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Taxonomic notes on some Drosophilidae (Diptera) from Czechoslovakia

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Taxonomy, *Leucophenga quinquemaculata*, *Microdrosophila congesta*, male terminalia, *Lordiphosa miki*, new female, *Hirtodrosophila toyohiokadai* n. comb.

Abstract. Descriptions of the male terminalia of *Leucophenga quinquemaculata* Strobl, 1893 and *Microdrosophila congesta* (Zetterstedt, 1847) are given. Female of *Lordiphosa miki* (Duda, 1924) is described for the first time. *Hirtodrosophila toyohiokadai* (Sidorenko, 1990), comb. n. is redescribed, based upon one male from eastern Slovakia; one specimen of the female is tentatively classified here. Taxonomic bearing of the morphologic characters, mainly those connected with the structure of terminalia, is discussed.

Species composition of the Czechoslovak Drosophilidae is quite well known. 69 species of this family were listed from Czechoslovakia by Laštovka & Máca (1987), including *Drosophila transversa* Fallén, a common and widespread species which was omitted by mistake. Bächli (1988) added to the list *Drosophila alpina* Burla, 1948. Two additional species of *Drosophilini* are treated below. The study is accompanied with the descriptions of male terminalia of *Leucophenga quinquemaculata* Strobl and *Microdrosophila congesta* (Zetterstedt).

Morphological terms are used in the same sense as in Okada (1956), and male genitalia of *Leucophenga* are interpreted according to Bächli (1971). The names of localities are accompanied with numbers of faunistic squares, as currently used in Faunistic Records from Czechoslovakia in the present journal. Full citations of the descriptions of taxa published prior to 1980 are given by Wheeler (1981). The generic status of *Hirtodrosophila* and *Lordiphosa* is accepted, as proposed by Grimaldi (1990). The studied specimens are deposited in the care of collectors and will be passed over to the Department of Entomology, National Museum, Praha.

Leucophenga quinquemaculata Strobl, 1893

(Figs 1- 4)

A rarely collected species - the several previous collections were enumerated by Bächli & Rocha Pité (1982), more recent collections were mentioned by Máca &

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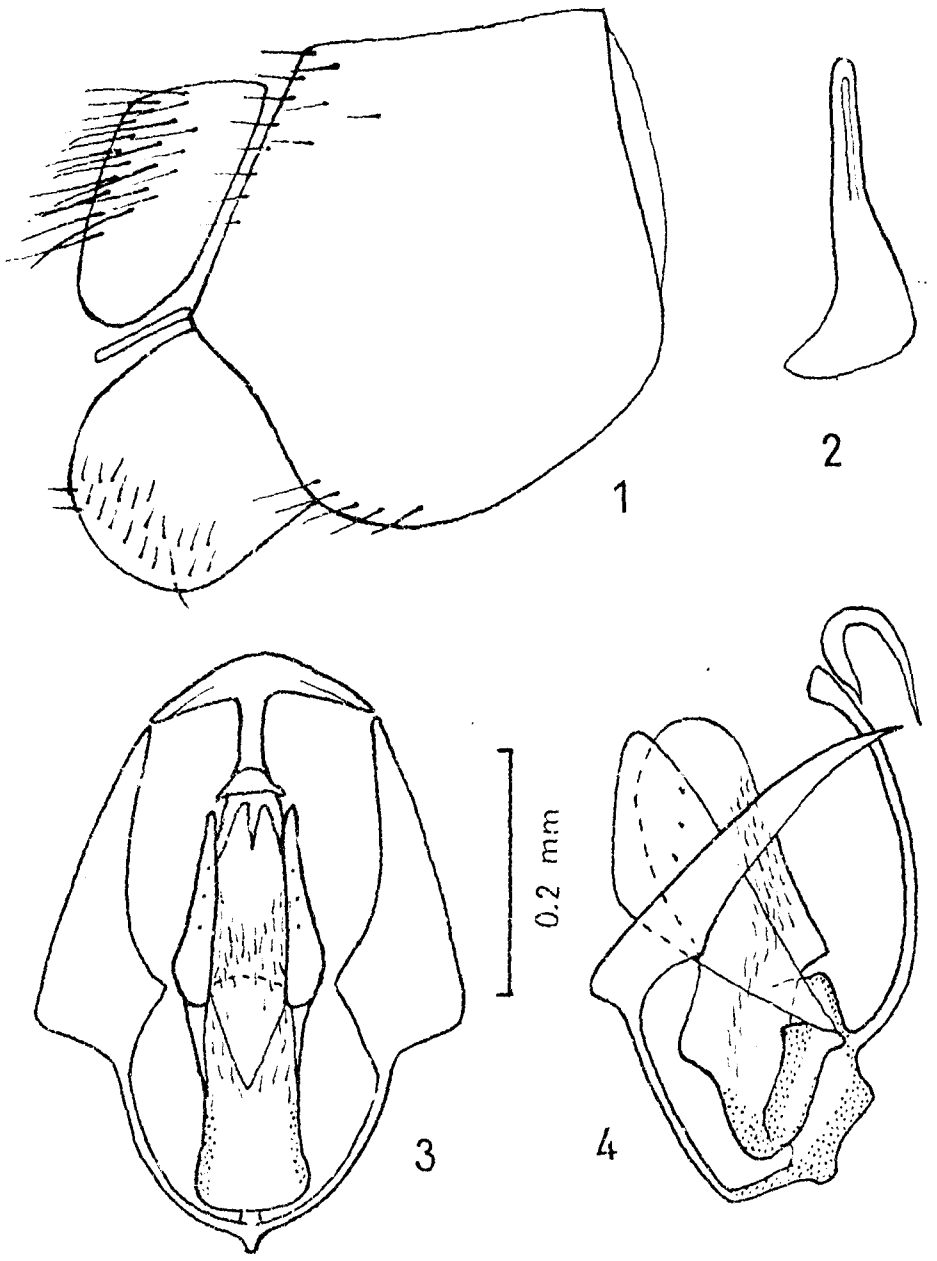


Figs. 1 - 4: *Leucophenga quinquemaculata* ♂ ; Horní Lomná. 1 - Peripallic organs. 2 - Ejaculatory apodeme. 3 - Phallic organs, ventral aspect. 4 - Phallic organs, lateral aspect.

Laštovka (1985) and Máca (1987). Males of this species are even rarer than the females. Oldenberg (1914), who treated this species in the genus *Paraleucophenga,* described *P. quinquemaculata* var. *marginalis,* without determining the sex of the specimen the variety was based on. Bächli (1982) determined this specimen to be a male and, thus, Oldenberg's description represents that of the male of *L. quinquemaculata* and the differences from the holotype, given by him, can be attributed to sexual dimorphism. Morphology of the male specimen studied by me (from Czechoslovakia) agrees with

this description, as does the morphology and pattern of the male specimen from Karelia which I have seen in the Budapest National Museum; in all three the wing pattern is almost lacking and the crossveins are only faintly darkened. The description of the male genitalia is given below for the first time.

Periphallic organs (Fig. 1). Epandrium rather long, with narrow basal apodeme and the bristles of undermargin well separated from the group of bristles at posterior margin. Anal cercus somewhat narrowed ventrally. Arrangement of the bristles as usual in the *ornata* group (Bächli, 1971, p.11). Surstylus with relatively short hairs. Decasternum narrow. Ejaculatory apodeme (Fig. 2) like in *L. quinquemaculipennis* Okada, 1956, dilated part without tiny marginal incisions.

Phallic organs (Figs 3 - 4). Hypandrial arms of more deltoid shape than in *L. quinquemaculipennis;* without hypandrial setae. Anterior parameres with three sensillae each. Dorsal plate of aedeagus narrow, ventral process hairy. Posterior paramere (according to Okada, 1966) T-shaped, with wide arms.

M a t e r i a l s t u d i e d : Moravia-Silesia, Horní Lomná (6748), fly trap with fermented fruit, viii.-ix. 1986 (correct date not specified), 1 ♂, M. Barták legit.

A f f i n i t i e s. Bächli (1971) assigned *L. quinquemaculata* to the *ornata* group preliminarily; he noted that this group might be heterogenous, but it does not seem necessary to split this group at present. The most closely related species - *L. quinquemaculipennis* Okada - can be distinguished from *L. quinquemaculata* mainly by the shape of epandrium and hypandrial arms and (according to the original descriptions) male abdominal pattern.

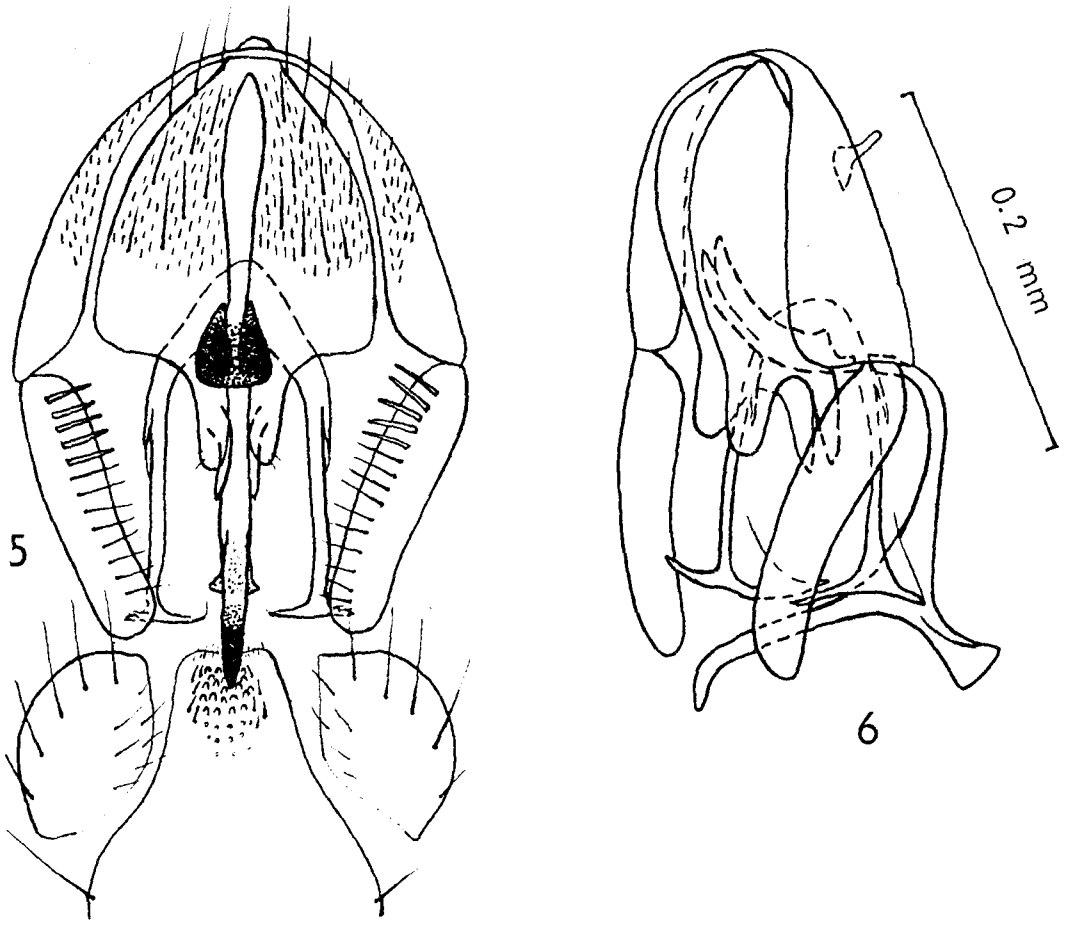
Microdrosophila (s. str.) *congesta* (Zetterstedt, 1847)
(Figs 5 - 6)

The study of morphology of *M. congesta* is of great importance, as this is the type of the subgenus *Incisurifrons* Duda, 1924, now placed into synonymy with *Microdrosophila* s. str.

The homology of terminalia of the genus *Microdrosophila* is not firmly established as yet. The construction of genital structures is evident from Figs 5 - 6. Ejaculatory apodeme is very small. 6th tergite apically with a patch of tiny nipples and a pair of sclerites adjacent to its apex.

M a t e r i a l s t u d i e d : Moravia-Silesia, Muřinkový hill in Moravskoslezské Beskydy Mts., 950 m (6477), fly trap, iv. - vi. 1987, 1 ♂, M. Barták legit.

A f f i n i t i e s. Male terminalia similar to *M.* (s. str.) *duplicicristata* Okada, 1985 in the bilobed aedeagus with rod-like lobes; the 6th sternite is also of similar construction in both species. However, according to the key of Okada (1985), *M. congesta* would be placed quite apart from *M. duplicicristata,* in couplet 16, where it represents an odd



Figs 5 - 6: *Microdrosophila congesta* ♂; Muřinkový hill. 5 - Male terminalia, ventral aspect. 6 - Male terminalia and ejaculatory apodeme, obliquely lateral aspect (6th sternite with adjacent sclerites and all bristles omitted).

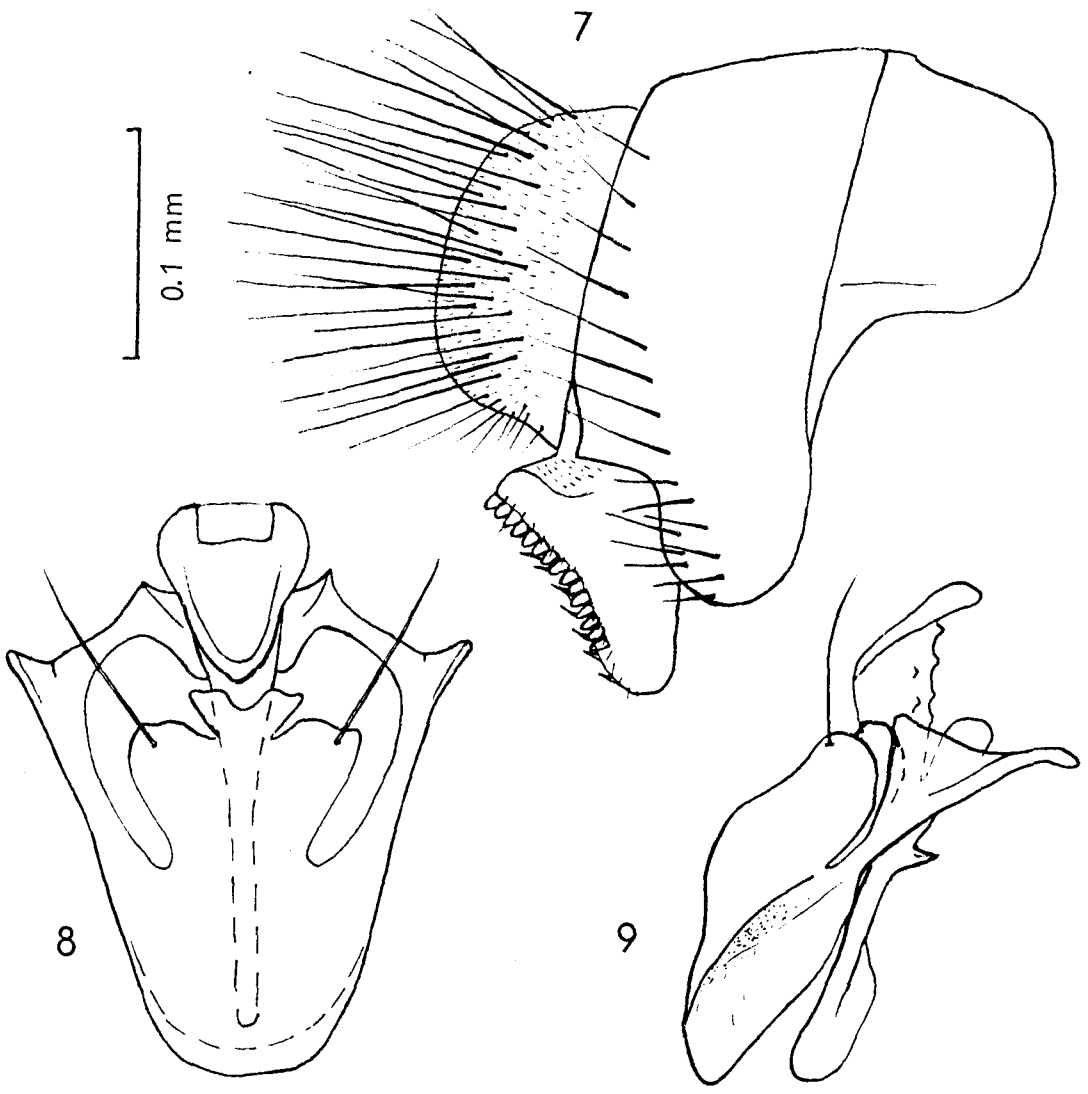
placement through the combination of characters: surstylus rod-like, proclinate orbital bristle outside posterior reclinate.

Hirtodrosophila toyohiokadai (Sidorenko, 1990), comb. n.

(Figs 7 - 9)

Drosophila (Lordiphosa) toyohiokadai **Sidorenko, 1990**

Male. Arista with two upper and two lower rays, exept of apical fork. Antenna yellow, 3rd segment (1st flagellomere) not elongate, with normal bristles. Frons yellow, frontal triangle slightly darker. Width of frons greater than the length, lateral margins slightly convergent anteriorly. 2nd orbital bristle less than 1/4 the length of the 1st, which is subequal to the 3rd. Facial carina low, with sharp ridge, in the lower third of face terminated by tranverse groove. Face yellow. Genae yellow, slightly brownish at lower



Figs 7 - 9: *Hirtodrosophila toyohiokadai* ♂; Stakčín. 7 - Periphallic organs. 8 - Phallic organs, ventral aspect. 9 - Phallic organs, lateral aspect.

margin, greatest width about 1/6 that of the longest diameter of eye. Eyes dark purple, with scarce pale pilosity.

Two humerals. Mesonotum pale brown anteriorly (in front of the suture), posterior part with wide dark strip between dorsocentrals (this terminates anteriorly in the shape of trident) and a narrow dark strip laterally from each dorsocentral line. Acrostichals in six almost regular lines. No prescutellars. Scutellars not preserved. Pleura marmorate, both anepisternum and katepisternum mostly dark, but the border line between them pale. 1st katepisternal bristle little shorter than the 3rd, the 2nd shorter than 1/5 of the 3rd. Legs yellow. Weak apical bristles developed on all tibiae, preapical bristles only on

the hind tibiae. Middle femora ventromedially at base each with a bristle which is as long as the diameter of femur, like in *H. cameraria* (Haliday) - see Basden (1961). Tarsi about as long as the tibiae, fore tarsi longer than tibiae; without cuneiform bristles. Wing length 2.7 mm. Wing membrane darkened. Dark area covers: r_1 cell except base, most of r_3 cell (area under basal 1/4 of R_3 and narrow apex of the cell paler) and anterior half of r_5 cell. Thus, the wing pattern somewhat resembles the male of *Drosophila tristis* Fallén. C-i 2.5, 4v-i 1.3, 4C-i 1.0, 5x-i 1.5, C_3 fringe 0.3. M_1 slightly bent anteriorly behind posterior crossvein.

Abdominal tergites with medially interrupted dark bands posteriorly. Periphallic organs: epandrium (Fig. 7) with huge apodeme; heel lobular, with about ten bristles; a line of eight long setae quite apart from the posterior margin of epandrium, at least in its lower part (such line being characteristic for *Hirtodrosophila*). Anal cerci large, covered with microtrichiae and with long bristles somewhat shortened on the ventral part, but not in a form of tuft. Surstylus somewhat elongated anteriorly, with a row of 15 primary dentiform bristles which approaches posterior corner of the surstylus but not anterior corner. 18 thick, almost cuneiform bristles scattered over the inner surface of surstylus except its posterior part. Decasternum roughly triangular as the surstyli come close together in the caudal direction.

Phallic organs (Figs 8 - 9): Anterior lobe of hypandrium with large apodeme, each concha with strong seta, hypandrial arms connected posteromedially by posterior paramere. Anterior paramere small, paired but coalescent at base. Aedeagus widened apically; dorsal surface nippled and projecting apically into two lobes.

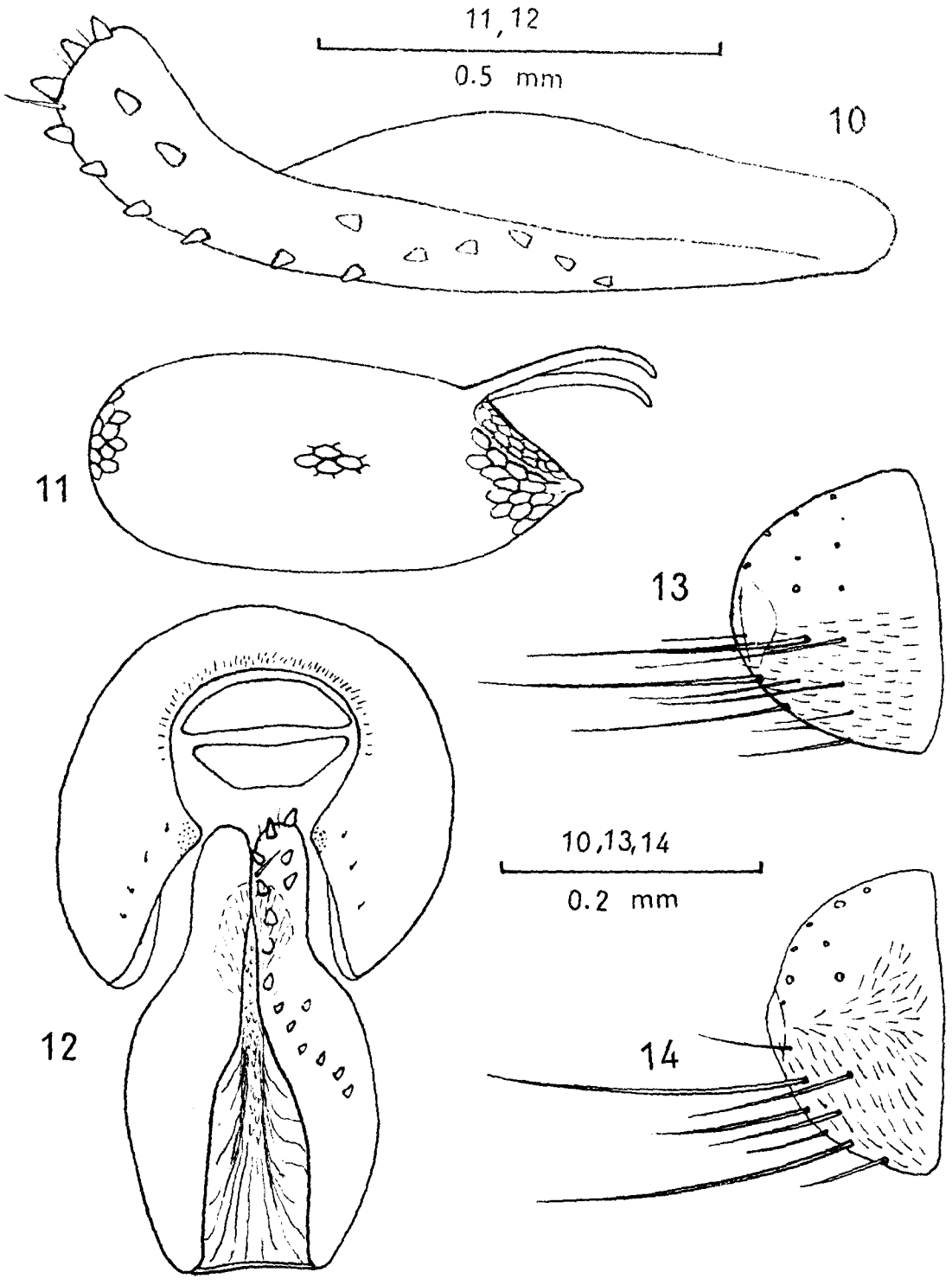
Material studied: Slovakia or., Stakčín (6999), on rotting tree trunk, 12.vi.1986, 1 ♂, J. Roháček legit.

Affinities. According to the morphology of male terminalia, katepisternal bristles etc., this species should be arranged in the *quadrivittata* group, *confusa* subgroup of the genus *Hirtodrosophila,* as defined by Okada (1967), where it is distinguished by darkened wings (of male), basal seta of middle femur and nippled aedeagus projecting into two lobes. There are some differences from the original description in the specimen from Slovakia, but they do not seem to excess limits of the geographical variability of the species. Female specimen collected in Slovakia or., Ruský Potok (6900), on decayed fungi, 5.viii.1985 by J. Roháček, may belong to the same species but additional specimens are desirable to confirm it. The specimen has completely clear wings, thus resembling *H. cameraria* (Holiday), but the arista has two lower rays.

Lordiphosa miki (Duda, 1924)

(Figs 10 - 14)

Male. Complementary data to the original description were given by Laštovka & Máca (1978). In some males, as well as in the females, apical bristle of palpus reaches the length of vibrissa.



Figs 10 - 14: *Lordiphosa miki* ♀; Lednice. 10 - Egg-guide, lateral aspect. 11 - Ovarial egg. 12 - 8th tergite and egg-guide, posterior aspect. 13 - Supraanal plate. 14 - Subanal plate.

Female (femina nova). Similar to male with the exception of the termi... 8th tergite (Fig. 12) ventrally with 3 - 4 small cuneiform bristles on each side. ... ermatheca subcylindrical, as high as wide, with long introvert. Ovarial egg as in Fig. 11. Anal plates slightly wider than long (the lower one more conspicuously so), each with 8 - 10 pairs of longer setae. Egg-guide narrow whole length, like in *L. hexasticha* (Papp) - its greatest width about 1/8 of the length - but subterminal bristle short and with about 17 cuneiform teeth (*L. hexasticha* about 12 teeth). Inner margin of egg-guide sinuate in ventral aspect. Vaginal complex much like *L. nigricolor* (Strobl), with numerous longitudinal grooves and diverticles or setulae.

Material studied: Moravia mer., Lednice, forest Horní les (7166), light trap, 20.vi.1983 - 2 ♂, 3 ♀, 19.vii.1983 - 3 ♂, J. Vaňhara legit.

Affinities. The study of female confirms the placement of this species in the genus *Lordiphosa*. The female terminalia combine, to a certain extent, the characters of the *fenestrarum* group and *denticeps* group (as redefined by Okada, 1990). Vaginal complex (its homology with oviprovector is uncertain) and the dorsal apical widening of the egg-guide resemble *L. nigricolor* (Strobl) but the egg-guide is sinuate in ventral aspect, like in some species of *fenestrarum* group. In addition to the species quoted by recent papers in *Lordiphosa,* following species classified previously in other genera - *Drosophila paralongifera* Gupta & Singh, 1981, *D. scaptomyzoptera* Duda, 1935 and *Scaptomyza spinipalpis* Séguy, 1934 - show affinities to *Lordiphosa* and probably belong there. However, the descriptions of afore-mentioned species are mostly inadequate and only in the first-named one information is given on the structure of male terminalia.

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BOOK REVIEW

Ebert G. (ed.): DIE SCHMETTERLINGE BADEN-WÜRTTEMBERGS, Vol. I, II (Butterflies), 1991, 552 pp. and 535 pp. respectively. Verlag Eugen Ulmer GmbH et Co. (Hohenheim), 1991. Price not stated.

Beyond any dispute, the first two recently issued volumes (of a total of seven planned) are a unique deed in the literature published so far on local butterfly faunae in the central European region although works conceived in this way have, thanks to Bergmann (1951), an exactly 40-year tradition particularly in Germany. It is obvious that under the guidance of Ebert, the authors let themselves be inspired by Bergmann's approach, making it still deeper and wider. The first volume comprises extensive general chapters divided into four topical groups: the first one is devoted to systematics, taxonomy and nomenclature; the second one to faunistic and ecology; the third one to the degree of jeopardy to which butterflies are exposed, and to their protection; the fourth one to the way of data processing. In each of these groups there are numerous subdivisions so that, for example, the first topical group includes a check list; the second one contains, besides characteristics of the study region, data on the local distribution and spatial division of species, their hypsometries, maps, detailed data on their bionomics, behaviour, trophic relations, migrations and population dynamics, a list of host plants, geology and climatology of the study region. The third topical group contains characteristics of the status of wildlife conservation in Baden-Württemberg, an outline of a programme for butterfly conservation, and a Red List. The fourth topical group is devoted to extraordinarily thorough documentation processed by a computer (e.g. data structure hardware, cartography, phenograms, hypsograms, checking data reliability, specific problems associated with the project, etc.).