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UNITAS MALACOLOGICA

Newsletter

Number 39
March 2025

What's Inside

Editor Column

Dear members,

One more year has passed, and as you will notice, the editor's words in this issue will be a little longer. As you will see below, this may very well be my last column as newsletter editor. Please be patient and read until the end; I know that in a world where information is reduced to single-sentence headlines, reading more than a paragraph can be tedious, I feel the same way, but please make the effort, "hahahaha".

This year, we will have our triennial meeting in the great city of São Paulo, great in every sense: in size, in population, in GDP, in pubs, in restaurants, and of course, in malacological research. Many institutions host researchers working in malacology, and that will surely be evident to all of us participating in the congress. I look forward to seeing you all there and enjoying the presentations derived from the Research Awards of the past three years. I also want to extend my congratulations to the winners of the Travel Grants.

Following the President's Message, you will find a preview of the Plenary Speakers and Symposia list. As you can see, the topics are diverse, covering various research lines with innovative results in malacological studies.

(continue... ...)

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

Affiliated Organisations

American Malacological Society | Conchology, Inc. | Deutsche Malakozoologische Gesellschaft | Instituto Português de Malacologia | Latvian Malacological Society | The Malacological Society of Japan | The Malacological Society of London | Malacological Society of the Philippines | Sociedade Brasileira de Malacologia | Sociedad Española de Malacología | Society for the Study of Molluscan Diversity, Japan |

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(follow… …)

It is no secret that serving as editor of this newsletter has been a great honor for me. I am very happy with the role and would have no problem continuing for another three years. However, I believe that during the General Assembly in São Paulo, we should seek a new colleague for this position, which I assure you is very rewarding.

One of the major challenges in scientific societies is that young researchers are often not motivated to participate in these responsibilities. On one hand, this is understandable when trying to secure a stable position, what they need most are strong publications. However, I guarantee that serving on a council, as an editor, or in any other role within a scientific society is not only an honor but also a deeply fulfilling experience that enriches one's professional journey. And, of course, UNITAS Malacologica is one of the world's most important scientific societies dedicated to a particular group of metazoans: mollusks.

I hope that a young UNITAS member will be inspired to take on this distinguished task. Contact me, the Treasurer or the Secretary in São Paulo. And if no one steps forward, don't worry (no panic!), the newsletter won't die, but you do risk having to keep reading my "long" and "tedious" columns.

As of today, this editor does not know where the WCM 2028 will be held. This information will be a world exclusive news revealed during the General Assembly (GA) in São Paulo. However, what I do know is that 2028 marks the 200th anniversary of the birth of Jules Verne, and Vigo plays a significant role in one of the chapters of Vingt mille lieues sous les mers *(Twenty Thousand Leagues Under the Sea). For this reason, that same year, we will hold the V International Vernian Congress in Vigo, to which you are all invited. Book lovers will be able to delight in the wealth of malacological data found in this literary work. Without a doubt, my contribution to WCM 2028 will be within this scope (I hope).*

At the end of the newsletter, you will find reports from the student award winners of 2023.

That's all for now—I hope you enjoy it. Feel free to send me any malacological news or announcements from your country if you wish.

All the best for 2025

JST

UNITAS MALACOLOGICA

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Newsletter

Council of Unitas Malacologica

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President´s Message

Welcome to the XXII WCM

Dear malacologists,

We are just a few months away from World Congress of Malacology (XXII WCM) and each day we get more excited. The World Congress of Malacology will be hosted by the Butantan Institute in São Paulo, Brazil, from August 4th to 8th, 2025. The congress is held in different countries, being the first time to be host in Latin America. As it is the year of the Brazilian Malacology Meeting (XXIX EBRAM), we joined forces with Brazilian Society of Malacology (SBMa, president Dr Eliane Pintor de Arruda) to hold the event together and by a team of malacologists from Latin America, with partnership at AMS (American Malacological Society, president Jingchun Li), and with the support of the SEM (Spanish Society of Malacology), ASAM (Argentine Association of Malacology), SMU (Malacological Society of Uruguay), SMMAC (Malacological Society of Mexico), and SMACH (Malacological Society of Chile). The congress will be a multicultural event with a broad focus around the world. This year, it will be very gratifying to be able to provide the possibility for many Latin students (at different schooler degrees from undergraduate to postdoctoral) to participate in an event of this importance.

The motto of the WCM2025 is “One Planet, One Health, One Challenge”, and the theme is Molluscs and Global Health: Integrating Sciences for One Planet’s Well-being. During the meeting, we hope to provide a productive forum where ideas and perspectives on molluscs can be shared and discussed. Special topics of the congress include evolutionary and developmental aspects, taxonomy, phylogeny, palaeontology, genomics, functional morphology, ecology, biodiversity, malacoculture, exotic and threatened species, bioindicators, as well as all methodological innovations related to Malacology. The aim is to integrate education (bringing students at all levels), research, and technological activities, promoting valuable international scientific exchanges in Malacology and related areas.

Additionally, the proposed scientific program aims to address current questions involving molluscs, such as conservation, anthropogenic and climatic impacts, medical and applied malacology. The congress will traditionally bring together professionals from various countries around the world, generating extremely valuable institutional exchanges for national and international science.
The schedule and activities are still under construction, but some defined will include the famous Auction, Science Slam, an exhibition at the Butantan Institute Science Park and other integrative activities that will be announced soon. Please visit our website as the information is constantly being updated (https://wcm2025.com.br/). Questions and comments can be sent to the secretary's email address (malacology2025@gmail.com).

A preliminary schedule is described below.
It will be a pleasure to share this meeting with you!

Drª Lenita de Freitas Tallarico
UM President

WCM2025 Preliminary Program

Plenary speakers

Sonia Barbosa dos Santos - Brazil

South America freshwater limpets: what do we know and what remains to be known?

The small freshwater limpet snails occurring in South America are distributed in eight genera which are differentiated by the shell sculpture and morphology of the soft tissues. In this lecture we will present the state-of-the-art about the group, point out the gaps in knowledge and present perspectives to refine the taxonomy, systematic and geographical distribution of the group.

Julia D. Sigwart - Germany

An integrative approach to global malacology: species, trees, and undiscovered frontier

Studies of mollusc species shaped major advances in many areas of biology, in evolution, ecology, conservation, fisheries, human medicine and bioengineering. New advances in phylogenomics have recently solidified the backbone phylogeny for the phylum. Meanwhile, the vast disparity and species richness within the phylum has left many open questions, and generalised insights in biodiversity struggle to accommodate the true expanse of molluscan diversity. Our research agenda as a global community can put molluscs in their rightful place: centre stage.

Chong Chen - Japan

Feeding on the Earth: Diversity and adaptation of molluscs from deep-sea chemosynthesis-based ecosystems

'There are shells! They're big shells, they're living!' – exclaimed Jack Corliss on humanity's first encounter with an active hydrothermal vent ecosystem dominated by the foot-long vesicomyid clam Turneroconcha magnifica in 1977, 2.5 km deep on the Galápagos Rift. Since then, over 600 hot vents have been discovered globally as well as numerous cold seeps and organic falls that host similar deep-sea chemosynthetic ecosystems. Here, I showcase an array unforgettable mollusc species endemic to these 'extreme' environments supported by microbes 'feeding on Earth' through chemosynthesis. Focusing on a few key taxa such as the ironclad snails Chrysomallon and Gigantopelta as well as abyssochrysoideans like Ifremeria and Rubyspira, I highlight their astounding adaptations that extend the known boundaries of how animals function – revealed by our integrative studies combining morphological and molecular analyses. Regrettably, these remarkable molluscs now face growing threats from deep-sea mining, particularly at vents. I present our collaborative efforts to advocate for their protection through the IUCN Red List, in order to ensure that these molluscs are seen by policymakers and included in conservation and management plans.

List of symposia

Perspectives on conservation of freshwater mussels

Coordinators: Cristhian Clavijo - Vida Silvestre, Uruguay; Igor Christo Miyahira - UNIRIO, Brazil

Freshwater mussels are one of the most incredible and threatened animals in the world. They have a unique life cycle and provide important ecosystem services. However, in recent years, they are also associated with a decrease in their populations due habitat modification and introduction of invasive species. Thus, measures to mitigate impact and improve conservation of mussels are urgently needed. The conservation strategies in Noth are by far better developed, and in this first World Congress of Malacology in South America, we have a unique opportunity in this symposium to establish a forum and a place for experience sharing, aiming a united effort for mussels conservation.

Molluscan Microbiomes

Coordinator: Priscila M Salloum - University of Otago, New Zealand

Microbes are everywhere, including within animals. Molluscs are incredibly diverse and understanding how their associated microbes interact with them will help shed light not only on the specifics of molluscan microbiomes, but also on the overall evolution of the most diverse dynamics between hosts and their microbial symbionts. Microbiomes have the superpower to modulate their hosts characteristics and how their hosts interact with their surroundings. The number of microbiome studies in molluscan research has been growing pointedly in recent years – highlighting the interest of the malacological community in this new field of study, as well as its potential for innovation. This symposium will aim at covering all microbiome research involving molluscs as hosts of a microbial community, comprising aquaculture, response to anthropogenic and environmental stress, ecological and evolutionary perspectives on molluscs-microbes associations, and descriptions and isolations of microbes from molluscs.

Multidisciplinary Approaches to Mollusca Systematics and Taxonomy

Coordinators: Juan Moles - University of Barcelona, Espanha and Luiz Ricardo Lopes de Simone - Museu de Zoologia da USP, São Paulo

Several research approaches, such as anatomical, morphological, molecular aspects, among others, are important tools in elucidating the origin and vast diversity of the phylum Mollusca. Works that contribute to the areas of systematics and taxonomy of these organisms will be welcome in this symposium.

Young Taxonomists Symposium

Coordinators: Eliane Pintor de Arruda (coordinator) – Universidade Federal de São Carlos, Brazil and Thais Aparecida Marinho - Universidade Estadual de Campinas, Brazil

The Young Taxonomists Symposium is a tradition at the Brazilian Malacology Meetings. The Brazilian Malacological Society recognizes that taxonomy is a scientific field that has faced significant discredit over the past decades, and the number of taxonomists among biologists, and consequently among malacologists, has been steadily decreasing. Therefore, this symposium aims to honor and highlight the taxonomic research carried out by young malacologists.

Invasive gastropods as agricultural pests

Coordinator: Reham Fathey Ali - Faculty of Organic Agriculture, Heliopolis University, Cairo Egypt

Class Gastropoda, which includes snails and slugs, is a highly diverse group of animals that play important ecological roles, however many of these species are also considered significant agricultural pests. They cause substantial damage to crops in agriculture, horticulture, and forestry, often feeding on a variety of plants and compromising yield. Many gastropod species are classified as invasive, having been introduced to new regions through trade and commerce, where they disrupt local ecosystems and habitats. Recent efforts by malacologists have focused on identifying pest gastropod species, determining their distribution and abundance, and assessing the extent of the damage they inflict on crops. This research is critical for understanding the economic impact of these pests on agriculture. Future studies are expected to further evaluate the degree of crop damage caused by these mollusks, as well as their broader economic effects, helping to inform management strategies and mitigation measures to protect crops and prevent further spread of invasive species.

Taxonomic Catalog of the Brazilian Fauna (TCBF): updating non-native and invasive molluscs in Brazil

Coordinator: Fabrizio Marcondes Machado - Universidade Estadual de Campinas, São Paulo, Brazil

Created in 2015 by a team of over 500 zoologists, the TCBF is a bilingual, open-access government platform (http://fauna.jbrj.gov.br) that allows specialists from various metazoan groups to

perform real-time taxonomic updates. Specifically for Mollusca, more than 50 taxonomists are currently responsible for compiling the list of mollusk species in Brazil. Recently, around 6,000 updates were made to the platform, with 3,634 species listed for the Brazilian territory - for the first time, it was possible to provide a tangible answer to one of the most basic questions in Brazilian malacology: how many species of Mollusca are there in Brazil? Now, this cohesive group of malacologists will focus on developing the first comprehensive checklist of all potential exotic and invasive mollusks within the national territory. Following this important meeting (GT), a manuscript will be prepared to make these new findings available to the scientific community.

Molluscan Macroecology and Biogeography

Coordinators: John G. Phillips - Valdosta State University and Rafael da Rocha Fortes - Universidade Federal do Estado do Rio de Janeiro, Brazil

We will explore biogeographical patterns of mollusks across diverse habitats, addressing ecosystem roles to foster discussions on the implications of macroecological research in conservation strategies, climate change, and biodiversity management. This symposium will seek to illustrate both historical and contemporary perspectives.

Molluscs in One Planet: species distributions through space and time

Coordinator: Sthefane D'ávila - Museu de Malacologia Prof. Maury Pinto de Oliveira, Universidade Federal de Juiz de Fora - UFJF, Brazil

The scope of the symposium "Molluscs in One Planet: species distributions through space and time" includes all aspects of mollusc species distributions and methodological approaches such as (1) species distribution modeling, (2) ecological niche modeling, (3) updating geographic distributions of native and invasive species, (4) mapping species distributions for conservation assessments, (5) mollusc-borne diseases and geographic distribution of intermediate hosts, (6) projecting future distributions of mollusc species, (7) crop pests distribution and control, (8) spread and ecological impact of invasive species, (9) rare or endemic species and their conservation status, (10) biodiversity databases and malacological collections as sources of distributional data, (11) biotic and abiotic factors shaping species distributions, and (12) predicting the past distribution of species climatic niches, locations of past refugia, and migration pathways.

Citizen Science and Mollusks: Bridging Communities and Research

Coordinator: Ruthela P. Payawal - Polytechnic University of the Philippines

The session shall explore the growing field of citizen science, focusing on its contributions to mollusk research. From coastal surveys to biodiversity mapping, citizen scientists play a crucial role in collecting data on mollusk populations, helping researchers track changes in ecosystems, identify new species, and address conservation challenges. This discussion will highlight successful collaborations between professional scientists and the public, showcase cutting-edge projects, and offer practical strategies for engaging communities in mollusk research.

Epidemiologic and ecologic aspects of Malacology and snail control

Coordinators: Eliana Nakano - Instituto Butantan, São Paulo, Brazil and Roseli Tuan - Instituto Pasteur Secretaria Saúde São Paulo, São Paulo, Brasil

In this symposium, the geospatial cartography of snails distribution, the predictive modeling, the species identification and control as well as the technologies and innovative approaches will be discussed.

Terrestrial gastropods of Latin America

Coordinator: Rodrigo Brincalepe Salvador - Finnish Museum of Natural History, University of Helsinki, Finland.

The symposium 'Terrestrial gastropods of Latin America' will explore the latest research on land snails and slugs of Latin America, covering both native and exotic species. Topics will include advances in taxonomy, phylogenetics, biogeography, and natural history, offering fresh insights into terrestrial gastropods' diversity and evolutionary relationships in this biologically rich region.

Diversity, equity, and inclusion in Malacology

Coordinators: Jacqueline Leta and Raquel de Souza Leal - Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil

The symposium "Diversity, equity, and inclusion in Malacology" will discuss the themes of gender inequality, racial diversity, and the inclusion of different social segments in malacology research. In the theme of gender inequality, data will be presented on the participation of women in leadership positions and in scientific production in this field and related areas. In the theme of ethnic-racial diversity, inequalities, respect for differences, and contributing to the elimination of discrimination and prejudice based on ethnicity or race will be discussed. Finally, in the theme of inclusion, we will present studies and reflections on quota laws and PWDs that also affect the malacology community. In this prestigious space within the Brazilian and international malacology community, the WCM cannot refrain from presenting the three current and relevant themes to its audience, and thus promote a conscious and objective reflection on the obstacles that a large part of its community, women, black people, and those with some kind of disability, face, seeking, and bringing to discuss strategies that help overcome these obstacles.

AMS President's Symposium - Teaching an Old Mollusk New Tricks: Innovative Research Using Museum Collections

Coordinator: Jingchun Li (coordinator) – CU Natural History Museum, Dept. of Ecology & Evolutionary Biology, University of Colorado, USA

Combined Symposium Day on Innovation and Care of Mollusk Museum Collections

This year, the American Malacological Society and the Society for the Preservation of Natural History Collections (SPNHC) are excited to collaborate on a special symposium centered around Innovation and Care of Mollusk Museum Collections. The event highlights the crucial role of museum collections in advancing research and conservation efforts within malacology, while also focusing on innovative methods for maintaining and utilizing these invaluable resources.

Morning Session: AMS President's Symposium - Teaching an Old Mollusk New Tricks: Innovative Research Using Museum Collections. The morning symposium will feature invited speakers who are pioneering research projects utilizing mollusk museum collections in novel and groundbreaking ways. These presentations will demonstrate how historical collections can drive modern scientific discoveries, from evolutionary studies to ecological restoration and beyond.

Afternoon Session: Participant Symposium

In the afternoon, the symposium will feature presentations from meeting participants, showcasing diverse perspectives and new research centered on the care, digitization, and application of mollusk collections. This session will offer an opportunity for attendees to engage directly with the wider community, fostering collaboration and the exchange of ideas.

Join us for a day of cutting-edge research and thoughtful discussion on the future of mollusk museum collections.

Bridging Tradition and Technology: Advancing Mollusk Collection Stewardship and Research

Society for the Preservation of Natural History Collections (SPNHC) Symposium

Coordinator: Jennifer Winifred Trimble – Museum of Comparative Zoology, Harvard University, USA

This year, the American Malacological Society and the Society for the Preservation of Natural History Collections (SPNHC) are excited to collaborate on a special symposium centered around Innovation and Care of Mollusk Museum Collections. The event highlights the crucial role of museum collections in advancing research and conservation efforts within malacology, while also focusing on innovative methods for maintaining and utilizing these invaluable resources.

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Molluscan behaviour in an evolutionary ecology context

Coordinator: Barbara M. Tomotani - The Arctic University of Norway, Tromsø, Norway

The symposium 'Molluscan behaviour in an evolutionary ecology context' will highlight recent advances in the study of molluscan behaviour, with a focus on evolutionary ecology. Contributions are welcomed from all classes of molluscs across various environments — marine, freshwater, and terrestrial — offering a broad perspective on how behavioural traits have evolved and adapted in diverse ecological settings.

Palaeontology of marine Cenozoic molluscs

Coordinator: Danae Thivaiou - Naturhistorisches Museum Basel and Matias do Nascimento Ritter - Universidade Federal do Rio Grande do Sul, Rio Grande do Sul, Brazil

Molluscs appear in the fossil record in the Cambrian Period, have had a rich evolutionary history and represent today the largest group of animals – in terms of species diversity – in marine environments. During the Cenozoic, molluscs have witnessed major climatic changes, undergone periods of rapid diversification or extinctions, and now face various risks due to human activities and rapid climate change. Their ecological adaptations, good preservation potential in the fossil record and ability to record environmental conditions in their shells make them a key material for understanding a wide array of research questions.

The Symposium welcomes presentations on all aspects of the study of fossil and sub-fossil molluscs of the Cenozoic (incl. Holocene), such as: (1) Taxonomy and Systematics of molluscs, (2) Molluscs through rapid environmental changes and crises, (3) Evolution of molluscs, (4) Paleoecology of molluscs and (5) Molluscs in conservation paleobiology

Emerging imaging technologies in malacological studies

Coordinator: Daniel Caracanhas Cavallari – Universidade de São Paulo, São Paulo, Brazil

The symposium 'Emerging imaging technologies in malacological studies' will bring together researchers and experts to explore how innovative imaging techniques are advancing our understanding of mollusks. We intend to focus on a range of imaging methods, including Micro-Computed Tomography (Micro-CT), Magnetic Resonance Imaging (MRI), fluorescence imaging, Optical Coherence Tomography (OCT), Synchrotron Radiation Microcomputer Tomography (SRμCT), and other cutting-edge technologies. Participants will examine how these techniques are integrated into malacological studies and how they enhance our ability to visualise and analyse mollusk anatomy,

physiology, development, diversity, and evolution. In addition to presentations, the symposium will create a dynamic environment for researchers to exchange experiences, encouraging discussions on methodologies, findings, and best practices. We invite you to submit your abstracts and engage in this collaborative dialogue that emphasizes the importance of emerging technologies in malacological research. Together, let us explore the complexities of mollusks through new perspectives at this prestigious global gathering!

Molluscs as bioindicators

Coordinator: Alice Baynes - Brunel University London, UKBrunel University London, UK and Elisabete Tsukada - Universidade Estadual de Campinas, São Paulo, Brazil

Molluscs, especially bivalves, have long been studied as bio-indicators of pollution. Bivalves' sessile nature combined with filter-feeding behaviour has made them a useful tool to understand pollution profiles in marine and freshwater environments. However, examples, such as the induction of imposex in gastropod molluscs worldwide also demonstrates that molluscs can have unique and unexpected susceptibility to certain types of chemical pollution. Pollution is known to be a major risk to molluscan populations. Molluscs living in various aquatic and terrestrial habitats are exposed to a myriad of contaminants from metals, biocides and industrial chemicals to pharmaceutical and personal care products. Despite this, molluscs are often under-represented in chemical risk assessments and a better understanding of the impacts of pollution on molluscs is needed to help protect vulnerable groups. In this symposium, studies (laboratory and field) addressing the impacts of pollution at different biological scales, from molecular, cellular, individual and population are welcome.

From Architaenioglossa to Neogastropoda – systematics and evolution of caenogastropods

Coordinators: Nicolas Puillandre - MNHN, Paris, France; Ellen Strong - Smithsonian National Museum of Natural History, Washington DC, EUA; Yuri Kantor - Severtsov Institute of Ecology and Evolution, Russian Ac. Sci. Moscow, Rússia and Alexander Fedosov - Swedish Museum of Natural History

The symposium 'From Architaenioglossa to Neogastropoda – systematics and evolution of caenogastropods' will focus on the taxonomy and phylogenetic relationships among caenogastropods, in particular based on genomics approaches, and on the use of systematic hypotheses to tackle evolutionary questions about their diversification.

Evolution of molluscan weirdness

Coordinator: Julia Sigwart - Senckenberg Research Institute and Museum and Fabrizio M. Machado - Universidade Estadual de Campinas, São Paulo, Brazil

Molluscs are capable of evolving rapid and dramatic changes to the body plan. The goal of this symposium is to showcase the incredible disparity of mollusc species and to discuss the challenges of interpreting convergence and rapid adaptations in understanding animal evolution. Presentations on molluscan body plan evolution, phylogeny, rapid phenotypic changes, adaptations, and natural history are all absolutely welcomed. In this symposium we want to consider the capacity of the molluscan body plan, genome, and diversity, and celebrate the weirdest molluscs.

Molluscs in cave environments

Coordinator: Maria Elina Bichuette - Universidade Federal de São Carlos, São Paulo, Brazil

The symposium 'Molluscs in cave environments' will bring together researchers interested in the molluscan fauna of subterranean habitats worldwide. These environments serve as natural laboratories of biodiversity and can often act as refuges or speciation engines. Both bivalves and gastropods, whether terrestrial or aquatic, are included, and any topics related to them — from taxonomy to ecology to conservation — are welcome.

News on freshwater limpets: systematics and distribution

Coordinators: Sonia Barbosa dos Santos - Universidade do Estado do Rio de Janeiro, Brazil; Ximena Maria Constanza Ovando – Universidade Federal de Juiz de Fora, Minas Gerais, Brazil and Roberto Eugenio Vogler - Universidad Nacional de Misiones, Argentina

Freshwater limpets are a heterogeneous group, quite diverse despite the apparent similarity of the shell. The objective of this symposium is to present and discuss the current state of knowledge of the various families included in the group, presenting data on morphology, geographic distribution, phylogeny and systematics.

Deep-sea Molluscs: a Synthesis

Coordinator: Flávio Dias Passos - Universidade Estadual de Campinas, São Paulo, Brazil

The symposium " Deep-sea molluscs: a synthesis" will address contributions on taxonomy, biogeography, ecology, genomics, and other topics related to molluscs from the deep sea.

Diversity and Evolution of Marine Heterobranchia

Coordinators: Vinícius Padula - National Museum, Federal University of Rio de Janeiro, Brazil; Kara Layton - University of Toronto, Canada and Jessica Goodheart - American Museum of Natural History, USA

Heterobranchia includes nudibranchs, sea hares, and other slugs and snail groups. They are known for their varied morphologies, vibrant colors, and complex behaviors, exhibiting a wide range of feeding strategies and ecological roles, including interstitial groups. While some are herbivorous, others prey on sponges, cnidarians, or even other molluscs. This symposium brings together studies on the systematics, taxonomy, ecology, and evolution of marine heterobranch representatives.

Cephalopod Biology, Ecology and Life History Symposium

Coordinators:
– Dr. Erica A. G. Vidal, Universidade Federal do Paraná – Paraná, Brazil
– Dr. José Eduardo A. R. Marian, Universidade de São Paulo, São Paulo, Brazil
– Dr. Tatiana S. Leite, Universidade Federal de Santa Catarina – Florianópolis, Brazil

The Symposium will highlight recent advances in the study of cephalopods, and welcomes contributions from all fields of cephalopod research, aiming at promoting dialogue and facilitating future interdisciplinary collaborations.

Lenita de Freitas Tallarico
UM President

WCM 2025
XXII World Congress of Malacology
August 4th to 8th | São Paulo | Brazil

Newsletter Editor and President meeting

(São Paulo 28th February 2025)

On February 28th, the Newsletter editor and the UNITAS President met at the Butantan Institute in São Paulo. The meeting was also attended by the president and treasurers of the Brazilian Malacological Society (SBMa) and researchers from the host Institute. The topics discussed were varied, but the most important was the guided tour of the WCM 2025 venue facilities.

In previous editions, the Council, or at least part of it, visited the host country the year before to get to know the venue in advance, its infrastructure, etc. During my two mandates as Secretary of UNITAS Malacologica (2010–2013 and 2013–2016), I visited the venues in the Azores Islands (2012) and Penang (2015). Therefore, having the opportunity to visit the São Paulo venue this year a few months before the WCM 2025, brought back very good memories.

Needless to say, these visits, as well as those of previous editions, were more ceremonial than necessary, since the organizers of these events have plenty of experience in organizing scientific conferences in their respective countries. But I think that the opportunity to connect the local Committee and part of the Council is a good initiative.

The photos and captions speak for themselves about how the visit went.

See you all in August.

JST
The Editor

Left to Right: JesusTroncoso; Fabrízio Marcondes Machado (1st Treasurer SBMa); Eliane Pintor de Arruda (President SBMa); Marcel Miranda (2nd Treasurer SBMa) & Lenita Tallarico (President UNITAS) in front Vital Brazil Building.

Same people in different order at Microbiology Museum.

Left to Right: Amanda Soares, Patrícia Miyasato, Lenita Tallarico, Eliana Nakano, Jesus Troncoso, Fabrízio Machado, Eliane Arruda, Marcel Miranda & Rafaela de Freitas at the Parasitology Laboratory (Butantan Institute).

Secretary's Report

Travel Grants: We have received 34 applications from 16 countries. The council is working hard to assess the travel grants. The results will be published on the website as soon as possible.

Elections: Following the rules: *'Persons nominated and the capacity in which they are nominated shall be informed to society members at least 7 days before the General Assembly'.*
So, in July the secretariat will give more information.

Yasunori Kano
UM Secretary

Keep in touch…

Keep an eye on our webpage and Twitter account for Unitas Malacologica news and some of our favorite molluscan content. If you have a new publication or announcement you would like us to help spread the word about, please direct message us on Twitter or e-mail kmkocot@ua.edu with information.

Webpage: http://www.unitasmalacologica.org/

Follow us on Twitter: @malacologica

Kevin Kocot
Webmaster - Social Network Manager

Treasurer's Report

As is typical of the years between WCMs, there were only minor financial movements in 2024. The income was € 3,426 (all membership fees). The expenses of € 5,837 were made up of bank fees (€ 252), authority fees (€ 100) and the largest item, the science grants (€ 5,485). Total assets at the end of 2024 amounted to € 46,109.

Bernhard Ruthensteiner
UM Treasurer

Student Research Awards 2024

(total: €5,485)

We are pleased to announce the winners of the Student Awards 2024. Congratulations to all.

On behalf of the council we wish you much success in your scientific career. We looking for your reports in view to be publish in the next Newsletter.

They are:

Eggleton, Lauren
Faelnar, Kristine
Chiappa, Giacomo

Research Award Report (2023 Winners)

Note: Students reports are not scientific publications to be cited. The results will be or have been published elsewhere as original articles.

##

Malacological diversity of the Plio-Pleistocene (5.333-0.012Ma) marine rocks of the Western India

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1. Introduction

The Indo-West Pacific biogeographic province harbors the highest proportion of marine diversity in the present-day ocean (Vermeij and Leighton, 2003) and is recognised as a biodiversity hotspot (Shin et al., 2019). As a result, this region has been extensively studied, with abundant malacological data available from its various marine ecoregions (Subba Rao et al., 1992; Richmond, 2000 and references therein). However, the temporal resolution of these records is largely limited to modern assemblages. When extending beyond the the Recent in to the Recent past — namely the Plio-Pleistocene intervals (5.333-0.012 Ma) — the availability of malacological data sharply declines, leaving a significant gap in our understanding of diversity trends pertaining to these time intervals, that probably played a crucial role in shaping the one in the Recent.

The Indian coastline, representing a key ecoregion within the Indo-West Pacific biogeography (Spalding et al., 2007) has well exposed Plio-Pleistocene marine units, mainly along the coast of Gujarat, namely the Early Pliocene Kalyanpur Limestone Member and the Early-Middle to Late Pleistocene Porbandar group, the upper part of which is the Chaya Formation (Middle-Late Pleistocene), which can further be subdivided into the Okha Shell Limestone member, the Aramda Reef Member and the Porbandar Calc-arenite Member (arranged from oldest to youngest), although their precise age remains undetermined (Bhatt, 2000, 2003; Pandey et al., 2003, 2007). And although few studies had previously documented the regions Plio-Pleistocene paleo-malacofauna (Pandey et al., 2003, 2007), understanding their diversity trends and how this varies from the other studied ecoregions within the Indo-West Pacific biogeographic region, remain largely unknown.

2. Results

In total two rigorous field campaigns totalling 25 days were conducted for samples collection across multiple Plio-Pleistocene faunal localities along the Gujarat coast. To minimize for sampling bias, bulk (several 1 kg bags) and grid (multiple 1m x1m grids) samples were collected (Kowalewski, 2002), post which the samples were sieved through a 2

mm sieve (ASTM 10). Taxonomic affinities of the molluscan assemblages were determined using existing monographs and literature (Subba Rao et al., 1992; Pandey et al., 2003, 2007; Venkataraman, 2007; Dey, 2016; Subba Rao, 2003) and online database (WoRMS; https://www.marinespecies.org/).

To account for sample variability, an individual based rarefaction method was employed. Additionally, diversity was estimated using the Shannon's diversity index (Shannon's H) (Hill, 1973). Non-parametric Mann-Whitney was conducted to test for significant changes in diversity across two stratigraphic units. All analyses were performed using the PAST (Paleontological Statistics) software (Hammer and Harper, 2001).

Individual based rarefaction analysis indicates near-complete faunal sampling for the Plio-Pleistocene intervals of this region (Fig. 1). Trends in Shannon's H although apparently shows a long-term incremental pattern for the Plio-Pleistocene, statistically significant jumps in diversity are observed only across the Aramda Reef Member and the Porbandar Calc-arenite Member (U=2.000. p= 0.022) (Fig. 2).

3. Discussion

The statistical robustness of our present study exemplified by near-complete sampling, as evident through the rarefaction analysis (Fig. 1) strengthens the validity of our observed diversity trends, ensuring that it is not significantly biased by sampling effort, and will thus, provide a reliable representation of marine malacofaunal diversity for the Plio-Pleistocene of India. Although trends in Shannon's H indicate an incremental pattern of molluscan diversity across the Plio-Pleistocene, statistically significant diversity increment is seen to occur only across the Aramda Reef Member and the Porbandar Calc-arenite Member (Fig. 2), indicating a likely abrupt shift in paleoenvironmental or paleoecolgical conditions, significantly influencing malacofaunal diversity trend at specific intervals, rather than a steady, continual increase.

4. Acknowledgements

AM acknowledges the Unitas Malacologica Student Research Awards, 2023, for accepting the research proposal and providing financial assistance for the present study. AM also acknowledges IISER Kolkata for providing infrastructural facilities during the tenure of the present study. AM thanks his supervisor Dr. S. Mondal for research guidance and financial support.

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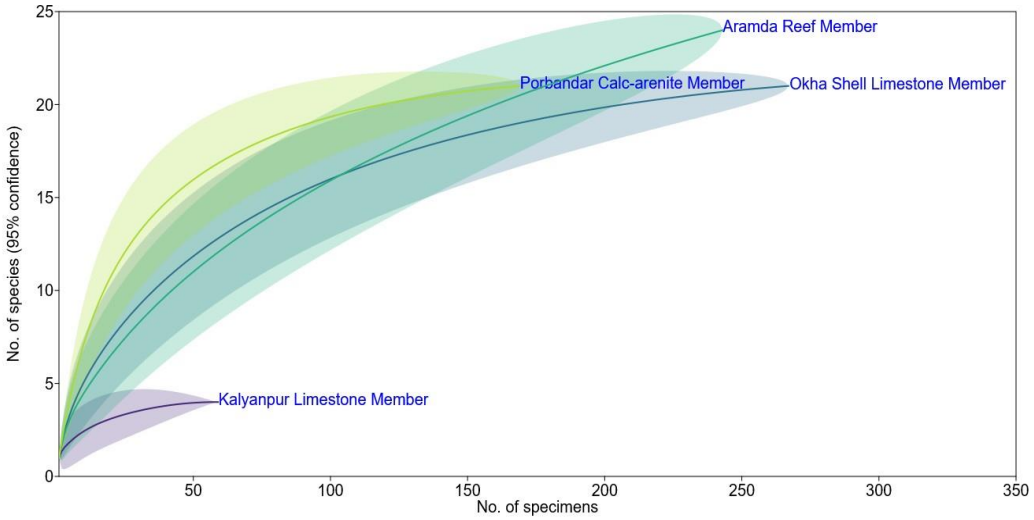

Fig. 1: Rarefaction plot of samples from the Plio-Pleistocene marine units. Solid lines indicate the rarefied species richness and colour envelopes indicate 95% confidence interval.

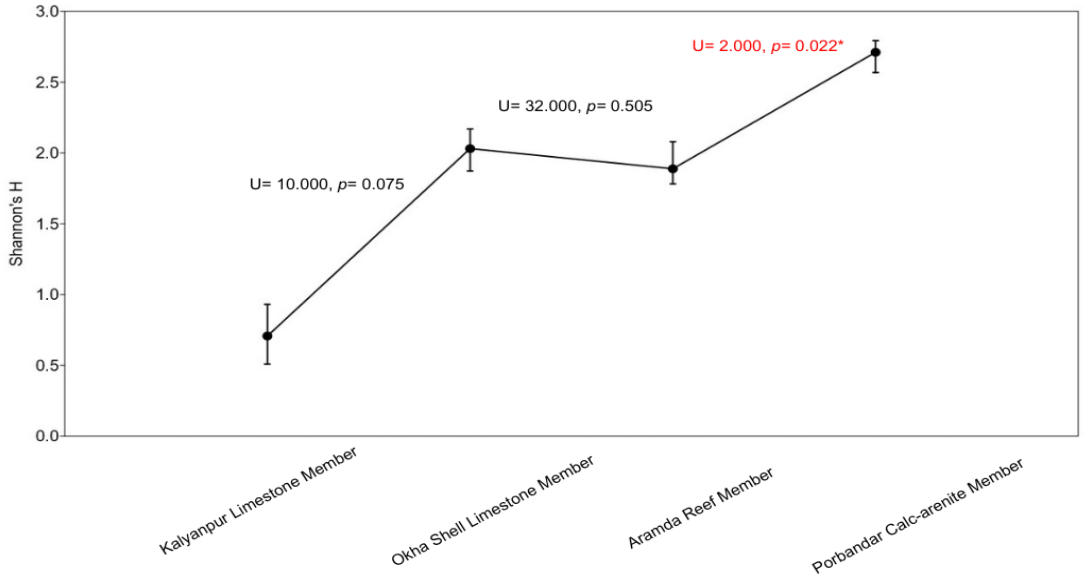

Fig. 2: Trend in Shannon's H across the Plio-Pleistocene marine units. The Mann-Whitney U and *p* values are shown in boxes across each pair of stratigraphic units, with the significant one shown in red.

##

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Newsletter

Spicy food for the egg-cowries: the evolution of corallivory in the Ovulidae (Gastropoda: Cypraeoidea)

Elisa Nocella: elisa.nocella@uniroma1.it

Exploring Corallivory: A Deep Dive Into Evolution

Host-parasite associations provide very useful models to study adaptive processes. We investigated the interaction between carnivorous marine gastropods, the Ovulidae or egg-cowries, and their cnidarian food targets. Ovulidae (Fleming, 1828), is a family of specialized carnivorous caenogastropods that feed by browsing on octocorals (Anthozoa: Octocorallia: Malacalcyonacea and Scleralcyonacea) or, to a much lesser degree, on antipatharians (Anthozoa: Hexacorallia: Antipatharia) and Stylasteridae (Hydrozoa: Hydroidolina: Anthoathecata). Very scanty information is available on the phylogenetic relationships and the degree of specificity of the relationship with the cnidarians of this corallivorous lineage, especially for deep-water taxa. Our study represents the most comprehensive analysis of *Ovulidae* to date. By generating molecular data from over 524 specimens collected worldwide and integrating morphological and DNA barcoding data, we reconstructed their evolutionary trajectory. Fossil calibrations were also employed to establish a robust timeline for their diversification.

Key Findings

1. Taxonomic Reassessment and Synonymy

A major outcome of this study was the resolution of long-standing taxonomic ambiguities within *Ovulidae*. Several nominal species were found to be synonyms, reducing redundancy in the classification of the group.
By integrating molecular data with detailed morphological analyses, we identified cases where previously recognized species were better treated as a single taxonomic entity. Moreover, different genera and also subfamilies as traditionally conceive resulted to be not monophyletic. Our reassessment simplifies the systematic framework of *Ovulidae*, providing a more accurate picture of their diversity.

2. Shallow Origins, Deep Diversification

Our phylogenetic analyses revealed that *Ovulidae* originated approximately 65 million years ago, likely in association with shallow-water Hexacorallia or Hydroidolina. Their early evolutionary history was closely tied to tropical reef ecosystems.

Several lineages later transitioned to deep-sea habitats, showcasing their adaptability. These habitat shifts often occurred independently across the phylogeny and coincided with changes in host associations, illustrating the evolutionary plasticity of *Ovulidae*.

3. Specialization and Host Shifts

The feeding strategies of *Ovulidae* range from strict specialization to broad generalism:

- Specialists: Many species exhibited strong host fidelity, feeding exclusively on specific cnidarian family.
- Generalists: Other species, such as *Phenacovolva rosea*, displayed greater ecological plasticity, feeding on multiple cnidarian families.

Host shifts were identified as key drivers of diversification. These shifts allowed lineages to exploit new ecological niches, often coinciding with evolutionary radiations.

Evolutionary Dynamics Without Coevolution

Our results suggest that the evolution of *Ovulidae* was shaped by sequential evolution rather than strict coevolution. While these gastropods adapted to exploit existing cnidarian lineages, their evolution did not significantly influence the diversification of their hosts. This pattern reflects the ecological flexibility of *Ovulidae*, allowing them to persist across diverse habitats and host types.

Why Study Ovulidae?

My fascination with *Ovulidae* stems from their remarkable adaptations and ecological roles. These snails are permanent residents on their cnidarian hosts, often feeding on colonial polyps or coral secretions. Some species, such as those associated with octocorals, have developed highly specialized relationships, while others exhibit surprising dietary flexibility.

For example, certain species of *Ovulidae* are restricted to feeding on octocorals from specific genera, such as *Sarcophyton* or *Sinularia*. Meanwhile, other species have transitioned to deeper habitats, feeding on black corals or stylasterid hydrozoans. These interactions reveal not only the adaptability of *Ovulidae*, but also the complexity of their ecological niches.

Studying *Ovulidae* is like piecing together a puzzle of marine evolution. Their ability to colonize new habitats, exploit diverse hosts, and adapt to environmental changes makes them a compelling model for understanding biodiversity and resilience in marine ecosystems.

Broader Implications

Biodiversity and Conservation

The discovery of extensive cryptic diversity within *Ovulidae* highlights the hidden richness of marine life. However, this diversity also faces significant threats. As coral reefs decline due to climate change, pollution, and overfishing, many *Ovulidae* species risk losing their specialized hosts. This vulnerability underscores the need for targeted conservation efforts to preserve both the snails and their cnidarian hosts.

Evolutionary Insights

The evolutionary trajectory of *Ovulidae* offers a window into the processes driving host-parasite relationships. Their sequential evolution demonstrates how ecological opportunities, such as new hosts or habitats, can drive diversification without requiring coevolutionary dynamics. This adaptability has allowed *Ovulidae* to thrive in a wide range of environments, from tropical reefs to the abyss.

Discover More

This study provides a detailed look into the evolution, ecology, and biodiversity of *Ovulidae*. For those intrigued by these corallivorous gastropods, the full publication is available here: DOI: 10.3389/fmars.2023.1323156.

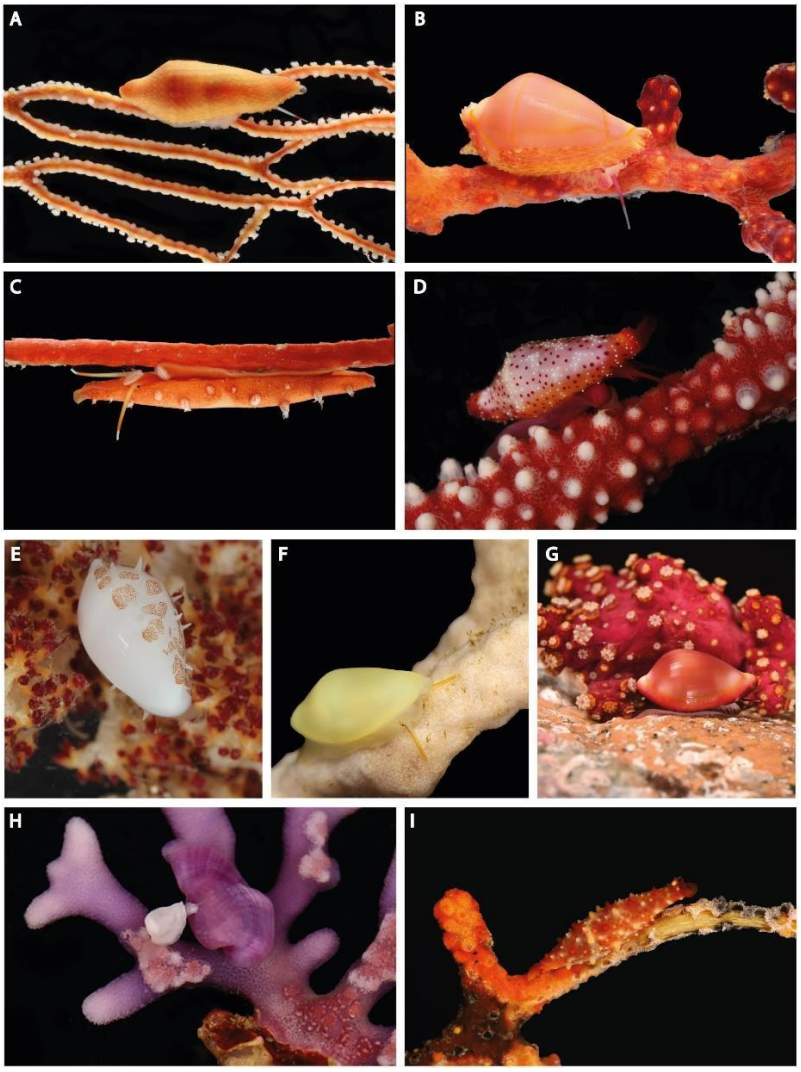

Figure 1 Living specimens on host analysed in this work. **(A)** *Prosimnia semperi* (MNHN-IM-2013-4178) on Melithaeidae, Papua New Guinea. **(B)** *Dentiovula dorsuosa* (MNHN-IM-2013-4461) on Siphonogorgiidae, Papua New Guinea. **(C)** *Aclyvolva coarcata* (MNHN-IM-2013-11745) on Ellisellidae, Papua New Guinea. **(D)** *Crenavolva traillii* (Ov- QL-1361) on Paramuriceidae, Vietnam. **(E)** *Habuprionovolva* sp. (MNHN-IM-2013-17977) on Neptheidae, Papua New Guinea. **(F)** *Naviculavolva kurziana* (MNHN-IM-2019-8310) on Isididae, New Caledonia. **(G)** *Pseudosimnia carnea* (MNHN-IM-2019-18135) on Alcyoniidae, Corse. **(H)** *Pedicularia pacifica* (male and female, Ov-NT-1736 and Ov- NT-1737) on Stylasteridae, Vietnam. **(I)** *Phenacovolva rosea* (Ov-NT-1733) on Acanthogorgiidae, Vietnam. Photograph credits: **(A–C, E, F)**, Laurent Charles (MNHN); **(D, H, I)**, Elena Mekhova (IEE); **(G)**, Gilles Devauchelle (MNHN).

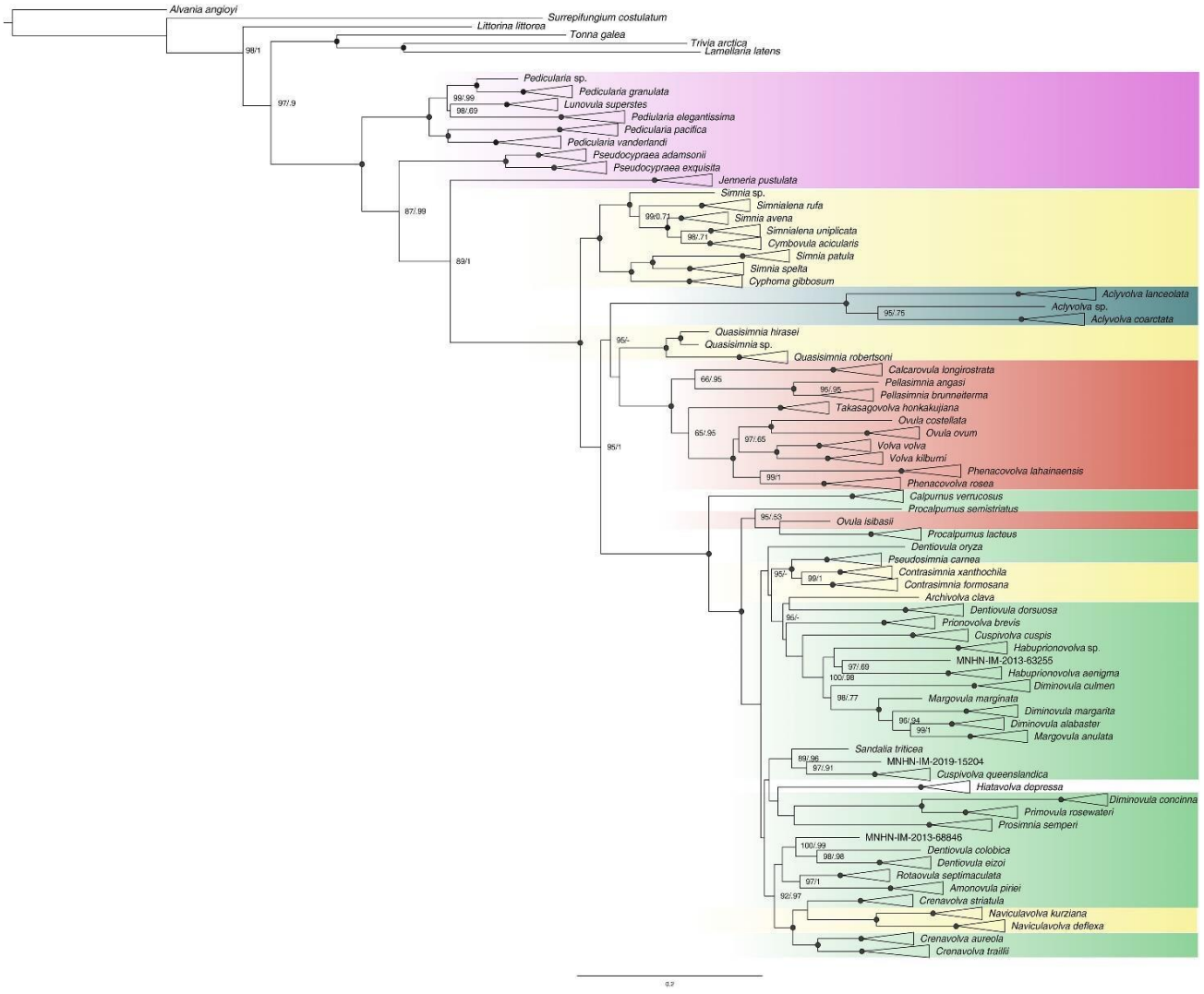

Figure 2 Phylogenetic relationships of the family Ovulidae (Maximum Likelihood tree based on the combined dataset), with clades collapsed by species. Numbers at nodes indicate branch support values [ultrafast bootstrap (Ufb) values and posterior probability (PP), respectively]; support values are shown only when at least one of them is ≥ 95%; black circles at nodes indicate maximum support (PP=1, Ufb=100). Colors at collapsed clades and taxa indicate the traditional subfamilial classification of the taxa represented: pink=Pediculariinae; yellow=Simniinae; dark green=Aclyvolvinae; red=Ovulinae; green=Prionovolvinae.

##

UNITAS MALACOLOGICA

Newsletter

Mapping and studying the ecology of the endemic and Critically Endangered land snail *Advena campbellii* on Norfolk Island to inform conservation planning

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School of Science, Western Sydney University | Australian Museum Research Institute

Introduction

In 2020, Norfolk Island naturalist Mark Scott came across a living Campbell's Keeled Glass Snail, *Advena campbellii*, which was declared Extinct by the IUCN and Critically Endangered by the Australian government after no live snails were found since 1999. The species is endemic to and used to range across Norfolk Island (Hyman et al., 2023). The rediscovery of this living population raises hopes that the species may persist in other parts of the island. However, more than 70% of Norfolk Island's native vegetation has been cleared or degraded since human inhabitation, and introduced snail predators such as rodents and flatworms are common. Furthermore, nothing is known about the ecology of this species, hampering our ability to develop a conservation plan for the species.

To address these critical knowledge gaps, I asked three questions: (1) What is the distribution of remnant populations of *Advena campbellii* on Norfolk Island? (2) Are there any other suitable habitats for *A. campbellii* which may be useful for future reintroductions? (3) What environmental factors are associated with the presence of *A. campbellii*?

Materials and Methods

This study focuses on Norfolk Island National Park, which contains most of the island's natural forests. The survey was systematic: 16 m^2 plots were used with around 12 replicates for each of the four vegetation types (Invasive Species Council and TierraMar, 2021; Fig. 1). A total of 49 plots was sampled in September and October 2023. The QGIS software was used to randomise plots and minimise pseudo-replication. At each of these plots, a complete visual search of all microhabitats was conducted. The abundance of living and fresh-dead *A. campbellii* individuals was recorded. The abundance of each land snail species in the plot was also recorded. Environmental data were collected at each plot based on on-site measurements and spatial analyses: plant species cover, ground microhabitat cover, elevation, pH, slope steepness, canopy height, topographic wetness index, wind exposure and sun exposure at January (summer) and July (winter).

Also, extensive survey transects were searched for *A. campbellii* across the national park from June 2022 to October 2023. Waypoint coordinates were marked with GPS wherever we encounter living or fresh-dead *A. campbellii* while true-absence records were generated from the GPS tracks of the transects at 5-minute intervals.

Based on this, I: (1) Generated a map of species occurrence records based on data from this study and intensive transect surveys at all suitable habitats and sites with historical records; (2) Modelled species distribution map of *A. campbellii* based on Maximum Entropy (MaxEnt) by inputting living and fresh-dead occurrence records and relevant spatial data; (3) Identified key variables that explain the variation across the 49 sampling sites using Principal Component Analysis (PCA). Analysed and tested associations between the environmental variables and the presence of living and fresh-dead *A. campbellii* using Generalised Linear Models (GLM), and the associations between the environmental variables and the abundance of *A. campbellii* using Generalised Additive Models (GAM) (*sensu* Schenková et al. 2012).

Preliminary Results and Discussion

Baseline distribution map of extant populations

All the records of fresh-dead and living *A. campbellii* show that the species was now confined to a 0.051 km^2 area in low population densities. *Advena campbellii* was present at only 9 out of the 49 survey sites. Also, I recorded 41 waypoints where living or fresh-dead *A. campbellii* was present and 1053 points of absences during the transect surveys.

These occurrence data have been collated into a high-resolution map and shared with land and species conservation managers. The maps will not be shared publicly to minimise poaching and disturbance risks (Tulloch et al. 2018). However, the species distribution models will be made available in a publication in due course.

Species distribution models

Preliminary MaxEnt analyses of individual variables suggest sun exposure in July, canopy height and slope steepness may contribute strongly to habitat suitability for *A. campbellii* (Fig. 1). Several spatial variables contain formatting issues which must be resolved before a more rigorous multi-variable MaxEnt analysis can be produced to statistically evaluate variable contributions to the species distribution model. Considering that true absence records are also available for analysis, I will also use Generalised Linear Models (GLM) to incorporate both absence and presence records for more robust species distribution models (Guillera-Arroita et al. 2014).

Ecological associations based on species presence and abundance

The PCA output shows that the following factors explain the variation across the 49 survey sites: (1) abiotic variables – slope steepness, sun exposure in January, sun exposure in July, topographic wetness index, wind exposure; (2) ground microhabitat – percentage covers of fallen palm litter, fallen branches, and litter and soil; (3) plant cover – percentage covers of beech, palm, olive, guava and oleander (Fig. 2A).

Overall, the presence and abundance analyses suggest *A. campbellii* do not have strong preferences for specific ecological conditions. The best models from the GLM analyses show that none of the ground microhabitat, plant species cover and abiotic variables explain the presence of *A. campbellii* (all variables have $p > 0.05$). But notably, *Advena campbellii* was only found in plots with zero percentage cover of guava or olive, possibly indicating that sites with these invasive plant species are not suitable for *A. campbellii* (Fig. 2B). The best models from the GAM analyses show that none of the ground microhabitat, plant species cover and abiotic variables explain the abundance of *A. campbellii* (all variables have $p > 0.05$). Interestingly, *Advena campbellii* have a somewhat positive yet non-significant association ($p = 0.054$) with percentage cover of fallen palm leaf (Fig. 2C).

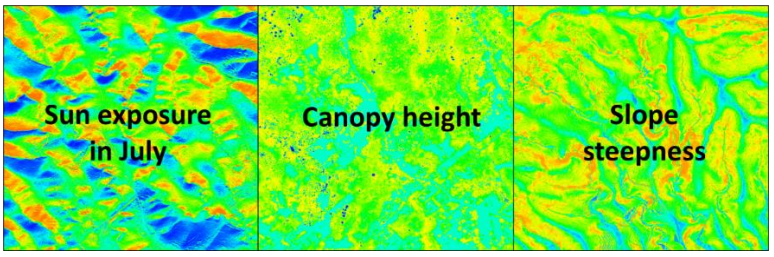

Fig. 1. Examples of species distribution models from preliminary MaxEnt analyses.

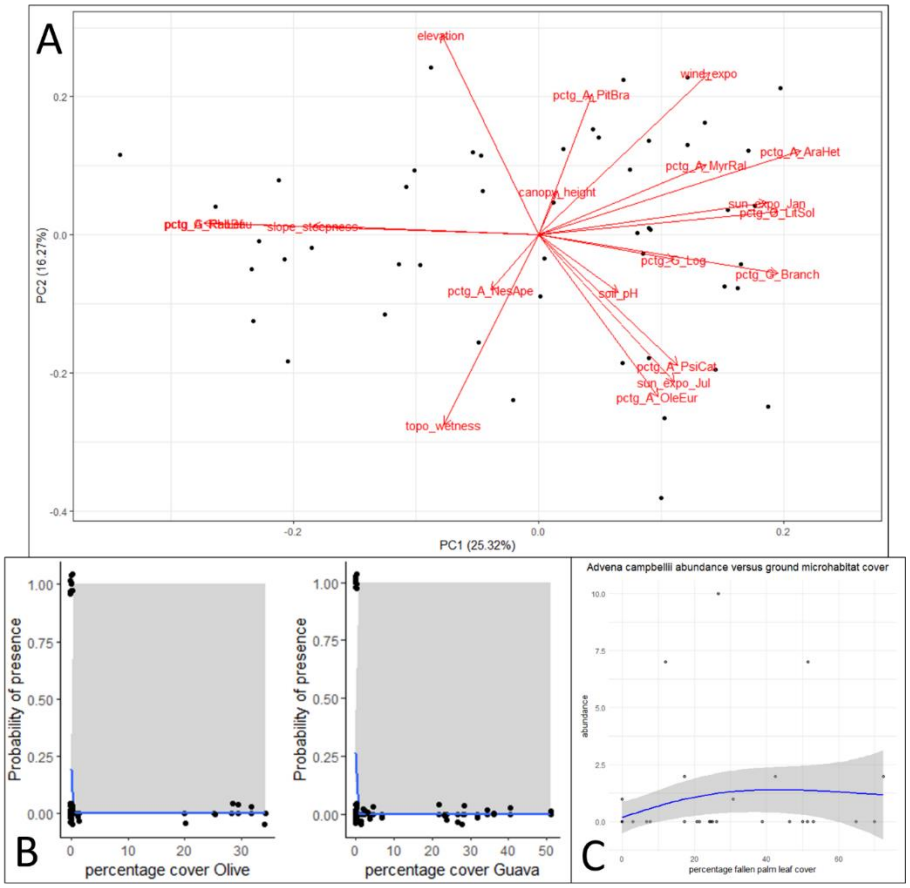

Fig. 2. (A) PCA results shows the key environmental factors (red) explaining variation across the 49 sampling plots. (B) Selected GLM plots of the best model for *Advena campbellii* presence against plant percentage cover, showing the absence of the species in any plots with olive and guava plants. (C) Selected GAM plot of the best model for *Advena campbellii* abundance against ground microhabitat variables, showing the non-significant relationship (p = 0.054) between species abundance and percentage cover of fallen palm leaf.

Next steps

These preliminary results highlight the challenges of studying rare and threatened island land snails. The non-significance of the GLM and GAM results may be affected by the very low sample size of *A. campbellii*. In the coming year, I will sample additional sites within and beyond the national park using identical methods to provide more data for re-analysing the ecological associations and species distribution models.

The findings in this project will be used to: (1) Study the genetic connectivity of the wild populations across the landscape; (2) Guide the management of the wild populations of *A. campbellii* and their habitats; (3) Inform the choice of sites for reintroducing zoo-bred *A. campbellii* snails back to the island (Daly et al. 2021). I will also use this study's data and analysis pipeline to assess the remaining circa 59 island-endemic land snail species. Ultimately, the goal of my project is to assess the ecological requirements and distribution for all land snails on Norfolk Island to contribute towards developing a conservation plan for endemic species on Norfolk Island.

I hope that this project will inspire and provide lessons and tools for malacologists and conservation practitioners in other island and island-like environments to aid the conservation of endemic molluscs. This is especially relevant for human-inhabited islands in the Indo-Pacific, many of which have threatened land snail species from the same families as those on Norfolk Island.

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