

## PODČELEĎ LAPHRIINAE (DIPT., ASILIDAE) V ČESKOSLOVENSKU.

THE SUBFAMILY LAPHRIINAE (DIPT., ASILIDAE)  
IN CZECHOSLOVAKIA.

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## I. Úvod — Introduction.

Během několika posledních let jsme se zabývali studiem čeledi *Asilidae* (*Diptera*), která zahrnuje druhy mnohdy velmi užitečné, živící se ostatním hmyzem. Svou početností hrají tyto mouchy při udržení rovnováhy v přírodě jistě důležitou úlohu, jak jsme poukázali na jiném místě (M o u c h a, 1952). S jednotlivými druhy této čeledi se setkáváme na nejrůznějších biotopech: v lesích, na loukách, u vod i na kulturní a původní stepi. V této práci se zabýváme systematikou, faunistikou a ekologií druhů podčeledi *Laphriinae*, které jsme zjistili na území Československa. Podrobněji se touto čeledí u nás dosud nikdo nezabýval.

Systematicky náleží podčeleď *Laphriinae* do druhově bohaté čeledi *Asilidae* a je zastoupena na území Československa těmito dosud zjištěnými rody: *Laphria* M e i g., *Pogonosoma* R o n d. a *Andrenosoma* R o n d. (H e n n i g, 1952, uvádí poněkud odchylné systematické rozdělení!). Jedná se o mouchy střední až nápadné velikosti; některé druhy (na př. *L. gibbosa* L., *P. maroccanum* F a b r.) patří k největším druhům našich dipter vůbec. O larvách a kuklách roupců máme dosud celkem málo zpráv. Základního významu v tomto směru je práce M e l i n o v a (1923) a H e n n i g o v a (1952).

In the introduction we point out the necessity of studying the *Diptera*-fauna on the territory of Czechoslovakia and the important part the family *Asilidae* plays in nature. The present paper is a revision of the subfamily *Laphriinae* on the territory of Czechoslovakia, where up till now a total of 14 species of this group has been ascertained.

The main part of the paper consists of the chapter "Survey of the species of the subfamily *Laphriinae* ascertained in Czechoslovakia", in which we give comprehensively the findings on the systematics, faunistics and ecology of the species of this group. The bibliography contains only the principal publications which the authors used as a basis when working the fauna of the subfamily *Laphriinae* in Czechoslovakia.

We wish to thank here all those who have helped us in any way in studying the material, whether by sending us their reprints on this subject or through the revision or determination of the material studied; these are: O. Castellani (Roma), Prof. Dr. E. Lindner (Stuttgart), Dr. F. Mihályi (Budapest), I. Novák (Semčice), A. Olexa (Praha), Ing. J. Palášek (Olomouc), Prof. Dr. F. Peus (Berlin), Dr. V. B. Poláček (Praha), Dr. J. Stehlík (Brno), Dr. Z. Tesař (Opava), a. o. All plates are made by Prof. R. Pucholt (Praha).

## II. A Brief Survey of the Faunistic Literature.

In studying the knowledge obtained up till now of the subfamily *Laphriinae* in Czechoslovakia we started from the main faunistic works on the different regions of the country. In these major studies we met with many doubtful reports on localities, to which we draw attention in the relevant chapter. Of short faunistic contributions we mention only those which contribute to our knowledge of this subfamily in Czechoslovakia.

In Bohemia K o w a r z (1883, 1894) studied the fly fauna and published a list of the flies ascertained in this territory; he lists all in all seven species of the subfamily *Laphriinae*, namely, *Laphria flava* L., *gibbosa* L., *gilva* L., *ignea* Meig., *marginata* L., *fimbriata* Meig., and *Andrenosoma atra* L. Another comprehensive list of Bohemian flies with exact localities was published by V i m m e r (1913), who lists the same species. The main part of the documentary material on which the two authors based themselves is deposited in the collections of the Entomological Department of the National Museum in Praha.

In Moravia more attention was paid to the basic faunistic investigation of the order *Diptera*, but we are still lacking a comprehensive faunistic work on this territory. Especially the works of C z i ž e k and L a n d r o c k show us the diversity of the Moravian fauna, enriched by many thermophile species which are lacking in Bohemia. C z i ž e k published in the years 1906—1910 several basic works on the composition of the fly fauna in Moravia; the subfamily *Laphriinae* is represented there by ten species. At about the same time (1907—1910) L a n d r o c k published his finds; he ascertained in Moravia six species of this subfamily, whose composition is according to the results of the two authors mentioned above, the following one: all species known from Bohemia were ascertained, and further *Laphria fuliginosa* P a n z., *fulva* Meig. *ephippium* F a b r. and *dioctriaeformis* Meig. The collections of both authors are deposited in the Entomological Department of the Moravian Museum in Brno.

The work "Fauna Regni Hungariae" provides a considerable amount of reports on the fauna of the order *Diptera* in Slovakia; the author of this

part (Thalhammer, 1899) lists the following species from Slovakia: *Laphria maroccana* F., *ephippium* F., *ignea* Meig., *rufipes* Fall., and *tibialis* Meig. Later Brancsik (1910) published a more extensive list of *Diptera* from Slovakia, and recorded several interesting finds which will be given below in the relevant chapter.

### III. Systematic Position of the Subfamily Laphriinae.

The subfamily *Laphriinae* belongs to the numerous family of flies (*Diptera*) which we designate by the name *Asilidae*. Hennig (1952) writes that up till now some 4200 species of this family are known and places it in the large group of flies called *Asiliformia*. The views on the systematic position of the units higher than the genus are not yet uniform. In the present work we follow in the main the division published by Engel (1930).

The subfamily *Laphriinae* is represented in the palaearctic region by about ten genera, of which only three have been ascertained in Czechoslovakia. They are flies of medium to remarkable size; some species (e. g. *L. gibbosa* L., *P. maroccanum* Fabr.) belong to our largest flies. Up till now there are on the whole but few reports on the larvae and pupae of the *Asilidae*. The works by Melin (1923) and Hennig (1952) are in this respect of basic importance.

About 20 species of the subfamily *Laphriinae* have been recorded from Central Europe. According to the collections of different institutes and to our own finds we have verified the occurrence of 14 species in Czechoslovakia. The only species formerly listed from this region which we did not find is *L. tibialis* Meig., which Thalhammer (1899) gives from Rožňava; the unclear original description and the loss of the type entitle modern authors (e. g. Engel, 1930) to doubt the existence of this species.

In the description of the species we have tried to point out briefly the most striking characters, and for species which are similar to each other we give a comparison of the most striking distinguishing features. For determination the shape and structure of the hypopygium are important as the figures (Plates II.—III.) show.

### IV. Survey of the Species of the Subfamily Laphriinae ascertained in Czechoslovakia.

#### Genus *Laphria* Meigen.

##### 1. subgen. *Epholkiolaphria* Herm.

##### 1. *Epholkiolaphria rufipes* Fallén 1814.

*E. rufipes* Fall. is a very striking species, easily distinguished from the other species by its red legs with reddish brown tarsi. The first segment of the antenna is twice as long as the second. The black abdomen and the thorax are sparsely covered with light yellow short hairs. The wings are brownish, only at the base lighter; halteres yellow. Size: 11—15 mm.



*E. rufipes* Fall. is a very rare species. From Czechoslovakia only one find is known, from Korytnica in the Nízké Tatry Mts. (Thalhammer, 1899). The documentary specimen (♂) designated by the locality "Korytnica 1856, lgt. Mocsáry", is deposited in the collections of the Mus. Nat. Hung. in Budapest. In our study we had further at our disposal 1 ♂ from Lindner's collection (loc.: Kärnten, Villach 10. 7. 41). Engel (1930) reports two further localities from the Alps. Another documentary specimen is deposited in the museum in Brno; it was taken also in the Austrian Alps. It is interesting to note that the species was ascertained in the Eastern Carpathians (Bílý Potok—Valley in Pop Ivan—Mts.) by J. Palásek, 21. 7. 1938 (1 ♂). It is probable that *E. rufipes* Fall. is a species distributed in Central Europe only in the higher mountains, as indeed its occurrence in the Alps and in the Carpathians indicates. In last two years we have found this species on some new localities in Slovakia.

General distribution (see Engel, 1930): Central and Northern Europe.

Localities in Czechoslovakia:

Slovakia: Korytnica—Nízké Tatry (Thalhammer, 1899), Kral'ovany (25. 8. 54, lgt., Pospíšil), Lomnístá dolina—Nízké Tatry (21. 7. 55, lgt., Moucha).

## 2. *Epholkiolaphria dioctriaeformis* Meigen 1820.

Also *E. dioctriaeformis* Meig. we regard as a rare species. It is characterised by silver white pleurae and strikingly silvery costa at the base of the wing. The first three abdominal tergites with white, the others with rust-coloured hairs. The wings are brownish with a lighter basal part, the halteres are yellowish. Face with numerous white hairs. Size: 12—15 mm.

In Czechoslovakia this species has been recorded from Moravia, where it was ascertained in several localities (Czížek, 1907). In our revision of the collection of this author we ascertained that there is here in all cases a confusion with the species *E. marginata* var. *femorata* Meig. The occurrence of the species *E. dioctriaeformis* Meig., described from Austria, is known to us only from two localities: Zbraslav (Bohemia) and Strachotín (Moravia).

General distribution: Central Europe.

Localities in Czechoslovakia:

Bohemia: Zbraslav (Olexa).

Moravia: Strachotín (Landrock, 1907).

## 3. *Epholkiolaphria marginata* Linnaeus 1758.

Species of medium size (12—16 mm), which can be easily distinguished from the other members of this subgenus by the golden-yellow face with black moustache. The abdominal tergites are covered with short, closely appressed hairs which are crowded together in greater number at the ends of the individual segments (dorsally and laterally). The wings are brownish, only at the base lighter. Halteres yellowish.

*E. marginata* L. was ascertained in Czechoslovakia in many localities which are listed. The imagoes hatch in the early and morning hours; the





Fig. 1. Lomnistá dolina — Nízke Tatry Mts. Typical locality of some species living in the Carpathians forests: *E. rufipes* Fall., *E. marginata* L., *L. ephippium* Fabr. and *L. flava* L.

Phot. I. Novák

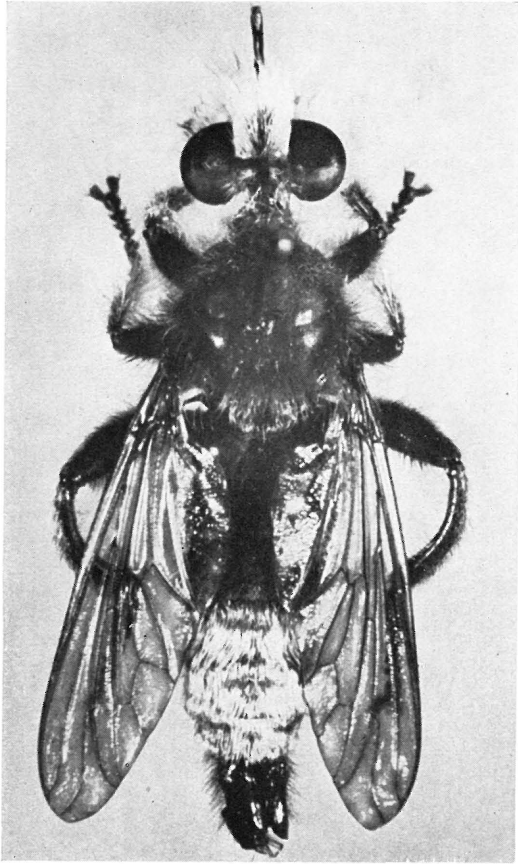
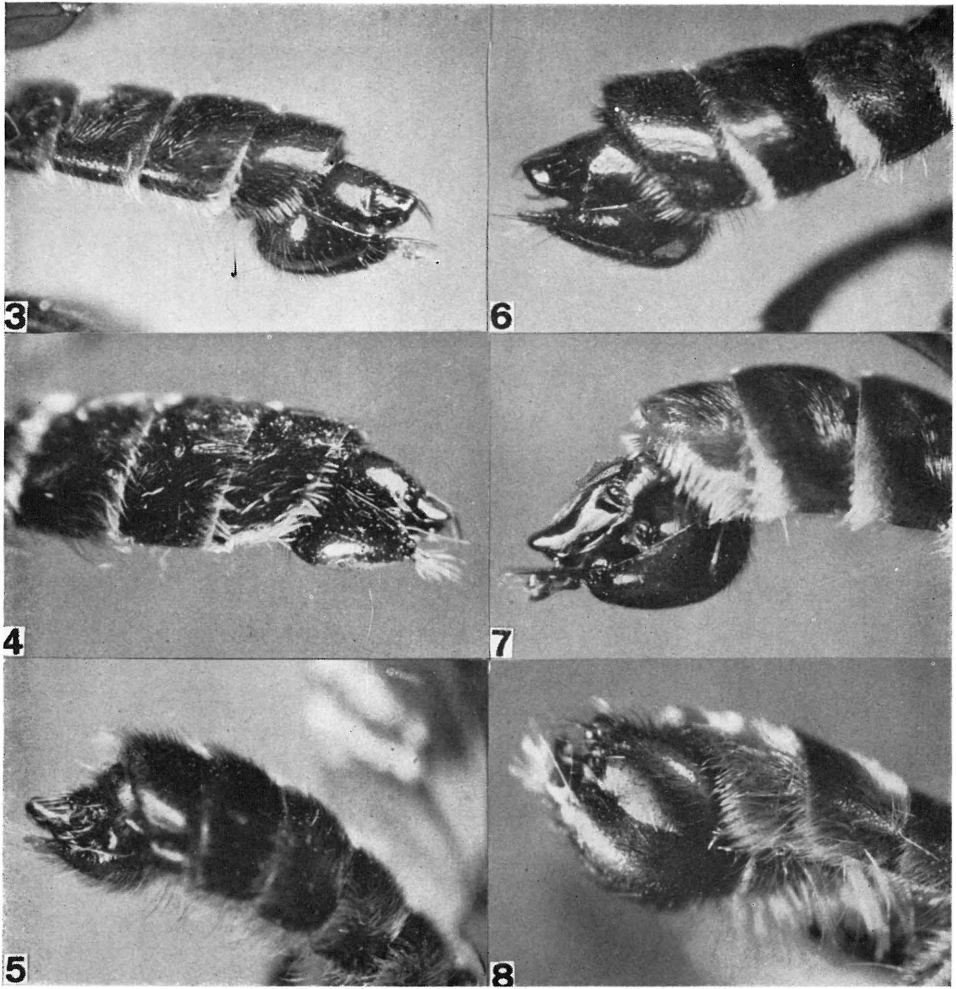


Fig. 2. *Laphria gibbosa* L. ♂

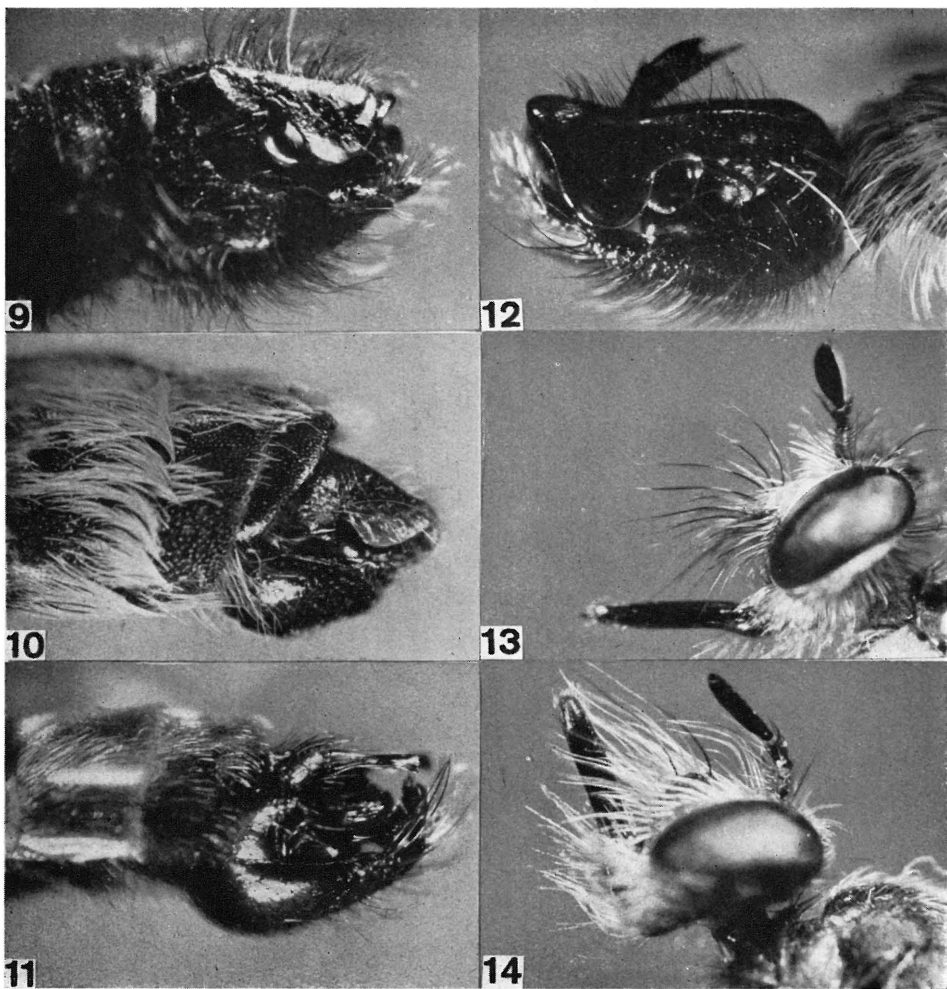
Phot. R. Pucholt



Hypopygia — fig. 3: *E. marginata* var. *femorata* Meig., fig. 4: *E. dioctriaeformis* Meig.,  
fig. 5: *E. fuliginosa* Panz., fig. 6: *E. marginata* L., fig. 7: *E. fimbriata* Meig., fig. 8:  
*E. fulva* Meig.

Phot. R. Pucholt





Hypopygia — fig. 9: *L. ephippium* F a b r. fig. 10: *L. vulpina* M e i g. fig. 11: *E. ignea* M e i g., fig. 12: *L. flava* L.; Heads — fig. 13: *E. fimbriata* M e i g., ♀ and fig. 14: *E. fulva* M e i g., ♀.

Phot. R. Pucholt

newly hatched specimens settle on the stumps and trunks of trees in the sunshine. We encountered this species most often in spruce forests, where it is often very abundant, e. g. Blatná in Southern Bohemia, Polka in Silesia, etc. At the first mentioned locality we observed a mass hatching of imagos whose larvae lived in spruce stumps together with numerous larvae of the beetle *Leptura rubra* L. (*Col.*, *Cerambycidae*). In Czechoslovakia we know the occurrence of the imagos of *E. marginata* L. from May till August, where the occurrence is more abundant at the end of the summer.

*E. marginata* L. is a very variable species, in size as well as in coloration. Some specimens have a silver white face so that correspond to Meigen's description of the species *E. femorata*. In the opinion of Peus (in litt.) this form is not a good species; we are inclined to share this opinion, and place it systematically as a variety of the species *E. marginata* L. We convinced ourselves that *E. marginata* var. *femorata* Meig. was also placed to the species *E. dioctriaeformis* Meig. (e. g. coll. Vimmer, Czižek, a. o.). In this respect it will be necessary to revise all earlier reports on these closely related, but well distinguishable species. From the literature accessible to us we ascertained that the form *E. marginata* var. *femorata* Meig. has not been recorded by any author since the time of its description, so that our knowledge of its geographical distribution is negligible; it is a new record for Czechoslovakia.

Original Description (Meigen, *Syst. Besch.* II, p. 297):

“Schwarz; Untergesicht weiß mit schwarzem Knebelbarte; Hinterschenkel verdickt. Nigra, hypostomate candido, mystace nigro; femoribus posticis incrassatis.

Untergesicht glänzend weiß; Knebelbart schwarz, auf schwerem Grunde; Backenbart und Hinterkopf rotgelbhaarig. Stirne schwarz. Mittelleib schwarz, mit weißlich-schimmernden Seiten und einem eisgrauen Schulterflecken. Hinterleib glänzend schwarz, dünn rotgelbhaarig. Beine schwarz; die vordersten rotgelb- die hinteren schwarzhaarig; Hinterschenkel dicker als die andern. Schwinger gelb; Flügel bräunlich. Ein Männchen, dessen Vaterland unbekannt ist. — 4 Linien.”

From the original description it is evident that the author had at his disposal only one ♂ from unknown locality, but apparently from Austria, whence he described a number of species of the family *Asilidae*. Therefore we supplement briefly the original description.

♂: Small form, size 9—11 mm (exceptionally 13 mm., 1 ex.), Thorax black, sparsely pilose. All abdominal tergites black shiny, sparsely covered with rust-coloured hairs, which are crowded together in a greater number only at the limit of the individual segments as is well visible even in observation with the naked eye. Face strikingly silvery white. Costa at the base of the wing light to rust-coloured sparse hairs. Wings light brownish, only in the first third at the base light translucent. Halterae yellow.

♀: Size 9—14 mm. Thorax black, sparsely pilose. Abdomen wider than in the male, tergites same colour, more densely covered than in the males. Face, wings and halterae as in the male.

From the nominate form this variety is well distinguished by size and by the silvery white face (in *E. marginata* L. the face is strikingly mat yellow!), from *E. dioctriaeformis* Meig. likewise by size and especially by

all the abdominal tergites being covered with rust-coloured hairs, whereas in *E. dioctriaeformis* Meig. only the last abdominal tergites are rust-coloured, while the first three are strikingly white. Meigen's original description (1820) enabled us to determine this form as all characters given by the author tally with our specimens. The systematic position of Meigen's other species of this subgenus — *E. anthrax* and *E. nigripennis* — remains of course unclear. To these doubtful species we place also *E. tibialis* Meig. apud Meig. 1820. Proof specimens are lacking, and the brief description is inadequate and not clear. The recently described species *E. strandi* Duda 1940 differs not from *E. marginata* L. (Peus, 1954).

The type of the species *E. marginata* var. *femorata* Meig. 1820 is not at disposal, and therefore we replace it; ♀ of this form has not been known up till now.

Neotype: ♂ Moravia, Vranov n. Svit., 20. 8. 1919 (Igt. Czižek, in coll. Musei Brno). Allotype: ♀ Moravia, Vranov n. Svit., 16. 7. 1904 (Igt. Czižek, coll. Musei Brno).

General distribution: Europe.

Localities in Czechoslovakia:

Bohemia: Cheb (Kowarz, 1883), Jirny, Úvaly (Vimmer, 1913), Zbraslav, Dobřichovice (Olexa), Lužná (Obenberger), Loděnice (Macek), Zásmyky, Svojšíce, Blatná (Hradský), Děčín, Opočno (Olexa), Starkoč (Macek).

Moravia: Vranov n. Svit., Bílovice n. Svit., Josefov u Brna (Czižek, 1906), Brno-okolí (Landrock, 107b) V. Újezd (Palásek), Polka (Moucha).

Slovakia: Bratislava (Hradský), Trenčín (Čepelák), Zvolen (Olexa), Kraľovany (Pospíšil), Zázrivá (Moucha), Vrátna (Brancsik, 1910), Remetské Hámre (Olexa, Hradský), Lomníštá dolina, Bukovecká dolina—Nízke Tatry (Moucha).

var. *femorata* Meig.

Bohemia: Vestec (Vimmer), Loděnice (Macek), Lysá n. Labem, Dolánky, Káraný (Čepelák), Čelákovice (Hradský).

Moravia: Vranov n. Svit., Adamov (Czižek), Křtiny-Adamov (Igt.?), Komorní Lhotka Hetschko, Moravia sine loc. (Igt.?).

Slovakia: Inovec, Trenčín (Čepelák), Remetské Hámre (Hradský).

#### 4. *Epholkiolaphria fuliginosa* Panzer 1798.

Small species (9—15 mm.), reminiscent in its general aspect of the genus *Halictus* Latr. (*Hymenoptera!*) as Engel (1930) points out clearly *E. fuliginosa* Panz. is a species with a strikingly densely hairy thorax; also the abdominal segments are on the margins densely covered with light hairs. Apical part of the wings as compared with the base dark.

All the material which we have had up till now at our disposal was collected in Slovakia, though the species is known also from Moravia (Vranov n. Svit., Czižek, 1906). We ascertained a more abundant occurrence in the first half of July 1954 at the village Remetské Hámre in the Vihorlat-Mts. in eastern Slovakia. The imagoes were found most often on sunlit forest borders and forest glades. Copulation takes place most often in the morning hours, the pairs settling on blades of grass and leaves of meadow herbs; when disturbed they fly a short distance in clumsy flight. In Czechoslovakia



we observed the occurrence of the imago in July; Séguy (1927) ascertained their occurrence from June till August in France.

General distribution: Central and Southern Europe.

Localities in Czechoslovakia:

Moravia: Vranov n. Svit. (Czižek, 1906), Kerhartice (Landrock, 1910).

Slovakia: Inovec, Trenčín (Čepelák), Zvolen (Olexa), Remetské Hámre (Moucha, Hradský).

### 5. *Epholkiolaphria fimbriata* Meigen 1820.

Species of medium size (13—15 mm.), whose distribution in Czechoslovakia will have to be studied in detail, as the older faunistic data are unreliable. The first report of the occurrence of this species in Bohemia is found already in Kowarz (1883), and Vimmer (1913) seems to regard *E. fimbriata* Meig. as abundant, as he gives a number of localities. In the collections of these two authors we did find, however, one single specimen from Czechoslovakia and the printed locality cards for the species *E. fimbriata* Meig. with their "Franzensbad—Kowarz" had always "Wien" added by hand on the back; this we regard as the correct designation of the place of the find. In our own collections we have found this species up till now only in Moravia and Slovakia. Thus the occurrence of the species in Bohemia has to be regarded as not yet proved, though Engel (1930) gives as general distribution the whole Europe ("Europa tota"); thus we are of course all the more surprised that the same author (Engel, 1932) left out this species in his detailed working of the German fauna.

The males of the species *E. fimbriata* Meig. are easily recognised after the first abdominal tergite closely covered with strikingly white hairs, whereas the remaining tergites are shinily black. The yellowish hair of the abdomen is visible only dorsally and more densely laterally between the individual segments. The colour of the hair on the first tergite is of course an entirely clear character. Face white, moustache black. Wings light brown, darker at the apex. Halteres rusty brown.

The females differ strikingly from the males by the abdominal tergites being unicoloured hairy; in this they are reminiscent of the females of the species *E. fulva* Meig. They are larger, more densely hairy; especially the tergites of the abdomen are covered with dense rust-coloured hair, so that the black colour of the segments does not show through. The hairs growing close to the base of the antennae are straight and directed straight forwards, whereas in the females of the species *E. fulva* Meig. they bend strikingly in an obtuse angle (see Plate II.). This character enabled us to distinguish the similar females of the two species.

We ascertained the occurrence of the imago from June till September. They settle on elevated or otherwise favourably situated places (especially on the leaves of trees and shrubs) at forest roads in glades and attack often much larger insects flying about. We observed this species more frequently in the Vihorlat-Mts. in Eastern Slovakia (Moucha, 1952). Here *E. fimbriata* Meig. inhabits with a number of other species of this genus sunlit

forest glades at lower altitudes (320—400 m.). Up till now there are but very few reports on the bionomy of this rare species.

General distribution: Europe.

Localities in Czechoslovakia:

Bohemia: Kaplice? (K o w a r z, 1883), Nový Jáchymov?, Nižbor?, Tábor?, Cheb?, Františkovy Lázně?, Milešovka?, Dobřichovice? (V i m m e r, 1913).

Moravia: Josefov-Brno (C z i ž e k, 1906), Pálavské kopce (Moucha).

Slovakia: Remetské Hámre (M o u c h a, 1952, Hradský), Královský Chlmec, Bukovecká dolina—Nízke Tatry (Moucha), Štúrovo (Hradský), Nitra (Šustera).

## 6. *Epholkiolaphria fulva* Meigen 1820.

Species of medium size (12—17 mm.), known from Central and Southern Europe, where it was ascertained in several localities but in small numbers. The imago lives from May till August (S é g u y, 1927); in eastern Slovakia we ascertained fresh specimens still at the beginning of September (M o u c h a, 1952).

This species is distinguished from the other members of the genus by its dense, rust-coloured hair of the abdominal tergites. Hypopygium shinily black. Thorax likewise rather densely hairy. Face golden-yellow with a long moustache of the same colour.

We have only very few reliable records of the occurrence of this species in Czechoslovakia. From the material accessible to us we ascertained its occurrence only in Slovakia. Schiner (1862) regards *E. fulva* Meig. as not rare, but gives only one locality from Austria (Mödling). The bionomy has been very little investigated up till now.

General distribution: Central and Southern Europe.

Localities in Czechoslovakia:

Moravia: Brno-Hády (C z i ž e k, 1906).

Slovakia: Inovec, Trenčín (Čepelák), Zvolen (Olexa, Hradský), Beľuša, Slatina (B r a n c s i k, 1910), Remetské Hámre (M o u c h a, 1952, Hradský).

## 7. *Epholkiolaphria ignea* Meigen 1820.

*E. ignea* Meig. is the largest species among the members of the subgenus *Epholkiolaphria* Herm. ascertained up till now in Czechoslovakia. Size about 18—26 mm. It resembles the species *E. fulva* Meig. by the dense rust-coloured hair of the abdominal tergites. Dense long moustache of a light colour on the white face. Also the thorax with light hair, in contradistinction to its rust-coloured hair in the preceding species. Halteres light brown, hypopygium shinily black. The species is striking by size. Melin (1923) described its larva and pupa.

*E. ignea* Meig. lives abundantly in the western regions of Czechoslovakia; in Bohemia it was known to the earlier authors. We ascertained this species in many localities, but accurate data from Slovakia are lacking; the only known specimen from Slovakia is a female designated by the locality

Inovec (Igt. Čepelák), without any more detailed data Landrock (1907) recorded its occurrence in the vicinity of Brno.

General distribution: Central and Western Europe.

Localities in Czechoslovakia:

Bohemia: Planá (Kowarz, 1883), Jirny, Radotín, Bělá p. Bez., Klisová hora (Vimmer, 1913), Čelákovice (Hradský), Rumburk (Čepelák), Děčín (Igt.?).

Moravia: Brno (Landrock, 1907b).

Slovakia: Bratislava, Rožňava (Thalhammer, 1899), Trenčín (Thalhammer, l. c. et Brancsik, 1910), Malacky (Palásek).

## 8. *Epholkiolaphria gilva* Linnaeus 1758.

*E. gilva* L. belongs to the species of medium size (15—19 mm.). First two abdominal tergites sparsely, the others densely hairy; their coloration is markedly brick-red. The others parts of the body (thorax, legs, abdominal sternits) are black. Moustache very long and likewise coloured black. Wings brownish black, halteres brown.

*E. gilva* L. occurs throughout the territory of Czechoslovakia from June till August, and is listed in almost all faunistic works dealing with the Robber-flies fauna of our territory. It occurs especially in coniferous forests on sunlit roads, together with *E. marginata* L., *L. flava* L., *L. gibbosa* L., and other species. Melin (1923) describes in some detail the development and the bionomy.

General distribution: Europe, Asia.

Localities in Czechoslovakia:

Bohemia: "Bohemia" (Kowarz, 1883), Jirny, Dobřichovice, Hředle, Řevnice, Kačlehy, Váp. Podol, Strašice, Bělá p. Bez., Mimon, Kuří Vody, Třeboň, Blatná, Cheb, Aš, Chudence env. Klatovy, Golč. Jeníkov (Vimmer, 1913), Praha, Dobrotivá, Dobrá Voda (Vimmer), Říčany (Klapálek), Jílové, Běchovice, Lodenice, Nová Huť (Igt.?), Brandýs n. L. (Hürka), Čelákovice, Zásmyky (Hradský), Františkovy Lázně (Kowarz), Karlovy Vary (Reinhard), Rokycany (Hradský), Plzeň-Zábělá (Slabý), Klet, Hor. Bříza (Vimmer), Blatná (Hradský), Modrava (Svoboda), Veselí (Igt.?), Budislav (Obenberger), Sudějov (Zavadil), Volanov, Trutnov, Špindlerův Mlýn (Špaček), Sobotka-Kost (Samšiňák), Šumava-Polečnice (Moucha).

Moravia: Vranov n. Svit., Brno-Černovice (Czizek, 1906), Hlubočany, Manerov (Landrock, 1907a), Brno (Landrock, 1907b), Mohelno (Chvála), Komorní Lhotka (Hetschko).

Slovakia: Malacky (Fritsch), Bratislava (Heyrovský, 1923), Trenčín, Inovec (Čepelák), Tatry (Igt.?).

## 2. subgen. *Laphria* Meigen.

## 9. *Laphria ephippium* Fabricius 1781.

As all the species of the subgenus *Laphria* s. str. also *L. ephippium* Fabr. is remarkable for its size (15—23 mm.). The basic coloration of the body is black. Face with dense black moustache; lighter hairs only at the base of the proboscis in the male. Abdomen black, with little perceptible rust-coloured hair on the tergites (especially in the males). Hypopygium shinily black; wings and halteres brown.



*L. ephippium* F a b r. occurs especially in the eastern regions of Czechoslovakia. V i m m e r (1913) does not record this very striking species—which cannot be confused with any other species living here—from Bohemia. E n g e l (1932) regards its occurrence in Germany as rare. We observed it abundantly in Slovakia, where the imagos live from May till September. We ascertained the greatest number of these Robber-flies in July 1954 in the Vihorlat-Mts. The imagos inhabit here forest glades in the primeval beech forests up to an altitude of 609 m. above sea level (Velké Okno). They lurk not only in elevated places, but also (and predominantly) directly on the ground whence they fly up suddenly after their prey. In the locality mentioned the favourite habitats of the imagos were the wooden bridges across the streams, and roads where the Robber-flies lurked for their prey near horse faeces. In the first case they attack insects flying about above the stream, in the second case flies and butterflies flying to the fresh faeces often in considerable numbers. *L. ephippium* F a b r. is abundant in the Vihorlat-Mts. until late summer (M o u c h a, 1952). Also in Silesia we ascertained a rather abundant occurrence of this species in the forest at the village of Polka in the Javornické hory—Mts. (last days in August 1954). M e l i n (1923) described the larva and pupa.

General distribution: Europe.

Localities in Czechoslovakia:

Moravia: Lomná (L a n d r o c k, 1910), Kyčera, Komorní Lhotka (Hetschko), Polka (Moucha).

Slovakia: Bratislava (Rambousek), Inovec (Čepelák), Trenčín (T h a l h a m m e r, 1899 et B r a n c s i k, 1910), Omšenie, Dubnica n. Váhom (B r a n c s i k, l. c.), Moravany n. Váhom (Pfleger), Zvolen (Olexa), Kraľovany (Pospíšil), Lubochňa (Hájek), Zázrivá, Bukovecká dolina, Lomníštá dolina—Nízké Tatry (Moucha), Tatry (lgt.?), Korytnica, Rožňava, Sninský Kameň, Vihorlat (Thalhammer, l. c.), Remetské Hámre (M o u c h a, 1952, Hradský).

## 10. *Laphria flava* L i n n a e u s 1776.

*L. flava* L. is the most abundant species of the genus in our country. It occurs in the whole territory, and its occurrence has been ascertained in a number of localities. It is recorded in all faunistic lists of the fauna of Robber-flies. Its size (12—24 mm.) makes it a striking member of our fly fauna.

Abdominal tergites with very dense rusty yellow to rust-coloured hair. Abdomen of the male almost equally wide, with a strikingly large black hypopygium. Abdomen of the female wider. Face black, with a long grayish moustache. Wings light brown, halteres rusty brown.

By its great numbers *L. flava* L. is certainly one of the most characteristic species of Robber-flies in the economy of nature. It occurs also at higher altitudes (Jalovec stream, 1200 m.). M e l i n (1923) and S é g u y (1927) list a number of insect species which are observed as prey of the imagos. M e l i n (1923) described also in detail the bionomy of the species. The imagos occur from May till September.

General distribution: Europe.

## Localities in Czechoslovakia:

Bohemia: "Bohemia", Kowarz, 1883, Vimmer (1913), Černošice (Vimmer), Dobřichovice (Zeman), Lodenice (lgt.?), Nový Jáchymov (Vávra), Nové Strašecí (Hrdý), Kralupy (Mužík), Čelákovice (Klapálek), Zásmyky (Hradský), Doksy, Bělá p. Bez. (Vimmer), Malá Skála, Budislav (Obenberger), Právošín (Čepelák), Harachov (Macek, Hájek), Špindlerův Mlýn (lgt.?), Martinice (Čepelák), Trutnov (Špaček), Rokytno (Macek), Nová Paka (Moucha), Sobotka-Kost (Samsíňák), Turnov (Šrámek), Litoměřice (lgt.?), Františkovy Lázně (Kowarz), Karlovy Vary (Reinhard), Cheb (Vimmer), Rudohoří (lgt.?), Blatná, Rokycany (Hradský), Plzeň (Slabý), Horní Bříza (Vimmer), Modrava (Svoboda), Domažlice (Čepelák), Čerchov (Obenberger), Kubice, Špičák (lgt.?), č. Krumlov (Vimmer), Horní Lipka (Mařan, Moucha, 1952).

Moravia: Brno (Landrock, 1907b), Josefov, Vranov n. Svit. (Czížek, 1906), Křtiny, Olomouc (lgt.?), Senorady (Matoušek), Břeclav (Havlík), Jeseník (Matzenauer), Bělá-Jeseníky (Tesař), Praděd (Landrock, 1907a), Karlova Studánka, černá Voda (Moucha), Radhošť (lgt.?), Kyčera (Hetschko), Hradec, Kajlovec (Palásek).

Slovakia: Javorina (Palásek), Bratislava (lgt.?), Inovec, Trenčín (Čepelák), Levice (lgt.?), Hronský Beňadik (Albrecht), Hermanec (Olexa), Kľačany (Pospíšil), Zázrivá (Moucha), Liptovská Teplička, čierny Váh, Jalovecký potok (Moucha, 1952), Tatry, Levoča (lgt.?), Remetské Hámre (Moucha, Hradský), Terchová (Bartal, 1906), Bukovecká dolina, Lomníská dolina—Nízke Tatry (Moucha).

11. *Laphria gibbosa* Linnaeus 1758.

One of the largest species of the genus (size 15—27 mm.), belonging to the largest flies of our fauna. *L. gibbosa* L. is the genotype of the genus *Laphria* Meig. (see fig. 2).

This species can be very easily distinguished from all other members of the genus by the coloration of the abdominal tergites; the first three are black, the remaining ones whitish to greenish yellow. Abdominal sternites and hypopygium shinily black. Moustache long, grayish. Wings and halteres brownish. Melin (1923) describes the development.

In Czechoslovakia *L. gibbosa* L. is known from a number of localities, but mostly from Bohemia. Greater attention will have to be paid to the distribution of the species in Slovakia so as to get a more accurate picture of its.

General distribution: Central and Western Europe.

## Localities in Czechoslovakia:

Bohemia: Revnice (Vimmer), Dobřichovice (Olexa), Nová Huť (Nickerl), Hředle (Vimmer, 1913), Rakovník (Duchon), Lodenice (lgt.?), Otradovice, Kardašova Řečice (Pfleger), Bělá p. Bez., Mariasorg-Rudohoří (Vimmer, l. c.), Komorní Hrádek, Aš, Cheb, Planá (Kowarz, 1883), Františkovy Lázně, Strašice (Vimmer, l. c.), Karlovy Vary (Reinhard), Plzeň (Vězenský, Slabý), Rokycany (Hradský), Protivín, Písek (Vimmer, l. c.), Soběslav (Pfleger), Modrava (Svoboda), Děčín (lgt.?), Rumburk, Martinice (Čepelák).

Moravia: Vranov n. Dyjí (Czížek, 1910).

Slovakia: Malacky (Fritsch, Palásek).

12. *Laphria vulpina* Meigen 1820.

*L. vulpina* Meig. belongs to the largest members of the family *Asilidae* in our country (size 25—28 mm.). It is easily distinguished from the other species of the genus *Laphria* Meig. by its rusty red basic coloration. Abdo-

minal tergites with yellowish hair. Legs and wings rusty red, halteres brownish.

We had at our disposal only one ♂, designated by the locality "Trenčín, lgt. Čepelák". It is obviously a rare species, which seems to be distributed in our country only in the warmest regions of southern Slovakia. The geographical distribution and bionomy of this species are still very little known.

General distribution: Central and Southern Europe.

Locality in Czechoslovakia:

Slovakia: Trenčín (Čepelák).

### Genus *Andrenosoma* Rondani.

About five species belong to the genus *Andrenosoma* Rondani 1856, of which only two have been recorded from Central Europe. The members of the genus *Andrenosoma* Rond. are distinguished from the genus *Laphria* Meig. by the short proboscis and by area  $R_3$  on the wings not being divided by a transversal vein.

Genotype: *Andrenosoma atrum* L.

The occurrence of the species *A. albibarbe* Meig. in Czechoslovakia is not known to us for certain. The many specimens of this genus belong indubitably to one species only.

### 13. *Andrenosoma atrum* Linnaeus 1758.

Characteristic species distinguished from the other members of the subfamily *Laphriinae* in addition to the characteristic generic features also by the markedly bluish to violet abdomen. Thorax black, wings brownish, halteres dark brown to black. Hypopygium small, black shiny.

The species is widely distributed in Czechoslovakia, and here and there abundant. The imagos live in July and August. We observed an abundant occurrence at Chotěbudice near Podbořany, where the imagos hatched in mass and crept from the rotting beams of barn in which they had lived as larvae.

General distribution: Europe, Canary Islands.

Localities in Czechoslovakia:

Bohemia: Praha (Čepelák), Hoblík (lgt.?), Závist, Podbaba, Roztoky, Jílové (Vimmer, 1913), Černošice, Vestec, Golč. Jeníkov (Vimmer), Stará Boleslav (Hůrka), Svojišice, Chotěbudice near Podbořany (Hradský), Planá (Kowarz, 1883), Boubín (Vimmer, l. c.), Františkovy Lázně (Kowarz), Hradec Králové (Vimmer, l. c.).

Moravia: Brno (Landrock, 1907b), Brno-černovice, Adamov, Vranov n. Svit. (Czižek, 1906), Hlubočany (Landrock, 1907a), Kyjov (Rambousek), Bzenec (Šuster), Mohelno (Chvála), Komorní Lhotka (Hetschko).

Slovakia: Trenčín, Bolešov (Brancsik, 1910).

### Genus *Pogonosoma* Rondani.

The genus *Pogonosoma* Rondani 1856 comprises species of considerable size, easily recognised by the short, dorsoventrally rather flat-



tened proboscis. The area  $R_3$  on the wings is divided by a transverse vein between  $r_3$  and  $r_4$ .

Genotype: *Pogonosoma maroccanum* Fabr.

About four species of this genus are known from the palaeartic region, of which only one has been ascertained in Czechoslovakia.

#### 14. *Pogonosoma maroccanum* Fabricius 1794.

Large species (18—25 mm.), reminiscent at first glance of *Laphria vulpina* Meig., from which it is, however, distinguished by a number of striking characters. The basic coloration of the body is dark brown to black, abdominal tergites with dense rust-coloured hair: Moustache yellowish. Legs also yellowish to light brown; only the femurs rusty brown. Wings brownish to rust-coloured, halteres light brown.

In our fauna a very rare species, apparently bound to the warmest regions of southern Slovakia. The only documentary specimens from Czechoslovakia are deposited in the collections of the Mus. Nat. Hung. in Budapest, designated by the locality "Füleke (= Fíľakovo), lgt. D. Baloghy 1879" and "Trencsén (= Trenčín), coll. Thalhammer". Both specimens are females. The first locality is probably identical with that given in the report of the occurrence of this species in the region of Novohrady (Thalhammer, 1899). Also the second locality is recorded in the Fauna Regni Hungariae. The locality "Námestovo" given in the same work is apparently incorrect (also documentary material is lacking). Another specimen which we had at our disposal is again ♀, designated by the locality "Jugoslavijska, Konavlesko polje, 23. 7. 1935, lgt. Hoffer".

General distribution: Central and Southern Europe, North Africa.

Localities in Czechoslovakia:

Slovakia: Trenčín, Fíľakovo (= "Novohrad"), Námestovo? (Thalhammer, 1899).

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