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Revisional notes on *Galeruca* 6: the species group of *Galeruca interrupta* (Coleoptera, Chrysomelidae)

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Abstract: The *Galeruca interrupta*-group is revised. A key to the species is presented. *G. fulvimargo* REITTER is regarded as a junior synonym of *G. armeniaca* WEISE. The binomen *G. circumdata* is used to name different species. *G. circumdata* SAY is the senior homonym and at present used in the combination *Phyllobrotica circumdata*. *G. circumdata* DUFTSCHMIDT is a junior homonym. It is replaced by the oldest available junior synonym which is *G. jucunda* (FALDERMANN). *G. circumdata* MONTROUZIER, at present used in the combination *Oides circumdata*, also proved to be a junior homonym. The replacement name *O. montrouzieri* nom. nov. is proposed.

Key words: *Galeruca, Phyllobrotica, Oides*, replacement name, homonymy, new synonymy, key.

1 Introduction

The relatives of *Galeruca interrupta* ILLIGER are small yellow to brown members of the subgenus *Galeruca* in which the front angles of the pronotum are not depressed and that have the apices of the fore tibia widened, covering the base of the first tarsal segment. The species of this group are difficult to separate. This has lead to a lot of confusion in the nomenclature of the taxa attributed to this group. The group consists of four species: *G. fulvimargo* REITTER, *G. indica* BALY, *G. interrupta* and *G. lobata* (JOANNIS) if we use their rank as listed by WILCOX (1971). In Central Europe *G. interrupta* comprises two subspecies: *G. interrupta interrupta* and *G. interrupta circumdata* DUFTSCHMIDT (MOHR 1966). In the Near East and Central Asia two other subspecies are recognised: *G. interrupta fulvimargo* and *G. interrupta armeniaca* WEISE (OGLOBLIN 1936, LOPATIN 1984). The rank in the species category differs in these examples and needs to be clarified.

Although some species are well known and can properly be defined, it proved to be necessary to study the type specimens of some insufficiently known taxa: *Galeruca fulvimargo* and *Galeruca lobata*. Furthermore the binomen *Galeruca circumdata* has been used three times and this homonomy is investigated.

Acronyms

HNHM Hungarian Natural History Museum, Budapest, Hungary
MHNP Museum d'Histoire Naturelle, Perpignan, France

h indicating that the text on labels is handwritten
p indicating that the text on labels is printed

2 Taxonomy

2.1 *Galeruca fulvimargo* REITTER

REITTER (1901) described *Galeruca fuvimargo* from a single specimen from Alau Ata. The locality "Aulie Ata" is the ancient name of the city Taraz in Kazakhstan.

In his description REITTER compares *G. fulvimargo* with *G. jucunda* (FALDERMANN) and mentions that *G. fulvimargo* has secondary costae more developed and the epipleura are yellow. He does not mention *G. armeniaca* (described from Erzerum in Turkey) which he apparently did not know. In his key (REITTER 1903) included *G. fulvimargo* and not *G. armeniaca*. OGLOBLIN (1936) includes both *armeniaca* and *fulvimargo* as subspecies of *G. interrupta* to be separated by the sutural angles of the eltra: rounded in *fulvimargo* and obtuse in *armeniaca*. LOPATIN (1984) also uses this character to separate the two subspecies. These two subspecies have different distribution: ssp *armeniaca* in Trans Caucasus and western part of Central Asia; ssp *fulvimargoin* in the hills of Central Asia and Northwestern China. During identification of many specimens of *G. armeniaca* from Turkey (where *G. fulvimargo* does not occur) the form of the sutural angle proved to be very variable. It became necessary to study the type of *G. fulvimargo*.

The single male type specimen (HNHM) is labelled:

'Galeruca fulvimargo m. 1901 Type (h) / Aulie (h) / Coll. Reitter (p) / Holotypus 1902 Galeruca fulvimargo Reitter (h. red bordered / Galeruca interrupta Ill. fulvimargo Reitt. (! ssp. sensu Ogloblin) det. Havelka 1958 (h)'.

The specimen has apparently been dissected by HAVELKA. The aedeagus is glued to the same card as the beetle. The abdomen is glued on a separate card. The aedeagus (figure 2d) shows some fractures. The tarsus of the right middle leg is missing. The tibia and tarsus of the right front leg are missing. Segments 9 – 11 of right antenna are missing.

This specimen has a very peculiar aedeagus: the tip is not as pointed as in similar specimens (for example in another specimen from the REITTER collection labelled "Aulie Ata" the aedaegus is pointed (figure 2c)). It has dark brown elytra with yellow margin. In the collection REITTER some more specimens identified by HAVELKA as *G. interrupta fulvimargo* var. *usitata* Jacobson are available. These look very much like *G. armeniaca* but are more elongated. The ab. *usitata* Jacobson is indeed only an aberration with central part of pronotum and elytral costae dark brown to black. This aberration is also described from Auli Ata. In the collection KIPPENBERG an identical specimen is present from Western Turkey (Afyon).

The aedeagus of the type specimen seems to be atypical. The range of aedeagal forms in both *G. fulvimargo* and *G. armeniaca* supplies no motive to separate these two taxa. The same holds for the form of the apex of the elytra. Therefore it is concluded that *G. fulvimargo* REITTER and *G. armeniaca* WEISE are conspecific. The name *fulvimargo* REITTER is the junior synonym and there seems to be no reason to give it precedence over the name *armeniaca* WEISE, which is to be treated as the valid name.

2.2 *Galeruca circumdata* DUFTSCHMIDT

DUFTSCHMIDT presented *Galeruca circumdata* in 1825. The binomen *Galeruca circumdata* has been used prior to DUFTSCHMIDT by SAY in 1824. Later, MONTROUZIER (1857) used this binomen again in the combination *Galeruca* (*Boisduvalia*) *circumdata.*

Galeruca circumdata SAY 1824 is currently considered valid and placed in *Phyllobrotica* CHEVROLAT in DEJEAN. This is the senior homonym and there seem to be no arguments to doubt the priority. *Phyllobrotica circumdata* occurs in the United States (WILCOX 1971-1975).

Galeruca circumdata DUFTSCHMIDT is also currently considered valid and remained in *Galeruca.* The name *circumdata* DUFTSCHMIDT, however is a junior homonym and there seems to be no reason to give it precedence over the name *circumdata* SAY according to the ICZN, 1999 Art. 23.9. The oldest available junior synonym which is *jucunda* FALDERMANN, 1837 (published in the combination *Adimonia jucunda*) is herein suggested as a replacement name.

Galeruca jucunda is a widely spread species occurring in from Central Europe to China and Mongolia. Although specimens of this species are mostly brown, some specimens are completely black. Populations of mainly black specimens have been attributed to other species: *Galeruca oelandica* BOHEMAN and *G. sequensi* REITTER occurring respectively in Öland and China and Mongolia. They are considered abberations (LABOISSIÈRE 1934, GRESSIT & KIMOTO 1963, see also BEENEN 2002)

Galeruca circumdata MONTROUZIER is also currently considered valid and placed in the genus *Oides.* The name *circumdata* DUFTSCHMIDT, however is a junior homonym and there seems to be no reason to give it precedence over the name *circumdata* SAY according to the ICZN, 1999 Art. 23.9. Although the species was attributed to the subgenus *Boisduvalia*, the ICZN, 1999 Art. 57.4 rules that the presence of a different subgeneric name placed in parentheses between the same generic name and identical species-group names is irrelevant to the homonomy between the names concerned.

Since there is no other name available, the name *montrouzieri* is herein suggested as a replacement name. It should be listed as follows:

Oides montrouzieri **nom. nov.** [replacement name]

= *Galeruca circumdata* MONTROUZIER, 1857 [junior homonym]

Oides montrouzieri **nom. nov.** is described from Woodlark Island, Papua New Guinea (MONTROUZIER 1857) and later also recorded from Sakoemi, Irian Jaya (LABOISSIÈRE 1932).

2.3 *Galeruca lobata* (JOANNIS)

WEISE (1893) assumes *G. lobata* JOANNIS should be near to *G. jucunda* (referred to as *G. circumdata*). This seems very plausible because DE JOANNIS (1865), also, places these species very near to each other in his key. *G. lobata* should be smaller (6,5 mm) and has large pronotal front corners, which are regularly rounded. It is strange, however, that the figure

of the pronotum of *G. lobata* presented by DE JOANNIS differs greatly from that of *G. jucunda.*

The single type specimen of *Adimonia lobata* is curated in the Natural History Museum of Perpignan (France). This specimen is labelled with three handwritten labels: "Adimonia / Constantinople / lobata sp. nov." I have added a single printed label: "TYPUS Adimonia lobata Joannis 1865: 46". Apart from the mould on this pinned specimen and the green corrosion of the needle, it is nearly intact. Only the left antenna fails from the first segment onwards.

The specimen clearly belongs to *G. jucunda.*

3 Key to the species of the *Galeruca interrupta*-group

1 Costae interrupted (figure 1a). Black; pronotum and elytra yellowish-brown. Disk of pronotum and the interrupted costae blac-kish brown ..... *G. interrupta*

1* Costae not interrupted 2

2 Pronotum yellow with brown marking. Color of elytra mostly yellow with costae dark (figures 1b, c and d) ..... *G. armeniaca*

2* Pronotum dark brown with margins often light. Colour of elytra mostly dark brown. Sometimes outer margins yellow. 3

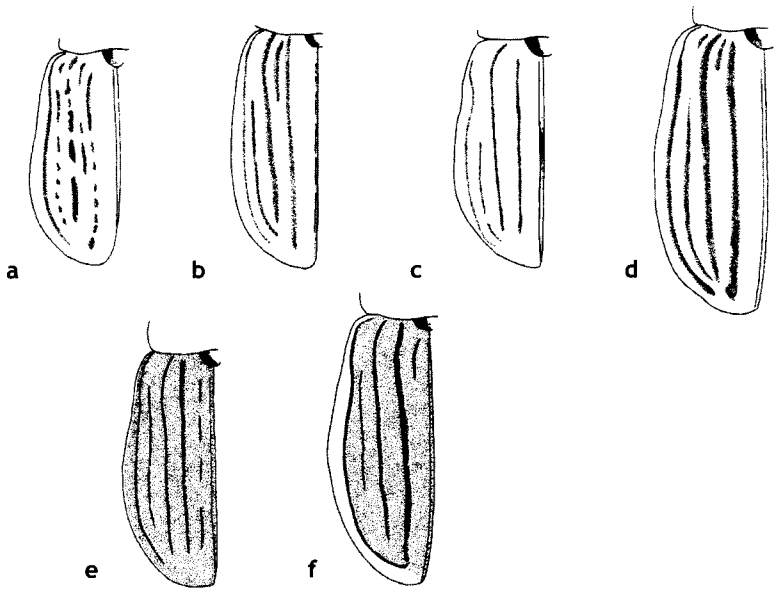

Figure 1. Left elytron of *Galeruca*. a: *G. interrupta* ♂ (Germany - Lüchow Dannenberg), b: *G. armeniaca* ♂ (Turkey - Igdir), c: *G. armeniaca* ♂ (Kazakhstan - Aulie Ata), d: *G. armeniaca* ♀ (Turkey - Afyon), e: *G. jucunda* ♂ (Italy - Trentino), f: *G. indica* (Nepal - Karnali).

3 Elytron wider. Costa IV shows, when viewed from above, only slight constriction behind humerus (figure 1 e) ..... G. *jucunda*

3* Elytron more elongate. Costa IV, when viewed from above, with strong restriction behind humerus (figure 1 f) ..... *G. indica*

4 Catalogue of the *Galeruca interrupta*-group

Both REITTER (1903) and WARCHALOWSKI (2003) include *Galeruca corsica* (JOANNIS) in the *G. interrupta* group. WEISE (1886) and LABOISSIÈRE (1934) refute this because the apices of the fore tibiae are hardly broadened in *G. corsica*. Because the types or other specimens of *G. corsica* were not available for our study, the status of this taxon remains uncertain.

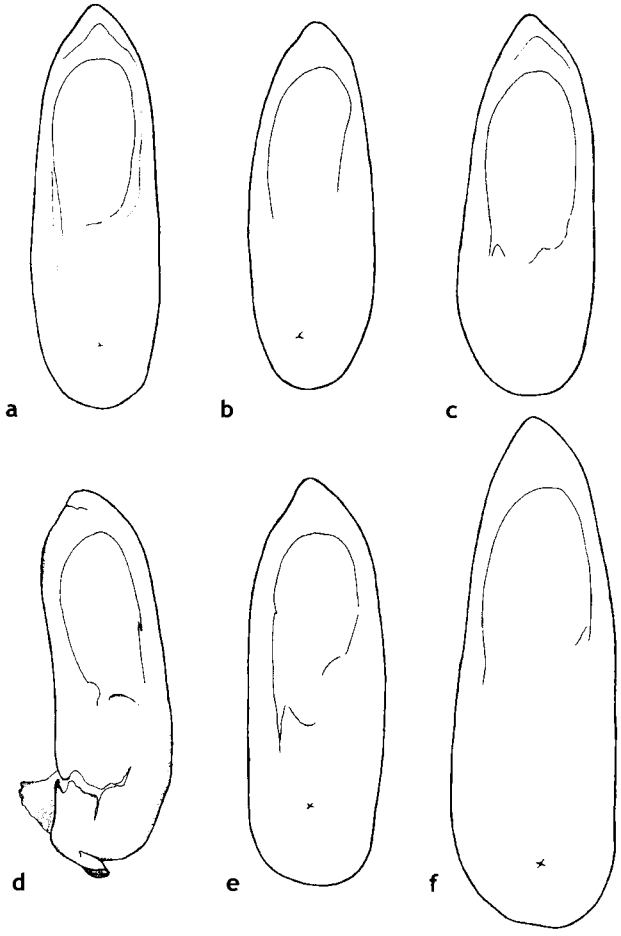

Figure 2. Aedeagus of *Galeruca*. a: *G. interrupta* (France - St. Cyprien Plage), b: *G. armeniaca* (Turkey - Anatolia), c: *G. armeniaca* (Kazakhstan - Aulie Ata), d: *G. armeniaca* (type of *G. fulvimargo* from Kazakhstan - Aulie Ata), e: *G. jucunda* (Italy - Trentino), f: G. *indica* (Nepal - Karnalie).

armeniaca WEISE, 1886: 643

= *fulvimargo* REITTER, 1901: 186 (**syn nov.**)

= ab. *usitata* JACOBSON, 1925: 169

Distribution: Turkey, Iran, Turkmenistan, Uzbekistan, Tadzhikistan, Kyrgyzstan.

indica BALY, 1878: 381 (*Galleruca*)

= *holzschuhi* MANDL, 1986: 72 (*Pseudadimonia*)

Distribution: Pakistan, India, Nepal.

interrupta ILLIGER, 1802: 423 (*Galleruca*)

Distribution: Belgium, France, Germany, ? Czech Republic, Slovakia, Spain, France, Italy, Morocco, Turkey, Syria.

jucunda FALDERMANN, 1837: 328 (*Adimonia*) [replacement name]

= *circumdata* DUFTSCHMID, 1825: 219 (*Galleruca*) [homonym] (**syn. nov.**)

= *circumcincta* MANNERHEIM, 1844: 199 (*Adimonia*)

= *florentina* REDTENBACHER 1849: 522 (*Adimonia*)

= *hungarica* FRIVALDSZKY, 1876: 340 (*Adimonia*)

= *oelandica* BOHEMAN, 1851: 232 (*Adimonia*)

= *sequensi* REITTER, 1903: 138

= var. *sicelides* WEISE, 1886: 650

Distribution: Sweden, Latvia, Lithuania, Denmark, Germany, Poland, Switzerland, Austria, Hungary, Czech Republic, Slovakia, Bulgaria, Rumania, France, Croatia, Turkey, Syria, Ukraine, Azerbaijan, Afghanistan, Siberia, Mongolia, China.

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