

1 September 2003. A number of shores have recently been investigated and the following have been chosen (we will do one shore per day):-

Boulmer [NGR 46/2614] - This is a huge shore with extensive rock platforms and a sandy/muddy bay. There is a wide variety of life.

Newton-by-the-Sea [NGR 46/2425] or Beadnell [NGR 46/2330] - Newton has rock platforms and a sandy bay while Beadnell is rocky with gullies and rock pools, with a sandy bay to the south. Newton also has the best pub for lunch!

Lindisfarne [NGR 46/1342] - Cross the tidal causeway (by car) and there is a variety of shores including limestone rocks and a muddy/sandy bay. More walking required than for the others so we'll hope for a particularly good day.

Further south near Cresswell there are interesting brackish lagoons.

For further information please contact the organiser: Shelagh Smith, Woodleigh, Townhead, Hayton, Brampton, Cumbria, CA8 9JH. Tel: 01228 670676 email: shelagh@smithurd.demon.co.uk

SLUGS AND SNAILS: Agricultural, Veterinary and Environmental Perspectives
8-9 September 2003 at Canterbury Christ Church University College, Canterbury, Kent, UK. A joint symposium hosted by the Malacological Society of London & the British Crop Protection Council

The experience of both farmers and researchers will provide a basis for the discussion of the issues of pest control relating to slugs and snails on land and in water. More general aspects of conservation and biodiversity will be relevant to the discussion, as will newer approaches of molecular biology. Sessions will include:- Economic impacts, Physiology and function, Behaviour and ecology, Prospects for improved control, Integrated pest management, Population regulation and economic and environmental considerations, Snail farming, Conservation, evolution and biodiversity, Molluscs, molecules and man

If you are interested in attending, and/or making an oral or poster presentation, contact:- The Symposium Organisers, British Crop Protection Council, 49 Downing Street, Farnham,

Surrey, GU9 7PH, UK
Tel: +44 (0)1252 733072
Email: md@BCPC.org.uk

BRITISH SHELL COLLECTORS CLUB SHELL SHOW
Saturday October 25 2003
from 09:00 to 17:00
Venue: Napier Hall, London, England

The topics for the competition include: Class 7: Geographical Competition: Africa (The Mediterranean, Atlantic, Indian Ocean and Red Sea Coasts, offshore Islands and all points between); Class 8 The family Cymatiinae (sensu Lato; as defined by Vaught's Classification of Living Mollusca). Maximum 4 ft width for one exhibit. Junior exhibitor's to state their age when applying. Admission is free and refreshments available at reasonable price. Contact: Kevin Brown.

THE MALACOLOGICAL SOCIETY OF LONDON, MOLLUSCAN FORUM
November 2003
Venue: Natural History Museum, London.

This informal meeting is designed to bring together people starting their research on molluscs, to give them the opportunity to present and discuss their work and to compare notes on methods and problems. Attendance is open to all, but speakers and poster presenters should be research students, post-doctoral researchers, undergraduates starting molluscan projects or dissertations, and amateurs engaged in substantial projects, which have not yet been published. Any topic related to molluscs is acceptable: palaeontological, physiological, behavioural, ecological, systematic, morphological or molecular.

The C M Yonge Award for 2003 will be for a suitable offer of a bivalve paper at the Molluscan Forum on November 6th 2003. In the absence of an award being made, the amount will be held over towards supporting student participation at the Unitas meeting in Perth in 2004.

Applications, including an abstract, an estimate of the cost of travel and accommodation, and an academic reference, should be submitted by 1st September 2003 to: Dr SER Bailey, Stopford Building, School of Biological Sciences, The University of Manchester, Oxford Road, Manchester M13 9PT, U.K. MALACOLOGICAL SOCIETY OF

LONDON - The behaviour and neurophysiology of molluscs
16th and 17th April 2004
Kingston University, Surrey, England
Presentations are invited on all aspects of molluscan behaviour, behavioural ecology, and neurophysiological mechanisms and processes underlying molluscan behaviour. Further information and the call for presentations can be found on the Society's web site at <http://www.sunderland.ac.uk/MalacSoc>

Forthcoming events overseas:
Aug. 15-17, 2003
JERSEY CAPE SHELL SHOW, Stone Harbor, New Jersey

Sept. 19-21, 2003
NORTH CAROLINA SHELL SHOW, N.C.
Aquarium at Pine Knoll Shores, Raleigh, NC 27607
E-mail: pabjetster@aol.com

Sept. 20-21, 2003
24th INTERNATIONAL SHELLS & FOSSILS BOURSE,
Salle Polyvalente, Ottmarsheim, France

Sept. 26-28, 2003
ANNUAL GERMAN SHELL FAIR, Oehringen, Germany
Contact: E-mail: meeresmuseum@t-online.de

Oct. 25-26, 2003
SEA SHELL SEARCHERS SHELL SHOW,
Lake Jackson, Texas
Contact: Wanda Coker
E-mail: sdccoker@brazosport.cc.tx.us

Nov. 1-2, 2003
PHILADELPHIA SHELL SHOW,
Academy of Natural Sciences, Philadelphia, PA
Contact: alsch@bellatlantic.net

Nov. 8-9, 2003
PRAGUE SHELL SHOW,
Prague, Czech Republic
Contact: E-mail: jderka@volny.cz

Unitas Malacologica World Congress of Malacology
11-16 July 2004
Venue: Perth, Western Australia

Four Major Symposia planned: Phylogeny of molluscs, Molluscan aquaculture and fisheries, Ecology of molluscs. There will also be special workshop sessions on particular groups and topics proposed over the next year. In addition to the paper and poster sessions there will be a full social programme, with excursions on Wednesday tentatively planned to Rottnest Island, a dive expedition,

river cruise to a winery, and tour of Perth and Fremantle. Unitas Malacologia offers grants to students to assist with attendance at this meeting. Check out web site: <http://www.amonline.net.au/malsoc/confer4.htm>
Organised by Fred Wells (wellsf@museum.wa.gov.au).

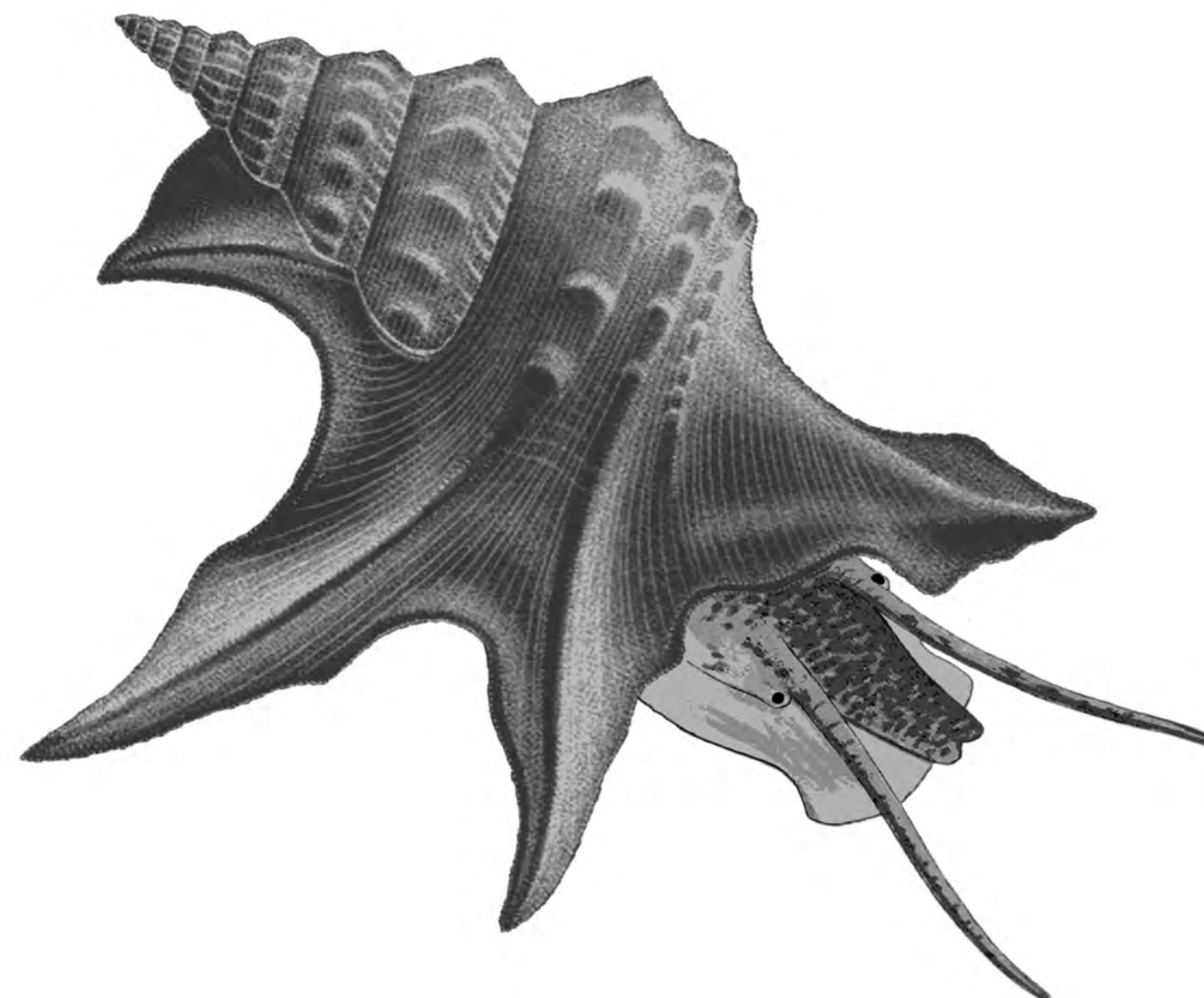
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Mollusc World

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THE MAGAZINE OF THE CONCHOLOGICAL SOCIETY OF GREAT BRITAIN & IRELAND

bits & pieces

A new predator to watch for on our southern shores

A new shellfish predator that paralyses its prey has been discovered by the French scientific body IFREMER's laboratory at Trinite-sur-Mer in Brittany. The predator, a large gastropod called *Rapana venosa*, is originally from the Far East, and belongs to the Muricidae family. It was recently introduced to the Bay of Quiberon in North Brittany to France through the purchase of clams originating from the Venice lagoons. Difficult to catch (only 13 specimens have been officially found in the last five years), it has rapid growth, can reach 18cm and has a characteristic colour of dark cream to red-orange. *Rapana venosa* attacks burrowing bivalves such as clams but will also attack oysters when no other prey is available. While the juveniles drill into the clams, adults secrete a mucus which paralyses the prey. An adult specimen can give birth to 150,000 larvae a year. IFREMER is asking growers to be vigilant and to bring in, preferably alive, any specimen found and in no instance to release them back into the wild. IFREMER will use the specimens to study their biology, confirm experimentally their feeding references and estimate the rate of predation.

Source: Fish Farming International, November 2002
Provided by Peter Walker (CEFAS)

Jan Light adds:

Some of you may remember a fuss in the media back in August 1992 when a Portsmouth fisherman handed a specimen of *Rapana venosa* into the Portsmouth Sealife Centre claiming to have taken it in his creels from whelk-fishing grounds in the North Sea. The fisherman told a classic of tale of large numbers: his 90 pots which normally take 25 minutes to empty took 2 and a half hours to empty and he estimated 60 *Rapana* per pot!! Such a colourful story - but trying to track the individual down subsequently to clarify resulted in - unavailability of said fisherman for further comment. I believe CEFAS subsequently tried to verify this find/account without success.

Recipe

This month's recipe for **Salingaria Stifado** was sent in by Christine Buckle

On my many visits to Crete I have often seen Cretans busy collecting snails, both *Helix aspersa* and *Eobania vermiculata*, after there has been some rainfall. I am told that Salingaria Stifado, snail stew, is a Cretan speciality and is served as an appetizer. I have never eaten this dish in a Greek restaurant nor have I tried preparing the following recipe. If anyone is brave enough to do so we would be pleased to hear the outcome. However, please **do not** go out and collect *Helix pomatia* for this recipe!

Cooking time: 30-40 minutes

Portions: 4-6

1 kilo large snails, collected, if possible, from an area where there is a lot of thyme, 1 kilo spring onions, 1½ cups olive oil, 7 cloves garlic, chopped, ½ cup wine vinegar, 1 teaspoonful fresh rosemary, chopped, 3 bay leaves, 5 ripe tomatoes, skinned and roughly chopped, Salt and pepper

Put the snails in a pot with water to stand overnight. Cover with something heavy so that they don't escape. Next day drain the snails and wash them well, removing all dirt. Return the snails to the pot cover with fresh water and heat gently. When some scum begins to appear on the surface, usually just before boiling, add salt and stir vigorously, always in the same direction. Boil for about 15 minutes. Drain the snails, reserving the water. Take a very sharp knife and make a hole in the back of the shell. Rinse them well in the water in which they have been boiled so that they don't lose their flavour. Skin and wash the onions. Put the oil, onions and garlic in a saucepan to brown. Add the tomatoes, wine vinegar, bay leaves, rosemary and the salt and pepper. Add water to cover, bring to the boil, then cover and allow to simmer gently. When the sauce is reduced a little add the snails and allow to simmer together until all the moisture has been absorbed and a thick sauce remains. Serve immediately.

Muses of a museum malacologist

Life at the Mollusca section of the National Museum of Wales, Cardiff is usually very varied and interesting. Exciting local enquiries aren't so common, but when they come in all pens, pencils and tweezers are put down and we jump at the opportunity to investigate.

This is what happened in October 2002 when a gentleman named John Scott came in with an unusual looking snail from his garden in Radyr, South Wales. He had been very

surprised to see two uncommonly large, yellowish-white snails in the grass that he was certain couldn't be the common garden snail. You will probably have guessed by now that the lovely snail was indeed a *Helix pomatia*, better known as the Roman or edible snail.

This may not seem very exciting for those of you living in southeast England where the snail is more prolific, but there are currently no official records of *H. pomatia* in South Wales (see the Atlas, Kerney 1999). Adding interest to the enquiry was finding that Mr Scott's garden backed onto Radyr Woods where in his retirement he had become a warden. So, a few days later four of us set off to see the site in question, hoping to find specimens, not only in his garden, but in the woodland too. This could mean a new dot on the map!

We were very pleasantly surprised by the 'garden' Mr Scott owned. Not only did he have the area of land behind his house but this then extended along the back of about four more properties. It was almost completely naturalised land with only a fence between it and the woodland. So, the search began! Knowing that he had seen at least one other on his land gave us hope of a find but as time passed our confidence dwindled. However, after half an hour what appeared to be a juvenile was found and then shortly afterwards, whilst admiring a toad, an adult was discovered hiding under grass at our feet.

This gave us the momentum to then have a look in the woods where there were suitable habitats of open areas and hedge banks. Unfortunately even after a good search we found nothing. We do hope to return to the site this year when they are less likely to be hibernating, if indeed there is a population there at all. Mr Scott was very keen to get as much information as possible from us about *H. pomatia*, the alien snail *Hygromia cinctella* and the stag beetle *Lucanus cervus* so that he could raise awareness with his colleagues.

It was a trip well spent having found the first record of *Helix pomatia* for Glamorgan, but who knows how long they have been there and how long they will remain?

Harriet Wood - Molluscan Collections Manager, NMGW

SAD ANNOUNCEMENT

Fred Pinn, a member for 40 years, died on July 19th. We understand he had been unwell for sometime.

From the Society's new President - Jan Light

Here on a fine May day on the Isle of Arran, the pull of the tide will shortly draw me to the shore. I have come to Arran, for the first time, to join the Society field meeting: four days of marine and non-marine recording with some optional geology thrown in, see page 4. This is, after all, the site of Hutton's famous unconformity where his flash of insight into the age of the earth occurred.

Over my 20 years' membership, participation in the Society's field programme has taken me to locations all around the British Isles and has tempted me across the Channel (though I hardly needed prodding) to compare the north coast of France with the south coast of England from a molluscan point of view. All that recording effort has been fed into our computerised database, as part of the DOMMIC project - see page 16 in this issue.

The Conchological Society offers a full calendar of indoor and outdoor meetings: a tradition of some 130 years' standing. However, for a variety of reasons relating to logistics, personal priorities and the costs of travelling, no more than perhaps 25% of the current membership has ever attended a meeting. As the contact that most members have therefore derives from Society publications, personal initiatives and increasingly, from the website and the 'conchology-uk' electronic bulletin board, I hope that this magazine will become part of a lively and interactive forum. Please use it!

In my coming three years' office I hope to see the Society continue to serve you, the membership, well and that you will support initiatives such as the programme of projects that are planned, in order to inform the wider naturalist world and draw in new members from a public who may not yet know that the Conchological Society exists! You can follow news of these developments through the pages of *Mollusc World*. In the meantime do write in with your news, comments and suggestions, and I hope more of you will consider coming along to a meeting to find out more about the Society.

Society Projects

To provide a focus for Society activities, we have devised a series of small projects which we hope will involve members and also enable collaboration with other organisations. These will be launched over the next eighteen months through *Mollusc World* commencing with *Malacolimax tenellus* (see below). The other projects concern *Osilinus lineatus*, *Phenacolimax major*, *Crepidula fornicata*, Garden slugs and snails, and *Hygromia cinctella*.

The slender slug *Malacolimax tenellus*

Kerney (1999) states that this species is restricted to ancient deciduous or coniferous woodlands, occasionally on chalk or limestone, but more commonly on poor acid soils. It is found mainly in ground litter, on logs and loose bark, emerging usually at night to feed, typically on fungi. It can live in a wide variety of woods including beech, oak, chestnut and pine, and tolerates traditional methods of management such as pollarding and coppicing. It is often found in places with *Limax cinereoniger*. The accompanying map (from Kerney 1999) shows the species is widely distributed in Britain but is absent from Ireland.

There are multiple goals within this project. Much of the British distributional and ecological information is based upon records extending back to the early 20th century. All of the records shown in the 1999 Atlas have been extracted from the Society's database, but these show that a significant number of the 'recent' records are over 25 years old. At many sites (e.g. the home counties and the New Forest) the species has not been recorded since the 1930s. Therefore, as a first objective this project will seek to reassess the current distribution of the species, with a particular focus on sites where it has not been recorded in the last 20 years, or at sites of known 'ancient' woodland where the species has not been recorded (e.g. the Welsh Borders, southeast England). As this is a species of conservation concern, there is a need for up-to-date information to assist the conservation agencies on best management practice.

There is much anecdotal information on the species' autecology such as the best time of year to search, and its association with *Russula* species. The records suggest that this slug is best searched for from late summer to late spring, with the autumnal fungi season being the optimum period. Therefore, joining in fungus forays organised by mycological groups or local naturalist societies may well take you to potentially suitable *Malacolimax tenellus* sites (and this has the added advantage of obtaining an identification of the slug's food!)

Malacolimax tenellus is a relatively easy slug to recognise. It grows to a maximum of 4cm in length (when extended) and has a short keel

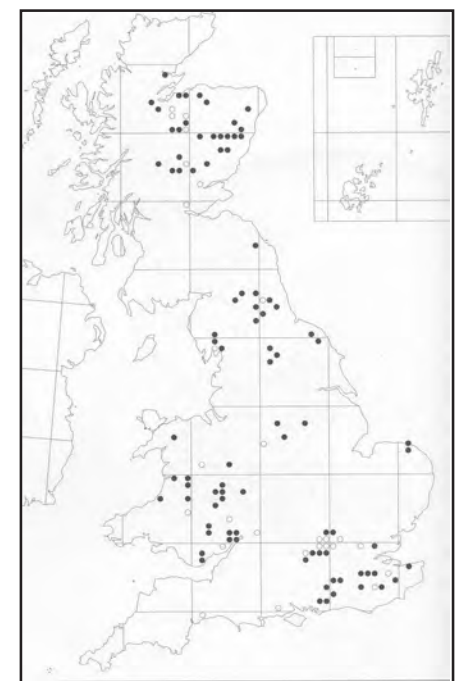
along the back. The body colour is predominantly yellow (ranging from pale yellow to orange - see photos on page 7), and the sole is pale yellow. The head is grey/lilac and the tentacles are usually a distinctive bluey-grey or purple tinged. The body slime is yellow-coloured, not thick and sticky, and may be produced copiously if the slug is handled. As with all limacids the pneumostome (breathing pore) is located posterior to the mantle mid-point, and on this basis, it may be distinguished from orange/yellow coloured arionids.

We advise against collecting and preserving specimens - the best way of verifying your identification is to take a photograph or a digital image for an expert opinion. Basic distributional information as provided by general mollusc surveys is clearly the first step in this project. However, we can gain a much greater understanding of the species' ecology from more detailed recording. Therefore we ask you to record details of the trees present, the overall ground habitat and associated flora, the fungi species present, and a precise habitat description for the specimen(s) you find. Details of any woodland management practices in operation will also be valuable.

We can provide members with details of historical sites in the areas they wish to survey, or suggest areas for a potential survey. An information/recording sheet will soon be available from the Project Co-ordinator, and we will be setting up a web page which will allow records and information to be submitted electronically, and which will be regularly updated.

Project Co-ordinator: Liz Biles, Burton Farm House, Burton, Mere, Warminster, Wilts BA12 6BR

Email: Auriscalpium@aol.com



Arran Field Meeting



1

Notice of an extended trip to Arran attracted the attention of several stalwart members. Organised by William Penrice, it provided a unique opportunity to make significant additions to our limited knowledge of the marine and non-marine molluscs of an island regarded by many as Scotland in miniature. For 2 or 3 days collecting conditions were good and enabled us to sample several locations. We all met at Corrie on the East coast on May 14th and padded across the shore or squelched in the boggy slopes adjacent to it.



2

On the second day we visited Loch Ranza, the fishing port at the northern end of the island. Here the sea was calm, the sky clear, ideal conditions for mollusc hunters. As at Corrie the

collecting was not spectacular and required experienced eyes to make it respectable when weed - washing samples were examined microscopically later. The sight of dolphins leaping in the bay and a golden eagle majestic in flight added drama to a day of quiet conchological endeavour. The tally of records was increased by individual visits to other locations around the island by some of the participants.

Drama of a different kind was experienced by the more foolhardy of us who had opted for a temporary alfresco existence. High winds made the erection of a tent a spectator sport, rain making its abandonment a prudent and desirable option. This expedition to Arran by the Society, a great success scientifically and socially, ensured that we now have a much better idea of its molluscan fauna. It may also have ensured a return visit to a beautiful island.

Peter Dance



3



6



4



7



5



8

- 1 Seals are a frequent sight on the shore near Brodick Castle
 - 2 William Penrice & Rosemary Hill working non-marine habitat
 - 3 A trio of presidents (Jan Light, Fred Woodward & Peter Dance) enjoying a dram outside the Arran distillery
 - 4 Dolphins just offshore at Newton's Point, Loch Ranza
 - 5 Liz Biles concentrates on the flora
 - 6 Ron gets the Health and Safety shakedown!
 - 7 Searching for the Unconformity at Newon's Pt
 - 8 Waiting for the full ebb at Loch Ranza
- Background image *Littorina* escape the murky water

Paua fritters in fish and chip shops round New Zealand which I found slightly bitter. I was later told that this was because they were using the intestines!

There is one more use that the paua shell is now being put to and that is in the production of blue pearls. It was known for a long time that the paua shell produces poor quality blister pearls on the inside of the shell. The first attempts at culturing abalone shell pearls was carried out by the French Scientist Louis Boutan in the late 1890s. However, his early attempts encountered many obstacles and as with several other researchers the experiments were discontinued. (Ref. *Gems and Gemology, The quarterly Journal of the Gemological Institute of America*, 34, Fall 1998). Only recently have researchers overcome the problems but they still have to use live paua shells collected from the seas around New Zealand by licensed divers to work on. The cultivation of the paua is being carried out with some success and it is hoped that soon cultivated paua will be used in the future for pearl production. I had a wonderful day at 'Ocean Pearl Farm Ltd.' situated at 'The Agridome, Western Road, Ngongotaha, Rotorua, North Island'. I was shown round by Shane Harford who works with his manager Kylie Butler. He showed me paua at all stages of their life cycle, from the tiny pin head sized juveniles to the finger nail size (9mm.), to the young adults (about 6 months old) when they are transferred to the New Plymouth laboratories for further research into pearl culture.

The whole process of culturing paua shell pearls is fraught with problems. First divers must collect the wild paua shell from rocky locations in calm weather at depths reaching 9 metres. They are only allowed to collect 908 tonnes/year (there are approx. 2,000 adults, each at least 12.5 cm. long, in a tonne). Each quota season/year begins on October 1st. and collecting ends in March, conditions often becoming too difficult after this for snorkeling (compressed air tanks not being allowed). The next problem is that the divers must remove the paua shells from the rock surface without damaging their black foot because they are haemophiliacs and will bleed to death if cut. Having got the paua shells into the sea water tanks which have to be continuously replenished with fresh filtered sea water, the captive paua have to be fed on a mixture of four seaweeds - 50% *Gracilaria chilensis* and a 50% combination of *Durvillea sp.*, *Macrocystis sp.*; *Laminaria sp.* Five year old paua are used for implantation of the nucleus used to form a blue pearl. These

nuclei are hemispherical beads of casein plastic which have to be placed, with a piece of mantle, on the inside of the shell near the apex or whorl without harming the animal. The process takes three minutes and then it takes two weeks for them to recover, if they do, in special tanks before they are returned to the original tanks. It takes two years for reasonable blister pearls to form when the paua are removed and killed. The blister pearl is cut from the shell using a diamond saw and the rough shell is parted from the blister with a scalpel; the nucleus is then removed and the dome washed out. The hollow dome is now filled with a polymer and a thin shaped piece of paua shell is used for the backing. After the pearl is assembled it is rounded off with a grinder and then polished to bring out the lustre. No coating of wax or oil is applied. The pearls are then used in various pieces of hand made finely crafted fashion jewelry, such as pendants, brooches and earrings. The pearls are also sold as 'maybe', 'hemispherical' or 'half pearls'. They are priced according to their size, colour, lustre and surface characteristics i.e. blemishes etc. They are graded from the best as 'Gem', 'A', 'B' and 'semi-perfect'. Since 1995, Empress Abalone Ltd. based on Stewart Island have successfully cultured paua shell pearls and in 1997 their first commercial harvest yielded approx. 6,000 jewelry - quality cultured blister or 'maybe' pearls, 9-20 mm diameter, with vibrant blue, green and purple hues. They also have a research facility at Kaikora about 180 km north of Christchurch. And at Christchurch itself they have their main retail outlet for selling the paua pearl jewellery (Picture 5&6). Another company that also uses the paua shell is 'Rainbow Pearls', located in New Plymouth, Taranaki, on the west coast of North Island, with its smaller research facility at the Agridome. The facility in New Plymouth, once solely a commercial paua shell hatchery, now also produces assembled cultured blister pearls. Again I spent a wonderful afternoon talking to Liz McKenzie, a director of Empress Pearl and her daughter at their retail outlet at 746 Colombo Street, Central City, Christchurch, South island. They not only let me have newspaper cuttings, a number of scientific papers and articles about the work going on at Stewart Island, but also a video of paua cultivation and paua pearl culture for which I am indebted.

Of all the shells I have studied I think that the Paua shell, *Haliotis iris* must be one of the most beautiful and the most useful living in the world today.

sn@ilmail continued

NUDIBRANCHS OF THE BRITISH ISLES:

on-line identification guide to the nudibranch sea slugs of Great Britain and Ireland based on the book on nudibranchs of the British Isles (Picton & Morrow 1994). It includes a species list, species descriptions as well as information on feeding habitats and collecting. To get the best from this on-

line guide you will need a web browser capable of displaying images in JPEG format. It has been designed to look best at a minimum of 800x600 resolution and in 24 bit colour, but can be viewed in 16 bit at lower resolution. The site will be expanded to cover species and information not included in the book. Check the site out at:

<http://www.pictonb.freereserve.co.uk/nudibranchs/index.html>
Reference: Picton, B.E. & Morrow, C.C. 1994. *A Field Guide to the Nudibranchs of the British Isles*. Immel Publishing Ltd., 20 Berkeley Street, Berkeley Square, London W1X 5AE. ISBN 1-898162-05-0

Web resource and electronic information compiled by Mary Seddon

Paua shell (*Haliotis iris*) its cultivation and uses by John E. Llewellyn-Jones

On January 18th 2003 I lifted off from Heathrow to fly to the other side of the World stopping off at Hong Kong for a few days before continuing on to New Zealand. On January 22nd I landed at Auckland, North Island. Auckland is a typical modern city of towering office blocks, a skytower and shops selling the usual fashionable clothes, computers, furniture, souvenirs etc. The souvenirs are slightly different from those found in other cities though. In Auckland many of the souvenirs are made using either a whole paua shell, embedded paua shell pieces or pieces covering the surface.

The adult paua shell (*Haliotis iris* Martyn.) is oval and bun shaped and on average 14 cm across. When found fresh the shell is encrusted on the outside with coralline seaweeds, barnacles, small oysters etc. and looks like the seabed it lives on (Picture 1). There are a number of holes along one side which are used by the animal for expelling water used in the aeration of the gills (respiration), excretion and breeding and as the shell enlarges it produces a new hole and seals up an older one. The inside of the shell is covered in a layer of peacock-coloured mother-of-pearl including, blues, greens, pinks and purple hues. A very interesting observation is that the colour changes from the top of North island down to Stewart Island at the bottom of South island. In the north the inside of the shell is pink mixed in with green and pale blues. By the time one reaches Stewart Island the colours have become beautiful bright marine blues mixed with iridescent dark and light greens streaked with purple. It is thought that this is due to the cooling of the water as one goes further south. They live under boulders and rocky ledges at and below the lowest spring tide level on open coasts, all around New Zealand, clinging on using their large black foot, giving it its second name of black-footed paua. The average life span is about 10 years, but under ideal conditions, paua can live as long as 40 to 50 years. The paua is protected by a large number of fisheries officers who are having more and more problems with poachers who dive for them using scuba tanks and take all sizes which is illegal. For the amateur the Ministry of Fisheries has produced a very clear, helpful and useful leaflet on how, when and where to collect them.

The Maoris, who settled in New Zealand, coming from Polynesia around AD1000, used the paua as food when properly prepared, pounded and cooked. They also threaded it onto a flax line and left it in the sun to dry for later use or they buried it in the ground to let the flesh ripen like cheese. It is still dried but now sold in Chinese pharmacies as medicine as I found in Hong Kong while I was there. The Maoris also used the shell for

making curved pins for fastening cloaks, for making the eyes for carved figures, pendants, fish hooks, spinners and even the paint pots used for mixing red ochre. By blocking up the breathing holes they even used them for carrying water. Small pieces of shell were made into tiny adzes for completing the fine detail in wood-carvings. Today the Maoris still use paua shell for making eyes for their statues, for decorating their houses, for pendants and making other types of jewelry etc. There are numerous exhibits displaying the Maori uses in museums around New Zealand.

While travelling round New Zealand I visited a number of Companies working with the paua. One of these was 'The Paua shell factory and shop' at 54 Kent Street, Carteton, North Island. It was here that I watched paua shell being prepared for button, jewelry and souvenir production. First diamond grinders took off the heavy lime encrusted outside of the shell. Then hollow industrial core drills cut out the pieces. The largest pieces come from the thicker middle of the shell. Smaller pieces were taken from the edge of the shell. Customised pieces are cut out individually using trimmings. Each piece was then held in a vacuum cap and flattened against a diamond tipped wheel which revealed the beautiful colours and marking of the paua shell. The cabochons were then profiled into the shapes determined by the settings they were to be placed in. I was given some of the blanks as well as a drilled shell and several pieces of paua shell veneer showing various stages in its production. A fascinating visit. After this tour I visited 'The Shop' where there was a vast array of souvenirs, household objects and jewelry made from or using paua shell. The whole shell is used as a dish, as eyes for statues, as paper weights, as bird scarers in gardens, as mobiles in children's rooms etc. Secondly, as mentioned above, the shell is cut and pressed into extremely thin sheets for veneer work which are then cut into various shapes and sizes and used to cover books, boxes, table mats, as inlay into wood block floors such as those found in Ta Papa, the extraordinary museum experience in Wellington and decoration for musical instruments etc. Pieces of paua are used rough cut which are embedded in plastic which is then formed into dishes, drink mats, napkin rings, paper knives, plates etc. and also for making various pieces of jewellery. Other pieces are carved to form brooches (Picture 4), hair clips, rings, and again other types of jewelry and souvenirs. Lastly the small pieces left over are tumbled, embedded in plastic and then turned into boxes (Picture 3), cruet sets, Kiwis, letter racks, O's and X's, souvenir eggs etc. The meat isn't wasted either, as it is cleaned, tinned and exported to China, Singapore and other Asian countries. Also one can buy

Which book? A Guide for Tropical Marine Conchologists. Part 2 Kevin Brown

Many members who join the Conchological Society often do so through an interest in tropical marine shells. However, there is a vast array of shell books available which can leave the learner with a bewildering choice of which to use or buy. Here Kevin Brown discusses some of the issues surrounding the choice and use of books for identification purposes and gives some examples.

Many collectors limit their reading to identification guides, yet there are other specialist books which are rewarding to study. To begin to understand your shells it is necessary to know something about the biology and ecology of the molluscs which produce them. This may even help suggest where you are most likely to find different types of mollusc living. There are a number of technical works on the subject, which often require some biological training to understand, but one of the best places to start is C.M. Young & T.E. Thompson's very readable *Living Marine Molluscs*. Another fascinating topic to study is the many ethnographical uses of shells over the centuries. Most general books will have a section on the subject, but for a more detailed examination try Mary Saul's *Shells: An Illustrated Guide to a Timeless and Fascinating World* or J. F. Safer & F.M. Gill's *Spirals from the Sea: An Anthropological Look at Shells*. If you talk to a non-collector these human associations are certainly the things that they will find most interesting.

I love history, so it is not surprising that I would recommend S.P. Dance's *Shell Collecting - an Illustrated History*. To me, many shells become more interesting when I know something about where they were first discovered, who named them or who they were named after. Every shell has a history as well as a natural history, and the two aspects are combined when it comes to classification. It is useful to understand the relationships between different genera, and also, if using old books, to be able to correlate synonyms with currently used genera - *Lambis* for *Pterocera* for example. K.C. Vaught's

Classification of the Living Mollusca is an essential supraspecific classification list, but for beginners the briefer, marine only, listing in G. Lindner's *Seashells of the World* is sufficient and more readily available.

Two less formal works which I use quite heavily as sources of information are annual American publications edited by Tom Rice. *A Sheller's Directory of Clubs, Books, Periodicals and Dealers* is broken down geographically and is useful whether looking for recent books on shells from a particular area or shells of a particular family, or for making contacts abroad. *A Catalog of Dealer's Prices for Shells: Marine Land and Freshwater* is a very useful quick reference. Thousands of species are listed, alphabetically by genus and alphabetically within genus so it is very simple to use. For each species both author and date of description are given - useful for working out whether to bracket authors' names. The values quoted for each species are based on dozens of recent Dealers' lists, and while this is irrelevant if you do not buy shells it can be useful when making exchanges.

I would recommend to anyone interested in shells and molluscs to read as much as possible on the subject. Whether scientific monograph, coffee table book or beginners' guide I have yet to find a shell book which did not contain something of interest. Look at the bibliographies in the books you use, these will lead you to further works. Use your public libraries to order older, out of print, works or expensive new books. There may be a small fee and probably a long wait, but this is better than buying something and

then finding it does not cover what you want, or that you do not use it much. The first impulse for most people to collect shells is their sheer beauty, but there is little point in collecting something and knowing nothing about the subject, so read, learn, and enjoy your shells all the more.

Top twenty identification guides

It is impossible to give an absolute list, since this will depend on what shells you are working on at any given time. However, the following are among the most useful titles. A few are now out of print, and some have dated but all can be recommended:

1. R.T. Abbott & S. P. Dance - *Compendium of Seashells*. 3rd Rev. Ed. 1986
2. R.T. Abbott - *American Seashells*. 2nd Ed. 1974
3. D.T. Bosch, S. P. Dance, R. G. Moolenbeek & P. G. Oliver - *Seashells of Eastern Arabia*. 1995
4. W.O. Cernohorsky - *Marine Shells of the Pacific*. Vol. 1. 1967. Vol. 2. 1972.
5. W.O. Cernohorsky - *Tropical Pacific Marine Shells*. 1978
6. B. Dharma - *Indonesian Shells*. Vol. 1. 1988. Vol. 2
7. J.M. Diaz Merlano & M. Puyana Hegedus - *Moluscos del Caribe Colombiano*. 1994
8. J.M. Eisenberg - *A collector's guide to seashells of the world*. 1981
9. D.O. Forcelli - *Moluscos Megalnicos*. 2000
10. T. Habe & T. Kira - *Shells of the Western Pacific in Colour*. Vol. 1. (T. Kira) Rev. Ed. 1965. Vol. 2.

- (T. Habe) Rev. Ed. 1968
11. S. Higo, P. Callomon & Y. Goto. - *Catalog & Bibliography of the Marine Shell-bearing Mollusca of Japan*. -Vol. 1. (Text) 1999. Vol. 2. (Plates) - only sample plate seen to date
 12. A. Jarrett - *Marine Shells of the Seychelles*. 2000
 13. E. A. Kay - *Hawaiian Marine Shells*. 1979
 14. A.M. Keen - *Sea Shells of Tropical West America*. 2nd Rev. Ed. 1971
 15. R. Kilburn & E. Rippey - *Sea Shells of Southern Africa*. 1982
 16. K. Lamprell & T. Whitehead - *Bivalves of Australia*. Vol. 1. 1992
 17. K. Lamprell & J. Healy - *Bivalves of Australia*. Vol. 2. 1998
 18. G. Poppe & Y. Goto - *European Seashells*. Vol. 1. 1991. Vol. 2. 1993
 19. A.W.B. Powell - *New Zealand Mollusca*. 1979
 20. E.C. Rios - *Seashells of Brazil*. 2nd Rev. Ed. 1994
 21. F.J. Springsteen & F.M. Leobrera - *Shells of The Philippines*. 1986
 22. B. Wilson - *Australian Marine Shells: Prosobranch Gastropods*. Vol. 1.1993. Vol. 2.1994

Can you construct a prize-winning anagram?

The late Arthur Marshall ran a series of Weekend Competitions in the *New Statesman* over many years. His readers were challenged to display their literary skills in a variety of ways. One competition invited readers to construct apposite anagrams for famous people. Prizewinning examples were Lord Montgomery - 'God! Try Rommel On!'; Gore Vidal - 'I Love Drag'; and Johann Sebastian Bach - 'Ach, Best Ban His Joanna.' Similarly a suitable anagram for *Malacolimax tenellus* might be 'i.e. a lax mollusc mantle'!

Readers of *Mollusc World* are invited to construct an anagram for *Scaphander lignarius*. Why not have a go? A book token or gift token of choice to the value of £10 will be awarded to the winning entry. A suitable alternative will be offered to an overseas winner. Entries will be judged by the Editor whose decision will be final. The winning anagram and a selection of the best will be published in the next *Mollusc World*. Closing date for entries is 31st August. In the event of a tie or near-identical entries, the prize will be shared.

News from Ireland

Two of the most important water bodies for aquatic molluscs in Ireland are the Grand and Royal Canals, both of which link Dublin with the River Shannon. The distribution maps in the last non-marine Atlas (Kerney 1999) show that several species are known principally from these canals, including rarities such as *Myxas glutinosa* and *Pisidium pseudosphaerium*. However, most of the records are based upon results from Conchological Society field trips to Ireland in the 1970s. Given that parts of the canals have fallen into disuse and have become ponded-up, and other parts are being reopened for leisure pursuits, up-to-date status of the mollusc fauna was urgently required to provide information for conservation and management. To this end, The Heritage Council (Ireland) are funding a wide-ranging preliminary survey.

Approximately 100 individual sites have been sampled, yielding some 1100 records. Perhaps the most important finding is the status of *Myxas* in both canals. The species had been rediscovered at a location in the Grand Canal in 2001 by Mary Harris (see *J. Conch* 37:579). The present survey has shown that whilst it is locally common in the Grand Canal, it is restricted to a relatively short section. It still survives in the Royal Canal, but again is present over only a few kilometres. Comparison with previous records indicates that it is much less widespread now than in the 1970s. *Pisidium pseudosphaerium* was known only from the two Canals and their abandoned limbs. So far, records have been taken from 5 locations over a wide distance of the Royal Canal, but the species occurs only in very low numbers of individuals. It is surprisingly rare or absent in the swampy sections at the western end of the Royal Canal which appears to provide the ideal habitat. The third target species for the survey was *Pisidium moitessierianum* which had

recently been found living in the Grand Canal for the first time since 1924 (see *J. Conch* 38:94). It has now been found at several locations on the Grand Canal between the Shannon and Edenderry, and tantalisingly, at a single site on the Royal Canal in County Kildare.

Thirty nine species have been recorded on the 2 canals, yielding many new records for the counties of Longford, Westmeath, Meath, Dublin, Offaly, Kildare and Tipperary. Whilst many species occur more-or-less throughout, several have shown interesting and unexpected patterns of distribution. This is particularly the case for the *Anodonta* species. Kerney (1999) pointed out that there had been much confusion over old Irish records of 'cygnea' and that whilst some of the Atlas records may belong to *A. anatina*, the majority were correct. The Atlas maps show no *A. anatina* records for the east-central part of Ireland and only a few for *A. cygnea*. The present survey results show that *A. anatina* is present in the Grand Canal from the Shannon to the satellite suburbs of Dublin, but in the Royal Canal, it is present only the eastern half. *Anodonta cygnea* appears to be quite rare in the canals, it has not been recorded at all in the Grand Canal during this survey and only at 2 locations on the Royal Canal.

Specimens of an alien *Physa* were retrieved from 2 sites on the Grand Canal west of Dublin in Co. Kildare, representing the first records outside of Ulster. Roy Anderson has records of *Physella gyrina* from the L. Neagh System - in Counties Down, Armagh, Tyrone, Derry, and Lough Eske in E. Donegal; and of *Physella acuta* from Lough Swilly in E. Donegal (coll. G. Holyoak), and Glaslough Clay Ponds, Ards, Co. Down (see *J. Conch* 38:7-22). Roy is currently examining the Royal Canal material.

continued on page 14

Sn@ilmail

Many people now have computers at home and have access to the internet. For those of you who are interested, or those of you who wondered what you are missing, here are some web-sites or internet resources which may be of interest!

Electronic Bulletin-Boards

These are electronic list-servers, which allow you to subscribe by e-mail to e-mail services, where people can send e-mails to everyone subscribed to the list with queries about identifications, ask for information on publications, discuss topical issues or pass information onto others interested in Molluscs. You can set your preferences to get a single e-mail with all of the messages posted that day (a digest) or get each message as it is sent. Each different list server has slightly different instructions for subscribing so please read these carefully.

There are two types of list:

A closed list, where you need to be accepted by the list moderator before you can send or receive messages. This is more secure than the open list below. The Conchology-UK smart groups site (moderated by Sarah Longrigg) and the African-Mollusca List server (moderated by Mary Seddon) are all examples of closed lists.

Open lists allow anyone to subscribe and your application is not vetted by a person, it is handled to the software. Occasionally poorly moderated, less secure sites can lead to your e-mail address receiving "Spam" messages, but most of the Molluscan list services are fairly secure. You are more likely to receive "spam" e-mails if your e-mail address is published on a web-site. The Mollusca List Server, one of the first to be established, had over 1000 subscribers when I last reviewed the membership of the list. Another open site is the Unio List server in the USA. For both open and closed sites you should not say or write anything that would be considered impolite or even libelous. Your subscription would be terminated quickly if this were to happen. You should suspend your subscriptions if you are

away on holiday; there are simple instructions for most list servers telling you how to do this. If you are concerned about "publishing" your e-mail address why not subscribe using a hotmail or yahoo free e-mail address and see how the system works first! One web-site with links to these bulletin boards can be found at: <http://www.molluscan.com/directory/emailing.shtml>

Interesting list-servers include:

Mollusca-L: Set-up for discussions of molluscan evolution, paleontology, taxonomy and natural history, with emphasis on providing an interface between palaeontological and neontological molluscan workers. To subscribe to the listserv Mollusca send an email message to Majordomo@listlink.berkeley.edu

The email message should not have a "subject." The first line of the message should read: subscribe molluscalist [your name here without brackets]. Make sure any automatic signature options are turned off because any additional text after this line will cause an error. Within an hour you should receive confirmation of your subscription by email.

UNIO Listserv

<http://www.fit.edu/~rtankers/unio.htm>
An unmoderated listserv focusing on the biology, ecology and evolution of freshwater unionid mussels. Postings related to mussel conservation issues, including the artificial propagation and captive rearing of threatened and endangered species, are especially welcomed. There are no limitations on who may subscribe to the list and the subscription is free.]. To subscribe to UNIO, send an email message to join-unio@lyris.fit.edu.

To join the **Conchology-UK** groups send an e-mail to the list owner (conchology-ukowner@smartgroups.com).

Molluscan Web Sites

There are many thousands of web-sites which feature shells, squid and molluscs of all forms available on the world-wide web. Addresses change frequently for the non institutional sites, and so more than one search on a facility like Google (<http://www.google.com>) or Ask Jeeves

(<http://www.ask.com>; Children's version <http://ajkids.com>) might be required to locate information on the species you are interested in. You need to be careful, and consider the sources of information and the level of peer review it may have had, as anyone may put up a site if they have web-space on a server. Having said this, it's a wonderful resource, and you can get access to many pictures, videos and even TV and Radio programmes this way. In fact the web-publishing has become so popular that some small journals no longer publish hard copy's, they supply the information solely as web information. For example, many shell collectors may recall the publication Hawaiian Shell News which has ceased publication and went over to internet publication only. The web-site (<http://home.att.net/~w.thorsson/>) has two sources, you can either browse the online version or download pdf files (if you have Adobe Acrobat free pdf reader programme, you can read at the pdf files at your leisure).

There are many different sites, and this article is not intended to promote any site as being "better" than others. Everyone will have their own favourites depending on their interests and their mode of connection (56k modem, cable or broadband access). You might try Guido Poppe's site which covers collecting shells, buying shells, shell resources (Museums, Clubs, Publications) and has beautiful images (<http://www.conchology.be>). Rich Goldberg's site in the USA has a similar function (<http://www.conchnet.com>). There are sites dedicated to specific interest groups, such as Cowries (<http://www.cypraea.net>) and seaslugs (<http://slugsite.tierranet.com/>); why not try a search in google for your favourite group, and when you find a site that is interesting and informative send the address to the Editor of *Mollusc World*.

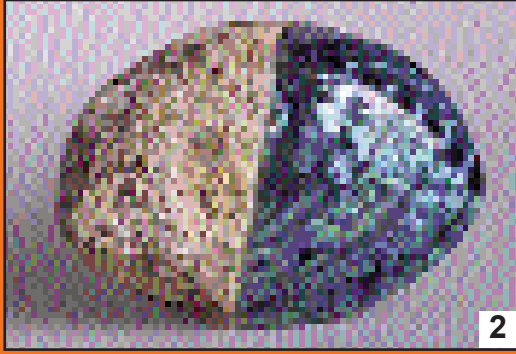
SHELLERS Directory

Do you want to try to find a Malacologist or sheller's e-mail address? Why not try out the Shellers Directory on the Dutch Malacological Web-Site. Over 910 people around the world are listed on this site, with an indication as to their shelling interests and their e-mail addresses. You can find the directory at <http://www.spirula.nl>.



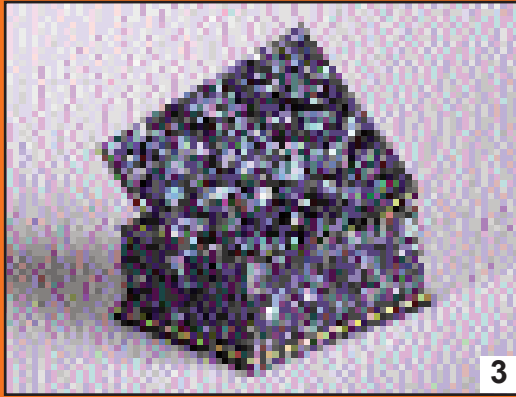
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John Llewellyn Jones



2

John Llewellyn Jones



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John Llewellyn Jones



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John Llewellyn Jones



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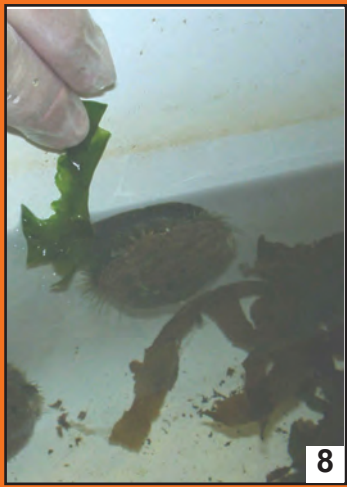
7

Ken Collins (SOC)



9

Ken Collins (SOC)



8

Ken Collins (SOC)



10

Ken Collins (SOC)

These images relate to specific articles within the magazine.

1. Paua shell, *Haliotis irus* 2. Abalone paper weight NZ 3. Box with abalone pieces from New Zealand 4. Abalone peacock brooch NZ 5 & 6. Empress Abalone pearl jewellery. Fig 1-6 relate to page 20

7. Ormer in tank - side view. 8. Ormers being handfed on seaweed in porcelain sinks. Recommended food seaweeds: 9. *Palmaria palmata* (dulse). 10. *Calliblepharis ciliata*. Fig 7-10 relate to pages 14 -15



1

Terry Wimbleton



2

Paul Gainey



3

Jan Light



4

Jan Light

These images relate to specific articles within the magazine.

1. The cheese snail, *Helicodonta obvolvata* at Selborne. Page 8. 2. *Charonia lampas* in Mevagissey Aquarium. Page 9. 3 & 4. *Rapana venosa* in Portsmouth Sealife Centre. Page 22. 5 - 10. The slender slug *Malacolimax tenellus*. Page 3. 5 & 6. Typical colour form on *Xerocornus* sp. 7. Pale form on *Russula* sp. 8. Typical form extended. 9. Dark colour form.



5

Liz Biles



6

Liz Biles



7

Liz Biles



8

David Long



9

Roy Anderson

Field meeting to the Hampshire Hangers 5th April 2003 by Terry Wimbleton

Set in the heart of the Hampshire countryside, Selborne has probably changed very little since the days of its most famous resident the Reverend Gilbert White (1720-1793) whose many letters on the natural history of the area were subsequently compiled into a world best-selling book *The Natural History of Selborne* (1778-9).

Five members met next to the National Trust's Heritage Centre at the foot of Selborne Hangar. We were met by the Warden Chris Webb, and given an introductory talk on the use of the Hangar by man since Roman times. He also outlined the National Trust's present and future management plans for the site.

The first site visited was a path running along the foot of Selborne Hangar (Grid Ref SU740334) - an ancient beech wood on a steep Chalk slope. This mollusc-rich site, which had previously yielded 58 species, only provided half that number on this occasion. This was almost certainly a result of the recent, prolonged spell of dry weather with many night frosts. However, live specimens of *Pomatias elegans* (Müller, 1774), *Carychium tridentatum* Risso, 1826, several of our larger species of snails, and a number of slug species were found, including the great grey slug *Limax maximus* L., 1758. A single dead shell of the *Ena montana* (Draparnaud, 1801) was also found, and although uncommon nationally, the species is well known at Selborne.

After lunch we travelled a few miles down the B3006 road to the farewell Hangar near Hawkley. Accessed from the appropriately named Snailing Lane, here we looked at 2 sites, both at the bottom of a steep Upper Greensand slope with trees of mostly neglected hazel and a ground cover of wild garlic and dog's mercury. The first site (SU755293) was again affected by dry conditions and made finding snails and slugs rather difficult.

However, we did manage a number of damp-loving species, mostly zonitids, including *Oxychilus helveticus* (Blum, 1881) and a few species of slugs.

The third of our survey sites (SU758298) was an area of the Hangar known as the 'Slip'. This is so called because of a considerable landslide in 1774, caused by excessive water in the underground springs which undermined the Greensand, and with the result that the steep Hangar collapsed and slid. The event is recorded by Gilbert White in his book. It is also said that "a thousand people from the villages and hamlets in the area came to witness the sight on the day after the collapse".

This last site lies at the foot of the scarp with similar habitat to Farewell Hangar. Here, much excitement was generated when dead shells of the cheese snail *Helicodonta obvolvata* (Müller, 1774) (see p.7) were found. We then found living specimens in a rotting tree trunk, the classic winter habitat for the snail, described to me by Harry Beeston, who made an extensive study of the species many years ago. This is a new site for the species, and together with the record from Crabbe Wood, near Winchester, is the most northerly location in Britain where the snail is known to be living.

As if this totally unexpected and welcome find were not enough, within minutes we found two living specimens of the uncommon species *Phenacolimax major* (Férussac, 1807). This confirms an old record for the site made 14 years earlier by June Chatfield. Both of these important finds certainly compensated for the low number of species recorded at our 3 sites and sent us home well satisfied with the day's work.

Acknowledgments

My thanks are due to Mr Chris Webb and to the owner of the land at Scotland Farm for permission to go on their land, and to

the participants - Ron Boyce, June Chatfield, Rosemary Hill and Judith Nelson, who together contributed to a pleasant and productive day, and finally to Dr Michael Barker for commenting on this article.

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 White, G. 1778-9. *The natural history of Selborne*. Penguin English Library reprint 1978, pp221-222.

List of mollusc species recorded (L = live, S = dead shell only)

| | Site 1 Selborne SU740334 | Site 2 Farewell SU755293 | Site 3 The 'Slip' SU758298 |
|------------------------------|--------------------------------|--------------------------------|----------------------------------|
| <i>Pomatias elegans</i> | L | | L |
| <i>Carychium tridentatum</i> | L | | L |
| <i>Cochlicopa lubrica</i> | L | | |
| <i>Ena montana</i> | S | | |
| <i>Ena obscura</i> | L | L | |
| <i>Discus rotundatus</i> | L | | L |
| <i>Arion subfuscus</i> | | L | |
| <i>Arion hortensis</i> agg. | | L | |
| <i>Arion silvaticus</i> | L | | |
| <i>Vitrina pellucida</i> | L | | L |
| <i>Phenacolimax major</i> | | | L |
| <i>Vitrea crystallina</i> | | S | S |
| <i>Aegopinella pura</i> | L | | |
| <i>Aegopinella nitidula</i> | L | L | |
| <i>Oxychilus draparnaudi</i> | | L | |
| <i>Oxychilus cellarius</i> | L | L | |
| <i>Oxychilus alliarius</i> | L | L | L |
| <i>Oxychilus helveticus</i> | | L | L |
| <i>Limax maximus</i> | L | | |
| <i>Lehmannia marginata</i> | L | | |
| <i>Deroceras reticulatum</i> | L | L | |
| <i>Cochlodina laminata</i> | L | | |
| <i>Macrogastra rolpheii</i> | S | | S |
| <i>Clausilia bidentata</i> | L | | S |
| <i>Monacha cantiana</i> | | | S |
| <i>Trichia striolata</i> | S | S | |
| <i>Trichia hispida</i> | L | L | |
| <i>Helicodonta obvolvata</i> | | | L |
| <i>Arianta arbustorum</i> | L | | |
| <i>Helicigona lapicida</i> | | | S |
| <i>Cepaea nemoralis</i> | L | S | L |
| <i>Cepaea hortensis</i> | L | L | L |
| <i>Helix aspersa</i> | L | | L |

Freshwater Pearl Mussel Workshop *Management of Remnant Populations*

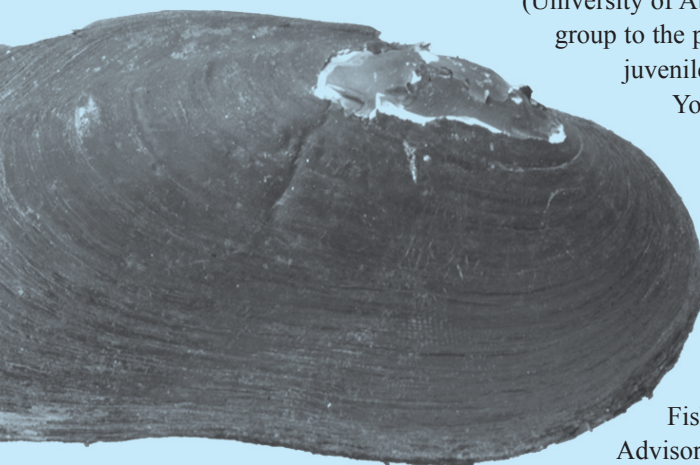
On the 16th of April the Environment Agency and English Nature jointly hosted the above workshop in Warrington. This captured the attention of the media and Society members may well have seen articles in the national press, or seen and heard TV and radio coverage. The angle taken was generally focused on 'poor sex-starved populations'!

The Freshwater Pearl Mussel (FWPM), *Margaritifera margaritifera* is threatened across its entire range. However, within the UK, in the northern part of the range there are many strong recruiting populations. These are found in rivers north of the Highland Line in Scotland and some in rural Northern Ireland. At a UK level the protection and support of these relatively healthy populations is the first priority and available funding and research effort within the UK has been directed accordingly.

The FWPM populations throughout England, Wales and lowland Scotland are in decline. Only one river (in Cumbria) has a good recruiting population; the others are recruiting weakly if at all. In most cases the remaining populations comprise a few scattered groups of ageing individuals, with declining

numbers found on each repeat survey. The aim of the workshop was to

- consolidate the current state of knowledge about the species in the UK
- bring together FWPM workers from all parts of the country
- agree best management practices
- work towards guidance on future



management for the non-recruiting populations.

The workshop had representation from: EA local and national staff, EN and CCW nationally and locally, SNH, Academics and researchers with relevant knowledge, National Parks and Wildlife Trusts. A series of presentations from FWPM workers was aimed at describing the national status of the species and updating the group on current relevant research.

The first talk was from Ian Killeen

(Malacological Services) "The Status of *Margaritifera margaritifera* in England and Wales" provided a general introduction to the present situation. This was followed by Peter Cosgrove (The Cairngorm Partnership) "The remnant populations of Scotland" giving the picture north of the border. Lee Hastie (University of Aberdeen) introduced the group to the problems of "Estimating juvenile populations" and Mark Young (University of Aberdeen) and Iain Sime (SNH) discussed the pros and cons of "Moving adult FWPM". Looking to the future, David Fraser, (EN Freshwater Fisheries and Species Advisor) talked about "Catchment protection; addressing agricultural impacts". Anna Holmes (National Museum of Wales) rounded off with a description of her research on "Genetic variation, work in progress"

The afternoon was taken up by an informal syndicate exercise including a questionnaire to allow group members to give their views on future priorities. A discussion session and a summary of the day by Graham Oliver (National Museum of Wales) rounded off the event.

Anne Lewis, Environment Agency, Newcastle

A NOTE FROM THE NON-MARINE RECORDER

I would like to inform members that during the summer months I will often be away from home. We generally make at least two working visits to Ireland each year, between May and October, then spend the winters at home in Cornwall. Because of these trips away there will inevitably be periods of many weeks when I will be unable to respond to correspondence. However, in the winter months I will respond to correspondence as quickly as possible and this will be the best time to send specimens. At all times members are welcome to e-mail or telephone if they wish to know that I am at home prior to sending slugs or other living molluscs.

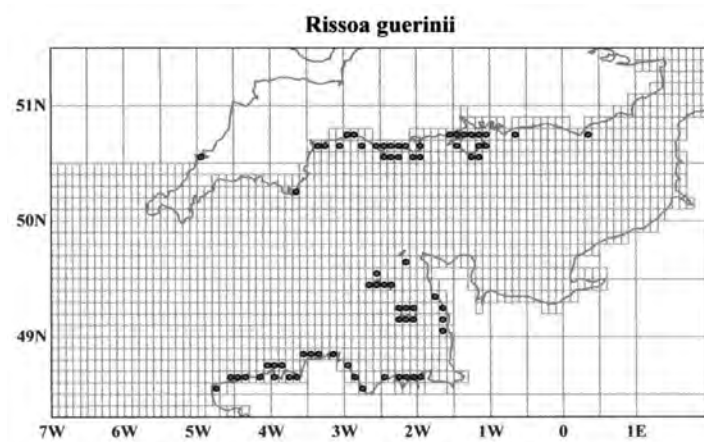
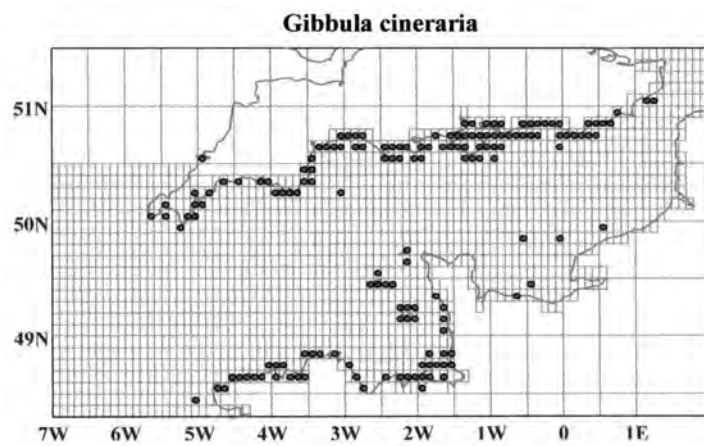
Geraldine Holyoak email: ger@gholyoak.fsnet.co.uk Telephone: 01209 716042

Marine News

The DOMMIC Project

Jan Light

It has been some time since we have given an update of progress on DOMMIC (Distribution Of Marine Molluscs In the Channel). Through Society field trips, individual recorders, and other organisations, we have accumulated records from most of the south coast of England and from the French coast west of Cotentin. All of these data have been entered onto a database through the efforts of several Society members, particularly the late Colin Gillard. Using Mike Weideli's specifically designed Recordit programme, we are able to generate distribution maps for all of the species. Two examples are given: *Gibbula cineraria* occurs at virtually every sample site and therefore this map effectively shows coverage; the map for *Rissoa guerinii* shows an interesting distribution - it is common on south central



coast of England but very rare west of Lyme Bay, whereas it is present at most sample sites in the Channel Islands and Brittany. There are many other species which also show unexpected patterns of distribution.

Our next stage is to try and obtain all available data from British and French sources such as CEFAS and Ifremer who have carried out Channel surveys. We also have to incorporate historical data, particularly from Cornwall. Our eventual aim is

to produce the Atlas as a CD-ROM. In the meantime, if any members would like to go recording on the French coast east of Cotentin, please do so!

Manilla clams in Britain

Terry Wimbleton

Some 5 years ago, I collected large numbers of a venerid species from the east shore of Poole Harbour (SU048885). Most were freshly dead, articulated shells, but small numbers of live individuals were also present. At first I thought they were our native species *Tapes decussatus*, but on closer examination realised they were the Manilla clam *Ruditapes philippinarum* (Adams & Reeve, 1850). These were obviously introduced, but it was not until sometime later I discovered their origin. When visiting a seafood company in Portsmouth I found they were selling live *R. philippinarum* at £8/kilo! On enquiring as to the source I was told that they came from Poole Harbour where a MAFF approved fishery had been set around 1990. Apparently they were first introduced in the SW part of the Harbour (on the opposite side to where I usually collect them), so they are clearly thriving and spreading.

As the name implies, *R. philippinarum* is native to Asia (W. Pacific) but since the 1930s it has been deliberately and accidentally introduced into many countries around the world including the west coast of the USA and Canada, the Mediterranean, and on Atlantic European coasts (Brittany, northern Spain, and in England at Poole and Whitstable - specimens have also been reported in Essex estuaries). Members are asked to look out for this species elsewhere in the British Isles. A guide to their identification is shown on page 12.

Ensis americanus continues

to spread
Ian Killeen

The introduced razor, *Ensis americanus* is now very common on the east coast of England from the Humber down to East Kent, and in some places, such as The Wash, it dominates the molluscan fauna. A few specimens have also been reported from sites on the south coast of England. In April 2002, I found a single articulated pair on the shore at Angle Bay on the western end of Milford Haven, south Wales representing a considerable extension of the species known range in Britain. In April 2003, further shells were found at Angle Bay and also on the north side of the Haven at Dale. However, no live specimens could be located at either site whereas *Ensis siliqua*, *E. arcuatus*, and *Solen marginatus* were all living, along with occasional *Ensis ensis*. In eastern England, *E. americanus* appears to prefer more of a muddy-gravel habitat whereas the other razors prefer sand. Muddy-gravels are plentiful in Milford Haven and *E. americanus* may be starting to occupy these areas which the other razors seem to avoid.

Charonia lampas living in the mouth of the River Fowey, Cornwall.

by Stella Turk & Jan Light

One of the most spectacular examples of an animal extending its range northwards is demonstrated by the mollusc *Charonia lampas* which is the largest European sea snail, reaching 33 cm in length. It is following the fashionable trend set by many warm-water fish responding to the present warming of our seas.

Never previously recorded north of the Bay of Biscay, apart from a few that have been found in the Channel Isles area (Brehaut 1974; Crowley 1961), *Charonia* was reported off S. W. Ireland in 1970 and 1971 (O'Riordan 1972). In 1975 came its first British record when it was caught off the Cornish coast (Turk 1976). Subsequently there have been several Cornish records (Gainey & Turk 1997) as well as a report of three individuals off S. E. England (de Ligt 1987).

At the end of September 2002 two were taken together in the net of the trawler *Comley*, skippered by Robert Greenwood, (See page 7). He presented them to the Mevagissey Aquarium which is looked after by Chris Gilbertson. One was slightly larger than the other and Mr Gilbertson tells us that the larger snail started to lay eggs soon after the pair were placed in a tank. Sadly, during a

severe bout of cold weather in January, the snails died and the eggs failed to hatch.

In 1979 a pair in the Plymouth Marine Aquarium produced batches of eggs over many years and interesting observations were kept from July 1979 to March 1984 by the keeper of the Aquarium, Vicki Irlam (pers. comm.). The male immediately approached the female when he was first placed in the tank with her, and mating was observed many times over the span of years, usually taking place before each batch was laid. The egg capsules were draped on vertical surfaces, and the female remained by them, until the larvae started to emerge at which point she would move away, presumably not having fed during her vigil

Lelong (1993) describes the behaviour of a pair of *C. lampas*, and also notes that the female remains with the spawn, keeping the capsules clean and preventing any settlement of extraneous organisms. The female starts laying about a month after mating and three months later the free-swimming larvae emerge from the capsules, and commence their long planktonic life. In three years a couple can lay 5 million eggs which are grouped in capsules each of which contains many eggs.

These huge tritons feed mainly on echinoderms, favouring a starfish that is not in British waters, *Echinogaster sepositus*. Chris Gilbertson tells us that at no time during the 4 months that the most recent pair were kept in the Mevagissey Aquarium did he observe the snails feeding. We have no idea how long these individuals had been living in British waters before they were caught but it is possible that the snails would select an alternative, native starfish as their prey. What else they might eat, one wonders.

Brehaut, R. N., 1973. *The occurrence of Charonia lampas* (L.) at Guernsey. *Journal of Conchology* 25: 17-20.

De Ligt, J., 1987. *Charonia lampas* (L.) living off Dover. *Journal of Conchology* 32: 375.

Gainey, P. W. & Turk, S. M., 1976. More records of *Charonia lampas* (L.), a recent record of *Pteria hirundo* and a marine slug *Tylodina perversa* Gmelin new to Britain. *Journal of Conchology*

36: 78-79.

Lelong, P., 1993. Des millions de tritons. *Oceanorama*. No. 21.

O'Riordan, C. E., 1972 Two species of gastropod Mollusca new to the Irish fauna. *Journal of Conchology* 27: 371-372.

Turk, S. M., 1976. *Charonia lampas* (L.) (Gastropoda: Cymatiidae) living off the Cornish coast. *Journal of Conchology* 29: 29-30.

Stella Turk:
stella@reskadinnick.fsnet.co.uk and Jan Light: jan@janthina.co.uk

SPECIAL OFFER TO MEMBERS

First published in 1992, *The Land and Freshwater Molluscs of Suffolk* is a classic example of a county fauna. Based on the results of 11 years of research by the author, it maps by tetrad the distributions of the 150 species known to occur within the county. However this book should be of great interest to all conchologists not just those resident in the county of Suffolk. There is a wealth of ecological information provided in the species descriptions that is applicable throughout the UK and the details of the survey methods provide a blueprint for anyone involved in tetrad mapping at the county or vice-county level. The publishers of this volume, the Suffolk Naturalists' Society, have agreed to make the remaining stock available to members of the Conchological Society at the very special price of £5 (inc. p&p). To order your copy send your name and address along with a cheque for £5 made out to the Suffolk Naturalists' Society to: Mollusc Atlas Offer, Suffolk Naturalists Society, Ipswich Museum, High Street, Ipswich IP1 3QH.



A new snail reserve at Kew

Balea biplicata, the Thames door snail (or two-lipped door snail), was formerly recorded from scattered locations in central-southern England. Recent records suggest that it is now only known to be living in isolated populations along the River Thames at Kew, Richmond, Isleworth, Chiswick and Purfleet. A population living on scrubby waste ground close to the District Line embankment at Kew has been known for many years. This population has also been threatened by various development proposals and in the 1980s the proposed site for the Public Records Office was moved several hundred yards so that the development did not harm the snails. Another attempt to develop the

area in 1989 was followed in 1996 by a plan submitted by St. Georges Developments of Twickenham. This company was awarded The Queen's Award for Enterprise: Sustainable Development 2002 for its work on the practical development of 'brown field' sites. Before detailed plans were produced the developers discovered that the site contained an area of land set aside for *Balea biplicata*. As a result they asked Bernard Verdcourt to undertake a site assessment for the snail. This survey revealed that the area supported a population of c.20,000 snails. The company agreed to fence off the majority of the reserve and move the few threatened snails to other parts of the reserve.

The developers went ahead and have built a prestigious Kew Riverside Park. In cooperation with the Biodiversity Unit of the Greater London Authority they have maintained a fenced area of about 0.45 acres to protect the snails. The Kew snails were also afforded a spread in Richmond Guardian on January 30 2003 under the heading 'Site developer to rescue rare snails'. In real-estate terms these *B. biplicata* must be occupying one of the most expensive habitats in England, as flats on this new development start at £434,950! Boards have apparently been erected to provide information for both residents and passers by. A reserve management

plan has been produced to maintain the site in a scrubby (but litter-free!) state by periodic tree surgery. St. Georges Developments also intend to support a specific research project.

The New Forest Ponds Project - The Conchological Society's Involvement

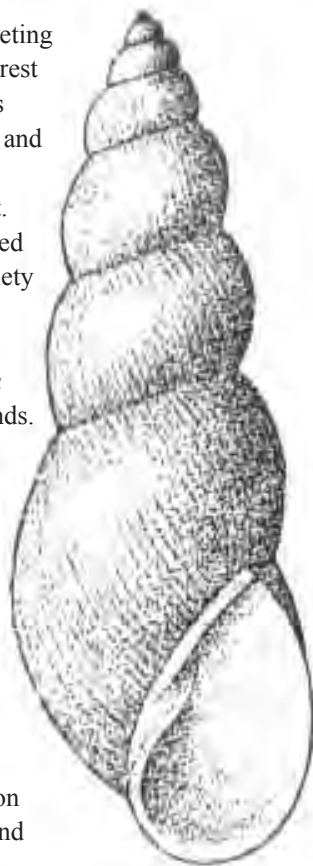
The New Forest Ponds Project is a joint initiative of the Ponds Conservation Trust and the Hampshire and Isle of Wight Trust, supported by the Natural History Museum and the Forestry Commission. The project aims to increase understanding of the biodiversity value of ponds in the New Forest, by encouraging and supporting volunteer based surveys.

The New Forest Ponds Project will collate existing datasets relating to the Forest's ponds; identify where gaps in knowledge for valuable species exist; co-ordinate survey activity to meet these needs. Many of these ponds occur on gravelly or acidic sandy areas, are shallow and subject to occasional drought. These conditions do not support rich faunas of aquatic molluscs, but they are favoured by *Lymnaea glabra*. This Red Data book species is declining in the UK due to the drainage of marshy waste ground, eutrophication and even the deepening of ponds to improve conditions for dragonflies.

In May a discussion meeting was held in the New Forest to establish how various interested organisations and individuals might contribute to the project. Martin Willing suggested that Conchological Society members might be involved in monitoring populations of *Lymnaea glabra* in the Forest ponds. Possible future work includes:

1. An inventory of known sites for *L. glabra* in the New Forest.
2. Society field meetings in 2004 to look at New Forest ponds.
3. Information sheets on survey techniques and identification guide.

If you would like to become involved in this project please contact Martin Willing (molluscs@willing.fsbusinessnet.co.uk) for details and a sheet of standard recording requirements. The project will be part of the National Pond Monitoring Network (see www.pondstrust.org.uk). This network will collate



leaches a chemical to deter epifauna from its surface, which also prevents grazing animals, including ormers, from eating it. Some of the stringy weeds like the red *Gracilaria* are eaten but not enthusiastically. Brown flat weeds, like kelp, are acceptable if young and not too tough but the fucoids (wracks) are best avoided as they exude toxins into the water. The new alien kelp, *Undaria* is certainly plentiful where it occurs and no-one will worry if it is over collected but it does not freeze well so it is inadvisable to take more than the ormers will eat in a week.

Handling

An ormer's foot has amazingly strong suction. The animal will allow you to tear its shell off (which will kill it) before it will let go, so moving them from one tank to another is a problem. However, sections of plastic guttering, preferably dark in colour, provide shelter from the light and are attractive hideaways to ormers. So, the least stressful way of moving them is to keep transferring the ones that have moved onto these pieces of pipe. It can take patience and several weeks to move the last few stragglers, but there is no damage or stress to the animals. Alternatively, as with limpets on the shore, there is a knack of creeping up on ormers, from the rear, with a plastic scraper (of the type provided with new freezers for removing the ice) and sliding it smartly under the unsuspecting animal. If it becomes aware of your presence and clamps down, you must stop or the animal will be damaged and die.

Breeding and rearing

Breeding is seasonal so may be affected by water temperature and daylight hours. Our ormers have no difficulty in producing both sperm and eggs without manipulation of their environmental conditions. Rearing the juveniles is another matter!

Controlled rearing of ormers in the open environment is becoming increasingly popular, particularly in southwest England and southern Ireland. As they are not native to the northern shores of the English Channel, they should not be allowed to escape into the wild and upset the delicate balance of the ecosystem. Currently, ormers are kept in cages and, on an occasion when hatchery staff were unable to get out to replenish their food, it was discovered that they make an excellent job of cleaning the algal growth from hatchery netting cages. An aquaculture co-operative is developing in the Southwest, to share management expertise, and may signify an imminent increase in the production of the European abalone.

Jenny Mallinson, Aquarium Manager
School of Ocean and Earth Science, Southampton Oceanography Centre, European Way, Southampton. jxm@soc.soton.ac.uk

UPDATE - SNAIL SEARCH 2003 Why keep looking for 'aliens'?

Since Snail Search was highlighted in the 1st edition of *Mollusc World* many more results have been sent in from across England and Wales! We were delighted to receive results from families, schools and Conchological Society members. So, many thanks to those that sent in their results and offered their support.

Many of the correspondents in 2003 reported that they could not find the girdled snail *Hygromia cinctella*. Therefore, we cannot report any exciting new vice-county records for this 'alien' species. Though I would like to emphasise that we are very pleased with our recently received records, as they show us exactly where the 'alien' cannot be found. This information is very useful, as it will help us accurately map the distribution of the species if it continues to spread.

During the last 30 years or so the girdled snail has spread throughout regions of

Europe. This could be attributable to climate change. Snail experts predict and recent records show that this harmless 'alien' is spreading its way across Britain. So now is the time to map the growing distribution of this snail before it could be found everywhere. By tracking it's distribution we hope to find out more about the effects that changes in our climate could be having on our habitats. So please keep looking in your locality and let us know us know if you do or do not find the 'alien' snail! The Conchological Society and SCAN are planning to work in partnership next year to promote the Snail Search project and improve it's links with schools and families (see page 3).

Curators and Classrooms

The National Museums & Galleries of Wales have been looking at ways to share their knowledge and collections with the rest of the world. The SCAN (Schools &

Communities Agenda 21 Network) Snail Search Project has been a good way to bridge the gaps between curators and the classroom. For example, snail crazed enthusiasts at Llandullas School in Conwy, recently came across an unusual snail. They e-mailed Snail Search a close up photograph of the snail which we then identified as the land winkle *Pomatias elegans*. The school was also involved in other activities like the snail olympics. Schools will now be able to loan snail suitcases from the National Museum's loan service. Each suitcase contains snail specimens, identification charts, magnifying glasses and photographs.

National SCAN Project Officer
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E-mail: danielle.cowell@nmgw.ac.uk
www.scan-online.org

News from Ireland continued

I am grateful to Roy Anderson for providing other new or interesting finds in Ireland: *Lehmannia nyctelia* in the Palm House, Belfast Botanical Gardens, Coll. RA, ii.2003 - the first Irish record; there are still many new and extensive records of *Lehmannia valentiana*; *Vertigo angustior* has been rediscovered near the Giant's Causeway Antrim, vii.2002, G. Holyoak (see *British Wildlife* Dec 2002); *Hydrobia acuta neglecta* has been confirmed from Ann's Point, County Down, ix.2001, by J. Nunn & RA (originally recorded as *ventrosa* agg. - note that *acuta neglecta* (= *neglecta* Muus) has otherwise been recorded only from Kilonan, Inishmore, Galway and Leam Lough Belmullet, N. Mayo in Ireland); *Oxychilus helveticus* was found at Orwell Road, Dublin, iv.2002 (RA) - and is probably spreading rapidly in southern Ireland; *Hygromia cinctella* is established in a garden at Hilden Court, Hilden, Lisburn, Antrim, vi.1999 (RA).

In Ireland, Desmoulin's whorl snail *Vertigo moulinsiana* occurs principally in the midlands and is frequently associated with wetlands adjacent to or near the 2 canals. Although its geographical distribution is relatively well known, it is probably under-recorded within its range. New sites have been discovered west of Mullingar, Co. Westmeath and near Longford. Further detailed surveys for this species will be carried out this autumn.

Theba pisana has been relatively slow to spread in Ireland, unlike the case in south-west Britain. Although a population has been known from County Dublin for nearly 200 years, there were no further records until it was found in two separate locations in County Cork in the late 1990s. Over Easter on the Dingle peninsula in north Kerry, an extensive population was found on the sand dune system of the Maharees peninsula near Castlegregory. I have carried out several surveys in the area in recent years but not noticed *Theba* suggesting that it may have arrived relatively recently. Given this distributional jump from Cork to Kerry, *Theba* might well be expected to spread to the dune systems to the north in County Clare and beyond.

In Issue 1 of *Mollusc World* I mentioned a workshop that took place in Dublin on the conservation of protected *Vertigo* species. The proceedings of this conference have now been published as a volume of *Heldia*:

Speight, M.D., Moorkens, E.A. & Falkner, G. (eds) 2003. Proceedings of the Workshop on Conservation Biology of European *Vertigo* species, Dublin, April 2002. *Heldia* 5 (7): 1-180.

Anyone interested in obtaining a copy should contact Gerhard Falkner, email: Falkner@malaco.de

Evelyn Moorkens

Ormers in captivity

Introduction

I make no claims as an expert in the culture of ormers. However, as with many animals that have been passed into my care (from turtles to mantis shrimps) I found that you have to learn fast if they are to survive and thrive. Advice is invaluable, preferably from people who know first hand from genuine experience, but if there is nobody to ask, watch the animals closely and let them tell you what they need.

My ormers (*Haliotis tuberculatus*) or abalone as they are called elsewhere in the world, are the outcome of a PhD study by Lus Lopez in 1993. Lus reared juvenile ormers with adult stock from the hatchery on Guernsey and as they were, arguably, non-native to the British mainland the animals could not be released locally when she had finished her work. Nor did the authorities on Guernsey want them back for fear of introducing disease. So, with basic instructions from Lus, they became my responsibility.

These animals live in the marine aquarium at Southampton Oceanography Centre, in porcelain sinks fed with circulating natural seawater which ranges from 14° to 20° C through the year. They also have air bubbled through each tank as a precaution against pump failure. Waste material is siphoned out once a week or more frequently when food is plentiful.

Feeding

The easiest and most natural food to provide is fresh seaweed although some species are more suitable than others. From a diver's point of view, diving is the easiest way to collect it. Rocky shores at low water are another source but care must be taken not to make too much impact on the natural balance of the beach. A more appropriate option is marina pontoons, where people go to considerable effort to clear algae throughout the summer. When weed is plentiful, some is put away in the freezer for winter feeding.

Flat green and/or red seaweeds such as *Ulva*, (sea lettuce) and *Palmaria* (dulse) are the best and have proved to be the most appreciated species by our ormers. These algae are also easy to keep alive in the aquarium. As plants they must, of course, have light and are best kept cool and near the surface of the tank. We store some algae in a mesh tray floating on the surface of an outdoor seawater tank.

Although the foregoing species are highly recommended, there are others such as *Calliblepharis* (no common name) if it is not heavily colonised by epifauna. Ormers do not appreciate the crunchy texture of sea-mat bryozoans! *Nitophyllum* and *Delesseria* (sea beech) are very thin red weeds and tend to deteriorate too quickly but *Cryptopleura* is less flimsy and so more durable and has the advantage of being very common in our estuary. The large red *Dilsea* (known as sea rags and looking like a crimson chamois leather)

data for a database supporting a national monitoring programme on the state of UK ponds. If you agree records made through this project could contribute to the National Ponds Database and be used by others for pond management purposes.

Roman Snails get stuck!

Dr. Nick Michael (Herts & Middlesex Wildlife Trust) has reported that there is a site in Hertfordshire where Roman Snails (*Helix pomatia*) are becoming trapped in an area of rabbit-proof fencing. This is a result of the mesh size of the fence, which allows snails to enter but then tends to trap their shells. The location of the site is being kept secret to discourage collection for the restaurant trade. Negotiations with the landowner are ongoing with the hope that a replacement fence with smaller holes will be used.

Reports from Molluscan Steering Groups

Priority Species listed by the Government's Biodiversity Action Plan (BAP) have dedicated Steering Groups for conservation management planning. These groups includes representatives from government agencies, NGOs and individual specialists. There are three steering groups for molluscs, those for BAP terrestrial and freshwater molluscs as well as a separate group dealing solely with the freshwater pearl mussel. These groups usually meet annually and a summary of the latest meetings follow.

1. The UK BAP Terrestrial Mollusc Steering Group (3rd to 6th June 2003)

This Steering Group met near Coleraine, Northern Ireland hosted by the Environment & Heritage Service (ESH) N. Ireland. The group covers terrestrial BAP species including *Vertigo moulinsiana*, *V. geyeri*, *V. angustior*, *V. genesii* and *Catinella arenaria*. The meeting reviewed recent research and monitoring for the 5 target species in the UK, then identified priority actions for future work. Since the first meeting in 1997, a considerable amount of progress has been achieved in understanding the habitat requirements and in some cases life histories of these species. The use of targeted surveys revealed many new populations of all of the BAP *Vertigo* species.

After the main committee meeting, Geraldine Holyoak led visits to a number of *Vertigo angustior* sites in undercliff habitat close to the Giant's Causeway. Other sand dunes in the North Antrim area were also visited, but no further populations were discovered.

The meeting was attended Adrian Fowles (Chair: Lead agency, CCW), Daryl Buck (Environment Agency), Richard Weyl (ESH), Evelyn Moorkens (DUCAS, Dublin), Ian Killeen (Malacological Services), Martin Willing (Conch. Soc.) Barry Colville (Conch. Soc.) and Geraldine Holyoak (Conch. Soc.). The representatives from Scottish Natural Heritage (SNH) and English Nature (EN) were unable to attend.

2. The UK BAP Freshwater Mollusc Steering Group (9th April 2003)

This Group met at the Environment Agency offices near Bristol. This group deals with the freshwater species *Anisus vorticulus*, *Segmentina nitida*, *Pisidium tenuilineatum*, *Myxas glutinosa*,

Pseudanodonta complanata; additionally the rare, but non-BAP species *Gyraulus acronicus* is also considered by the group. The meeting reviewed progress and results of research and monitoring of the target species in the U.K.. As with the terrestrial BAP species much has been learnt about the habitats



Roy Anderson, Geri Holyoak & Richard Weyl at the Giant's Causeway



Barry & Geri get down to it

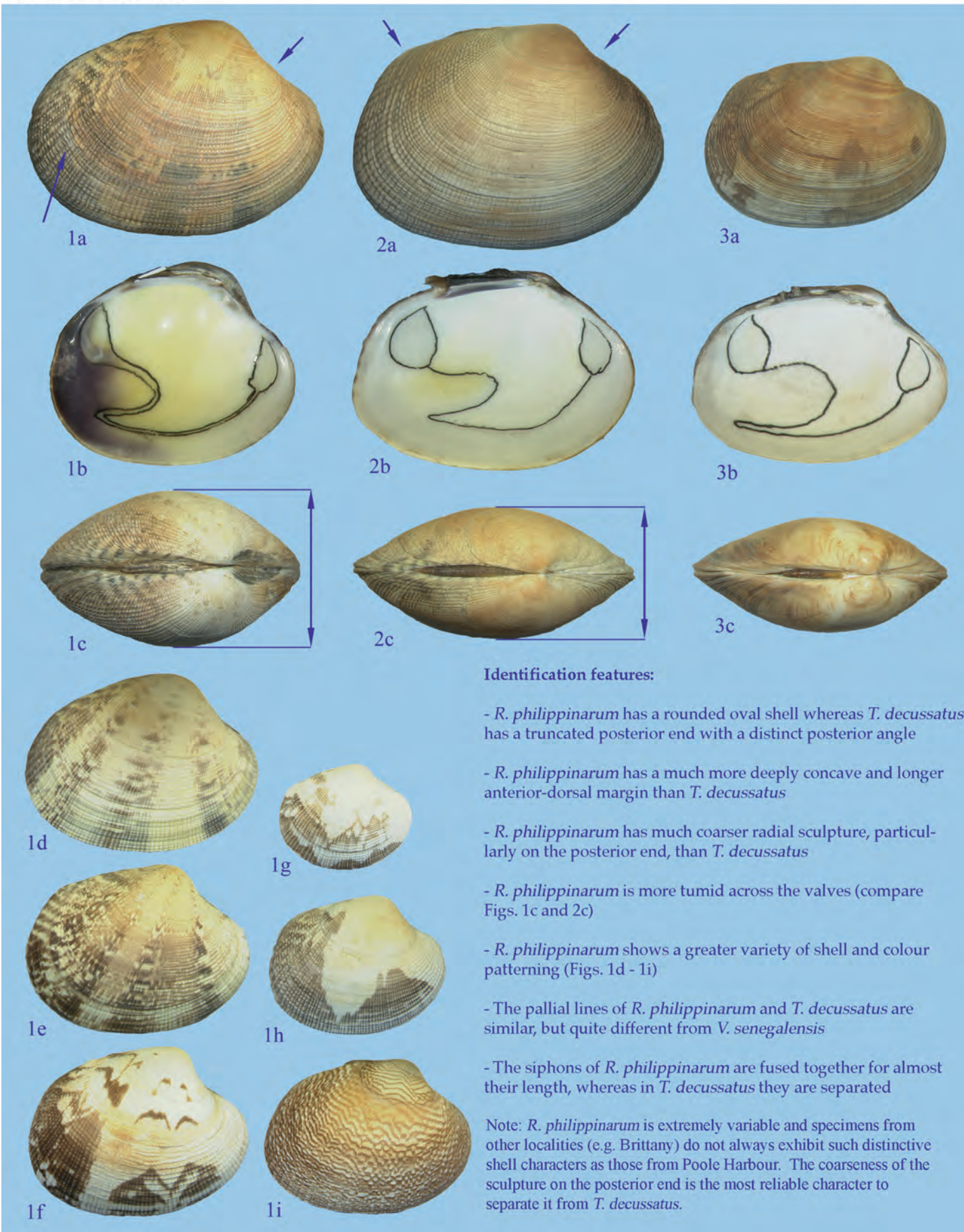
and distribution of these freshwater species since the group was established in 1998. Although many new populations of *P. tenuilineatum* and *P. complanata* have been discovered, only a relatively small number of new populations of *S. nitida*, *A. vorticulus* and *G. acronicus* have been located, whilst *M. glutinosa* remains at a single known U.K. site.

The meeting was attended by the chair, John Steel (Environment Agency), and also from the Environment Agency (Juliette Hall, Francis Farr-Cox, John Murray Blich, Shelagh Wilson and Alisa Watson). The other members of the group were David Aldridge (Cambridge University), Ian Killeen (Malacological Services) Graham Oliver (National Museum & Galleries of Wales), and Martin Willing (Conch. Soc.). The representative from The Countryside Council for Wales was unable to attend.

Reports compiled by: Martin Willing, Conservation Officer.

Identification of *Ruditapes philippinarum*

This plate shows a size and colour range of *Ruditapes philippinarum* (Figs. 1a-i) along with typical specimens of *Tapes decussatus* (Figs. 2a-c) and *Venerupis senegalensis* (Figs. 3a-c). All are shown at life size. Specimens collected by Terry Wimbleton (*R. philippinarum* from Poole Harbour). Other specimens from NMGW collections. Colour imaging by Ben Rowson (NMGW).



A Colour Guide to *Vertigo* species

All specimens from NMGW collections. Colour imaging by Ben Rowson (NMGW).

