

**Checklist of Slovak seed-beetles (Coleoptera: Chrysomelidae: Bruchinae),
with the first record of invasive *Megabruchidius dorsalis* (Fåhraeus, 1839)**

Martin ŘÍHA & Jan BEZDĚK

Mendel University, Department of Zoology, Fisheries, Hydrobiology and Apiculture
Zemědělská 1, CZ-613 00 Brno, Czech Republic
e-mails: marrih@seznam.cz, bezdek@mendelu.cz

Check-list, faunistics, new record, alien species, Coleoptera, Chrysomelidae, Bruchinae, *Megabruchidius*, *Gleditsia*, Slovakia

Abstract. An invasive seed-beetle *Megabruchidius dorsalis* (Fåhraeus, 1839), associated with *Gleditsia triacanthos* L., is reported from Slovakia for the first time. An updated checklist of Bruchinae from Slovakia is presented. Currently, 43 Bruchinae species occur in Slovakia (11 of them are treated as alien species) and the occurrence of additional 4 species remains uncertain.

INTRODUCTION

During a field trip in southern Slovakia the first author observed several tens of Bruchinae individuals on the flowers of *Rosa* sp. cult. and collected 5 of them. We were unable to identify the species based on the literature referring to the Bruchinae fauna of the Czech Republic and Slovakia, and thus, we consulted its identity with a Bruchinae specialist Alex Delobel (France) who kindly determined the series as *Megabruchidius dorsalis*.

MATERIAL AND METHODS

Photographs of specimens were taken by using the Canon EOS 550D digital camera with the Canon MP-E 65 mm objective. Images of the same objects in different focal planes were combined by using the Helicon Focus 5.1.3 software.

The specimens are deposited in the following collections:

JBCB Jan Bezděk private collection, Brno, Czech Republic;
NMPC Národní muzeum, Praha, Czech Republic (Jiří Hájek).

RESULTS

Megabruchidius dorsalis (Fåhraeus, 1839)

(Figs. 1-5)

Material examined: Slovakia mer., Kováčov (W of Chľaba), 47°49.394'N 18°46.830'E, #8178, 115 m, 27.viii.2014, M. Říha leg., (3 ♂♂, 1 ♀ in JBCB, 1 ♂ in the collection of NMPC, additional ca 30 specimens observed).

Collection circumstances. All the five specimens were collected on *Rosa* sp. cult. flowers in the afternoon (between 3 and 4 p.m.). The host plant, *Gleditsia triacanthos*, was frequently growing in the immediate vicinity.

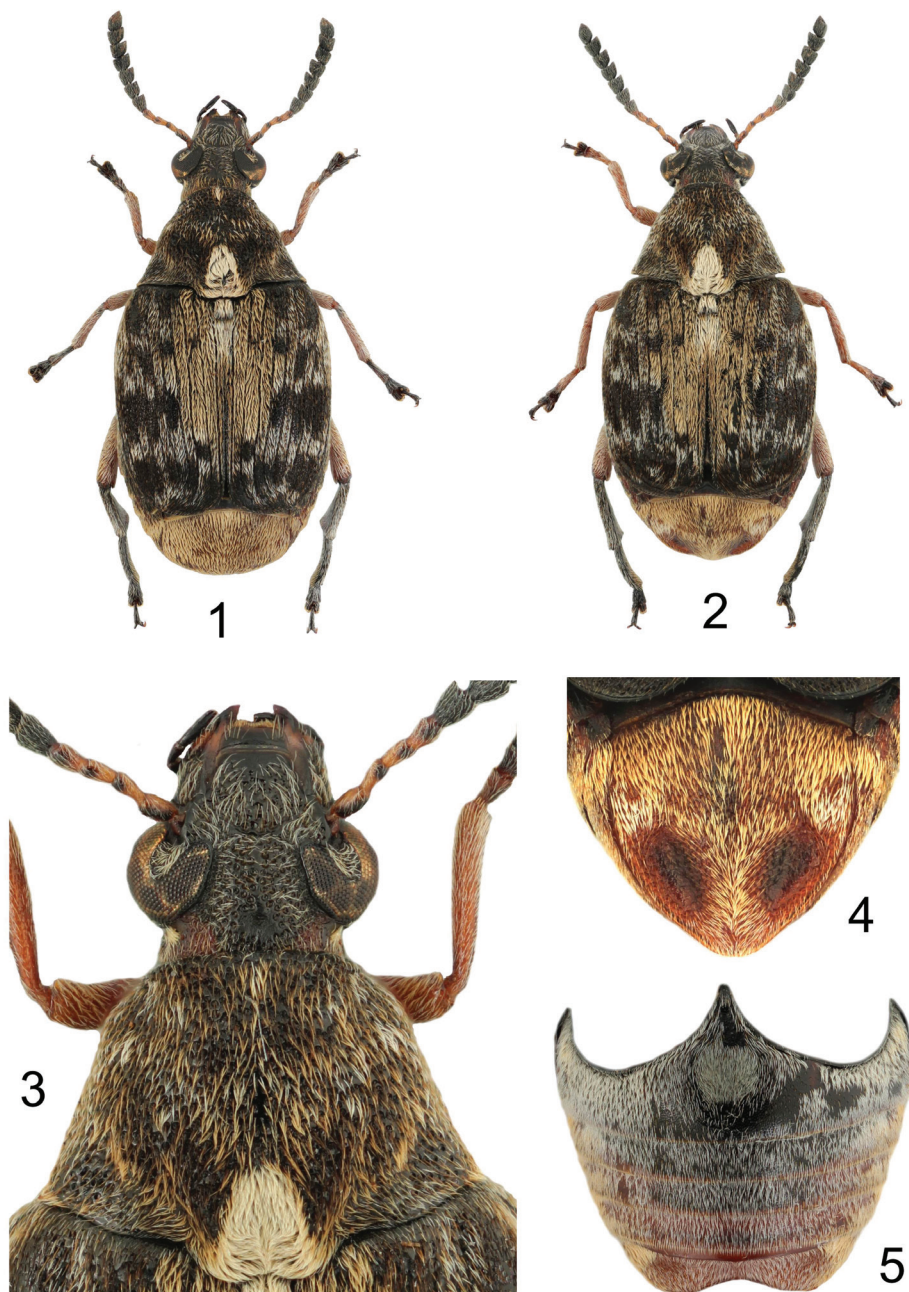
Main diagnostic features. The genus *Megabruchidius* is characterized by the following combination of characters (based on Borowiec 1987): pronotum campaniform or conical, antennae short, not sexually dimorphic, elytral striae IV and V or IV-VI with basal tubercles, male mesotibiae simple (without spines or plates), metafemora with very fine spine on internal ventral margin, metatibiae straight, with 3-4 carinae, female pygidium with two oval, bare apical foveae, male abdominal ventrite I with depression or patch of dense hairs (Fig. 5), median lobe moderately long, ventral valve broad, not triangular, internal sac strongly folded, forming lateral pockets, without large sclerites, lateral lobes depressed, broadly and deeply divided. Body length 4.3-6.0 mm.

Comparison with central European genera (incl. introduced). The genera of Amblycerini (*Spermophagus* Schönherr, 1833; *Zabrotes* Horn, 1885) differ by metatibiae terminated by two long sharp calcars. Pachymerini genera occurring in Europe (*Pachymerus* Thunberg, 1805; *Caryedon* Schönherr, 1823) have spiny pecten on metafemora. The males of the genus *Kytorhinus* Fischer, 1809 (Kytorhinini) have long pectiniform antennae.

Megabruchidius can be distinguished from other genera of European Bruchini by metafemur with a very fine tooth on internal ventral margin. Metafemora in *Callosobruchus* Pic, 1902 have teeth on both internal and external ventral margins. The species of *Mimosetes* Bridwell, 1946, *Pseudopachymerina* Zacher, 1952 and *Paleoacanthoscelides* Borowiec, 1985 have at least two subapical teeth on metafemora. Both European species of *Acanthoscelides* Schilsky, 1905 have metafemora with larger tooth and several smaller denticles.

In general habitus, *Megabruchidius dorsalis* is similar to many representatives of the genera *Bruchidius* Schilsky, 1905 and *Bruchus* Linnaeus, 1767. Many species of *Bruchus* are of a similar large body size, but can be distinguished by their transverse trapezoidal pronotum, usually with a distinct denticle in the middle; elytra without basal tubercles; mesotibiae in male with plates or denticles apically; metafemora with a denticle on the external ventral margin, without tooth on the internal ventral margin. *Bruchidius* species are distinctly smaller (1.0-4.1 mm), metafemora without or with very minute teeth, the pygidium of female without large glabrous foveae.

Megabruchidius dorsalis and *M. tonkineus* (Pic, 1904) (both introduced into Europe) differ from each other as follows: *Megabruchidius dorsalis* has a short apical spine of posterior tibiae, pronotum campaniform (Fig. 3), ground colour of elytra black (Figs. 1-2), female pygidium with wider foveae (Fig. 4), while in *M. tonkineus*, posterior tibiae have a



Figs. 1-5. *Megabruchidius dorsalis* (Fåhraeus, 1839): 1- male; 2- female; 3- detail of male head and pronotum; 4- female pygidium; 5- male abdomen.

long spine, pronotum subconical, ground colour of elytra brown with black apices, female pygidium with narrower foveae.

Host plants. Caesalpiniaceae: *Gleditsia japonica* Miq., *G. sinensis* Lam. and *G. triacanthos* L. In Europe on *G. triacanthos* L.

Honey locust (*G. triacanthos*) is a leguminous tree originating in the middle and eastern part of North America, which was in Southern Slovakia widely planted in parks as an ornamental species, round vineyards, gardens and fruit groves as thorn-hedge, along roads and fields as wind barrier, and as a component of floodplain forests. Into Europe it was introduced in 1700, and its first plantation in the area of the present Slovakia was established in 1806. Presently, this species is ranked as often escaping from the culture or newly as naturalized in Slovakia (Ferus et al. 2013).

Comments. Based on a recent revision (Yus Ramos 2009), the genus *Megabruchidius* Borowiec, 1984 comprises 3 species. Two of them, *Megabruchidius dorsalis* and *M. tonkineus*, were introduced to Europe. Yus Ramos et al. (2014) summarized data on 42 extralimital seed-beetle species from 20 genera introduced into Europe. *Megabruchidius dorsalis* is treated as established as it reproduces well in gardens and parks where its host plant *Gleditsia triacanthos* grows.

Distribution. Japan, China (Fujian), Hongkong, India (Udayagiri & Wadhi 1989, Anton 2010). Introduced into Mongolia, Turkmenistan (Anton 2010) and Europe: Italy (Migliaccio & Zampetti 1989), Hungary (Yus Ramos 2009, Bodor 2012), France (Fritzsche & Delobel 2012, Callot 2013) and Switzerland (Yus Ramos 2009). A new species to Slovakia.

ACKNOWLEDGEMENTS. Martin Říha would like to express his thanks to Mr. Ernest Ubár for his kind hospitality during the field trips to Kováčov area. Special thanks are due to Alex Delobel (France) for the help with the identification of *Megabruchidius dorsalis*.

UPDATED CHECKLIST OF BRUCHINAE FROM SLOVAKIA

The suprageneric arrangement follows Anton (2010), species names are compilation by Anton (2010) and Strejček (2012). The species not listed for Slovakia in Strejček (2012) are marked with asterisk (*). For each species, one reference which contains as much as possible exact and newest published data from Slovakia or necessary comments, is listed.

subfamily BRUCHINAE Latreille, 1802

tribe Amblycerini Bridwell, 1932

subtribe Spermophagina Borowiec, 1987

genus *Spermophagus* Schoenherr, 1833

Spermophagus calystegiae (Lukjanovitch & Ter-Minassian, 1957) Cunev (1995)

Spermophagus sericeus (Geoffroy, 1785) Benedikt (2014)

genus *Zabrotes* Horn, 1885

Zabrotes subfasciatus (Boheman, 1833)³⁾ Strejček (2012)

tribe Bruchini Latreille, 1802

subtribe Acanthoscelidina Bridwell, 1946

genus *Acanthoscelides* Schilsky, 1905

Acanthoscelides obtectus (Say, 1831)²⁾ Rozek et al. (1999)

Acanthoscelides pallidipennis (Motschulsky, 1874)¹⁾ Strejček (1991)

genus *Bruchidius* Schilsky, 1905

Bruchidius astragali (Boheman, 1829) Benedikt & Mantič (2006)

Bruchidius canus (Germar, 1824) Strejček (1991),

Bruchidius cinerascens (Gyllenhal, 1833) Strejček (2012, comments)

Bruchidius cisti (Fabricius, 1775) Strejček (1976)

Bruchidius dispar (Gyllenhal, 1833) Strejček (1991),

Bruchidius foveolatus (Gyllenhal, 1833) Benedikt (2014)

Bruchidius imbricornis (Panzer, 1795) Cunev et al. (1995)

Bruchidius lividimanus (Gyllenhal, 1833) Strejček (2012)

Bruchidius marginalis (Fabricius, 1776) Strejček (1990)

Bruchidius martinezi (Allard, 1868) Strejček (1991)

Bruchidius mulisanti (Brisout de Barneville, 1863) Strejček (1991),

Bruchidius nanus (Germar, 1824) Strejček (2012, comments)

? *Bruchidius nanus* (Germar, 1824) Strejček (2012)

Bruchidius olivaceus (Germar, 1824) Strejček (1991)

Bruchidius pauper (Boheman, 1829) Strejček (1991)

Bruchidius picipes (Germar, 1824) Strejček (2012)

Bruchidius pusillus (Germar, 1824) Benedikt (2014)

Bruchidius seminarius (Linnaeus, 1767) Benedikt (2014)

Bruchidius seminarius (Linnaeus, 1767) Strejček (1976)

<i>Bruchidius sericatus</i> (Germar, 1824)	Strejček (1990)
* <i>Bruchidius siliquastri</i> Delobel, 2007 ¹⁾	Kollár et al. (2009)
<i>Bruchidius unicolor</i> (Olivier, 1795)	Strejček (1990)
<i>Bruchidius varius</i> (Olivier, 1795)	Benedikt (2014)
<i>Bruchidius villosus</i> (Fabricius, 1792)	Benedikt (2014, as <i>B. ater</i> (Marsham, 1802))
genus <i>Callosobruchus</i> Pic, 1902	
<i>Callosobruchus chinensis</i> (Linnaeus, 1758) ³⁾	Strejček (1990)
<i>Callosobruchus maculatus</i> (Fabricius, 1775) ³⁾	Strejček (2012)
genus <i>Megabruchidius</i> Borowiec, 1984	
<i>Megabruchidius tonkineus</i> (Pic, 1904) ¹⁾	Majzlan (2011)
* <i>Megabruchidius dorsalis</i> (Fähræus, 1839) ¹⁾	present paper
subtribe <i>Bruchina</i> Latreille, 1802	
genus <i>Bruchus</i> Linnaeus, 1767	
<i>Bruchus affinis</i> Frölich, 1799	Benedikt (2014)
<i>Bruchus atomarius</i> (Linnaeus, 1760)	Benedikt (2014)
<i>Bruchus brachialis</i> Fähræus, 1839	Benedikt (2014)
? <i>Bruchus emarginatus</i> Allard, 1868	Strejček (2012)
<i>Bruchus ervi</i> Frölich, 1799 ³⁾	Strejček (1990)
? <i>Bruchus laticollis</i> Boheman, 1833	Strejček (1990, 2012)
<i>Bruchus lentis</i> Frölich, 1799 ²⁾	Strejček (1990)
<i>Bruchus loti</i> Paykull, 1800	Benedikt (2014)
<i>Bruchus luteicornis</i> Illiger, 1794	Benedikt (2014)
<i>Bruchus occidentalis</i> Lukjanovitch & Ter-Minassian, 1957	Benedikt (2014)
<i>Bruchus pisorum</i> (Linnaeus, 1758) ²⁾	Cunev (2001)
<i>Bruchus rufimanus</i> Boheman, 1833 ²⁾	Benedikt (2014)
<i>Bruchus rufipes</i> Herbst, 1783	Strejček (2012)
? <i>Bruchus signaticornis</i> Gyllenhal, 1833 ³⁾	Strejček (2012)
<i>Bruchus venustus</i> Fähræus, 1839	Benedikt (2014)
<i>Bruchus viciae</i> Olivier, 1795	Strejček (1990)

Categories of alien *Bruchinae* sensu Yus Ramos et al. (2014):

- 1) species established in natural environment (species breeding successfully in agricultural and/or natural ecosystems).
- 2) species established in natural and confined environment (species that develop life cycle stages indoors, alternating with phases in outdoors environments).
- 3) non-established species in confined environment (species not breeding in agricultural or natural ecosystems, only in storehouses where they become pests of stored grains).

REFERENCES

ANTON K.-W. 2010: Chrysomelidae: Bruchinae. Pp. 339-353. In: LÖBL I. & SMETANA A. (eds.): *Catalogue of Palaearctic Coleoptera. Vol. 6. Chrysomeloidea*. Stenstrup: Apollo Books, 924 pp.

- BENEDIKT S. 2014: Príspevek k poznání fauny brouků (Coleoptera) Jelšavského krasu (Slovensko). (Contribution to the knowledge of beetles (Coleoptera) from the Jelšavský kras (karst) (Slovakia)). *Západočeské Entomologické Listy* 5: 32-90 (In Czech, English abstract).
- BENEDIKT S. & MANTIČ M. 2006: Nové druhy brouků (Coleoptera) pro Slovensko z území Tematínských vrchů. (First records of beetles (Coleoptera) in Slovakia from the territory of Tematínské vrchy hills). *Entomofauna Carpathica* 18: 26-28 (In Czech, English abstract).
- BODOR J. 2012: A *Megabruchidius dorsalis* Fahraeus, 1839 hazai megjelenése Gleditsia triacanthoson. (The *Megabruchidius dorsalis* Fahraeus, 1839 first occurrence on *Gleditsia triacanthos* in Hungary). *Növényvédelem* 48: 165-167 (In Hungarian, English summary).
- BOROWIEC L. 1987: The genera of seed-beetles (Coleoptera, Bruchidae). *Polskie Pismo Entomologiczne* 57: 3-207.
- CALLOT H. 2013: Quelques aspects de l'entomofaune des *Gleditsia* (Cesalpiniaceae) en Alsace: *Megabruchidius dorsalis* Fähræus, 1839 et *Penestragania apicalis* (Osborn & Ball, 1898) (Coleoptera, Chrysomelidae, Bruchinae et Hemiptera, Cicadellidae, Iassinæ). *Bulletin de la Société entomologique de Mulhouse* 69: 63-67.
- CUNEV J. 1995: Chrobáky (Coleoptera) okolia Partizánskeho. (Beetles (Coleoptera) surroundings Partizánske). *Entomofauna Carpathica* 7: 162-180 (In Slovak, English abstract).
- CUNEV J. 2001: Chrobáky (Coleoptera) Bošáckej doliny na úpäti Veľkého Lopeníka v CHKO Biele Karpaty. (Beetles (Coleoptera) of the Bošácka dolina valley on slope of the Veľký Lopeník hill (Biele Karpaty Mts.)). *Entomofauna Carpathica* 13: 35-50 (In Slovak, English abstract).
- CUNEV J., MAJZLAN O. & OKÁLI I. 1995: K poznaniu chrobákov (Coleoptera) Ipeľskej kotliny (južné Slovensko). (On the knowledge of the beetle fauna in Ipeľská kotlina basin (southern Slovakia)). *Zborník Slovenského Národného Múzea, Prírodné Vedy* 41: 17-38 (In Slovak, English abstract).
- FERUS P., BARTA M., KONÓPKOVÁ J., TURČEKOVÁ S., MAŇKA P. & BIBEN T. 2013: Diversity in honey locust (*Gleditsia triacanthos* L.) seed traits across Danube basin. *Folia Oecologica* 40: 163-169.
- FRITZSCHE K. & DELOBEL A. 2012: *Megabruchidius dorsalis* (Fähræus, 1839), bruche nouvelle pour la faune française (Col., Chrysomelidae, Bruchinae). *Bulletin de la Société entomologique de France* 117: 381-389.
- KOLLÁR J., HRUBÍK P. & TKÁČOVÁ S. 2009: Monitoring of harmful insect species in urban conditions in selected model areas of Slovakia. *Plant Protection Science* 45: 119-124.
- MAJZLAN O. 2011: Faunistic príspevky zo Slovenska. Coleoptera 6. (Faunistic notes on beetles (Coleoptera) 6. from Slovakia). *Naturae Tutela* 15: 103-107 (In Slovak, English abstract).
- MIGLIACCIO E. & ZAMPETTI M. F. 1989: *Megabruchidius dorsalis* e *Acanthoscelides pallidipennis*, specie nuove per la fauna italiana (Coleoptera, Bruchidae). *Bollettino dell'Associazione Romana di Entomologia* 43: 63-69.
- ROZEK M., HOLECOVÁ M. & LACHOWSKA D. 1999: Karyological notes on *Acanthoscelides obtectus* (Say 1859) (Coleoptera, Bruchidae). *Cytologia* 64: 367-369.
- STREJČEK J. 1976: Príspevek k poznání fauny brouků čeledi Chrysomelidae a Bruchidae v Československu. (Beitrag zur Kenntnis der Käferfauna der Familien Chrysomelidae und Bruchidae in der Tschechoslowakei). *Zprávy Československé společnosti entomologické při ČSAV* 12: 59-67 (In Czech, German summary).
- STREJČEK J. 1990: *Brouci čeledi Bruchidae, Urodonidae a Anthribidae*. [Beetles of the families Bruchidae, Urodonidae and Anthribidae]. Prah: Academia, 88 pp., 24 pls.
- STREJČEK J. 1991: Faunistic records from Czechoslovakia. *Acta Entomologica Bohemoslovaca* 88: 157-160.
- STREJČEK J. 2012: Coleoptera: Bruchidae, Urodontidae. *Folia Heyrovskyana, Series B (Icones Insectorum Europae Centralis)* 15: 1-24 (in Czech and English).
- UDAYGIRI S. & WADHI S. R. 1989: Catalog of Bruchidae. *Memoirs of the American Entomological Institute* 45: 1-301.
- YUS RAMOS R. 2009: Revisión del género *Megabruchidius* Borowiec, 1984 (Coleoptera: Bruchidae) y nuevas citas para la fauna europea. *Boletín Sociedad Entomológica Aragonesa* 45: 371-382.
- YUS RAMOS R., VENTURA D., BENSUSAN K., COELLO-GARCÍA P., GYÖRGY Z. & STOJANOVA A. 2014: Alien seed beetles (Coleoptera: Chrysomelidae: Bruchinae) in Europe. *Zootaxa* 3826: 401-448.

Received: 16.12.2014
Accepted: 2.1.2015

