ACTA FAUNISTICA ENTOMOLOGICA MUSEI NATIONALIS PRAGAE
Vol. 12, № 130 Edit. 30. X. 1967

*(Acta faun. ent. Mus. Nat. Pragae, 12 : 201—206)*

# The Czechoslovak Species of Ulidiidae (Diptera, Acalyptrata)

JAN ZUSKA

(Central Research Institute of Food Industry, Department of Entomology, Praha)

The Ulidiidae is a rather extensive group of the acalypterate superfamily Tephritoidea. Most species are distributed in the Old and New World tropics and subtropics. Only a few occur in the palaearctic region. They are apparently saprophagous or coprophagous in their larval stages and sometimes even in adult life, though imagines of some species are typical herbicols. Nevertheless, their bionomics, which have been summarized by Séguy (1934) and Hennig (1940, 1952), are very poorly known.

This paper summarizes the published faunistic records from Czechoslovakia and contributes to further knowledge of the distribution of the family in this country. The relations of particular species with man are also discussed.[1])

## Key to Czechoslovak Ulidiidae

1 (4) Wings clear or partly tinged brownish but always without well-defined apical spot. Tibiae entirely black.

2 (3) Frons yellow, longer than wide, bare (except for small orbital bristles) and without deep pits. Antennae yellow, antennal cavities shallow, indistinct. Distance between bases of antennae slightly greater than depth of third antennal joint. Mesonotum metallic green, finely granulated, with one pair of dorsocentral bristles. Basal joint of anterior tarsi yellow, with exception of apical part. Point of cubital field about 1.5 times as long as posterior transversal vein . . . . . *Physiphora demandata* (F.)

[1]) The following abbreviations are used in the present paper: Lit. = records from the literature; Mat. = unpublished data based upon new material; Boh = Bohemia; Mor = Moravia and Czechoslovak Silesia; Slov = Slovakia; NMP = collection of the National Museum, Praha; DE = collection of the Department of Entomology, Central Research Institute of Food Industry, Praha; ZU = author's private collection. The collection abbreviation in square brackets after a locality cited from the literature indicates that the material which was a basis for the record was revised by the present author. No literary data were omitted as unreliable because the Czechoslovak species of Ulidiidae are very easy to distinguish.

3 (2) Frons dark, wider than long, almost entirely covered with bristles inserted in distinct pits. Antennae black, anntennal cavities deep, with very sharp margins. Distance between bases of antennae about twice as great as depth of third antennal joint. Mesonotum black, rather shining, with two pairs of dorsocentral bristles. Anterior tarsi entirely black. Point of cubital field about half as long as posterior transversal vein . . . . . *Ulidia erythrophthalma* Meig.

4 (1) Wings with two distinct black spots: one at the end of subcosta, another apical. At least bases of all tibiae yellow. Frons yellow, covered with bristles, which are not inserted in pits. Antennae yellow, antennal cavities not developed. Distance between bases of antennae equalling depth of third antennal joint. Mesonotum and pleurae smooth but strongly dusted; two pairs of dorsocentrals developed. Point of cubital field slightly shorter than posterior transversal vein . . . . . *Euxesta pechumani* Curr.

## **Ulidia erythrophthalma** Meigen, 1826

This species occurs on the lower vegetation, especially on that of dry places, e. g. steppe-like meadows. It has no close relations with man. The variability in the colouration of the wings of flies in my material seems to support Hennig's (1940) theory that *Ulidia nigripennis* Loew, 1845 is identical with this species.

Table 1.

Seasonal distribution of records of some Czechoslovak Ulidiidae[a]

| Species | No. of records | | | | | | | Total No. of records |
|---|---|---|---|---|---|---|---|---|
| | IV[b] | V | VI | VII | VIII | IX | X | |
| | b m e | b m e | b m e | b m e | b m e | b m e | b m e | |
| *P. demandata* | 1 | 1 | 2 2 5 | 4 | 2 3 3 | 1 4 2 | 2 | 32 |
| *U. erythrophthalma*[c] | | | 2 3 7 | | 1 | | | 13 |

[a] A locality-and-day record is the basic unit considered.
[b] IV to X = April to October; b = 1st to 10th, m = 11th to 20th, e = 21st to 30th (31st) of each month.
[c] One record from July, without exact date.

The data given below seem to indicate that the curve of seasonal abundance of this fly may be very interesting (see Table 1). Unfortunately, only very few records are available.

Distribution: Apparently whole Europe (including British Isles) except for its nothern part. Germany and Czechoslovakia (and obviously Polend, too) seem to be the most northern extent of the distribution of this species.

Occurrence in Czechoslovakia: Lit.: Boh: Env. of Cheb (Dalla Torre, 1878); Zbečno nr. Rakovník (NMP); Dobřichovice nr. Praha (NMP); Radotín nr. Praha; Čelákovice (Vimmer, 1913). Mor: Hlubočany nr. Vyškov (Landrock, 1907); Brno (Czižek, 1906;

Landrock, 1907). Slov: Trenčín, Bolešov nr. Púchov (Brancsik, 1910); Harmanec, Revúca, Trenčín (Thalhammer, 1899; from Harmanec also as *Ulidia nigripennis* Lw.).

Mat.: Boh: Františkovy Lázně, 2 ♂ 1 ♀ (NMP); Veltrusy nr. Mělník, 1 ♀ (NMP); Bohnice nr. Praha, 22. VI. 1918, 1 ♂ 1 ♀ (NMP); Praha-Ruzyně, sweeping vegetation along field boundary, 26. VI. 1957, 1 ♂ (ZU); sweeping vegetation along alfalfa field, 1. VIII. 1962, 1 ♂ (ZU); Krkonoše Mts., Lysečiny, VII. 1963, 1 ♂ (ZU). Mor.: Pouzdřany nr. Břeclav, 25. VI. 1959, 2 ♂ 4 ♀ (ZU); Olbram kostel nr. Znojmo, 5. VI. 1958, 2 ♀ (ZU); Lednice, VI. 1959, 1 ♂ 1 ♀ (ZU); Pavlovské vrchy Mts., 29. VI. 1959, 9 ♂ 7 ♀ (ZU). Slov: △ Devínska Kobyla nr. Bratislava, 20. VI. 1959, 1 ♀ (ZU); Kolárovo, 17. VI. 1958, 1 ♀ (ZU); Štúrovo, 27. VI. 1955, 1 ♂ 1 ♀ (ZU); Mužla, 4. VI. 1958, 6 ♂ 10 ♀ (2 ♀ swept from undergrowth of deciduous forest; ZU); Gbelce nr. Štúrovo, 30. VI. 1955, 1 ♀ (ZU); Nana nr. Štúrovo, on inflorescence of Conium maculatum L., 28. VI. 1955, 1 ♂ (ZU); Chľaba nr. Nové Zámky, 16. VI. 1958, 3 ♂ 3 ♀ (ZU).

**Physiphora demandata** (Fabricius, 1798)

This fly leads a synanthropic way of life. It has very close relations with man and belongs to urban populations of flies in Holarctis (eg. Schoof & al., 1956; Štakeľberg, 1956; Laštovka & Zuska, unpublished data), though it probably rarely occurs in large numbers. It is distributed in most zoogeographic regions, obviously following man just as many other synanthropic species do. On the other hand, it is not often found in free nature, at least in Central Europe. *Physiphora demandata* even becomes a pest of man occasionally (e. g. Weiss, 1912; Drake & Decker, 1932; Guyer & al., 1956).

Among the flies captured in various factories of food industry, which provide a considerable part of my material of this species, almost all were found in factories where substances containing proteins were processed, and they were also observed to occur on protein refuse. This is in contrast to places where *Physiphora demandata* had been usually captured (decaying or fermenting plants, dung, etc.). At present it is not possible to determine whether their larvae also, or predominantly, develop in the afore-mentioned proteinous substances because females can easily oviposit elsewhere (e. g. onto dung in stables of slaughterhouses, refuse of vegetables in canneries, etc.).

The data given in Table 1. show that this species occurs from April to October and is most abundant from June to September.

Distribution: Almost cosmopolitan species, occurring in Europe, Asia, Africa, Madagascar, North, Central and South America.

Occurrence in Czechoslovakia: Lit.: Boh: Praha (Havlík & Baťová, 1961); Plzeň; Obříství nr. Mělník [NMP]; Praha [NMP]; Čelákovice (Vimmer, 1913). Mor: Hlubočany nr. Vyškov (Landrock, 1907). Slov: Trenčín, Omšenie nr. Trenčín (Brancsik, 1910); Šaca nr. Košice; Bočiar nr. Košice; Čaňa nr. Košice (Husárová—Dudíková, 1965); Ruská Poruba nr. Humenné (Gregor & Povolný, 1961).

Mat.: Boh (Examples of localities): Příbram, slaughterhouse, refuse of bones, 12. IX. 1962, 1 ♀ (DE); Svádov nr. Ústí nad Labem, VI. 1934, 2 ♂ 1 ♀ (NMP); Lány nr. Praha, 1 ♀ (NMP); Praha, on window, 27. VI. 1958, 3 ♀ (ZU); slaughterhouse, stored horns, 7. VI. 1963, 1 ♀ (DE); Praha-Ruzyně, at light, 11. VI. 1964, 4 ♂ 7 ♀ (ZU); Kundratice nr. Litoměřice, sweeping vegetation along dung heap, 21. VI. 1958, 1 ♀ (ZU); Čerčany nr. Benešov, mill, 7. VIII. 1963, 1 ♂ (DE); Březhrad nr. Hradec Králové, slaughterhouse, 9. X. 1962, 1 ♀ (DE); Turnov, slaughterhouse, 4. VI. 1963, 1 ♂ (DE). Mor: Modřice, fruit-and-vegetables-cannery, 28. IX. 1962, 2 ♂ 1 ♀ (DE); Velké Pavlovice,

poultry-farm, 27. VIII. 1962, 2♀ (DE). Slov: Štúrovo, 18. VII. 1958, 1♂ (ZU); Komárno, slaughterhouse, 29. VIII. 1962, 1♂ (DE); Banská Bystrica, slaughterhouse, refuse, 4. X. 1962, 4♂ 5♀ (DE); Velká Ida, poultry-farm, fowl-run, 20. VII. 1962, 1♂ (DE); Michalovce, slaughterhouse, 29. V. 1963, 1♂ (DE); Prešov, bakery, 14. VIII. 1962, 1♂ (DE); Velký Šariš, mill, 10. VIII. 1964, 1♂ (DE); Revúca, slaughterhouse and meat factory, 25. VI. 1962, 1♀ (DE).

## **Euxesta pechumani** Curran, 1938

The genus *Euxesta* Loew, 1868, is a group of species which do not occur in the Holarctis, except for the southern part of North America. About fifty years ago, however, a species was captured in Italy which was identified by Aldrich as *„Euxesta nitidiventris* Loew" (Bezzi, 1921; Cuscianna, 1921). Dr. Steyskal kindly informed me that he had found a specimen labelled „Bologna, Ghigi" in the collection of the U. S. National Museum in Washington, doubtless an individual sent to Aldrich by Bezzi. Dr. Steyskal identified it as *Euxesta pechumani,* a species different from *Euxesta nitidiventris* Loew. The specimen of *Euxesta* from Czechoslovakia also belongs to the former species and its identification was kindly revised by Dr. Steyskal.

Our capture of this species is thus the second in the palaearctic region though its occurrence is in fact reported for the first time in the present paper. The two successive findings seem to support Hennig's (1940) opinion that the acclimatization of this species in Europe is quite possible. Komárno, the Czechoslovak locality of this species, has no direct connection with America but is an important junction of communications with Southern Europe. In America this species occurs on decaying substances, also on human faeces.

Distribution: North America, Italy, Czechoslovakia.

Occurrence in Czechoslovakia: Mat.: Slov.: Komárno, slaughterhouse, 29. VIII. 1962, 1♂ (DE; J. Pulpán, collector).

Acknowledgements

I am much indebted to Dr. G. C. Steyskal (U. S National Museum, Washington) for the information concerning *Euxesta pechumani* and to my fellow workers of the Department of Entomology, Central Research Institute of Food Industry, Praha, for technical help, especially for collecting flies in the food industry factories. Mr. A. Wootton (Stone nr. Aylesbury, Bucks., England) kindly improved the English of this article.

## References

Bezzi, M., 1921: Un Dittero Nordamericano del gen. Euxesta stabilito in Italia. *Boll. Labor. Zool. Gener. Agrar. Portici,* **15**: 223—225.

Brancsik, K., 1910: Trencsénvármegyében tálált Dipterák felsorolása. *Jahresh. naturw. Ver. Trencsén. Comit.,* **31—33**: 127—158.

Cuscianna, N., 1921: Osservazioni sull'attrazione esercitata dagli odori sugli insetti. *Boll. Labor. Zool. Gener. Agrar. Portici,* **15**: 226—253.

Czižek, K., 1906: Beiträge zu einer Dipterenfauna Mährens. *Zeitschr. Mähr. Landesmus.,* **6**: 182—234.

Dalla Torre, K., 1878: Entomologische Notizen aus dem Egerlande. *Jahres-Ber. Natur-Hist. Ver. „Lotos", 1877*: 91—208.

Drake, C. J. & Decker, G. C., 1932: A scavenger fly, Chrysomyza demandata Fabr., breeding in corn silage. *Ent. News,* **43**: 29—30.

Gregor, F. & Povolný, D., 1961: Resultate stationärer Untersuchungen von synanthropen Fliegen in der Umgebung einer Ortschaft in der Ostslowakei. *Folia zool.* (Brno), **10**: 17—44.

Guyer, G. E., King, H. L., Fischer, R. L. & Drew, W. A., 1956: The emergence of flies reared from grass silage in Michigan. *J. econ. Entomol.,* **49**: 619—622.

Havlík, B. & Baťová, B., 1961: A study of the most abundant synanthropic flies occurring in Prague. *Acta Soc. ent. Čechosl.,* **58**: 1—11.

Hennig, W., 1940: Fam. 45. Ulidiidae in E. Lindner: Flieg. pal. Reg. 34 pp., 6 pl. Stuttgart.

— 1952: Die Larvenformen der Dipteren. 3. Teil. 628 pp. Berlin.

Husárová-Dudíková, A., 1965: Príspevok k poznaniu synantropných oblastí Východoslovenských železiarní. (A contribution to the knowledge of synanthropic flies in the region on the East Slovakian Iron Works.) *Entomologické problémy* (Bratislava), **5**: 145—169.

Landrock, K., 1907: Mährische Zweiflüger. Achter Bericht des Lehrerklubs für Naturkunde über das Jahr 1906 (Brno): 50—71.

Schoof, H. F., Savage, E. P. & Dodge, H. R., 1956: Comparative studies of urban fly populations in Arizona, Kansas, Michigan, New York and West Virginia II. Seasonal abundance of minor species. *Ann. Entomol. Soc. Amer.,* **49**: 59—66.

Séguy, E., 1934: Diptères (Brachycères) (Muscidae Acalypteratae et Scatophagidae). Faune de France, vol. 28. 832 pp., 27 pl. Paris.

Štakeľberg, A. A., 1956: Sinantropnyje dvukrylyje fauny SSSR (Synanthropic flies of the USSR). Opredělitěli po fauně SSSR, vol. 60. 164 pp. Moscow—Leningrad.

Thalhammer, J., 1899: Diptera in: Fauna Regni Hungariae, vol. 3. 76 pp. Budapest.

Vimmer, A., 1913: Seznam českého hmyzu dvoukřídlého (Catalogus Dipterorum). Entomologické příručky, vol. VIII. 99 pp. Praha.

Weiss, A., 1912: Sur un diptère du genre Chrysomyza nuisible à l'état de larve à la culture du dattier dans l'Afrique du Nord. *Bull. Soc. Hist. nat. Afrique du Nord,* **4** (3): 68—69.

Acta faunistica entomologica Musei Nationalis Pragae, 12, № 130.
Redaktor RNDr. Jiří Dlabola, CSc. — Vydává Národní muzeum, Praha. Vyšlo 30. X. 1967.
Náklad 1100. — Vytiskl Knihtisk 1, n. p., Praha 1 - Malá Strana, Karmelitská 6,
písmem Public.