a late Southern Hawker (*Aeshna cyanea*) which skimmed slowly off across the water. The Backswimmer *Notonecta glauca* was recorded from the pond, and *Radix balthica* and *Oxychilus*

helveticus (see photo) were collected from poolside plants.

As we wandered back over the fields after another interesting day in the countryside with friends, the Ravens serenaded our departure and we started sharing conchological plans for 2008!

Group members were Ron Boyce, Rosemary Hill, Terry Knight, David Long, John Meiklejohn, Ellen Pisolkar, Richard Watson and Rosemary Winnall.

captions: 1. *Oxychilus helveticus*. 2. David Long sieving leaf litter, Suckley. 3. Group members, Suckley. 4. *Oxychilus helveticus*.

J. Davy Dean's Portrait of the Zonitidae

Ben Rowson

I recently had to identify some *Oxychilus* from South Wales, a job made considerably easier thanks to the work of Mr. J. Davy Dean (1876-1937). Dean ("Davy" seems to have been his preferred first name) was a member of CSGBI for forty years, and served as Assistant Keeper at the National Museum of Wales, Cardiff for nearly twenty. His large collection of molluscs was just one of his legacies to the Museum, where his elegant, characterful printed handwriting adorns many labels and registers in the Mollusca and Entomology collections and his diorama artwork was once featured prominently in the galleries.

Dean's land-snail collection, much of which is from South Wales, is invaluable for identification purposes when it comes to tricky groups like zonitoid snails. He seems to have taken great pains to clean, identify and arrange the finest live-caught specimens. He was also interested in the biology of the living animals. This is clear from the paintings of zonitoids he made for J. W. Taylor's famous *Monograph of the Land and Freshwater Mollusca of the British Isles* (1894-1921), grouped together in a plate that Taylor rightly referred to as "exquisite". The plate appears as Plate II in *Monograph...* vol. 3, facing p.16, so its publication date would be about 1915. Although almost all the other illustrations in the *Monograph* are by Taylor himself, he seems to have sought Dean's artistic advice on other occasions (*Monograph* vol. 3, p.vi). That Dean, who in a previous profession was a designer of stained glass (see his Obituary, 1937, *J. Conch.* 20: 338-339) should be

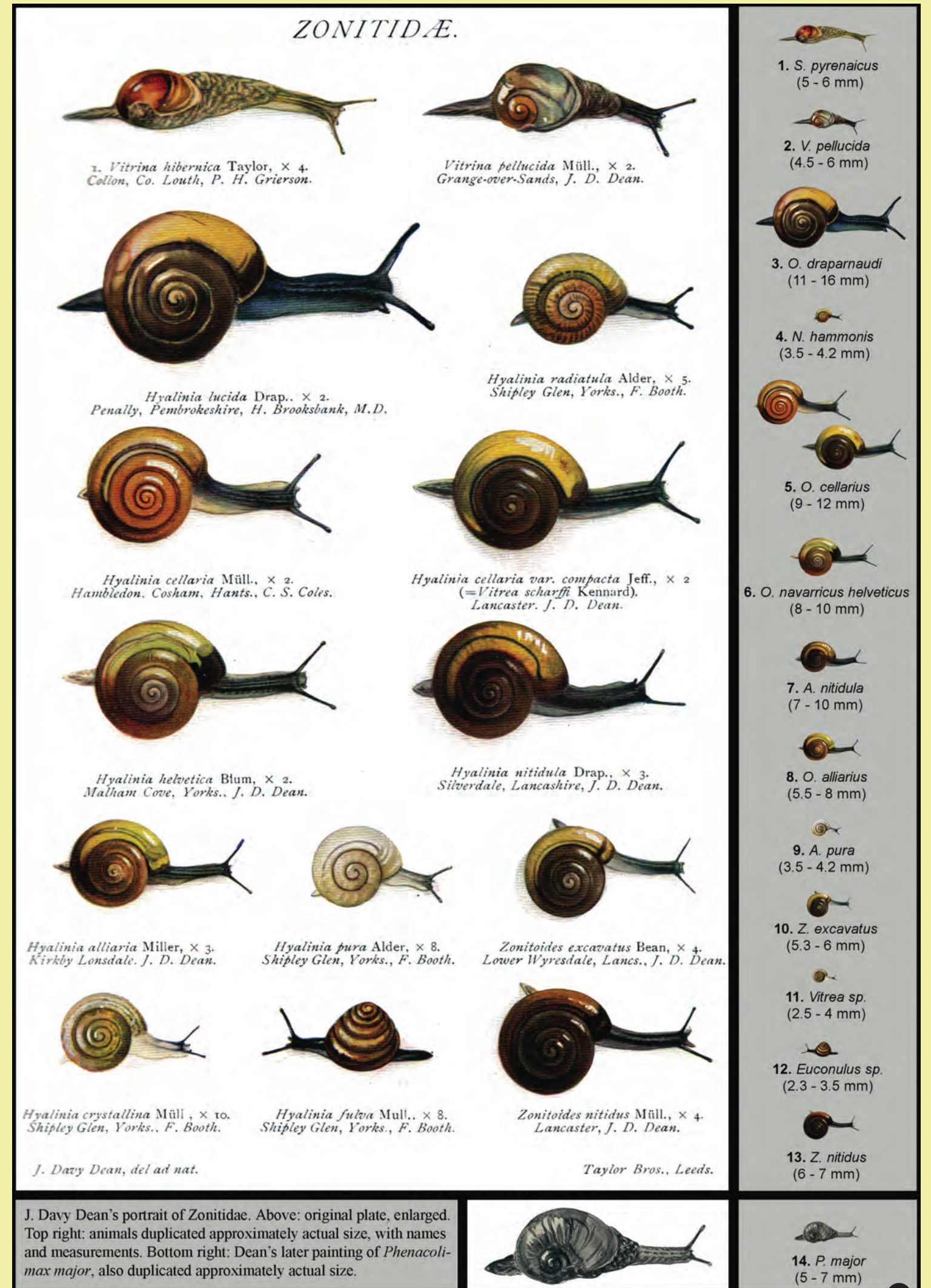
called upon to portray the zonitoid "glass snails" is somehow appropriate.

All of the then-recognised British and Irish zonitoid taxa are illustrated, mainly from specimens from northern England where Dean grew up before moving to Cardiff in 1915. At least some of the specimens remain vouchered as shells in his collection. The paintings are so accurate that they are ideal for identifying those species that are arguably more distinctive alive than as shells. For instance, the black mantle of *Oxychilus helveticus*, the glossy shell of *O. cellarius*, and the orange mantle spot of *Zonitoides nitidus* are clearly visible. As the original *Monograph* volume is a rare and expensive book, of the sort that should never be exposed to the same habitats as living snails, I thought it would be worth giving the pictures a second, and hopefully wider, distribution.

All the paintings are larger than actual size, with the original plate in the *Monograph* measuring 191 x 121mm. I hope Dean would forgive me for enlarging it again here, which makes the text and some of the details easier to see, and removing the margins. The various enlargement factors (x3, x8 etc.) are now inaccurate, but I have digitally copied each species to show it at approximately actual size on the right. Otherwise it is a faithful reproduction. The sizes given in millimetres are shell widths from Cameron's *Keys...* (2003) and/or Kerney & Cameron's *Field Guide...* (1979). The names are updated to meet Anderson's *Checklist...* (2005) using the synonymies given in Kerney & Cameron (see following table). Please be warned, however: not all of these snails can be identified on living appearance alone. Cameron's keys are recommended for further assistance on dealing with the shells.

A few comments on the taxa are warranted. Although the plate shows the familiar "Zonitidae" of recent memory, the taxa now represent five different families, with the Zonitidae *sensu stricto* no longer recognised in the British

No.	Taylor/Dean name	Current name	Family
1	<i>Vitrina hibernica</i> Taylor	<i>Semlimax pyrenaicus</i> (Férussac, 1821)	Vitrinidae
2	<i>Vitrina pellucida</i> Müll.	<i>Vitrina pellucida</i> (Müller, 1774)	Vitrinidae
3	<i>Hyalinia lucida</i> Drap.	<i>Oxychilus draparnaudi</i> (Beck, 1837)	Oxychilidae
4	<i>Hyalinia radiatula</i> Alder	<i>Nesovitrea hammonis</i> (Ström, 1765)	Oxychilidae
5	<i>Hyalinia cellaria</i> Müll. (inc. var. <i>compacta</i> Jeff.)	<i>Oxychilus cellarius</i> (Müller, 1774)	Oxychilidae
6	<i>Hyalinia helvetica</i> Blum	<i>Oxychilus navarricus helveticus</i> (Blum, 1881)	Oxychilidae
7	<i>Hyalinia nitidula</i> Drap.	<i>Aegopinella nitidula</i> (Draparnaud, 1805)	Oxychilidae
8	<i>Hyalinia alliaris</i> Miller	<i>Oxychilus alliaris</i> (Miller, 1822)	Oxychilidae
9	<i>Hyalinia pura</i> Alder	<i>Aegopinella pura</i> (Alder, 1830)	Oxychilidae
10	<i>Zonitoides excavatus</i> Bean (sic)	<i>Zonitoides excavatus</i> (Alder, 1830)	Gastrodontidae
11	<i>Hyalinia crystallina</i> Müll.	<i>Vitrea</i> sp.	Pristilomatidae
12	<i>Hyalinia fulva</i> Müll.	<i>Euconulus</i> sp.	Euconulidae
13	<i>Zonitoides nitidus</i> Müll.	<i>Zonitoides nitidus</i> (Müller, 1774)	Gastrodontidae
14	<i>Vitrina major</i> Fér. (Boycott, 1927)	<i>Phenacolimax major</i> (Férussac, 1807)	Vitrinidae



Isles. The species *Vitrea crystallina* and *Euconulus fulvus* have been split in western Europe and close examination of shells is required. Absent from the plate is *Phenacolimax major*, which was unrecognised in Britain at the time. Dean later painted this species for A. E. Boycott's paper on *P. major*, although it appears only in black and white (1927, *Proc. Malac. Soc.* 17: 141-148). I have included Dean's painting as no. 14, but some good colour photographs of *P. major* have appeared in previous issues of *Mollusc World* (e.g. no. 14, July 2007).

While working in Cardiff, Dean wrote several papers on the land-snails of South Wales. Reading through these it seems that some zonitoid species (whose identity is confirmed by his collection) have changed in their distribution and abundance, at least as far as my collecting experience suggests. In 1923 (*J. Conch.* 17: 57-60) Dean noted the "wonderful abundance" of *O. draparnaudi* and the "extraordinary scarcity" of *O. cellarius* on both sides of the Bristol Channel. *O. draparnaudi* is indeed common in disturbed habitats (I used to watch it killing and eating *Hygromia cinctella* in my Cardiff garden) but *O. cellarius* probably equally so. Thus *O. cellarius* can hardly be called scarce, although it is usually outnumbered in the woods of Glamorgan by a third species, the probably introduced *O. n. helveticus*, by a factor of about five to one. In 1928 Dean wrote (*Trans. Cardiff Naturalists' Soc.* 59: 59-75) that *O. n. helveticus* was "probably common in the wooded districts towards the Brecon border [of Glamorgan]" and cited just three other records. Unlike *O. cellarius*, *O. n. helveticus* did not feature in Dean's list of woodland fauna in his section of the *Glamorgan County History* (1936, Vol. 1: 391-400) although it was still on his county list. Remarkably, *O. n. helveticus* seems to be absent from Dean's collection. By contrast, this species is common or abundant in all the woodlands I have looked in around Cardiff, Taffs Well and the Vale of Glamorgan. This suggests the population has been both growing and spreading since the 1930s.

Should the spread of the central European *O. n. helveticus* have been noticed by Dean himself, it is highly likely he would have mentioned it. He was clearly an advocate of the biogeographical theories of his friend J. W. Taylor, as indicated by his *Glamorgan County History* piece. Here, one or more "dominant" species was given for each type of habitat (e.g. "Dry Oak-Birch Woods without Ash"), followed by a list of associated species that judging by Dean's introduction was supposed to be competitively inferior. Taylor's *Monograph...* is full of such polarisations: of *Hyalinia cellaria* var. *compacta* (which appears among Dean's paintings) he says "its discontinuous northerly and westerly distribution in this country stamp this as one of the weaker races which will eventually be exterminated" (vol. 3, p.37). Var. *compacta* is no longer conventionally recognised, but that its distribution indicated its competitive inferiority is biologically dubious. The *O. cellarius* I have seen in South Wales resemble var. *compacta* in shell shape and, thanks to Dean's pictures,

body colour, as do many of the *O. cellarius* in his collection, But Dean's *Glamorgan County History* entry gives other evidence of Taylor's influence. On p.393, he says:

"All European snails fall principally into two groups, Celtic and Teutonic. The Celtic species are the more primitive snails which have been gradually driven westward before the later-evolved more highly organised Teutonic races. Apart from these there is a Lusitanian or south-western species, *Geomalacus maculosus*, confined in the British Isles to the south-west of Ireland, while a small number of species are circumpolar in their range. Welsh species are pre-eminently Celtic. In Glamorgan we have a composite fauna, largely Celtic, but with an admixture of Teutonic species, some of which are not found in any other Welsh County".

Being an admirer of Dean's work I was a little dismayed to read this. There is no escaping the similarity to Taylor's own theories of "Dominance in Nature" – or "Pan-Germanism" as it was summed up by two of his contemporaries – from which Taylor drew explicitly racist conclusions for humans and which found few adherents in his own lifetime (see Cameron, 1995, *Archives of Natural History* 22: 371-384). Unlike Taylor, Dean may not have meant to imply any relationship with anthropology or ethnology, and the mention of Lusitanian and circumpolar elements in the fauna may be a concession to other, more pluralistic viewpoints. These simplistic divisions could simply be made for the sake of brevity. However, his choice of words is so close to Taylor's expositions elsewhere it seems Dean was not trying to set his views apart from those of his late friend (Taylor died in 1931). Dean must have been convinced by Taylor's evidence of "higher organisation" of Teutonic species relative to the "primitive" Celtic ones.

Whether this also related to his personal politics, as it did in Taylor's case, is not clear. Did Dean, I wonder, equate "Celtic" with "Welsh" and "Teutonic" with "English" identities in everyday life? A general negativity about Welshness among the British was common enough until recently, but as an employee of the National Museum and a resident of Cardiff, Dean must have been sensitive to the issue. I like to think he was trying to be dispassionate and objective in dealing with the fauna (indeed he was right to suggest that Glamorgan had many species not found elsewhere in Wales, regardless of the coincidence that it was also the most politically cosmopolitan county) and that he simply looked to Taylor's work for background. How Taylor's theories would have accommodated more recent changes in the British land-snail fauna, with so many European, Mediterranean and other species rapidly becoming widespread, we do not know. Thankfully, just as with Taylor, Dean's careful collections and paintings have outlasted the shifting viewpoints of his day, and remain both beautiful and useful.

FIELD MEETING

Pease Dean, Berwickshire 9th September 2007

Adrian T. Sumner

Pease Dean is a deep wooded valley (Fig. 1) on the coast in the north-east corner of Berwickshire (Grid reference NT 79/90), which includes some ancient woodland. It is a Scottish Wildlife Trust (SWT) reserve, and SWT were happy, indeed keen, for a party of conchologists to visit, as not much seemed to be known about the slugs and snails at this site. Among other things, we had hopes of finding some rare ancient woodland species. Being within easy reach of Edinburgh, our visit was a convenient sequel to the indoor meeting held at the National Museums Scotland the previous day. Not everyone who attended the Edinburgh meeting was able to come to Pease Dean, but some people came specially for the field meeting only, from as far away as Glasgow, and even Ecuador (though the young lady in question was working in Edinburgh at the time!).

To reach the Pease Dean reserve, you leave the car park by the Pease Bay caravan site, cross the lane, and then cross a small field before entering the wood. The field is outside the reserve, but nevertheless yielded our first exciting finds. Here was a specimen of *Merdigera obscura*, which is rather sparsely distributed in Scotland, and the first of several specimens of *Boettgerilla pallens*, apparently a new vice-county record for Berwickshire. We were lucky to have Barry Colville with us, who was able to tell us about the original discovery of this species in Britain in 1972. A large plastic sheet lying on the ground here had quite a few large slugs and snails under it, including *Arion* cf. *rufus* and *Helix aspersa*.

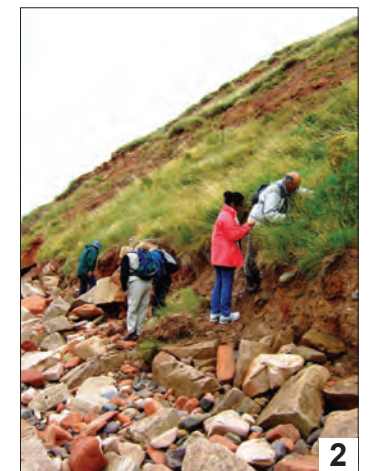
Once we had entered the wood, we found a moderate number of species, including more *Boettgerilla pallens*, and sieving leaf litter produced, among other things, a large number of both species of *Carychium*. However, no characteristic ancient woodland species had been discovered by lunchtime. After lunch we paid a short visit to Pease Bay (Fig. 2), just a few yards away, where Barry hoped to find *Pupilla muscorum*. In this we were unsuccessful, but we did find a few more species we hadn't found in the wood, including *Candidula intersepta*, which is essentially a coastal species in Scotland. On the way back, we found the freshwater limpet *Ancylus fluviatilis* at the ford where the stream that runs through Pease Dean crosses the road before it reaches the sea.

The rest of the afternoon was spent in a part of the Pease Dean reserve that we hadn't visited in the morning. Here, Barry Colville collected a good lot of leaf litter, which proved to be very rich when he analysed it later. There were a large number of molluscs, including the ancient woodland species *Leiostyla anglica* and *Perforatella subrufescens*. Altogether, the day's snailing produced no less than 41 species, in spite of the dry weather; of these,

Non-marine molluscs, Pease Dean, Berwickshire, 9 September 2007

	SWT Reserve	Outside reserve	
<i>Carychium minimum</i>	50+	—	New 10 km square*
<i>Carychium tridentatum</i>	50+	—	New 10 km square*
<i>Galba truncatula</i>	3	—	
<i>Ancylus fluviatilis</i>	—	1 (at ford)	
<i>Oxyloma elegans</i>	4+	—	
<i>Cochlicopa lubrica</i>	Several	—	
<i>Cochlicopa lubricella</i>	1	—	New 10 km square*
<i>Columella edentula</i>	30+	—	New 10 km square*
<i>Leiostyla anglica</i>	10+	—	New 10 km square*
<i>Lauria cylindracea</i>	5+	1	
<i>Acanthinula aculeata</i>	A few	—	
<i>Merdigera obscura</i>	—	1	
<i>Punctum pygmaeum</i>	2	—	New 10 km square*
<i>Discus rotundatus</i>	Many	Many	
<i>Arion ater</i>	—	1	
<i>Arion rufus</i>	—	1	
<i>Arion circumscriptus</i> agg.	1	—	
<i>Arion distinctus</i>	1	2 (by shore)	
<i>Arion intermedius</i>	A few	—	
<i>Vitrea pellucida</i>	A few	—	
<i>Vitrea crystallina</i>	Yes	—	
<i>Nesovitrea hammonis</i>	1	—	
<i>Aegopinella pura</i>	12+	—	
<i>Aegopinella nitidula</i>	2	—	
<i>Oxychilus cellarius</i>	Several	—	
<i>Oxychilus alliarius</i>	Several	—	
<i>Boettgerilla pallens</i>	Several	1	New vice-county record*
<i>Limax maximus</i>	4	1 adult	
<i>Deroceras reticulatum</i>	Many	Present	
<i>Deroceras panormitanum</i>	Many	—	New 10 km square*
<i>Euconulus fulvus</i>	Present	—	New 10 km square*
<i>Clausilia bidentata</i>	1	—	
<i>Candidula intersepta</i>	—	by shore	
<i>Ashfordia granulata</i>	15+	—	New 10 km square*
<i>Perforatella subrufescens</i>	1	—	
<i>Trochulus hispidus</i>	2	—	
<i>Arianta arbustorum</i>	Several	A few	
<i>Cepaea nemoralis</i>	Several	Several	
<i>Cepaea hortensis</i>	A few	—	
<i>Helix aspersa</i>	—	A few	
<i>Pisidium</i> sp.	10	—	

* Compared with M.P. Kerney, *Atlas of the Land and Freshwater Molluscs of Britain and Ireland* (Harley Books, 1999)



35 were in the reserve. Several species were apparently new to the area. This is probably not the maximum number of species possible; with more luck, and damper conditions, we might have found two more ancient woodland species: *Limax cinereoniger* and *Spermodea lamellata*. There are apparently no recent records for the latter in the whole of Berwickshire, so Pease Dean would be well worth another visit.

Figure 1. Pease Dean SWT reserve, Berwickshire
Figure 2. Conchologists at work in Pease Bay, Berwickshire, 9th September 2007

Molluscs in Roman art: the archeological sites of the Naples area, Italy

Peter Topley



1



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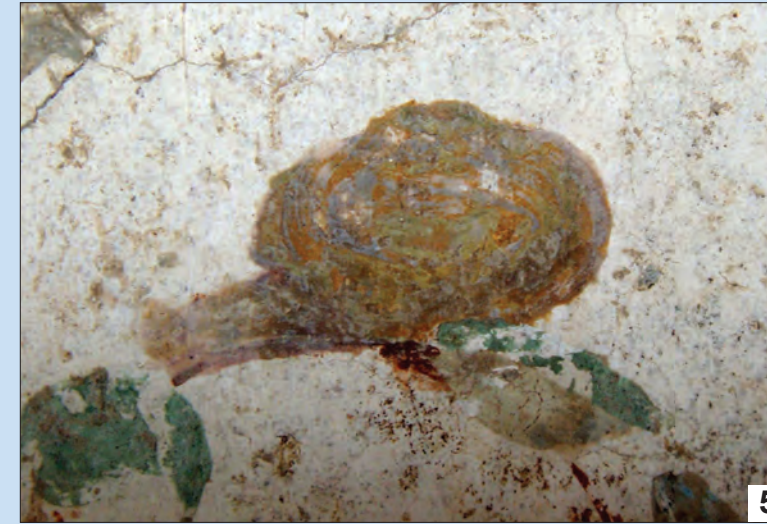


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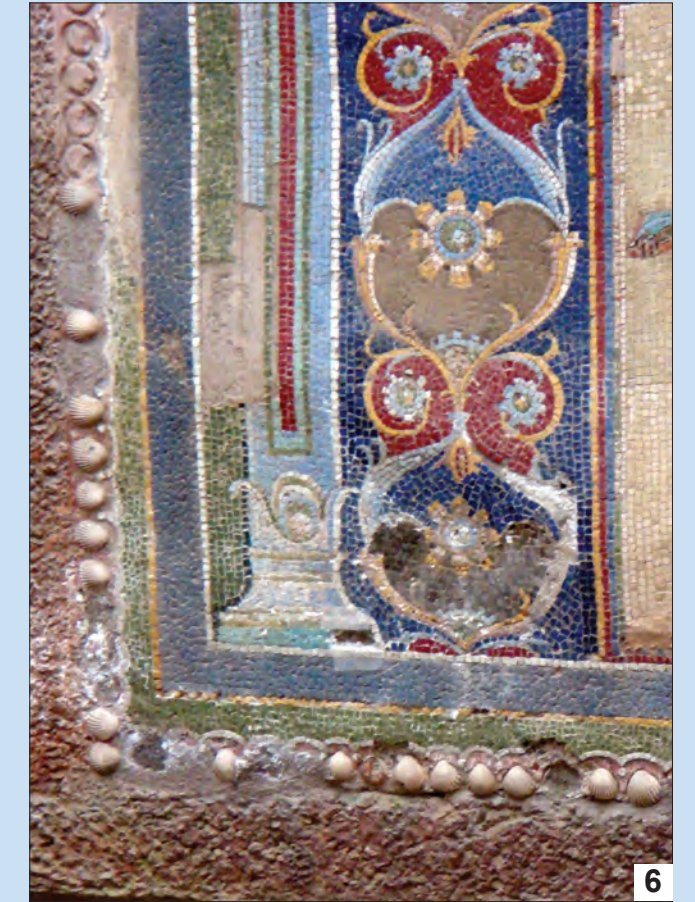
The archeological sites of the Naples area are well known through their high state of preservation associated with their destruction in the eruption of Vesuvius in AD79. On a visit in October 2008 I was interested to see that there were ancient images of molluscs depicted in mosaics, sculpture and painting as well as examples of the decorative use of shells themselves. The use of molluscs by the ancient civilisations of the Mediterranean has been well documented and it is not my intention to detail these here; merely to illustrate some examples of their depiction. Pompeii was the earliest site there to be excavated (from the 18th century onwards) and many examples of mosaics and sculpture from this Roman town are in the National Archeological Museum in Naples. Monumental mosaics from the "House of the Faun" which have an "Alexandrian" theme include an emblematic mosaic of Nilotic ducks with lotus flowers in their beaks above stylised scallop and "Murex" shells (photo 1) and a mosaic of marine life with a depiction of a lobster capturing an octopus (photo 2)! Near the temple of Vespasian is an example of very fine "nature carving" (protected under a modern plastic cover which hampers visibility) that includes lifelike depictions of land snails (photo 3) that may have been meant to depict one of the Helicid species still found in the area today, such as *Eobania vermiculata* (Muller, 1774) or *Marmorana fuscolabiata* (Rossmassler, 1842) (photo 4) both of which I found on the walls of some of the buildings. The "Villa Poppea" at Oplontis, a short distance from Pompeii near to the coast was unoccupied at the time of the eruption and by all accounts at the time was in the process of being repaired and redecorated following one of the earthquakes common in the area. The wall paintings here are exquisite and depict architectural designs as well as paintings of birds, masks and flowers.



5



7



6

Amongst the wall paintings of the "Third" or "ornamental" style which was used until the first half of the 1st century A.D., are delicate depictions of insects (e.g. grasshoppers, butterflies) and also snails (photo 5) of a similar type depicted in the Pompeii sculptural decorations.

Unlike Pompeii, engulfed by ash falls, the town of Herculaneum on the opposite side of Vesuvius was buried under 12 metres of hardened mud from the pyroclastic flow that engulfed the town. Whilst this has made excavations much more difficult, the state of preservation is thus greater and there are survivals of wood, including a bed, a wooden screen and even examples of rope and fabric. In the "House of Neptune and Amphitrite" a mosaic depicting the god and goddess is still bordered by *Cerastoderma* shells, somewhat reminiscent of modern shell grottos (photo 6). The floor of the central baths here is decorated with marine life including squid and octopus (photo 7).

There is ample evidence from Pompeii and other sites that the Romans were keen consumers of marine molluscs. Their shells have been found in excavations of food shops. The ability to extract the purple dye produced by "Murex" species gave birth to an industry which originated in the

Phoenician culture of the eastern part of the Mediterranean. So is there the possibility that the depictions of "Murex" (possibly *Bolinus brandaris* (Linnaeus, 1758)?) in the "Alexandrian" mosaics from Pompeii are references to Alexander's conquest of the Phoenician city of Tyre in 332B.C.? Both Pompeii and Herculaneum were "port towns" which at the time had access to the sea, however it appears that sculptors and artists were also keen observers of non-marine life, including snails. In the two centuries preceding the A.D.79 eruption of Vesuvius the depiction of molluscs in the decoration of Roman houses and public buildings are indications of their importance in the culture of that time.

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Early British records of *Papillifera papillaris* (Müller, 1774) *S. Peter Dance*

I was delighted to learn that live examples of *Papillifera papillaris* had been discovered at Cliveden House (Ridout Sharpe, 2007). I was also a little saddened by the news. Cliveden House is on the Buckinghamshire side of the River Thames. Maidenhead, situated on the opposite side of the river, in Berkshire, is the town where I was born and where, in 1950, I first took up the study of British non-marine molluscs. Many years ago, while still a Maidenhead resident, I visited Cliveden House. I regret that I did not look for snails during that visit, the more so as I always associate that property with the name of Lord Astor, for whom my father once worked, as a painter and decorator. Thus I missed the opportunity to go down in history as the first finder of an exotic addition to the British fauna, a distinctive snail living a stone's throw from where I lived. Instead, I must content myself with penning a short note suggesting that Cliveden House may not have been its first British landfall.

A hand-coloured engraving of what appears to be this species occurs in *A descriptive catalogue of the British Testacea* by William George Maton and Thomas Rackett (1807, pl. 5, fig. 3). An enlarged view of the crenulated suture of the species supports the identification. The associated text (pp 178-79), under the specific name *Turbo bidens* Linnaeus, says 'Noticed as English by Dr. Pulteney' and highlights the distinctive character of the suture. The engraving illustrates a specimen once owned by Richard Pulteney (1730-1801) whose collection was then housed in the Linnean Society of London. Maton and Rackett refer to a rare publication by Pulteney, who described the shell as having 'the sutures prettily crenated' (Pulteney, 1799: 46). Pulteney, they say, 'notes it as a Dorsetshire shell; but there is reason to believe he was deceived, and that the species is not of British growth, since, notwithstanding a most diligent search, we have been unable to procure it.'

In 1807, too, William Turton published a brief description of *Turbo bidens*, based on the Pulteney shell (Turton, 1807: 186). A dozen years later he published a more detailed description of *Turbo bidens*, also based on the Pulteney shell (Turton, 1819: 224). Later still, in his well-known *Manual*, he added an illustration to his description of the species he now called *Clausilia bidens*, giving the name *Clausilia papillaris* as a synonym (Turton, 1831: 73-74, fig. 56). Once again his description is based on the Pulteney shell; the accompanying, hand-coloured figure is a passable representation of *P. papillaris*.

In 1840 John Edward Gray brought out a much-revised edition of Turton's *Manual* in which he added the following information about the supposed occurrence of the species

in Scotland. 'Mr. Forbes furnished Mr. Alder with the following account of the introduction of this species into the Fauna. He says, "I have lately obtained a manuscript copy of Laskey's North British Testacea, written by himself, which fully explains the history of the British *Clausilia papillaris*. He states, that it was found by him in Granton Park, near Edinburgh, and that it was imported from abroad, in moss around the roots of some exotics.'" (Turton, Ed. Gray, 1840: 15). The article referred to was 'An account of North British Testacea', by James Laskey (1811). What appears to be the 'manuscript copy' seen by Edward Forbes is preserved in the library of the Natural History Museum in London. It is actually a copy of the published article, with manuscript additions by Laskey. *Turbo bidens* does not occur in the printed article, but is the subject of an additional manuscript note, transcribed herewith:



'This Shell was found in the Cabinet of the late Dr. Poultenay [sic] in poss[essio]n of the Lin. Soc. and was considered as a very doubtful Shell in Brit. Collection In 1826 I was fortunate in discovering this Shell in a plantation of Sir



Alex[ande]r Hope at Lufness near Aberlady Scotland but with all my diligence for that year & 1827 & 1828 I found only 8 Specim[en]s alive, and 3 dead Tho[ugh] I offered a premium of 1s/ each only 2 was obtained. I am of Opinion still that [they] are of foreign growth and was imported here in Moss &c that was around the roots of plants that was brought from France and other parts - J Laskey.'

The locality given here differs from that published by Gray and there is no obvious explanation for this, unless Forbes saw another manuscript version of the note. Fred Woodward, who has long been interested in the life and work of James Laskey, kindly supplied me with a copy of the annotated Laskey article, in disk form, and pin-pointed the two localities. He told me that Granton Park lies on the coast to the west of Edinburgh and was once a stone quarry, while Lufness near Aberlady, lies on the coast to the east of Edinburgh. A plantation would seem to be a more likely place than a quarry to find specimens of a snail imported, with plants, from another country, but at this distance of time it hardly matters. It is enough to know that *P. papillaris* may have been found many years ago on the outskirts of Edinburgh.

So what are we to make of these records? The Pulteney collection, presumably including the supposed *P. papillaris*, was auctioned in London in November 1863 (Chalmers-Hunt, 1976: 102). In any event, the specimen is no longer among the Linnean Society's collections. Similarly no specimens are available to authenticate Laskey's Scottish discovery. Pulteney's record was dismissed as 'spurious' by Forbes and Hanley (1852: 124). Perhaps Laskey's should be considered 'spurious' too. Nevertheless, this distinctive species does turn up in unexpected places occasionally. We may never know if Cliveden House was its first staging post in Britain, but climate change may help to ensure that it will not be its last.

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Captions:

1. Hand-coloured engravings, supposedly illustrating *Turbo bidens* Linnaeus (actually *Papillifera papillaris*) and its suture, from Maton and Rackett's *Descriptive Catalogue*, 1807, pl. 5, fig. 3.
2. Hand-coloured engraving, supposedly illustrating *Clausilia bidens* Linnaeus (actually *Papillifera papillaris*), from Turton's *Manual*, 1831, fig. 56.

Notes on the *Sphaerium corneum* group

Ian Killeen

In the guide to the *Freshwater Bivalves of Britain & Ireland* (Killeen, Aldridge & Oliver 2004) we recognised *Sphaerium nucleus* (Studer, 1820) as part of the fauna. At that time it had been recorded only from Pevensy Levels, the Lower Waveney valley and Norfolk Broads. It was subsequently recorded from Ireland (Moorkens 2005).

I have continued to examine samples of '*Sphaerium corneum*' and have now seen *S. nucleus* from several counties in Ireland, the Somerset Levels and other Sussex and East Anglian locations in England. However, these studies have raised the question of whether we have *Sphaerium ovale* (Férussac, 1807). Whilst *Sphaerium*

nucleus is now widely recognized as a distinct taxon and has been recorded from several European countries, the position of *S. ovale* is less clear. It is listed in the CLECOM checklist (Falkner *et al.* 2001) as occurring in the UK but not Ireland. It is also listed as occurring in other European countries. It is recognized in Germany and has been recorded frequently in the north of the country (Zettler & Glöer 2006), but the sparsity of any mention in the literature for other countries suggests that it is not widely recognized or accepted.

The characters for distinguishing *S. corneum*, *S. nucleus* and *S. ovale* are shell shape and tumidity, pore density, thickness of the hinge plate, and size/shape of the cardinal teeth. The following table of characters is based on descriptions given by Korniusshin & Hackenberg 2000.

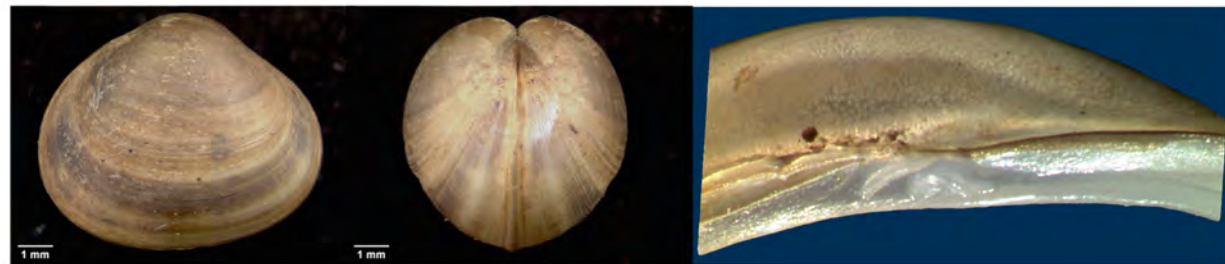
Sphaerium nucleus is very tumid, almost spherical with the point of greatest tumidity at the middle of the shell or towards the ventral margin. *Sphaerium corneum* usually has its greatest tumidity near the umbo and *S. ovale* appears to be intermediate

Character	<i>S. corneum</i>	<i>S. nucleus</i>	<i>S. ovale</i>
Shell	Round or oval to 12mm	Round, sphaeroid. 7-9mm long	Oval, 9-12mm long
Umbone	Fairly broad, prominent	Equal to or narrower than <i>corneum</i> , hardly prominent	Broader than <i>corneum</i> or <i>nucleus</i> , hardly prominent
Hinge	Narrow below the umbone	Fairly broad	As for <i>S. nucleus</i>
Cardinal teeth	c4 and c2 of similar length, weakly curved and parallel.	c3 and c2 strongly curved, c4 short and barely extending beyond the centre of the c2	As for <i>S. nucleus</i>
Pores	Sparse and irregularly distributed	Dense and regularly distributed	As for <i>S. nucleus</i>

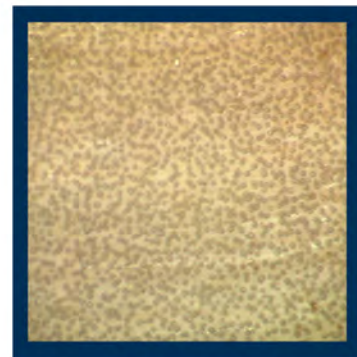


Sphaerium corneum, Co. Mayo

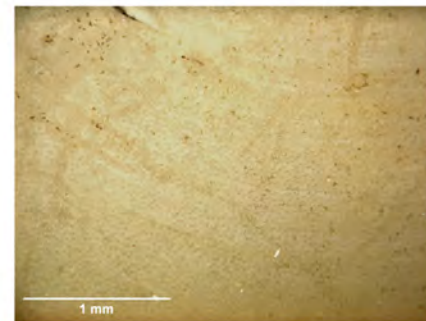
Sphaerium corneum, Co. Monaghan



Typical *Sphaerium nucleus* Suffolk



Sphaerium nucleus pores



Densely pored *Sphaerium*, Somerset Levels



Sphaerium nucleus habitat, Suffolk



Sphaerium ovale, Germany



Densely pored *Sphaerium*, Co. Roscommon

between the 2. However, all (and especially *S. corneum*) appear to be variable.

On some specimens the pores are very distinct and can be seen with a hand lens. With many specimens the pores are not always easy to see, and it takes examination under a microscope with high magnification (>40x) and with very good lighting. Even then it may be necessary to manipulate the specimen into a good angle to see the pores.

There appears to be habitat partitioning between the species: *Sphaerium corneum* lives in a wide range of lotic (flowing) and lentic (standing) habitats. According to Zettler & Glöer, in north Germany *S. nucleus* "lives predominantly in small, temporary waters, like pools in the woods or reeds. The animals can be found there amongst aquatic vegetation or dead leaves; it can also be found in moors, ditches and ponds; it has not been recorded from the "shores" of large lakes or rivers, but in swampy/boggy cut-off meanders; the preferred substrate is mud over anaerobic substrate. *S. nucleus* is often associated with *Pisidium globulare*, also with *P. personatum* and *P. milium*". For *S. ovale* they state it "prefers running waters like ditches and flumes, also in rivulets and rivers; specimens were found in sludge/silt or varying consistency, also in silty sands, fine and coarse sands. *S. ovale* may be

associated with *S. corneum*, but predominantly it will be the only member of genus *Sphaerium* found".

All of the *Sphaerium* with dense pores that I have examined from Ireland and England are from lentic habitats, swampy conditions in drainage ditches except at one site, in a densely vegetated lake margin. These tend to be densely and richly vegetated places, often with a diverse suite of molluscs and other invertebrates, including rare species such as *Anisus vorticulus* or *Segmentina nitida*. The lentic conditions for *S. nucleus* indicated by Zettler & Glöer suggest a very poor quality habitat, however, the somewhat better quality habitat given for *S. ovale* is lotic. In terms of shell shape and tumidity most Irish and English specimens appear to more closely resemble *S. nucleus*. Peter Glöer has examined some of this material and has recognised both *nucleus* and *ovale*.

There are clearly problems with this group of species and it is likely to require molecular studies to resolve their taxonomic position. In the meantime I would encourage members to look more closely at *Sphaerium* specimens, particularly those from lentic habitats. I would be pleased to examine material and offer an opinion.

I'm grateful to Jim Turner, National Museum of Wales for imaging the specimens; to Peter Glöer for

examining some of my material and useful discussion; to Volker Buddensiek for assistance with translating German text, and to Chris Williams, Martin Willing and Martin Drake for loaning additional material for examination.

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Plate (page22)

The accompanying page of illustrations shows a selection of *Sphaerium* from England and Ireland. The *S. corneum* are particularly tumid but they lack the dense pores (and when opened they had the typical narrow hinge plate). Also illustrated are typical *S. nucleus*, densely pored *Sphaerium* from Somerset Levels and a site in Rocscommon, and *S. ovale* from Germany.

Inventaire National du Patrimoine Naturel

Ian Killeen

Olivier Gargominy of the Muséum national d'Histoire naturelle in Paris has asked me to place this request in *Mollusc World* for records of non-marine molluscs from France. The Inventaire National du Patrimoine Naturel (INPN) is collecting and synthesising all data on the fauna and flora of France. There is an extremely good website (<http://inpn.mnhn.fr>), mostly in French but with some introductory sections in English.

Many of the Society's members will have recorded and collected molluscs

in France and the INPN would be very pleased to receive your records. As much accompanying data as you have should be sent with the records: date, site, habitat and so on. When giving Grid References be careful to state which system they are as French IGN maps have several different grid systems on them. There are considerably more species of terrestrial molluscs than given in Kerney & Cameron (1979) and a large number of freshwater species. The most recent checklist by Falkner, Ripken & Falkner (2002) lists 660

species and 747 species and sub-species. Therefore, some determinations may need to take into account recent revisions of the fauna.

I am happy to receive any records and pass them on, or you can send them directly to:

Olivier GARGOMINY, Muséum national d'Histoire naturelle, Département Ecologie et gestion de la biodiversité, Service du Patrimoine naturel, 61, rue Buffon, 75005 PARIS, France

A Note on the Currently Known Status of the *Lymnaea palustris* (Müller, 1774) Complex in Britain and Ireland

Ron Carr

The aquatic snail *Lymnaea fusca* (Pfeiffer 1821) was first recognised as a species distinct from *L. palustris* in Britain by Carr and Killeen (2003), though its identity had been established in central Europe almost half a century earlier (Jackiewicz, 1959).

L. palustris was considered to be widespread in the British Isles and Ireland by Kerney (1999), typically occurring in ditches choked with vegetation. This concept prevailed prior to the separation of the two taxa, recent investigations having revealed that *L. fusca* is by far the more widely distributed species, with *L. palustris* occurring mostly to the east of mainland Britain and not so far recorded from Ireland (Anderson, 2005).

Since the separation of the two British species, provision of additional distributional data for either species has attracted little interest from recorders. Recently published records often still refer to "*L. palustris* agg", the few specimens supplied for anatomical examination have been mainly submitted by non-malacologists.

During preparation of the 2003 paper, specimens from a number of Kent locations had been examined, though true *palustris* had not been encountered within the county. Subsequent visits to the Romney Marsh area of Kent and East Sussex undertaken during May 2005 did however detect an abundant population of the species thriving in a permanent, macrophyte-rich drain on grazing marsh known as the Dowels at map reference TQ 969300 (Plate 1). Additional specimens were also obtained from two smaller, adjacent ditches. The species prevails in the East Anglian fens, where it similarly occurs in permanent drains on grazing marsh containing a rich macrophyte flora including Water Soldier *Stratiotes aloides* L., though occasionally also in temporary shallow ditches supporting only Common Reed *Phragmites communis* Trin.

On the basis of the available information, *L. palustris* may well be a useful indicator species for the assessment of good quality aquatic environments, whereas *L. fusca* appears tolerant of agricultural pollution. The community based classification scheme introduced by Chadd and Extence (2004) designates a conservation score of 2 to "*Lymnaea palustris*", though this classification obviously relates to the previous concept of a single, widespread species. A revised score of 5 would thus seem more appropriate for true *palustris*, with a score of 2 being



retained for *fusca* (Chadd, personal communication).

There has been some contention by continental authors (eg Falkner *et al.*, 2001) that a third related taxon, *L. corva* (Gmelin) occurs in the British Isles. This assumption has been based on examination of shells contained within the collection of the Natural History Museum, Kensington, but has not been verified by dissection. Shells from a number of locations including Maidenhead, Suffolk and Wicken Fen labelled "*L. palustris* var. *corvus*" present within the museum collection can be attributed to either *palustris* or *fusca* on the basis of shell size and general morphology. More convincing is a series of larger shells collected by L E Adams in 1881 from Coggeshall, Essex, which are contained within the collection of F W Taylor. An account of their discovery is provided by Adams in *The Collectors Manual of Land and Freshwater Shells*: "I came across a pond in Essex full of nothing but the variety *corva*, some of which measured an inch in altitude". The shells indeed resemble those of *corva* that are to be found within permanent ditches in the Netherlands, though until locally collected specimens can be obtained for anatomical verification, the extant status of the species in Britain remains uncertain. Large specimens of the *palustris* complex may well repay dissection, particularly those collected from eastern England.

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Man and Molluscs: Diversity and Commercial Uses of Molluscs

Adrian T. Sumner



This all-day meeting, held on 8th September 2007, was a new venture for the Conchological Society, as it was a joint meeting with the National Museums Scotland (NMS), who provided the premises and whose staff, in particular Claire Pannell, did a large amount of the organisation of the meeting. A number of speakers gave talks on the general theme of interactions between molluscs and humans, interpreted in its broadest sense. The meeting was held in the Dunfermline Room of the Museum, an intimate lecture theatre in the modern extension which not only stimulated a lot of discussion, but also had a suitable circulating space outside for refreshments, posters and demonstrations.

The meeting was opened and chaired throughout by Julia Nunn (Conchological Society President), who introduced Claire Pannell (NMS) as the first speaker. She told us of the importance of the Museum collections for the purposes of scientific study, and showed us several examples from the collections, which are, of course

available to *bona fide* investigators. Adrian Sumner (North Berwick) was the next speaker, who summarised the status of non-marine molluscs in Scotland, pointing out factors such as climate and lack of lime that restrict the number of species in Scotland. Nevertheless, many species are increasing their ranges in Scotland. Dan Harries

and Colin Trigg (Heriot-Watt University, Edinburgh) concluded the morning session with a talk on "Scottish reef building molluscs". *Modiolus modiolus* and *Mytilus edulis* both form dense beds on the sea floor, while *Limaria hians* builds nests by binding shell fragments and pebbles together with their byssal threads. The speakers discussed the biodiversity associated with these sites, and the risks to these structures from human activities.

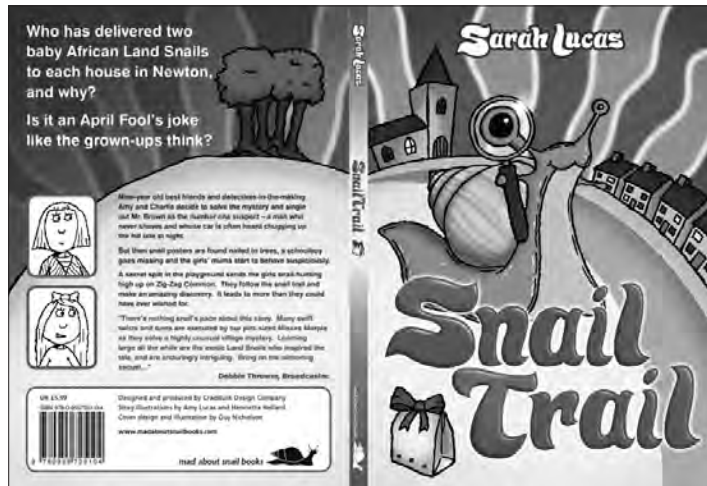
After an excellent buffet lunch, during which we were also able to examine the various exhibits which people had brought, the afternoon session was opened by Peter Cosgrove (Granton-on-Spey). Peter is an authority on the freshwater pearl mussel *Margaritifera margaritifera*, which he regards as one of the most charismatic animals in Scotland. After a long period of decline, brought on by pollution and particularly by pearl fishing (now illegal), it is felt that the situation may have been stabilised. Landowners are now very protective of "their" mussels, and programmes

are now under way to restock suitable rivers from which pearl mussels have been lost. The next speaker, Gill Andrew of the Scottish Association for Marine Science at Dunstaffnage, near Oban, told us about her studies on the feeding habits of limpets, *Patella vulgata*. Biofilms have been regarded as the most important food source for limpets, but by using stable isotope tracers and examining gut contents, Gill has shown that seaweeds are an important component of their diet. Perhaps her most convincing evidence was a video of a limpet actually chewing *Laminaria* (<http://www.youtube.com/watch?v=79RvGRUdnwE>)!

After a break for tea, Jessica Winder spoke about her studies on eating oysters in Britain. Over the centuries, people have used oysters as food to different extents, and it was interesting to see how studies of discarded oyster shells in middens and elsewhere could yield so much information about our ancestors' dietary habits. Of course, oysters are now regarded as a luxury food, but in the past they were often a cheap staple of people's diet. Humans have not used molluscs simply as food, of course. From early prehistoric times shells have been used as ornaments, and Chantal Knowles (NMS) concluded the afternoon by describing some of the many ways in which they have been used, particularly in Oceania. Thus concluded a stimulating day in which we heard about the great variety of ways in which molluscs and people interact, and about ongoing research in the field. As well as thanking the speakers, we should also thank the audience, who contributed materially to the success of the meeting with their contributions during informal discussions. We hope to hold a similar meeting in the future.

Photo caption: Man and Molluscs meeting: delegates in discussion during the refreshment break

BOOK REVIEW



Snail Trail by Sarah Lucas

Book review by Jane Bonney

Mad about snail books 2007 Price £5.99

Strange things are afoot in the village of Newton. Mysteriously overnight every house that hasn't already got them has a delivery of two giant African snails in a little fish tank with a small bag of peat, a stick of cucumber and a letter with instructions on how to keep them, all wrapped up in a cream bag with a pink bow on top! Nine year old Amy, who already has pet snails, and her friend Charlie, both detectives in the making, set out to try and find out who sent the snails, and why. The girls go hunting snails on Zig-Zag Common where they find a big surprise. They coerce Jack from their school class into helping but this causes even more trouble when he goes missing. Finally of course the secret is discovered but not before the plot has taken plenty of twists and turns.

This delightful book, written as a result of some of the events happening in real life to the author and her daughter Amy, will appeal to children of all ages, from 9 to 90. There are some nice descriptive passages such as the chapter about Zig-Zag Common: 'the smells are the smells of the soil – rich and damp – of the blushing blackberries in autumn and of freshly-fallen snow in winter-time', and Amy gives an informative lesson on how to keep African Land Snails in her class show and tell at a level appropriate for the average nine year old. Towards the end of the book the girls make a discovery which puts the story firmly in the realm of fiction, but nonetheless the overall message is informative and educational. The real

Amy Lucas did most of the illustrations in the book, which are as charming as the text.

You can find out more about the book and the author by visiting the website, www.madaboutsnaillbooks.com as well as sixty-six slithering facts about snails. The sequel, 'Snails Don't Burp', is due out in 2008.

A letter from the author of Snail Trail

The Promotion of Molluscs

I am looking to promote molluscs to a younger community and write to seek help from Members of the Conchological Society of Great Britain and Ireland. I have written five children's fiction books all based around a pet African Land Snail called Old McSlithers, with whom my children have grown up. The first of these books, Snail Trail was published in November last year and has been very successful (please see the book review in this newsletter). The second book, Snails Don't Burp! is due out on April 26th. Whilst the books contain some elements of pure fantasy, I have aimed to get my facts on African Land Snails as accurate as possible to ensure that children learn something new whilst enjoying a good read (Jane Bonney, former Hon. Gen. Secretary of the Society has already been of tremendous help here).

The purpose of this letter is to extend an open invitation to any member of the Society who might be prepared to read through the second book, Snails Don't Burp!, to check for accuracy of snail facts, particularly the details relating to the poisoning of a snail by pyrite, or Fool's Gold and Pryce Buckle, Honorary Treasurer of the Society, has already given me some good pointers here. If you are a Member of the Society and are reading this letter with some interest, then please do visit my website for further background information - www.madaboutsnaillbooks.com. You should bear in mind that although the heroines Amy and Charlie are nine years old, the books are suitable for reading by 7-11 year olds and for bed-time reading to 5-7 year olds, depending on academic progress. In fact these books were written to be read aloud and do make fun reading in schools. I am visiting schools to promote my books and African Land Snails, so any help your members can give me would be gratefully received.

Yours sincerely,

Sarah Lucas
sarah@madaboutsnaillbooks.com

Diary of Meetings - Conchological Society

Programme Secretary: Ron Boyce, 447c Wokingham Road, Earley, Reading, Berkshire RG6 7EL

IMPORTANT: *Please remember to inform the leader if you are attending a field meeting. If you are held up in traffic or your public transport is delayed, it may be possible to ring the Programme Secretary on 0794 109 4395 on the day of the meeting for information on the location of the field site being surveyed.*

Indoor meetings at the Natural History Museum will take place in the Dorothea Bate Room [Palaeontology Demonstration Room] at the end of Gallery 30. Please note the earlier start times, and also the long indoor meeting in October with an early start time of 11:00h. Please bring plenty of exhibits and demonstration material.

The Programme Secretary will be happy to receive any offers to lead field meetings or suggestions for speakers for indoor meetings.

Key to meetings:	
NHM	= Natural History Museum, London, indoor meeting
FIELD	= Field Meeting at outdoor location
WKSHP	= Workshop on Molluscan topic
YCS	= Yorkshire Conch. Soc. events

FIELD – Saturday 5 April
Broadway Hill, Worcestershire/Gloucestershire border.
Leader: Harry Green (01386 710377) (home), harrygreen_worcs@yahoo.co.uk

A field meeting in search of terrestrial molluscs on the Cotswold escarpment above Broadway. Meet at 10:30h in the car park and picnic site at the top of Fish Hill, SP 120369. This is situated on the N. side of the A44 just after the steep climb out of Broadway. We shall follow

footpaths through woodland and visit other nearby habitats taking care not to stray into Gloucestershire! Bring a packed lunch and suitable outdoor clothing.

YCS – Saturday 5 April
Coxwold.
Contact: David Lindley (0113 2697047) (home), david.lindley3@btinternet.com

Meet at 10:30h in the car park at Coxwold, grid ref. SE 536773, for 1-km recording in SE57 and SE67.

NHM – Saturday 12 April
14:00h in the Dorothea Bate Room [Palaeontology Demonstration Room], preceded by Council meeting.

Annual General Meeting
Presidential Address by Dr Julia Nunn on the subject of 'Mapping marine Mollusca in Ireland'.

Abstract
Since 1992 a project has been underway to map the marine molluscs of the island of Ireland. This talk will update progress since my presentation on this topic to the Society at the meeting in Cardiff in 2002. The results from the project will be discussed and recent interesting records described. The checklist, distribution atlas and bibliography will now be made available through a web site, hosted by the Ulster Museum.

FIELD – Sunday 20 April 2008
Isle of Wight. Fossil meeting. Joint meeting with Newbury Geology Society.

Leader: Leslie James
Meet at 10:30h in the ferry terminal car park at Yarmouth (SZ 353984). The ferry will be

the 09:45h from Lymington to Yarmouth. Anyone interested in getting a lift should contact Mike Weideli (01635 42190) (home), mike@lfield.co.uk. Arrangements will depend on individual circumstances, but it should be possible to offer some places in cars which will be travelling on this ferry. Return will be on the 17:30 ferry from Yarmouth to Lymington, cost will be about £12.00 per person.

The leader will be Dr. Leslie James of the University of Reading. This is primarily a trip to look at the Geology, but there will be the opportunity to collect fossils at some sites.

FIELD – Saturday 17 May 2008:
Thorpe Salvin, South Yorkshire. Joint meeting with Yorkshire Naturalists' Union. Leader: Bob Marsh. (0750 706 3705) (mobile) bob.marsh@virgin.net

This meeting is to survey the Chesterfield Canal area on Saturday 17 May 2008. Meet in the car park of the Parish Oven public house, Thorpe Salvin, near Worksop, grid ref. SK 522810, at 10.30h. Thorpe Salvin is signposted at South Anston on the A57 Sheffield/ Worksop road. Take the B6059 to Kiveton Park, thence to Thorpe Salvin via minor roads. The meeting place is in the centre of the village. Parking for the Canal anywhere else in the area is difficult. The Canal is most easily reached via local public footpaths. We will visit some of the local woodlands including Hawks Wood and Old Spring Wood. We have also been granted permission to visit the privately owned Broad Wood. We will also investigate the fauna and flora of the Canal towpath and Pennyholme Marsh.

Maps: 1:50000 Landranger sheet 120, 1:25000 Explorer sheet 279.

After the field work there will be a tea and discussion meeting in the restaurant area (otherwise closed) of the Parish Oven public house by kind permission of the owners, between the times of 1630 to 1730h. We are not being charged for the use of the room but use is conditional on our taking advantage of the bar facilities which will be open. Tea and coffee will be available.

FIELD – Saturday 28 June 2008:
Fens Pools, Brierley Hill, West Midlands. Freshwater meeting. Leader: Ellen Pisolkar (0121 444 0819) (home)

Meet at 10:30h in the car park adjacent to the Warden's office at the Dell Stadium, Bryce Road, Pensnett, grid ref. SO 911881. For those wishing to travel by public transport, bus 139 leaves stop AE in Colmore Row, Birmingham, next to St Philip's cathedral, at 09:08, reaching Merry Hill bus station at 10:09. Bus 236A leaves Merry Hill at 10:21 and arrives at Bryce Road at 10:30.

Please contact the Leader for information on car travel to this site.

Bring sandwiches, wellingtons or stout footwear and water sampling equipment.

FIELD – Saturday 5 July 2008
Hunstanton, Norfolk. Marine meeting. Leaders: Celia Pain and John Llewellyn-Jones
Contact: Celia Pain (01634 261147) (home), (07795 966963) (mobile), C. Pain <tp006f6896@virginmedia.com>