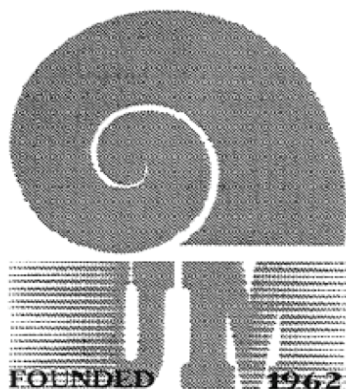


UNITAS MALACOLOGICA



Newsletter

Number 32
October 2012

What's Inside

Congress update (WCM 2013)	3
Secretary's column	5
Student research awards 2012	7
WCM 2013 travel grants	7
Treasurer's report	8
Conference report	9
Publication announcement	10
Student research reports	11
Mystery of the unicorn snail	16
Obituaries	17

Dear members,

In less than a year we will gather for the next World Congress of Malacology in the Azores! This issue of the newsletter contains the most up to date information on the conference, to help you make your plans for next summer.

The Congress will include several thematic symposia; these are announced within the Newsletter and outline a stimulating and diverse programme (p. 3). There is still room for more contributions but any thematic symposia must be finalised soon!

*This Congress promises to be an inclusive, global meeting of Malacology. Once again the **American Malacological Society** will migrate away from North America and join the WCM for its annual meeting.*

Several members of council, including your loyal newsletter editor, travelled to Ponta Delgada, Azores in March 2012, to visit the Congress venue and we had a stimulating and productive meeting there. The Congress venue is spectacular, the hospitality we enjoyed was excellent, including an impressive variety of edible marine invertebrates, and we are looking forward to a wonderful meeting next summer.

Other items of Society business considered at Council include the WCM venue for future years, council elections, and the newly proposed UM malacological laureate. These will be the subjects for general discussion at the UM annual general meeting at the Congress in July, and your input, as a member, is warmly welcomed.

Within the current newsletter we announce the 2012 winners of the UM student research awards (p. 7). There will be no student research grants awarded in 2013 as that fund is diverted to support travel to the WCM. Application deadline for travel grants from UM is 1 February.

Thanks goes to Dai Herbert (former UM secretary) for the report of his incredibly entertaining snails (p. 16).

JDS

Next newsletter - March 2013

WCM abstract & early registration deadline - 30 April 2013

WCM Azores - 21-28 July 2013

www.wcm2013.com

Our aim is to further the study of Mollusca by individuals, societies and institutions world-wide

Affiliated Organisations

American Malacological Society | Belgische Vereniging voor Conchylologie | Conchology, Inc. | Deutsche Malakozoologische Gesellschaft | Friedrich Held Gesellschaft | Hungarian Malacological Society | Instituto Português de Malacologia | King Leopold III Foundation | Latvian Malacological Society | Malacological Society of Australasia Ltd | The Malacological Society of Japan | The Malacological Society of London | Malacological Society of the Philippines | Nederlandse Malacologische Vereniging | Sociedade Brasileira de Malacologia | Sociedad Española de Malacología | Sociedad Malacológica de Chile | Società Italiana di Malacologia | Société belge de Malacologie | Society for the Study of Molluscan Diversity, Japan

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World Congress of Malacology *Açores, 21-28 July 2013*

www.wcm2013.com

The “World Congress of Malacology” (2013), the emblematic event of UNITAS MALACOLOGICA (UM), will be held on the main campus of the University of the Azores, at Ponta Delgada, São Miguel, from **21-28 July**. The congress will also facilitate activities of its affiliated societies, under the coordination of UM; the American Malacological Society (AMS), The Malacological Society of London (MSL) and the Sociedad Española de Malacología (SEM) have already expressed interest in this association.

Scientific Presentations

The congress is open to all contributions in the field of malacology and will host symposia as well as contributed papers and posters.

Any attendees may submit abstracts for inclusion in the symposia. All abstracts will be submitted to the central programme committee.

Participants are still welcome to propose additional symposia, but proposals must be received by **1 December 2013**.

Abstracts for poster and oral presentations will be submitted via the Congress website - abstract submissions will open in November and the final deadline will be 30 April 2013.

The conference will start with an “icebreaker” reception late afternoon on Sunday, 21st. The scientific presentations will be organized in parallel sessions on Monday, Tuesday, Thursday and Friday. For Wednesday, a choice of leisure activities, not included in the registration fee, will be made available by our travel agency, including touristic trips around the island, whale watching, diving and nature walks.

Collecting in the Azores has been recently legislated. Permits must be acquired at the proper governmental agency; further information will be posted on the Congress webpage. The Congress does not issue collecting permits. However, we strongly urge collectors to consider associating with the Azorean home team for their researches.

Symposia

Living in the extreme: molluscan communities of chemosynthetic habitats

Verena Tunnicliffe & Anders Warén
verenat@uvic.ca

Tempo and mode in land snail evolution: the origins and limits of diversity

Robert Cameron & Beata Pokryszko
radc@blueyonder.co.uk

Gains and losses of freshwater bivalves and their consequences for ecosystems (sponsored by Instituto Português de Malacologia – IPM)

Manuel Lopes Lima, Ronaldo Sousa & Joaquim Reis
lopeslima.ciimar@gmail.com

Mollusks in a changing world (sponsored by the American Malacological Society – AMS)

Peter Marko and Brad Seibe
pmarko@clemson.edu

How did they get here?: (Palaeo)Biogeography of marine molluscs

Sérgio Ávila, Carlos Marques da Silva & Ricardo Cordeiro
avila@uac.pt

Who are the “Aculifera”?

Julia Sigwart, Christiane Todt & Amélie Scheltema
j.sigwart@qub.ac.uk

There’s something about Opisthobranchia

Heike Wägele, Terry Gosliner & Jesus Troncoso
troncoso@uvigo.es

Molecular phylogenetics and paleontology

Steffen Kiel & Suzanne Williams
skiel@uni-goettingen.de

Biodiversity and evolution of pulmonate taxa

Benoît Dayrat
bdayrat@ucmerced.edu

Mudflat molluscs

Peter Beninger
Peter.Beninger@univ-nantes.fr

The Evolution of colour polymorphism in Molluscs

Malgorzata Ozgo
mozgo.biol@interia.pl

Logistical details

Convenient accommodation will be available at the university dormitories (about 30 rooms); priority will be given to students. The youth hostel has kindly reserved all rooms for the occasion, available for students only. This accommodation will be provided on a first come first served basis, and will be handled through the organization.

Travelling, hotel accommodation and leisure activities will be handled by the travel agency TOP-Atlântico (<http://www.tadmc.com>) and full information on package deals can be obtained can be obtained from helio.pereira@tadmc.pt. The congress will not coordinate hotel accommodation.

Congress registration fees (€) (before / after 30 April 2013):

- Full registration, UM-members or members of affiliated society in good standing 220 / 270
- Full registration, non-UM-members 280 / 330
- Student, UM-member or member of affiliated society in good standing 110 / 150
- Student, non-UM-member 160 / 200

Fees include registration, abstract book, icebreaker, lunches during session days, drinks and the wine/beer/degustation poster reception. The congress dinner is not included.

Student awards

There will be several student awards for oral and poster presentations, including awards presented by UM and awards presented by affiliated societies. The process will be jointly coordinated.

Travel grants

UM will provide a consistent amount of Travel Grants. Applicants must be a member of UM or of an affiliated society in good standing UM membership condition. If not, a three-year UM membership will be deduced from the grant. The maximum amount of any Travel Grant will be € 400 for applicants from Central/Western Europe and North America and € 800 for the

remaining cases.

Application forms will be sent out with the next circular and will be available from the WCM 2013 website and the UM website. They can also be requested when pre-registering (see below).

Information on UM affiliated societies' grants to their student members will be made available also through the Congress website, upon acknowledgement to the organization committee.

More information

The congress website (www.wcm2013.com) is currently being populated with information and interactive registration. In the meantime additional info can be obtained at:

WCMAzores2013@uac.pt.

You can also PRE-REGISTER at this e-mail address, or directly through the webpage, when available, by indicating:

- (1) what kind of presentation(s) you would like to give (NOTE: each participant can only act as first author of ONE oral presentation and ONE poster presentation);
- (2) what type of registrant you are (UM member, student UM, non-UM member, student non-UM);
- (3) if non-student, whether you intend to stay at the University dorms + how many persons/room. NOTE: priority given to students);
- (4) if student, which accommodation you prefer (University dorms/youth hostel+ how many persons/room);
- (5) whether you want to receive a Travel Grant application form;
- (6) whether you need a congress « invitation » or « acceptance » letter (sometimes needed for certain grant applications).

Pre-registration IS NOT A FORMAL BOOKING; it simply implies that you will be put on the congress mailing list, so that you will automatically receive the next circulars (via E-mail, unless explicitly requested otherwise).

The airplane will be the only means of transportation to and from the Azores. SATA (Azorean Airways), sometimes code-sharing with TAP (Portuguese Airways), is the only company

flying regularly to/from the Azores. SATA flies also to/from some other points. We are proud to announce that SATA is a sponsor of the WCM Azores 2013! Special opportunities will be offered to those who book their ticket through SATA services. Detailed information will be posted on the Congress webpage. In the meantime, you may wish to take a look at the airline's website, www.sata.pt

See you soon in Ponta Delgada, São Miguel Island, Açores!

António de Frias Martins
UM President
frias@uac.pt

*Jesús Troncoso and Mark Davies (seated)
test out the excellent meeting rooms in the
University of the Azores*



Jesús Troncoso
UM Secretary

Secretary's Column

Dear Members

The principal task for the Secretary in this semester of 2012 was the assessment of the Student Research Awards. A total of 14 applications were received from seven countries: Australia, Belgium, Brazil, Ireland, Portugal, Spain and United States.

Diverse topics in different malacological fields were presented. The final decision was difficult because the quality of most of the projects presented was high, but unfortunately we have resources to give only two awards this year. You can see the winners below. Many thanks to all evaluators for their hard and excellent work.

From this column, I would like to encourage the students to present their results in 2014.

Why 2014? Because in 2013, the UNITAS economic efforts, will be to support the participation of the students in the congress of Azores. You can find the information to apply following this column. The deadline for submissions will be 1st February 2013.

The last council meeting was celebrated last March in the Azores Islands. All the issues discussed were in relation to the next congress; the local team is doing a great job and I'm sure it will be an excellent conference. Enjoy reading the first circular and mark the dates in your schedule.



Above. Intertidal *Acanthochitona* near Ponta Delgada, host city for WCM 2013.

Right. Members of council investigate Azorean landsnails (Mark Davies and António Frias Martins, at front)

Below. Dinner after a successful Council meeting (from left to right: Jesús Troncoso, Ana Costa, Julia Sigwart, Maria do Céu Patrão Neves MEP, Mark Davies, António Frias Martins)



Congratulations to the 2012 UM research award winners!

We are pleased to announce the winners:

Igor C. MIYAHIRA
Universidade do Estado do Rio de Janeiro
(Rio de Janeiro State University), BRAZIL

Project: *Diversity and morphology of freshwater mussels (Unionoida: Hyriidae: Diplodon Spix in Wagner, 1827) in Brazil.*

Carla LOURENÇO
University of Algarve, PORTUGAL

Project: *First record of the marine mussel Perna perna along the European coast: long overlooked or a recent range expansion?*

Congratulations to both, we wish all the best with your future research. We look forward to receiving your project report next year for publication in UNITAS Newsletter.

Project reports of the 2010 winners are published herein (p.11–16); reports from the 2011 awardees will be published in UMN33 (Spring 2013).

UM Travel Grants

TRAVEL GRANTS TO ATTEND THE
WORLD CONGRESS OF MALACOLOGY

PONTA DELGADA, SÃO MIGUEL, AZORES
ISLANDS, PORTUGAL

21-28 JULY, 2013

Unitas Malacologica will provide travel grants to help students of malacology attend the World Congress of Malacology, Azores 2013. An anticipated sum of 20,000 will be set aside for this purpose. Travel Grants will be allocated depending on basic travel costs: a maximum amount of 400 euros in case of relatively short distance travel, while a maximum amount of 800 euros is reserved for long distance travel.

Anyone actively involved in the study of molluscs may apply, whether amateur or professional. Preference will, however, be given to registered postgraduate students and malacologists who do not have access to significant alternative funding. A major aim is to encourage wider representation at congresses of malacology students from areas such as Asia, Africa, South America and Eastern Europe.

Competition for these awards is high and established malacologists with permanent institutional posts are encouraged to seek funding elsewhere. Awards will be made on the basis of merit and need, as determined by the Council of UM. To be eligible, applicants must be a member of Unitas Malacologica or of an affiliated organisation, and all applicants must indicate that they will present either an oral paper or a poster. Successful applicants will receive their awards upon registration at the congress venue in Azores.

In addition to the completed form, applicants must send a half-page summary of the proposed paper or poster, and a supporting letter from a referee or supervisor outlining the qualities of the applicant and their work.

An electronic application form is available from the UM website:

unitasmalacologica.org/projects.html

The completed form, together with the abstract/summary of the presentation and the letter of support should be emailed to the UM Secretary Jesús Souza Troncoso (troncoso@uvigo.es).

Closing date for applications
1st February, 2013

Treasurer's Column

Dear members,

Unitas Malacologica has contributed to the World Congress in Phuket, 2010, with not less than 25,000.00 euros, enabling 32 young researchers and PhD students to participate. An additional amount of 1,000.00 euros was spent to award the best oral and poster communications by students.

In contrast to previous congresses, the Phuket Congress did not offer UM a financial return due to a number of circumstances on which the Congress organisers had no control. The most important is that the Phuket Congress was a great success story scientifically and socially, and that many Asian malacologists could attend a UM World Congress.

As a consequence, the financial situation of Unitas presented to the Council earlier this year, is now similar to the situation in December 2004. This might impede a creditable contribution from Unitas to the World Congress in the Azores next year as well as to several subsequent congresses.

In March 2012 the UM Council endorsed my proposal to limit the expenditures in the coming years to the most strictly necessary and to give as a priority maximum emphasis on the Azores Congress travel grants.

In order to raise our income I have enhanced my efforts to collect membership fees. Also I made a plea for adding donations of 50 euros or more. The response to this from individual members has been considerably higher than in previous years.

Moreover the Malacological Society of Japan has generously donated 1,000.00 euros to the UM Trust Fund, for which again I express my highest gratitude. Together with Ilmari Valovirta I share the idea that other malacological societies could also play a role in contributing to the UM Trust Fund annually or occasionally.

For those who pay their fees spontaneously you may use the form 'payment of membership' which is available at the UM website <<http://www.unitasmalacologica.org/membership.html>>.

Donations to the Trust Fund are key to set up activities to the benefit of PhD students and young researchers, in particular for the congress travel grants, the 1,000 euros research awards and the congress prizes.

It is therefore my pleasure to mention the individual donations to the Trust Fund received in the period November 2011 – August 2012:

- 14 generous donations by Arthur Bogan, Abraham Breure, Robert Cameron, Henk Dijkstra, George Dussart, Antonio Frias Martins, Michael Hadfield, Carole Hickman, Serge Gofas, Alan Kabat, Paula Mikkelsen, Beate Pokryszko, Jon-Arne Sneli, Ilmari Valovirta,
- smaller ones by S.E.R. Bailey, Anette Baur, Bruno Baur, Mark Davies, Arie Janssen, Kurt Lohrum, Yolanda Manga González, Alexander Nützen, Elisabeth Platts, Willy Sleurs, Yoshitake Takada, Jesús Troncoso, Janice Voltzow,
- and round-ups by Prem Budha, Barry Colville, Sadao Kosuge, Angel Luque del Villar, Mrs J. Meyer, Fred Naggs, Julia Sigwart and Kenji Torigoe.

Thank you all very much.

Best wishes.

Jackie Van Goethem
UM Treasure

Conference Report

Puerto Madryn hosted the VIII Latin American Congress of Malacology (CLAMA VIII) June 2011

CLAMA VIII was held in the city of Puerto Madryn, Argentina, between June 13 and 17, 2011. Despite the ashes produced by the Puyehue volcano in Chile, which disrupted flight schedules in the Southern Hemisphere for few weeks, 233 researchers and students from Argentina, Brazil, Chile, Colombia, Spain, France, Mexico, Uruguay, New Zealand, Peru, and Venezuela met at the Patagonian National Center (CENPAT) and shared their professional experience through some 300 research contributions.

The starting date of the event was intentionally moved one day later than originally planned, to Monday 13, providing travellers with cancelled flights with enough time to get to the city by other transportation means. The first day of activities welcomed the weary travellers with a social mixer and an informal talk given by Dr. Erick Baqueiro about the origins of the CLAMA and the Latin American Association of Malacology (ALM) - celebrating 20 years of operation. The ALM started its activities in July 1991 in Caracas, during the CLAMA I, under the name of Organizing Committee of Latin American Congresses of Malacology (COCLAM). The new name and status were adopted in July 2005, during the celebration of CLAMA VI.

In addition to oral and poster sessions, two round tables were held during the event. Drs. Jose Murillo and Javier Castillejo Iglesias Piñeiro, from University of Santiago de Compostela, Spain, discussed on several aspects of pest control and slugs in agriculture, while Drs. Nicholas Ortiz, Augusto Crespi-April, María Edith Ré, and Peter Baron, from CENPAT, on the current status of cephalopod studies in Latin America.

Two graduate courses were also available for the attendants. The first course, provided an introduction to the theory and practice of geometric morphometrics and was taught by Drs. Rolando González-José and Silvina Van der Molen. The second was on aquaculture and commercial processing of bivalve molluscs, and was taught by Drs. Cecilia Brown, Diana Bohn,

Marcela Pascual, Myriam Elvira, María Ana Reussi, and Cesar Gentile.

Seven separate workshops addressed particular subjects on Latin American malacology:

- i) The Third Meeting of the South American Network for Conservation and Sustainable Use of Bivalve Molluscs, coordinated by Dr. Alvar Carranza from Universidad de la República, Montevideo, Uruguay, and sponsored by The Pew Environmental Group and The Nature Conservancy;
- ii) Systematics and Phylogeny of Neotropical Continental Gastropods, coordinated by Dr. Gabriela Cuezco from Universidad Nacional de Tucumán;
- iii) The II Latin American Symposium on Invasive Species of Molluscs, coordinated by Dr. Gustavo Darrigran, from Museo de La Plata, Argentina, and Dr. Carlos E. Beiz, from Universidade Federal do Paraná, Brazil;
- iv) Bioecology of Mangrove's Shellfish, coordinated by Dr. Helen Matthews Cascon from Universidade Federal do Ceará, Brazil
- v) Biology of the Ampullariidae, coordinated by Dr. Alfredo Castro Vazquez from Universidad Nacional de Cuyo, Argentina;
- vi) The Second Workshop on the Gastropod Genus *Heleobia*: Foundations for an Interdisciplinary Approach, coordinated by Claudio G. De Francesco and Fabrizio Scarabino; and
- vii) Origins of the Recent Mollusc Fauna - Building Bridges between Neontology and Paleontology, coordinated by Dr. Michael Griffin from Museum of La Plata, Argentina.

Invited conferences were given by Drs. Cristián Ituarte from the Argentine Museum of Natural Sciences, Alfredo Castro Vázquez from Universidad Nacional de Cuyo, Argentina, Cesar Lodeiros from Universidad de Oriente, and Patricia Miloslavich from Universidad Simón Bolívar, Venezuela.

CLAMA VIII also hosted the creation of the Argentine Society of Malacology, chaired by Dr. Alejandra Rumi and Dr. Gustavo Darrigran.

The Award for the Encouragement of

Scientific Research Dr. Antonio García-Cubas, was conferred to students Fabricio Marcondes Machado (1st prize) from Federal University of Rio de Janeiro, Brazil, Ricardo Amoroso (2nd prize) from National Center Patagonia, Argentina, and Ludmila Rapado Nakamura (3rd prize) from Instituto Butantan, Brazil, for best oral presentations. The award was also conferred to students Maria Gabriela Carrasquel (1st prize) from Universidad de Oriente, Venezuela, Bruno Garcia Andrade (2nd prize) from Federal University of Rio de Janeiro, Brazil, and Mark Franco (3rd prize) from National Center Patagonian Argentina, for best poster presentations. Students Igor Miyahira from University of the State of Rio de Janeiro, Brazil, and Fernanda Gurovich from Universidad Nacional del Sur, Argentina, received special commendations.

During the General Assembly, public presentations by Dr. Lenita Tallarico and Dr. Sonia Barbosa, President of the Brazilian Society of Malacology, paid tribute to the life and work of Dr. Toshie Kawano, former Vice-President of the Board of ALM, and Dr. Rafael Alves, beloved Brazilian malacologists who passed away recently.

The members of the new elected ALM Board for the period 2011-2014 are Drs. Lenita Tallarico (Treasurer, Brazil), Laura Huaquina (Secretary, Chile), Erick Baqueiro (Vice-President, Mexico), and Roberto Cipriani (President, Venezuela).

CLAMA VIII was masterfully directed by its President, Dr. Gregorio Bigatti, from CENPAT, and carried forward by a relentless team co- led by Dr. Silvina Van der Molen and a large group of enthusiastic volunteers. CLAMA, the ALM's signature event, was co-hosted in this opportunity by CENPAT, Universidad Nacional de la Patagonia San Juan Bosco, and the National Technological University. Funding and support was provided by the National Agency for Promotion of Science and Technology, CONICET, the Science, Technology and Innovation Secretary of the Province of Chubut, the Ministry of Tourism of Argentina, the National Institute of Tourism, the Puerto Madryn County Ministry of Tourism, and by ALUAR and Andesmar, two local private companies.

The next congress of the ALM, **CLAMA**

IX, will be hosted by the renowned Center for Advanced Research of Merida (CINVESTAV, Merida), located in the Yucatan Peninsula, Mexico, and will be chaired by Dr. Dalila Aldana in 2014.

We hope to see you all there.

*Roberto Cipriani
Erick Baqueiro
Laura Huaquín
Lenita Tallarico*

Santa Barbara Publications

The Santa Barbara Museum of Natural History has an active program in molluscan biodiversity studies with three full-time curators in charge of the associated collections

Bivalve Seashells of Tropical West America: Marine Bivalve Molluscs from Baja California to Northern Peru, Part 1

Eugene V. Coan and Paul Valentich-Scott
Digital imaging by Patricia S. Sadeghian

This book is a follow-up to the important work by the same authors on the bivalve fauna of the northeastern Pacific (2000). It provides identification guide and detailed background information to almost 900 species of bivalves of the eastern Pacific, include 16 new species and two new genera!

Contact: pvscott@sbnature2.org

Scissurellidae s.l. Monograph

Daniel L. Geiger's global monograph on the little slit shells is expected to be published shortly (Oct./Nov. 2012). Special pre-publication pricing (US\$70 instead of \$80 plus S&H) is offered by the Santa Barbara Museum of Natural History through Sept. 30, 2012. It comprises a US-letter 2 volume box set, 1291 pages, 1042 figures, 5 color plates, and 11 identification cards.

Reserve 3 inches (7.5 cm) of shelf space for the 13 lb (6 kg) of paper. A total of 196 valid Recent and fossil species are treated, 17 new species will be described including one fossil,

and many taxonomic actions are taken. For further information, including the order form, see:

www.vetigastropoda.com/scissurellidae
www.sbnature.org/crc/747.htm

or contact the author directly.

Please also note Dr Geiger's new position and contact details; appointed as new Curator of Malacology, joining Paul Valentich-Scott and Henry Chaney (who also serves as director of collections and research). Geiger is a specialist on Vetigastropoda, but has also published on a wide range of topics from fossil sea-slugs to bryozoans and commensal pea crabs. He serves as senior editor of Mollusca for Zootaxa, with additional appointments with Malacologia, Molluscan Research and IUCN. Prior to his promotion, Geiger has served as Research Curator of Electron Microscopy since 2005.

Recent larger publications by the SBMNH molluscan curators include Tenorio, Tucker & Chaney (2012) The Families Conilithidae and Conidae. The Cones of the Eastern Pacific; Coan & Valentich-Scott (2012) Bivalve Seashells of Tropical West America; Geiger & Owen (2012) Abalone: World-Wide Haliotidae; and the upcoming Geiger (2012) Monograph of the Little Slit-Shells (see also elsewhere in this newsletter).

Please contact any of the curators to inquire about on-site visits or loans. For further details, visit our website:

<http://www.sbnature.org/crc/48.html>
<http://www.sbcollections.org/>

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Student Research Reports

Environmental factors influencing patterns of land snail diversity and elevational distribution in a protected forest on Ilha Grande, Rio de Janeiro state, southeastern Brazil

In Brazil, there are few studies on land snail communities and their associated ecology, despite the estimated high regional molluscan biodiversity and the high potential to discover new species. There is an urgent need for increasing efforts to describe the biodiversity of the leaf litter and canopy molluscs, aiming particularly the knowledge on their conservation status. The Atlantic rainforest is a hotspot of biodiversity and one of the most threatened biomes in Brazil (Myers 2003), as such, this area is particularly important as a site for increased studies on biodiversity of the malacological communities, among other invertebrates, particularly if we have any hope of preventing the disappearance of this unique fauna.

This study had three primary objectives: 1) To identify the land snail composition and the land snail community structure in a fragment of primary forest; 2) To make a comparison of the different communities along an elevational gradient in the forest; 3) To identify the environmental factors that influence the distribution of molluscs among these communities.

Methodology

Surveys were performed in February and March 2010, at Pico da Pedra d'Água, the highest and most preserved local on Ilha Grande, Angra dos Reis, Rio de Janeiro state, Brazil. A transect of seven sites of 25 X 25 m spaced at approximately 100 m intervals from 100 to 700 m above sea level (asl) were established. Sampling was carried out by combining systematic time-limited direct search plus leaf litter and superficial soil examination.

Ten quadrates of 25 x 75 cm of superficial soil and leaf litter were collected in each sampling plot. Live snails and empty shells were also sampled by direct searching for 30 min by five experienced snail collectors, totaling 2.5 person/hrs per site. Live snails were relaxed by drowning in water and

preserved in 95% alcohol. Diversity was estimated by richness, abundance, Simpson's diversity index, Simpson's evenness, Shannon's diversity index and Shannon's evenness in site. The Cluster analysis was performed with the biological data, using average and Euclidian distance, to identify similar groups, among the different altitudes. These groups were used in discriminate analysis aiming to identify the environmental factor responsible for the clustering or similarities.

Results

In the total we collected 304 specimens, 28 species and 9 families. The richness ranged from 5 to 16 species per site. The greatest richness was found at 400 and 600 m asl.

The micromolluscs corresponded to 55.9% of the total abundance and 42.8% of the richness. Most of the species (71.4%) were not identified to the specific category.

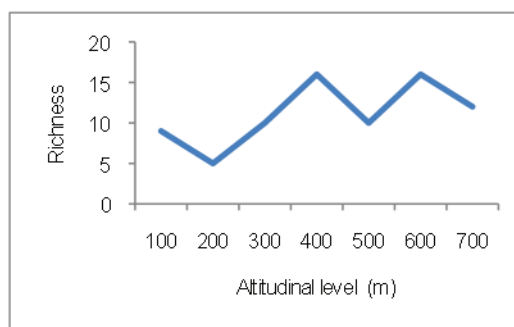
The most abundant species was *Happiella* sp. that occurred at all altitudes and *Opeas beekianum* (Pfeiffer, 1846), a sinantropic species, that only occurred in the 100m asl. *Gastrocopta* sp., *Cochlorina aurisleporis* (Bruguière, 1792) and *Bulimulidae* B were collected only in the site of 400m asl. *Charopidae* A, *Scolodonta* sp. 2 and *Bulimulidae* C occurred just at 600m asl. *Ptychodon* sp. B, *Happiella* sp. 2e *Stephanoda* sp. A only occurred at 700m asl. *Radiodiscus* sp. A occurred from 100 to 600m asl; *Leptinaria unilamellata* (d' Orbigny, 1835) occurred from 100 to 500m; and *Lilloiconcha superba* (Thiele, 1927) occurred from 300 to 600m.

The high values of diversity index were found at 400 m asl and the lowest at 100 and 200m asl.

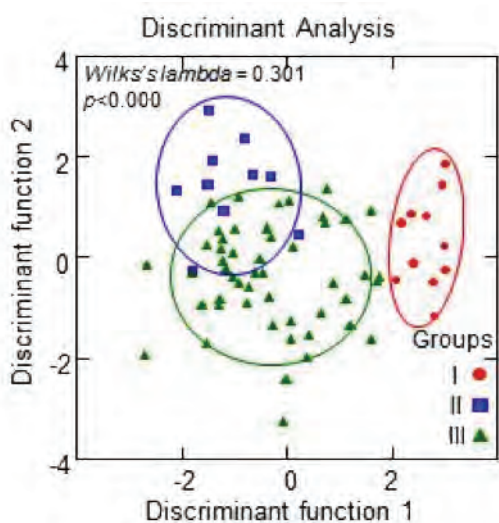
The result of the Discriminant Analysis significantly distinguished the biological groups formed in the Cluster analysis (Wilks' lambda = 0.301; $p < 0.000$) (not shown). The environmental factors which were associated with variation in species composition were the relative air humidity, soil temperature and canopy closure.

Discussion

In the initial project we planned to go to the 1000 m asl; however, the bad weather conditions (heavy rains, landslips) allied to the difficult to access the upper region, with many rock walls, after three attempts, prevented us to



Species richness along altitudinal gradient at Pedra d'Água, Ilha Grande, Angra dos Reis, Rio de Janeiro state, Brazil.



Discriminant analysis with environmental data at Pedra d'Água, Ilha Grande, Angra dos Reis, Rio de Janeiro state, Brazil. I) biological group with the site at 100m asl, II) biological group with the sites at 200, 300, 400, 500 and 700 m asl, III) biological group with the plot at 600m asl.

perform collections in this altitude.

Santos et al. (2010) listed 94 land snails species to Ilha Grande and Nunes & Santos (2012) found 33 species at Jararaca's Trail and 32 species at Pico do Papagaio's Trail, on the same island. In the present study we found only 28 species, but certainly the richness will increase as we are able to identify all specimens to the species level and with increasing sampling effort. The number of individuals (304) in this region was relatively low, comparing with Nunes & Santos (2012) that collected at five different altitudinal levels, at the previous cited trails, using the same methodology, finding 523 and 458 specimens, respectively.

The graphical representation of the observed richness along the altitudinal gradient did not

show the most common curve according to Rahbek (1995). In Nunes & Santos (2012) the graphical representation of species richness was similar the hump-shaped curve.

The micromollusc dominance has been observed by other authors in the tropical regions (eg. Emberton 1995).

Although Brazil is a biodiversity hotspots, there are few taxonomists working with terrestrial molluscs, thus, only a portion of the collected material could be identified to the specific category.

As in this study, in Nunes & Santos (2012) *Happiella* sp. also occurred at all surveyed altitudes and *Opeas beckianum* only occurred in the 100m asl. The areas sampled at lower elevations (100 and 200m) have been modified by human activities such as agriculture. It is possible that sinantropic species may have been introduced together with ornamental or agricultural plants, and have found favorable conditions for their establishment in these environments.

The lowest values of diversity index found at 100 m asl can be explained by the dominance of *O. beckianum* (46%), and at 200m asl can be justified by small number of individuals and species collected.

Working in the same island, Nunes & Santos (2012) found that the relative air humidity, the litter depth, the atmospheric temperature and soil temperature determined the biological groups found on both studied trails. The luminosity and the canopy closure also determined the biological groups found on one trail. Moist conditions are necessary for land-snail respiration and reproduction and for the production of mucus, which is vital for locomotion.

Given the lack of data on land snail community ecology in the Atlantic rainforest and the globally high diversity of this group this preliminary research have significant importance not only our knowledge on Atlantic Forest malacological community, but also to the understanding of land snails global biodiversity and the factors that promote it. This is particularly timely as we face high anthropic pressures on the Atlantic Forest, accompanied by an unprecedented time of global climate change and the potential for ever increasing biodiversity losses.

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Management, habitat mapping, and intertidal zonation of *Cittarium pica* (Vetigastropoda: Trochoidea) in the Lesser Antilles

Cittarium pica (Linnaeus, 1758) is a large, intertidal gastropod that has a disjunct distribution in the Tropical Northwestern Atlantic ecoregion. It is an important artisanal fishery throughout the region, and is commercially harvested and managed in a few territories and countries.

This study focused on three important objectives to produce vital information for development and revision of *C. pica* management plans: (1) assess the impacts of socioeconomic status and determine whether current management practices are sufficient, (2) develop a method for habitat and species distribution mapping and project future population size in Bermuda, and (3) document habitat preferences and generate a novel method for visualization of intertidal zonation patterns.

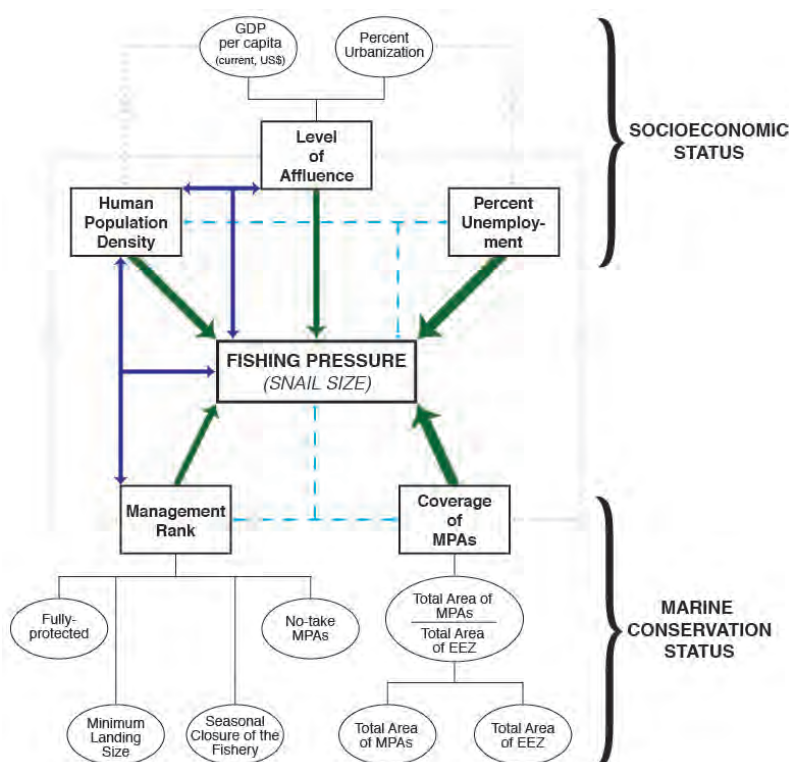
Assessment of Fishing pressure

Socioeconomic and marine conservation data were compiled, and *C. pica* population surveys were conducted in Bermuda and seven territories/countries in the Lesser Antilles. The level of fishing pressure is not constant

across the region; it is lowest in Bermuda, Barbados, and Anguilla. The population on Guadeloupe, where there is a minimum harvest size regulation, is not comparable to that of Bermuda, where it is fully-protected, thus current management is not sufficient. Models composed of socioeconomic and/or marine conservation metrics are strengthened when both types of metrics are included. When only one type is used, the models under- or over-predict snail size. Relative to socioeconomic status, fishing pressure is lower in countries with higher GDP per capita, lower unemployment, and higher urbanization. Considering that *C. pica* is mainly an artisanal fishery, this is not surprising. Interestingly, fishing pressure is positively correlated with higher management rank but not coverage of marine protected areas (MPAs). This is most likely because most existing MPAs do not cover the rocky intertidal. Evaluation of socioeconomic status and an assessment of habitats covered by MPAs are important steps in management and conservation planning for *C. pica*, as well as other important fishery resources.

Habitat and Species Distribution Mapping in Bermuda

Habitat and *C. pica* distributions in Bermuda were mapped using remote sensing and GIS techniques, coupled with extensive ground-truthing. The length of the Bermuda coastline, and thus intertidal habitat, ranges from 296 km to 181 km, depending on the resolution of the image used. Unsurprisingly, supervised classifications of a Landsat image were not highly successful, mainly because classifiers could not discern between rock, sand, soft sediment, and seawalls, which have similar spectral signatures. High-resolution imagery is, therefore, required and must be augmented by ground-truth data when mapping intertidal habitats. The distribution of *C. pica* closely matches the distribution of windward rocky shores, but much of its preferred habitat is unoccupied (Fig. 1). Using habitat distribution and island-specific population densities, the *C. pica* population in Bermuda could expand



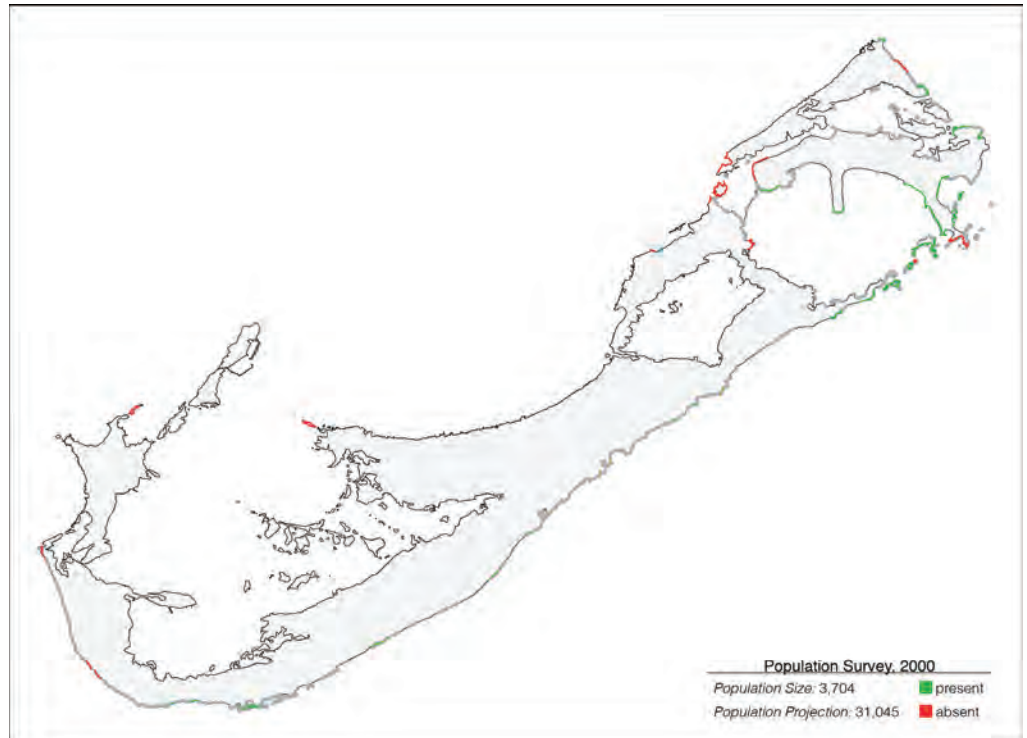
from 3,704 to a maximum of 31,045 individuals. However, this prediction is an overestimation because it does not consider local-scale variations in environmental conditions.

Habitat Preferences and Intertidal Zonation Patterns

Detailed observations and quantitative assessments from 48 sites across the Neotropical Western Atlantic were used to define rocky intertidal habitat categories and to create cross-sections of each category. To determine intertidal zonation patterns of *C. pica*, size and location of individual snails were mapped onto these cross-sections. Unlike previous studies, these data suggest that *C. pica* does not exhibit a simple linear relationship between vertical position and snail size. Regardless of habitat category and size, *C. pica* is most common at or near mean low water (MLW). Individuals <10 mm and >40 mm are most common below mean high water. The mid-sized individuals (10-40 mm) are common throughout the intertidal, from below MLW to the splash zone. However, zonation varies by habitat category depending on topographic complexity and environmental conditions. Visualization of the rocky intertidal using the method developed in this study provides the foundation for illustrating and understanding species distributions at multiple spatial and temporal scales.

Conclusions

Understanding the interactions between socioeconomic and marine conservation status is an important step in predicting fishing pressure. To combat the high fishing pressure on *C. pica* evident throughout the Lesser Antilles, I recommend a multi-faceted management plan, including a maximum harvest size, a minimum landing size, seasonal closure of the fishery (during the spawning season), and establishment of marine protected areas targeting the rocky intertidal habitat. Enforcement is of extreme concern, so



The distribution of windward rocky shores (gray), overlaid with the distribution of *Cittarium pica* from a population survey completed in 2000. The population size from the 2000 survey is 3,704 individuals. Using the island-specific population densities observed in the 2000 survey, we projected the future population size of the species in Bermuda, assuming that all available, windward rocky shores will be occupied.

involvement of the local fishers, community, and other stakeholders is vital throughout the process of development and implementation of management plans.

The sensitivity of linear features to image resolution is not only pertinent to mapping intertidal habitats, but also other dynamic habitats and transition zones. As global climate continues to change, the extents of these sensitive habitats must be mapped before we can understand and predict how changes will affect them. Furthermore, rocky intertidal species are responding quickly to changing environmental conditions by expanding or contracting range boundaries, so such species may serve as useful indicators of climate change and its impacts.

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Member Research Report

Unicorn monstrosities of *Achatina immaculata* Lamarck, 1822

Amongst a batch of *Achatina immaculata* hatchlings emerging from a clutch of eggs laid by a parent snail maintained in our department, were several individuals with a very unusual deformity. In these 'unicorn' individuals the left and right optic tentacles developed as a single structure in the middle of the forehead. The tip of this single tentacle had two eye spots and two tentacle retractors were also evident through the skin, indicating that it represented the fusion of the two normally separate tentacles. Though rather a comical deformity – the snails appearing to be charging forward with 'weapon at the ready' – this is a developmental anomaly that I have not encountered previously in land snails. Since several individuals from one clutch were involved, the defect was not an isolated freak. A genetic abnormality in one or both parents is obviously one possible cause, but environmental pollution might be another possibility. In this case the parents were collected at Umbogavango Nature Reserve on the KwaZulu-Natal coast, just south of Durban. This reserve is owned and managed by an industrial chemical company and represents 'remediated' land. The company manufactures chemicals, agrochemicals and fertilizers, and contamination of land and ground water resources is known to have occurred due to its historical activities. The presence of toxic substances in the local environment may thus lie at the root of the developmental anomaly present in these

unicorn snails. I wonder if any other UM members have encountered snails exhibiting this curious growth deformity?

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Obituaries

GEORGE CRAWFORD (1911–2011)

George Crawford was a founding member of *Unitas Malacologica*, as noted in the ‘Origin and Evolution of the *Unitas Malacologica*’ (Eddie Gittenberger, *UMN* 31), and was a key force behind the first Congress in London in 1962. As a new recruit to the Natural History Museum. He is remembered as the gentle diplomat who solved an apparent total stalemate in forming a global society for malacology.

George studied natural sciences at Cambridge and in November 1935 he joined the British Museum (Natural History) staff where, although his interests were primarily in Crustacea, he was appointed in the Mollusca Section. During his relatively brief time on the museum staff he visited Norway in 1935 collecting crustaceans, and In 1937 he participated as a museum representative in a major expedition to Lake Titicaca and was placed in charge of the collections, including important material of freshwater gastropods.

He left the Museum to serve in World War II and after the war took up a post in the UK Department of Education and bought a small farm in Sussex, England. However he remained an active and energetic member in UM and the Malacological Society (London). He died peacefully on the 16th April, 2011, 100 years and 9 month old, with most of his family around him.

John Peake & Jon-Arne Sneli

Although George’s passing was noted in the previous issue of this Newsletter we were not able to include an obituary at that time. Although it has now been over a year since his death he is still much missed in malacology.
- JDS

WLADIMIR LOBATO PARAENSE (1914–2012)

Wladimir Lobato Paraense died on February 11, 2012, age 98, leaving a priceless legacy for Brazilian science. Lobato published over 160 articles in Brazilian and international journals. From 1954 onward he dedicated himself to research on freshwater molluscs in the Western Hemisphere, including transmitters of schistosomiasis, and identified 10 new species.

He was Full Professor in the Instituto Oswaldo Cruz (Rio de Janeiro, Brasil) from 1965 to 2012, including a term as Vice President of Research from 1976 to 1978, and head of the Department of Malacology Institute between 1980 and 1991, and the Laboratory of Malacology since 1991 until his passing.

CARL FREDRIK CHRISTOFFER SCHANDER (1960–2012)

Chris Schander was Professor of Marine Biodiversity at the Department of Biology, University of Bergen, from 2004–2011. Earlier, he had been employed at Gothenburg University (Sweden), Woods Hole Oceanographic Institution (USA), and Copenhagen University (Denmark). From August 2011 on he was Director of the University Museum of Bergen – a position that fulfilled a childhood dream - before he passed unexpectedly on February 21, 2012, after a short period of illness. He will be sorely missed but his work lives on.

He was a productive scientist, authoring more than 80 peer-reviewed scientific publications, a creative and inspiring biologist and a highly valued colleague with a large national and international network of cooperation partners and friends-through-science. He was also a committed supervisor to numerous master and PhD students in Norway, Sweden and other countries.

This is what he wrote about himself: “The goal of my research is to understand the role that evolutionary forces and phylogeny have played in creating organism diversity. To develop this understanding I use phylogenetic analyses that integrate morphological and molecular data. My research focuses on the molluscs, because of the amazing morphological diversity of recent taxa, and because of their fossil record dating back to the Precambrian... I am also interested in the biogeography of these animals, for example, the pan-Atlantic and pan-Pacific distribution of many species.”

To honour Chris’ memory and to continue his eager support of cooperation and scientific exchange between individuals and institutions we have established the Christoffer Schander Memorial Fund at the University of Bergen.

www.uib.no/rg/mb/schander-fund

Christiane Todt