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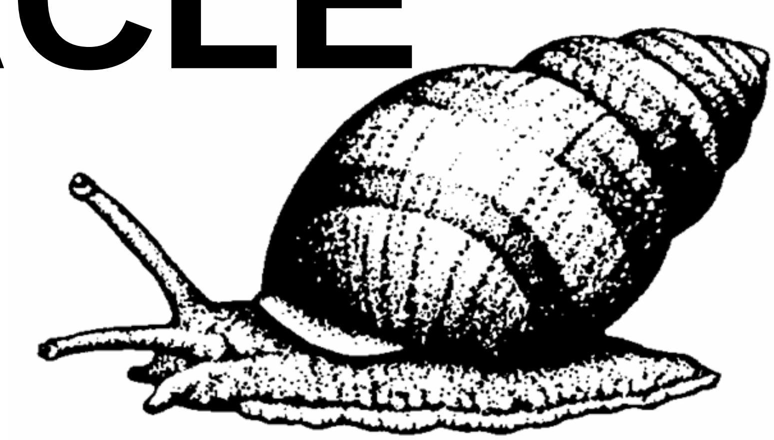

UNITAS MALACOLOGICA

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:

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

AQUATIC GASTROPODS OF THE ILMENY STATE RESERVE (SOUTHERN URALS, RUSSIA)

By Maxim V. Vinarski, Alfried V. Karimov, Maxim E. Grebennikov & Ekaterina A. Lazutkina

There are many reserves and national parks in Russia but malacological investigations in these protected areas are still rare, though a great number of different landscape zones and freshwater habitats occur within their boundaries. Attempting to fill such a gap in our knowledge, we undertook a special faunistic investigation of the freshwater gastropod fauna of the Ilmeny State Reserve (ISR, hereafter). The reserve is located in the Chelyabinsk Region (Southern Urals) and is one of the oldest protected areas in Russia (established in 1920). There are more than 20 deep lakes of tectonic origin in the reserve and its vicinity, which are the most interesting features from a hydromalacological point of view. Many of these lakes are still very clean and almost virgin natural habitats that support a great number of aquatic organisms (Table 1, Figure 1).

Table 1. The largest lakes of the ISR and their properties (after Snitko, 2004).

Lake	Elevation (m a.s.l.)	Area (km^2)	Maximum depth (m)	Trophic state
Turgoyak	318.9	26.4	32.5	mesotrophic
Bolschoye Miassovo	291.8	11.2	25.0	
Ilmenskoye	331.4	4.56	6.1	eutrophic
Bolschoy Tatkul	293.2	2.45	6.0	

Field investigations of the 12 largest lakes of the Ilmeny system were carried out by MVV and AVK in July 2005. Several other waterbodies (ponds, reservoirs, brooks) were also visited. All these habitats belong to the Irtysh River drainage basin. In addition, the malacological collections of the Zoological Museum of the Institute of Plant and Animal Ecology RAS (Yekaterinburg) were examined. These contain several hundred lots of aquatic gastropods collected in the IRS in 1954-2003. A small collection of shells housed in the ISR Museum was also examined. Thus, we succeeded in compiling the most inclusive list of ISR aquatic snails recorded during the second half of the twentieth century (Table 2). We used the taxonomic system of freshwater snails developed by Y. I. Starobogatov's school, which is followed by Russian malacologists (Starobogatov *et al*., 2004). Since this system differs significantly from the taxonomy commonly accepted in Europe (Falkner *et al*., 2001; Glöer, 2002), we provide nomenclature following both systems in Table 2 to provide non-Russian malacologists with the identities of species included in the list.

All species found were divided into four groups according to their current status in the Uralian waterbodies (commonness/rarity at the regional scale). Our judgments on a species' commonness/rarity were based on our field observations and museum collections. Since the territory of the Uralian region has not been completely investigated by malacologists, we were not able to use any quantitative measures of snail rarity, such as the Mollusc Rarity Index (Fehér *et al*., 2006).

Figure 1. Bolschoye Miassovo Lake near Miassovo Settlement.

Species that are widely distributed in the Uralsn region, inhabit a wide spectrum of waterbodies of different kinds and reach high abundance, were designated as VC (very common). Species that are widely distributed, not limited to any habitat type and may occur in a wide range of habitats, but exhibit an intermediate abundance, we designated as C (common). Species restricted to a narrow spectrum of waterbodies, but abundant in these habitats were treated as CR (conditionally rare), since their rarity at a regional scale is caused only by limited available habitat. Last, species that are considered to be rare *per se*, without any clear habitat restrictions, were placed in the R (rare) group. As a rule, species of this group are alsorare or endangered at a larger scale .

The most interesting malacological records from the ISR waterbodies are:

1. *Choanomphalus rossmaessleri* (Planorbidae). This planorbid snail is extremely rare in Northern Asia (see Vinarski *et al*., 2006). It was found in 2003 in an un-named forest swamp in the vicinity of the Miassovo Settlement (one empty shell in the collection of the Institute of Plant and Animal Ecology).
2. *Lymnaea* (*Myxas*) *glutinosa* (Lymnaeidae). The Gelatinous snail has became very rare in many European countries (Kerney, 1999; Szarowska & Falniowski, 2006). In the ISR, it was found in abundance in a small wetland on the western shore of the Bolshoye Miassovo Lake (24-29 July 2005). This species has been included in the Red List Book of the Chelyabinsk Region.
3. *Planorbis carinatus* (Planorbidae). This is possibly the easternmost habitat of this species (Soldatenko & Starobogatov, 2000), though we only recorded empty shells. This identification should be supported by anatomical investigation. This species has been included in the Red List Book of the Chelyabinsk Region.
4. *Sibirenauta sibirica* (Physidae). A Siberian endemic snail, the western boundary of its range lies in the Uralian region.
5. *Contectiana fennica* (Viviparidae). It has been commonly considered that there is only one viviparid species in the Irtysh basin, namely *Contectiana listeri* (= *Viviparus contectus* auct.). However, it has been found that the waterbodies of the Southern Urals are inhabited by another viviparid species, which has slight, but consistent conchological differences from *C. listeri*. Following Starobogatov *et al.* (2004), we determined it as *Contectiana fennica*, but this suggestion

Table 2. Species list of the ISR aquatic snails.

Species name in Russian nomenclature	Species name according to the current European system	Status at the regional scale
1. *Conctectiana fennica* (Kobelt, 1909)	?	C
2. *Valvata cristata* (Müller, 1774)	*Valvata cristata* (Müller, 1774)	R
3. *Cincinna ambigua* (Westerlund, 1873)	*Valvata piscinalis* (Müller, 1774)	C
4. *C. dilatata* (Eichwald, 1830)		CR
5. *C. falsifluviatilis* Starobogatov, 2001		CR
6. *C. piscinalis* (Müller, 1774)		C
7. *C. antiqua* (Morris, 1838)	*Valvata piscinalis antiqua* (Morris, 1838)	CR
8. *C. pulchella* (Studer, 1820)	*Valvata studeri* Boeters & Falkner, 1998	C
9. *C. depressa* (Pfeiffer, 1821)		C
10. *C. frigida* (Westerlund, 1873)	*Valvata sibirica* (Middendorff, 1851)	C
11. *C. sibirica* (Middendorff, 1851)		C
12. *Bithynia tentaculata* (Linnaeus, 1758)	*Bithynia tentaculata* (Linnaeus, 1758)	VC
13. *B. decipiens* (Millet, 1843)		C
14. *Opisthorchophorus troschelii* (Paasch, 1842)	*Bithynia troschelii* (Paasch, 1842)	VC
15. *O. baudonianus* (Gassies, 1859)		C
16. *Acroloxus lacustris* (Linnaeus, 1758)	*Acroloxus lacustris* (Linnaeus, 1758)	CR
17. *Planorbarius corneus* (Linnaeus, 1758)	*Planorbarius corneus* (Linnaeus, 1758)	C
18. *P. adelosius* (Bourguignat, 1859)		R
19. *Planorbis planorbis* (Linnaeus, 1758)	*Planorbis planorbis* (Linnaeus, 1758)	VC
20. *P. carinatus* (Müller, 1774)	*P. carinatus* (Müller, 1774)	R
21. *Anisus bavaricus* (Westerlund, 1885)	*Anisus vorticulus* (Troschel)	CR
22. *A. vortex* (Linnaeus, 1758)	*Anisus vortex* (Linnaeus, 1758)	VC
23. *A. hypocyrtus* (Servain, 1881)		C
24. *A. contortus* (Linnaeus, 1758)	*Bathyomphalus contortus* (Linnaeus, 1758)	C
25. *A. crassus* (Costa, 1778)		R
26. *A. albus* (Müller, 1774)	*Gyrailus albus* (Müller, 1774)	C
27. *A. stelmachoetius* (Bourguignat, 1860)		C
28. *A. stroemi* (Westerlund, 1881)	No concordance (?Asian endemic)	CR
29. *A. acronicus* (Férussac, 1807)	*Gyraulus acronicus* (Férussac, 1807)	C
30. *Armiger crista* (Linnaeus, 1758)	*Gyraulus crista* (Linnaeus, 1758)	C
31. *A. bielzi* (Kimakowicz, 1884)		C
32. *A. eurasiaticus* Prozorova & Starobogatov, 1996		C
33. *Hippeutis diaphanella* (Bourguignat, 1864.)	*Hippeutis complanatus* (Linnaeus, 1758)	CR
34. *H. euphaea* (Bourguignat, 1864)		CR
35. *Segmentina oelandica* (Westerlund, 1885)	*Segmentina nitida* (Müller, 1774)	CR
36. *Ancylus fluviatilis* Müller, 1774	*Ancylus fluviatilis* Müller, 1774	R
37. *Aplexa hypnorum* (Linnaeus, 1758)	*Aplexa hypnorum* (Linnaeus, 1758)	CR
38. *A. turrita* (Müller, 1774)		CR
39. *Sibirenauta sibirica* (Westerlund, 1876)	No concordance (Asian endemic)	CR
40. *Physa fontinalis* (Linnaeus, 1758)	*Physa fontinalis* (Linnaeus, 1758)	R
41. *P. adversa* (Costa, 1778)		CR
42.*Lymnaea fragilis* (Linneus, 1758)	*Lymnaea stagnalis* (Linneus, 1758)	VC
43. *Lymnaea stagnalis* (Linneus, 1758)		C
44. *Lymnaea truncatula* (Müller, 1774)	*Galba truncatula* (Müller, 1774)	C
45. *Lymnaea glutinosa* (Müller, 1774)	*Myxas glutinosa* (Müller, 1774)	VR
46. *L. palustris* (Müller, 1774)	*Stagnicola palustris* (Müller, 1774)	C
47. *L. saridalensis* Mozley, 1934	No concordance (Asian endemic)	VC
48. *L. danubialis* (Schranck, 1803)	*Stagnicola turricula* (Held, 1836)	VR
49. *L. auricularia* (Linnaeus, 1758)	*Radix auricularia* (Linnaeus, 1758)	VC
50. *L. psilia* (Bourguignat, 1862)		C
51. *L. peregra* (Müller, 1774)	*Radix labiata* (Rossmässler, 1835)	CR
52. *L. ampullacea* (Rossmässler, 1835)	*Radix balthica* (Linnaeus, 1758)	CR
53. *L. intermedia* Lamarck, 1822		CR
54. *L. fontinalis* (Studer, 1820)		VC
55. *L. tumida* (Held, 1836)	?*Radix ampla* (Hartmann, 1821)	VC
56. *L. balthica* (Linnaeus, 1758)	*Radix balthica* (Linnaeus, 1758)	C
57. *L. ovata* (Draparnaud, 1805)		VC
58. *L. lagotis* (Schranck, 1803)	*Radix lagotis* (Schrank, 1803)	C
59. *L. patula* (Costa, 1770)	*Radix ampla* (Hartmann, 1821)	C
60. *L. novikovi* Kruglov & Starobogatov, 1983	No concordance (Asian endemic)	R

should be confirmed by examination of type material of the species that have been described from Eastern Europe (Kobelt, 1909) but not accepted by current European malacological taxonomy (Falkner *et al*., 2001; Glöer, 2002).

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RECOVERY STRATEGIES FOR CANADIAN MOLLUSCS

By Dwayne A.W. Lepitzki

With the recent implementation of the Canadian Species At Risk Act (SARA) comes the requirement for species recovery. When the species at risk is listed under SARA, the clock starts ticking. Within a certain length of time, it is required, by law, for a Recovery Strategy to be drafted. The strategy is to outline the broad steps necessary to arrest or reverse the decline of a species. A second part of the process is for one or more Action Plans to be drafted – these are the detailed documents that define and guide the implementation of the Recovery Strategy. An important aspect of the entire process is public participation. Draft Recovery Strategies, and eventually draft Action Plans, are posted on the web for 60 days. During this time, anyone can download, read and comment on the drafts.

As of 15 December 2006, there were a number of Recovery Strategies posted at www.sararegistry.gc.ca concerning Canadian molluscs. Strategies for the Banff Springs Snail (*Physella johnsoni*), Hotwater Physa (*Physella wrighti*), Northern Riffleshell (*Epioblasma torulosa rangiana*), Snuffbox (*Epioblasma triquetra*), Round Pigtoe (*Pleurobema sintoxia*), Mudpuppy Mussel (*Simpsonaias ambigua*) and Rayed Bean (*Villosa fabalis*) were posted, soliciting public comments. The strategies for recovery of the Oregon Forestsnail (*Allogona townsendiana*) and Wavyrayed Lampmussel (*Lampsilis fasciola*) are expected to be posted soon, while the strategies for the Round Hickorynut (*Obovaria subrotunda*) and Kidneyshell (*Ptychobranchus fasciolaris*) have been finalized and are available for download. The document on the Banff Springs Snail is especially interesting because it also contains the Action Plan and delineates critical habitat – habitat required for the recovery of the species.

This is an opportunity for the conservation community to become involved in at risk species recovery. It also allows the global malacological community to scrutinize and evaluate Canada's approach to endangered species conservation.

Dr. Lepitzki has been on contract with Parks Canada for over 10 years studying and recommending recovery actions for the endangered Banff Springs Snail, a species confined to thermal springs in Banff National Park, Alberta, Canada (see *Tentacle* issue 12, p. 15). He has been a member of the Mollusca Specialist Subcommittee of COSEWIC (Committee on the Status of Endangered Wildlife in Canada) since 2005.

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A RECORD OF *RUMINA DECOLLATA* FROM A SECOND AREA IN CHINA (GASTROPODA, SUBULINIDAE)

By Uri J. Bar-Zeev & Henk K. Mienis

In October 2006 the senior author traveled to China to the region generally described as "The cradle of the Chinese Culture", between the Yellow River in the north and the Yangzi in the south. The declared purpose of this trip was "History of China", but that did not stop him from looking for his main interest: land snails. About 20 species were collected, most of them not yet identified at the time of writing this article.

One species that did not require any efforts in identification was *Rumina decollata* (Linnaeus, 1758), family Subulinidae, found in the garden of a Mosque in the city of Xian. This constitutes another locality in China for this highly invasive species.

The existence of *Rumina decollata* in Shanghai has been reported twice previously. Chen & Gao (1987) recorded specimens collected at Yuenyang Road on 10 May 1978. They did not recognize these snails as being an introduced species and described it as a new species, *Tortaxis trunciformis.* Two years later Beckmann (1989) reported a find of *Rumina decollata* in a park opposite the Friendship Store in the same metropolis on 21 April 1989. Subsequently, Beckmann (2001) pointed out the identity of *T. trunciformis* with *Rumina decollata*. The find of *Rumina decollata* in Xian, means a range extension of about 1500 km to the west.

How did this Mediterranean snail arrive in China?

Shanghai is a coastal town and so these snails probably arrived at one time or another by means of a sea route. Xian, however, is some 1500 km inland and it is most likely that the snails arrived long ago by means of an overland route. This may be explained as follows. Xian, the famous site of the terracotta soldiers, was the ancient capital of China, and still is the capital of Shaanxi district. Situated in the center of China, Xian was an important commercial junction between central Asia and Eastern China. Under the Tang dynasty in the 7th Century A.D. it became an international center for commerce along the famous Silk Route, attracting to it followers of many religions, Muslims amongst them. No doubt this stream of people and goods served as a vehicle for the introduction, intentional or unintentional, of many plants and animals from the Mediterranean region into China. For the ancient Silk Routes, overland and by sea, we refer to Lunde (1988, 2005).