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Commentary to the subgenera of the genus *Coelioxys* described by RUSZKOWSKI 1986 (Hymenoptera: Apoidea: Megachilidae)

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Abstract

Complementary notes are given to the supraspecific taxonomy of the palearctic species of the genus *Coelioxys* regarding the paper by RUSZKOWSKI, BILIŃSKI et GOSEK (1986). In this paper, RUSZKOWSKI described three subgenera and their revision results as follows: *Lepidocoelioxys* **nomen nudum**; *Mesocoelioxys* **valid name**; *Intercoelioxys* **new synonym** to *Allocoelioxys* TKALCŮ, 1974 and *Coelioxula* PASTEELS 1982 **nomen nudum**. *Argcoelioxys* WARNCKE 1992, **new synonym** to *Mesocoelioxys* RUSZKOWSKI 1986.

Introduction

COCKERELL (1911) described the first subgenus of the genus *Coelioxys* from the palearctic region- *Liothyrapis* with type species *Coelioxys apicata* (as mentioned by SCHWARZ, 1999; this species is not conspecific with *C. decipiens*). Further, MITCHELL

(1973) described the subgenus *Boreocoelioxys* according to *Coelioxys*-species from the nearctic region. MICHENER (2000) states that at least six palearctic species probably belong to the subgenus *Boreocoelioxys*. MITCHELL (1973) proposed the subgenus *Schizocoelioxys* with the type species *C. funeraria*. He mentioned (on page 50) that there are a number of palearctic species to which it may be related.

TKALCŮ (1974) erected the subgenus *Allocoelioxys* with the type species *Coelioxys afra*. He excluded that any palearctic *Coelioxys*-species would be in close relation to the nearctic subgenus *Schizocoelioxys* which is considered by MICHENER (2000) as a synonym to *Boreocoelioxys*. PASTEELS (1977) described the subgenus *Coelioxita* with the type species *Coelioxys afra*. This subgenus is a junior objective synonym to *Allocoelioxys*. Further, PASTEELS (1982) proposed the subgenus *Coelioxula* with the type species *Coelioxys rufocaudata* SMITH, 1854. WARNCKE (1992) reviewed the western palearctic *Coelioxys*-species and described the subgenus *Argcoelioxys* with the type species *Coelioxys argentea*. WARNCKE (1992) considered the genus *Radoszkowskiana*, POPOV 1955 as subgenus of the genus *Coelioxys*. This unjustified conception was corrected by SCHWARZ (1999) and *Radoszkowskiana* was raised to the generic level. NOBILE & TURRISI (1999) raised *Allocoelioxys* and *Argcoelioxys* to the generic level. Nevertheless, their opinion differs from conception by SCHWARZ et al. (1996) and MICHENER (2000).

RUSZKOWSKI, BILIŃSKI & GOSEK (1986) presented a paper on the host plants and hosts of parasitic Megachilid bees. In this paper, Ruszkowski described three new subgenera of the genus *Coelioxys* as follows: *Lepidocoelioxys*, *Mesocoelioxys* and *Intercoelioxys* (details are the subject of the present contribution). These names have not been cited in any consequent study. Therefore, the aim of this contribution is to draw attention to the mentioned paper (RUSZKOWSKI, BILIŃSKI et GOSEK, 1986) and to revise the validity of the described subgenera and used names.

Results

Lepidocoelioxys RUSZKOWSKI, 1986 nomen nudum

Allocoelioxys TKALCŮ, 1974: 340 - 341. Type species: *Coelioxys afra* LEPELETIER, 1841 by original designation.

Coelioxita PASTEELS, 1977: 180. Type species: *Coelioxys afra* LEPELETIER, 1841 by original designation.

Lepidocoelioxys RUSZKOWSKI, 1986: 117. Type species: without original designation. Included species are listed on page 112.

RUSZKOWSKI included in his subgenus *Lepidocoelioxys* the following species (listed in his work on page 112): *Coelioxys acanthura* ILLIGER, 1806; *C. afra* LEPELETIER, 1841; *C. brevis* EVERSMANN, 1852; *C. caudata* SPINOLA, 1838 (=*C. foersteri* MORAWITZ, 1871); *C. emarginata* FÖRSTER, 1853; *C. haemorhoa* FÖRSTER, 1853; *C. obtusa* PÉREZ, 1884; *C. polycentris* FÖRSTER, 1853. However, he did not designate the type species and a designation by the indication is not possible because of the mentioned species-list without any preference. The name *Lepidocoelioxys* is, therefore, **nomen nudum**. If the author had designated any species from the mentioned species-list then the name

Lepidocoelioxys would be a junior subjective (in case of designation of *C. afra* objective) synonym to *Allocoelioxys* TKALCŮ.

Mesocoelioxys RUSZKOWSKI, 1986

Mesocoelioxys RUSZKOWSKI, 1986: 117. Type species: *Coelioxys argentea* LEPELETIER, 1841 monotypic. Included species is also mentioned on page 112.

Argcoelioxys WARNCKE, 1992: 39. Type species: *Coelioxys argentea* LEPELETIER, 1841 by original designation. **Syn. nov.**

The name *Mesocoelioxys* has priority before *Argcoelioxys* WARNCKE, 1992 **syn. nov.** - objective synonym. The description by Ruszkowski is brief and less precise than that by Warncke but both the diagnoses are consistent in the most important characters. However, WARNCKE (1992) included characters of this subgenus in the identification key whereby differences from other supraspecific taxa are better expressed.

Intercoelioxys RUSZKOWSKI, 1986 syn. nov.

Coelioxula PASTEELS, 1982: 110. Type species: (*Coelioxys rufocaudata* SMITH, 1854 =) *C. echinata* FÖRSTER, 1853, monotypic. **Nomen nudum**.

Intercoelioxys RUSZKOWSKI, 1986: 117. Type species: (*Coelioxys ruficaudata* LEPELETIER, 1841 =) *C. echinata* FÖRSTER, 1853, monotypic. Included species is also mentioned on page 112. **Syn. nov.**

The subgenus *Intercoelioxys* **syn. nov.** is a junior subjective synonym to *Allocoelioxys* TKALCŮ, 1974. PASTEELS (1982) wrote that characters discriminating *C. echinata* (= *C. rufocaudata*) from all *Allocoelioxys*-species are well developed only in females. Therefore, *C. echinata* is consupraspecific with type species *C. afra* – subgenus *Allocoelioxys*. However, in this paper, Pasteels refered to the subgenus-name „*Coelioxula*" as a monotypic subgenus with the type species *C. echinata* (= *C. rufocaudata*) which should have been proposed already in paper by PASTEELS (1977). But in the paper from 1977 is not mentioned any name *Coelioxula*. Therefore, *Coelioxula* PASTEELS 1982 is **nomen nudum**. In spite of this fact is not mentioned by MICHENER (2000) he also considers the type species *Coelioxys echinata* as a conspecific with *Allocoelioxys*.

RUSZKOWSKI recognized the reduction of scaly hairs on the frons in this species as the main character of the subgenus *Intercoelioxys* (i.e. intermediate *Coelioxys*). In female of *C. echinata* the lamella on pronotal lobe is well developed which is not in conformity with Ruszkowski's statement that the female of *C. echinata* is similar to *Coelioxys* s.str.-species. These characters indicate that *C. echinata* belongs to *Allocoelioxys*: in male – the spine on procoxa is absent, 8 spines on 7th metasomal tergum etc.; in both sexes – the presence of the scaly hairs on the major part of body. Nevertheless, *Coelioxys echinata* differs from other *Allocoelioxys*-species in character of body hairs on frons, in configuration of spines on axilla (TKALCŮ, 1974:fig. 49, 50) and configuration of the lower part of the genal area in lateral view where the genal area is broader than in any other *Allocoelioxys*-species. Fibrous body hairs, which are typical of *Coelioxys* s.str.-species, are partially developed also in the females of *C. emarginata* but the genal area in lateral view is in the lower part narrower than in the upper part which is consistent with

other *Allocoelioxys*-species. MICHENER (2000) regards *Coelioxula* as a junior subjective synonym to *Allocoelioxys*.

The spelling of the type species' name of *Intercoelioxys* by Ruszkowski "*C. ruficaudata* LEPELETIER, 1841" is not correct. LEPELETIER described only *Coelioxys ruficauda* LEPELETIER 1841 that is regarded by WARNCKE (1992: 54p.) as a senior subjective synonym to *C. obtusa* PÉREZ, 1884. SCHWARZ et al. (1996) explained this problem and the name *Coelioxys ruficauda* LEP. 1841 have regarded as **nomen dubium.** RUSZKOWSKI (1986) certainly fixed the species *Coelioxys echinata* in spite of incorrect spelling of the type species name. It is evident also from the species-list (page 112) where the synonymy of *C. echinata* is presented: "*C.* (*Intercoelioxys*) *ruficaudata* LEP. (= *C. ruficaudatus* LEP., *C. rufocaudata* SM., *C. octodentata* LEP.)". This fact was also verified personally with Professor Ruszkowski (personal communication).

The results are demonstrated in table 1.

Translation of a part of the respective paper by RUSZKOWSKI et al. (1986) from Polish to English-part with descriptions of RUSZKOWSKI'S taxa (citations and ecological data are omited).

Coelioxys

The European *Coelioxys*-species are segregated into two distinctive species groups that differ in their morphology and economic importance. These groups should be recognized as distinct subgenera as follows: *Coelioxys* LATR. (sensu stricto) and *Lepidocoelioxys* RUSZKOWSKI (subgen. nov.). Their descriptions are as follows:

Coelioxys (s.str.) – In males, procoxa with long dull spine, 7th metasomal tergite with six spines. In females, pronotal lobe without lamella. In both sexes the body is covered only by fibrous hairs. Only exceptionally, the lateral part of the 1st metasomal tergite is covered also with individual scaly hairs.

Lepidocoelioxys RUSZK. – In males, procoxa without long dull spine, 7th metasomal tergite with eight spines (only in *C. haemorhoa* lateral spines are reduced to pointless protuberances). In females, pronotal lobe with long lamella. In both sexes at least a part of body is covered by the scaly hairs – namely mesonotum, mesopleura, metasomal tergite margins and legs.

There are only two species with intermediate characters between these two described subgenera. It is proposed that these two species are to be recognized as two distinct subgenera: *Mesocoelioxys* RUSZKOWSKI (subgen. nov.) and *Intercoelioxys* RUSZKOWSKI (subgen. nov.).

Mesocoelioxys RUSZK. – Male looks like the males in *Coelioxys* s.str. and female like the females in *Lepidocoelioxys*. In female, the end of the T6 of *C. argentea* is bent up while in the females of *Lepidocoelioxys* T6 is straight. In both sexes the body is covered partly by scaly hairs. *Coelioxys argentea* belongs to this subgenus.

Intercoelioxys RUSZK. – Male looks like the males in *Lepidocoelioxys* s.str. and female like the females in *Coelioxys* s.str. In both sexes the body is partly covered by scaly hairs often suggesting simple (fibrous) hairs. *Coelioxys ruficaudata* belongs to this subgenus

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Tab 1: List of the westpalearctic subgeneric names of the genus *Coelioxys* and their synonymy.

valid subgeneric names	type species	synonymy
Coelioxys s. str.	(*Apis conica* LINNAEUS, 1758 =) *Apis quadridentata* LINNAEUS, 1758, by designation accoding to CURTIS 1831 and WESTWOOD 1840; LATREILLE'S designation is not valid.	*Paracoelioxys* GRIBODO, 1884. Type species: (*C. montadoni* GRIBODO, 1884 =) *C. alata* FÖRSTER, 1853 by original designation, monotypic.
Boreocoelioxys MITCHELL, 1973	*C. rufitarsis*(*us*) SMITH, 1854 by original designation.	*Schizocoelioxys* MITCHELL, 1973. Type species: *Coelioxys funeraria* SMITH, 1854 by original designation. Synonymy according to MICHENER (2000).
Allocoelioxys TKALCŮ, 1974	*C. afra* LEPELETIER, 1841 by original designation.	*Coelioxita* PASTEELS 1977. Type species: *C. afra* LEPELETIER, 1841 by original designation, junior objective synonym.
		Coelioxula PASTEELS, 1982 (*C. rufocaudata* SMITH, 1854 =) *C. echinata* FÖRSTER, 1853, monotypic. **Nomen nudum.**
		Lepidocoelioxys RUSZKOWSKI, 1986; without designation of the type species, nomen nudum.
		Intercoelioxys RUSZKOWSKI, 1986; (*C. ruficaudata* Lep. sensu RUSZKOWSKI, 1986 incorrect spelling, correct is *C. rufocaudata* SMITH, 1854)= *C. echinata* FÖRSTER, 1853; monotypic, junior subjective synonym. Syn. nov.
Mesocoelioxys RUSZKOWSKI, 1986	*C. argentea* LEPELETIER, 1841 monotypic.	*Argcoelioxys* WARNCKE, 1992. Type species: *C. argentea* LEPELETIER, 1841 by original designation, junior objective synonym. Syn. nov.

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Literaturbesprechung

MACHADO, A., OROMI, P.: Elenco de los Coleópteros de las Islas Canarias (Catalogue of the Coleoptera of the Canary Islands). - Istituto de Estudios Canarios, La Laguna, 2000. 308 S. ISBN 84-88366-35-3

Die Kanarischen Inseln gehören sicher mit zu den meistbesuchten Reisezielen europäischer Entomologen und können somit als relativ gut erforscht gelten. Die koleopterologische Erforschung des Archipels hat ihre Wurzeln im beginnenden 19. Jhd., als u.a. Bory de Saint-Vincent (1803) und Ledru (1810) die Inseln besuchten und erste Sammellisten publizierten. Brullé vermerkte 1838 bereits 179 Käferarten und Wollaston vervollständigte 1864 das Arteninventar auf 930 Arten. Die beiden Autoren dieses Buches begannen Mitte der 70er Jahre mit ihren Studien und listen in dem hier vorliegenden Katalog 1968 Käferarten und 93 Unterarten auf. Nicht weniger als 1248 Arten sind endemisch, wobei Teneriffa und Gran Canaria die endemitenreichsten Inseln sind. Die artenreichsten Familien sind die Curculionidae (360), Staphylinidae (334), Carabidae (248), Tenebrionidae (155) und Chrysomelidae (106). Erstaunlicherweise artenarm sind Buprestidae (14), Cerambycidae (27) und Dytiscidae (23); die Cleridae sind immerhin mit 5 Arten vermerkt (2 davon endemisch).

Der Katalog selbst ist zweisprachig (spanisch und englisch) und einfach konzipiert: Die durchnumerierte Artenliste orientiert sich an dem System von Lawrence & Newton (1995) und beinhaltet neben Gattungs- und Artnamen, Autor und Jahreszahl sowie als Buchstabenkürzel das jeweils dokumentierte Inselvorkommen. Im Referenzabschnitt finden sich unter den entsprechenden Artennummern die jeweiligen Referenzen, die eigentlichen Zitate sind im Literaturverzeichnis aufgelistet; taxonomischer und Synonymie-Index erleichtern die Suche.

Eine hilfreiche und übersichtliche Publikation für alle Koleopterologen, die sich mit den Kanarischen Inseln beschäftigen. Eine im September 2000 aktualisierte Corrigenda ist im Internet verfügbar: http://webpages.ull.es/users/anmaca/

R. Gerstmeier

THEWS G., MUTSCHLER E. & P. VAUPEL (1999): Anatomie, Physiologie, Pathophysiologie des Menschen. - Wissenschaftl. Verlagsgesellsch., Stuttgart, 868 S., 542 Farbabb., einige REM-s/w-Fotos.

Dieses Fachbuch der Anatomie, Physiologie und Pathophysiologie des Menschen richtet sich an den Studenten und allgemein am Thema Interessierten mit fundierten Vorkenntnissen im biologisch-biochemischen Themenkreis. Der sachlich-nüchterne, aber dennoch gut lesbare Text wird durch farbige Graphiken, Tabellen, Fließdiagramme und Schnittzeichnungen ausgezeichnet illustriert. Die integrierte Darstellung der Anatomie, Physiologie und Pathophysiologie der Gewebe, Organe und Regelsysteme ermöglicht dem Leser einen thematisch konsistenten Überblick über die normalen und krankhaft veränderten Funktionen des menschlichen Körpers.

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