

CONTRIBUTION TO THE KNOWLEDGE OF THE ASILIDAE AND BOMBYLIIDAE (DIPTERA) OF ROMANIA

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On complète la diagnose de l'espèce *Dioctria kowarzi* Friv. (Asilidae) en désignant le néotype et on mentionne deux espèces dans la faune de Roumanie: *Pogonosoma minor* Loew (Asilidae) et *Anthrax varia* F. (Bombyliidae). On donne des précisions concernant le nom de l'espèce *P minor* Loew, démontrant que le nom *P. minus* est une erreur.

Grâce à la mention des deux espèces nouvelles pour la faune de Roumanie, le nombre des espèces d'Asilides est porté à 125 et celui des Bombyliides, à 80.

The present paper submits new data referring to three Dipteran species, two of which are mentioned now for the first time in Romania's fauna and one is recorded for the third time from 1876, when it was described.

As regarding the species *Anthrax varia* Fabricius among the Bombyliidae, my contribution consists in the enlargement of its geographic distribution area and in its mentioning in our country's fauna. As far as the Asilid species are concerned, the results of my research contribute to the completion of both the diagnosis and the distribution area of the species *Dioctria kowarzi* Frivaldzky. I also mention the species *Pogonosoma minor* Loew in Romania and clarify its name and its palearctic distribution.

The species are presented below grouped in families following the systematic order.

ASILIDAE

Dioctria kowarzi was described by F r i v a l d s z k y in 1876 on the basis of a material collected in Semenic Mts. From its description to 1930, when E n g e l published the family Asilidae in the series edited by L i n d n e r (on the palearctic dipterans), there was no other record of this species.

E n g e l (op. cit.), in his book, gave the original description, but he didn't introduce it in the key.

In 1952, M o c z a r mentioned it from the Sebeş Mts.

These two records from the Carpathians (F r i v a l d s z k y and M o c z a r op. cit.) lay on the bedrock of the inclusion of the species *Dioctria kowarzi* in the Asilid Fauna of Romania (I o n e s c u and W e i n -

berg, 1971). In this paper, *D. kowarzi* is included for the first time in the key of genus *Dioctria*.

Except the two records of this species, there hasn't been any other mentioning of it up to the publication of the present paper. The respective specimens deposited at the Zoological Department of the Hungarian Natural History Museum Budapest burnt in 1956 as I was informed by Dr. L. Papp, the former curator of the Dipteran collection.

I was extremely satisfied to identify 9 specimens belonging to this species in the materials that I received for study from Dr. G. Istrate (the northern area of the Eastern Carpathians) and from Mr. Vl. Brădescu and Mrs. Maria Brădescu (Southern Carpathians).

MATERIAL AND DISCUSSION

Three specimens collected by Dr. G. Istrate from Northern Moldavia the upper basin of Moldova valley, in the hayfields of the spruce fir area: 1 ♀, Șandru (649 m.a.) 20.VI.1969 and 2 ♀♀ Cicoara (934 m.a.) 6.VII.1969.

Six more specimens were collected in the Ciucaș Mt., on Teleajen Valley, in the vicinity of Cheia, in the grass skirt of spruce fir forests, from 800 to 900 high, as follows: 1 ♀, 7.VII.1978 collected by Vl. Brădescu and 1 ♂, 4 ♀♀, 3.VII.1981 collected by Maria Brădescu.

I designate the neotypes of this material as follows: neotype ♂ Cheia 3.VII.1981, M. Brădescu, No 181523; alloneotype ♀ the same data, No 181524 and the 7 remaining specimens, paraneotypes, No 181525.

I complete the description given by F r i v a l d s z k y (op. cit.) by describing and figuring the genitalia in both sexes (Fig. 2) and by giving the photograph of the adults (Fig. 1 A, B) with head and abdominal apex details in the male (Fig. 1 A).

As regards the ♂ genitalia, the following are to be noted: hypopigium, black, is covered with yellow hairs (Fig. 2 A, D); apical epandrium, concave, with 2 lateral thin processes long up to the level of cerci (Fig. 2 B); hypandrium grows longer medianly and is covered with hairs that are apically longer than twice its maximum height (Fig. 2 C, D). Basistyle (Fig. 2 F-I) shows two terminal processes: one external, shorter, apically prominent, asymmetrically pointed and the other internal, named by K a r l (1959) lateral prominence (in *D. oelandica*), ending in two asymmetrical denticles. Dististyle is fixed on the apical third of basistyle (Fig. 2 G-I); it is broader at the base, up to its middle where it gets narrower and shows an excavation on the ventral side (Fig. 2 E). Aedeagus, of primitive type, is short, basally broadened, with two denticles on the apical third; terminally, it is tubular, blunt (Fig. 2 J-K). The two lateral apodemes of aedeagus are smaller than the median (ejaculatory) one which is large (Fig. 2 J-K).

Ovipositor little specialized. M e l i n (1923) shows that the females belonging to the genus *Dioctria* lay eggs throwing them directly on soil, a fact that is also confirmed by the shape of the ovipositor in *D. kowarzi*. Tergite 9, strongly chitinized, is narrow, with oval-rounded cerci (Fig. 2 L); it is covered a little by tergite 8. Sternite VIII — hypogina (Fig. 2 M) is strongly chitinized laterally and medianly, the basal and apical areas

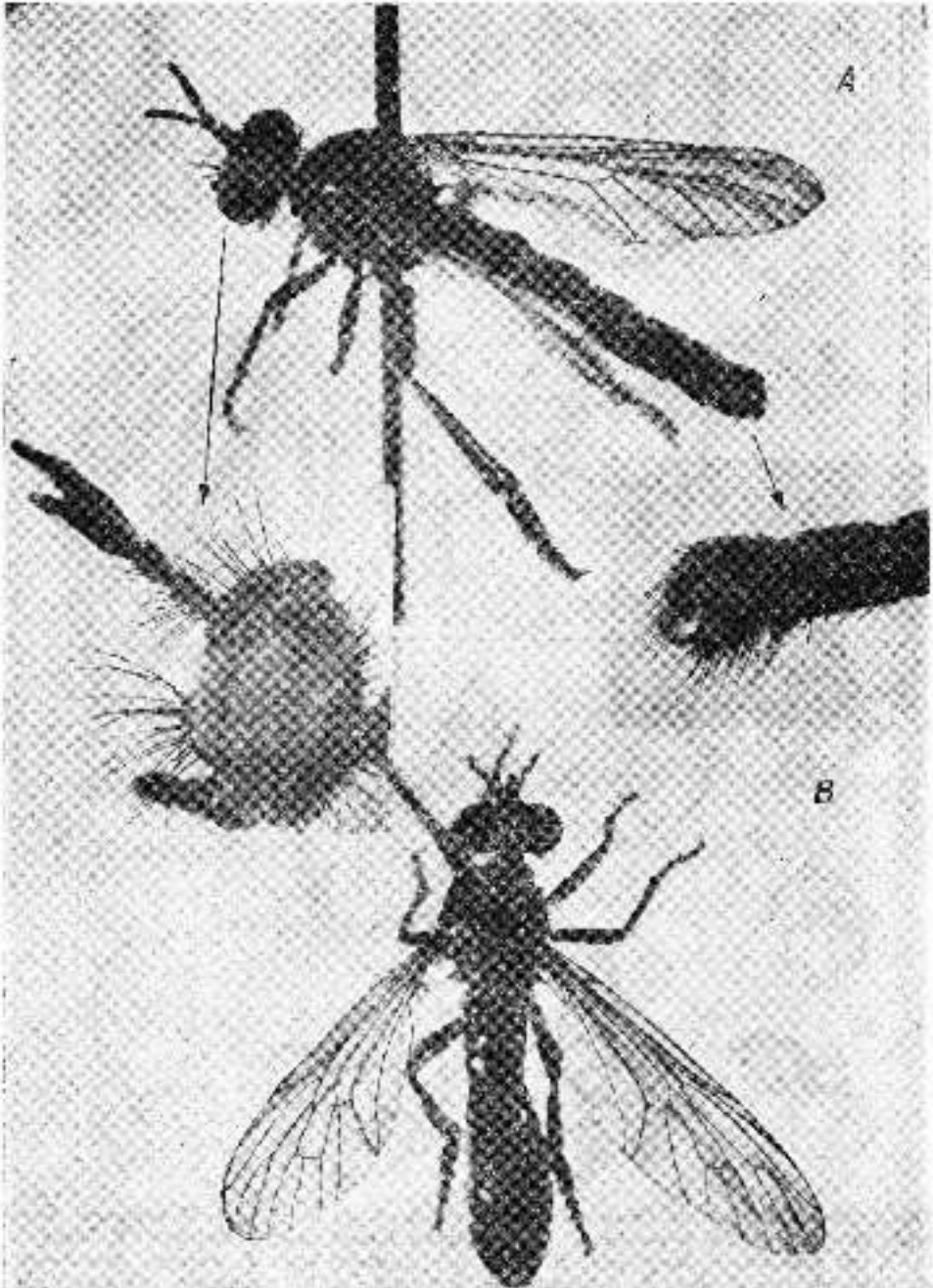


Fig. 1. *Dioctria kowarzi* Friv. A, ♂ dorsal view, with details: head and abdominal apex, lateral view; B, ♀ dorsal view. (Photo Gh. Oprescu).

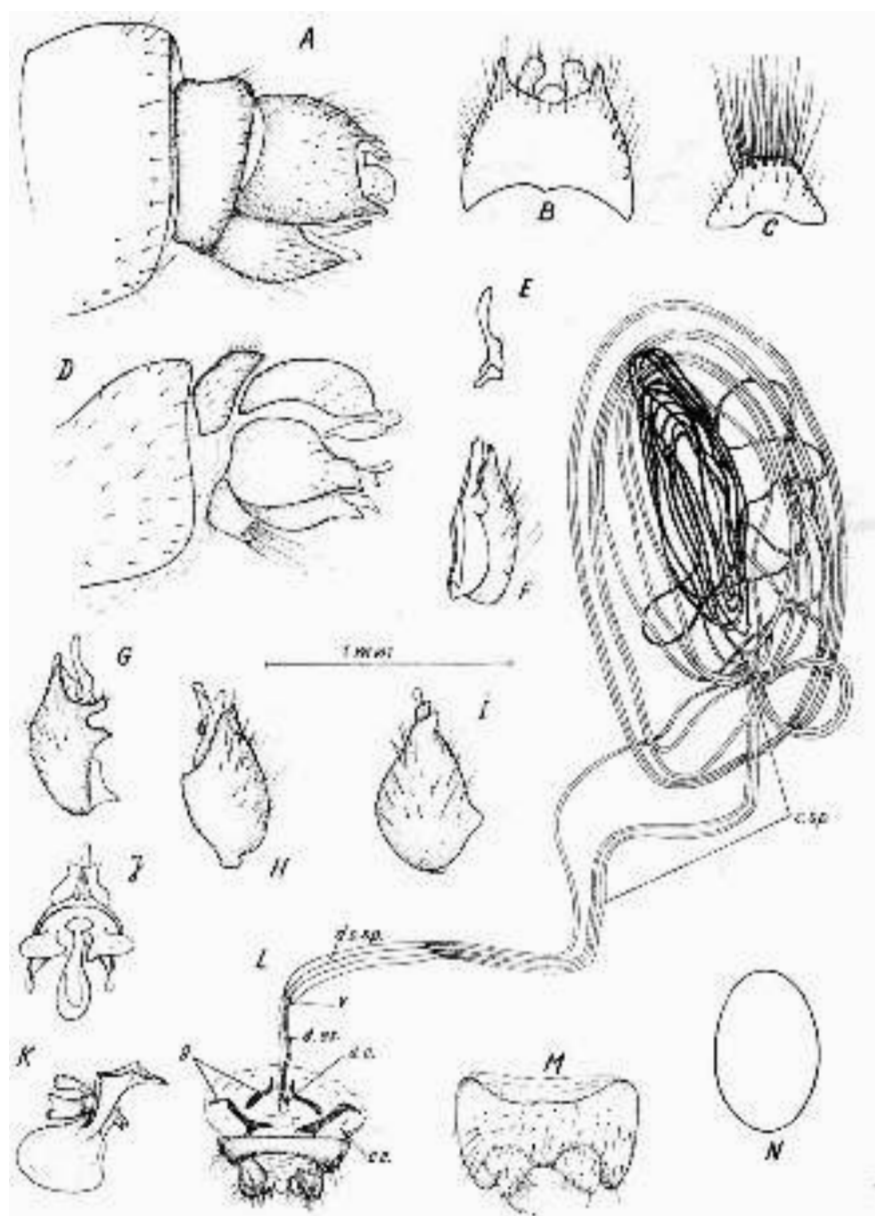


Fig. 2. Abdominal apex in *Dioctria kowarzi* Friv.: A—K ♂; L—N ♀. A, Hypopigium, dorsal view; B, epandrium; C, hypandrium; D, hypopigium, lateral view; E, dististyle; F, basistyle; G—I, left gonopod; G, lower side; H, upper side; I, dorsal side; J, aedeagus, dorsal view; K, aedeagus, lateral view; L, ovipositor and spermathecae; cc, copulatory chamber; c.sp, capsule of spermatheca; d.c, common duct; d.c.sp, duct of capsule of spermatheca; d.ex, expulsive duct; g, gonapodeme; M, hypogina; N, egg.

being weakly chitinized. Terminal hypogina is excavated medianly and shows laterally two small, rounded prominences. The outer prominence is strongly chitinized and the inner one is not, being covered with a pilosity directed towards the median excavated side of hypogina (Fig. 2 M).

Considering the great taxonomic importance of spermathecae and the fact that they haven't been figured so far but in a few species of this genus (Weinberg 1974 and Theodor 1976), I am describing and figuring them now in *D. kowarzi* too, using the nomenclature given by Artigas (1971, 1975). The three spermathecae are tubular, with two clearly distinct diametres, the thinner side being very long (Fig. 2 L). The common duct is very short. The expulsive duct is narrow and thin, about as long as the duct of the capsule of spermatheca, which begins after the valve and is the broadest. The last part of spermatheca — the capsule of spermatheca — is formed of many rollings of the duct which is strongly chitinized terminally and is making a ball that appears black in the middle (Fig. 2 L). One could find a similar type of spermatheca in the genus *Molobratia* (Weinberg, 1977).

The gonapodeme is made up of four chitinized parts opposed two by two in the copulatory chamber; two are shorter, placed at the base of spermatheca and the other two in front of them, have the shape of an over-turned Y. In his paper, Theodor (op. cit.) describes and figures only two of these parts — those in the vicinity of spermathecae — in *D. valida*.

As I checked on several specimens, the spermathecae extend from the level of the ninth segment to the fourth segment of abdomen.

The female whose spermathecae are figured in this paper had 28 eggs in her abdomen, one of which is figured (Fig. 2 N).

As it results from the existing data and from my own research, this species seems to be so far a Carpathian endemic (Fig. 3).

It flies from the second decade of June till the middle of July. As it results from my material as well as from Moczar's indications (op. cit.), it can be found between 600 and 1500 m high.



Fig. 3. The map of Romania (● indicates the collecting localities of the species *Dioctria kowarzi* in the Carpathian chain).

Pogonosoma minor Loew, 1 ♀, Herculane 10.VIII.1966, legit Dr. N. Săvulescu.

New for Romania's fauna.

As compared to the existing diagnosis, the specimen captured in Romania bears black hairs on head only at the upper part of the gibbosity and they are few. The silvery pruinosity is hardly visible, but it exists on pleura and as small oval spots on the lateral margins of tergites 2—5.

The specimen that I studied shows unilateral alar anomalies, as follows: in the apical area of the right wing, two anomalies expressed by the recurrent nervures in excess — one placed between r_1 and r_{2+3} , linking them and forming a small cell and the other, on r_4 , doubling on $3/4$ the nervure characteristic of the genus (Fig. 4 A). Loew (1869) mentioned in the description of the species that the ♀ holotype showed an anomaly at the left wing expressed in the recurrent nervure starting from r_4 and doubling the nervure characteristic of the genus. In the literature, any other anomaly isn't mentioned in *P. minor*.

Taking into account that from its description as *P. minor* Loew 1869, it appeared in all papers under the name of *P. minus* Loew 1869 (Bezzi 1903, Séguy 1927, Engel 1930, Castellani 1959, Hull 1962, Richter 1968), the correcting of its name becomes imperative.

The name *minus* Lw. appears in „Katalog der Paläarktischen Dipteren“ Bezzi (1903) in which *minor* Lw is not given as a synonym, but there is a bibliographic indication of Bezzi (1895) to which could be attributed this change of name. Consulting this paper, I realized that Bezzi (op. cit.: 48) only specified the occurrence of this species in Italy, together with *P. maroccana*, giving a key in which for the species *P. minor* Lw. he used the antithesis „corpus minus“. In the catalogue published in 1903, when writing the bibliographic data of the species *minor*, he employed the name *minus*, an error perpetuated till today. This error is also due to the fact that in the alphabetic index of the same catalogue, he introduced the name *minor* Lw too, in italics (letters used by the author for synonyms). Consequently, Séguy (op. cit.) gives *minor* Bezzi as a synonym of *minus* Loew. All the other authors who referred to this species took over, one after the other, the name *minus* instead of *minor*, using for the former all the bibliographic indications valid for the latter, whose name was given by Loew and hasn't been invalidated in writing by anybody, from the description of this species.

In 1973, Schumann published the holotype of the species *P. minor* Loew 1869 (the name written on the label) under No. 10 147 in the Catalogue of Asilid types preserved by the Museum of Zoology from Berlin.

Consequently, according to article 23, Chapter VI of the International Code of Nomenclature adopted in 1964 (Stoll and co.) I validate the name of *P. minor* Loew and invalidate that of *minus*, according to the same code, article 11, Chapter IV.

The species has been mentioned from France (Loew op. cit. Séguy op. cit) Italy (Bezzi 1895, Castellani op. cit.) and from Caucasus (Richter op. cit.). I mention it now from the south-western Romania (Fig. 5).

The number of the species of the genus *Pogonosoma* is raised to 2, and of the Asilid species of Romania, to 125.

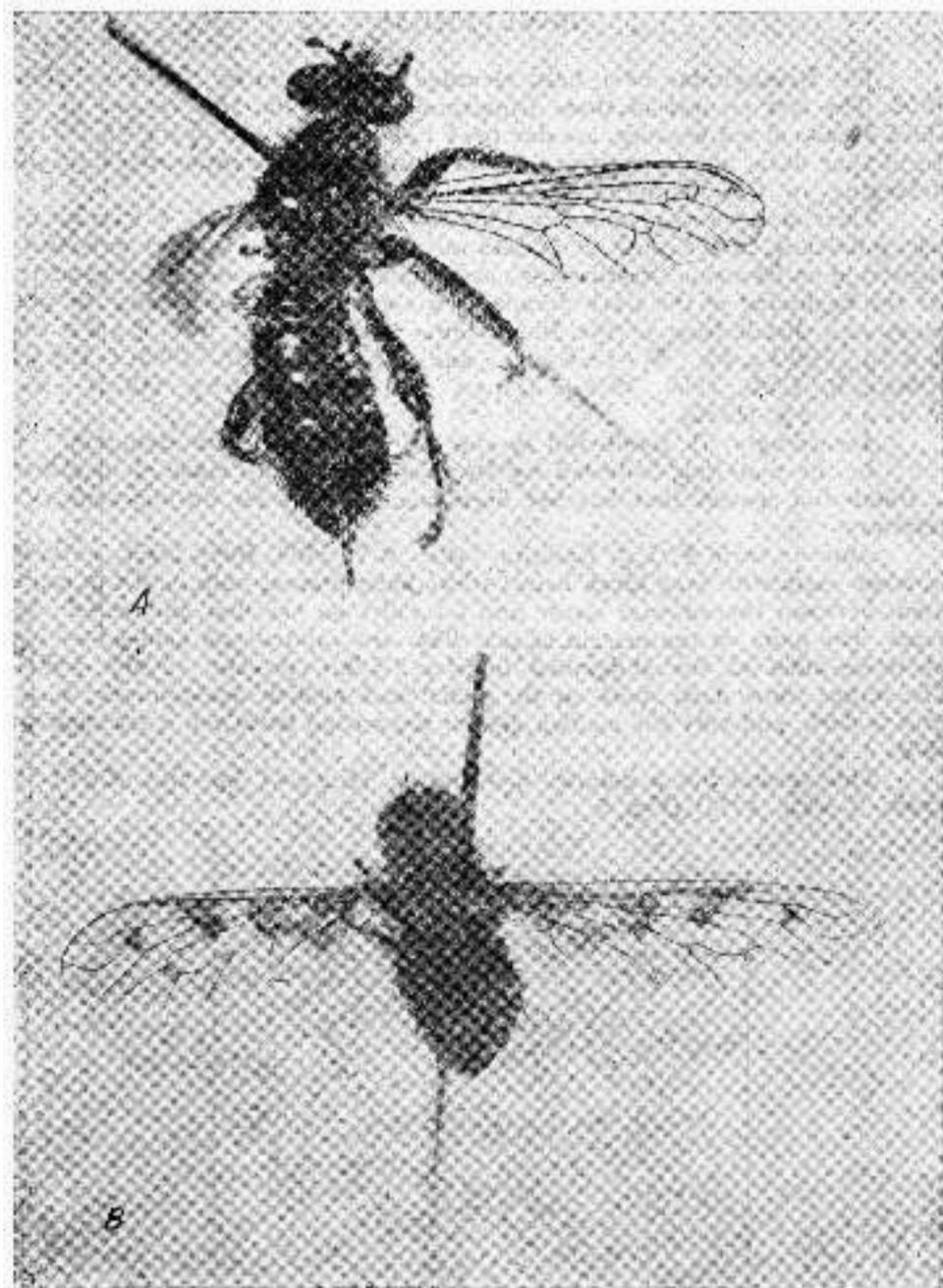


Fig. 4. A, *Pogonosoma minor* Lw. ♀; B, *Anthrax varia* F. ♂ (Photo Gh. Oprescu).

BOMBYLIIDAE

The Bombyliidae have been recorded in Romania by Mayer since 1853. The last records of these Dipterans in Romania, till the end of the third decade of our century, are due to Fleck (1904) and Engel (1937). Until that date, on the territory of our country were mentioned 43 species belonging to this Dipteran family.

Their study was resumed in 1959 by Ionescu and Weinberg who published, in 1962 and 1967, data referring to several species previously registered on Romania's territory, mentioning also new species for the country. At the beginning of the sixth decade, new contributions concerning the presence and distribution of the Bombyliidae were brought by: Radu and Duşa (1963 a, b), Weinberg and Duşa (1967, 1968), Duşa (1964 a, b, 1966, 1969, 1973), Duşa and Weinberg (1975) and Weinberg (1976).

Accordingly, 79 Bombyliid species are known so far in Romania.

In the materials collected by Dr. Xenia Scobiola-Palade, I identified a Bombyliid species that has not been mentioned so far on our country's territory.

Anthrax varia F. 1 ♂, Eşelniţa Valley, 3.VI.1968. Body black, covered in most parts with long black hairs; white hairs present only in the humeral area, between the anterior coxae and laterally, on the first abdominal segment. The hairs on the margin of scutellum are isolated and golden; on the posterior sides of the abdominal tergites 2-5 are present silvery scales. The wings show dark spots on the radial and median anastomoses; basal area is dark, and only the median area of the second basal cell is transparent (Fig. 4, B).

This species has a holartic distribution (Engel op. cit., Zaitsev 1966, Toth 1977) (Fig. 5).



Fig. 5. The geographic distribution of *Pogonosoma minor* Lw. (o) and of *Anthrax varia* F. (●). The latter has also been recorded in a locality of North America.

New for Romania's fauna.

With this species, in Romania the number of the species belonging to the genus *Anthrax* is raised to 5, and that of the Bombyliid species to 80. The distribution area of this species is now completed.

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CONTRIBUȚII LA CUNOAȘTEREA ASILIDELOR ȘI BOMBYLIIDELOR (DIPTERA) DIN ROMÂNIA.

REZUMAT

Prezenta lucrare aduce date noi referitoare la trei specii de diptere din familiile Asilidae și Bombyliidae. La speciile de Asilidae în urma cercetărilor efectuate se designează neotipul speciei *Dioctria kowarzi* Friv., la care se completează diagnoza și arealul iar *Pogonosoma minor* Lw. este semnalată acum în fauna României și se corectează eroarea produsă cu numele ei. Dintre Bombyliidae este semnalată acum la noi în țară *Anthrax varia* F.. Se precizează că specia *D. kowarzi* se dovedește a fi un endemism Carpatic după datele existente pînă în prezent ea fiind descrisă de Frivaldszky în 1876 din M-ții Semenice, semnalată apoi după mai bine de 75 de ani din M-ții Sebeșului și acum menționată din M-ții Ciucaș și Nordul Carpaților Orientali. Diagnoza ei este completată cu descrierea elementelor genitale.

Conform Codului Internațional de Nomenclatură Zoologică este validat numele de *P. minor* Lw care dintr-o eroare este schimbat cu cel de *P. minus* Lw. din anul 1903, nume sub care apare de atunci pînă în zilele noastre în toată literatura de specialitate.

Prin semnalarea celor două specii acum în fauna României numărul de specii cunoscute de Asilide este de 125 iar cel de Bombyliide de 80.

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