

The Newsletter of the IUCN/SSC Mollusc Specialist Group
Species Survival Commission • International Union for Conservation of Nature

TENTACLE



UNITAS MALACOLOGICA



EDITORIAL

This issue, the largest ever, represents 20 almost continuous years of publication of *Tentacle*, the first issue having appeared in December 1989. The newsletter has developed from a typed original, cyclostyled and distributed to a limited readership in the mail, to a full colour, web-based publication read much more widely and with contributions from almost every corner of the globe. Yet the underlying issues remain the same – molluscs are still severely threatened, with many on the brink of extinction. A recent paper by Claire Régnier and colleagues of the Muséum nationale d'Histoire naturelle in Paris, published in *Conservation Biology* in November 2009 (vol. 23, pages 1214–1221), asks what we really know about the true level of mollusc extinctions and whether the global IUCN *Red List* accurately reflects this knowledge. The answer provides much food for thought.

The *IUCN Red List* is an important tool in conservation – only with knowledge of which species are extinct and which are threatened can conservation action be appropriately targeted. More mollusc species than species in any other group are listed as extinct in the *Red List*. Yet, how accurate is the *List*? Perhaps quite accurate for vertebrates, but what about invertebrates? In the first article in this issue of *Tentacle*, Régnier summarizes their *Conservation Biology* paper. The results show that the *Red List* seriously under-estimates the number of extinct mollusc species. The problems lie primarily in (1) the lack of sufficient specialists to address the diversity of what is the second largest animal phylum (in terms of numbers of described species), compared to the relatively large numbers of people recording vertebrates, (2) the geographic locations of those specialists, which for the most part do not match the locations facing the greatest levels of threat, and (3) the longer process leading to listing of invertebrates than vertebrates because it is taxonomists rather than field ecologists and conservation biologists who accrue the knowledge of invertebrate population trends, resulting in an additional step in the trajectory from field-derived knowledge to listing. [Insects of course represent an even great problem.] It is an important paper and I recommend that everyone reads it.

Robert H. Cowie, Editor

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OTALA PUNCTATA (MÜLLER, 1774) ESTABLISHED ON MALTA

By Nicholas Barbara & Patrick J. Schembri

Otala punctata (Müller, 1774) is a typically western Mediterranean helicid land snail with a range extending from France to northwest Algeria (Maurel, 2006; Falkner, 1990). In a recent survey of sites on the Maltese Islands (Central Mediterranean) where alien terrestrial molluscs might possibly have been introduced, we documented an established population of *Otala punctata* around a plant nursery in Mosta, in the centre of Malta (Fig. 1). We have determined that *Otala punctata*, which may have been first introduced with imported plant material as early as 2003 (Mifsud *et. al.*, 2003), occurs as variably aged individuals, and it is confirmed as a newly established alien helicid for Malta. This thermophilic species, sharing a similar morphology, ecology and life cycle to some local Helicidae such as the ubiquitous *Eobania vermiculata* (Müller, 1774), is well adapted to the strongly bi-seasonal Mediterranean climate of Malta and is highly likely to extend its range from this point of origin.

Otala punctata's distribution in Mosta, Malta, was mapped and the population was estimated to occupy an area of about 50,000 m² in the immediate vicinity of the plant nursery; the snails did not show any particular preference for substratum or habitat. We found all snails attached to a variety of flora, ubiquitous in the Maltese Islands, and with varying densities not correlated to distance from the suspected point of origin in 2003, indicating that the specimens were not recent escapees.

Differences in shell diameter, thickness and height confirmed the presence of variably aged individuals indicating reproductive success of the alien species. We analysed the range of shell diameter in the population, a reliable trait for aging snails (Lazaridou-Dimitridou & Kattoulas, 1981), by developing a size-frequency distribution – distinct cohorts or generations are distinguished by such analyses as separate modes along a shell diameter axis, each mode corresponding to a distinct reproductive event. We used Bhattacharya's method for modal class progression analysis (Bhattacharya, 1967).

Our analysis confirmed that by 2006, three differently sized (and aged) cohorts of *Otala punctata* occurred in the area.



Fig. 1. Variably aged individuals of *Otala punctata*, a newly established helicid on Malta. Photo shows snails attached to tree mallow, *Lavatera arborea* (a ruderal species), close to a plant nursery in Mosta (central Malta). (Photo: Nicholas Barbara, 23 May 2006)

corresponding to at least a parent population that had contributed to two successive offspring generations at the time of our survey. This compares with the 2-3 yr lifespan recorded for *Eobania vermiculata* by Lazaridou-Dimitriadou & Kattoulas (1981).

The dispersal mechanisms involved in the proliferation of this western Mediterranean species in the Maltese countryside may be complex and are not known. However, we believe that the biology of this species makes its further proliferation and dispersal highly likely. This might have unknown effects on local ecosystems, possibly resulting in competition with endemic Helicidae that share a similar ecology, such as *Cernuella caruanae* (Kobelt, 1888) and *Marmorana (Murella) melitensis* (Férussac, 1821).

The recent introduction and establishment of *Otala punctata* in Malta highlights the perils of a poorly controlled horticultural trade for the introduction of alien malacofauna, which is not an isolated case for the Maltese Islands. Liberalised trade, especially between affiliated countries such as Malta and other European Union member states, has relaxed quarantine measures and thereby increased the chances of further introductions.

More details of our study of *Otala punctata* are given by Barbara & Schembri (2008).

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TERRESTRIAL MALACODIVERSITY OF LIMESTONE OUTCROPS OF HAINAN ISLAND

By Min Wu & Qin Wu

A recent study (2004-2007) investigated 13 limestone outcrops in Hainan Island, which has 1.8 % of the total amount of limestone outcrops in China. The highest concentration of limestone areas in Hainan is in Wangxia (N19° 00'43.8", E109°08'10.6"), Changjiang County, where there are five limestone mountains higher than 1,000 m, with well developed karst landscape, totalling more than 160 km². Economic activity on the island, along with tourism and exploitation of limestone for cement production, is resulting in increasingly serious threats to such areas. In particular, cement production is rapidly destroying the landscape of the limestone outcrops. Almost alongside each limestone outcrop there is at least one cement factory that uses the limestone directly from the nearby outcrop without any ecological consideration.

This situation means that there is a very urgent need to evaluate the biodiversity status of the region. From 2004 to 2007, we conducted several malacodiversity surveys in nine limestone outcrops as well as in eight granite and two basalt localities in Hainan. Based on both the ecological information and the biological materials obtained, mainly from these 19 localities, we assessed the composition of the malacofauna, the historical formation of the local malacodiversity and the endangered status of terrestrial molluscs, all of which will be crucial in developing protection strategies for the local malaco-resources in the future.

Including the taxa found during our study, the land mollusc fauna of Hainan now comprises 59 species belonging to two subclasses (Prosobranchia, Euthynerua), four orders (Archaeogastropoda, Mesogastropoda, Stylommatophora, Soleolifera), 19 families (Helicinidae, Hydrocenidae, Cyclophoridae, Ariophantidae, Bradybaenidae, Camaenidae, Clausiliidae, Endodontidae, Enidae, Euconulidae,

Helicarionidae, Trochomorphidae, Streptaxidae, Subulinidae, Succineidae, Rhytididae, Achatinidae, Vaginulidae (= Veronicellidae), Rathouisidae) and 41 genera. Of these, two families (Hydrocenidae and Rathouisidae), including four genera and five species, are new records for Hainan. The new records are: *Georissa sulcata* Moellendorff, 1884 (previously known from Guangdong); *Georissa hungerfordiana* Moellendorff, 1884 (previously known from Guangdong and Hunan); *Diplommatina triangulata* Yen, 1939 (previously known from Yunnan; Fig. 1); *Plectotropis fulvicans* Adams, 1866 (previously known from Taiwan); *Moellendorffia hensanensis* (Gredler, 1885) (previously known from Hunan); *Rathouisia* sp. (distinctly a new species and listed as a new record, but not identified because only one juvenile was found). Two species of *Opeas* are new to science (to be described elsewhere).

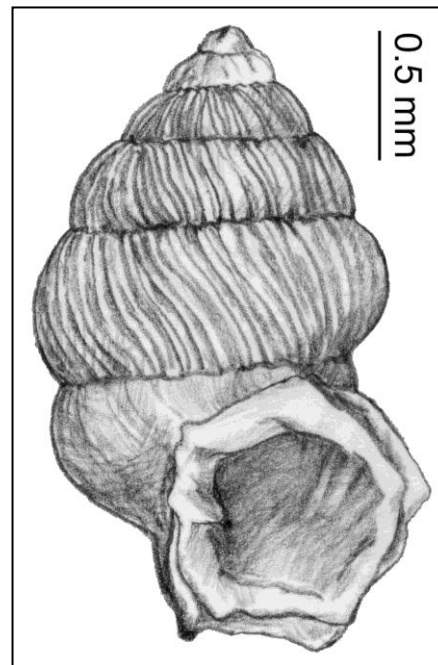


Fig. 1. *Diplommatina triangulata* Yen, 1939. New record for Hainan.

All species involved were described based on their conchological features. The interactive identification system DELTA (CSIRO Delta for Windows, vers. 1.04), with 27 unordered characters and a total of 76 character states, with seven numeric and five text characters, was employed for management of all information on the species and for prompt identification. All specimens are preserved in the Museum of Nanjing University.

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