

Cucujidae (Coleoptera: Cucujoidea) - a new family to the fauna of Bulgaria

Borislav GUÉORGUIEV, Danail DOYCHEV, Dinko OVCHAROV

GUÉORGUIEV B., DOYCHEV D., OVCHAROV D. 2008. Cucujidae (Coleoptera: Cucujoidea - a new family to the fauna of Bulgaria. - *Historia naturalis bulgarica*, **19**: 93-97.

Abstract. The family Cucujidae Latreille, the genus *Cucujus* Fabricius, and the species *C. cinnaberinus* (Scopoli) are recorded for the first time in the fauna of Bulgaria.

Key words: Coleoptera, Cucujidae, *Cucujus*, first records, Bulgaria.

At least 119 families of Coleoptera, in the sense of the classifications of HANSEN (1991), BROWNE & SCHOLTZ (1995) and LAWRENCE & NEWTON (1995) inhabit Bulgaria. Until this communication we had no records for the country only for Cerophytidae, Phloiophilidae, Phloeostichidae, Cucujidae, Prostomidae, and Boridae.

The Cucujidae Latreille, 1802, sometimes called "flat bark beetles" are a family of distinctively flat beetles found worldwide under the bark of dead and living trees. The family is one of the smallest ones and consists of 47 species distributed in four genera (THOMAS, 1999; LEE & SATO, 2007). Cucujidae have elongate parallel-side bodies ranging from 6 to 25 mm in length. Most are brown colored, while others are black, reddish or yellow. Head is triangular in shape, with filiform antennae of 11 antennomeres, and large mandibles. The pronotum is narrower than the head. Both larvae and adults live under the bark, otherwise little is known of their habits. The family was formerly larger, with subfamilies Laemophloeinae, Silvaninae, and Passandrinae (and some tenebrionid genera to boot), but recent revision has raised the subfamilies to family status (PAKALUK et al., 1994; LAWRENCE & NEWTON, 1995).

Six species from two genera, e.g. *Cucujus* Fabricius, 1775 (with 2 spp.) and *Pediacus* Schuckard, 1839 (with 4 spp.) are known to inhabit Europe as one of the species is endemic to the Canary Islands (SLIPINSKI, 2004). A single species is reported below for the first time for Bulgaria (Fig. 1). The examined material is preserved in the collection of the National Museum of Natural History, Sofia.

Cucujus Fabricius, 1775

Cucujus cinnaberinus (Scopoli, 1763)

Material examined: Rila Mountain, Borovets (= Tcham Kuria), 30.VIII.1927, P. Drenski leg., 2 adults; Eastern Stara Planina Mt.: Longoza Place, Nova Shipka Village, 23.IX.1949, 2 specimens, under bark of fallen tree, N. Karnoschitzky leg.; Eastern Stara Planina Mt.: Longoza Place, 24.IX.1949, S. Kantardjieva-Minkova leg., 2 adults, under bark of trunks; Maleshevska Planina Mt.,

1240 m, 1.7 km east of Razdol Village, 35-year old plantation of *Pinus sylvestris* L., 1 adult in bark beetles slit trap baited with pheromone dispenser for *Orthotomicus erosus* (Woll.) (Coleoptera: Curculionidae: Scolytinae), 11-19.V.2006, D. Doychev leg.; same locality, 2 adults and 10 larvae under bark of dead stem of *P. sylvestris* L., 28.III.2008, D. Doychev leg.; same locality, 1 adult in bark beetles slit trap baited with pheromone dispenser for *Ips sexdentatus* (Börner) (Coleoptera: Curculionidae: Scolytinae), 11-25.IV.2008, D. Doychev leg.; 1 adult, 1 pupa and 10 larvae under bark of dead stem of *P. sylvestris* L., 12.IX.2008, D. Doychev leg. in pupa chamber of *Rhagium inquisitor* L. (Coleoptera: Cerambycidae), the adult specimen was found in abandoned pupa chamber of *Rhagium inquisitor* L. (Coleoptera: Cerambycidae); Maleshevska Planina Mt., 950 m, 5 km E of Razdol Village, 35-year old plantation of *Pinus sylvestris* L., 1 larva and remains (heads, pronotums and elytrae) of adults under bark of dead stems of Scots Pine, 11.IV.2008, D. Doychev leg.; Maleshevska Planina Mt., 840 m, 7 km E of Razdol Village, 35-year old plantation of *Pinus sylvestris* L., 1 larva under bark of dead stems of Scots Pine, 25.IV.2008, D. Doychev leg.

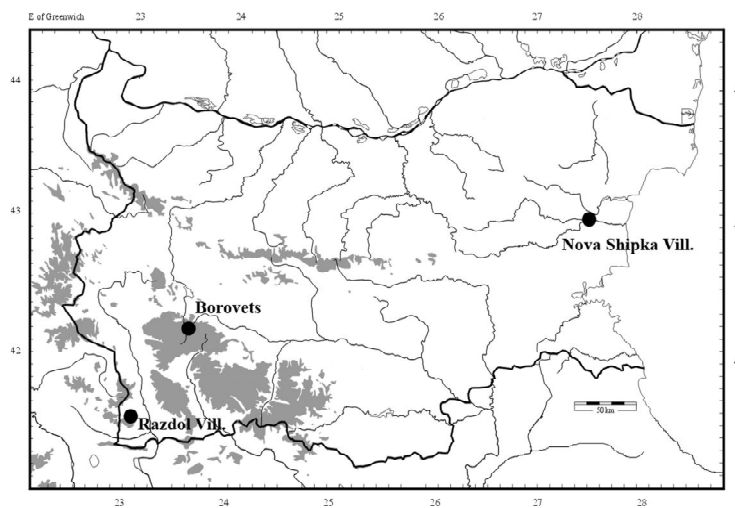


Fig. 1. Localities *Cucujus cinnaberinus*

Remarks: Most probably, the materials from the Longoza Place come from one and the same locality. The species is indicated to occur in Norway, Sweden, Finland, Estonia, Latvia, Lithuania, Germany, Poland, Belarus, Ukraine, Russia, France, Switzerland, Austria, Czech Republic, Slovakia, Hungary, Romania, former Yugoslavia (SLIPINSKI, 2004; IUCN, 2007). According to IUCN (2007) the species is treated as vulnerable (VU A1c) - considered to be facing a high risk of extinction in the wild. *C. cinnaberinus* is also included in the Annex II of the Natura 2000 (EC Habitats Directive, 2006) and in the Appendix II (strictly protected fauna species) of the Bern Convention (Convention on the conservation of European wildlife and natural habitats, 01.03.2002). The recently collected larvae, pupa and adults (Figs. 2-4) were found on standing dead trees which were dried two years ago because of attacks of *Ips acuminatus* (Gyll.) (Coleoptera: Curculionidae: Scolytinae).

**Fig. 2****Fig. 3****Fig. 4**

Figs. 2-4. Photos of larva, pupa, and adult of *Cucujus cinnaberinus*: Fig. 2. Larva, dorsal view; Fig. 3. Pupa, ventral view; Fig. 4. Adult, dorsal view

Another European species from the same genus, *Cucujus haematodes* Erichson, 1845, is recorded for Austria, Czech Republic, Estonia, France, Hungary, Italy, Poland, Romania, Slovakia, Spain, Sweden, Switzerland, Ukraine, Serbia (SLIPINSKI, 2004). According to DAJOZ (2000) this species has not been recorded in the last hundred years, and until now it is not recorded from Bulgaria, too.

The species of *Cucujus* live under the decaying bark of deciduous trees, mainly elm, oak, beech, rarely coniferous (ZAHRADNIK, 1999). The larvae are predators as their habitus resemble that of the larvae of the genus *Pyrochroa* Geoffroy, 1762 (Coleoptera: Pyrochroidae) (DAJOZ, 2000). They are on the way of extinction in Europe (ibid.). The adults of *Cucujus* can be distinguished from those of *Pediacus*, which is likely to be found in Bulgaria, by the characters shown in Table 1.

Table 1.

Status of several characters in the genera *Cucujus* and *Pediacus*

Character	<i>Cucujus</i>	<i>Pediacus</i>
Temporae	Highly protuberant	Not protuberant
Width of head	Wider than pronotum	Not wider than pronotum
Size of body	Longer than 10.0 mm	Less than 5.0 mm
Antennae	Without club	With 3-segmented club

Acknowledgements

We would like to thank the Bulgarian Ministry of Education and Science for their support of the studies in Maleshevska Planina Mt. funded through the project VU-AN-01/2005 "Species composition, economic importance and possibilities for control of the bark beetles (Coleoptera, Scolytidae) in Scots Pine plantations in the region of Strumyani State Forestry. We are also grateful to Nikolay Simov (National Museum of Natural History, Sofia) for his critical reading of an early version of the manuscript.

References

- BROWNE D. J., SCHOLTZ C. H. 1995. Phylogeny of the families of Scarabaeoidea (Coleoptera) based on characters of the hindwing articulation, hindwing base and wing venation. - *Systematic Entomology*, **20** (3): 145-173.
- DAJOZ R. 2000. Insects and forests. The role and diversity of insects in the forest environment. Intercept LTD, I-XII + 668 pp.
- HANSEN M. 1991. The hydrophiloid beetles: Phylogeny, classification and a revision of the genera (Coleoptera, Hydrophiloidea). - *Bioloske Skrifter, Kongelige Danske Videnskabernes Selskab*, **40**: 1-367.
- EC Habitats Directive (last update: 10/08/2006). http://ec.europa.eu/environment/nature/nature_conservation/eu_nature_legislation/habitats_directive/index_en.htm.
- IUCN 2007. 2007 IUCN Red List of Threatened Species (last updated: 30/09/2007). <http://www.iucnredlist.org/>.
- LAWRENCE J. F., NEWTON A. F., JR. 1995. Families and subfamilies of Coleoptera (with selected genera, notes, references and data on family-group names). - In: Pakaluk J., Slipinski S. A. (eds.). *Biology, Phylogeny, and Classification of Coleoptera: Papers Celebrating the 80th Birthday of Roy A. Crowson*. Muzeum i Instytut Zoologii PAN, Warszawa: 779-1006 + 48 pp. of index in reprints.
- LEE C.-F., SATO M. 2007. A Review of the genus *Cucujus* Fabricius (Insecta: Cucujoidea: Cucujidae) from Taiwan, Japan and China, with descriptions of two new species and the larvae of *Cucujus mniszewi* Grouvelle. - *Zoological Studies*, **46** (3): 311-321.
- PAKALUK J., SLIPINSKI S. A., LAWRENCE J. F. 1994. Current classification and family-group names in Cucujoidea (Coleoptera). - *Genus*, **5**: 223-268.
- SLIPINSKI S. A. 2004. Fauna Europaea: Cucujidae. - In: Audisio P. (ed.). *Fauna Europaea: Coleoptera 2, Beetles*. Fauna Europaea, version 1.3., last update 19 April 2007. <http://www.faunaeur.org>.
- THOMAS M. C. 1999. Family Cucujidae Latreille 1802 (Coleoptera: Cucujoidea). <http://www.fscadpi.org/Coleoptera/Mike/cucujidae1.htm>.
- ZAHRADNIIK J. 1999. A field guide in colour to insects. Blitz Editions, 319 p.

Received: 30.08.2007

Authors' addresses:

Borislav Guèorguiev, National Museum of Natural History, Tsar Osvoboditel Blvd. 1, 1000 Sofia, Bulgaria, e-mail: bobivg@yahoo.com

Danail Doychev, Dinko Ovcharov, University of Forestry, Kliment Ohridski Blvd. 10, 1756 Sofia, Bulgaria, e-mails: doychev@abv.bg, dwo@abv.bg

Cucujidae (Coleoptera: Cucujoidea) - ново семейство за фауната на България

Борислав ГЕОРГИЕВ, Данаил ДОЙЧЕВ, Динко ОВЧАРОВ

(Р е з ю м е)

Таксоните Cucujidae Latreille, *Cucujus* Fabricius и *C. cinnaberinus* (Scopoli) се съобщават за пръв път за фауната на България. Представени са белези, позволяващи ефикасно различаването на рода. Видът *C. cinnaberinus* е включен в Червения списък на Международния съюз за защита на природата (IUCN), приложение II на европейската мрежа Natura 2000 и приложение II на Бернската конвенция (Bern Convention). Част от резултатите са получени при работа по проект № ВУ-АН-01/2005 "Видов състав, стопанско значение и възможности за контрол срещу короядите (Coleoptera, Scolytidae), развиващи се в култури от бял бор (*Pinus sylvestris* L.) в района на ДЛ Струмяни, финансиран от Министерството на образованието и науката (МОН) на Република България.