

A NEW SPECIES OF THE GENUS *HELIX* FROM THE LESSER CAUCASUS (SW GEORGIA)

L. MUMLADZE¹, D. TARKHNISHVILI¹ & B.M. POKRYSZKO²

¹Faculty of Life Sciences, Ilia Chavchavadze State University, Chavchavadze Avenue 32, 0178 Tbilisi, Georgia

²Museum of Natural History, Wroclaw University, Sienkiewicza 21, 50-335 Wroclaw, Poland

Abstract *Helix goderdziana* sp. nov. is described from the Lesser Caucasus, south-western Georgia. Its habitat is a humid montane forest. This is the largest species of *Helix* known so far.

Key words Land snails, Lesser Caucasus, *Helix*, new species.

INTRODUCTION

The genus *Helix* Linnaeus, 1758 includes the largest snails of the family Helicidae, and probably the largest terrestrial pulmonates in western Eurasia. It is distributed in northern Africa and Eurasia. Three species of *Helix* have been so far recorded from Georgia: *H. lucorum* (Linnaeus, 1758) and *H. vulgaris* (Rossmässler, 1839), both widely distributed in western Eurasia, and *H. buchi* (L. Pfeiffer, 1853) which is endemic to the western part of the Caucasus Ecoregion sensu Mittermeier *et al.* (2004). A further five species are known from Asia Minor, the region south-west of the southern Caucasus: *H. figulina* (Ross, 1839), *H. pericalla* (Kobelt et Rolle, 1896), *H. cheikliensis* (Zilch, 1952), *H. cincta* (Muller, 1774), and *H. pomatia* (Linnaeus, 1758) (Schütt, 2001; <http://www.biolib.cz/en/taxon/id269332>); none of those, however, have been recorded from the north-eastern part of Turkey adjacent to Georgia.

Three very large helioid snails were collected on June 25th, 2006 by two of the authors (LM and DT) in south-western Georgia, at an elevation of between 1540 and 1595 m. a.s.l. (Fig. 1). *Helix buchi* or other known Caucasian representatives of the genus have never been recorded from this area. Our specimens differ from all other large members of the genus found in the Caucasus and Asia Minor and represent a new species which we describe below.

Helix goderdziana sp. nov. (Figs 2-4)

Holotype 1 shell (n10), Zoological Research Institute (ZRI), Tbilisi, Georgia.

Contact author : bepok@biol.uni.wroc.pl

Paratypes 2 specimens: subadult shell (n8) and shell + soft parts (n9): Zoological Research Institute (ZRI), Tbilisi, Georgia.

Type locality South-Western Georgia, just east of the Goderdzi Pass (see Fig. 1, 41°39'N, 42°36'E), the junction of the Meskhети and Shavsheti Ranges, basin of the Dzindzisu River (left tributary of the Mtkvari-Kura River).

Derivation of name The new species is named for its type locality - Goderdzi Pass.

Diagnosis Shell larger than in any other species of the genus *Helix*, somewhat similar to that of *Helix buchi* from which it differs in a taller shell (61 mm compared to at most 54 mm in *H. buchi*; Likharev & Rammelmeier, 1952) and light yellowish-brown foot (dark grey to almost black in *H. buchi*). Digitiform glands shorter than any other *Helix* from the Caucasus Region. Flagellum much longer than in



Fig. 1 Map showing the type locality of *Helix goderdziana* sp. nov.



Fig. 2 From left to right: shells of *Helix goderdziana* sp. nov., holotype (ZRI n0010); paratype (ZRI n0009); *Helix buchi* from Borjomi Gorge, central Georgia (ZRI b0025); *Helix lucorum*, Tbilisi, Georgia (ZRI 10004).



Fig. 3 Left – live *Helix buchi*, right – live *Helix goderdziana* sp. nov. (paratype n0009)

Table 1 Shell measurements of the holotype and two paratypes of *Helix goderdziana* sp. nov. (all measurements in mm)

Specimen #	Shell height	Shell width	Aperture height	Aperture width
Holotype n0010	61	60	40	34
Paratype n0009	57	60	40	33
Paratype n0008 (subadult)	47	50	36	30



Fig. 4 *Helix goderdziana* sp. nov. genitalia (paratype n0009): left - full view, right - penial papilla.

H. buchi. Penial papilla larger than in *H. buchi*, spindle-shaped (for reproductive organs of *H. buchi* and other *Helix* species see Schileyko 1978).

Description Shell (Fig. 2), conic-globular, with 4.5 rapidly increasing whorls 1.5 of which form embryonic shell; apex blunt, conical; shell unevenly radially ribbed, sculpture similar to that of *Helix buchi*. Body whorl very wide, slightly descending. Aperture very large (height 40 mm, width 34 mm), short oval, oblique, resembling that of *H. buchi* but different from that of other *Helix* species of the region. Shell height up to 61 mm, shell width up to 60 mm (for measurements of the types see Table 1). Foot light yellowish-brown (Fig. 3). Penial papilla large, spindle-shaped. Flagellum 2.4 times as long as penis with epiphallus. Spermatheca diverticulum 1.75 times shorter than the section of the spermatheca duct beyond the bifurcation point (Fig. 4).

Ecology The macrohabitat is a montane spruce forest (dominant tree *Picea orientalis*), on the southern slopes of the Meskheta Mountain Range and the north-eastern slopes of the Shavsheti Mountain Range. It is a humid area, with the annual precipitation of ca 1200-1400 mm (Vladimirov *et al.*, 1991). The microhabitat is a very damp vicinity of small montane brooks, mostly surrounded by alder trees (*Alnus barbata*), with logs and liverworts on the margins of the brooks (Fig.5). The snail is found in habitats different from those of *Helix buchi*: the latter species is found exclusively in broadleaf, mostly beach forests, away from streams or brooks (Skarlato & Starobogatov, 1984).



Fig. 5 Type locality of *Helix goderdziana* sp. nov. habitat

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REFERENCES

- LIKHAREV IM & RAMMELMEIER ES 1952 *Nazemnyye Mollyuski Fauny SSSR* [Terrestrial Mollusks of the USSR Fauna]. USSR Acad. Sci. Publications 43, Moskva-Leningrad.
- MITTERMAIER RA, GIL PG, HOFFMANN M, PILGRIM J, BROOKS T, MITTERMAIER CG, LAMOREUX J & DA FONSECA GAB 2004 *Hotspots Revisited: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions*. CEMEX/Agrupacion Sierra Madre, Mexico City. Toppan Printing Co., Japan.
- PFEIFFER L 1853 *Monographia Helicorum Vivientum*. Vol. III. F. A. Brockhaus, Lipsiae.
- SCHILEYKO AA 1978 *Nazemnyye mollyuski nademeystva Helicoidea. Fauna USSR* 3 (6). Nauka, Leningrad.
- SCHÜTT H 2001 Die Türkische Landschnecken 1758-2000. *Acta Biologica Benrodis Suppl.* 4: 1-550.
- SKARLATO OA & STAROBOGATOV JI 1984. *Vinogradnaya ulitka Bucha* [Buch's snail]. P. 369 In: Red Data Book of the USSR. Lesnaya Promyshlennost', Moscow.
- VLADIMIROV LA, GIGINEISHVILI GN, DJAVAKHISHVILI AI, & ZAKHARASHVILI NN 1991 *Water balance of Caucasus and its geographic conformity to natural laws*. Tbilisi, Metsniereba, Tbilisi.

