

Terrestrial gastropods (Mollusca, Gastropoda) of the Bulgarian part of the Alibotush Mts.

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This work presents results of two years collecting efforts within the project “The role of the alpine karst area in Bulgaria as reservoir of species diversity”. It summarizes distribution data of 44 terrestrial gastropods from the Bulgarian part of Alibotush Mts. Twenty-seven species are newly recorded from the Alibotush Mts., 13 were confirmed, while 4 species, previously known from the literature, were not found. In the gastropod fauna of Alibotush Mts. predominate species from Mediterranean zoogeographic complex. A large part of them is endemic species, and this demonstrates the high conservation value of large limestone areas in respect of terrestrial gastropods.

Key words: terrestrial gastropods, distribution, Alibotush Mts., Bulgaria

Introduction

The Alibotush Mts. (other popular names: Kitka, Gotseva Planina, Slavjanka) is one of the most interesting large limestone area in Bulgaria (Fig. 1). It occupies the part of the border region between Bulgaria and Greece with maximum elevation 2212 m (Gotsev peak). Because of the border regime the gastropod fauna is only fragmentarily known. According to published data, 17 terrestrial gastropods are known so far. This study records 27 gastropod species for the fauna of the Mountains, so the total number of terrestrial gastropods, known from Alibotush Mts. becomes 44 (Table 1).

Material and methods

The author collected most of the materials in 2006 and 2007 from all altitude zones of the Alibotush Mountains – near villages, deciduous, mixed and coniferous forests, and high-mountain meadows and rocky terrain in sub-alpine and alpine zones of the mountain up to 2000 m a.s.l. (Fig. 1). Some of the samples were kindly provided by colleagues. The gastropods were collected from following localities:

Locality 1: vill. Paril, Parilski Dol (=Hambar Dere), deciduous forest, limestone rocks, on rocks, in leaf litter, sieving, hand collecting, 973–1005 m a.s.l., coll. I. Dedov, P. Subai, N. Simov.

Locality 2: road between vill. Goleshevo and vill. Paril, *Fagus*, 1127 m a.s.l., coll. I. Dedov.

Locality 3: vill. Goleshevo, in the village, meadow near dirt road, under stones, 1000 m a.s.l., coll. I. Dedov.

Locality 4: vill. Goleshevo, near Starshelitsa cave, 1000 m a.s.l., coll. B. Petrov.

Locality 5: vill. Goleshevo, near village, road-fork to Gotsev peak, rocky meadows, under stones, limestone, 1000–1016 m a.s.l., coll. I. Dedov.

Locality 6: vill. Katuntsi, Izvorite hut, near hut, open ruderal terrain, under bark, 731 m a.s.l., coll. I. Dedov.

Locality 7: vill. Katuntsi, tufa-gorge near village, 700 m a.s.l., coll. I. Dedov, N. Simov.

Locality 8: below Livade area, road between Goleshevo and Livade, limestone slope, on rocks, under stones, ecotone with deciduous/ mixed/ coniferous forest, 1100–1400 m a.s.l., coll. I. Dedov.

Locality 9: Livade area, nearby and western of the sheep-pen, limestone slopes, on rocks, ecotone with coniferous forest, 1400–1797 m a.s.l., coll. I. Dedov.

Locality 10: southern of Livade area, road between Livade and Gotsev peak, *Pinus heldreichii* forest, on/under stones, limestone, 1450–1550 m a.s.l., coll. I. Dedov.

Locality 11: below/on Shabran peak, alpine meadows, limestone rocks, on rocks, under stones, 2000–2200 m a.s.l., coll. I. Dedov, B. Petrov.

Locality 12: below/on Gotsev peak, area of Suhoto ezero, on rocks, under stones, limestone, 2100–2212 m a.s.l., coll. I. Dedov, N. Simov, B. Petrov.

Locality 13: Alibotush Mts., unknown locality, coll. N. Kodzhabashev.

Results and Discussion

Among the 27 new species-records for the Mountains (*A. similis*, *P. elegans*, *S. doliolum*, *A. aculeata*, *Ch. avenacea*, *T. claustralis*, *T. cylindrica*, *M. obscura*, *Z. detrita detrita*, *C. laminata*, *B. denticulata thessalonica*, *P. pygmaeum*, *E. fulvus*, *D. rufa*, *O. cf. hydatinus*, *O. cf. glaber striarius*, *A. minor*, *T. budapestensis*, *T. kusceri*, *V. pellucida*, *O. annularis*, *L. cinereoniger*, *Lehmania* sp., *D. reticulatum*, *L. pirinensis*, cf. *E. strigella*, *H. philibinensis*), 13 were confirmed (*P. pusilla*, *Ch. tridens*, *Z. detrita inflata*, *M. marginata*, *M. pirinensis*, *C. schuetti*, *B. buplicata*, *V. bulgarica*, *T. serbica*, *A. subfuscus*, *X. macedonica*, *C. haber-*

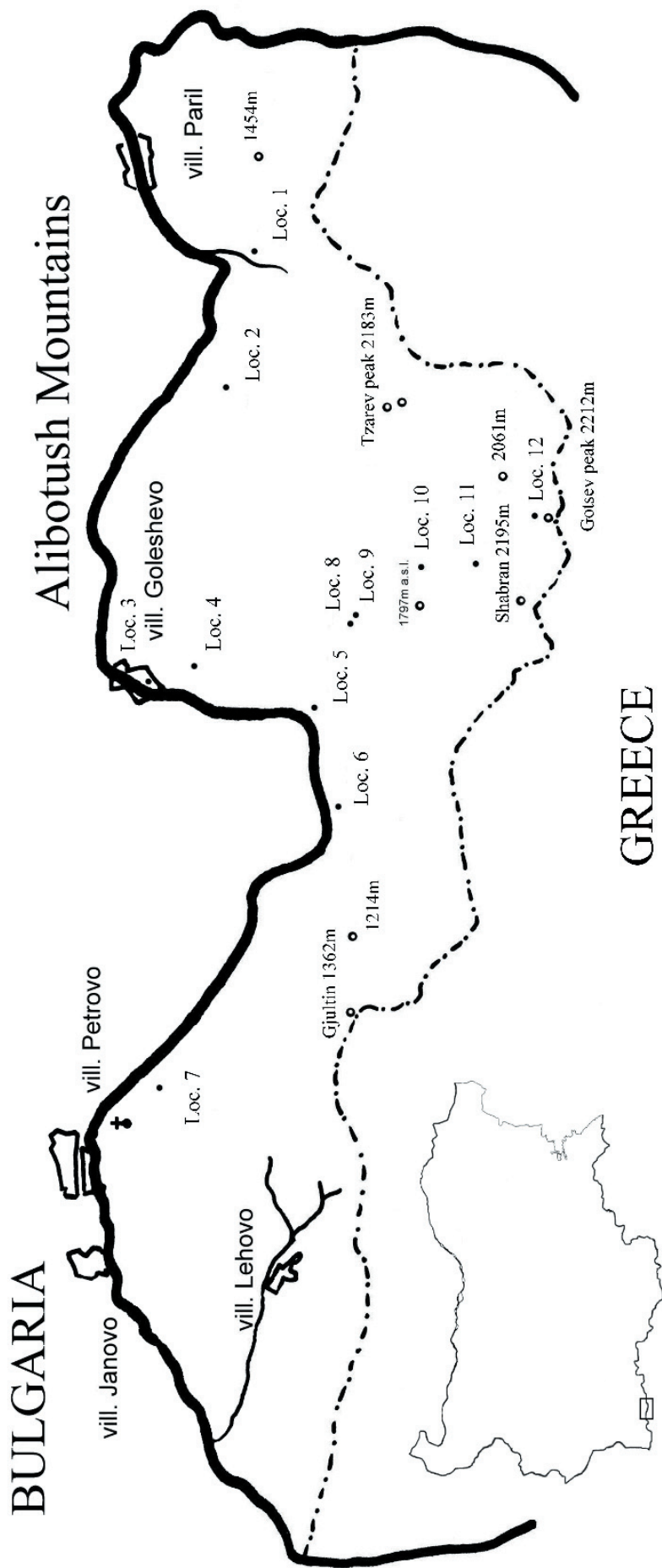


Fig. 1. Collecting localities in the Alibotush Mts. ● = collecting sites with numbers corresponding to the list in "Materials and methods".

haueri, *C. rumelica*), while 4 species (*V. alpestris*, *L. plicata*, *L. maximus*, and *M. cartusiana*) previously known from the literature were not found during the course of the project (Table 1).

Most probably because of the relatively low altitude and warm climate, there are no high-mountain endemics typical for the alpine limestone areas of Northern Pirin Mts. (such as *Wladislawia polinskii* (A. J. Wagner, 1927), *W. sztolcmani* (A. J. Wagner, 1927), *Macedonica marthae* Sajó, 1968). Two species were found only in sub-alpine and alpine zones of Alibotush Mts. (*O. annularis* and *Z. detrita inflata*). *Zebrina detrita inflata* is a high-mountain subspecies, typical for alpine areas of Pirin (mainly below Vihren peak) and Alibotush Mts. This subspecies is vertically isolated from the nominal subspecies *Z. detrita detrita*, which occurs in the lowest part of Alibotush. Some of the remaining gastropod species occur in the lowest areas of the mountain (28) or in all altitudinal zones (12). Three species, previously mentioned for high altitudes, in this study were found in lowest part of the mountain only (*M. pirinensis*, *C. schuetti*, *A. subfuscus*) (Table 1) and for one (*V. alpestris*) there is no data available.

In the gastropod fauna of Alibotush Mts., species from Mediterranean zoogeographic complex predominate (24), while Euro-Siberian species are not such numerous (19). This proportion is a result of the southern position of the Alibotush Mts. (Mediterranean biogeographic influence). The relatively high relief of the mountain supports widely distributed and cold-resisting species. The large portion of endemic species (14) demonstrates the high conservation value of large limestone areas in respect of terrestrial gastropods (Table 1).

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Table 1. Species assemblage, distribution and zoogeography of the terrestrial gastropods of Alibotush Mts., SW Bulgaria.

Abbreviation: source of the data: D – DEDOV (2007), DL – DAMJANOV & LIKHAREV (1975), DP – DAMJANOV & PINTÉR (1969), HV – HUDEC & VAŠÁTKO (1971), J – JAECKEL (1954), N – NORDSIECK (1974), P – PINTÉR (1968), PW – present work, U64 – URBAŃSKI (1964), U69 – URBAŃSKI (1969), U78 – URBAŃSKI (1978), W – WIKTOR (1983).

Abbreviation: zoogeography: BGE – bulgarian endemic, BLE – balkan endemic, PMD – ponto–mediterranean (east–mediterranean), HMD – holo–mediterranean (circum–mediterranean), LMD – lato–mediterranean (sub–mediterranean), EU – Europe, WPL – west–palaearctic, HL – holarctic.

| species | loc. № | source of the data | non alpine areas | sub/alpine areas | zoogeography |
|---|--------------------------|--------------------|------------------|------------------|--------------|
| Aciculidae (1) | | | | | |
| <i>Acicula similis</i> (Reinhardt, 1880) | 1 | PW | + | – | LMD |
| Pomatiidae (1) | | | | | |
| <i>Pomatias elegans</i> (Müller, 1774) | 6; 7 | PW | + | – | HMD |
| Orculidae (1) | | | | | |
| <i>Sphyradium doliolum</i> (Bruguiere, 1792) | 1 | PW | + | – | PMD |
| Valloniidae (1) | | | | | |
| <i>Acanthinula aculeata</i> (Müller, 1774) | 1 | PW | + | – | WPL |
| Pyramidulidae (1) | | | | | |
| <i>Pyramidula pusilla</i> (Vallot, 1801) | 1; 11 | D, PW | + | + | EU |
| Chondrinidae (1) | | | | | |
| <i>Chondrina avenacea</i> (Bruguiere, 1792) | 1 | PW | + | – | EU |
| Vertiginidae (3) | | | | | |
| <i>Truncatellina claustralis</i> (Gredler, 1856) | 1 | PW | + | – | LMD |
| <i>Truncatellina cylindrica</i> (Ferussac, 1807) | 1 | PW | + | – | HMD |
| <i>Vertigo alpestris</i> (Alder, 1830) | – | DL | no data | no data | EU |
| Enidae (4) | | | | | |
| <i>Merdigera obscura</i> (Müller, 1774) | 1; 6; 8 | PW | + | – | EU |
| <i>Zebrina detrita detrita</i> (Müller, 1774) | 1; 6; 8; 9; 10 | PW | + | – | PMD |
| <i>Zebrina detrita inflata</i> (Kobelt, 1877) | 11; 12 | J, DL, PW | – | + | BLE |
| <i>Chondrula tridens</i> (Müller, 1774) | 1; 5; 6; 8; 11; 12 | U64, PW | + | + | PMD |
| Clausiliidae (7) | | | | | |
| <i>Cochlodina laminata</i> (Montagu, 1803) | 1 | PW | + | – | EU |
| <i>Macedonica marginata</i> (Rossmässler, 1835) | 1; 5; 8; 9; 11; 12; 13 | J, U64, HV, PW | + | + | BLE |
| <i>Macedonica pirinensis</i> Jaekel, 1954 | 1; 11? | J, N, DL, PW | + | +? | BGE |
| <i>Carinigera schuetti</i> Brandt, 1962 | 1; 8; 9; 12?; 13 | U64, DL, PW | + | +? | BLE |
| <i>Balea biplicata</i> (Montagu, 1803) | 1; 5; 6; 7; 8; 9; 10; 11 | U64, PW | + | + | EU |
| <i>Laciniaria plicata</i> (Draparnaud, 1801) | – | U64 | + | – | EU |
| <i>Bulgarica denticulata thessalonica</i> (Rossmässler, 1839) | 6 | PW | + | – | BLE |
| Punctidae (1) | | | | | |
| <i>Punctum pygmaeum</i> (Draparnaud, 1801) | 1 | PW | + | – | HL |
| Euconulidae (1) | | | | | |
| <i>Euconulus fulvus</i> (Müller, 1774) | 1; 2; 8 | PW | + | – | HL |
| Daudebardiidae (1) | | | | | |
| <i>Daudebardia rufa</i> (Draparnaud, 1805) | 1 | PW | + | – | EU |
| Zonitidae (4) | | | | | |
| <i>Vitrea bulgarica</i> Damjanov and Pintér, 1969 | 1; 11 | DP, DL, PW | + | + | BLE |
| <i>Oxychilus</i> cf. <i>hydatinus</i> (Rossmässler, 1838) | 4 | PW | + | – | HMD |
| <i>Oxychilus</i> cf. <i>glaber striarius</i> (Westerlund, 1881) | 1; 8; 11; 13 | PW | + | + | BLE |
| <i>Aegopinella minor</i> (Stabile, 1864) | 1 | PW | + | – | EU |
| Milacidae (3) | | | | | |
| <i>Tandonia budapestensis</i> (Hazay, 1881) | 10 | PW | + | – | EU |
| <i>Tandonia kusceri</i> (Wagner, 1931) | 3; 6 | PW | + | – | BLE |
| <i>Tandonia serbica</i> (Wagner, 1931) | 1 | W, PW | + | – | BLE |
| Vitrinidae (2) | | | | | |
| <i>Vitrina pellucida</i> (Müller, 1774) | 1 | PW | + | – | HL |
| <i>Oligolimax annularia</i> (Studer, 1820) | 8; 11; 12 | PW | – | + | PMD |
| Limacidae (3) | | | | | |
| <i>Limax cinereoniger</i> Wolf, 1803 | 8; 10 | PW | + | – | EU |
| <i>Limax maximus</i> Linnaeus, 1758 | – | DL | + | – | EU |
| <i>Lehmania</i> sp. | 1 | PW | + | – | — |
| Agriolimacidae (1) | | | | | |
| <i>Deroceras reticulatum</i> (Müller, 1774) | 6 | PW | + | – | EU |
| Arionidae (1) | | | | | |
| <i>Arion subfuscus</i> (Draparnaud, 1805) | 10 | W, PW | + | +? | EU |
| Helicodontidae (1) | | | | | |
| <i>Lindholmiola pirinensis</i> Jaekel, 1954 | 1; 5; 6; 7; 8; 11 | PW | + | + | BLE |
| Hygromiidae (3) | | | | | |
| cf. <i>Euomphalia strigella</i> (Draparnaud, 1801) | 1 | PW | + | – | EU |
| <i>Monacha cartusiana</i> (Müller, 1774) | – | U64 | + | – | LMD |
| <i>Xerolenta macedonica</i> Hesse, 1928 | 1; 8; 10; 11; 12 | J, P, DL, PW | + | + | BLE |
| Helicidae (3) | | | | | |
| <i>Cattania haberhaueri</i> (Sturany, 1897) | 1; 8; 11 | DL, PW | + | + | BLE |
| <i>Cattania rumelica</i> (Rossmässler, 1838) | 1; 7; 8; 10; 11; 12 | U69, DL, U78, PW | + | + | BGE |
| <i>Helix philibinensis</i> Rossmässler, 1839 | 6; 7; 8 | PW | + | – | BLE |

Source of the data: 27 species new for Alibotush Mts., 17 species known from literature. Non alpine areas: 41 species “+”, 1 species “no data”, 2 species “–”. Sub/alpine areas: 12 species “+”, 3 species “+?”, 1 species “no data”, 28 species “–”. Zoogeography: Mediter.: 3 – LMD, 3 – HMD, 4 – PMD, 12 – BLE, 2 – BGE; Euro–Seb.: 1 – WPL, 3 – HL, 15 – EU.