

# Moors, Dales and Molluscs

## The Yorkshire Conchological Society Recorder's Report for 2008 *Adrian Norris*

The Yorkshire Conchological Society has an ongoing 1 km square distribution recording scheme for the land and freshwater mollusca. On the date of the AGM we had 39,251 records from 2,458 sites, an increase of 3,360 records and 272 extra sites. 114 species have been recorded from within the 5 vice-counties over the past year. However, a large number of mainly freshwater species have not been recorded; this may be as a result of the very high water levels at many sites due to the extremely wet weather experienced in 2008.

The five main Yorkshire Naturalists' Union field meetings proved, as usual, to be very successful with our members attending all 5 meetings. Two non-Yorkshire members of the Conchological Society of Great Britain and Ireland attended the VC63 meeting at Thorpe Salvin by the old Chesterfield Canal which produced a number of interesting records but perhaps the most interesting was the chocolate-coloured *Limax cinereoniger* which occurred in the upper reaches of Hawks Wood. At Ellington Banks in VC64 we recorded *Zenobiella subrufescens* in the damp woodland which backs onto the Army training grounds. We considered that June 14th was a very early date for this autumnal species. Thorp Perrow Arboretum in VC65 was notable for the occurrence of large numbers of *Arion flagellus* and *Boettgerilla pallens*. The North Cave Wetlands Bird Reserve in VC61 produced a large number of introduced species with several of the lakes and ponds containing numbers of *Haitia acuta*. *Arion flagellus* was again the most interesting find of our visit to Hornby in VC62 where it occurred in gardens within the village itself. These five locations produced a total of 279 records for the recording scheme.

The Yorkshire Conchological Society had

3 official field meetings. The more interesting records found on these meetings included; *Musculium transversum* which was found in the main lake at The Hermitage near York VC62 (SE6557) on September 6th. From Drewtondale (SE9333) in VC61 on

October 11th, we recorded *Cecilioides acicula*, a species rarely recorded off the chalk and *Oxychilus helveticus navarricus*, only the second record of this species from East Yorkshire.

Individual members met in the field on a large number of occasions and, amongst other ongoing projects, surveys were undertaken of 10 limestone pavements in the Yorkshire Dales. *Vitrea subrimata* was recorded from 7 of these and *Clausilia dubia* from 8 out of the 10. In total, 41 species were recorded from the 10 limestone pavements.

Monitoring of *Truncatellina cylindrica* in its only extant Yorkshire site in Brockdale (VC63 South-east Yorkshire) took place on the 3rd of September. Over the past 5 years the reserve volunteers have undertaken a large amount of work to remove trees which were threatening to shade the site and clear encroaching rank vegetation, as well as extending the number of suitable habitats in the area. This work has proved to be very successful with live specimens being easy to locate at the main site. We also made a visit to Ravens Ghyll near Pateley Bridge on October 20th to monitor the only reliable population of *Malacolimax tenellus* in Yorkshire and it was gratifying to note that this relatively rare slug was found in good numbers feeding on several different species of *Russula*.

A visit was also made to the River Esk where we met up with Simon Hirst on September 8th. Simon is undertaking a survey of *Margaritifera margaritifera* in the river and its tributaries over the next few years. Although the river proved to be excessively high and cloudy, we were able to re-locate a group of pearl mussels we first identified many years ago using a glass-bottomed viewing scope provided by Simon.

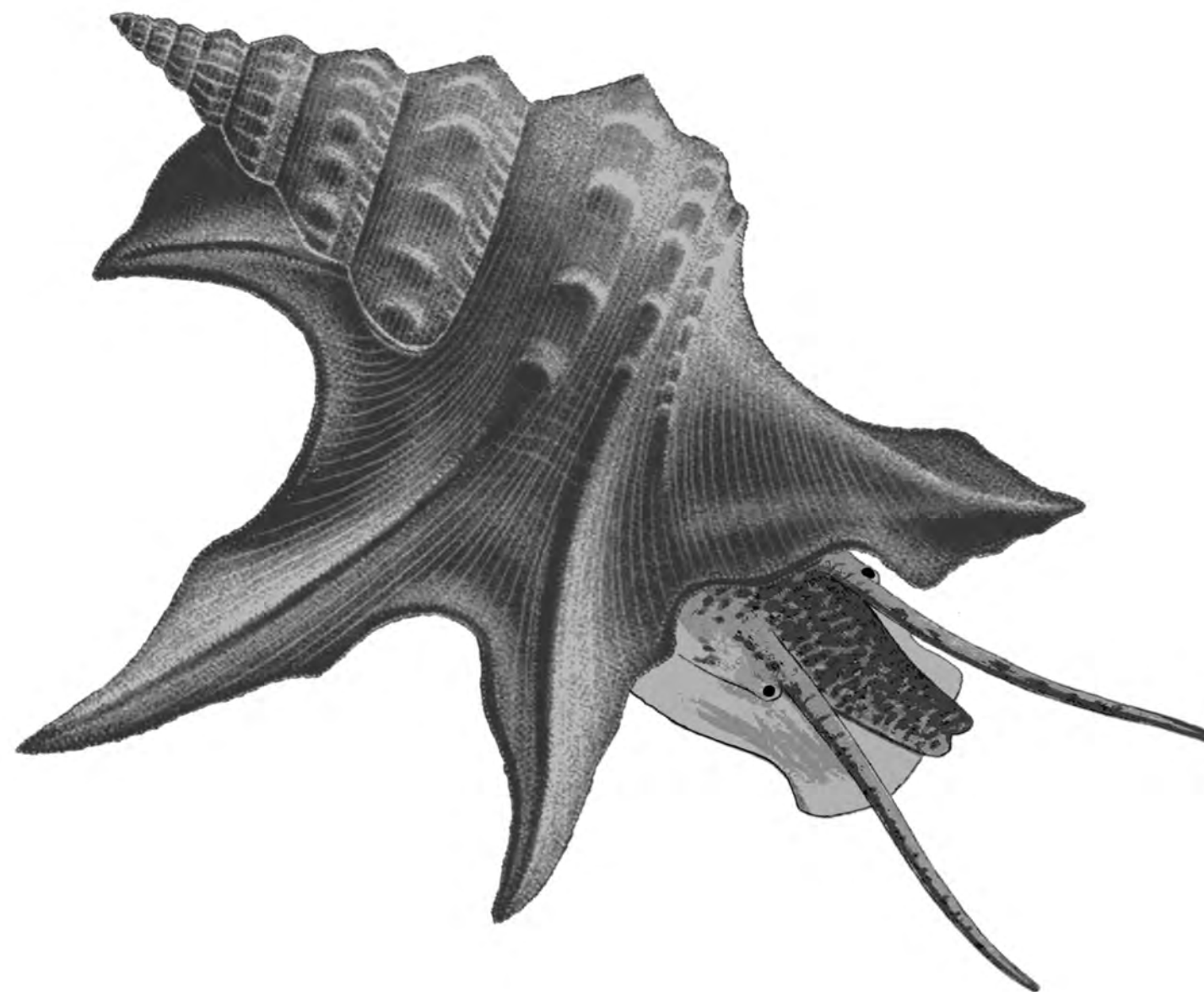
## contents

- 2  
**Society information**  
Society website
- 3  
**Slugs of our garden**  
Mike Weideli
- 4  
**HG Barnacle &  
GAS Barnacle**  
Peter Topley
- 7  
**Broadway Hill  
Field Meeting**  
Harry Green
- 9  
**Hunstanton  
Field Meeting**  
Steve Wilkinson
- 11  
**Zonitoides nitidus**  
Adrian T Sumner
- 12  
**Fermagh  
Field Meeting**  
Roy Anderson
- 15  
**The Forest of Dean  
Field Meeting**  
David Long
- 19  
**Marine Field Meeting  
to North Wales**  
Jan Light
- 20  
**Malacolimax tenellus  
in Nidderdale**  
David Lindley
- 22  
**Geological excursion  
to the Isle of Wight**  
Ron Boyce
- 24  
**Colourblind Taxonomy**  
Elizabeth Dommergues  
Jean-Loius Dommergues  
Cyril Hugues Dommergues  
& Sebastian Payne
- 27  
**Lip colour  
Polymorphism  
in *Cepaea nemoralis***  
Adele Grindon
- 30  
**Fens Pools, Brierley Hill  
Field Meeting**  
Ellen Pisolkar
- 31  
**Diary**
- 32  
**Moors, Dales & Molluscs**  
Adrian Norris

# Mollusc World

ISSUE No.18

NovembeR 2008



ISSN 1740-1070

THE MAGAZINE OF THE CONCHOLOGICAL SOCIETY OF GREAT BRITAIN & IRELAND



## Editorial

Field meetings are the focus of this issue of *Mollusc World*, with reports and lots of high quality images of snails and slugs from all 7 meetings the Society has organised. The Field meetings have always provided an important part of the programme and continue to offer members the opportunity to visit interesting molluscan sites, to meet other members, to learn from experts, and of course, to provide new data for the Society's marine and non-marine recording schemes. This year's programme has included trips as geographically spread as Northern Ireland, Anglesey, north Norfolk as well as southern England. Yet, in spite of the numbers of members living within relatively easy reach of at least one venue, the meetings are not particularly well attended, even a day trip to a single site requires much organisation from the leader (as well as the requirement to write

it up for *Mollusc World*), so please get out in 2009 and give your full support to Field Meetings.

Here's an interesting item that has come in from Graham Long as I was writing this editorial - I would be very pleased to hear other views on dispersal of this species or other snails:

*The discussion of the way in which Hygromia cinctella has spread so quickly has produced little firm evidence to support any of the suggestions made so far. Recently, however, a Romsey based member of the Hampshire Fungus Recording Group arrived at a site in the New Forest in good company. Firmly 'glued' around the headlights of his car and within the radiator grill were 20 or so adult Hygromia cinctella. He said that his car had not been used for the past two weeks during which there had been some very heavy rain. It would seem that the snails had taken refuge on the vehicle, managing to work their*

*way up via the front near side wheel. All were alive and had survived several very cold nights with early morning frosts when the temperature of their mounts must have dropped considerably. They would no doubt have travelled to Scotland or across Europe had the car been thus directed.*

And so to the festive season – the season when all one's friends and relatives that know you like snails and shells think it's a great idea to buy some glass snail ornament or some other piece of tacky paraphernalia with a molluscan theme. We religiously put them on our shelves, in front of our mollusc books (always in front of the one we want to read), they get covered in dust, but they are always there just in case the giver of the 'gift' comes to visit. Is it time to start giving handkerchiefs again? Merry Christmas to all!

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

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Design by Emma Pitrakou

Printed by Henry Ling Ltd

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# The Slugs of our Garden

Mike Weideli

We moved into 35 Bartlemy Road in December 1977. Built in the 1930's as part of a new estate on what were open fields, it is a three bedroom semi detached house with a fairly large garden, 30 metres by 12 metres, a detached garage and two sheds. A greenhouse was added in 1990.

The first slug I remember seeing in the garden was black, fairly small with an orange sole. I had been interested in slugs and snails from childhood, but at the time I was not a member of the Society and remember being frustrated at not being able to identify such a distinctive species from my only reference book *The Young Specialist Looks at Molluscs*. I now know that they were *Arion hortensis* agg, but they appeared to be totally black with no grey colouring or lateral bands as described in the book. Since then a few specimens have been dissected at various workshops and the population appears to be *Arion distinctus*. This species is still in the garden, but I think it is by no means as common as it once was. It is the slug most commonly brought into the house stuck in the cats' fur.

When we moved in there was very little vegetable garden, but as soon as we extended it and started planting I became aware of *Deroceras reticulatum*, particularly as a pest taking young lettuces as soon as they were planted. They remain a pest, but overshadowed by another species mentioned later. *Deroceras panormitanum* also occurs in small numbers and is usually found under bricks or in rubble.

Two other slugs which I frequently found, particularly in autumn, were *Tandonia budapestensis* and *Tandonia sowerbyi*. Originally I did not particularly view these species as being pests as they were most often found in the vicinity of the house. This view rapidly changed once I

started growing a few potatoes. Tiny holes in the potatoes often revealed a large cavity inside and sometimes the culprit, usually *T.budapestensis*. A neighbour recommended the potato variety 'Kestrel' which I understand has a thicker skin making it less prone to slug attack. This has proved to be good advice and it is a variety which has given me good yields and certainly suffered less damage.

In the early days I was very excited to find one specimen of *Limax maximus* at the back of the shed. This was a species which I could identify with certainty. There was a scheme running at the time requesting records for the species, but they wanted the actual specimen sent to them. I sent in the record, but wasn't prepared to part with the actual slug. This species seems to be more common now and is found in the greenhouse and behind the sheds and garage. It is a species I am always pleased to find.

I was also excited to find one specimen of *Boettgerilla pallens* behind the garage in a pile of bricks. This find was made around 1985, but I did not find another specimen until 2007, when I found one in the front garden while replacing some garden edging. It was a least 20cm below ground, under a brick supporting the edging.

Not mentioned so far is *Arion rufus*. I am certain this was not present when we moved in. I have often blamed myself for introducing it in leaf litter or soil samples, but it is present on our local allotments only 100 metres away and I am assured that it has 'always' been there, so perhaps I am not guilty of introducing it. Irrespective of how it got into the garden, it is now by far the most common and damaging pest species. We have counted nearly 200 in the garden in one night (see page 114 of the *Conchologists' Newsletter*, No. 147, December 1998). I have tried many ways of protecting my young plants and now resort to using slug pellets containing metaldehyde. I do not sow lettuces or runner beans directly into the ground, but start them in pots. When planting out the young plants I place one or two pellets close to

plants and find that the slugs are attracted to these so that they are killed or paralysed before damaging the plant. I hope that by minimising the number of pellets used, and by burying any dead slugs as soon as possible I will not be harming other wildlife.

*Lehmannia valentiana* appeared in the greenhouse in small numbers 10 years ago. I suspect that it was introduced with garden centre plants. Over recent years the numbers have increased considerably and the species is now found both in the greenhouse and around the garage and occasionally in the house. I had not thought of it as being a particular pest, but being curious about damage to my greenhouse cucumbers I mounted video surveillance with an infrared security camera for a few nights. Three *Lehmannia valentiana* appeared at about 11 pm., grazed on the cucumbers for about 20 minutes and moved off. At midnight a single *Arion rufus* appeared and did considerably more damage in just a few minutes before moving on. Armed with the timings I was able to remove the culprits and prevent further damage. I avoid using slug pellets in the greenhouse, because *Limax maximus* is attracted to them (see page 267 of the *Conchologists' Newsletter*, No. 161, December 1999).

The latest slug to arrive has been *Limacus flavus*. The first one I found was curled around the top of a milk bottle left on the doorstep by the milkman in the early hours of the morning. The species is now found in fairly large number around the front of the house. We have found them indoors in the conservatory and in the kitchen. The trails left for us suggest that we are receiving more than occasional visits.

*Arion rufus* is a colourful interesting slug and not one I would wish to be without, but I sometimes wish there were rather less of them. Otherwise I enjoy sharing my garden with the various species of slugs and I am happy to accept some loss of garden produce for the interest they provide.



# H.G. Barnacle (1849-1938) and G.A.S. Barnacle (1885-1980): father and son conchologists

Peter Topley

When I was a junior member of the Conchological Society, back in the early to mid 1970's, I attended a meeting in the long-gone wood-lined "Conversazione Room" next to the former Insect Gallery in London's Natural History Museum. A notice was read out at the meeting that a Mr Barnacle of Worthing was disposing of two shell cabinets and they would be free to the first person interested. The following day my father and I headed off to the south coast. G.A.S. Barnacle and his wife lived in retirement in a small upstairs flat in Boundary Road, Worthing. My memories of the meeting are necessarily somewhat faded since I was a shy teenager of fourteen or fifteen at the time, but I remember him telling us about his time as a tea and rubber planter in Ceylon (now Sri Lanka) and his more recent work as a volunteer at the Natural history Museum in London. He explained that the cabinets he wanted to dispose of, since much of his collection had gone to the museum, were both made in Sri Lanka by the plantation carpenter. One was small, painted black and made of some type of softwood whilst the second was an eight drawer cabinet of Ceylon teak with "colonial" style handles and a locking flap. Between us we managed to carry the cabinets down the stairs and although Mr Barnacle was quite frail, he offered to help. I still have both the cabinets (Figure 1) and although the small one now has its black paint removed and the teak one has unfortunately developed a split due to the ravages of central heating, they are a reminder to me of that time; but now, many years later, I wanted to discover a little more about the man who once owned them.

Glanville Alban Stepney Barnacle (he signs himself Stepney in a letter to

Peter Dance from 1967 –Figure 2), was born, the eldest of at least eight children of the Rev. Henry Glanville Barnacle and Sophia Lucy Yorke, in the town of Holmes Chapel, Cheshire on 24th May 1885. Both father and son had a connection with conchology, so it is worthwhile giving some biographical detail here. As far as I can discover, the family originated in Leicester. William Barnacle, Stepney's great grandfather, was born there in 1796 and his occupation is stated in the 1841 census as "shoemaker". His son Henry was christened at St Margaret's church Leicester on 3rd December 1819. Henry gained an M.A., was ordained and took up his first appointment at Trinity Church, Stepney, in London. It was here that Stepney's father Henry Glanville, was baptised on May 13th 1849 and it was the source of his son's favoured Christian name. Later Henry senior became vicar of Knutsford, Cheshire and held the living there for many years.

Henry Glanville studied at Cambridge, gaining a B.A. there in 1873. He then joined the staff of the Royal Observatory. In Astronomer Royal Sir George Airy's Report to the Board of Visitors for 1874 Henry is mentioned as a member of one of the expeditions sent to the Pacific to observe the transit of Venus of that year. He is also recorded as donating a telescope for that expedition. This journey to the Pacific was possibly the origin of the first mollusc that became associated with the Barnacle family name, indicating that Henry Glanville had an interest in conchology as well as astronomy. It was also the source of a Conchological mystery. In 1874 Henry collected a snail shell from "Hawaii, 8 miles away from Kailua [Kona]". This

shell was described by E.A. Smith in 1877 as *Helix barnaclei* in the genus *Papuina*. No similar or related species has ever been recorded from the Hawaiian Islands but Smith was convinced at the time, following correspondence with Henry, that the locality was correct. Nevertheless Smith knew that the new species was almost identical to a snail from the Admiralty Islands, but he recognised it as different due to the distance between the two localities. Subsequent surveys of the area did not result in the discovery of any further specimens and its presence in Hawaii may have been a temporary introduction or, perhaps more likely, Henry had just muddled up his labelling! But there is no doubt that Henry was there in 1874. In 1875 he wrote a contribution to the then fledgling *Journal of Conchology* on the "Singing snails of Hawaii", the Achatinellidae. The old Hawaiian songs (such as Kahuli Aku "Turn little shell") say that there were so many of these snails (now sadly desimated due to the introduction of alien predators and plants, together with habitat destruction) that they could be heard "chirping" in the evening to ask the birds to bring them a drink of water! In reality the chirping came from small crickets in the nearby tree bark.

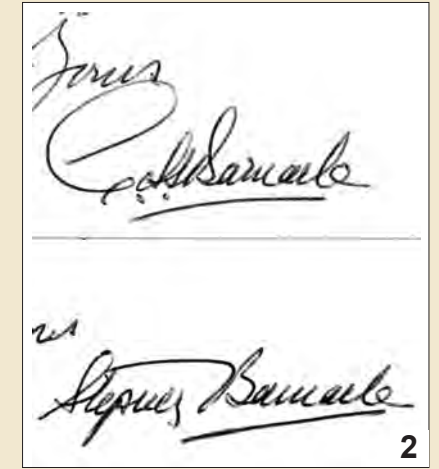
Possibly as a result of his contributions to the 1874 expedition, Henry was elected a Fellow of the Royal Astronomical Society on 8th May of that year. On his return he took the post of assistant master at Chigwell School, Essex for two years, after which he studied for an M.A. at Cambridge and took holy orders with appointments in Neston, Cheshire and Gleadless, Yorkshire. It was while he was curate of the latter village that he met and married, on 11th

September 1850, Stepney's mother Sophia who was the daughter of the Rev. James York, vicar of Marbury, Cheshire. In 1882 they moved to Holmes Chapel, Cheshire where Henry was vicar for the following 17 years and where Stepney and his brothers and sisters spent their childhood. In 1898 Henry became principal of St John's College, Grimsargh near Preston, Lancashire (described as a "private adventure school for boys") where he remained until 1907. Instead of then slipping into a quiet retirement in the north of England, in 1911 he took ship to Australia where he became rector of Rosalie, Perth: a position he held until the age of 83. He at last retired to Subiaco, W. Australia where he died at the age of 89 on 24th August 1938.

Also in about 1911, just as his father was beginning a new life in Australia, his son, G.A.S. Barnacle, was beginning his in Ceylon (now Sri Lanka), working as a "planter" in the tea and rubber plantations. There is little doubt that it was his father who had introduced him to an interest in natural history and he pursued this during his years in Sri Lanka, taking a particularly keen interest in the land snails. He joined the Conchological Society in 1920 and was in England again in 1922, in the Preston area, where he married Lesley Hazelgrove. He returned to Sri Lanka, with his wife, as a Rubber Planter (my personal recollection, confirmed in Naggs, 1997) at the Ruanwella Estate, sixty miles up river from Colombo. Ruanwella was a tea estate but the demand for rubber at the time meant that tea was being supplemented in many areas by plantations of rubber. In 1900 the Ruanwella estate was described as follows: "That such a wonderful change from jungle to orderly cultivation has been made within a few years can scarcely be realised when walking along the excellently planned roads, and gazing upon the flourishing tea bushes,



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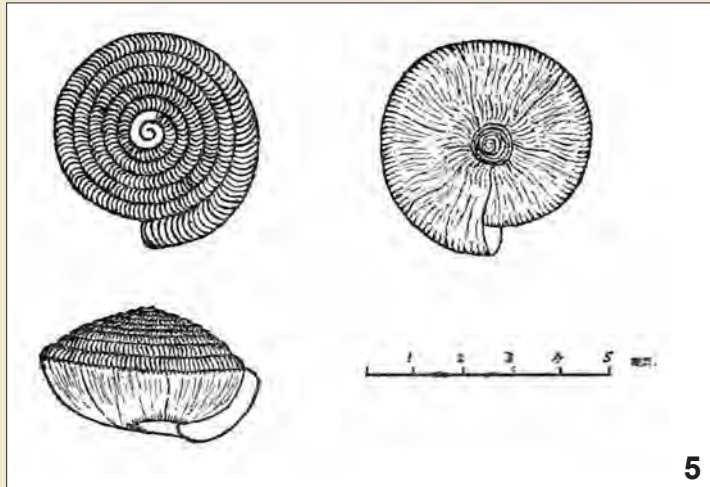
where a short time ago all was a mass of wild and almost impenetrable thicket. But not only is tea to be seen; we notice a profusion of delicious fruits, more especially pineapples... Most grateful it is to feast on [these], after the expenditure of energy demanded by the steep banks and rocky eminences over which we have climbed, and this, too, at a temperature of 90° in the shade." (Cave, 1900).

Stepney began noting and forming a collection of the local land snails and took a particular interest in the large and attractive snails of the genus *Acavus*, owning a fine series of them. Many years later, in 1962, these were the subject of a contribution he made to the *Journal of Conchology*. Figure 3 shows a specimen of *Acavus superbis* forma *roseolabiata* G. Nevill, 1881 from my own collection that was collected by Barnacle at Sabaragamuna, Sri Lanka, in the 1920's. This colour form was ranked by Barnacle as a full species due to the absence of malleation and the red coloured lip and parietal callus, however later authors have considered this just a colour variation of *A. superbis* (e.g. Poppe et.al. 2002). Also at this time he sent specimens to experts in England, including the well known collector J. R. Le. B. Tomlin. In 1929 Stepney joined the Malacological Society of London and it was in this year that Tomlin published in their *Proceedings* the description of a new species from Ceylon of the Prosobranch family Pupinidae, *Tortulosa barnaclei*, in his honour. The Melvill-Tomlin collection at the National Museum of Wales contains

material sent by Barnacle to Tomlin (Trew, 1990).

Stepney and his wife remained in Ceylon until at least the late 1930's after which time they returned to England. From 1941 to 1951 their address is recorded as a house at Sullington Warren near Storrington, Sussex. In his retirement, Barnacle carried out valuable voluntary work at the Natural History Museum in London, including work on the Sri Lankan shells in the collection of a 19th century visitor in that country: Edgar L. Layard (Naggs, 1997). In 1956 Stepney described a new species of Plectopylid snail, two shells of which were found by him back in those early days in Sri Lanka in 1911, but he had not the opportunity to do an adequate comparison with related species until this much later time of access to the Natural History museum's collections. He describes the place where he found them: "The situation was towards the summit of a hill amongst the foothills of the north-western part of the central mountain range...a remote spot with no road nearer than three miles away, in the valley of the Kelani River nearly 2000ft below." He named the species *Corilla lesleyae* "after my wife who has endured my Conchological activities for many years" (Figure 4). One of the references he cites is Hanley and Theobold's *Conchologica Indica* (1876), indicating an interest in land shells encompassing the Indian sub-continent. He later exchanged his own copy of this very rare book (which today might be bought for £7000) for a collection of land shells. As they grew older, Stepney and





At the time I met Stepney, he was becoming frail; no longer able to travel to London, he had disposed of his collection to the museum and now offered some of his now unwanted cabinet. Interestingly another larger cabinet, also made of teak with Indian style brass handles,

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**Acknowledgements**

I am grateful to Peter Dance for useful reminiscences and information about G.A.S.Barnacle and for providing examples of his handwriting. Figures 4 and 5 are reproduced from the Journal of Conchology (see refs. Barnacle, 1956,1971).

went to Peter Dance. He had a similar experience to me, in that Stepney had offered to help him down with it (even though this was really almost impossible for him) from their first floor flat and it had got wedged in the stairway. Although the Barnacles did not have any children, they kept in touch with Stepney's family. In 1980 Barnacle wrote a short article in the *Conchologist's Newsletter* about some Jamaican snails imported into Liverpool docks on bananas and found by his great nephew. However by this time he was sadly suffering from a debilitating respiratory illness. He was spared any further suffering when death came at the grand age of 95, between April and June of that year.

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Lesley moved to the more manageable apartment in Worthing. He continued to travel to London and attended Conchological Society meetings. In 1962 he was the author of the first description of the non-marine molluscs of the Seychelles since that of Connolly in 1925 (Gerlach, 2006). A mollusc from these islands, the Streptaxid *Imperturbatia levieuxi*, was also the subject of his third contribution to the Journal of Conchology in 1971, where he illustrated this species for the first time (Figure 5). I have not been able to ascertain whether he had visited these islands himself. In the late 1960's he used his expertise to sort out many of the minute land snails collected by Peter Dance in Sarawak, among them was a species that Peter described and named after him: *Platycochlium barnaclei* (*J. Conch.* 27: 152-3, 1970). Peter also accompanied him on collecting expeditions to the local countryside of Sussex in search of non-marine molluscs.

# Field Meeting

## Broadway Hill, Worcestershire

5th April and 14th June 2008 Harry Green



A small part of the south-eastern corner of Worcestershire (VC37) extends up the Cotswold escarpment and includes a small area above Broadway. Here the hill is capped by oolitic limestone typical of the Cotswolds – the only similar Worcestershire geology is found a few miles to the west where the Cotswold outlier of Bredon Hill rises above the Vale of Evesham. Following on from a series of visits in recent years to many parts of Worcestershire, recording mainly terrestrial molluscs, we felt we should not neglect our small patch of the Cotswolds so a field meeting was planned for Saturday 5th April 2008. Around 15 people (Society members and local naturalists, including three sharp-eyed children) met in the Car park at the top of Fish hill – originally a tiny fragment of Gloucestershire (VC33) purchased by Worcestershire some years ago to provide a car park giving access to a footpath network. We decided to examine the woodland to the north in the morning and grassland to the south in the afternoon. However, the unplanned part of the day was a biting northerly wind which, following warm days, took us all by surprise and very few of us were fully insulated against temperatures just above freezing and the arctic blast! Add to this cold rain at lunchtime and we had all had more than enough and retired hurt, surely a retreat unparalleled in the history of snail recording! The idea of searching exposed grassland in such conditions had little charm and we decided to visit those areas later in the summer.

So, on 5th of April we visited the woodland. This is mainly of ash and beech and lies just below the top of the escarpment on the Worcestershire side of the county boundary. In the wood there is plenty of evidence of old quarrying. Beneath the trees is a thin herbaceous and scrub layer in deep shade, with leaf litter of varying depth, and patches of exposed stone and walling. Despite chilled fingers a reasonable list of snails was compiled with relatively few slugs probably because of preceding dry conditions. Sharp-eyed children also found Cream-spotted Ladybird *Calvia 14-guttata* and Orange ladybird *Halysia 16-guttata* hibernating in the litter, the latter in a beech mast husk, together with a few millipedes, harvestman and the centipede *Lithobius variegatus* which is usually an indicator of undisturbed woodland habitats.

Following the April retreat we arranged a second visit to Broadway Hill on 14th June 2008. The weather was fine, warm and with wonderful views over Worcestershire to the west! Fewer people could attend this meeting so only seven of us gathered in the car park. This time we headed south and first visited a small old quarry over-grown with beech trees and bordered by a typical Cotswold dry stone wall. This





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small place kept us interested for an hour and more and produced a good list of molluscs including the classic dry-stone wall species *Pyramidula pusilla*. An interesting non-mollusc find was a flatworm *Microplana scharfi* under decaying wood.

We then followed the old road past the building which once housed the famous Fish Inn originally set on the side of the main Oxford to Worcester road but now a private dwelling down in a cul-del-sac separated from the new course of the main road. The verges contained numerous *Monacha cantiana* and flowers attracted a variety of bumblebees and hoverflies. Further along and the path led through woodland to open grazed limestone grassland eroded on steep banks



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by sheep to expose the soils and small scree of oolitic limestone. This woodland was relatively unproductive for molluscs partly because we moved through it quickly to spend more time on the grasslands beyond. These are floristically rich and at the time of our visit the sward was quite tall and un-grazed. Ron collected several samples from the grassland and scree with his small vacuum sampler which added some tiny snails to the records. *Arion fasciatus* was found under a solitary large lying log and I was very pleased to find a few empty shells of *Ceciliooides acicula* conveniently exposed by sheep action. It was also a good day for other invertebrates and naturalist John Meiklejohn obtained useful records of Coleoptera and Hemiptera from a somewhat under-recorded part of Worcestershire. A good selection of solitary bees were found and passed on to the county recorder – there are even fewer records for this group. Towards the end of the visit several members of the group found a glow-worm eating a *Trochulus striolatus* while I was somewhere else and much to my disappointment I didn't see it and I don't think we have any pictures! All in all this was a good day in the sunshine which compensated for the miserable April visit.

Main recorders Rosemary Hill, Ron Boyce, John Meiklejohn, David Long, Harry Green and Gary Farmer (the last in April when there also were several more searchers)

**Records from Broadway Hill 5th April 2008**

S=shell only, L= live animal

**Woodland around SP118375**

- Aegopinella nitidula* L
- Aegopinella pura* S
- Arianta arbustorum*
- Arion ater* agg L
- Arion circumscriptus* L
- Arion distinctus* L
- Arion hortensis* L
- Arion subfuscus* L
- Candidula intersecta* L
- Carychium tridentatum* L
- Cepaea nemoralis* L
- Clausilia bidentata* L
- Cornu aspersum* L
- Discus rotundatus* L
- Euconulus cf. fulvus* L
- Lauria cylindracea* L
- Limax marginatus* L
- Limax maximus* L
- Merdigera obscura* L
- Monacha cantiana* L
- Oxychilus alliarius* L
- Oxychilus navarricus helveticus* L
- Tandonia budapestensis* L
- Trochulus striolatus* L
- Vitrea crystallina* L

**Leaf litter in woodland near wall SP116 372**

- Acanthinula aculeata* L
- Aegopinella nitidula* L
- Aegopinella pura* L
- Carychium tridentatum* L
- Lauria cylindracea* L
- Punctum pygmaeum* L
- Vitrea contracta* L
- Vitrea crystallina*

**Disturbed soils near car park probably flattened mole hills SP119370**

- Cochlicopa lubricella* S
- Vallonia excentrica* S

**Records from Broadway Hill 14th June 2008.**

**Small Beechwood Quarry SP119368**

- Aegopinella nitidula* L
- Arion subfuscus* L
- Candidula intersecta* L
- Cepaea nemoralis* L
- Cornu aspersum* L
- Deroceras reticulatum* L
- Discus rotundatus* L
- Lauria cylindracea* L
- Merdigera obscura* L
- Monacha cantiana* L
- Oxychilus alliarius* L
- Oxychilus cellarius* L
- Oxychilus navarricus helveticus* L
- Pyramidula pusilla* L
- Trochulus hispidus* L
- Trochulus striolatus* L

**Clump Farm near Broadway Tower area.**

**Limestone grassland, not much exposed rock around SP114364**

- Arion ater*
- Arion circumscriptus* L
- Candidula intersecta* L
- Cermea virgata* L
- Deroceras reticulatum* L
- Pyramidula pusilla* L
- Trochulus hispidus* S
- Vallonia excentrica* L
- Vertigo pygmaea* L
- Vitrea contracta* L

**Grassland with eroded slopes around SP115366**

- Arion fasciatus* L (under log at bottom of slope)
- Candidula intersecta* juvenile L
- Ceciliooides acicula* S (in exposed soil)
- Cermea virgata* L
- Deroceras reticulatum* L
- Monacha cantiana* L
- Pupilla muscorum* L
- Vallonia excentrica* L

**eroded slope and small areas of scree between SP115366 and SP116668 including vacuum samples.**

- Aegopinella nitidula* L
- Arion subfuscus* L
- Candidula intersecta* L
- Cermea virgata* L
- Cornu aspersum* L
- Merdigera obscura* L
- Oxychilus navarricus helveticus* L
- Pupilla muscorum* L
- Trochulus hispidus* L
- Trochulus striolatus* L being eaten by glow worm.
- This snail is very abundant in the area.
- Vallonia excentrica* S
- Vertigo pygmaea* S

**Figure 1,2,3** Snailers young and old at work in the beechwood near Broadway, 5th April 2008 (Harry Green)

**Figure 4** Grassland and scrub near Broadway Tower, 14th June 2008 (Harry Green)

**Figure 5** The view from Broadway Hill looking westwards over Worcestershire (Harry Green)

**Figure 6** *Pyramidula pusilla* on stone wall Broadway, 14th June 2008 (Harry Green)

**Figure 7** David Long being shown a snail in the beechwood 5th April 2008 (Ron Boyce)

**Figure 8** More snailers young and old at work in the beechwood near Broadway (Ron Boyce)

# Field Meeting

## Hunstanton July 2008

Steve Wilkinson

It felt like a trip that was destined not to happen. John Llewellyn-Jones and Celia Pain had carried out a preliminary survey of the Hunstanton shore and originally planned the trip but in the end both had to drop out of the actual visit due to illness. Jan Light then stepped into the breach to lead but slipped a few days before and broke her wrist. Finally, following what had been an absolutely glorious Friday the forecast for Saturday was rain and sure enough at around half past twelve (we were due to meet at 1:00) the clouds opened in what can

only be described as tropical monsoon style. Still, we had come this far and a little water wasn't going to stop proceedings now. The remaining party of seven intrepid explorers assembled, donned waterproofs and boots and headed down onto the shore. It is normally a popular beach with holiday makers at this time of the year but as we arrived it was more or less deserted having been very effectively cleared out by the rain.



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We concentrated our initial search on the lower shore *Mytilus* beds. The most striking feature of these was the high abundance of our first non-native of the day – the slipper limpet, *Crepidula fornicata*. Also notable though was the colour of the *Nucella lapillus* shells which ranged from light





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yellow to orange – a colour I certainly had never seen before. As we slowly followed the tide out and up the second live non-native – a couple of live specimens of *Crassostrea gigas*. The *Mytilus* bed gradually gave way

to a more muddy, less consolidated, habitat and the starfish *Asterias rubens* was relatively common. We also picked up a few *Lepidochitona cinereus* particularly under larger dead shells. On the way back up the shore we met a bait digger who was having no difficulty digging up live *Ensis americanus*. While pairs of *Venerupis senegalensis* shells were plentiful we didn't pick up any live specimens of this species.

There was very little algae on the shore and the few fragments we did find did not look promising from a molluscan perspective. This view was borne out when the samples were later analysed with only *Mytilus* spat being recorded.

After a short stop we headed back up the beach to explore an area of upper to mid shore boulders embedded in sand just in front of the lighthouse. These still failed to yield more ubiquitous species such as *Patella vulgata*. However we did pick up a small boulder of peat that contained live *Barnea candida* and *Petricola pholadiformis* which was quite a nice find to finish off the day.

By the time we made our way back towards the car park the sun had come out again and the beach was beginning to fill up with bemused on-lookers, attired in nothing more than shorts, wondering what on earth we were doing dressed in waders, waterproofs and scarves on such a beautiful day!

The status of *Ensis* remains interesting. Howlett (1990) recorded

that while the abundance of *Ensis americanus* had increased (for Old Hunstanton he recorded "20 broken shells" along the strand), *Ensis arcuatus* had disappeared from the area and *Ensis siliqua* was a rarity. Paul Dansey who worked these shores over ten years in late 1990s also recorded *E. americanus* as the predominant species but in much higher densities. Dansey also recorded *Ensis minor* (rather than *E. siliqua* recorded by Howlett) with a ratio of about 1 specimen to every 100 of *E. americanus*. Dansey also noted that *Ensis arcuatus* was still present but very rare (Dansey pers. Comm.). The latest trip verifies Dansey's observations that *E. americanus* is by far the most dominant species of *Ensis* in the area – the sheer abundance of the valves makes it difficult to spot other species. The reason *E. americanus* has become so dominant in unclear but may be related to the species being less affected than our native species by the silty conditions in the area. However, at present there is not really any evidence to support it actually out-competing our native species completely.

**Reference**

Howlett, D.J., (1990). The arrival in Britain of *Ensis americanus* (Binney). *Conchologists Newsletter* 114 (301-302)

**Photo captions**

- Fig 1: The Hunstanton shore, upper-mid shore boulder field (June Chatfield)
- Fig 2: *Crepidula fornicata* (June Chatfield)
- Fig 3: *Ensis americanus* on the strand line (June Chatfield)

The full species list is:

<i>Lepidochitona cinerea</i>	LO	<i>Modiolus modiolus</i>	SR	<i>Angulus tenuis</i>	SO
<i>Gibbula cineraria</i>	LO	<i>Crassostrea gigas</i>	LR	<i>Fabulina fabula</i>	SR
<i>Littorina littorea</i>	LF	<i>Chlamys varia</i>	SO	<i>Macoma balthica</i>	LO
<i>Littorina saxatilis</i>	LF	<i>Lucinoma borealis</i>	SO	<i>Scrobicularia plana</i>	SR
<i>Crepidula fornicata</i>	LC	<i>Mysella bidentata</i>	LR	<i>Venerupis senegalensis</i>	SF
<i>Ocenebra erinacea</i>	SR	<i>Cerastoderma edule</i>	LO	<i>Dosinia lupinus</i>	SR
<i>Nucella lapillus</i>	LF	<i>Maetra stultorum</i>	SR	<i>Petricola pholadiformis</i>	LO
<i>Buccinum undatum</i>	LR	<i>Spisula solida</i>	SO	<i>Mya truncata</i>	SO
<i>Polinices polianus</i>	SR	<i>Ensis minor</i>	SR	<i>Mya arenaria</i>	SR
<i>Mytilus edulis</i>	LA	<i>Ensis americanus</i>	LO	<i>Barnea candida</i>	LO

L = live, S = shell, R = rare, O = occasional, F = frequent, C = common, A = abundant

# A pale-bodied specimen of *Zonitoides nitidus*

Adrian Sumner

*Zonitoides nitidus* has a pale brown, glossy, translucent shell, but appears almost black in life because of the very dark colour of the animal (Kerney, M.P. & Cameron, R.A.D. 1979 *A field guide to the land snails of Britain and North-west Europe*. Collins; Cameron, R.A.D. 2003 *Land snails of the British Isles*. Field Studies Council). There is also a dull orange spot on the mantle, visible through the shell. It is a species of very moist places, and in Scotland I have found it more often in the damp west than the in the drier east, where I live.

In September 2008 I joined an outing to Mugdock Wood, near Milngavie on the north-west edge of Glasgow, organised by the Glasgow Natural History Society, with the aim of looking at the molluscs of this ancient woodland. The first specimen of *Z. nitidus* was found on the shore of Mugdock Loch, and later in the day the last one was discovered on the bank of the Allander Water, both typical very damp habitats. In between, several turned up in Mugdock Wood itself, which after the rainy summer of 2008 was no doubt more than wet enough for this species. All the individuals found were typical dark specimens with the orange spot on the mantle (Figure 1), except for one. This exceptional specimen appeared to have no body pigment, and in fact was almost transparent, although the eyes are clearly pigmented, so it was not a true albino (Figure 2). The orange spot on the mantle is clearly present, as in the typical dark specimens.

A cursory search with Google™ and Google™ Scholar didn't turn up any reports of pale or albino *Zonitoides nitidus*, nor does Ellis (Ellis, A.E. 1926 *British snails*. Oxford University Press, 1969 reprint) mention anything of the sort, although he lists a great number of varieties for some other species of snail. However, albino or pale snails are not uncommon, as a perusal of Google will confirm, so perhaps it is not surprising that a pale-bodied *Zonitoides nitidus* has turned up.



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**Figure 1.** A normal, dark-bodied *Zonitoides nitidus* from Mugdock Wood, showing the orange spot on the mantle just inside the shell. (The green colour within the shell is simply the blue background showing through.)

**Figure 2.** The pale-bodied *Zonitoides nitidus* from Mugdock Wood. Note that the orange spot on the mantle is still clearly visible, and that the eyes at the ends of the tentacles are pigmented.



# FIELD MEETING

## Fermanagh 16 & 17 August 2008

Roy Anderson

Fermanagh was first suggested as a possible venue for a field meeting by Adrian Norris in November 2007. A considerable amount of time had passed since the Conchological Society last ventured to Irish shores, and since several members are resident in Ireland or have relatives there, this was quickly organised.

What the organisers didn't bargain on was the extremes of weather which were visited upon the emerald isle in August 2008! But that part of the story can wait until later. Accommodation was booked at Arch House (named after the famous Marble Arch Caves) just outside the gates to Florencecourt Demesne in south Fermanagh. Nine members duly arrived on Friday 15 August to the accompaniment of heavy rain. However, the lodgings were comfortable, the food excellent and the 'craic' enthusiastic – old friends and allies sharing reminiscences and looking forward to outings over the following two days. Surely it couldn't rain as heavily as this through the night and into the next day?

It did! and Saturday dawned drear and water-logged with gutters overflowing and floods everywhere. The party resolutely donned protective gear and headed out to the ash woods below Hanging Rock (H109364) about five miles along the road to Belcoo. The steep slopes were daunting, with waterlogged mud and litter, but only one member actually fell (no names!) and we made it up the main slope to some scattered beech trees among the ash. What was remarkable was the scarcity of slugs in this wood. Spring 2008 had been very dry, with no rain for nearly two months in Fermanagh. A general scarcity of tree slugs *Lehmanna marginata* had been noticeable to me across the county during the summer and it came as no surprise that we found only a single adult and no juveniles, something truly unusual in western Ireland. Adrian's theory was that the rain was too heavy and the slugs would eventually come out once it stopped! However, we didn't get an opportunity to test that hypothesis! The scarcity of slugs besides, there was a reasonable selection of molluscs, totalling 29, which included *Arianta arbustorum*, *Balea heydeni*, *Cochlodina laminata*, *Leiostyla anglica*, *Limax cinereoniger* and *Zenobiella subrufescens*. *Arianta* is rare and localised as well as confined to the north in Ireland (barring a possible introduction near Cork) while *Cochlodina* has a distribution which is centred on Fermanagh with scattered localities in



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Co Sligo and along the Shannon Lakes. The missing species were interesting. No *Spermodea lamellata*, although this is a site where it has been repeatedly recorded. Was the dry spring having another unforeseen effect? During the weekend we were able to find *Spermodea* only at two sites and commonly only at one of these. No *Acicula fusca* either, although found by others at Hanging Rock as recently as 2003 (Geraldine Holyoak, pers. comm.).



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For lunch we repaired to the nearby village of Belcoo. A really heavy belt of rain came in just as we set off. Happily this abated somewhat when we later drove into the hills behind Hanging Rock to visit Crossmurrin National Nature Reserve, or Marlbank as it is sometimes called (H110348), which has the only substantial piece of limestone pavement in Fermanagh. The reality of Crossmurrin is less interesting than this suggests, as the site comprises mostly acid wet grassland with a few bits of pavement and scarcely a vestige of the remarkable flora usually associated with this habitat. The mollusc fauna wasn't to die for either. We totted up 16 species including *Pyramidula pusilla* and *Vertigo substriata*. The woodlice were arguably more interesting with a small colony of *Armadillidium pulchellum* discovered on top of an overgrown stone dyke (presumably striving to escape the flooding). On our way back to Arch House we stopped briefly at a marshy field with Iris (H108364) and collected numerous *Arianta* with a few *Vertigo antivertigo* and *V. substriata*.

The deluge eased to a drizzle on the Sunday and we headed, at the request of Barry Colville, to a known *Succinella oblonga* site. This was Gortaluchany Quarry (H169301) on the east side of Trien Mountain. A steep drive

brought us up to a small abandoned quarry on limestone – a drier habitat apparently much appreciated by *Succinella* in this wet area. Barry was in his element and eventually found 32 *Succinella* on bare, slightly mossy rock and piled up branches on the quarry floor. A total of 22 species were recorded including *Euconulus fulvus*, *Deroceras laeve* and *Pisidium personatum*. Still fairly wet therefore, despite the abundance of bare rock. At this point Barry and wife elected to make for the ferry in Belfast as word had arrived of serious flooding to roads on the way back. Happily, despite several flood diversions and five wrong turns, they made it to the docks on time. In a rain-free interlude at this point Ian Killeen and Evelyn Moorkens felt buoyed up enough to head off to Donegal and continue some *Vertigo geyeri* work interrupted by the meeting. This left myself, Adrian Norris, Eugenie Regan, Stephen McCormack and Julian Nunn to continue on what turned out to be the most prolific period of the weekend.

Our next stop was roadside scrub at Coolarkan (H118437), near the Boho Caves. This looked rather uninteresting and comprised a mixture of blackthorn, hawthorn and ash on the borders of a conifer planting. Only 11 species were recorded but included several *Spermodea* collected by Eugenie under hawthorn with a great abundance of *Arianta* on an overgrown roadside bank. From there we passed through Boho and turned west towards the famous cliffs at Knockmore. A roadside stop at a small flooded loughan called Lough Leen (H130454) was more productive than expected. I was tempted to try for freshwater molluscs in a flooded field next to the lake and came up with 15 species including *Euconulus fulvus*, *Deroceras laeve* and several *Succinella oblonga* by using a water net, but no freshwater species whatsoever! Meanwhile Adrian had pulled several *Balea heydeni* from moss on a roadside fence post. *Balea heydeni* is abundant in Fermanagh but, despite several searches in suitable places, there was no sign of its close relative *Balea perversa* on limestone dykes and walls. *Balea heydeni* lives mainly on lichenous trees and I can





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woodland fauna, this time on the sides of Carrickbeg Cliffs (H117467). Unfortunately the rain found us again and increased steadily in intensity. Before the trip was finally washed off, a small area of hazel and holly scrub below the cliffs paid dividends. The wood appeared unremarkable but so dense as to be almost impenetrable, even to sheep. This may have been its secret as the fauna was rich and diverse. Samples of leaf litter were taken for later analysis and together with the in-field catch came to the following totals for an area no greater than two square metres: *Acanthinula aculeata* (3); *Acicula fusca* (18); *Arianta arbustorum* (3); *Carychium minimum* (2); *Carychium tridentatum* (259); *Cochlodina laminata* (1); *Columella aspera* (15); *Columella edentula* (3); *Euconulus fulvus* (11); *Lauria cylindracea* (15); *Leiostryla anglica* (8); *Punctum pygmaeum* (16); *Spermodea lamellata* (207); *Vitrea crystallina* (7). All told, 30 species were recorded both in the wood and on rocks and grass nearby, despite the rain. One feature of the wood worth remarking was the high incidence of holly. Adrian had earlier confided a tip for finding *Spermodea* in difficult areas – look for the nearest holly and search underneath. As so it turned out. I had spotted some holly in the scrub and struggled through a dense hedgebank to reach it, only to find my way blocked by more dense undergrowth. Only two of us were able to get into what was a tiny open area within the scrub but, pulling litter from under holly produced large numbers of *Spermodea* on blackened holly leaves.

In summary, the trip was something of a marathon water-fest but with a happy sting (or holly prickle) in the tail towards the end. Fermanagh has numerous lakes, indeed in some areas there is more water than land surface, but we were unable to sample any of this because of flooding. The total for the trip of 59 species was therefore fairly respectable.

**Photo captions:**

- Figure 1: Adrian and Julia, Hanging Rock (Roy Anderson)
- Figure 2: Eugenie and Barry, Hanging Rock (Roy Anderson)
- Figure 3: Searching for *Succinella* at Gortaluchany Quarry (Evelyn Moorkens)
- Figure 4: The group at Gortaluchany Quarry (Ann Colville)
- Figure 5: A rare sight – Julia does non-marine! (Evelyn Moorkens)
- Figure 6: *Limax cinereoniger* (Roy Anderson)
- Figure 7: *Spermodea lamellata* (Roy Anderson)
- Figure 8: *Succinella oblonga* (Roy Anderson)
- Figure 9: A handful of *Succinella oblonga* (Evelyn Moorkens)

remember collecting hundreds from lichenous Sitka spruce on a hillside at Lough Navar just to the north of our current location.

We spent a short time on the flooded shores of Ross Lough (H144467) further up the Sillees River from Lough Leen. Seventeen species were recorded on the lakeshore including *Cochlina laminata* and *Zenobiella subrufescens* in mixed woods and *Aplexa hypnorum*, *Anisus leucostoma*, *Succinea putris*, *Vertigo antvertigo* and *Vertigo pygmaea* on the flooded margins of the lake. As the afternoon was drawing on, Julia decided to leave for Belfast which left four of us to soldier on.

A last gallant attempt was made to find a diverse

# Fle LD Me eTING

## The Forest of Dean 11-12 October 2008

David Long

This meeting aimed at examining Forestry Commission sites in the middle and towards the east side of the Forest of Dean for the presence of the old woodland fungus eater, the Slender Slug, *Malacolimax tenellus* [Figures 2 slug and Fig 7 attendees]. This species was recorded from near Symonds Yat in 1920 by Charles Oldham, but was not refound in the Forest and Wye Valley until 1989. Since then there have been scattered records spread over the area from the north end of the Forest to near Blakeney.

Three of the 8 sites were selected as having pre 2007 records; the others were chosen as appearing to be potential sites for the slug. Each site was searched for 30 to 60 minutes.

Sites were all on generally acid Carboniferous rocks and were in mixed deciduous woodland, or wood pasture, managed to be dominated by Oak or Beech, with varying amounts of fallen timber.

Comments on assemblages, a listing of species found and of acknowledgements, including the names of attendees is below.

Sites in order of visit were:

Foxes Bridge (SO630124) on 11 October [Fig 4] Oak dominated wood pasture. Previously unexamined for this species; one *M. tenellus* found by Keith Alexander under a log. Foxes Bridge Bog was not examined; there is a past record for *Vertigo substriata* from the Bog.

Cannop Ponds (SO 610105) on 11 October. Slightly damp mixed deciduous woodland with a glade. *M. tenellus* not found; but site looks likely.

Sallowvallets (SO611134), on 11 October. Slightly damp area of Oak etc bordering conifers. Previous records for this area 1989, 1990 1994, and on a pre-meeting site check on 24 September 2008. One *M. tenellus* found by Keith Alexander under a willow log.

Sallowvallets, Middle Ridge area (SO610135) on 11 October. Open Oak wood with cycle tracks. *M. tenellus* not found. Site selected as final visit before attending the excellent Ostrich Inn at Newland.

Wench Ford (SO654077) on 12 October. Mixed deciduous woodland, with a stream (the Blackpool Brook) and parking cum picnic area. Previous record 1989. One *M. tenellus* found by John Fleming in leaf litter by a dead Beech log.

Bullocks Beech (SO658098) on 12 October [Fig 6]. Beech



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wood with rides and little understorey. One *M. tenellus* found by John Fleming under a log, and one in similar habitat found by Rosemary Hill, another found in leaf litter by John Fleming and Peter Long

Soudley Ponds (SO662116) on 12 October. Oak and Beech wood with *Luzula*. *M. tenellus* not found.

Near "The Rookery" (SO663166) on 12 October. 1990 record for Rookery Plantations, Plump Hill. Area of Beech with nearby trackside hedge and diggings. *M. tenellus* not refound in fading light.

Although 37 species were found during the two days, mollusc assemblages were not highly diverse, with slugs and "Glass snails," Zonitidae, conspicuous in leaf litter and under logs. The Zonitidae included the calcifuge *Zonitoides excavatus*, at 5 sites. The finds are listed by site below. Along with *M. tenellus* at its 4 sites the fauna included *Limax cinereoniger* another old woodland species (4 sites). *Arion flagellus* was found at 6 sites. The commonest helicid was the "Brown snail", *Zenobiella subrufescens* which is associated with old woods but can live in adjoining low green herbage and small trees, including on this trip, Holly, Clematis, Bracken, and grasses. *Trochulus striolatus* was found at 3 sites which was unexpected, in one case associated with trackside vegetation.

It was noticeable that damper sites, such as near the Blackpool Bridge at Wench Ford, the stream in Sallowvallets and *Deschampsia* grass tussocks at Bullocks Beech appeared richer in species than the drier bare areas of leaf litter and fallen wood.

**Acknowledgements:** With many thanks to Denise Baker for arranging Forestry Commission permission for this event, to Rosemary Hill, Ron Boyce, David Haigh, Keith Alexander, John Fleming, and Peter Long for attending and providing most of the finds on the day, and to David Haigh for accompanying me on most of the preliminary site checks. Ron Boyce and Rosemary Hill provided photographs



Figure 1: Pale form of *Arion flagellus* found at Foxes Bridge (Ron Boyce)  
 Figure 2: *Malacolimax tenellus* with a nematode at Foxes Bridge (Ron Boyce)  
 Figure 3: *Limax cinereoniger*, "juvenile" at Cannop Ponds (Ron Boyce)  
 Figure 4: Woodland scene at Foxes Bridge (Rosemary Hill)  
 Figure 5: Ron Boyce, and Peter and David Long at Foxes Bridge (Rosemary Hill)  
 Figure 6: The site at Bullocks Beech (David Long)  
 Figure 7: Attendees on 12 October, Ron Boyce, Rosemary Hill, Peter Long, David Haigh, John Fleming (David Long)

**Lists of species found.**

**11 October 2008**

Blank cells mean that a species was not found at the locality in question.

Species	Comments	Foxes Bridge SO630124	Cannop Ponds SO610105	Sallowvallets SO611134	Middle Ridge SO610135
<i>Potamopyrgus antipodarum</i>	Freshwater				
<i>Pisidium personatum</i>	Bivalve .Water and soaked vegetation				
<i>Carychium minimum</i>	Damp ground				
<i>Carychium tridentatum</i>	Litter layer			Litter	
<i>Cochlicopa</i> sp	Litter layer			Juvenile in litter	
<i>Columella aspera</i>	Grass/litter/low vegetation	in tussock			
<i>Acanthinula aculeata</i>	Litter layer			Litter	
<i>Discus rotundatus</i>	Litter layer	Litter & logs	Litter layer	In log	Under conifer log
<i>Arion flagellus</i>	Litter layer	Litter & logs		Crevice of fallen branch	
<i>Arion ater</i> aggregate	Litter layer				
<i>Arion subfuscus</i>	Litter layer	Under a log		In log	
<i>Arion silvaticus</i>	Litter layer				
<i>Arion hortensis</i>	Litter layer				
<i>Arion intermedius</i>	Litter layer	Under fallen branch			
<i>Vitrina pellucida</i>	Litter layer				
<i>Vitrea crystallina</i>	Litter layer		Litter layer	Litter	
<i>Vitrea contracta</i>	Litter layer			Litter	
<i>Nesovitrea hammonis</i>	Litter, grass roots etc		Litter	Litter (brown morph of shell)	
<i>Aegopinella pura</i>	Litter layer			Shell	
<i>Aegopinella nitidula</i>	Litter layer				
<i>Oxychilus cellarius</i>	Litter layer				
<i>Oxychilus alliarius</i>	Litter layer	Under logs & bark	Litter layer	Habitat not given, & under Larch bark	
<i>Oxychilus helveticus</i>	Litter layer			Litter layer	
<i>Zonitoides excavatus</i>	Litter layer	Litter & logs	Litter layer		Under ?Elder log
<i>Milax sowerbyi</i>	Litter layer and soil				
<i>Boetgerilla pallens</i>	Litter layer				
<i>Limax maximus</i>	Litter /logs				
<i>Limax cinereoniger</i>	Litter; hides under logs/bark		Under logs	2, habitat not given	
<i>Malacolimax tenellus</i>	Hides under or near logs, eats fungi	1 under a log		1 under willow log	
<i>Lehmannia marginata</i>	Litter, and climbs tree trunks	1 under a log		Habitat not given	
<i>Deroceras laeve</i>	Wet litter				
<i>Deroceras reticulatum</i>	Litter/soil/under logs				
<i>Euconulus fulvus</i>	Logs and litter	Under a log		Litter	
<i>Zenobiella subrufescens</i>	Climbs green vegetation		Swept off low vegetation	In marshy site	Swept off track side grass & bracken
<i>Trochulus striolatus</i>	Litter and herbage			Shell	Swept off track side grass
<i>Trochulus hispidus</i>	Litter and herbage				
<i>Arianta arbustorum</i>	Herbage and under logs		Swept off vegetation		
<i>Cepaea nemoralis</i>	Herbage and under logs	Under a log	Shell		
<i>Cepaea</i> sp juvenile	Herbage and under logs				Juveniles off grass by ride



12 October 2008 Blank cells mean that a species was not found at the locality in question.					
Species	Comments	Wench Ford SO 654077	Bullocks Beech SO 658098	Soudley Ponds SO 662116	The Rookery SO 663166
<i>Potamopyrgus antipodarum</i>	Freshwater			In ponded stream	
<i>Pisidium personatum</i>	Bivalve. Water and soaked vegetation	Very wet leaves by stream			
<i>Carychium minimum</i>	Damp ground	Litter near stream			
<i>Carychium tridentatum</i>	Litter layer	Litter near stream	Shell in tussock		In litter
<i>Cochlicopa</i> sp	Litter layer		Shell in tussock		Old shell in Ivy
<i>Columella aspera</i>	Grass/litter/low vegetation				
<i>Acanthinula aculeata</i>	Litter layer				Shell in Beech litter
<i>Discus rotundatus</i>	Litter layer	Litter by stream	Under log, in tussock	In litter	In litter
<i>Arion flagellus</i>	Litter layer		Under log	In litter and on wood	Under small log
<i>Arion ater</i> aggregate	Litter layer		Under log/ litter		cf <i>rufus</i>
<i>Arion subfuscus</i>	Litter layer	Litter by stream	In litter		In litter
<i>Arion silvaticus</i>	Litter layer			In ground layer	
<i>Arion hortensis</i>	Litter layer	In litter			
<i>Arion intermedius</i>	Litter layer		In litter	In ground layer	
<i>Vitrina pellucida</i>	Litter layer				In grass at path edge
<i>Vitrea crystallina</i>	Litter layer	In litter	In litter		In Beech litter
<i>Vitrea contracta</i>	Litter layer		cf this shell in tussock		
<i>Nesovitrea hammonis</i>	Litter, grass roots etc		Shell in tussock		
<i>Aegopinella pura</i>	Litter layer	Under stick			
<i>Aegopinella nitidula</i>	Litter layer	Litter by stream			In litter
<i>Oxychilus cellarius</i>	Litter layer	In litter			In litter
<i>Oxychilus alliarius</i>	Litter layer		Under logs and in tussock & litter	In litter	In litter
<i>Oxychilus helveticus</i>	Litter layer	In litter			
<i>Zonitoides excavatus</i>	Litter layer	Soil near stream	Litter		
<i>Milax sowerbyi</i>	Litter layer and soil	Litter near stream			
<i>Boetgerilla pallens</i>	Litter layer	Soil near stream			
<i>Limax maximus</i>	Litter /logs		In litter		
<i>Limax cinereoniger</i>	Litter; hides under logs/bark		In litter & under Oak log		Juvenile and full grown under logs
<i>Malacolimax tenellus</i>	Hides under or near logs, eats fungi	1 in litter by dead beech log	3 under logs and in litter		
<i>Lehmannia marginata</i>	Litter, and climbs tree trunks	10 under a log	2 under bark	In litter	In a rock crevice
<i>Deroceras laeve</i>	Wet litter	Wet leaves by damp area			
<i>Deroceras reticulatum</i>	Litter/soil/under logs				In litter
<i>Euconulus fulvus</i>	Logs and litter		In tussock		
<i>Zenobiella subrufescens</i>	Climbs green vegetation	<i>Deschampsia</i> tussock by stream		Swept off Holly and herbage	Swept off <i>Clematis</i> in a hedge side
<i>Trochulus striolatus</i>	Litter and herbage		Juvenile under log		
<i>Trochulus hispidus</i>	Litter and herbage	Litter by stream			
<i>Arianta arbustorum</i>	Herbage and under logs		<i>Deschampsia</i> tussock		In litter
<i>Cepaea nemoralis</i>	Herbage and under logs				
<i>Cepaea</i> sp juvenile	Herbage and under logs	swept		On fallen tree	Swept off <i>Clematis</i> in a hedge side

# MARINE FIELD MEETING

## North Wales September 2008

Jan Light

The autumn field meeting to North Wales was an excellent one. We experienced much of what our climate can throw at us at this time of year; our first shore was worked on an overcast drizzly day, the final shore marked the beginning of an Indian summer!

As in 2006 Tom Clifton had prepared a varied marine programme with a range of shore types: an exposed north-facing narrow rocky shore and platform; a small complex of islets, gullies and narrows in the Menai Straits; a sheltered south-facing lagoon west of Pwllheli and a small west-facing bay, Porth Towyn with a reputation for species-rich shellsand. We worked one shore a day, the remainder of our time was spent working on our samples at Tom's house. Having some sort of base that can improvise as a laboratory has become increasingly popular in recent years: the facilities to sort, clean and label material in addition to the opportunity to confer on identifications streamlines the time-consuming business of working through material and getting specimens correctly named. There are many steps from collection to curation and the more that can be done during the meeting the better and it ensures that species lists can be drawn up promptly and efficiently. A juvenile *Trivia* was found on the first day. The immature shells are translucent and glossy, lacking sculpture and not recognisable as *Trivia* when first encountered. We also found *Hermaea bifida* on red weeds in the Menai Strait, a tiny red nudibranch whose presence on a site can be



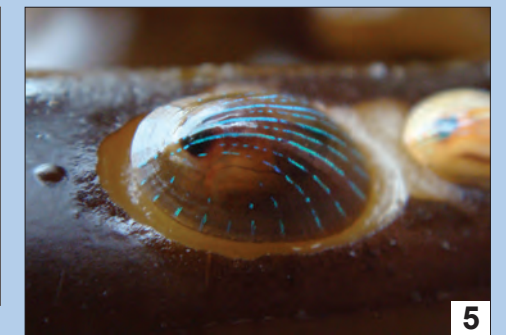
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smelt before it is found! We also saw *Chlamys varia* in a habitat in which it can often be found; under a boulder in the kelp zone/rapids between two islets. *Odostomia* and *Brachystomia* species turned up in weed samples and these will be useful material for the forthcoming Pyramidellid Workshop at Cardiff. We had good lists from all our sites but the lagoon at Traeth Crugan yielded some superb finds. The sandy bay is wide and backed by dunes. The lagoon sits within a string of banks and reefs which form an arc offshore with an outlet where there is a deep channel. On an extremely low spring tide the banks can be accessed from the shore at their western end by crossing over a stable shell/gravel pavement. On this occasion one of the party managed it in chest waders. Such weeds as are present are mixed algal species, including various reds,

and are attached to pebbles and small cobbles. There were many dead bivalve shells and occasional living individuals on the seabed and the calm day afforded good visibility in the shallows. It is evident that the lagoon has a very diverse bivalve fauna. All the party were able to find *Tapes aureus* which was abundant, *Gastrana fragilis* which was common, and sieving in the sands yielded juveniles of several of the resident bivalves. *Parvicardium exiguum* was found living amongst the gravels. Samples of the weeds were taken for washing, sieving and sorting. They were astonishing in yielding *Rissoa lilacina* in abundance with considerably fewer *Rissoa parva*, *R. interrupta* and *R. sarsi* var. *albella* and, apart from a juvenile *Raphitoma purpurea*, not a lot else. Many of the microspecies normally associated with weeds were





absent (at least in my samples). We had an exciting moment when I thought we had found *Circulus striatus* alive but it turned out to be a juvenile *Gibbula*. I have lost count of the number of times I have been sent, for confirmation, juvenile shells of *Gibbula umbilicalis* which have been mistaken for *Circulus*. Interesting sites and exciting finds are the hallmarks of a good field meeting, and another important component was the planning that Tom had carried out to ensure that participants would have plenty to be excited about! (The montage of images which

accompanies this article has been compiled using photos contributed by Ron Boyce and Peter Topley; thanks to both.)

**Figure 1:** *Gibbula magus*: living individuals were seen relatively frequently at LWM, Traeth Crugan. (Peter Topley)

**Figure 2:** *Rissoa violacea* was abundant in the weeds from the lagoon at Traeth Crugan. (Peter Topley)

**Figure 3:** *Chlamys varia*, with a thin coating of sponge surrounded by bryozoan-encrusted saddle oysters and other colonial organisms. (Peter Topley)

**Figure 4:** *Hermaea bifida*: a sacoglossan opisthobranch which is usually found on red

algae, notably *Griffithsia* spp. and owing to its strong 'catty' smell is often smelt before it is found. (Topley)

**Figure 5:** *Helcion pellucidum*: the animals colonise kelp stipes and eat out a shallow 'crater' in which they nestle. (Peter Topley)

**Figure 6:** Working the lagoon shallows at Traeth Crugan. Note the abundance of bivalve shells (Ron Boyce)

**Figure 7:** Collecting samples from pockets of shellsand at Porth Towyn (Ron Boyce)

**Figure 8:** Working the kelp zone and trowelling in the gravels for bivalves at LWM in the Menai Straits. (Peter Topley)

**Figure 9:** Searching for *Tapes aureus* and *Gastrana fragilis* in the lagoon shallows at Traeth Crugan (Ron Boyce)



## Malacolimax tenellus (O. F. Müller) in Nidderdale

David Lindley

*Malacolimax tenellus* is a scarce species in Yorkshire with a few scattered sites in VC 65 north of Ripon and a similarly small number of sites from the North York Moors area of VC 62. There is however a single known site in VC 64 that being at Strikes Wood to the south of Pateley Bridge in upper Nidderdale. The site is often referred to as Ravens Ghyll and is situated at the bottom of a short steep sided valley on the millstone grit at about 175 metres above sea level. It is currently managed as a private nature reserve and has a public footpath running through it which is part of the Nidderdale Way.

John Armitage of Leeds first discovered the site on 2nd October 1971 and as a boy I can recall him bringing specimens to a meeting of the Leeds Naturalists and Scientific Society as an exhibit.

The site has been visited on several occasions since this date and records are held by the Yorkshire Conchological Society for visits in 1986 and 2002. On both those occasions the species was found.

On 20th October this year Adrian Norris and myself decided to make a short visit to look at the site and see if there were any noticeable problems. We parked the car just off the road at the top of the hill and were glad that thick coats had been worn as the day was extremely windy and cold. We entered the upper part of the wood, which at this point is dominated by silver birch with a scattering of sycamore. *M.tenellus* has never been found in this area and we noted that there was a distinct lack of fungi around. Towards the bottom section of the wood the tree cover changes to dominance by beech with a scattering of sycamore and silver birch and it is in this area where the species is to be found. We noted that in this area there was an increased fungi presence mainly of *Russula* sp., but none were identified to specific status. Many had

evidence of slug predation, which in some cases was very heavy.

It was only a couple of minutes after commencing a search in this area that a specimen was found crawling on leaf litter. Following this we searched leaf litter around the area of predated fungi and easily found the species in numbers all were 3 to 5cm in length and appeared healthy. I feel it is interesting to note that although we turned over a large number of logs and stones in the area no specimens were found under them, a trend I have noted on previous visits. Some of the specimens were extremely obliging even for my poor photographic abilities and figures 1 and 2 show an example. Figure 3 shows a general view of the site. As can be seen the ground cover is virtually non-existent with just a small amount of bracken.

Due to the steep sided aspect this area is extremely sheltered and seemed much warmer than the upper reaches.

On this occasion we concentrated on looking for *M.tenellus* but it is worthwhile pointing out that Sykes wood itself is extremely rich with 39 species being recorded from the 1km square. These include *Zenobiella subrufescens*, *Leiostyla*

*anglica*, *Limax cinereoniger*, *Spermodea lamellata* and *Vertigo substriata*. One of the reasons for this profusion of species at this site is a fairly large tufaceous spring near the stream banking.

As stated previously we were concentrating on *M. tenellus* but we were rewarded with a very fine specimen of the brown form of *L.cinereoniger*. Unfortunately it was a rather shy specimen so fig 4 only shows its body and shoulders.

The consensus of opinion is that the site is in a very healthy state with no conservation issues at present.

### Photo captions

Fig 1: *Malacolimax tenellus* (David Lindley)

Fig 2: *Malacolimax tenellus* (David Lindley)

Fig 3: Strikes Wood (David Lindley)

Fig 4: *Limax cinereoniger* juvenile (David Lindley)



# Geological excursion to the Isle of Wight, 20 April 2008

Ron Boyce



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As the Isle of Wight meeting was taking place on a Sunday, we thought it might be a good idea to save ourselves from too early a start from home and have a leisurely field trip in the New Forest on the Saturday. The weather, however, had other ideas, so instead we settled for seriously under-cover activities in deepest Dorset and booked into a B&B in Lymington in the early evening.

In the morning the heavy rain had stopped and we joined the group tour minibus at the ferry terminal. This was very useful as we then counted as minibus passengers and could travel at very advantageous rates. The places in the minibus were organised for us by Mike Weideli, to whom we are very grateful. The trip did not prove very easy for Mike, who had his leg in plaster after having sustained very serious damage to his ankle while doing the preliminary survey for this trip on 20 February. The injury resulted in an operation and a week's stay in Newport hospital.

The minibus group met up in the car park at Yarmouth with the other participants in the excursion, 22 of us all told.

The meeting itself consisted of a geological tour of the southwest coast of the Isle of Wight organised by the Newbury Geology Society and ably led by Dr Leslie James of the University of Reading. The excursion was designed to give an introduction as to how basic geological stratigraphy relates to what can be seen on the ground. This particular region of the Isle of Wight is arguably one of the best places on earth to learn how to recognise geological strata visually, as a very wide selection of layers are visible simultaneously. There has been very



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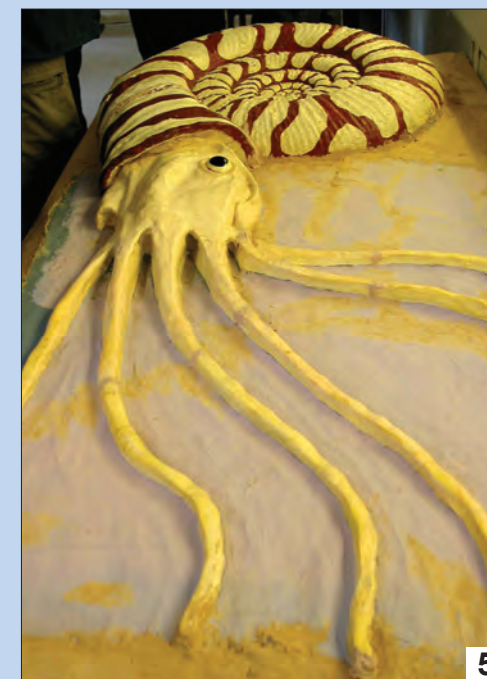
pronounced tilting of the earth's crust in this area and many of the strata are exposed almost vertically so that it is possible to walk along the beach and view the layers end-on, travelling backwards in time through a million or so years in the space of a few footsteps. By viewing the various layers in this way you can easily learn what they look like, and this can be very helpful when exploring the remainder of the island. The range of strata here stretches from the Wealden Beds of the Lower Cretaceous 130 million years ago at Brighstone Bay all the way up to the Headon Beds at Colwell Bay and Totland Bay about 35 million years ago.

We began our journey back in time with the Headon Beds in Colwell Bay. There are good exposures here and we collected quite a range of fossil shells including *Ostrea velata*, *Potamides vagans*, *Globularia grossa*, *Pitar* sp, *Corbicula obovata*, *Theodoxus concavus*, *Discus rotundatus* [surprising what can creep into a fossil deposit when nobody is looking!], *Euthriofusus* sp, *Batillaria* sp and another species I had not seen before, so far provisionally identified as *Bonnellitia* sp (Cancellariidae), with spiral ridges on the columella [pictured]. A considerable length of the bay here has been reinforced using a metal barrier and huge blocks of imported rock to guard against wave erosion.

We then visited Alum Bay with its spectacularly coloured sand and clay strata. As an area for collecting fossil Mollusca this proved a great disappointment because the entire base of the cliff had been cordoned off using conventional road works barriers festooned with tape



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jet propulsion could not have worked. It has been suggested that none of the ammonites used this technique and

that they all operated by crawling along the sea bed with their shells supported by an air bubble. The exhibit in the museum postulating what a live one looked like would then presumably refer to a newly dead specimen.

We then went back along the military road to Hanover Point. We did not manage to see the Wealden Beds here as these are below the chalk and are exposed only at low tide. Near the top of the cliff, however, were exposures of subfossil timber in an old river bed laid down when the Isle of Wight was still part of the mainland. Further east, at Freshwater Bay, we saw signs of another river bed, and were shown where the military road had run in the early nineteenth century. A large section of the original road around Freshwater Bay has been lost to the sea. A further section of the road in the direction of Ventnor has recently been rendered unusable through coastal erosion and a debate is still going on as to where the replacement section should be sited.

Our thanks are due to Newbury Geology Society for arranging this very interesting trip.

### Photo captions (all photos Ron Boyce)

**Figure 1:** Newbury Geology Society at Colwell Bay  
**Figure 2:** *Bonnellitia* sp (Cancellariidae), length 9 mm, from the Headon Beds at Colwell Bay

**Figure 3:** Upended Eocene strata in Colwell Bay with level ones above them

**Figure 4:** Vertical strata in Alum Bay

**Figure 5:** Model ammonite in the Dinosaur Farm Museum showing what the living animal may have looked like

**Figure 6:** Molluscan fossil deposit in the Dinosaur Farm Museum

**Figure 7:** Conventional ammonites in the Dinosaur Farm Museum

**Figure 8:** Uncoiled ammonite *Deshayesites* in the Dinosaur Farm Museum



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inscribed with messages forbidding us to cross. This, however, did not interfere significantly with taking photographs of these beautiful cliff faces provided we were careful.

Our next port of call was the Dinosaur Farm museum [SU441810] at Brighstone about ten miles eastwards along the coast (marked as Sutton Farm on the map).

The museum contained a good example of shell-bearing strata and a range of ammonites showing various degrees of uncoiling including the improbably-shaped *Deshayesites*, in which the usual cephalopod system of

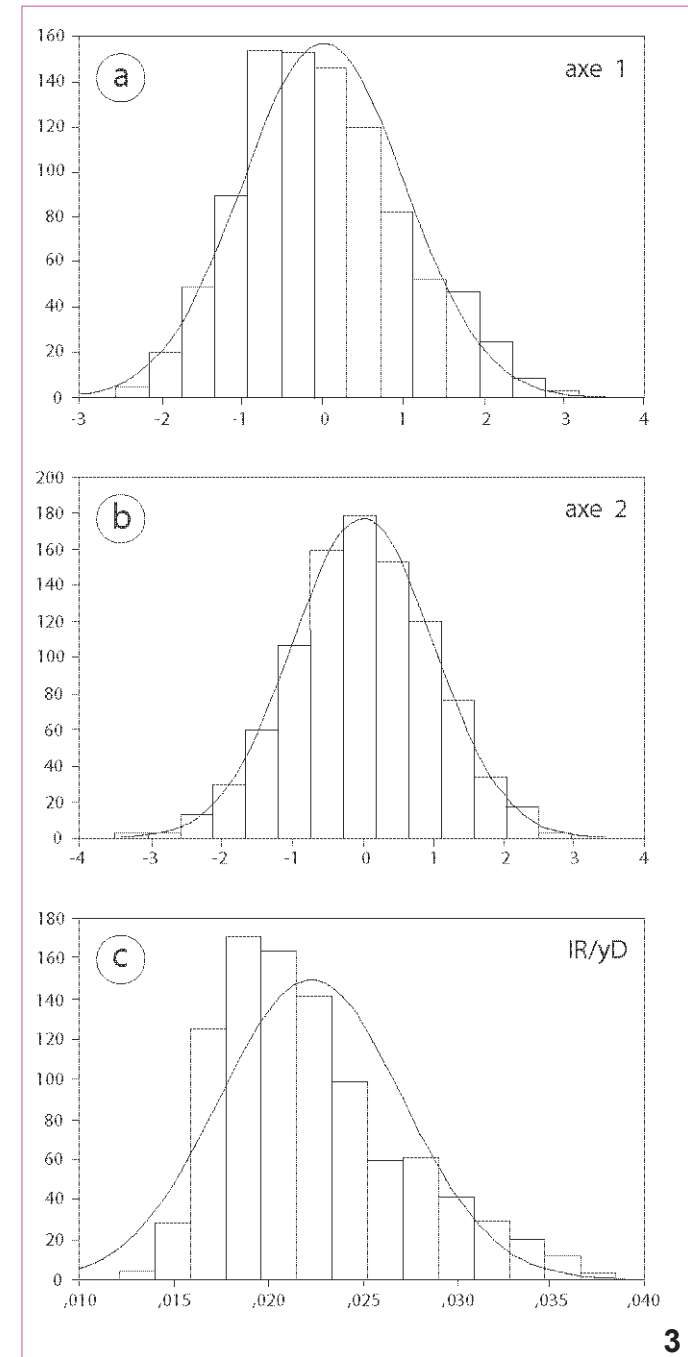


# Colourblind taxonomy

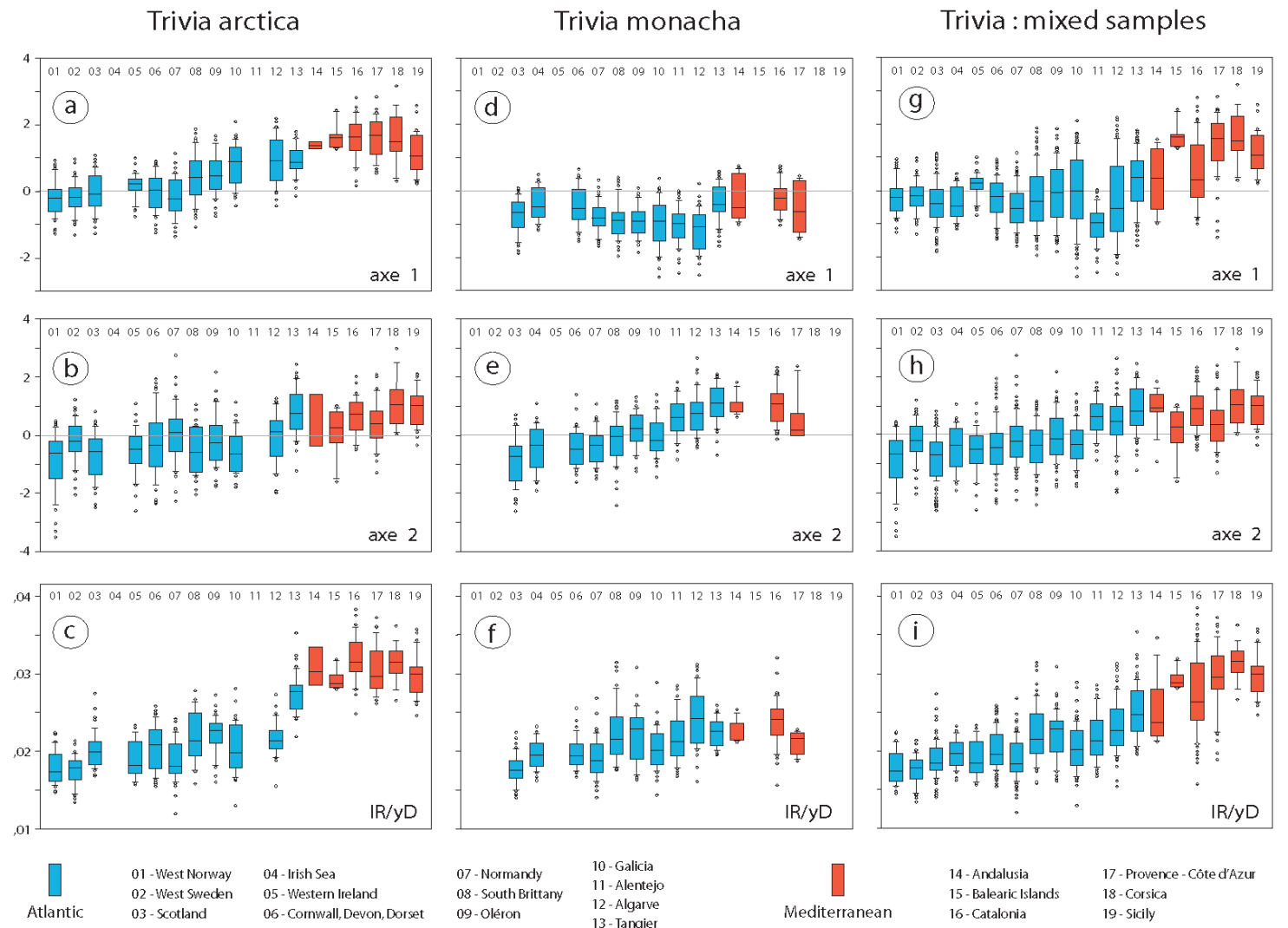
Elisabeth Dommergues, Jean-Louis Dommergues, Cyril Hugues Dommergues and Sebastian Payne



When identifying shells, conchologists often rely, perhaps to an even greater extent than they consciously realise, on colour and colour patterning. But colour and colour pattern are often lost in fossil shells and shells from archaeological sites. In a recent paper (Dommergues E., Dommergues J.-L. and Dommergues C.H. 2006), three of the authors of this note report on the results of a study in which they asked what result the loss of colour information might have on the study of fossil assemblages by applying palaeontological approaches to samples of modern shells without using colour information.



They chose two species of cowry which will be well-known to most readers of Mollusc World: *Trivia arctica* (Pulteney, 1799) and *Trivia monacha* (da Costa, 1778). These are clearly distinct species. Fresh shells are clearly and easily separated using colour: *T. monacha* has three brown dorsal spots; *T. arctica* has no spots (Fig.1). They also show clear differences in characteristics of the radula and mantle colouration, and *T. monacha* breeds during late spring and summer and *T. arctica* in the autumn, winter and early spring (Lebour 1933). Their distributions overlap broadly; populations of *T. arctica* considered in the study ranged



from western Norway to Sicily, and populations of *T. monacha* from Scotland to Mediterranean France (Fig. 2). Where they are sympatric, they live in similar environments, and individuals of the two species have been found within centimetres of each other in the Atlantic.

The first question addressed by the authors of the study was whether they would have realised that two species were present if they studied mixed samples without using the identifications provided by the spots. To do this, they took samples from localities across the range of the two species, some of both species mixed, some of one species only, and looked at three characteristics:

- \* two measures of shape derived from a principal components analysis of the dorsal, lateral and apical outlines of the shells using Fourier analysis (details of this method and its value in studying shell shape are given in Dommergues et al. 2003, and Dommergues E., Dommergues J.-L. and Dommergues C.H. 2006):
  - axis 1, which was essentially a measure of shell height relative to length;
  - axis 2, which was essentially a measure of shell height relative to width;
- both giving higher values in shells that are more globose; and

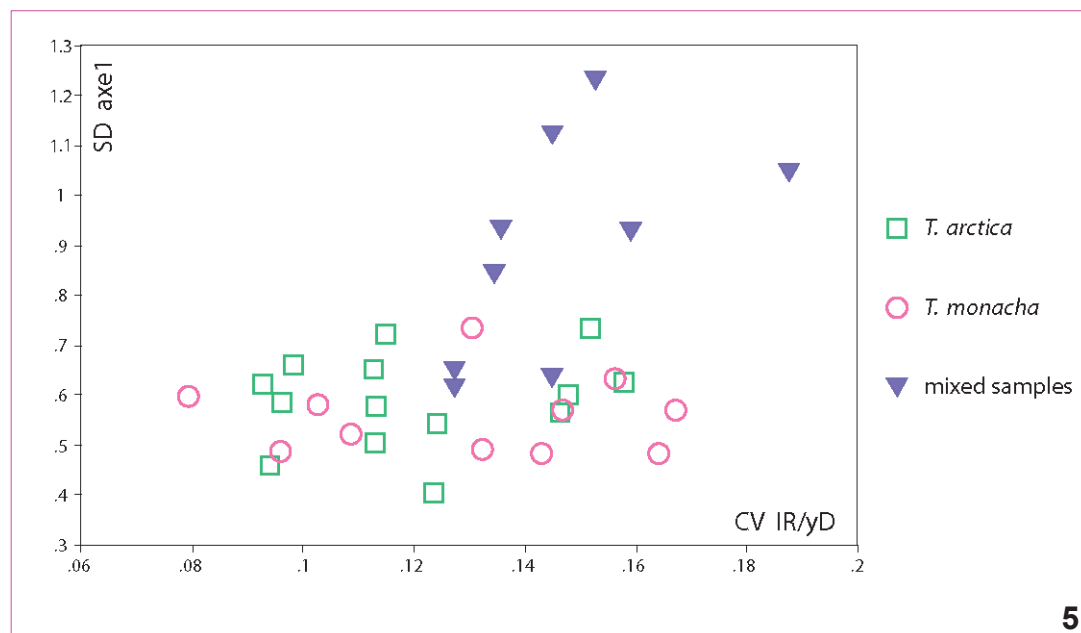
\* rib density, measured by dividing the number of ribs inside the aperture (IR) by the length of the shell (yD).

These are basically standard palaeontological methods, though the shape analysis uses a novel approach. The results (Fig. 3) give little indication that two species are present: taking all the shells of both species (almost 1000), the distributions of the values of axis 1 and axis 2 are essentially statistically normal, with no sign of any separation or even of significant bimodality; and the distribution of rib density values is skewed, but there is no indication of significant bimodality.

A second part of the study (Fig. 4) looked at variation in different parts of the geographical distribution. When the two species are considered separately (Fig. 4 a-f), both show broadly similar trends,

- \* in *T. arctica* (Fig. 4 a-c) values of axes 1 and 2 increase southward, and rib density shows a fairly sharp increase between the Atlantic and the Mediterranean populations (a sample from Tangiers is intermediate);
- \* in *T. monacha* (Fig. 4 d-f) values of axis 1 show no very clear trend, values of axis 2 increase southward, and rib density shows a slight increase southward but with no suggestion of a break between Atlantic and





Mediterranean populations.

If the species cannot be separated, and so have to be combined for each locality, the results show similar trends but with greater irregularity, and, as Fig. 4 g-i shows, the step in rib density shown by *T. arctica* between the Atlantic and the Mediterranean is not evident from the combined dataset.

Mixed samples can sometimes be detected because they have greater variability than single-species samples. As Fig. 5 shows, some of the mixed samples show substantially greater variability in the standard deviation of axis 1 values and in the coefficient of variation of rib density, because mean values for the two species are different (though not sufficiently to produce any bimodality). However, in other mixed samples variability is not increased because mean values for the two species are more similar.

This work shows that working without colour information increases the risk of failing to recognise and separate different species, and can create a misleading picture of geographical variation, caused in this case partly by the effects of averaging in mixed samples, and partly by the relative scarcity of *T. monacha* in the Mediterranean samples. Increased variability can sometimes be used as evidence that a sample contains more than one species; however this requires detailed and sometimes complicated measurements, and does not always detect that a sample includes more than one species.

#### Acknowledgements:

Many thanks to Christine Street for constructive comment; and to Tim Brooks for help with Fig. 1.

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Lebour, M.V. (1933) The British species of *Trivia*: *T. arctica* and *T. monacha*. *Journal of the Marine Biological Association of the United Kingdom, 18* (2): 477-484. available also at: [http://sabella.mba.ac.uk/782/01/The\\_British\\_species\\_of\\_trivia\\_T\\_arctica\\_and\\_T\\_monacha.pdf](http://sabella.mba.ac.uk/782/01/The_British_species_of_trivia_T_arctica_and_T_monacha.pdf)

#### Figure captions:

**Figure 1:** *Trivia arctica* and *Trivia monacha*. Their shells are very similar apart from the dorsal spots in *T. monacha*.

**Figure 2:** Localities for shells used in the study.

**Figure 3:** Combined data for both species from all localities show no indication of significant bimodality in two shape indices (a and b); the distribution for rib density ((c): IR/yD) is again not bimodal, but is clearly skewed.

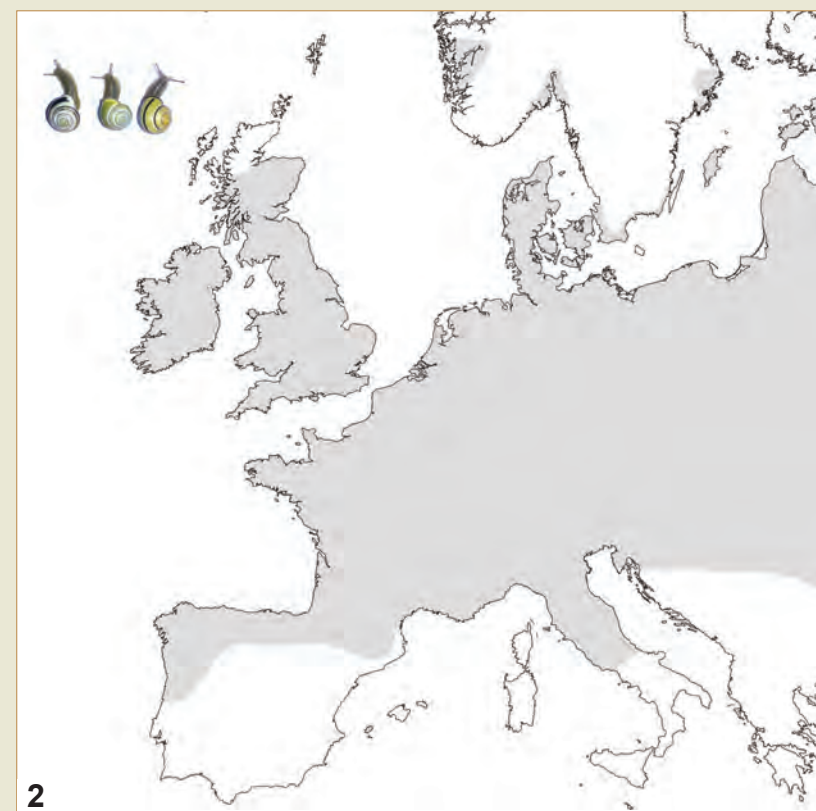
**Figure 4:** There are gradual (clinal) changes from the N. Atlantic (localities 01-02) to the Mediterranean (localities 14-19) in *T. arctica* and *T. monacha*, and in combined samples. The fairly clear step increase in rib density in *T. arctica* from the Atlantic to the Mediterranean is less clear in the combined samples.

**Figure 5:** Mixed samples can sometimes be detected by increased variability, especially in SD axe 1.

## Lip colour polymorphism in *Cepaea nemoralis* Adele Grindon



**Figure 1.** Diagram to show a selection of the shell pattern polymorphisms of *Cepaea nemoralis*. **A.** Dark pink, unbanded. **B.** Bright pink, unbanded. **C.** Pale pink, unbanded. **D.** Dark yellow, unbanded. **e.** Dark yellow, 5-banded (12345). **F.** Dark yellow, 5-banded (spread bands). **G.** Faint pink, with fused bands. **H.** Dark Yellow, with fused bands. **I.** Dark yellow, 3-banded (00345). **J.** Yellow-white, 5-banded (12345). **K.** Pale yellow, 5-banded (12345). **L.** Pale yellow, punctate bands. **M.** Pale yellow, faint bands. **N.** Dark yellow, mid-banded (00300). **o.** Pink, mid-banded (00300).



**Figure 2.** Map to show areas in which populations containing white-lipped individuals are found (circled). The approximate distribution of *Cepaea nemoralis* is indicated by shading. Insert shows the lip colour polymorphism of *C. nemoralis* (left: white-lip; middle: pale brown-lip; right: dark-lip).

The land snail *Cepaea nemoralis* is highly polymorphic for shell colour and banding (Figure 1). Within and between populations individuals can display a shell colour of several shades of yellow, pink, or brown, and any number of bands from 0 to 5. Generally *C. nemoralis* populations are monomorphic for lip colour, with the common morph being dark brown or black. However, in a few European areas white or pale-lipped individuals are also present in some populations i.e. Cantabria in Spain; the Pyrenees; Denmark; Yorkshire and Cornwall in England; North Wales; Western Scotland; and the west coast of Ireland (Figure 2). These polymorphic populations consist of both the dark-lipped and white-lipped individuals, and additionally pale brown-lipped individuals, which are possibly heterozygotes (Cain *et al.*, 1968). Very rarely, some populations in these areas are monomorphic for the rare lip colour i.e. in the Pyrenees.

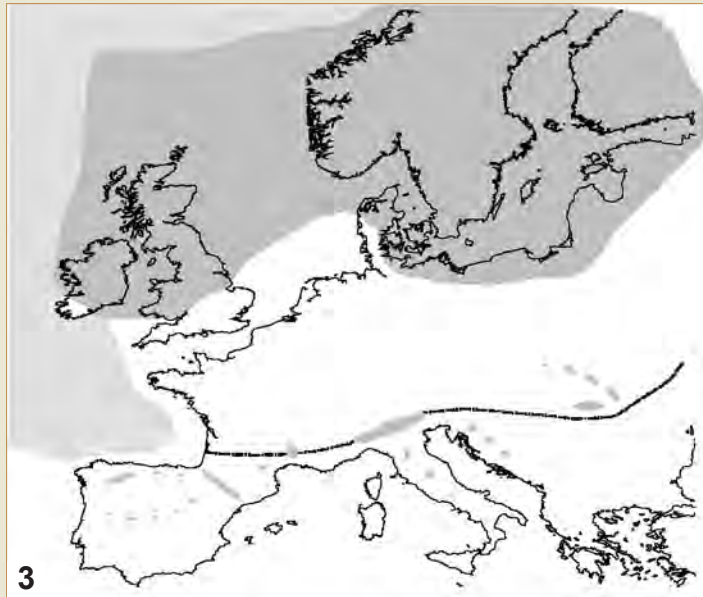
The genes for shell colour, lip colour, and banding are very tightly linked forming a supergene (Jones *et al.* 1977). Yet, while around 98% of British populations are polymorphic for shell colour and banding, lip colour is almost completely invariant, with there being only a few known British locations that contain populations that are polymorphic for this trait. It is therefore unusual that while natural selection operates so that shell colour and banding are variable, the monomorphism in the lip colour is probably maintained by strong stabilising selection.

There are several linked hypotheses that may explain the distribution of white-lipped *C. nemoralis*: 1) repeated evolution of the same character due to common environment or selection 2) the populations are derived from the same Pleistocene refugial populations or 3) introgression of the white-lip allele from the sister species *Cepaea hortensis*. The aim of the project was to establish by means of genetic methods as to whether the populations containing individuals with the rare lip colour all have a common origin. Additionally, the project would also contribute towards understanding the post-glacial colonisation of Britain and Ireland.

#### The last glacial period

The Last Glacial Maximum (LGM; 23 to 18 kyr ago) was at its height around 18 kyr ago during the Pleistocene, when the European ice sheet





**Figure 3.** Map to show the extent of the ice sheet and permafrost in Europe during the Last Glacial Maximum (~18,000 years ago). The grey area represents the ice sheet; sea ice is indicated by the hatched area; the dotted line shows the extent of the permafrost (adapted from Hewitt, 1999).

extended as far south as 52°N with an area of permafrost stretching to 47°N (Hewitt, 2004) (Figure 3). Glaciers also formed on the Southern European Mountains, such as the Alps and Pyrenees, creating a barrier that to a great extent blocked the pathways of migrating species. It is therefore assumed that the majority of temperate species, such as *Cepaea nemoralis*, survived within the ice-free southern peninsulas i.e. Iberia, Italy, and the Balkans (Bennett 1997; Hewitt, 1999).

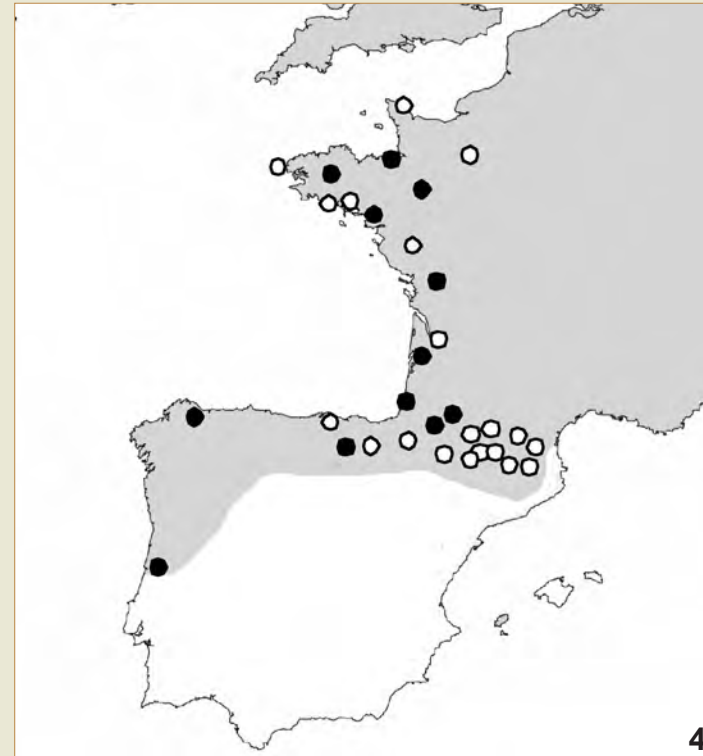
The end of the Younger Dryas period (~ 10 Kyr ago) marked the beginning of the latest interglacial phase, the Holocene. Species that were previously confined to refugial areas tracked the warming climate, generally migrating in a northward direction, and filled any available niches en route (Hewitt, 1999). Perhaps modern day European populations that are polymorphic for lip colour all originated from the same southern refugial area, most likely Iberia.

#### Field Work

During the summer of 2007, I conducted a transect down the west coast of France, then across the Pyrenees and the north coast of Spain. In all, I collected over 200 individuals from 20 separate locations (Figure 4). Populations were located by thorough inspection of suitable habitats, with care taken so as not to sample near sites where recent introductions are likely, such as, near agriculture areas, parks, or private gardens. Where possible between 10 and 30 individuals were collected at each site, from an area no larger than 10 x 10m. Samples were returned to the lab and frozen on arrival.

#### The research so far

To date, fragments of the mtDNA gene cytochrome oxidase subunit I (COI) and 16S rRNA for over 950 *Cepaea*



**Figure 4.** Map to show the field trip collection sites (white circles; black circles represent sampling sites from Thomaz et al, 1996). The distribution of *Cepaea nemoralis* is indicated by shading.

*nemoralis* individuals from >100 Western European sites have been sequenced and analysed. Intriguingly, the data strongly suggests that individuals from the west coast of Ireland are derived from populations in the Pyrenees, supporting the long-known “Lusitanian” origin of the Irish fauna. Some populations from both of these areas also contain a high proportion of large, white-lipped *C. nemoralis*. However, there is little evidence that other white-lipped populations in mainland Britain and Europe are primarily derived from the Iberian populations. Additionally, there is no evidence for introgression from the sister species *Cepaea hortensis*.

#### Future work

The next step for this study is to compare the Irish *Cepaea nemoralis* mitochondrial DNA patterns to the fossil records from both the east and west coast of Ireland (Preece et al., 1986; Speller, 2006). Additionally, palaeoclimatic niche modeling of refugial areas in Iberia may be constructed to establish the potential distribution and movement of Spanish *C. nemoralis* during the Pleistocene and Holocene. Finally, sequencing of additional genes, such as a non-coding nuclear gene, and microsatellite work would be useful to support original findings.

#### Acknowledgements

I am extremely grateful to the Conchological Society for helping to fund my field work last summer. I would like to thank my supervisor, Dr. Angus Davison, for his help and advice on the project, and the University of Nottingham for funding the lab work. In addition, many thanks to Prof. Robert Cameron and Prof. Steve Jones for their useful discussions about the project.

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## FleLD MeETING

### Fens Pools, Brierley Hill, 28 June 2008

Ellen Pisolkar

Those attending the meeting were Ron Boyce, Rosemary Hill, Roy Gillibrand, Ellen Pisolkar and Paul Wilkinson.

Fens Pools form part of the The Buckpool and Fens Pools Nature Reserve, a green wedge within an urban landscape.

Largely through natural succession, the area has transformed from a desolate scene of abandoned waste from coal and iron industries and clay

extraction to a landscape rich in wildlife and appreciated by local people. There are three interconnected large pools (Grove, Middle and Fens) established in late 18th C to feed the Staffordshire and Worcestershire canal system and the disused Fens Branch of the Stourbridge Canal (Wide Waters). The site has been designated a Special Area of Conservation and SSSI for its nationally important population of Great Crested Newts. To improve the breeding habitat for

newts, about 30 new ponds have been created around the site in the last 25 years. There are good records of birds and amphibians but the Senior Warden, Paul Hancox, is keen to find out more about the invertebrate life of the pools.

We started dipping in one of the newly created pools Upper Round Pool – a small, shallow pool created 10 years ago with abundant stonewort. Only *Radix balthica* was found here.



Sampling the aquatic habitats (Ellen Pisolkar)

The next site, Round Pool, more than 30 years old, was ephemeral until 1998 but is now permanently filled with water. Shallow with plenty of weed, this pool supported a fair number of mollusc species.

Farmers Pool is one of the older pools on the site and, like the previous two pools, is fed by groundwater. An attractive little pool, we were slow to leave but



with so many waterbodies pending.... The next pool, last year one of the most interesting for invertebrates, was found to be polluted with milky effluent so we gave that one a miss and hurried on to the larger pools. *Bithynia leachii* was found in both large pools and Wide Waters revealed *Viviparus viviparus*.

With so many waterbodies in this area and also differing habitats and water

sources, we were only able to dip our toes into an understanding of the distribution of mollusc species.

We were delighted that the trip provided an opportunity for Roy to fill in gaps in his production of an Atlas for Staffordshire. We were joined for the day by Paul Wilkinson whose intimate knowledge of the site and enthusiastic support made for a most enjoyable outing. At one point three

local birdwatchers were inspired to join us for some dipping and marvelled at the treasures hidden beneath the waters. Perhaps some day their binoculars will be supplemented by sieves and trays? (We would like to thank Paul Hancox, The Senior Warden at Buckpool and Fens Pool Nature Reserve for his help in the preparation of this visit)

### Species recorded:

	Upper Round Pool So 92182 88758	Round Pool So 92154 88766	Farmers Pool So 92028 89037	Middle Pool So 91404 86604	Grove Pool So 91300 88506	Wide Waters So 91323 88384
<i>Acroloxus lacustris</i>		•		•	•	
<i>Anisus vortex</i>			•	•	•	•
<i>Bithynia tentaculata</i>			•	•	•	•
<i>Bythina leachii</i>				•	•	
<i>Dreissena polymorpha</i>				•		
<i>Gyraulus albus</i>						•
<i>Gyraulus crista</i>						•
<i>Hippeutis complanatus</i>			•			
<i>Lymnaea stagnalis</i>			•	•	•	•
<i>Musculium lacustre</i>		•	•	•	•	
<i>Physa</i> sp.		•			•	•
<i>Pisidium casertanum</i>				•		
<i>Pisidium milium</i>			•		•	
<i>Pisidium nitidum</i>				•		
<i>Pisidium subtruncatum</i>			•	•		
<i>Planorbarius corneus</i>		•				
<i>Planorbis carinatus</i>			•			
<i>Planorbis planorbis</i>		•	•	•	•	
<i>Potamopyrgus antipodarum</i>		•	•	•		
<i>Radix balthica</i>	•	•	•			
<i>Sphaerium corneum</i>		•	•	•	•	•
<i>Succinea putris</i>			•			
<i>Viviparus viviparus</i>						•

# 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 January with an early start time of 11:00h. Please bring plenty of exhibits and demonstration material.

The 2009 Annual General Meeting will take place during the Molluscan Recording Conference in the Flett Theatre at the Natural History Museum on 18 April. 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  
**FleLD** = Field Meeting at outdoor location  
**WKSHP** = Workshop on Molluscan topic  
**YCS** = Yorkshire Conch. Soc. events

**NHM – Saturday 6 December 2008**  
 14:00h in the in the Dorothea Bate Room [Palaeontology Demonstration Room], preceded by Council meeting.

Molluscan quiz devised by Jane Bonney.

**NHM – Saturday 31 January 2009**

11:00h in the in the Dorothea Bate Room [Palaeontology Demonstration Room]  
 Please note the revised start time. No Council meeting.

Please bring plenty of exhibits and demonstration material. There will be a lunch break at about 13:00h. Lecture to start at 14:00h.

The morning's activities will include a demonstration of the *Cepaea* megalab project including, it is hoped, a live interactive demonstration of the project web site, exhibits and demonstrations on shipworms and other boring molluscs, and other options still at the planning stage. Please bring suitably boring material!

Members are encouraged to bring specimens of any Mollusca for identification, a X20 binocular microscope will be available if needed.

Guest speaker at 14:00h Tom Clifton (Benllech, Anglesey)

Recent investigations on shipworms

**NHM – Saturday 28 February**  
 14:00h in the in the Dorothea Bate Room [Palaeontology Demonstration Room], preceded by Council meeting.

Guest speaker at 14:00h Martin Bell (University of Reading)  
 Mollusc analysis from archaeological sites

**Abstract**  
 Land and marine molluscs are important sources of information about past environments and patterns of human activity. The presentation will outline

examples of recent research which illustrate the application of the method and some of the problems of interpreting this evidence in terms of past environments and biogeography. Examples will be drawn from a selection of types of site and geographical area including Mesolithic marine mollusc middens at Prestatyn, North Wales, coastal dune sequences in Pembrokeshire and South West England, the river valley sequences of the river Kennet, Berkshire and estuary edge contexts in Sussex. In some of these investigations mollusc analysis has been combined with other sources of palaeoenvironmental evidence such as analysis of sediments, pollen and plant macrofossils to create a more complete picture of the contemporary environment and the effect of human activity. We will also consider some problems in identifying the introduction dates of some species which arrived in Britain in the later Holocene.

**FleLD - Saturday and Sunday 14 -15 March**

Dartmoor and Sidmouth areas, South Devon  
*Phenacolimax major* search.  
 Leader: Keith Alexander (01392 413092) (home)

Members should bring packed lunch and drinks, also suitable clothing and equipment. The intention is to visit the eastern flanks of Dartmoor on the Saturday and the Sid valley above Sidmouth on the Sunday.

Meet on Saturday 14 March at 10:30h at the Steps Bridge Car Park on the B3212 Exeter to Moretonhampstead road, at SX803882. PC also shown here on OS map. Exeter nearest railway station, on

Waterloo and Paddington lines. The Teign Valley is heavily wooded and has a series of side stream valleys.

Meet on Sunday 15 March at 10:30h at the car park on East Hill on a minor road along the wooded ridge immediately east of Ottery St Mary – accessed from the B3174 Ottery to Seaton road - at SY123942. Honiton nearest railway station, on Waterloo line. The Sid valley is fed by a series of small spring-fed streams variously wooded.

**FleLD - Saturday 28 March**  
 Dudley, West Midlands  
 Leader: Ellen Pisolkar (0121 444 0819) (home)

Members should bring packed lunch and drinks, also suitable clothing and equipment. Meeting points to be announced later.

**NHM Flett Lecture Theatre – Saturday 18 April**  
 Molluscan recording conference  
 Includes Annual General Meeting

Morning session: 10:00h tea and coffee; 10:45h welcoming address; 11:00h talk on why molluscs are important; 11:30h talk on how to find molluscs in the field; 12:00h Conch Soc recording manual; 12:30h lunch.

**13:30h Annual General Meeting**

Afternoon session: 14:30h. This will include material on land and freshwater recording, marine recording, the NBN Gateway and the use of web sites, and the *Cepaea* Megalab project.

Exhibits and posters are invited.