FIVE NEW INTRODUCED SNAIL SPECIES (MOLLUSCA: GASTROPODA) IN NEPAL

The molluscs of Nepal, compared with other regions in the Himalayas are not well studied and documented. According to Budha (2005) only 139 species have been reported until now. Among the autochthonous fauna some introduced and invasive species have been found that may adversely affect native mollusc species.

The material for this study was collected from two areas in Nepal: Phewa Lake, Budhi Rapti River (near Sauraha Village Development Committee, Chitwan District); and Bachhauli (Sauraha Village Development Committee, Chitwan District) (Figs 1 and 2). Species were determined on shell morphology. Reference materials have been deposited in the collection of the Bulgarian Society of Malacology (BMS).

Five new species are added to the malacofauna of Nepal.

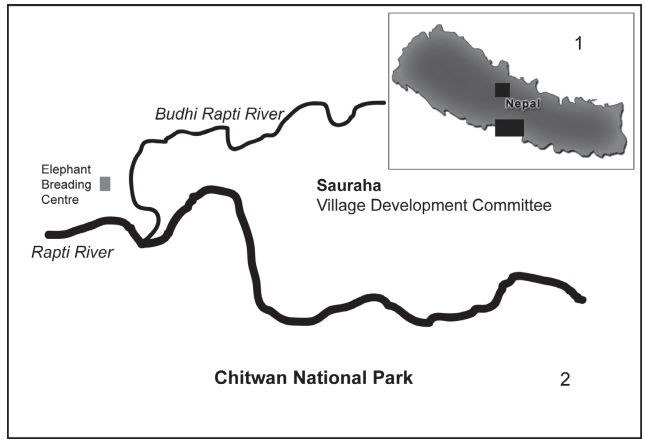
Melanoides tuberculata (O. F. Müller 1774)

Material examined Pokhara, Phewa Lake, 28º12′13″/83º57′47″E, 800 m a.s.l., 18.10.2006, leg. D. Bechev & D. Tolev, coll. BMS No 46/2 shell; Budhi Rapti River, near Sauraha Village Development Committee, Chitwan District, 27º35′00″N/84º27′55″E, 200 m a.s.l., 10.2006, leg. D. Bechev, coll. BMS No 47/18 shell.

Distribution Homeland of the red-rimmed melania is tropical and subtropical North and East Africa and South Asia. The autochthonic area includes vast regions from Morocco and Madagascar to Saudi Arabia, Iran, Pakistan, India, South China, Indonesia, Malaysia, east to the Java Island and Celebes Island, north to Japanese Islands Ryukyu and south-easterly through the islands of the Pacific Ocean to Northern Australia and New Hybrid Islands (Clench, 1969; Neck, 1985; Pace, 1973).

Filopaludina sumatrensis polygramma (Martens 1860)

Material examined Pokhara, Phewa Lake, 28º12′13″/83º57′47″E, 800 m a.s.l., 18.10.2006, leg. D. Bechev & D. Tolev, coll. BMS No 48/2 shell.



Figures 1 & 2 1 – Situation of Phewa Lake (square) and Chithan District (rectangle); 2 – Situation of Sauraha Village Development Committee, Budhi Rapti River and Elephant Breeding Centre.

Distribution The autochthonic area of *Filopaludina sumatrensis* includes Southeastern Asia – Thailand, Laos, Cambodia, Vietnam, Malaysia and Indonesia (Global Biodiversity Information Facility database http://data.gbif.org/species/16245116; Dang *et al.*, 2004; Kitivorachate & Yangynen, 2004; Sri-aron *et al.*, 2007).

Viviparus sp.

Specimens of the genus *Viviparus* were for the first time found in Nepal. The specimens were not determined to species because only a small number of poorly preserved subadult shells were found.

Material examined Material from a canal near Elephant Breeding Centre, Sauraha Village Development Committee, Chitwan District, 27º34′58″N/84º27′49″E, 200 m a.s.l., 21.10.2006, leg. D. Bechev, coll. BMS No 51/3 shell.

Distribution Family Viviparidae is almost cosmopolitan, with the exception of South America.

Pseudosuccinea columella (Say 1817)

Material examined Pokhara, Phewa Lake, 28º12′13″/83º57′47″E, 800 m a.s.l., 18.10.2006, leg. D. Bechev & D. Tolev, coll. BMS No 49/1 shell.

Distribution The autochthonic area of *P. columella* includes North America. The species has been introduced to many other regions: Pacific Islands (Hawaii), Europe (Holland, Sweden), Northern Africa (Tunis), Asia Minor (Turkey), China, Australia and New Zealand (Global Biodiversity Information Facility database http://data.gbif.org/species/13779408).

Planorbarius corneus (Linnaeus 1758)

Material examined From a canal near Elephant Breeding Centre, near Sauraha Village Development Committee, Chitwan District, 27º34′58″N/84º27′49″E, 200 m a.s.l., 21.10.2006, leg. D. Bechev, coll. BMS No 50/4 shell.

Distribution The species is found in almost over Europe, Crimea, North Caucasus, Northern Asia and trans-Caucasus (Yldirim *et al.*, 2006).

The penetration of these non-native freshwater-snails may have resulted from restocking with foreign fish species. This procedure is associated with the import of fish in transport water that may contain aquatic snails or their eggs, or aquatic vegetation on which there are 'hitchhikers'.

Natural ecosystems may be sensitive to the introduction of non-native species and this may lead to negative consequences. The impact is expressed in the displacement of local forms and alteration of autochthonic freshwaters and terrestrial communities. The introductions may have no natural enemies to limit their distribution and abundance. The disruption to local ecosystems caused may be expensive and require monitoring and control.

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