

ON SOME GROUND BEETLES (CARABIDAE, COLEOPTERA) FROM THE REPUBLIC OF MACEDONIA. ¹M. M. Brajković, ¹S. B. Čurčić and ²Branislava Mihajlova, ¹Institute of Zoology, Faculty of Biology, University of Belgrade, 11000 Belgrade, Serbia and Montenegro; ²Natural History Museum of Macedonia, 1000 Skopje, Republic of Macedonia

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The ground beetles are insufficiently known in the Republic of Macedonia. Although some scarce data exist for the previous period, the first complex study was presented by Hieke (1981), who also gave a zoogeographical review of the Macedonian Carabidae; this author recorded a total of 205 species in Macedonia. Hristovski *et al.* (1996) noted the presence of 27 carabid species and two subspecies from 17 genera in the Šar Planina Mountines (with three genera and four species new for the fauna of the Republic of Macedonia). Subsequently, Guéorguiev (1998) studied the carabid material collected in Macedonia by some Bulgarian zoologists and found altogether 129 species and 59 subspecies from 44 genera. Of these, one genus, five subgenera, and 18 species and subspecies were considered as new for the area studied.

Moreover, Drovenik and Peks (1999) registered 322 species and 91 subspecies, belonging to as many as 65 genera. During investigations of carabids from some wheat phytocenoses near of Skopje, altogether eight genera, 19 species and three subspecies were also recorded (Lazarevska and Mitkova, 2000). Recently, Hristovski *et al.* (2002) found 79 species and 21 subspecies from 31 carabid genera in the Šar Planina Mountines, thus increasing the total number of species which inhabit these mountains to 130. Additionally, the presence of two genera and six species new to the Republic of Macedonia was established by Hristovski *et al.* (2002). Most recently, asserted in a personal communication Hristovski to Čurčić (August, 2003) that altogether 88 genera, 403 species, and 135 subspecies of carabids are known to inhabit the Republic of Macedonia.

Table 1. List of analyzed ground beetles from the Republic of Macedonia. Abbreviations: v. = village; nr. = near; m = male; mm = males; f = female; ff = females; Mt. = mount. Species new for the Macedonian carabid fauna are presented in boldface.

TAXON	LOCALITY	COLLECTOR(S)
CARABINAE		
CARABINI		
<i>Carabus (Chaetocarabus) intricatus intricatus</i> Linnaeus, 1761	1 m, v. Leunovo, "Mavrovo" National Park, nr. Gostivar, 4. 6. 1982; 1 f. Carevec, "Mavrovo" National Park, nr. Gostivar, 1. 6. 1982; 1 f. Mt. Kitka, nr. Skopje, 28. 5. 1987; 1 m, Mt. Karadžica, 18. 9. 1987.	J. Čingovski B. Mihajlova V. Krpač
<i>Carabus (Chaetocarabus) intricatus macedonicus</i> Jireček, 1928	1 f, v. Smolari, nr. Strumica, 7. 6. 1986; 1 m, 1 f, Mt. Kožuf, 15. 5. 1985; 1 f. Ohrid, 6. 1986.	B. Mihajlova
<i>Carabus (Megodontus) violaceus rilvensis</i> Kolbe, 1887	1 m, Mt. Belasica, nr. Strumica, 9. 7. 1986; 1 m, v. Ponikva, nr. Kočani, 22. 5. 1981; 1 m, Berovo, 5. 6. 1981.	O. Topukova J. Čingovski
<i>Carabus (Megodontus) violaceus shardaghensis</i> Apfelbeck, 1918	1 m, Mt. Kitka, nr. Skopje, 28. 5. 1987.	B. Mihajlova
<i>Carabus (Pachystus) cavernosus cavernosus</i> Frivaldszky, 1837	1 f. v. Oslomej, nr. Kičevo, 18. 9. 1981; 1 m, v. Mavrovo, nr. Gostivar, 3. 7. 1982; 1 m. Mt. Vodno, nr. Skopje, 26. 5. 1980.	J. Čingovski O. Topukova
<i>Carabus (Pachystus) graecus thessalonicensis</i> Apfelbeck, 1904	1 m, Kočani, 20. 10. 1941.	K. Tuleschkow
<i>Carabus (Procrustes) coriaceus jlorinensis</i> Lapouge, 1922	1 f. v. Ljubanci, nr. Skopje, 28. 6. 1974.	J. Čingovski
CLIVININI		
<i>Dyschirius intermedius</i> Putzeys, 1846	1 f. v. Petrovec, nr. Skopje, 22. 11. 1953.	Z. Karaman
HARPALINAE		
TACHYINI		
<i>Elaphropus (Sphaerotachys) haemorrhoidalis</i> (Ponza, 1805)	1 m, 4 ff. v. Petrovec, nr. Skopje, 22. 11. 1953.	Z. Karaman

Table 1. Continued.

TAXON	LOCALITY	COLLECTOR(S)
BEMBIDIINI		
<i>Bembidion</i> (<i>Notaphus</i>) <i>semipunctatum</i> (Donovan, 1806)	1 m, 1 f, v. Petrovec, nr. Skopje, 22. 11. 1953.	Z. Karaman
<i>Bembidion</i> (<i>Peryphitolus</i>) <i>monticola</i> Sturm, 1825	1 f, St. Joakim Osogovski monastery, v. Krklja, nr. Kriva Palanka, 19. 5. 1957.	J. Čingovski
PTEROSTICHINI		
<i>Myas chalybaeus</i> (Palliard, 1825)	1 f, v. Ljubanci, nr. Skopje, 28. 6. 1974.	J. Čingovski
<i>Pterostichus</i> (<i>Platysma</i>) <i>niger</i> (Schaller, 1783)	2 ff, v. Ljubanci, nr. Skopje, 28. 6. 1974.	J. Čingovski
PLATYNYNI		
<i>Calathus</i> (<i>Calathus</i>) <i>fuscipes</i> (Goeze, 1777)	1 m, v. Grupčin, nr. Tetovo, 6. 6. 1980; 1 f, v. Negorci, nr. Gevgelija, 21. 6. 1980.	J. Čingovski
<i>Calathus</i> (<i>Neocalathus</i>) <i>erratus</i> (C. R. Sahlberg, 1827)	1 m, v. Grupčin, nr. Tetovo, 6. 6. 1980.	J. Čingovski
ZABRINI		
<i>Amara</i> (<i>Amara</i>) <i>tricolorata</i> (Gyllenhal, 1810)	1 m, v. Bistrica, nr. Bitola, 15. 4. 1980.	J. Čingovski
<i>Amara</i> (<i>Zezea</i>) <i>tricuspidata</i> Dejean, 1831	1 f, Radoviš, 6. 7. 1973.	J. Čingovski
HARPALINI		
<i>Acinopus picipes</i> (Olivier, 1795)	1 m, v. Ljubanci, nr. Skopje, 28. 6. 1974.	J. Čingovski
<i>Harpalus</i> (<i>Harpalus</i>) <i>affinis</i> (Schrank, 1781)	1 m, Berovo, 5. 6. 1981.	J. Čingovski
<i>Harpalus</i> (<i>Harpalus</i>) <i>autumnalis</i> (Duftschmid, 1812)	1 m, v. Negorci, nr. Gevgelija, 21. 6. 1980.	J. Čingovski
<i>Harpalus</i> (<i>Harpalus</i>) <i>distinguendus</i> (Duftschmid, 1812)	2 mm, 3 ff, v. Oslomej, nr. Kičevo, 18. 9. 1981.	J. Čingovski
<i>Harpalus</i> (<i>Harpalus</i>) <i>serripes</i> (Quensel, 1806)	1 m, v. Grupčin, nr. Tetovo, 6. 6. 1980.	J. Čingovski
<i>Harpalus</i> (<i>Harpalus</i>) <i>smaragdinus</i> (Duftschmid, 1812)	1 f, v. Oslomej, nr. Kičevo, 18. 9. 1981.	J. Čingovski
<i>Pseudophonus griseus</i> (Panzer, 1797)	2 mm, 3 ff, v. Kučkovo, nr. Skopje, 3. 7. 1976.	J. Čingovski
LEBIINI		
<i>Demetrias monostigma</i> (Samouelle, 1819)	1 m, v. Petrovec, nr. Skopje, 22. 11. 1953.	Z. Karaman

In the present paper, we identified ground beetles collected from 22 localities in different areas of the Republic of Macedonia and ascertained the presence of 23 species and seven subspecies from 12 genera (Table 1). The subfamily Carabinae is represented by six species (or 26.09 % of all analyzed carabids) and seven subspecies, while the subfamily Harpalinae includes 17 species (or 73.91 % of all analyzed carabid species). The most diverse are the genera *Carabus* Linnaeus and *Harpalus* Latreille (each with five species or 21.74 % of all identified species), followed by *Bembidion* Latreille, *Calathus* Bonelli, and *Amara* Bonelli (each with two species or 8.70 %). All other analyzed genera are represented by a single species only (or 4.35 %).

According to the results of this study, two carabid species are new to the fauna of the Republic of Macedonia: *Demetrias monostigma* (Samouelle) and *Bembidion* (*Notaphus*) *semipunctatum* (Donovan). Additionally, a single genus, *Demetrias* Bonelli, is also new to the fauna of Macedonia.

In conclusion, altogether 405 carabid species from 89 genera have been found in the Republic of Macedonia. The limited number of previous reports on the taxonomy and zoogeography

of carabids in Macedonia points to a low level of research on this interesting faunistic complex in the area studied. In view of the fact that the present number of the species of ground beetles from the area studied is comparatively high, it can be assumed that the total number of the Macedonian carabid species may rise to more than 700. Our preliminary results indicate an urgent need for further long-lasting, extensive, and intensive studies on the biology of all carabid taxa in the region.

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References: Drogenik, B., Peks, H. (1999). *Schwandfeld. Coleopt. Mitteil.* **1**, 1–123, Schwandfeld. — Guéorguiev, B. (1998). *Hist. Nat. bulgarica* **9**, 35–51, Sofia. — Hieke, F. (1981). *Acta Mus. Mac. Sci. Nat.* **16** (3), 71–101, Skopje. — Hristovski, S., Ilioska, S., Melovski, D., Avukatov, V., Zdravkovski, D. (1996). *Bilt. Istraž. društ. stud. biol.* **1**, 49–62, Skopje. — Hristovski, S., Ilioska, S., Pecova, L. (2002). *Bilt. Istraž. društ. stud. biol.* **2**, 119–124, Skopje. — Lazarevska, S., Mitkova, T. (2000). *Zbor. trud. Simp. "Počvite i nivnoto iskoristuvanje"* **1**, 105–115, Skopje.