

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

TENTACLE



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EDITORIAL

The biggest ever edition of *Tentacle*! But apologies for its late arrival. The bigger *Tentacle* becomes the more work is needed to put it together. The two associate editors have of course been a great help, once again.

This issue includes some good news – reintroduction of *Partula* to field enclosures in Tahiti – but also ongoing bad news of declines and probable extinctions. The articles are dominated by contributions from South America and the Caribbean, which reflects real commitment to molluscs and their conservation in the region. But there is also a diversity of contributions dealing with Africa, India and Nepal, south-east Asia, Israel, Eastern and Western Europe, North America and of course the Pacific islands. I encourage more of you to submit contributions from other regions and countries rarely represented in the pages of *Tentacle* – I cannot believe that there are no mollusc conservation stories from these places that would be of interest to the readers of *Tentacle*.

Tentacle is an excellent place to publish your news stories – stories that would not normally be published in the peer-reviewed or technical literature. It is a place for news about progress on projects related to conservation and what you have accomplished during the past year or past few years. It is not a place for detailed new research results and in the future will not publish exceptionally long, detailed and dry annotated lists of species recorded in field surveys. Those kinds of results should be published in more formal scholarly journals – they can be summarised in *Tentacle*, mentioning particularly significant species or events, especially if they include attractive illustrations. The key is that *Tentacle* is a newsletter – a publication that people will want to read and enjoy from start to finish. I hope you enjoy this issue.

Robert H. Cowie

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Protection (LESRPE) (Royal Decree 139/2011) of Spain, where these species have been reported from a few locations during the last century. Hydrogeological conditions and microhabitats are different for the two species. Both species are very sensitive to changes in drainage conditions and to fragmentation of their habitat, these being the main causes of the significant declines in their populations in recent decades. Inclusion of these species in the Habitats Directive has stimulated a significant amount of work on them in certain parts of Europe, including the Iberian Peninsula (Robles, 1991; Martínez-Ortí, 1999, 2011; Gómez-Moliner *et al.*, 2001, 2010; Martínez-Ortí & Robles, 2003; Martínez-Ortí *et al.*, 2010, 2013).



Fig 1. *Vertigo* from Lake Banyoles. A—two specimens of *V. moulinsiana*, one collected from a population with a high proportion of albino shells; B—*V. moulinsiana* (left) and *V. angustior* (right).

According to current data, Lake Banyoles, in the northeast region of Catalonia, can be considered the best place in the Iberian Peninsula for conservation of *V. moulinsiana* and *V. angustior* (Fig. 1). Since 2014, a LIFE Nature project “LIFE Potamo Fauna” (LIFE12 NAT/ES/001091) has been carried out at the Banyoles lake system, including monitoring and recovery actions, with the aim of recovery and long-term conservation of these two *Vertigo* species in their habitat. The main objective of this project for these species is the “Expansion and consolidation of the populations of *Vertigo moulinsiana* and *V. angustior* in the Natura 2000 site Estany de Banyoles (ES5120008) via translocations from within the site”. For that, the following specific objectives are being developed to 1) provide an accurate distribution of both species across the lake and ponds, 2) determine their abundance, population structure and habitat requirements, 3) assess sampling methods for each species, 4) establish measures to ensure the conservation and management of both species and 5) develop a protocol for monitoring each species for 2014–2017. Management actions included in this project for 2014–2017 are 1) develop a monitoring protocol for both species in this lake system, taking into account the specific environmental characteristics of the northeastern Iberian Peninsula and testing different collecting methods for the Banyoles habitat characteristics, 2) perform population estimates of both species in the lake system, 3) design and prepare new wetlands for establishment of new populations, 4) translocate *V. angustior* and *V. moulinsiana* to the new recovered wetlands and 5) monitor translocated populations over four years to evaluate their establishment.

At present there is no standardized methodology for monitoring and recovering natural populations of either

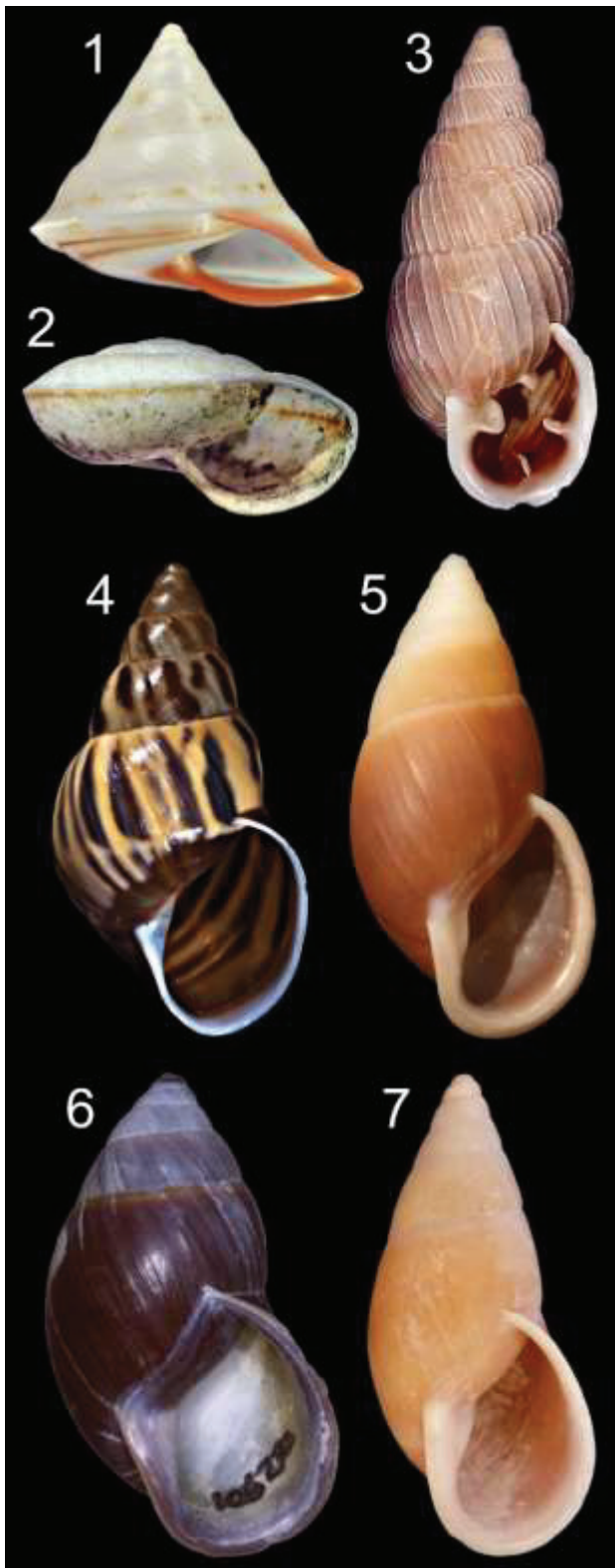
species in the Iberian Peninsula. Therefore, the development of a package of protocols and methods for this purpose will be of great interest in defining the guidelines for future monitoring and management of these two species of European Community interest. For *V. moulinsiana* and *V. angustior* this will be the first major project in the Iberian Peninsula focused on their conservation and management, and it will allow consolidation of the main Iberian populations, assuring significant representation of both species in Europe.

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A POSSIBLE LAND SNAIL DIVERSITY HOTSPOT IN BAHIA STATE, BRASIL

By Daniel C. Cavallari, Rodrigo B. Salvador & Luiz R.L. Simone

The state of Bahia is home to many land snail species (e.g. Simone, 2006), including several endemics distributed over its vast 567,000 km² territory. At the family level, the heliciniids, orthalicoids, megalobulimids, pleurodontids, streptaxids, strophocheilids, subulinids and systrophidiids stand out in terms



Figs. 1-7. Some of the new species recently described from Bahia state, Brasil. 1—*Oxychona maculata*, Bulimulidae (shell height, H 17.9 mm); 2—*Solaropsis alcobacensis*, Pleurodontidae (shell width, W 33.2 mm); 3—*Cyclodontina tapuia*, Odontostomidae (H 22.9 mm); 4—*Leiostracus fetidus*, Bulimulidae (H 21.2 mm); 5—*Kora corallina*, Bulimulidae (H 43.4 mm); 6—*Kora nigra* (H 30.1 mm); 7—*Kora* sp. nov. (H 37.7 mm).

of diversity. Orthalicoidea is the most diverse group of snails in Brasil, encompassing about 40 % of the known fauna (Simone, 2006). Its presence in Bahia is remarkable, mainly represented by the genera *Auris*, *Bahiensis*, *Bulimulus*, *Cyclodontina*, *Drymaeus*, *Leiostracus* and *Rhinus*. Some genera have surprisingly unusual shell shapes, such as *Anostoma*, *Cochlorina* and *Oxychona*; others have apertures with natural tooth-like palisades against predation, such as *Auris* and *Ringincella*; and still others have shells of intense colour and beauty, such as *Leiostracus*.

All this diversity had already been noticed by the European and North American naturalists who studied the fauna of Bahia in the nineteenth century, such as Spix, d'Orbigny, Beck, Moricand and Pfeiffer, among others. Despite all these researchers having described several land snail species, recent studies have shown that there is still a great diversity to be discovered in Bahia. A good example of the results of a taxonomic study of a small sample of terrestrial gastropods from the municipality of Santa Maria da Vitória is the new orthalicoid genus *Kora* (Simone, 2012a). It is notable for its beautiful, fusiform shell, bearing an expanded lip, which did not fit into any known genus. The type species, *K. corallina* (Fig. 5), was named in memory of the great Brazilian poet Cora Coralina. In the same study, three other species were described: *Anostoma tessa*, *Megalobulimus amandus* and *Spixia coltrorum*. Three new species were later (Simone, 2015) described in the genus *Kora*, namely *K. nigra* (Fig. 6), *K. terrea* and *K. iracema*. The latter two were transferred to the genus *Drymaeus* by Salvador & Simone (2016), who also described a new species of *Kora* (Fig. 7).

Specimens from similar samplings carried out in other locations in the state have yielded other new species (Salvador & Cavallari, 2014; Salvador & Simone, 2014, 2015a; Porto *et al.*, 2015): *Cyclodontina tapuia* (Fig. 3), *Leiostracus fetidus* (Fig. 4), *Oxychona michelinae* and *Solaropsis alcobacensis* (Fig. 2). Moreover, some interesting troglofaunal samples were collected by the team of Dr. Maria E. Bichuette (UFSCar) in Bahia and the new caenogastropod genera *Spiripockia* and *Habeas* were erected for four species (Simone, 2012b, 2013): *S. punctata*, *H. corpus*, *H. data* and *H. priscus*. Finally, new species can also be found in old collections. The incorporation of part of the collection belonging to the renowned physician and researcher Jorge Faria Vaz into the Museu de Zoologia da Universidade de São Paulo (MZSP; see Cavallari & Simone, 2015) also resulted in finding a new orthalicoid species (Salvador & Cavallari, 2013): *Oxychona maculata* (Fig. 1).

The diversity of terrestrial molluscs in Bahia seems to be really exceptional and can be linked to the fact that the state includes the boundaries of three Brazilian biomes: the Cerrado, the Caatinga and the Atlantic Rainforest. The recent discovery of several new species in Bahia from relatively small samples and restricted localities, shows the limited nature of the knowledge of the northeastern Brazilian molluscan fauna. Such high diversity needs special attention, both for the preservation of the likely endemic areas as well as in-depth studies of basic biology and evolution of unusual adaptations to semi-arid or cave environments. Moreover,

many land snail species are imperiled or at risk of becoming extinct even before being known to science (see Salvador & Simone, 2015b for a Brazilian example). This reinforces the necessity of further study and the establishment of effective conservation policies. In this regard, special attention is needed for the Caatinga and Cerrado environments, which are rarely targets of environmental and conservation activities.

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MOLLUSCS INTERCEPTED AT THE BORDERS OF ISRAEL IN 2014 (ADDITIONAL RECORDS) AND 2015

By Svetlana Vaisman & Henk K. Mienis

Although the whole phylum Mollusca is protected by law in Israel, most molluscs are still endangered by numerous events such as pollution, habitat destruction and competition from alien species. During the ongoing urbanisation of large parts of Israel all three of these negative impacts often influence each other and in such areas usually only 10-20 of the native land snail species are still present, although often only in small scattered populations. All other snails and slugs in such places are alien species.

In our previous report (Vaisman & Mienis, 2015) we have already given some information on the replacement of autochthonous species by allochthonous species in gardens and parks in Israel: “For example, if a student is asked to bring snails and/or slugs living in their parents’ or neighbours’ garden to school, 80-90 % are of foreign origin”. As a matter of fact 22 % of all the terrestrial mollusc taxa occurring in Israel are currently of foreign origin. Most of these alien snails are still confined to areas that are irrigated during the dry season, more or less from the beginning of April to the end of September. But the list of alien species that manage to survive in natural non-irrigated areas is also growing slowly but steadily. Therefore, it is important to curb the constant influx of additional allochthonous species. The Plant Protection and Inspection Services (PPIS) of the Ministry of Agriculture, stationed at the borders of Israel, is the only organisation that can curb the ongoing arrival of still more foreign snails and slugs. Although their main function is to prevent the import of agricultural pests they also try to prevent the introduction of possible alien fauna and flora that may endanger or alter the biodiversity of Israel. Thus, the actions of PPIS are important in the conservation of the native mollusc fauna of Israel.

Inspectors of the PPIS stationed at the international Ben Gurion Airport near Lod, the Mediterranean harbours of Haifa and Ashdod and the border crossing with Gaza, Palestinian Authority, near Kerem Shalom, in 2014 provided three samples not dealt with in our report dealing with interceptions in 2014 (Vaisman & Mienis, 2015) and 13 samples in 2015. All the intercepted snails and slugs were terrestrial species.

The material was handed over to Mrs. Svetlana Vaisman of the mollusc identification unit of the PPIS in Bet Dagan. She brought the samples to Mr. Henk K. Mienis for final verification and permanent storage in the mollusc collection of the Steinhardt Museum of Natural History and the National Research Center of Tel Aviv University.

The 16 samples treated in this report (Tables 1 and 2) arrived from six countries: the Netherlands (7), France (4), Turkey (2), Palestine (1), Spain (1) and the USA (1). These samples contained at least nine taxa of terrestrial snails (5) or slugs (4). Three samples could only be identified at the generic level because of poor preservation: two samples of *Deroceras* (slug) and one of *Xeropicta* (snail).