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# NEW AND INTERESTING RECORDS OF LEAFHOPPERS FROM CZECHOSLOVAKIA (HOMOPTERA, AUCHENORRHYNCHA)

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*Abstract*

Faunistics: new findings of 14 species from Czechoslovakia; 22 new species from Moravia and 11 from Slovakia; supplemented by new findings of 1 species from Yugoslavia, 2 from Roumania, 6 from Bulgaria, and 2 from Kazakhstan. Taxonomy: *Conomelus dehneli* Nast discussed; generic classification of *Eurysa brunnea* Mel. and representatives of the genera *Delphacodes* and *Megamelodes* discussed. Morphology: *Acanthodelphax denticauda* (Boh.), origin of the form *oxyura* (Haupt) explained; *Edwardsiana soror* (Linnav.), variability of the aedeagus discussed; *Ditropis pteridis* (Spin.) and *Javesella salina* (Haupt), colour forms of females. Bionomics and host plants: *Delphacodes capnodes* (Scott), *Delphacodes venosus* (Germ.), *Megamelodes quadrimaculatus* (Sign.) and *Zygina frauenfeldi* Leth.; host plants of *Delphacinus mesomelas* (Boh.), *Javesella salina* (Haupt), *Paraliburnia adela* (Flor), *Edwardsiana smreczynskii* Dwor., *E. soror* (Linnav.), *Arboridia versuta* (Mel.), *Endria nebulosa* (Ball), *Japananus hyalinus* (Osb.), *Colladonus torneellus* (Zett.), *Calamotettix taeniatus* (Horv.). Parasitism: *Euconomelus lepidus* (Boh.), for the first time, as a host of *Strepsiptera,* the first finding of *Elenchus tenuicornis* (Kirby) in Moravia.

The Department of Entomology of the Moravian Museum, Brno has carried out a long-term investigation on the distribution of *Hemiptera* in Moravia, particulary in disappearing biotopes. During the investigation, supplemented by comparative materials from Slovakia, I have ascertained the occurrence of numerous species of leafhoppers previously unknown from the territories of either Moravia (M) or Slovakia (S). From the whole territory of Czechoslovakia, the 14 following species have not been recorded so far: *Stiromoides maculiceps* (Horv.) (S), *Conomelus dehneli* Nast (M, S), *Euides alpina* Wagn. (M), *Megamelodes quadrimaculatus* (Sign.) (M, S), *Glossocratus foveolatus* Fieb. (S), *Empoasca apicalis* (Flor) (M), *Edwardsiana smreczynskii* Dwor. (S), *Edwardsiana soror* (Linnav.) (M, S), *Arboridia versuta* (Mel.) (M), *Zygina frauenfeldi* Leth. (M, S), *Macrosteles lividus* (Edw.) (S), *Japananus hyalinus* (Osb.) (M), *Calamotettix taeniatus* (Horv.) (S), and *Cosmotettix caudatus* (Flor) (M). Besides the above, I supplement the fauna of Moravia by the 13 following species: *Delphacinus mesomelas* (Boh.), *Ditropis pteridis* (Spin.), *Euconomelus lepidus* (Boh.), *Delphax crassicornis* (Panz.), *Calligypona reyi* (Fieb.), *Delphacodes capnodes* (Scott), *Delphacodes venosus* (Germ.), *Falcotoya minuscula* (Horv.), *Javesella salina*

(Haupt), *Paraliburnia adela* (Flor), *Edwardsiana bergmani* (Tullgr.), *Endria nebulosa* (Ball), and *Colladonus torneellus* (Zett.); further, the fauna of Slovakia by the two species: *Eurysa brunnea* Mel. and *Delphacodes capnodes* (Scott). The only known localities of the species *J. salina* (Haupt) and *F. minuscula* (Horv.) in Moravia have been destroyed by terrain adaptations. The same may have happened with the localities of *S. maculiceps* (Horv.) and *G. foveolatus* Fieb. in Slovakia. The distribution of some other species has been supplemented or confirmed by more findings. Evaluating the distribution of some species, it turned out necessary to state also the so far unknown first findings from a few countries for a detailed illustration of the range; from Yugoslavia, it is *Megamelodes quadrimaculatus* (Sign.), from Roumania, *Calligypona reyi* (Fieb.) and *Paraliburnia adela* (Flor); from Bulgaria, *Ditropis pteridis* (Spin.), *Calligypona reyi* (Fieb.), *Delphacodes capnodes* (Scott), *Megamelodes quadrimaculatus* (Sign.), *Paradelphacodes paludosa* (Flor), and *Zygina frauenfeldi* Leth.; from Kazakhstan, *Calligypona reyi* (Fieb.) and *Delphacodes capnodes* (Scott). For the first time from Moravia, I give the family *Elenchidae (Strepsiptera),* the species *Elenchus tenuicornis* (Kirby), the parasites of leafhoppers.

I draw attention to the fact that the species *Eurysa brunnea* Mel. probably may be referred to the genus *Eurysula.* The question is to be solved on the basis of the morphology of larvae. Further, I draw attention to a considerable morphological and bionomic diversity of *Delphacodes albifrons* (Fieb.) from other morphologically and bionomically closely related species of the genera *Delphacodes* and *Megamelodes.* I point out the variability — projections of branches of the aedeagus reduced in the non-parasitized individuals of *Edwardsiana soror* (Linnav.) — and give the ratios of colour forms of ♀♀ *Ditropis pteridis* and *Javesella salina.* I have ascertained the bionomics, in the first two species also the occurrence of larvae, of *Delphacodes capnodes, D. venosus* and *Megamelodes quadrimaculatus*; their host plants are *Carex acutiformis, C. gracilis* and *C. riparia. Zygina frauenfeldi* is monophagous on *Sanguisorba minor, Edwardsiana soror* on *Alnus incana.* Further, I have ascertained the host plants: *Delphacinus mesomelas* — in dry places on *Sesleria calcaria*; *Edwardsiana smreczynskii* on *Ulmus* spp.; *Javesella salina* on *Puccinellia distans*; *Paraliburnia adela* on *Baldingera arudinacea* (probably monophagous); *Arboridia versuta* on *Carpinus betulus; Japananus hyalinus* on *Acer campestre, Colladonus torneellus* on *Carex brizoides*; *Calamotettix taeniatus* on *Phragmites communis*; *Endria nebulosa* probably also on *Carex* spp.

*Delphacinus mesomelas* (Boheman, 1850)

Bohemia or.: Jihlavské vrchy Hills: Suchdol, near border of the cadastre with Olšany, 640 m, 8 June, 1966, 2♂♂, 1♀, a drier peat-bog, leg. P. Lauterer.

Moravia occ.: Jihlavské vrchy Hills: Batelov, in the direction to Třešť, 550—560 m, 8 June, 1966, 1♂, remains of exploited peat-bog; Čenkov, „Proklaté louky", 570 m, 16 June, 1966, 2♂♂, 4♀♀, a mowed peaty meadow; Čenkov, 2 km NE, environs of Lovětínský potůček Brook, 580 m, 16 June, 1966, 1♂, 1♀, a peaty meadow; Čenkov, „V bahnech" (towards Lovětín), 560 m, 16 June, 1966, 2♂♂, 2♀♀, a water logged meadow; Doupě, mire „Bažantka" at the cadastre of Vanůvek and Řídelov, 595 m, 7 June, 1966, 1♂, stands of *Carex* spp. on an extensive mire; ditto, 19 June, 1978, 2♂♂; Horní Bolíkov, 630 m, 8 June, 1966, 5♂♂, 1♀, partly exploited and partly regenerating peat-bog; Horní Dubénky, towards Nová Ves, 690 m, 15 June, 1966, 3♂♂, 1♀, *Caricetum fuscae* on a peat-bog; Jezdovice, in the direction to Spělov, 590 m, 16 June, 1966, 5♂♂, 3♀♀,

stands of *Eriophorum, Carex* and *Comarum* on a peat-bog; ditto, 2 ♂♂, 2 ♀♀ (1 br., 1 ma.), *Caricetum fuscae*; Olší, Zdeňkova louka, 590 m, 15 June, 1966, 2 ♂♂, 2 ♀♀, a water logged meadow; Ořechov, boundary of the cadastre with Olšany, above Pilka Pond, 600 m, 7 June, 1966, 9 ♂♂, 7 ♀♀, a water logged meadow; Praskolesy, 580 m, 15 June, 1966, 3 ♂♂, 7 ♀♀, *Caricetum diandrae* and *Sphagnetum*; Řídelov, W—NW shore of Pilný Pond, 635 m, 19 June, 1978, 1 ♂, stands of *Sphagnum* with scattered tussocks of *Carex fusca*; Vílánec, settlement Loučky, 585 m, 16 June, 1966, 2 ♂♂, 8 ♀♀, a mottle of water logged meadows and mires with sedge stands. Arnolecké vrchy Hills: Bohdalov, 2 km SSW, 575 m, 6 June, 1966, 1 ♂, 4 ♀♀, a peaty meadow with stands of *Carex* spp.; Netín, Velký Netínský Pond (SE shore), 516 m, 15 July, 1965, 2 ♀♀, extensive mires. Žďárské vrchy Hills: Vojtěchov, Skalní Dvůr, 588 m, 25 June, 1965, 2 ♂♂, 3 ♀♀, a peaty meadow. Other parts of the Českomoravská vrchovina Highland: Kněževes, 560 m, 6 June, 1966, 4 ♂♂, 2 ♀♀, stands of *Carex* spp. on a partly exploited peat-bog; Louka at Olešnice in Moravia, Horničí, 580—590 m, 1 August, 1978, 1 ♀, swampy vegetation; Velká Bíteš, towards Košíkov, 480 m, 21 June, 1965, 7 ♂♂, 2 ♀♀, a moist meadow; Ostrov, towards Kotasy (2 km W) 540 m, 6 June, 1966, 1 ♂, small peat bogs near a rivulet in a forest; Radenice, 600 m, 5 June, 1966, 1 ♀ peaty meadows; ditto, 6 June, 1966, 4 ♂♂, 5 ♀♀; Vladislav, V Bočovci, 390 m, 13 July, 1965, 1 ♀, a steep valley of the brook.

M o r a v i a centr.: Malhostovice, Drásovské kopečky Hills, 320—350 m, 24 June, 1965, 22 ♂♂ (20 br., 2 ma.), 26 ♀♀, stands of *Sesleria calcaria* on a limestone steppe; ditto, 26 July, 1978, 2 ♀♀. Drahanská vrchovina Highland: Benešov, settlement Pavlov, 645—660 m, 4 July, 1963, 2 ♂♂, 3 ♀♀, peaty meadows; ditto, 6 June, 1979, 1 ♂; Otinoves, environs of Bílá Voda, 554 m, 2 June, 1964, 1 ♂, a moist meadow; Vratíkov, 400 m SE, 450 m, 28 June, 1977, 1 ♂, L. Pospíšilová leg.

M o r a v i a bor.: Nízký Jeseník Mts.: Hrubá Voda, 340 m, 8 July, 1962, 1 ♀, a moist meadow near the brook.

M o r a v i a mer.: Dyje, 1 km E, 230—240 m, 5 June, 1975, 1 ♀, steppe slopes above the Dyje River. Except for two cases, all the found individuals were brachypterous; all leg. P. Lauterer.

A fairly common European species, new for the territory of Moravia, generally distributed in western, southern, central and eastern Europe as far as the Urals; it is also known to occur in Kazakhstan. It has not been reported from the Pyrenean, Apennine and Balkan Peninsulae. From Bohemia and Slovakia, it is known to occur in several localities; I myself collected it in further numerous localities in Slovakia. It probably has a wider range of host plants belonging to the families *Poaceae* and also probably *Cyperaceae*. In Kazakhstan, it was collected on *Agropyron*. I myself collected it on *Sesleria calcaria* in the locality of Malhostovice. In northern and western Europe it is known to occur on lawns, dry and mesophilous meadows and on dry heaths (O s s i a n n i l s s o n, 1978; L o g v i n e n k o, 1975; L e Q u e s n e, 1960), in central Europe, it is abundant on moist meadows, mires and peat-bogs in higher and medium elevations. In mountains, macropterous individuals were mainly collected in my samples, in highlands and lower elevations, brachypterous individuals predominated. The species has a single generation a year, adults were collected from the beginning of June till the beginning of August. According to O s s i a n n i l s s o n (1978), the species hibernates in the larval stage.

*Ditropis pteridis* (Spinola, 1839)

Moravia mer.: Dolnomoravský úval: Bzenec, Bzinek Wood 1—2 km SE of the railway station, 195—200 m, 3 June, 1979, 17 ♂♂, 37 ♀♀, *Pteridium aquilinum* in the undergrowth of a pine wood on sands.

Slovakia occ.: Záhorská nížina Lowland: Cerová-Lieskové, 209 m, 3 July, 1968, 2 ♂♂, 13 ♀♀, biotope see the previous locality, all leg. P. Lauterer.

A species widespread almost all over Europe, also recorded from the Cyprus and in the Asian part of the USSR, from Georgia, it is new for the territory of Moravia. In northern and central Europe, it is quite rare, however, locally abundant, in southern Europe, more frequent. So far, it has been recorded only twice for Czechoslovakia, in Slovakia by Horváth (1897) from the environs of Starý Smokovec and from Bohemia by Duda (1892), without closer data as to the locality. The findings in Duda's collection have not been preserved, therefore, the occurrence of the species in Bohemia was indicated as dubious (Dlabola, 1977). I consider Duda's data (1892) very probable due to the fact that most of his collections were made in southern Bohemia in the wider environs of Jindřichův Hradec where, on sandy substrates, the host plant of this species is abundant. So far, the species has not been collected in Bulgaria (Nast, 1972); I collected it in the localities: Pirin Mts., Sandanski, 2—5 km NE towards Liljanovo, 230—300 m, 4—10 June, 1976, 12 ♂♂, 21 ♀♀, *P. aquilinum* in the environs of a small river; Rodopi Mts., camp Belite brezi (distr. Kărdžali), 800—900 m, undergrowth of *P. aquilinum* in a pine wood, 8 July, 1973, 2 ♂♂, 4 ♀♀. The species lives on *Pteridophyta,* nearly exclusively on *Pteridium aquilinum* (Ossiannilsson, 1978; LeQuesne, 1960), mostly in a wood undergrowth on acid sandy soils. In populations, brachypterous individuals predominate, only one macropterous female was found in southern Bulgaria. Brachypterous females have two forms differing in colour of the body and the wings: black and ferruginous to yellowish ochreous. In my material from Czechoslovakia, the black form (30 ♀♀) prevailed over the yellow one (20 ♀♀); in the collections made in Bulgaria, the contrary was true (6 ♀♀ black, 18 ♀♀ yellow). The species has a single generation a year, adults occur from May to August. LeQuesne (1960) gives the findings of adults in October as well.

*Eurysa brunnea* Melichar, 1896

Moravia occ.: Českomoravská vrchovina Highlands: Bítov, environs of the Castle, 330—400 m, 10 July, 1954, 1 ♂ (br.); Mohelno, St. Nat. Res., 260—380 m, 1 June, 1964, 1 ♀ (ma.), undergrowth of a pine wood on a serpentine steppe; ditto, 9 June, 1973, 1 ♂ (br.); Sedlešovice, Kraví hora Hill, 310 m, 27 May, 1974, 1 ♂ (ma.), leg. L. Pospíšilová; Trstěnice, 280—300 m, 6 June, 1963, 2 ♀♀ (br.), edge of a wood.

Moravia centr.: Brněnská vrchovina Hills: Brno, Kníničská přehrada Dam, a wood undergrowth between Rokle and Obora, 220—350 m, 16 July, 1954, 1 ♀ (br.); Kývalka, edge of a wood towards Rosice, 380 m, 1 June, 1964, 1 ♂ (br.), *Quercetocarpinetum.* Moravian Karst: Ochoz at Brno, Lysá hora Hill, 360—425 m, 26 May, 1964, 1 ♀ (ma.), *Quercetocarpinetum*; Brno-Stránská skála Hill, 270—307 m, 29 May, 1954, 1 ♂ (ma.), a steppe on limestone. Středomoravské podhůří Hills: Horní Bojanovice, Tabulka Hill, 250—298 m, 26 June, 1964, 1 ♀ (br.).

Moravia mer.: Pavlovské kopce Hills: Klentnice, Soutěska, 380—400 m, 10 June, 1964, 1 ♀ (br.); Perná, crest S of the top of the Kotelná Hill, 460—

480 m, 12 July, 1962, 2 ♀♀ (br.); Sedlec, S edge of the Milovický les Wood, 270—300 m, 4 June, 1964, 6 ♂♂ (2 ma., 2 br.), 8 ♀♀ (1 ma., 7 br.), undergrowth and edge of a warm oak-forest; ditto, 29 June, 1964, 1 ♂ (br.), 1 ♀ (br.). Dolnomoravský úval: Lednice, castle park, 165 m, 1 June, 1962, 1 ♀, mesophilous undergrowth; Hodonín, Pánov, 208 m, 28 May, 1963, 4 ♂♂ (3 ma., 1 br.), 1 ♀ (ma.), a pine wood on aeolian sands; Hodonín, Roztrhánky, 200 m, 11 June, 1974, 2 ♀♀ (br.); Ratíškovice, sands near the road towards Rohatec, 204 m, 4 July, 1962, 1 ♂ (br.); Ratíškovice, SE of elevation point 205.2 m, 204 m, 28 May, 1974, 1 ♀ (ma.).

Slovakia bor.: Belanské Tatry Mts.: Mt. Bujačí, Holubyho dolina, 1300 m, 21 July, 1962 1 ♂ (ma.), a sunny alpine avalanche trough on limestones with numerous xerothermophilous elements.

Slovakia centr.: Malá Magura Mts.: Bojnice, Kalvária, 350—400 m, 19 June, 1964, 1 ♀ (br.), a forest-steppe; with one exception all leg. P. Lauterer.

A European species, so far little known as to its distribution, new for the territory of Slovakia. It is known to occur in the German F. R., the German D. R., Austria, Hungary, and Tunisia; from Czechoslovakia, so far, only two localities from Moravia have been published: Pavlovské kopce Hills and Mohelno (Dlabola, 1957). In Moravia, in favourable localities, it is not rare; I collected it more frequently than the related species *Eurysula lurida* (Fieber). It occurs in the undergrowth of xerothermophilous woods (*Quercetum, Quercetocarpinetum,* stands of *Pinus)* with sandy, serpentine or limestone substrate in lower elevations (220—400 m). Its occurrence is exceptional in open stands on limestone steppes, the finding in the alpine avalanche trough is single. The species has one generation a year, aduls occur from the end of May till the end of July. In my collections, brachypterous individuals prevailed over macropterous in the approximate ratio of 2.5 : 1; in *Eurysula lurida,* it was the contrary. Habitually, the two species resemble much each other and at a cursory glance, their females can be mistaken. So far, larvae of the species *E. brunnea* have not been recorded and it is probable that their incidental investigation will bear evidence of their being congeneric with *Eurysula lurida* (Fieber) and not with *Eurysa lineata* (Perris).

*Stiromoides maculiceps* (Horváth, 1903)

Slovakia occ.: Záhorská nížina Lowland: Malacky, Bahno, 1 km S of the game-keeper's lodge „Červený kříž", 180 m, 28 July, 1969, 3 ♀♀ (br.), undergrowth of a pine thicket on dunes of aeolian sands, leg. P. Lauterer.

An outstanding psammophilous species, described from Hungary, recorded in Finland and Mongolia as well; in the USSR, it occurs in Estonia, Siberia and in Kazakhstan. So far, in Czechoslovakia, no representative of this species has been recorded. The range of distribution of the species is probably in central Asia, from where it has invaded the sandy biotopes of central Europe and of the Baltic Republics. The species was collected in only one locality, several tens of metres of the place where the psammophilous species of a similar character — *Pantallus alboniger* (Lethierry) — occurred. In a subsequent year, the biotope — remains of a grassy undergrowth in a pine thicket — was shadowed by growing pines, which resulted in the suppression of the grassy undergrowth and the species may have become extinct in the locality. Host plants are psammophilous *Poaceae,* probably the representatives of the genus *Festuca.* Vilbaste (1971) collected the species very rarely also in the undergrowth of a pine thicket — a forest nursery — in Estonia.

*Euconomelus lepidus* (B o h e m a n, 1847)

M o r a v i a occ.: Českomoravská vrchovina Highland: Mohelno, banks of the Jihlava River, 250 m, 30 September, 1972, 4 ♂♂ (br.), 1 ♀ (br.); Valeč, 419 m, 14 July, 1965, 18 ♂♂ (3 ma., 15 br.), 11 ♀♀ (5 ma., 6 br.), a wet meadow to a marsh.

M o r a v i a centr.: Moravian Karst: Brno-Líšeň, Říčka river valley at Muchova bouda, 260 m, 21 August, 1960, 2 ♂♂ (br.), 2 ♀♀ (br.), one larva of the 5th instar, a marsh with stands of *Carex* spp. and *Juncus.*

M o r a v i a mer.: Dyjskosvratecký úval: Milovice, inundation of the Dyje River towards Bulhary at the edge of a wood, 166 m, 26 June, 1964, 3 ♂♂ (br.), all leg. P. Lauterer.

A Euro-Siberian species, new for the territory of Moravia. Widespread in Europe — its occurrence has not been recorded only from the countries of the Iberian Peninsula, Albania and Greece. It occurs also in Mongolia, widely in the Asian part of the USSR: in Georgia, Azerbaijan, western and central Siberia, the Altai, Kazakhstan, Kirghizia, and Uzbekistan. In its range, the speces occurs rather locally but then abundant and only in some places like central and southern Finland it is generally abundant (O s s i a n n i l s s o n, 1978). In Czechoslovakia, it has been rarely collected in a few localities in Slovakia and in Bohemia (D l a b o l a, 1954). It is hygrophilous, living on mires and swampy lands, in the environs of streams and reservoirs with dominant stands of sedges. The host plant has not been established unequivocally: L e Q u e s n e (1960) and V i l b a s t e (1971) state *Juncus*; H a u p t (1935) and L o g v i n e n k o (1975), *Carex*; O s s i a n n i l s s o n (1978), a representative of the family *Cyperaceae*; I myself collected the species in the locality with dominant *Scirpus* in Bulgaria. The species is monovoltine, adults occur from the beginning of June till the end of the growing season, it hibernates in the egg stage (L o g v i n e n k o, 1975). In Moravia, it occurs rarely, I have not ascertained it on the carefully studied marshy lands and peat-bogs of the Jihlavské and Žďárské vrchy Hills. One larva of the 5th instar from the collection in Brno-Líšeň was parasitized by a representative of the order *Strepsiptera,* probably by a male *Elenchus tenuicornis* (K i r b y) (emerged pupa). So far, the species *E. lepidus* has not been given among the hosts of the parasites of the order *Strepsiptera.*

*Conomelus dehneli* N a s t, 1966

M o r a v i a mer.: Dolnomoravský úval: Hodonín, Pánov, 200—208 m, 16 September, 1963, 1 ♂, abandoned sands near a wood edge with stands of *Juncus,* leg. P. Lauterer.

S l o v a k i a occ.: Záhorská nížina Lowland: Borský Jur, Sv. Urban, 165 m, 24 September, 1968, 1 ♂, 3 ♀♀, fens on sands, leg. J. Stehlík; Cerová-Lieskové, between game-keepers' lodges Rudava and Pustý mlýn, 209 m, 3 July, 1968, 6 ♂♂, 7 ♀♀, stands of *Juncus* on sands, leg. P. Lauterer; Jakubov, 152 m, 18 October, 1968, 2 ♂♂, 3 ♀♀, environs of a pond, leg. L. Pospíšilová; Malacky — Červený kříž, Mešterova lúka, 180 m, 28 July, 1969, 1 ♂, 4 ♀♀, an extensive mire, leg. P. Lauterer; all individuals brachypterous, one ♀ macropterous.

A new species for the territory of Czechoslovakia. By its size, coloration and habitat, it quite resembles the common species *C. anceps* (G e r m a r) and hence, its distribution is little known so far. Described from Poland where it has occurred in three localities. It belongs to the group of closely related

taxa of the species C. lorifer Ribaut, inexactly described from Italy in 1948. The description was carried out only by a complex figure of the genital block of the male, somewhat desiccated and thus deformed, the type material was not available to revisers. The closely related species *C. odryssius* Dlabola, 1965 was described from Bulgaria; so far, no direct comparison of the type material with the species *C. dehneli* has been made. I have found a population of a similar taxon in Bulgaria (Central Pirin Mts., Papaz Čair, Popski preslop, 1500 m, 13 August, 1972, 5 ♂♂, 13 ♀♀, environs of a spring on a sandy meadow with stands of *Juncus* sp.) which Dr. Dlabola kindly compared with the holotype of *C. odryssius;* differences have been found as regards the shape of the genital block of male in both lateral and caudal views and the taxon has been included next to *C. dehneli.* This population, however, differs from the material from Czechoslovakia by a more slanting shape of the lateroapical part of the parameres (transition to *C. lorifer)* and by the aedeagus that bears 18 spinules reaching as far as the bend of the aedeagus. The considerable morphological similarity may have probably caused some confusions in the literature. A finding of *C. lorifer* in the German D. R. (Schiemenz, 1970) probably belongs to *C. dehneli,* the same holds for a part of the findings published as *C. odryssius* from the Ukraine, especially from the Transcarpathian one (Logvinenko, 1975); this author states *C. dehneli* as a younger synonym of *C. odryssius.* Nor is Jankovič's data (1976) unequivocal as to the occurrence of *C. odryssius* in Yugoslavia. I collected the species only on moist localities with a sandy substratum on the stands of *Juncus* spp. The close related species *C. anceps* (Germar) generally occur in the western part of the Palearctic Region in the localities with clayey and swampy substrata, it does not avoid a sandy substratum.

After the manuscript of the present paper had been submitted to press, there appeared the paper by Remane & Asche (1979) treating in detail the taxonomy of the genus *Conomelus.* According to that paper, my specimens from Bulgaria are indentical with *Conomelus filifer* Remane & Asche, 1979, and my specimens from Czechoslovakia appear to be a transitional from between *C. dehneli* and *C. filifer* (in my specimens from Czechoslovakia, I have found 12, 13, 14, 15 and 16 spinules on their aedeagus, averaging 14.25). M. Asche (in litt.) kindly informs me that more recently, having revised the type material, the authors have found that *C. filifer* is a younger synonym of *C. dehneli.* Their opinion is confirmed by the finding of the transitional forms in our territory. Most probably, this is a case of clinal variability in which the number of spinules on the aedeagus increases towards the south.

*Delphax crassicornis* (Panzer, 1796)

Moravia mer.: Pavlovské kopce Hills: Klentnice, border of the cadastre with Perná, 310 m, 9 August, 1962, 1 ♀, stands of *Phragmites communis* on a spring near the top of the road connecting villages, leg. P. Lauterer.

An infrequent to rare, conspicuously big species of transpalearctic distribution, new for the territory of Moravia. Except for Great Britain, France and a part of the Balkan Peninsula, it is known to occur in all other parts of Europe, Tunisia, from the Asian part of the USSR, it has been recognized in the Transcaucasia, Kirghizia, Kazakhstan, Tajikistan, and the Maritime Territory, further, in central China and Japan. From Czechoslovakia, only Duda's old finding (1892) has been published with no closer data as to the locality in Bohemia. The species lives on *Phragmites communis* (Ossiannilsson,

1978; Haupt, 1935 and others). Logvinenko (1975) considers the data uncertain due to the fact that this hygro- to mesophilous species has been collected in the area of the USSR more times in such places where no reeds grow; however, no other host plant is stated. Adults occur from the other half of June till September, the species probably has a single generation annually and hibernates in the larval stage (Logvinenko, 1975).

*Euides alpina* Wagner, 1948

Moravia mer.: Dolnomoravský úval: Hlohovec, U Tří grácií, 175—180 m, 30 May, 1977, 1 ♂ (br.), a muddy pond in woods, leg. P. Lauterer.

One of the rarest representatives of the family, new for the fauna of Czechoslovakia. So far, it has been recorded from Europe in three localities: Austria, described (Voralberg, Franstanz); Poland (Bialowiesky Park Narodowy) and from Daghestan in the Caucasus. It has been also recorded in Kazakhstan and Kirghizia. It was described according to brachypterous individuals of both sexes; our individual fully coincides with the original description as to its habit, shape of the genitalia and coloration. It lives on *Phragmites communis*. Another representative of the species, *E. speciosa* (Boheman) is abundant in Czechoslovakia, its males are exclusively macropterous. Individual was found on small stands of reed in the undergrowth of a shady wood and on wood edges of a small pond on the brook emptying from the south into Prostřední Pond of the Lednické Ponds.

*Acanthodelphax denticauda* (Boheman, 1847)

Bohemia occ.: Plzeň, 1898, 3 ♂♂, 2 ♀♀, leg. L. Melichar.

Moravia occ.: Českomoravská vrchovina Highland: Kojetice, 1 km NW, 485 m, 19 July, 1976, 1 ♂, a moist to mesophilous meadow in environs of a brook, leg. P. Lauterer.

Moravia centr.: Brněnská pahorkatina Hills: Omice at Brno, environs of the railway station, 279 m, 13 May, 1969, 1 ♂, a moist meadow in the valley of the Obrava River, leg. J. Stehlík.

A European species, largely distributed over northern, western, central, and eastern Europe; not recognized in the Pyrenean, Apennine and Balkan Peninsulae. It occurs also in the Transcaucasia and Azerbaijan. In most of its range, it is very rare and sporadic; only in the territory of Sweden, it is abundant in some places (Ossiannilsson, 1978). In Czechoslovakia, it was published from Bohemia by Duda (1892) without any indication of the locality, and by Dlabola (1954) from one locality. Further, it has been found to occur in the Czech part of Silesia (Then, 1886), administratively attached to Moravia between the two world wars, in Horní Suchá, at Karviná. Previous lists did not include it in the Moravian findings and, therefore, it is also missing in later catalogues (e. g., Nast, 1972) from the Moravian-Silesian Country. I confirm the occurrence of the species in Moravia by stating two more localities. Males show a morphological peculiarity, singular in the family *Delphacidae*. Long wing-shaped projections of the pygophore, usually protruding along the anal tube backwards and to the sides, are poorly sclerotized innerly approximately along the end of the anal tube; probably due to desiccation, they can medially bend rectangularly covering thus sides of the genital phragm and of the anal tube. Thus, a form originates which had been described as the species *Liburnia oxyura* Haupt, 1935, belonging to *A. denticauda* (Boh.), as already correctly ascertained by Melichar (1896). After the genital

block has been boiled in the acetic acid or in a solution of potassium hydroxide, the dorsal projection of the pygophore becomes erect again. The species lives on clearings, most meadows and cereal fields; *Calamagrostis lanceolata* is given as the host plant; in the laboratory, it was reared on *Deschampsia caespitosa*. The stated host plant did not occur in the Moravian localities, the species can probably live on more species of *Poaceae*.

*Calligypona reyi* (F i e b e r, 1866)

M o r a v i a mer.: Dolnomoravský úval: Valtice, shore of Nesyt Pond towards Sedlec, 179 m, 4 August, 1961, 1 ♂ (br.), 6 ♀♀ (br.), a wide flat shore thickly overgrown with the stands of *Phragmites*, *Juncus* and with ruderal plants, leg. P. Lauterer.

A Euro-Siberian species, known to occur in most of Europe, except for the Iberian and most of the Balkan Peninsulae, in the Asian part of the USSR, it has been recorded in Tajikistan, Uzbekistan and the Maritime Territory and also in Mongolia. New for the territory of Moravia. Throughout its range, it is rare to very rare (O s s i a n n i l s s o n, 1978). It has been reported as occurring in one locality each in Bohemia and Slovakia. I have ascertained the occurrence of the species also in the following three countries where it had not been recorded previously: R o u m a n i a mer. or.: Mamaia Spa, 5—10 m, August, 1958, 3 ♂♂, 11 ♀♀, dead specimens, collected inside lamp domes of the lanterns on a sandy stripe between sea and Lake Siutghiol; leg. P. Štys. B u l g a r i a mer. or.: Arkutino, 1—10 m, 12 July, 1973, 1 ♀, marshes at the estuary of the Ropotamo River, leg. P. Lauterer; Harmanli, camp 2 km SE, 100 m, 20 July, 1971, 2 ♀♀, dead specimens, collected inside lamp domes 500 m of the Marica River, leg. P. Lauterer. K a z a k h s t a n centr.: Džambul, environs of the Talas River, 500 m, June, 1964, 5 ♀♀, leg. J. Gottwald. All the collected specimens were macropterous. As host plants, the following are stated: *Scirpus* spp. sensu lato (V i l b a s t e, 1971: *Schoenoplectus lacuster* and *S. tabernaemontanii*) and *Juncus* (O s s i a n n i l s s o n, 1978), incidentally *Juncus communis* (H a u p t, 1935). I have ascertained that the species is strongly attracted by the artificial light of lamps. It has a single generation annually, adults were collected from May to September, it hibernates in the larval stage.

*Delphacodes capnodes* (S c o t t, 1870)

B o h e m i a occ.: Karlovy Vary, 5 April, 1937, 1 ♀, leg. W. Reinhard.

M o r a v i a occ.: Jihlavské vrchy Hills: Lipolec, Pařezné louky, 535 m, 4 May, 1966, 3 ♂♂, a moist peat-bog with stands of *Carex* spp., leg. P. Lauterer.

M o r a v i a centr.: Brněnská pahorkatina Hills: Brno-Lesná, environs of small ponds at a wood brooklet towards Soběšice, 280 m, 12 February, 1971, 10 ♀♀, sweeping on dead damp leaves *Carex acutiformis* and *C. gracilis* on a frozen pond at 2—5 °C, leg. P. Lauterer; ibid., 20 March, 1971, 1 ♂, 2 ♀♀, sweeping after sunset at 10—12 °C; ibid., 1972, pitfall traps, leg. A. Merta, in data: 18 April (3 ♀♀), 16 May (1 ♀), 13 June (1 ♀), 9 August (1 ♀), 28 September (1 ♀); Česká at Brno, 1 km SSE, at the confluence of the Ponávka River and the brook from Česká, 260 m, 9 April, 1972, 1 ♀ (ma.), sweeping on dead leaves of *Carex acutiformis* on a marsh, leg. P. Lauterer.

M o r a v i a mer.: Dolnomoravský úval: Sedlec, extensive reeds and stands of *Carex riparia* on W shore of Nesyt Pond, 179 m, pitfall traps in 1969, leg. R. Obrtel, in data: 29 April (2 ♀♀), 21 May (1 ♀), 30 July (17 ♀♀), 12 August (17 ♀♀), 3 September (9 ♀♀), 7 October (3 ♀♀).

Slovakia occ.: Záhorská nížina Lowland: Kúty, 158 m, 17 July, 1969, 1 ♀, leg. J. Stehlík; Velké Leváre, Mokré lúky, 170—180 m, 1 July, 1968, 1 ♀ (ma.), leg. P. Lauterer. Dunajská nížina Lowland: Bratislava, Svätojurský šúr, 141 m, 26 July, 1958, 1 ♀ (ma.), *Caricetum,* leg. P. Lauterer; Gbelce, 126 m, 5 June, 1960, 1 ♀ (ma.), an extensive marsh, leg. P. Lauterer. Unless otherwise stated, brachypterous individuals were collected.

A rare paludicolous and partly also tyrphophilous species of seclusive life habit, of so far insufficiently investigated distribution, new for the territories of Moravia and Slovakia. Until present, it has been collected nearly exclusively in northern, western and central Europe and is therefore considered a boreoalpine, incidentally boreomontane, sphagnetophilous species. It has been reported from England, the Netherlands, Sweden, the German F. R., the German D. R., Poland, Czechoslovakia (in 3 localities in Bohemia), Hungary, Yugoslavia, and in the USSR, from Estonia. Remarkable was the finding of the species in Afghanistan (Dlabola, 1972) in warm hills (470 m) of the Turanian Lowland. I add further localities from warm situations of southern countries, in which the occurrence makes necessary one revise the hitherto prevailing opinion as to the type of distribution. The distribution range of the species reaches as far as southern Europe and central Asia: Bulgaria mer. or.: Harmanli, 2 km SE, camp, 100 m, 20 July, 1971, 5 ♀♀ (ma.), dead specimens, collected inside lamp domes, 500 m of the bank of the Marica River, leg. P. Lauterer. Kazakhstan centr.: Džambul, environs of the Talas River, 500 m, June, 1964, 1 ♀ (ma.), together with *Calligypona reyi* and *Paraliburnia adela,* leg. J. Gottwald. The species is extremely hygrophilous and psychrophilous and prefers habitats with 100 % relative air humidity. In the mild thaw, it was abundant on dead leaves of sedges on a frozen pond in mid-February and in active state at the temperature slightly above zero. I swept it after sunset, in fog and likewise under high air humidity. Otherwise, it lives on soil and water surfaces in Magnocariceta, being often collected in such places in pitfall traps; at Sedlec, it was dominant together with *Delphacodes venosus* (Germar) in the fauna of leafhoppers. H. Strübing (Ossiannilsson, 1978) supposed that *Eriophorum* was its host plant. I collected the species only on *Carex acutiformis, C. gracilis* and *C. riparia* in places, where *Eriphorum* did not occur. Therefore, I suppose that this *Cyperaceae* are its host plants. I confirm Müller's and Remane's observations (Ossiannilsson, 1978) that the species hibernates in the adult stage. It has probably a single generation a year, females survive during a year as late as the emergence of adults of a new generation and adults are collected all the year round. At Sedlec, I have ascertained 4th and 5th instar larvae from the end of July (July 30) till the end of September (September 24); however, three 3rd instar larvae occurred once more in November (November 4).

*Delphacodes venosus* (Germar, 1830)

Moravia occ.: Jihlavské vrchy Hills: Kaliště, 645 m, 4 May, 1966, 1 ♂; Kněževes, border of cadastres with Ostrov nad Oslavou and Radostín, 520 m, 19 September, 1966, 2 ♀♀; Kněževes, environs of small ponds, 550 m, 19 September, 1966, 1 ♀; Kostelní Myslová, Velký Huličský Pond, 525 m, 3 May, 1966, 1 ♀; Lipolec, Pařezné louky, 535 m, 4 May, 1966, 4 ♂♂, 3 ♀♀ (1 ma.), a moist peat-bog; ibid., 535 m, 4 May, 1966, 2 ♂♂, a grassy peaty meadow; Mysletice, 530 m, 3 May, 1966, 1 ♀; Olší, Zdeňkova louka, 590 m, 3 May, 1966, 1 ♂; Řídelov, NW shore of Pilný Pond, 635 m, 7 June, 1966, 1 ♂, 1 ♀, on stands of *Carex limosa* and *C. rostrata.* Žďárské vrchy Hills: Budeč, NE shore of Babin Pond, 575 m, 16 May, 1966, 1 ♀, on stands of *Carex limosa;* Vojtěchov, Skalní Dvůr,

588 m, 25 June, 1965, 1 ♀. Other parts of the Českomoravská vrchovina Highland: Nyklovice, 3 km WNW Olešnice na Moravě, 665 m, 19 September, 1963, 1 ♀ (ma.), swampy meadows at the Olešnička Brook; Radenice, SE of the village, 600 m, 28 April, 1966, 1 ♀ (ma.); collected on peat-bogs of various types and on peaty meadows with stands of *Carex* spp., especially on *C. fusca, C. lasiocarpa, C. limosa,* and *C. rostrata.*

M o r a v i a centr.: Brněnská pahorkatina Hills: Brno-Lesná, environs of small ponds and of a brooklet towards Soběšice, 280 m, 12 February, 1971, 1 ♂, swept on dead leaves of *Carex acutiformis* at 2—5 °C on a frozen pond; ibid., 30 March, 1971, 1 ♂, 2 ♀♀ (1 ma.); Česká at Brno, towards Mokrá Hora, a mire at the confluence of the Ponávka River and the brooklet from Česká, 260 m, 9 April, 1972, 2 ♂♂, 4 ♀♀; Útěchov at Brno, U jezírka, 300 m, 18 March, 1972, 1 ♂, stands of *Carex acutiformis* on a small marsh in the environs of a brooklet in a small closed valley in woods.

M o r a v i a mer.: Dyjskosvratecký úval: Dolní Věstonice, overgrown dead arms in a lowland forest between Sand and Komárek, 168—170 m, 24 March, 1973, 4 ♂♂ (2 ma.), 9 ♀♀ (4 ma.), on stands of *Carex riparia* and *C. acutiformis*; Starovice, 183 m, 19 April, 1962, 1 ♂, swampy halophilous vegetation in the environs of a small pond; Velké Němčice, Brodač, 177 m, 19 April, 1962, 2 ♀♀, halophilous vegetation on mires; ibid., 26 April, 1962, 1 ♂, leg. I. Vavřínová; ibid., 4 October, 1962, 1 ♂, 1 ♀. Dolnomoravský úval: Sedlec, extensive reeds and stands of *Carex riparia* on W shore of Nesyt Pond, 179 m, pitfall traps in 1969, leg. R. Obrtel, in data: 10 July (1 ♀), 30 July (11 ♂♂, 22 ♀♀), 12 August (31 ♀♀, from them 1 ma.), 3 September (4 ♀♀), 7 October (1 ♀). Unless otherwise stated, all brachypterous individuals, leg. P. Lauterer.

A fairly abundant European paludicolous and psychrophilous species, known to occur in all Europe, except for the Pyrenean Peninsula and the south of the Balkan Peninsula. In Czechoslovakia, it has so far been recorded in a few localities of Bohemia, new for the territory of Moravia. According to L e Q u e s n e (1960), the species lives in marshy places, often near base of rushes *(Juncus)* or in *Sphagnum;* according to O s s i a n n i l s s o n (1978), it is a tyrphobiont, living „on grasses among *Sphagnum* and other mosses in marshy biotopes, deep down in the moss cover. Adults in August — June, hibernation takes place in the adult stage". It is apparent from the findings in Moravia that the host plants of the species are obviously the species of the genus *Carex* in moist, marshy and peaty biotopes. It is not confined to the presence of moss cover. I have never observed it on *Juncus;* however, it can suck on other *Cyperaceae.* It moves, like *D. capnodes,* more on soil and water surfaces than on leaves of the host plants and therefore it is often collected in pitfall traps in favourable biotopes (at Sedlec, it was a dominant species among the ascertained leafhoppers). It is, however, not so much dependent on relative air humidity and it is often swept from stands. I confirm that hibernation takes place in the adult stage. Adults occur all the year round, praticularly females survive during all the period of larval development. I collected larvae of the 4th and 5th instars in pitfall traps from August (August 12) till the end of October.

*Falcotoya minuscula* (H o r v á t h, 1897)

M o r a v i a mer.: Dyjskosvratecký úval: Dolní Věstonice, Sand, 172—177 m, 28 August, 1964, 1 ♂ (br), a small steppe (cca 2 ha) on sands surrounded by a lowland forest, leg. L. Pospíšilová; ibid.; 30 May, 1973, 2 ♂♂, 3 ♀♀ (all brachypterous), leg. P. Lauterer.

S l o v a k i a occ.: Záhorská nížina Lowland: Borský Jur, 170—220 m, 26 Ju-

ne, 1968, 5 ♂♂ (1 ma., 4 br.), a steppe on sands, leg. L. Pospíšilová; Studienka, environs of the Rudava Brook, 180 m, 2 July, 1968, 4 ♂♂ (1 ma., 3 br.); 1 ♀ (br.), sands on a wood edge, leg. P. Lauterer.

A species of Centro-Asian and Pontomediterranean distribution, not known from Moravia previously. Its occurrence has been reported from France, Hungary, Romania, Yugoslavia; in the USSR, from the Ukraine, the Crimea, Daghestan, the Transcaucasia, Kazakhstan, and Tajikistan; further from Turkey (Anatolia), Egypt, Iran, and Afghanistan. I collected the species in several localities of Bulgaria. In Czechoslovakia, it has been reported from a few localities of southern and eastern Slovakia (D l a b o l a, 1954); from the Záhorská nížina Lowland, it has not been reported so far. In southern Moravia and western Slovakia, the species reaches the northernmost limit of its range. The Moravian locality was destroyed while a complex of dams at Nové Mlýny was being built. In southern Slovakia, the species is rather abundant, elsewhere, on the other hand, infrequent, thus in the Ukraine (L o g v i n e n k o, 1975). It is xerophilous (E m e l j a n o v, 1964), living in sandy biotopes and on dry pastures; other authors (L o g v i n e n k o, 1975) consider it rather mesophilous. In the south, in Afghanistan, it occurs as high as 1,800 m above sea level. It is probably widely polyphagous on various Poaceae; it has been recorded especially on *Aeluropus litoralis* and *Aneurolepidium ramosum* (L o g v i n e n k o, 1978). It has a single generation annually.

In spite that the species belongs among the smallest representatives of the family *Delphacidae,* it is often parasitized (K i n z e l b a c h, 1978) by *Elenchus tenuicornis* (K i r b y, 1815) of the order *Strepsiptera.* In the material from Dolní Věstonice, 1 ♂ and 2 ♀♀ of leafhoppers were parasitized by females of this parasite due to which they were strongly morphologically changed. *Elenchus tenuicornis* is widespread in the Palearctic Region; so far, from the territory of Moravia, no individual of this single Centro-European representative of the family *Elenchidae* has been recorded.

*Javesella salina* (H a u p t, 1924)

M o r a v i a centr.: Dyjskosvratecký úval: Starovice, NW shore of a pond at the margin of the village towards Brodač St. Nat. Res., 183 m, 12 June, 1962, 5 ♂♂ (br.), 3 ♀♀ (br.), halophilous stands of *Puccinellia distans* and *Carex distans,* leg. P. Lauterer.

S l o v a k i a bor.: Spišská kotlina: Spišské Podhradie, Sivá Brada Hill, 409—506 m, 7 August, 1967, 47 ♂♂ (br.), 26 ♀♀ (1 ma., 25 br.), environs of mineral springs on a travertine hill with halophilous vegetation, leg. P. Lauterer.

The first finding of the species in Moravia. In Czechoslovakia, only one finding has so far been recorded in Slovakia (D l a b o l a, 1955), viz., at Spišské Podhradie; according to the finder, Dr. J. Stehlík, it was also collected in the environs of the mineral springs on the Sivá Brada Hill. In this locality, the following plants prevail: *Juncus gerardii, Puccinellia distans, Carex distans, Plantago maritima, Suaeda maritima; Trichophorum pumillum* was found to dominate. The species is of Euro-Siberian distribution, generally being very local and rare; it is known to occur in Sweden, the German F.R., the German D.R., Poland, Hungary, Turkey (Anatolia); in the USSR, in Estonia, Lithuania, the Altai, and the Maritime Territory. In Poland, it occurs in the West Beskides and in the Pieniny Mts. As the host plant, H a u p t (1935) states *Juncus;* K u n z e (O s s i a n n i l s s o n, 1978), *Juncus gerardii* and *Briza media;* W a g n e r (1962), *Juncus gerardii* and *Puccinellia distans.* I myself collected it particularly on dense stands of *Puccinellia distans* (at Starovice, accompanied by large numbers of *Macrosteles sordidipennis* [S t å l] — 791 ♂♂ and 149 ♀♀),

I did not find it in nearby localities with stands of *Juncus gerardii* in southern Moravia. The locality at Starovice has been destroyed due to terrain adaptations of neighbouring roads. Brachypterous individuals prevail, adults occur from the beginning of June onwards. I observed two forms of female wings differing in colour: rarer dark brown (1 ♀ Starovice, 4 ♀♀ Sivá Brada Hill) and more frequent light ochreous (23 ♀♀).

*Megamelodes quadrimaculatus* (Signoret, 1865)

Moravia centr.: Brněnská pahorkatina Hills: Brno-Lesná, environs of small ponds and a wood brooklet towards Soběšice, 280 m, 12 February, 1971, 1 ♂, stands of *Carex acutiformis* and *C. gracilis* on marshes, sweeping on dead leaves on a frozen pond at 2—5 °C; ibid., 1 May, 1954, 1 ♂, sweeping after sunset; ibid., 20 March, 1971, 3 ♂♂, ditto; ibid., pitfall traps, leg. A. Merta, 1972, in data: 18 June (1 ♀), 31 August (1 ♀), 13 October (1 ♂); Útěchov at Brno, U jezírka, 300 m, 18 March, 1972, 2 ♂♂, 2 ♀♀, stands of *Carex acutiformis* and *Carex* spp. on a small marsh in the environs of a brooklet in a closed small valley in woods towards Bílovice.

Moravia mer.: Dolnomoravský úval: Sedlec, extensive reeds with sedges of *Carex riparia* on W shore of Nesyt Pond, 179 m, pitfall traps in 1969, leg. R. Obrtel, in data: 3 September (3 ♂♂) and 10 November (1 ♂).

Slovakia bor.: Malá Fatra Mts.: Stankovany, 410 m, 25 June, 1971, 1 ♀, a marsh with stands of *Carex* sp. of the group *riparia* on the right bank of the Váh River at the railway track 1 km E of the confluence of the Váh and Orava Rivers; in all cases brachypterous individuals. Unless otherwise stated, all leg. P. Lauterer.

A very rare, paludicolous species of European distribution, new for the fauna of Czechoslovakia. It is known to occur in Ireland, England and Wales, the Netherlands, Belgium, France, the German F.R., the German D.R., Hungary, Italy and the Madeira Archipelago. In the above countries, it occurs very locally in a few localities. I still have the material from Yugoslavia in my collection (Serbia bor.: Dunajská nížina Lowland, Smederovo, 75 m, September, 1964, 1 ♂, 2 ♀♀, mires, leg. J. Dezort) and from Bulgaria (Bulgaria mer. occ: Pirin Mts., promontories, Sandanski, 4 km NE towards Liljanovo, NW slopes of the valley of the Sandanská Bystrica River, 400 m, 3 August, 1972, 1 ♂, on stands of *Carex* spp. at a spring of a brooklet, leg. P. Lauterer). Also these individuals were brachypterous. According to LeQuesne (1960), it lives on the vegetation in marshy places or very moist meadows, often near base of rushes (*Juncus*), adults in January — November. I have ascertained that it lives prevailingly together with *Delphacodes capnodes* and *D. venosus* mainly on soil surface in swampy lands with *Carex acutiformis* and *C. gracilis*, incidentally also with *Carex riparia* which are probably its host plants; *Juncus* mostly was not represented in the localities. It is probably very hygrophilous, like the stated species of leafhoppers; in favourable places, it is often caught in pitfall traps. Adults hibernate in the active state; I swept a male on dead leaves of sedges in the mild thaw on a frozen pond. It probably climbs the vegetation, like *D. capnodes*, at the time of the highest relative air humidity, mainly when the temperature drops during evenings. It lives prevailingly on shaded marshes in woods but also on *Magnocariceta* near large ponds and rivers. Together with other species of the genus *Megamelodes* and with the species *Delphacodes venosus, D. capnodes*, and *D. audrasi* (*D. mulsanti* is unknown to me), it forms a bionomically and morphologically uniform, probably congeneric, group. These species differ strikingly from *albifrons* Fieber, probably hitherto erroneously referred to the genus *Delphacodes*.

*Paradelphacodes paludosa* (F l o r, 1861)

S l o v a k i a occ.: Záhorská nížina Lowland: Studienka, environs of the Rudava Brook, 175 m, 5 June, 1968, 1 ♂ (br.) 1 ♀ (br.), a peat-bog; ibid., U Holbičkov, 174 m, 16 May, 1968, 1 ♀ (br.), a peat-bog, leg. L. Pospíšilová.

S l o v a k i a bor.: Oravská kotlina: Ústie nad Priehradou, environs of the Oravská přehrada Reservoir, a landing place, 620—650 m, 22 June, 1971, 1 ♀ (br.), swampy vegetation. Belanské Tatry Mts.: Predné Medodoly, 1550 m, 22 July, 1962, 1 ♀ (ma.), a moist alpine meadow; Mt. Bujačí, W slopes, 1500 m, 21 July, 1962, 1 ♂ (ma.), an alpine meadow; Dolina Siedmich prameňov Valley, 1250 m, 25 July, 1962, 1 ♀ (ma.), hygrophilous vegetation surrounding springs.

S l o v a k i a mer.: Dunajská nížina Lowland: Gbelce, 126 m, 5 June, 1960, 2 ♂♂ (ma.), a marsh with dominant stands of *Phragmites* and *Carex riparia;* unless otherwise stated, all leg. P. Lauterer.

A rather abundant paludicolous species of Euro-Siberian distribution, spread all over the oreotundral of the entire Palearctic Region. It is known to occur all over Europe, except for the Pyrenean and Balkan Peninsulae, it has also been evidenced in Mongolia, Japan and in the Asian part of the USSR, in the Maritime Territory. I have found the species also occurring in B u l g a r i a; Harmanli, 2 km SE, camp, 500 m of the Marica River, 100 m, 20 July, 1971, 2 ♂♂, dead specimens, collected inside lamp domes, leg. P. Lauterer. From Slovakia, the species has been reported only once (M u s i l, 1958) from Bratislava-Lamač., the ascertainment, however, has remained omitted in lists of the Czechoslovak and Palearctic faunae of leafhoppers. I state additional localities, confirming thus the occurence of the species in Slovakia. The species lives in swampy biotopes with stands of *Carex* spp., mainly on peat-bogs and peaty meadows. It is dominant in the fauna of leafhoppers in similar biotopes in Moravia in May and June.

*Paraliburnia adela* (F l o r, 1861)

B o h e m i a or.: Jihlavské vrchy Hills: Suchdol, 1 km E towards Olšany, 640 m, 8 June, 166, 1 ♀ (ma.), a marsh with stands of *Comarum palustre* and with scattered sedges.

M o r a v i a occ.: Jihlavské vrchy Hills: Jezdovice, towards Spělov, 590 m, 16 June, 1966, 2 ♀♀ (ma.), *Caricetum fuscae.* Praebohemicum: Mohelno, at a weir on the Jihlava River at the Mohelský mlýn Mill, 255 m, 22 August, 1963, 2 ♀♀ (br.), on *Baldingera arudinacea.*

M o r a v i a mer.: Dyjskosvratecký úval: Brno-Komárov, towards Brněnské Ivanovice, a bank of the Svitava River, 197 m, 15 July, 1954, 1 ♂ (ma.), stands of *Baldingera;* Brod nad Dyjí, Charvátská louka, 170 m, 30 May, 1973, 7 ♂♂ (ma.), 18 ♀♀ (ma.), extensive moist meadows with dead arms of the Dyje River; Pasohlávky, 168 m, 30 May, 1973, 3 ♂♂ (ma.), 2 ♀♀ (1 br., 1 ma.), ditto; Dolní Dunajovice, 170 m, 18 June, 1973, 1 ♀ (br.), moist meadows and dead arms on the left bank of the Dyje River at the Duchna Wood; Dolní Věstonice, environs of the Komárek Chalet, 169 m, 18 June, 1973, 10 ♀♀ (ma.), stands of *Baldingera arudinacea* about dead arms of the Dyje River; Dolní Věstonice, Sand, marshes and dead arms, 175 m, 30 May, 1973, 2 ♀♀ (ma.); Dolní Věstonice, 1 km E, 169 m, 6 June, 1973, 3 ♂♂ (ma.), 1 ♀ (ma.), stands of *Baldingera* on a meadow near dead arms; Milovice, dead arms and marches, 300 m W of the Dyje River, N of the road to Nové Mlýny, 167 m, 5 June, 1973, 2 ♀♀ (ma.). Dolnomoravský úval: Lednice, Horní les, 165 m, 7 June, 1971, 1 ♀ (br.), undergrowth of a lowland forest, J. Vaňhara leg.; Milotice Castle, 180 m, 20 August,

1979, 1 ♂ (br.), 2 ♀♀ (br.), dead arms with stands of *Carex riparia* in a lowland forest; unless otherwise stated, leg. P. Lauterer.

A Euro-Siberian species, new for the territory of Moravia and, at the same time, the first confirmed data from Czechoslovakia. It is known to occur in Ireland, England, France, the Netherlands, Denmark, Sweden, Finland, the German F.R., the German D.R., Austria, Poland, Hungary and, in the USSSR, in Latvia, Lithuania, Estonia, S Russia, Kazakhstan, and Siberia. So far, from our territory, only Duda's data (1892) has been reported from Bohemia, however, without any specification of the locality. At the then state of systematics, a confusion with other species was possible, the material has not been preserved and therefore, Dlabola (1977) considers its occurrence in Bohemia as dubious. My collection also contains specimens from Roumania (Roumania mer. or.: Mamaia — Spa, 5—10 m, July, 1958, 3 ♂♂, 1 ♀, dead specimens, collected inside lamp domes on a sandy stripe between sea and Lake Siutghiol, leg. P. Štys) and from Kazakhstan (Kazakhstan centr.: Džambul, environs of the Talas River, 500 m, June, 1964, 1 ♀ (ma.), leg. J. Gottwald). The species is considered very rare; within its range, only scarce, scattered findings of mostly single individuals are known. From the faunistically well investigated Poland, only one finding is known (Nast, 1976), from the German D.R., two (Emmrich, 1976). Remane (1962) collected the species in large numbers in 6 localities in the northern part of the German F.R.; according to Remane, the scarcity of the species is caused by its stenovalent and seclusive life habits. LeQuesne (1960) and Vilbaste (1971) have published *Glyceria* as the host plant, Strübing (1956, see Ossiannilsson, 1978) has ascertained its development on *Baldingera arudinacea.* Both plants have similar ecological requirements, *Glyceria maxima (= aquatica)* is more hygrophilous. I collected the species mainly on swampy vegetation of flood-land and sometimes inundated meadows of south Moravian lowlands in the environs of dead arms of the Dyje River, particularly in the places where *Baldingera arudinacea* dominated. The stands of *Glyceria maxima* were prevailingly inhabited by the related and habitually similar species, *Struebingianella lugubrina* (Boheman). Females differ mainly in the length of the saw-case which, in *S. lugubrina,* exceeds the pygophore (9th sternite); in *P. adela,* it terminates before the last fifth of its length. First gonocoxa (lateral lobe) in *S. lugubrina,* is medially deeply incised at base; in *P. adela,* both its sides are parallel like in *P. clypealis* (J. Sahlberg) (see LeQuesne, 1960). The scarcity of the species and lack of material has resulted in a confusion, and the illustration of the female genitalia in the otherwise very precise Vilbaste's publication (1971) probably refers to another species. This erroneous illustration in consequence of lack of own material has been adopted by Ossiannilsson (1978). In our country adults were collected from the end of May till the end of August; in central Europe, the species has probably two generations annually.

## CICADELLIDAE

*Glossocratus foveolatus* Fieber, 1866

Slovakia occ.: Záhorská nížina Lowland: Velké Leváre, edge of the Abrod State Nat. Res. (Mokré lúky), 500—1000 m SW of the railway station Závod, 150—155 m, 29 July, 1969, 2 ♀♀, a steppe on aeolian sands near moist meadows in the valley of a brook, leg. P. Lauterer.

A conspicuous, big species, new for the territory of Czechoslovakia. It

has been described from the territory of the USSR (S Russia and Kazakhstan). Further, it has been described from a locality of aeolian sands in central Hungary as *Hecalus kuthyi* Tóth, 1938; under this name, it has also been published from Daghestan, Afghanistan, Mongolia, and eastern Siberia; from the last stated region, the subspecies *burjaticus* Dlabola, 1963 has been described as well. Nast (1972) still gives it under this specific name; only Dlabola (1972) has synonymized *G. kuthyi* with *G. foveolatus*. Throughout its range, the species is extremely rare, only 6 individuals had been collected in Hungaria until 1959 (Dlabola, 1959). It is confined to sandy biotopes, in central Europe, to aeolian sands only. Nothwithstanding an intensive investigation of leafhoppers of aeolian sands in the Záhorská nížina Lowland, no more individuals have been found. I hold it for probable that the species has disappeared from other places of the Záhorská nížina Lowland due to recent extensive amelioration measures and afforestation of the aeolian sands. The same may be true of *Pantallus alboniger* (Lethierry) and *Stiromoides maculiceps* (Horváth). Moreover, the biotope was twice destroyed by fire since my collections there. The occurrence of this and two more above quoted psammophilous Turanian elements of the leafhopper fauna accentuates the significance of aeolian sands in the Záhorská nížina Lowland as the westernmost limit of the range of species in central Europe which has been invaded by these central-Asian species. Some of the species may have not invaded more intensively studied sands of southern Slovakia. Dlabola (1963) gives the average size of the species (13.3—13.8 mm); however, only females from the locality in Daghestan were available to him. I collected individuals 11.4 and 11.8 mm in size, which roughly agrees with the description of the typical form of this species.

*Empoasca apicalis* (Flor, 1861)

Moravia occ.: Českomoravská vrchovina Highland: Čtyři Dvory, border of the cadastre with Prosetín at Bystřice nad Pernštejnem, Sklapsko Hill, 550—620 m, 3 August, 1975, 1♂, *Lonicera nigra* in the undergrowth of a pine-beech wood; Hodonín, valley of the Hodůnka River at the border of cadastres with Štěpánov and Prosetín at Bystřice nad Pernštejnem, 370—500 m, 18 April, 1976, 1♀, ditto; Lažánky, valley of a brooklet 1—2 km towards Heroltice, 280 m, 26 August, 1964, 1♂, environs of a forest road; Veverská Bítýška, at the border of cadastres with Lažánky and Javůrek, environs of the Bílý potok Brook, 290 m, 9 May, 1961, 1♀, on *Lonicera nigra,* all leg. P. Lauterer.

A Palaearctic, oreotundral, psychophilous species, extremely rare in Europe, new for the fauna of Czechoslovakia. It is known to occur mainly in Scandinavia (Norway, Sweden, Finland), further, in Belgium, the Netherlands, Austria, Roumania; in the USSR, in Estonia, Latvia, N and M Russia, Kazakhstan, and particularly in the Maritime Territory; in Korea as well. In the Manchukuo Region, more closely related species occur, especially lately described; they have been treated by Anufriev (1973). Some older data on the distribution of the species in Europe could be confused with *E. ossiannilssoni* Nuorteva, 1948, morphologically and habitually very similar, incidentally also with *E. kontkaneni* Ossiannilsson, 1949; the data, however, have been mostly newly verified. Its host plants are *Lonicera spp.* (Anufriev, 1973); I myself collected the species only on *L. nigra.* In the places of its occurence, it was very rare. Although I was collecting it on the host plant at Čtyři Dvory and at Hodonín for a few hours, I always found only a single specimen among several hundreds to thousands of *Empoasca vitis* (Goethe). The number of generations is unknown; according to findings, it hibernates in the adult stage.

*Edwardsiana bergmani* (T u l l g r e n, 1916)

M o r a v i a centr.: Hornomoravský úval: Pňovice, E edge of the Kobylník Wood at the road towards Tři Dvory, environs of an arm of the Oskava River, 225 m, 9 July, 1958, 5 ♂♂, 13 ♀♀, on older branches of *Alnus glutinosa,* leg. P. Lauterer.

A very rare, Euro-Siberian species, new for the fauna of Moravia. It is largely distributed over most countries of northern, western and central Europe, also evidenced in Mongolia. From Czechoslovakia, only one finding (D l a b o l a, 1954) from northern Bohemia has been reported so far. The species lives on *Alnus,* mainly on *A. glutinosa* in colder and higher elevations. In central Europe, it is very local; although I have been intensively collecting the species on alders for twenty years, I have found it only once, accompanied by *Alnetoidia alneti* (D a h l b o m) and *Alebra albostriella* (F a l l é n). It is our biggest representative of the genus *Edwardsiana,* on the average it is by 0.2 mm longer than other representatives of this very uniform genus, which makes even females distinguishable.

*Edwardsiana smreczynskii* D w o r a k o w s k a, 1971
*Edwardsiana guntharti* D l a b o l a, 1971

S l o v a k i a mer.: Kováčské kopce Hills: Kamenica nad Hronom, 1 km NE towards Bajtava, 160—200 m, 21 July, 1958, 1 ♂, *Ulmus campestris* on a steppe slope, leg. P. Lauterer.

A species recently described from Poland, from the environs of Krakow (D w o r a k o w s k a, 1971) and almost at the same time described from France, Paris (D l a b o l a, 1971); the dates of publications differed by only 20 days. To this time, it was not captured elsewhere. The shape of apical projections of the eadeagus differs strikingly from all other species of the genus *Edwardsiana;* from descriptions and precise figures, one can conclude that the same species is considered. It is new for the territory of Czechoslovakia. Females cannot be distinguished from other identically colored females of the genus *Edwardsiana.* The species seems to be very rare; I have managed to find only one male among numerous individuals of *E. plebeja* (E d w a r d s) on the host plant. The species obviously develops on representatives of the genus *Ulmus,* adults disperse, like other species, onto other trees and woody plants. From the 28 ♂♂ known so far, collected on the determined food plant 15 exs. were found in *Ulmus,* 1—3 exs. on other woody plants *(Acer, Betula, Crataegus, Malus, Rosa, Salix).*

*Edwardsiana soror* (L i n n a v u o r i, 1950)

M o r a v i a centr.: Hornomoravský úval: Zábřeh na Moravě, 1—2 km NNW towards Postřelmov, 295 m, 17 September, 1959, 1 ♂; Pňovice, E edge of the Kobylník Wood at the road to Tři Dvory, an alder at an arm of the Oskava River, 225 m, 9 July, 1958, 1 ♂; Olomouc-Holice, environs of a race of the Bystřička River near the higway to Hranice, 225 m, 15 September, 1959, 1 ♂; Čertoryje, a wood on the left bank of the Morava River near the Království Wood, 205 m, 15 September, 1959, 1 ♂; Velká Bystřice, 500—1000 m NE, valley of the Vrtůvka Brook towards Mrsklesy, 250—270 m, 8 June, 1958, 13 ♂♂; ditto, stray individuals on *Alnus glutinosa,* 3 ♂♂; ibid., 17 August, 1958, 16 ♂♂; ibid. 9 October, 1958, 4 ♂♂.

M o r a v i a or.: Moravská brána; Teplice at Hranice, towards Ústí, a pool near the bank of the Bečva River near the railway station, 250 m, 10 September, 1958, 1 ♂.

Slovakia centr.: Velká Fatra Mts.: Blatnice, 1 km E, Blatnická dolina, 520—540 m, 11 July, 1976, 1 ♂; all leg. P. Lauterer on *Alnus incana.*

A new species for the fauna Czechoslovakia. Because of its strict confinement to a single species of host plant, is has been omitted so far and its distribution is not probably known completely. It has been evidenced in Sweden, Finland, the German D. R., Poland, Austria; in the USSR, in the Ukraine, Latvia, Lithuania, Estonia, in eastern Siberia, in the Buriat Republic, the Khabarovsk and Amur Regions; also known from Mongolia. Females cannot be distinguished form identically colored ones of other species of the genus; I do not quote their number because of the possible confusion with some stray individuals of other species. It is monophagous on *Alnus incana.* Linnavuori (1950) states in his description that he collected it also on *Prunus padus*; probably a stray individual is considered here. The species largely varies continually in the shape of projections of the aedeagus in non-parasitized individuals within the population, as figured by Anufriev (1975); however, no text was attached to his figures saying that non-parasitized individuals were considered. Already Linnavuori (1950) states in his description that in one of the two males, according to which the species was described, one of the front branches of aedeagus was not divided into two projections. Particularly often, the outer branch of the front projections of the aedeagus is reduced (in my material, 8 observed individuals with projections completely disappeared); I observed even one individual with reduced lateral projections so that only the inner branch of the front projections remained preserved. In the genus *Edwardsiana,* the shape of projections of the aedeagus is very stable and serves as a basic character for distinguishing species. In males of the species, often a reduction and change in the shape of projections of the aedeagus develop due to a partial or complete castration caused by the parasites of the families *Dryinidae* and *Pipunculidae.* Some species of the genus show two genetically influenced forms of lateral projections of the aedeagus, e. g., *E. crataegi* (Douglas) and its short-branched form *frogatti* (Baker). In *E. lethierryi* (Edwards) and *E. hippocastani* (Edwards), a secondary irregular multiplication of branches on the projections of the aedeagus often occurs. In northern Germany, according to Wagner's papers, *E. plebeja* (Edwards) develops a different shape of the lateral branches on the apical part of aedeagus. In Czechoslovak populations of the species, according to my observations, the shape of projections of the aedeagus is stable. To my knowledge, only *E. soror* develops such a large reduction of apical projections of the penis in non-parasitized individuals in the whole range of its distribution. In central Europe, the species has 2 to 3 generations annually, adults of the 1st generation hatch at the beginning of June, those of the 2nd generation from mid-August to October.

*Arboridia versuta* (Melichar, 1897)

Moravia centr.: Brněnská pahorkatina Hills: Útěchov at Brno, 1—2 km towards Soběšice, 320 m, 19 May, 1974, 1 ♂, on young leaves of *Carpinus betulus* in thin *Quercetocarpinetum,* leg. P. Lauterer.

A scarce, thermophilous species, new for the fauna of Czechoslovakia. So far it is known to occur in a few localities in France, the German F. R., Italy, Switzerland, Yugoslavia; in the USSR, in the Ukraine and western Siberia. During 1956, I found one specimen among the leafhoppers collected inside lamp domes in Brno-Pisárky; however, the specimen got lost. *Quercus* is stated as the host plant; I myself collected sucking individuals on *Carpinus betulus.*

The species probably hibernates, like other species of the genus, in the adult stage.

*Zygina (Hypericella) frauenfeldi* Lethierry, 1880

Moravia mer.: Pavlovské kopce Hills: Mikulov, Svatá hora Hill, S and SW slopes below the chapel, 250—363 m, 11 July, 1970, 2 ♂♂, 3 ♀♀, *Festucetum duriusculae* on a rocky limestone steppe, on *Sanguisorba minor*; laboratory breedings from larvae younger than 3rd instar and from eggs from this collection, 2nd generation: 31 July, 1970, 2 ♀♀; ditto, 12 August, 1970, 1 ♀; ditto, 3rd generation: 2 October, 1970, 1 ♀; ditto, 6 October, 1970, 1 ♂, 2 ♀♀; ditto, 13 October, 1970, 1 ♀; Mikulov, Svatá hora Hill, S and SW slopes below the chapel, 250—363 m, 14 September, 1970, 34 ♂♂, 48 ♀♀, a limestone rocky steppe, on *Sanguisorba minor*; ditto, 8 September, 1972, 2 ♂♂, 4 ♀♀; Klentnice, Sirotek Castle, SE slopes, 350—437 m, 9 September, 1972, 1 ♂, 6 ♀♀, a rocky steppe on limestone.

Slovakia occ.: Malé Karpaty Mts.: Plavecké Podhradie, Pohanská Hill and Plavecký Castle, S—SW slopes, 250—350 m, 5 June, 1969, 7 ♂♂, 30 ♀♀, a rocky steppe on limestone; Kuchyňa, Modranská skala Hill, SW slopes, 300—419 m, 4 June, 1969, 1 ♀, limestone rocks.

Slovakia centr.: Štiavnické pohorie Mts.: Hronský Beňadik, 500 m N of the village, S slopes, 250—400 m, 4 June, 1971, 5 ♂♂, 2 ♀♀, a steppe on andesite slope; all leg. P. Lauterer.

An infrequently collected species of insufficiently known distribution, new for the fauna of Czechoslovakia. It is known to occur in Belgium, France, Austria, Italy, and Yugoslavia. Ribaut (1936) quotes it from Germany as well (probably the German F. R.); Nast (1972) does not. In all the above mentioned countries, it was rarely collected in single localities. I ascertained the species also in southeastern Bulgaria: Harmanli, a steppe 2 km ENE above the left bank of the Marica River, 80—120 m, 19 July, 1971, 4 ♂♂, 21 ♀♀, steppe slopes, leg. P. Lauterer. Its systematic classification was not fully clear, it was included in the subgenus *Zygina* Fieber, 1886 (Nast, 1972). According to its morphological characters, I have ascertained that it belongs to the subgenus *Hypericella* Dworakowska, 1970. Bionomics not known so far. I have ascertained that it develops monophagously on *Sanguisorba minor* (together with the psyllid *Trioza modesta* Förster) and reared it on the plant from the egg to the 2nd generation. In Czechoslovakia, the species has 3 and probably more generations, adults occurred from the beginning of June till mid-October. In Czechoslovakia, it occurs locally on warmest limestone or andesite steppes exposed to the south.

*Macrosteles lividus* (Edwards, 1894)

Slovakia bor.: Spišská kotlina: Spišské Podhradie, Sivá Brada Hill, 490—506 m, 7 August, 1967, 3 ♂♂, a travertine hill with halophilous vegetation in the environs of mineral springs, leg. P. Lauterer.

A very rare species of Euro-Siberian distribution; it has been reported from more countries but always only from single localities, e. g., from Poland (Nast, 1976), it is known only from two localities. It has been evidenced in England, the Netherlands, Denmark, Sweden, Finland, the German F. R., the German D. R., Poland; in the USSR, in Latvia, Lithuania, Estonia. Kazakhstan, Kirghizia, Usbekistan, and the Maritime Territory; also in Mongolia. It is new for the fauna of Czechoslovakia. It is probably confined to swampy, somewhat

saline biotopes and travertine springs. LeQuesne (1969) states: "local, sometimes in swampy coasted marshes". Host plants are probably halophilous or semihalophilous species of the families *Poaceae* or *Cyperaceae.* On the Sivá Brada Hill, *Trichophorum pumillum* was dominant, accompanied by *Carex distans, Puccinellia distans, Juncus gerardii, Camphorosoma ovatum, Plantago maritima,* and *Suaeda maritima.*

*Endria nebulosa* (Ball, 1900)

Moravia occ.: Jihlavské vrchy Hills: Horní Bolíkov, peat-bog Kobrnátky 300 m SW of the village, 650 m, 14 August, 1978, 1 ♂ (br.), stands of *Carex* spp., especially *C. limosa*; Klátovec, a peat-bog on W shore of Zejhral Pond, 680 m, 14 August, 1978, 3 ♀♀ (ma.), stands of *Carex* spp., both leg. P. Lauterer.

A Nearctic mesophilous species that has immigrated to Europe during the last 20 years and is gradually spreading here; new for the fauna of Moravia. In Europe, for the first time recorded by Remane (1961) in the German F. R. from the environs of Munich where the species was abundant in one locality. The species he examined particularly taxonomically, morphologically and bionomically. Further findings have been reported from Czechoslovakia (Bohemia), the German D. R., Finland; in the USSR, from C Russia (the Kursk Region); also from Mongolia and the Korean Peninsula. So far, it has always occurred in one or only a few localities in which it was even more abundant. Remane (1961) observed the species in relatively moist biotopes thickly overgrown with *Calamagrostis epigeios* which is considered to be its host plant by the author. Albrecht collected the species in Finland on the same plant (personal communication). I myself collected it from stands of *Carex* spp. on a peat-bog of marshy type with scattered *Sphagnum* near the shore of a pond. I suppose that the species is rather polyphagous on *Poaceae* in both the Nearctic and the Palearctic Regions, probably also on *Cyperaceae,* which favors its distribution. The mechanism of introduction and dispersal of the species is not known. The species is exoanthropic, living on grasses not exploited by man, always far away from human settlements and field cultures; it has a different ecological character than other introduced species which are mostly euryecious, polyphagous and, above all, confined to plant species cultivated by man. A macropterous form is not known in the Nearctic Region; in Europe, on the other hand, it predominates (Remane, 1961); also in my collections, the macropterous form prevailed.

*Japananus hyalinus* (Osborn, 1900)

Moravia mer.: Dolnomoravský úval: Charvátská Nová Ves, E edge of the Boří Wood, 500—2000 m N of the railway station, 168 m, 22 August, 1979, 13 ♂♂, 37 ♀♀, 2 larvae of the 4th and 2 larvae of the 5th instars, on *Acer campestre*, leg. P. Lauterer.

A new species for the fauna of Czechoslovakia and the first representative of the tribe *Scaphytopiini* in our fauna. The original range of its distribution was restricted to the Manchukuo Subregion of the Palearctic Region, from where it is known to occur in Japan and in the Maritime Territory of the USSR. It also occurs in North America except for Canada and northeastern parts of the USA; there it has probably been introduced from Japan (Oman, 1949). For the first time in Europe, it was recognized in one specimen by Wagner (1961) in his collection from Austria in August, 1942. Dlabola (1961) published further findings from 3 localities in Roumania where he collected the species in virgin forest habitats on *Acer, Carpinus* and other broad-leaved trees. Jankovič (1976) published the finding of 2 individuals

from the Fruška Gora Mts. in Yugoslavia on *Acer campestre* and, according to Dlabola (personal communication), the species was later found abundant in a few localities in Serbia. The species is very conspicuous and easily identifiable according to Oman's publication (1949), although in it, as well in papers of European authors, the illustration of the male genitalia is missing. In Europe, the species has a single generation annually and occurs rather late (from the beginning of August till mid-November). I have ascertained the development of the species in the south Moravian locality only on *Acer campestre*; except for some other species of the genus *Acer*, it probably only strays onto other woody plants. Vilbaste (1968) collected it on *Acer ginnala* in the Maritime Territory; both known species of the genus *Japananus* are trophically confined to the genus *Acer*.

*Calamotettix taeniatus* (Horváth, 1911)

Slovakia occ.: Záhorská nížina Lowland: Kúty, 200 m WNW of the railway station, 158 m, 17 July, 1969, 2 ♂♂, 2 ♀♀, a marsh overgrown with *Phragmites communis*, leg. P. Lauterer; ibid., July, 1971, 1 ♀, attracted by light, leg. O. Jakeš; Závod, marshes at the railway station, 170 m, 3 August, 1978, 1 ♀, leg. B. Zálešák.

An extremely rare species, new for the fauna of Czechoslovakia, described from Hungary from marshes at the southwesternmost tip of Lake Balaton (Kis-Balaton). Further, it is known to occur in single localities in Roumania and in the SW USSR (Moldavia, the Ukraine, SW Russia). In my material, I have several specimens of this species collected inside lamp domes in SE Roumania; Mamaia - Spa, 5—10 m, July, 1958, 20 ♂♂, 4 ♀♀, dead specimens in lanterns on a sandy stripe between sea and Lake Siutghiol, leg. P. Štys. The male genitalia have so far been figured only by Talickij and Logvinenko (1966) who also re-classified it to the genus *Calamotettix* Emeljanov, 1962. The species was originally described within the genus *Paramesus;* Nast (1972) still uses the binomen *Paramesus taeniatus* in his Catalogue of Palearctic *Homoptera — Auchenorrhyncha.* The species has always been collected on swampy lands. Talickij and Logvinenko (1966) state that the species was collected on reeds and also when attracted by light. I observed it sucking on *Phragmites communis*, and can confirm that the reed is its host plant.

*Cosmotettix caudatus* (Flor, 1961)

Moravia mer.: Dolnomoravský úval: Charvátská Nová Ves, Boří les Wood, 170 m, 31 July, 1974, 1 ♂, edge of a wood with dominant *Quercus cerris* near the road Valtice-Poštorná, leg. P. Lauterer.

A rare, hygrophilous and psychrophilous species of Euro-Siberian distribution, new for the fauna of Czechoslovakia. It is known to occur in England, France, Norway, Sweden, Finland, Denmark, the German F. R., the German D. R.; in the USSR, in Estonia, Latvia, N and C Russia, Kazakhstan, and the Altai Mts. Czechoslovakia lies at the southern boundary of the range of distribution of the species, localities situated more southwards are to be found in mountains (e. g., the Jura Mts. in France). In northern Europe, it is rather abundant but does not belong to generally occurring species either; in Sweden, it occurs on marshy and swampy lands overgrown with stands of *Carex* spp. (Ossiannilsson, 1946). The geological substratum of the Czechoslovak locality is formed by aeolian sands on which xerothermophilous communities dominate, some places, several ares in size, are depressed and densely overgrown with *Carex* spp.

*Colladonus torneellus* (Zetterstedt, 1828)

Moravia bor.: Nízký Jeseník Mts.: Valšovský žleb, valley of a brook at the boundary of cadastres with Rešov, 340 m, 30 April, 1961, 12 ♂♂, 8 ♀♀, *Carex brizoides* in wood undergrowth at the wood edge.

Moravia occ.: Českomoravská vrchovina Highland: Čtyři Dvory, Brťovsko, 550 m, 8 May, 1977, 1 ♂, a wood undergrowth.

Moravia centr.: Brněnská pahorkatina Hills: Veverská Bítýška, at a spring of the right tributary to the Veverka Brook at the Veveří Castle, 290 m, 23 April, 1961, 1 ♂, *Carex brizoides* in wood undergrowth. Moravian Karst: Adamov, environs of elevation point 522 towards Babice, 260—520 m, 15 May, 1976, 1 ♂, undergrowth of *Fagetum*; Mokrá, Říčky Valley, 310—350 m, 19 April, 1953, 1 ♀, leg. J. Stehlík. Chřiby Hills: Kostelany, environs of a ridge way at the turning towards Košíky, 380 m, 3 June, 1979, 1 ♀ undergrowth of *Fagetum.*

Moravia mer.: Dolnomoravský úval: Starý Poddvorov, Horní Kapansko Wood at the end of "Šlajfová alej" way, 220—270 m, 7 June, 1963, 1 ♂, 2 ♀♀, *Quercetum — Quercetocarpinetum.* Pavlovské kopce Hills: Sedlec, S edge of the Milovický Wood, 280 m, 25 April, 1962, 1 ♀, xerothermophilous *Quercetum.*

Slovakia or. bor.: Nízké Beskydy Mts.: Cigelka, 500—600 m, 18 June, 1965, 1 ♀, *Fagetum,* leg. L. Pospíšilová.

Slovakia mer.: Slovakian Karst: Plešivec, SSE slopes of Koniare, 100 m above the railway track, 250 m, 4 July, 1976, 1 ♀, xerothermophilous *Quercetum* on limestone; unless otherwise stated, all leg. P. Lauterer.

The only Palearctic representative of the genus which is richly represented by its species in the Nearctic Region. It is spread in most of the territory of the Palearctic Region, particularly in its northern oreotundral part. Except for countries faunistically insufficiently investigated so far, it is known to occur in most of Europe, further in Turkey, Mongolia; in the USSR, it reaches so far as the Kamchatka Peninsula and the Maritime Territory. It also occurs in Manchukuo, Korea and Tunisia. It is new for the fauna of Moravia, occurring rarely; so far, only Horváth's finding (1897) has been reported from Czechoslovakia from Bardějov. In Czechoslovakia, adults occur rather early, first of all in the other half of April, and their occurrence fades away in the other half of June. Hibernation takes place in the larval stage. The species lives on grasses in mesophilous undergrowth of dense deciduous woods (from thermophilous *Quercetum* to *Fagetum*) mainly near forest roads. The most abundant collected adults were those sucking on *Carex brizoides*; the range of the host plants of this species is probably wider. Bionomics of larvae not known.

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