

## New data on the distribution of *Hoplia stenolepis* (Scarabaeoidea: Melolonthidae) in Bulgaria

YANA PETROVA<sup>1</sup>, DENIS GRADINAROV<sup>2</sup>

<sup>1</sup> National Genetics Laboratory, 2 Zdrave Str., 1421 Sofia, Bulgaria; e-mail: [yanagradinarova@abv.bg](mailto:yanagradinarova@abv.bg)

<sup>2</sup> Faculty of Biology, Sofia University “St. Kliment Ohridski”, Sofia, Bulgaria

**Abstract.** The Balkan endemic species *Hoplia stenolepis* Apfelbeck, 1912 is reported from two localities in Kresna and Zemen Gorge, SW Bulgaria. The Zemen Gorge locality is the most northern for the species in Bulgaria to date. At the Zemen Gorge the species is found in numerous aggregations of male specimens on different grasses. No feeding or mating activity was observed.

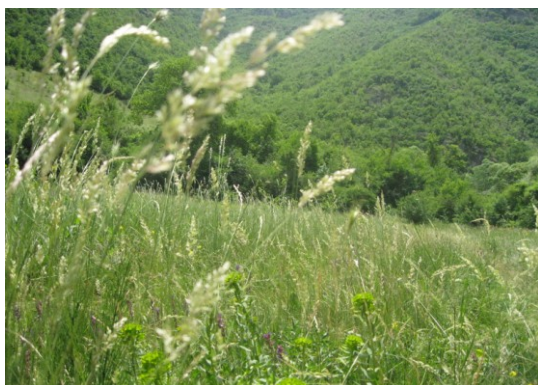
**Key words:** *Hoplia stenolepis*, Scarabaeoidea, distribution, biology.

### Introduction

The species *Hoplia stenolepis* Apfelbeck, 1912 is Balkan endemic species, described from Albania (town of Valona, loc. typ.) and later reported for Montenegro, Macedonia and Bulgaria (Rössner 1997). In Bulgaria it is reported from Struma River valley – villages of Kresna, Lebnica, Strumjani, Sklave, Melnik and Tzarevo towns (last at the Southern Black Sea coast) (Kral & Maly 1993, Rössner 1997). In this paper some new localities of *H. stenolepis* and original data on the species biology are reported.

### Materials and methods

The material was collected in three consequent years (2011, 2012, 2013) at the Zemen Gorge by hand and sweep netting. Several specimens from Kresna Gorge were also studied. For identification the key to genus *Hoplia* (Baraud, 1992) and the original description by Apfelbeck (1912) were used. The specimens are deposited in the collection of the Department of Zoology and Anthropology, Faculty of Biology, Sofia University and in the collection of the first author. The pictures (Figs. 3, 4) were taken with digital color camera Olympus Color View I and stereomicroscope Olympus SZ61.



**Fig. 1.** Locality 2 (Zemen Gorge).



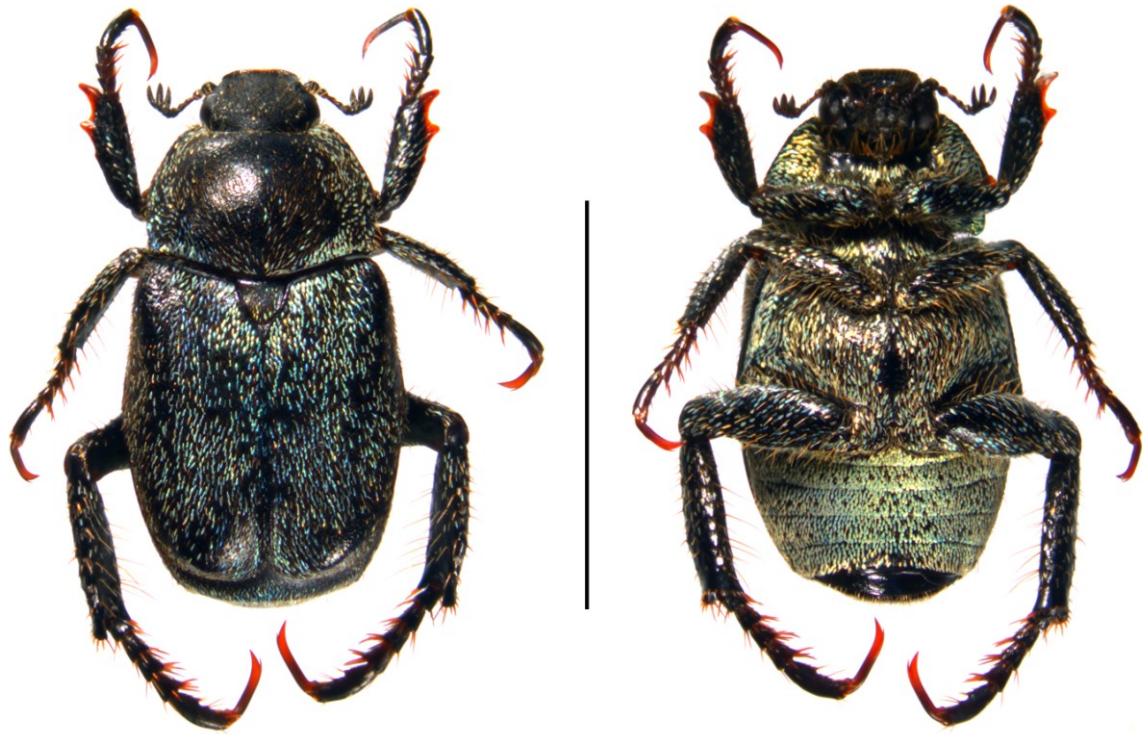
**Fig. 2.** Males of *Hoplia stenolepis* on *Rhinanthus wagneri*. Locality 2.

### Results and discussion

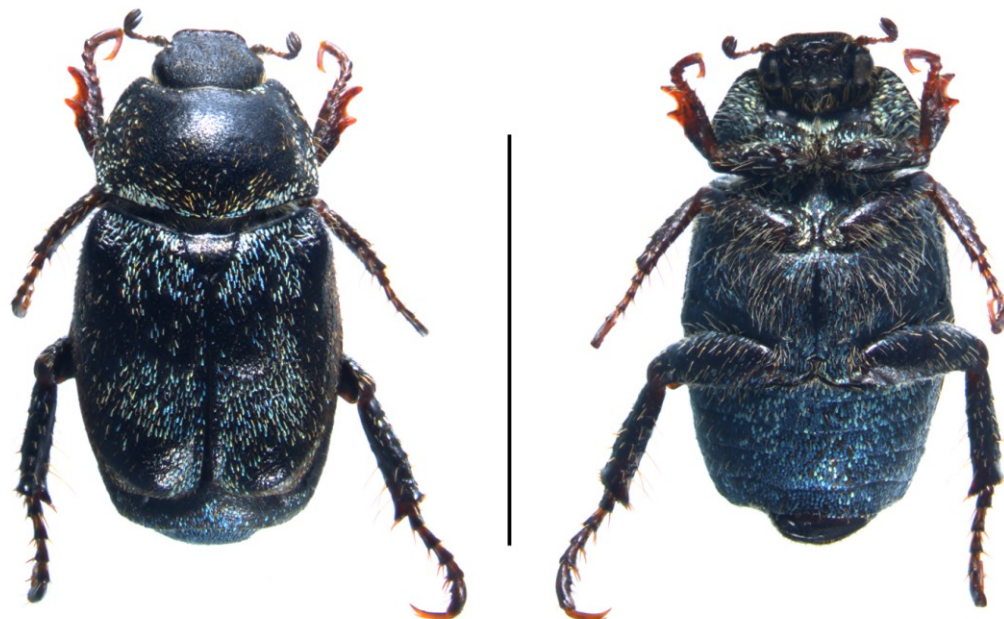
The species *Hoplia stenolepis* (Fig. 2 - 4) was found in two localities – Kresna (locality 1) and Zemen Gorge (locality 2) of Struma River. The species has previously been reported from Kresna Gorge region (Kral & Maly 1993, Rössner 1997) with no exact locations; the locality in Zemen Gorge is new and is the most northern known locality for *H. stenolepis* in Bulgaria.

**Material examined.** Locality 1: SW Bulgaria, Kresna Gorge, Sheytan Dere, near Oshtava Riv., N 41° 45' 36", E 23° 09' 20", 200 m alt.: 12.05.2001, 7♂♂ ex., leg. S. Dimitrov. Locality 2: SW Bulgaria, Zemen Gorge, near Zemen, left bank of Struma Riv., N 42° 28' 01", E 22° 43' 13", 580 m alt., riverside meadow (Fig. 1): 04.06.2011, 42♂♂ ex., sweep netting and hand collection on grasses, at noon (12:00h), sunny weather, leg. D. Gradinarov; 05.06.2011, 3♂♂ ex., hand collection on grasses, 14:30h p.m., sunny weather, leg. D. Gradinarov; 03.06.2012, 65♂♂ ex., hand collection on grasses, 13:30h p.m., sunny weather, leg. D. Gradinarov, G. Hristov; 17.05.2013, 8♂♂ ex., hand collection on grasses, 15:30h p.m., leg. D. Gradinarov; 26.05.2013, 3♂♂ ex., hand collection on grasses, 14:30h p.m., at a strong wind weather, leg. D. Gradinarov; 26.05.2013, 6♂♂ ex., hand collection on grasses, at night (23:45 h), leg. D. Gradinarov, O. Sivilov; 27.05.2013, 14♂♂ ex., hand collection on grasses, 14:30h p.m., leg. D. Gradinarov; 05.06.2013, 3♂♂, 1♀ ex., hand collection on grasses, 14:30h p.m., during rainfall, leg. D. Gradinarov.

At Zemen Gorge locality individuals of *H. stenolepis* were observed and collected mainly on flowers and leaves of *Koeleria macrantha* (Ledeb.) Schult., *Dactylis glomerata* L. (Poaceae), *Rhinanthus wagneri* Deg. (Scrophulariaceae), *Euphorbia seguieriana* Neck., (Euphorbiaceae), rarely on *Poa bulbosa* var. *vivipara* Koel., *Festuca* sp. (Poaceae), *Knautia arvensis* (L.) Coult. (Dipsacaceae), *Ranunculus acris* L. (Ranunculaceae), *Onobrychis alba* (Waldst. & Kit.) Desv. (Fabaceae) and *Salvia nemorosa* L. (Lamiaceae), gathered in groups (Fig. 2), or individually. No feeding or mating was observed.



**Fig. 3.** *Hoplia stenolepis* ♂. Zemen Gorge, 27.05.2013, leg. D. Gradinarov. Scale bar: 5 mm.



**Fig. 4.** *Hoplia stenolepis* ♀. Zemen Gorge, 05.06.2013, leg. D. Gradinarov. Scale bar: 5 mm.

Data about the biology of *H. stenolepis* in the literature are scarce. According to Apfelbeck the species is found on blackberries (“brombeersträuchern”) at the dunes (Apfelbeck, 1912) in Albania. Miksic (1957) observed numerous specimens on Poaceae (“gramineen”) at Vardar River bank in Mazedonia. Kral & Maly (1993) reported many specimens found on branches and flowers of *Tamariscus* sp. [sic!] (probably *Tamarix* sp.: Tamaricaceae), at the regions of Lebnica and Strumjani. At the Zemen Gorge locality we

found individuals of *H. stenolepis* on herbaceous plants from different families. The connection with these plants seems not to be trophic or directly connected with the mating behavior. According to Kral & Maly (1993) the beetles stand on the plants at 9 to 11h a.m., then buried in sand. Our observations show that individuals of *H. stenolepis* can also be found on the plants after 12h a.m., as well at night, with no clear dependence of the weather conditions. At adverse conditions, when resting, Hopliinae species stand on plants (Medvedev, 1952). The aggregation of male individuals on plants, with no obvious activity, observed by us, very resembles such kind of behavior.

Reports of Kral & Maly (1993) and Rössner (1997) lack data on the gender of the specimens of *H. stenolepis* which they examined. At the same time, out of 125 exemplars in our collections, only one is female. This prevalence of males in multiple findings appears to be due to specific reproductive behavior.

The data available indicate that for the Bulgarian part of the Struma River valley, the species *H. stenolepis* can be observed from late April to early June. Findings in the southern localities are from the end of April to the end of May (Kral & Maly, 1993, Rössner, 1997), and from mid-May to early June for the northern locality in Zemen Gorge.

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