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

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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 calcarcs. 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.** Caesalpinioideae: *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, around 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.

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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 Spermaphagina Borowiec, 1987

genus Spermaphagus Schoenherr, 1833
Spermaphagus sericeus (Geoffroy, 1785)  Benedikt (2014)

genus Zabrotes Horn, 1885
Zabrotes subfasciatus (Boheman, 1833)  Strejček (2012)

tribe Bruchini Latreille, 1802
subtribe Acanthoscelidina Bridwell, 1946

genus Acanthoscelides Schilsky, 1905
Acanthoscelides obtecutus (Say, 1831)  Rozek et al. (1999)
Acanthoscelides pallidipennis (Motschulsky, 1874)  Strejček (1991)

genus Bruchidius Schilsky, 1905
Bruchidius astragali (Boheman, 1829)  Benedikt & Mantič (2006)
Bruchidius canus (Germar, 1824)  Strejček (1991, 2012, comments)
Bruchidius cinerascens (Gyllenhal, 1833)  Strejček (1976)
Bruchidius cisti (Fabricius, 1775)  Strejček (1991, 2012, comments)
Bruchidius dispar (Gyllenhal, 1833)  Strejček (2012)
Bruchidius foveolatus (Gyllenhal, 1833)  Strejček (1990)
Bruchidius imbricornis (Panzer, 1795)  Strejček (1991)
Bruchidius lividimanus (Gyllenhal, 1833)  Cunev (1995)
Bruchidius marginalis (Fabricius, 1776)  Strejček (1991, 2012, comments)
Bruchidius martinezi (Allard, 1868)  Strejček (1976)
Bruchidius mulsanti (Brisout de Barneville, 1863)  Strejček (2012)
? Bruchidius nanus (Germar, 1824)  Strejček (1991)
Bruchidius olivaceus (Germar, 1824)  Strejček (2012)
Bruchidius pauper (Boheman, 1829)  Strejček (2014)
Bruchidius picipes (Germar, 1824)  Benedikt (2014)
Bruchidius pusillus (Germar, 1824)  Benedikt (2014)
Bruchidius seminarius (Linnaeus, 1767)  Strejček (1976)
Bruchidius sericatus (Germar, 1824)  
* Bruchidius siliquastri Delobel, 2007  
Bruchidius unicolor (Olivier, 1795)  
Bruchidius varius (Olivier, 1795)  
Bruchidius villosus (Fabricius, 1792)  

* Bruchidius siliquastri Delobel, 2007  
Kollár et al. (2009)  
Strejček (1990)  

Bruchidius unicolor (Olivier, 1795)  
Benedikt (2014)  
Strejček (1990)  

Bruchidius varius (Olivier, 1795)  
Bruchidius villosus (Fabricius, 1792)  
Benedikt (2014)  
Benedikt (2014, as *B. ater* (Marsham, 1802))  

Callosobruchus Pic, 1902  
Callosobruchus chinensis (Linnaeus, 1758)  
Callosobruchus maculatus (Fabricius, 1775)  
Strejček (1990)  
Strejček (2012)  

Megabruchidius Borowiec, 1984  
Megabruchidius tonkineus (Pic, 1904)  
* Megabruchidius dorsalis (Fåhraeus, 1839)  
Majzlan (2011)  
present paper  

Bruchidae  

Bruchina Latreille, 1802  

Bruchus Linnaeus, 1767  
Bruchus affinis Frölich, 1799  
Bruchus atomarius (Linnaeus, 1760)  
Bruchus brachialis Fåhraeus, 1839  
? Bruchus emarginatus Allard, 1868  
Bruchus ervi Frölich, 1799  
? Bruchus laticollis Boheman, 1833  
Bruchus lentis Frölich, 1799  
Bruchus loti Paykull, 1800  
Bruchus luteicornis Illiger, 1794  
Bruchus occidentalis Lukjanovitch & Ter-Minassian, 1957  
Bruchus pisorum (Linnaeus, 1758)  
Bruchus rufimanus Boheman, 1833  
Bruchus rufipes Herbst, 1783  
? Bruchus signaticornis Gyllenhal, 1833  
Bruchus venustus Fåhraeus, 1839  
Bruchus viciae Olivier, 1795  
Strejček (1990)  
Strejček (1990)  
Benedikt (2014)  
Benedikt (2014)  
Strejček (1990)  
Benedikt (2014)  
Strejček (1990)  
Strejček (1990)  
Cunev (2001)  
Benedikt (2012)  
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Benedikt (2014)  
Strejček (1990)  
Benedikt (2014)  
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  

Benedikt S. 2014: Příspěvek k poznání fauny brouků (Coleoptera) Ješáňského krausu (Slovensko). (Contribution to the knowledge of beetles (Coleoptera) from the Ješáňský kras (karst) (Slovakia)). Západočeské Entomologické Listy 5: 32-90 (In Czech, English abstract).


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