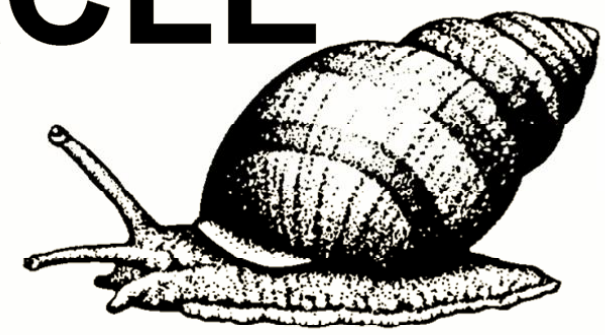
The Newsletter of the IUCN/SSC Mollusc Specialist Group
Species Survival Commission • IUCN - The World Conservation Union

TENTACLE



UNITAS MALACOLOGICA

Guest editorial

Turning research into conservation action

By Rebecca J. Rundell

Like many of us, I was inspired and gratified by Lydeard *et al.*'s (2004) *BioScience* article on the global decline of nonmarine molluscs. This article clearly outlined the enormity of the extinction crises in nonmarine mollusc faunas. Freshwater and terrestrial molluscs are among the most threatened groups of animals; 42 % of recorded animal species extinctions are molluscs, and nonmarine species comprise 99 % of all molluscan extinctions (Lydeard *et al.*, 2004). Clearly, this article was pivotal in drawing attention to a neglected group of animals—animals that are the foci of our research programs.

I was similarly gratified by the conservation strategies summarized by Lydeard *et al.* (2004), summarized in the categories of research, management, and education and outreach. After all, biotic surveys, taxonomic, phylogenetic and phylogeographic study, and ecological investigations, as outlined by Lydeard *et al.* (2004) are the basis of my own research program. I have also worked with conservation managers and participated in outreach programs. I would venture that most, if not all, of the readers and contributors to *Tentacle* are not only dedicated to the conservation of their respective nonmarine mollusc groups and their habitats, but have also made substantial contributions to the body of knowledge required to conserve them.

However, as I work on setting the trajectory of my own career in evolutionary research on a group of Pacific island land snails, I wonder whether what I am doing will have any impact on the actual conservation of these and other nonmarine taxa and their habitats. I have found that the conservation managers with whom I have worked have become very interested in land snails and are dedicated to conserving them. But given the pull of more pressing priorities, limitations on time and staff (among other things), it is doubtful that the reports on my survey work and copies of research publications, while important contributions to science, will have a huge impact on the actual conservation of snails and forests.

In this issue: page

One could argue that to do much more than what we do best (i.e. research and publication on our organisms) is beyond the scope of our careers. But I struggle with the idea that in not making a real attempt to affect both policy and on-the-ground conservation efforts, we may be selling ourselves, and the natural world (and by extension, society), short. We, as

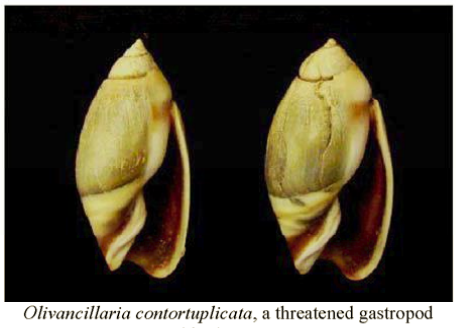
queen conch (*Strombus gigas*) population in the Florida Keys. *Fishery Bulletin* 102: 278-288.
Reed, S. E. 1995a. Reproductive anatomy and biology of the genus *Strombus* in the Caribbean: I. Males. *Journal of Shellfish Research* 14: 325-330.
Reed, S. E. 1995b. Reproductive anatomy and biology of the genus *Strombus* in the Caribbean: II. Females. *Journal of Shellfish Research* 14. 331-336.

Erick Baqueiro Cárdenas, CICATA, Instituto Politecnico Nacional, Altamira, Mexico. ebaqueiro@gmail.com
Liliane Frenkiel, Archipiel des Sciences, FWI, France. liliane.frenkiel@wanadoo.fr
Dalila Aldana Aranda, CINVESTAV, Instituto Politecnico Nacional, Unidad Mérida, Laboratorio de Biología y Cultivo de Moluscos, Mexico. daldana@mda.cinvestav.mx

Pilot programme of ecosystem monitoring in Cerro Verde (Uruguay): two years of malacological assessment

By A. Carranza

Coastal development, land based chemical and nutrient pollution and shipping practices combine to alter the structure and functioning of marine and coastal ecosystems globally. Implementation of marine protected areas (MPAs) is a critical issue for the protection of marine life and their habitats. These areas may provide multiple benefits, including protection of habitat, conservation of biodiversity, insurance against environmental uncertainty and sites for scientific investigation, baseline information, education and recreation. Cerro Verde (Uruguay) is being implemented as the first marine protected area in the country, covering over 510 km^2 of a marine-coastal ecosystem.



Olivancillaria contortuplicata, a threatened gastropod reported in the reserve area.

Endangered molluscs potentially contained within the reserve include the gastropods *Olivancillaria contortuplicata*, *O. teaguei* and *Olivella formicacorsii* (Mansur *et al.*, 2003, Scarabino, 2004). However, data on molluscs and other marine invertebrates in the area are scarce, mostly qualitative and scattered in the literature (Scarabino *et al.*, 2006a, b). In the first step of this project, we gather extensive quantitative data on species abundance, distribution, and temporal variation on intertidal and subtidal rocky platforms. This allowed us to obtain the first complete faunal inventory for this environment and to explore the ecological factors controlling local biodiversity. The first results will be published in a peer-reviewed international journal in 2007 (Borthagaray & Carranza, in press).

The molluscan assemblage of the intertidal and shallow subtidal rocky platforms is dominated by the mussel *Brachidontes rodriguezi*, followed in percent cover by *Perna perna*. The former is able to develop monocultures, principally in the higher intertidal. Scattered, small specimens of *Mytilus edulis platensis* are occasionally found, together with the mytilid *Modiulus carvalhoi*. The mussel beds and algae provide spatial heterogeneity for the development of a complex assemblage. At least two more bivalve species (*Sphaenia fragilis* and *Entodesma patagonicum*) thrive among the mussel beds. Gastropods are represented in the upper shore by *Echinolittorina lineolata* and the limpets *Lottia subrugosa* and *Siphonaria lessonii*, the latter species also extending into the low intertidal and shallow subtidal. *Costoanachis sertulariarum* is commonly found associated with mussel beds in the lower and mid intertidal, where the larger whelk *Stramonita haemastoma* feeds on mussels. Another predator, the whelk *Hanetia hanetti*, is found in the low intertidal. With the chiton *Chaetopleura* sp., a total of 13 mollusc species occurr in the Cerro Verde rocky intertidal. This two-year study has thus provided a qualitative and quantitative baseline for the evaluation of environmental impacts within the MPA.

Chaetopleura sp. on a boulder covered by mussels.

In order to complete the faunal inventory, we now aim to explore the soft-bottom invertebrate fauna within the reserve by means of benthic surveys onboard the artisanal fleet, using appropriate sampling devices such as epibenthic dredges, shrimp trawl nets and Van Veen dredges. This will allow us to obtain information on benthic invertebrate diversity in the entire area, improving the scientific information needed to effectively manage the MPA.

The field work was supported by The Maurice Laing Foundation Rufford Small Grant for Nature Conservation.

Borthagaray, A.I. & Carranza, A. in press. Mussels as ecosystem engineers: their contribution to species richness in rocky littoral community. *Acta Oecologica*.
Mansur, M.C.D., Heydrich, I., Pereira, D., Richinitti, L.M.Z., Tarasconi, J.C. & de C. Rios, E. 2003. Moluscos. In: *Livro vermelho da fauna ameaçada de extinção no Rio Grande do Sul* (eds Fontana, C.S., Bencke, G.A. & Reis, R.E.), p. 49-71. EDIPUCRS, Porto Alegre.

Scarabino, F. 2004. Conservación de la malacofauna uruguaya. *Comunicaciones de la Sociedad Malacológica del Uruguay* 8(82-83): 267-273.

Scarabino, F., Zaffaroni, J.C., Carranza, A., Clavijo, C. & Nin, M. 2006a. Gasterópodos marinos y estuarinos de la costa uruguaya: faunística, distribución, taxonomía y conservación. In: *Bases para la conservación y el manejo de la costa uruguaya* (eds Menafra, R., Rodríguez-Gallego, L., Scarabino, F. & Conde, D.), p. 143-156. Vida Silvestre (Sociedad Uruguaya para la Conservación de la Naturaleza), Montevideo.

Scarabino, F., Zaffaroni, J.C., Clavijo, C., Carranza, A. & Nin, M. 2006b. Bivalvos marinos y estuarinos de la costa uruguaya: faunística, distribución, taxonomía y conservación. In: *Bases para la conservación y el manejo de la costa uruguaya* (eds Menafra, R., Rodríguez-Gallego, L., Scarabino, F. & Conde, D.), p. 157-170. Vida Silvestre (Sociedad Uruguaya para la Conservación de la Naturaleza), Montevideo.

A. Carranza,Universidad de la República, Faculatad de Ciencias, and Asociación Civil I + D, Igúa 4224, CP 11 400, Montevideo, Uruguay, alvardoc@fcien.edu.uy

Gastropod biodiversity in the waters of Sabah (Malaysian Borneo)

By Markus Ruf

Sabah, with more than 1400 km of coastline, lies at the northern apex of the "Golden Triangle of Marine Biodiversity", which is commonly known as the world's richest and most diverse region for marine life. This area is believed to accommodate more species of marine molluscs than any other comparable area in the world. Surprisingly, though, very little recent work has been done to document and conserve this rich mollusc brew.

Previous mollusc collections in Sabah concentrated mainly on the collection of land snails (Schilthuizen, 2006 [*Tentacle* issue 14]) whereas few efforts have been made to study seashells comprehensively.

Because most previous collections of marine molluscs have been taken overseas, Sabah has no proper reference collection or library. For this reason, I began a project to determine not only the distribution and diversity of marine molluscs in Sabah, but also to establish the first local reference collection, to be located at University Malaysia Sabah (UMS).

The research will touch on key places and different habitats in the waters of Sabah, such as shoreline, mangroves, beaches, sea grass beds, estuaries and remote offshore islands. Survey techniques include beach walking, snorkeling, SCUBA-diving and joining fish-and shrimp-trawlers to investigate mollusc bycatch.

Some outstanding discoveries can already be reported as a result of the fish trawler observations. For example, four species of Xenophoridae were discovered that had not been recorded in Sabahan waters before, namely: *Xenophora solaroides solaroides* (Reeve, 1845), *Stellaria chinensis chinensis* (Philippi, 1841), *Onustus exutus* (Reeve, 1842) and *O. indicus* (Gmelin, 1791).

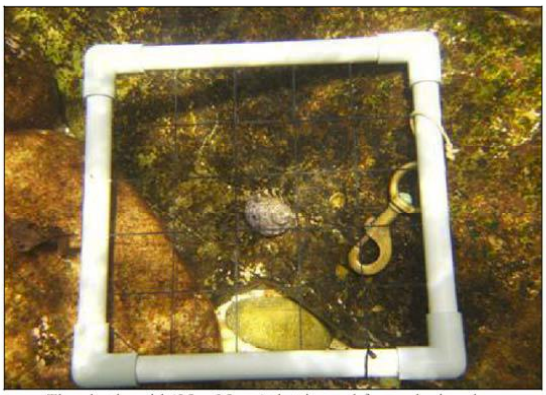
In particular, I am aiming to pay special attention to the morphological and ecological differentiation of Turbinidae of

Some ot the mollusc bycatch from a single three-hour trawl between 60 and 80 m deep. The trawling grounds are located 20 to 40 nautical miles off the west-coast of Sabah

shallow water habitats, with a focus on variation in shell morphology, biometrics, color, habitat ranges and preference.

With this research I hope to fill gaps in knowledge of the diversity, distribution and biology of Turbinidae in the waters of Borneo. By observing the animals in their natural environment, I am trying to obtain data on their behavior, the range of habitats they live in, and their food habits. I an using the following techniques for this.

A plastic square (25 x 25 cm) is used for analyzing the micro-habitat around the living snails, as described by Patzner (1989). Physical characteristics recorded for the micro-habitat will include the size of the rocks where the snails are hiding and whether the substrate consists of mud, sand, stones/rock, gravel, coral, rubble or other material. The substrate composition will be measured on a sliding scale from 1 to 5 based on the percentage of mud, sand, rubble, coral and stones/rock.



The plastic grid (25 x 25 cm) that is used for analyzing the microhabitat around the shell to determine the bottom composition.

Since very little is known about the biology of Turbinidae in general, this work will be an invaluable contribution to the knowledge of this conspicuous snail family. Nearly all shallow water turbinid species are extremely over collected