

**A CONTRIBUTION TO THE KNOWLEDGE
OF THE MALACOFUNA OF SVETILIISKI HEIGHTS
(SOUTH-EASTERN BULGARIA)**

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Abstract: Thirty nine species of land and freshwater mollusks were recorded in Svetiliiski Heights (Upper Thracian Valley). These were the first materials about the malacofauna of this area. Habitat and distributional data about the species are given and the fauna is compared with that one of the two adjacent mountains – Sakar and Surnena Sredna Gora.

Key Words: malacofauna, *Gastropoda*, *Bivalvia*, Upper Thracian Valley, Bulgaria.

INTRODUCTION

The malacofauna of the Upper Thracian Valley is poorly known (HUBENOV, 2005). There are a number of small hilly areas (so called “heights”) situated in the valley representing an “island” refugees for the mollusks in the agricultural landscape dominating the whole area. There are no any studies on the malacofauna of anyone of the Upper Thracian heights. The aim of our study was to collect some faunal and ecological information on the gastropods and the fresh water mussels of the Svetiliiski Heights, a hilly region placed south of Nova Zagora town.

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MATERIAL AND METHODS

The material was collected on 31.07.2004 and 01-02.08.2004 near the village of Savino, on 01.08.2004 near the village of Boyadzik, on 03.08.2007 near the village of Diadovo and in the village of Radevo, and on 15.10.2007 also in the village of Radevo and in the village of Sokol.

The mollusks were studied by means of the standard procedures (DAMJANOV & LIHAREV, 1975). The material collected was identified following ZHADIN (1952), DAMJANOV & LIHAREV (1975), WIKTOR (1983), HAUSDORF (2000), and IRIKOV (2008-in press). The Latin names are after HUBENOV (2005).

The similarity index was calculated using the Sorensen qualitative measure (BEGON et al., 1986).

RESULTS AND DISCUSSION

In the area of study we recorded 39 species of land and freshwater mollusks. These are the first materials about the malacofauna of the Svetiiliiski Heights. The species we found are as follows:

1. *Musculium lacustre* (O. F. Muller, 1774)

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

2. *Radix peregra* (O. F. Muller, 1774)

01.08.2004, micro dam, west of village of Boyadzik, UTM: MG49.

3. *Planorbis planorbis* (Linnaeus, 1758)

01.08.2004, flooded grassland areas near an influx of Kalnitza River, west of village of Boyadzik, UTM: MG49.

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

15.10.2007, deposits of a small stream in village of Sokol, UTM: MG29.

Remarks: This species was reported for Sakar Mountain and Surnena Sredna Gora Mountain by GEORGIEV (2005a, b) as *Planorbis carinatus* O. F. Muller 1774. The species was confused with the widely distributed form in Bulgaria *Planorbis planorbis* var. *submarginatus* Cristofori et Jan, 1838. The *P. carinatus* seemed to be very rare in south-eastern Bulgaria. The only locality we actually found it was the Potoka River, west from Plovdiv Town, Upper Thracian Valley, UTM LG 07.

4. *Gyraulus albus* (O. F. Muller, 1774)

01.08.2004, flooded grassland areas near an influx of Kalnitza River, west of village of Boyadzik, UTM: MG49.

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

5. *Segmentina nitida* (O. F. Muller, 1774)

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

6. *Physella acuta* (Draparnaud, 1801)

01.08.2004, river an influx of Kalnitza River, west of village of Boyadzik, UTM: MG49.

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

15.10.2007, deposits of a small stream in village of Sokol, UTM: MG29.

7. *Cochlicopa lubrica* (O. F. Muller, 1774)

31.07, 01.08, 02.08.2004, east of village of Savino, grassland near a water source, UTM MG 48.

01.08.2004, grassland area near a river, west of village of Boyadzik, UTM: MG49.

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

15.10.2007, river bank forest, village of Sokol, UTM: MG29.

8. *Cochlicopa lubricella* (Porro, 1838)

15.10.2007, deposits of a small stream in village of Sokol, UTM: MG29.

9. *Truncatellina cylindrica* (Ferrusac, 1821)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, UTM MG 48.

03.08.2007, north of village of Radevo, *Carpinus orientalis* and *Quercus* spp. forest, UTM MG 29.

10. *Pupilla muscorum* (Linnaeus, 1758)

01.08.2004, grassland area near a road, west of village of Boyadzic, UTM: MG49.

11. *Vallonia costata* (O. F. Muller, 1774)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands and agricultural lands (corn fields), UTM MG 48.

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

15.10.2007, deposits of a small stream in village of Sokol, UTM: MG29.

12. *Vallonia pulchella* (O. F. Muller, 1774)

01.08.2004, grassland area near a road, west of village of Boyadzic, UTM: MG49.

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

13. *Zebrina detrita* (O. F. Muller, 1774)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, *Carpinus orientalis* and *Quercus* spp. forest, agricultural lands (corn fields), UTM MG 48.

14. *Zebrina kindermanni* L. Pfeiffer, 1850

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands and agricultural lands (corn fields), UTM MG 48.

Remarks: We found this species also on the south bank of Ovcharitza Dam, Upper Thracian Valley, on grassland areas, MG 27, MG37 (16.04.2005) and west of Pomoriisko Lake, Southern Black Sea Coast, in vineyards and grasslands, UTM NH 41 (03.09.2007).

15. *Multidentula ovularis* (Olivier, 1801)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands and agricultural lands (corn fields), UTM MG 48.

16. *Pseudochondrula seductilis* (Rossmassler, 1884)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, *Carpinus orientalis* and *Quercus* spp. forest, UTM MG 48.

17. *Chondrula tridens* (O. F. Muller, 1774)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, *Carpinus orientalis* and *Quercus* spp. forest, UTM MG 48.

01.08.2004, grassland area near a road, west of village of Boyadzic, UTM: MG49.

18. *Chondrula microtragus* (Rossmassler, 1884)

03.08.2007, north of village of Radevo, *Carpinus orientalis* and *Quercus* spp. forest, UTM MG 29.

19. *Chondrula bicallosa* (L. Pfeiffer, 1847)

03.08.2007, north of village of Radevo, *Carpinus orientalis* and *Quercus* spp. forest, UTM MG 29.

20. *Bulgarica varnensis* (L. Pfeiffer, 1848)

31.07, 01.08, 02.08.2004, east of village of Savino, deciduous forest, UTM MG 48.

21. *Bulgarica denticulata* (Olivier, 1801)

31.07, 01.08, 02.08.2004, east of village of Savino, deciduous forest, UTM MG 48.

22. *Succinea oblonga* (Draparnaud, 1801)

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

23. *Oxyloma elegans* (Risso, 1826)

01.08.2004, grassland area near a river, west of village of Boyadzic, UTM: MG49.

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

15.10.2007, deposits of a small stream in village of Sokol, UTM: MG29.

24. *Oxychilus glaber* (Rossmassler, 1835)

31.07, 01.08, 02.08.2004, east of village of Savino, grassland near a water source, deciduous forest, UTM MG 48.

25. *Oxychilus inopinatus* (Ulicny, 1887)

31.07, 01.08, 02.08.2004, east of village of Savino, grassland near a water source, deciduous forest, UTM MG 48.

26. *Zonitoides nitidus* (O. F. Muller, 1774)

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

15.10.2007, deposits of a small stream in village of Sokol, UTM: MG29.

27. *Tandonia kusceri* (H. Wagner, 1931)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, UTM MG 48.

15.10.2007, grasslands near a house in village of Radevo, UTM: MG29.

28. *Punctum pygmaeum* (Draparnaud, 1801)

31.07, 01.08, 02.08.2004, east of village of Savino, deciduous forest, UTM MG 48.

03.08.2007, north of village of Radevo, *Carpinus orientalis* and *Quercus* spp. forest, UTM MG 29.

29. *Deroceras sturanyi* (Simroth, 1984)

01.08.2004, grasslands near a river, west of village of Boyadzic, UTM: MG49.

30. *Deroceras turcicum* (Simroth, 1894)

15.10.2007, grasslands near a house in village of Radevo, UTM: MG29.

31. *Cepaea vindobonensis* (Ferrusac, 1821)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, *Carpinus orientalis* and *Quercus* spp. forest, UTM MG 48.

32. *Helix lucorum* Linnaeus, 1758

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, *Carpinus orientalis* and *Quercus* spp. forest, agricultural lands (corn fields), UTM MG 48.

01.08.2004, grassland area near a river, west of village of Boyadzic, UTM: MG49.

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

33. *Helix figulina* Rossmassler, 1839

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands and agricultural lands (corn fields), UTM MG 48.

03.08.2007, east of village of Diadovo, open grassland area, UTM MG 29.

03.08.2007, north of village of Radevo, *Carpinus orientalis* and *Quercus* spp. forest, and grasslands, UTM MG 29.

34. *Lindholmiola girva* (Frivaldszky, 1835)

31.07, 01.08, 02.08.2004, east of village of Savino, deciduous forest, UTM MG 48.

03.08.2007, north of village of Radevo, *Carpinus orientalis* and *Quercus* spp. forest, UTM MG 29.

35. *Xerolenta obvia* (Menke, 1828)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, *Carpinus orientalis* and *Quercus* spp. forest, agricultural lands (corn fields), UTM MG 48.

01.08.2004, grassland area near a road, west of village of Boyadzic, UTM: MG49.

03.08.2007, north of village of Radevo, grasslands, UTM MG 29.

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

36. *Monacha* cf. *carascaloides* (Bourguignat, 1855)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, deciduous forest, UTM MG 48.

01.08.2004, grassland area near a road, west of village of Boyadzic, UTM: MG49.

03.08.2007, north of village of Radevo, *Carpinus orientalis* and *Quercus* spp. forest, grasslands, and *Paliurus spina-christi* bush areas, UTM MG 29.

Remarks: The probable occurrence of the species was registered by finding of very large shells (D > 20 mm) which discerns *M. carascaloides* from the similar but smaller *M. solidior*. In contrast to the statement of IRIKOV (2008-in press) we consider this species as a more widely dis-

tributed in the Upper Thracian Valley and its adjacent areas. We registered the species in: Surnena Sredna Gora Mountain (GEORGIEV, 2005a) UTM – MH 00, MH 01, LH 90, LH 80, LH 70, LH 40, LG 69. We also found the species southwards from Starozagorski Bani Resort, near to it but in the UTM LH 79 (not in the Starozagorski Bani Resort – LH 70). *M. carascaloides* was also found in Sakar Mountain (GEORGIEV, 2005b): MG 33 and MG 53. We recorded this species and in Eastern Rhodopes Mountain near Arda River in “Oreshari” Reserve (28.09.2007, UTM LG 90) and north of village of Kladenetz (29.09.2007, UTM LG 82). The only locality which could be of the similar species *Monacha solidior* (Mousson, 1863) we found by empty shells and it was in Surnena Sredna Gora near village of Edrevo, MH 01. This *Monacha* was reported by GEORGIEV, 2005a as a *Monacha* sp.

37. *Monacha cartusiana* (O. F. Muller, 1774) - *claustralis* (Menke, 1828)

31.07, 01.08, 02.08.2004, east of village of Savino, grasslands, *Carpinus orientalis* and *Quercus* spp. forest, UTM MG 48.

03.08.2007, east of village of Diadovo, open grassland area, UTM MG 29.

03.08.2007, north of village of Radevo, *Carpinus orientalis* and *Quercus* spp. forest, and grasslands, UTM MG 29.

03.08.2007, deposits of a small stream in village of Radevo, UTM MG29.

15.10.2007, village of Sokol, grasslands, river bank forest, UTM MG 29.

Remarks: We found only empty shells and according to HAUSDORF (2000) it is not enough for a determination the twin snail species *M. cartusiana* and *M. claustralis*. The closest areas from which we have dissected *Monacha* specimens are near the towns Stara Zagora (about 30 km far to the west, straight line) and Svilengrad (about 78 km far to the south, straight line). Till now we consider that the species *Monacha claustralis* (Menke, 1828) positively occurring in Sakar Mountain, finding it very close to it, near the railway station of Svilengrad Town, UTM MG 32 (07.08.2007) (Fig. 1). For Stara Zagora Town and Surnena Sredna Gora Mountain the only evidence was for *Monacha cartusiana* (O. F. Muller, 1774) registered also in their vicinities in UTM LG 99, The Upper Thracian Valley (11.10.2007) (Fig. 1). That is the first sure evidence for the occurrence of this species in Bulgaria, accepting IRIKOV (2008-in press).

38. *Monacha ovularis* (Bourguignat, 1855)

03.08.2007, deposits of a small stream in village of Radevo, UTM: MG29.

Remarks: This species was reported for Sakar Mountain by GEORGIEV (2005b) as *Monacha pilosa* Pinter 1969, which name considering HAUSDORF (2000), is a synonym of *M. ovularis*.

39. *Monacha solidior* (Mousson, 1863)

15.10.2007, in village of Sokol, river bank forest, in soil, UTM MG 29.

Considering the environmental conditions of the studied area and the malacofauna of the adjacent lands, we suppose that, more than 10 new species can be found there after further investigations. For example, *Xeropicta krynickii* (Krynicky, 1833) was registered very close to the heights in Nova Zagora Town (UTM MH 10) and *Limax flavus* Linnaeus, 1758 is a widely distributed synanthrope in the village sites of the neighbouring valley parts (for instance the village of Podslon, UTM MH 00 and the village of Trunkovo, UTM MG 08) or low mountain areas (Eastern Rhodopes, village of Dolno Cherkovishte, UTM LG 91).

Compared to the malacofauna of the two closest mountains – Surnena Sredna Gora (to the north) and Sakar (to the south) the mollusk community we registered in Svetiliiski Heights had about equal levels of similarity with both of them. Though it

is more similar with the fauna of Sakar (S = 56,8 %) than this one of Surnena Sredna Gora (S = 50,4 %).



Fig. 1. *Genital system of Monacha cartusiana* (O. F. Muller, 1774) (up) from the vicinities of Stara Zagora Town, Upper Thracian Valley and of *Monacha claustralis* (Menke, 1828) (down) from Svilengrad Town, near the Greek border. The visible characters of the genitalia discerning the two species are: lateral bulge of the vagina – present in *M. cartusiana*, absent in *M. claustralis*, and the smaller epiphalus: penis ratio in *M. claustralis* than in *M. cartusiana*.

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**ПРИНОС КЪМ ИЗУЧАВАНЕТО НА МАЛАКОФАУНАТА
НА СВЕТИИЛИЙСКИТЕ ВЪЗВИШЕНИЯ
(ЮГОИЗТОЧНА БЪЛГАРИЯ)**

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(резюме)

В района на Светиилийските Възвишения (Югоизточна България, Горнотракийска низина) са установени 39 вида сухоземни и сладководни мекотели (*Gastropoda et Bivalvia*). След провеждането на бъдещи изследвания се предполага установяването на още над 10 нови за района видове. Малакофауната на изследвания район, сравнена с тази на най-близо разположените планини – Сърнена Средна гора (на север) и Сакар (на юг), показва относително еднакво качествено сходство.