

## MOTH FLIES (DIPTERA, PSYCHODIDAE) INHABITING WET EXTREME BIOTOPES OF THE SOKOLOV OPEN-CAST COAL MINES AND DUMPS, WITH DESCRIPTIONS OF THREE NEW SPECIES FROM THE WESTERN BOHEMIA

JAN JEŽEK

Department of Entomology, National Museum, Kunratice 1, 148 00 Praha 4, Czech Republic



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Abstract. Three new species of Psychodine moth flies (males) are described from the Czech Republic, Western Bohemia (Sokolov open-cast coalmining area): *Parajungiella prikryli* sp. n., *Philosepedon hrudkai* sp. n. and *Berdeniella chvojkai* sp. n. Differential diagnoses of all new species are presented and all important diagnostic characters are illustrated. Moreover a review of 59 more or less common species inhabiting conspicuously extreme wet biotopes of the Sokolov coal basin is shown and characteristics of their habitats are given. The codes of relevant fields of the grid mapping, occurrence and general distribution of all mentioned species are included. A topographic map with marked type-localities as well as several commented photographs of extreme biotopes are added.

■ Psychodidae, Palaearctic, taxonomy, new species, *Parajungiella*, *Philosepedon*, *Berdeniella*, faunistics, grid mapping, Western Bohemia - Sokolov basin, surface mining, spoil banks

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### Introduction

Many thousands specimens of moth flies were collected in 1993 - 1996 during the Sokolov landscape scientific experiments (Štrudl, Přikryl, Faina and Pecharová, 1996) in Western Bohemia, where the surface cast (text-fig. 1) and wildlife was mixed in a new substitutive system of ecologically valuable water reservoirs and marshy biotopes. Sixty two species were registered, mainly on the localities in which the Vřesová power-fuel combine is interested (text-figs 2-7; plate A), i. e. 55.4% of the Psychodid fauna of the Czech Republic (112 species). Some of the first results, including new faunistic records, were published by author in the parallel papers (Ježek, 1996 and 1999). Three spp. n. are described below in genera *Parajungiella* VAILLANT, 1972, *Philosepedon* EATON, 1904 and *Berdeniella* VAILLANT, 1976. Photographs (text-figs) 1-7 by author, the colour photograph (plate A) from the archiv of the Sokolov coalmining company.

Abbreviations and explanatory notes: NMP - National Museum, Prague; Cat. No., INS - inventory number of slide (all material is deposited in NMP); CGM - code of grid mapping according to Zelený (1972); C. - Chvojka leg., J. - Ježek leg., M. - Mašínová leg., S. - Studničková leg.; YPT - yellow pan traps; CEU - Central European, COS - Cosmopolitan, EUA - Eurasian, EUR - European, EUWS - Eurowestsiberian, HOL - Holarctic, PAL - Palaearctic, SBM - Submediterranean; Veg. - vegetation of mentioned localities (mainly dominant taxa of undergrowths 1 - 62; dominant genera of trees 71 - 92). 1 - *Acorus*, 2 - *Aegopodium*, 3 - *Ajuga*, 4 - *Alisma*, 5 - *Anemone*,

6 - *Artemisia*, 7 - *Calamagrostis*, 8 - *Caltha*, 9 - *Carex*, 10 - *Chlorophyta*, 11 - *Daucaceae*, 12 - *Epilobium*, 13 - *Equisetum*, 14 - *Ficaria*, 15 - *Filipendula*, 16 - *Fragaria*, 17 - *Galium*, 18 - *Geranium*, 19 - *Heracleum*, 20 - *Holcus*, 21 - *Impatiens*, 22 - *Iris*, 23 - *Juncus*, 24 - *Lamiaceae*, 25 - *Lemna*, 26 - *Leonurus*, 27 - *Ligustrum*, 28 - *Lupinus*, 29 - *Luzula*, 30 - *Lychnis*, 31 - *Lysimachia*, 32 - *Lythrum*, 33 - *Marchantiopsida*, 34 - *Mentha*, 35 - *Musci*, 36 - *Myosotis*, 37 - *Narcissus*, 38 - *Nasturtium*, 39 - *Orchis*, 40 - *Oxalis*, 41 - *Petasites*, 42 - *Phragmites*, 43 - *Poa*, 44 - *Poaceae*, 45 - *Polygonum*, 46 - *Pteropsida*, 47 - *Ranunculus*, 48 - *Ribes*, 49 - *Rosa*, 50 - *Rubus*, 51 - *Rumex*, 52 - *Sanguisorba*, 53 - *Scirpus*, 54 - *Solanum*, 55 - *Sphagnum*, 56 - *Sympyton*, 57 - *Tanacetum*, 58 - *Trifolium*, 59 - *Tussilago*, 60 - *Typha*, 61 - *Urtica*, 62 - *Viola*; 71 - *Acer*, 72 - *Aesculus*, 73 - *Alnus*, 74 - *Betula*, 75 - *Carpinus*, 76 - *Cornus*, 77 - *Crataegus*, 78 - *Fagus*, 79 - *Frangula*, 80 - *Fraxinus*, 81 - *Larix*, 82 - *Picea*, 83 - *Pinus*, 84 - *Pirus*, 85 - *Populus*, 86 - *Prunus*, 87 - *Quercus*, 88 - *Salix*, 89 - *Sambucus*, 90 - *Sorbus*, 91 - *Tilia*, 92 - *Ulmus*.

### Systematic part

#### *Parajungiella prikryli* sp. n.

Pl. 1, figs 1 - 14

Differential diagnosis: Aedeagal complex (fig. 10) with rather thin and long protuberances, boomerang - shaped, basal half of which is narrow and joined in the same axis as arms of

forked basal apodeme. Thus differing from the related *Parajungiella abchazica* JEŽEK, 1985, where protuberances are thick and short, basal rectangular tubercle on both inner sides (in *prikryli* missing) conspicuously developed, imaginary axis is broken (both joined parts declined from straight line).

**Male.** Eyes separated; minimum distance between eyes corresponds to three diameters of facets. Frontal suture arched (fig. 1). Ratios of distance of eye's apices to minimum width of frons mostly 3.3:1, to facet (fig. 2) diameter 10:1. Antennae (figs 3,4) 16-segmented. Scape almost cylindrical, somewhat widened distad, long, its length mostly 5.3 times larger than width at base. Pedicel almost ball-shaped. Flagellar segments pitcher-shaped, basal segments conspicuously asymmetrical. Apical antennal segment with a long finger-like protuberance. Sensory filaments (ascoids) simple, paired, needle-shaped. Ratios of lengths of segments of maxillary palps (fig. 6) 1:1.2:1.3:1.9. Last segment of maxillary palpus annulate, connected basally with apical end of the foregoing segment. Terminal lobe of labium on fig. 5. Ratio of maximum length of cibarium to length of epipharynx 1.8:1. Corniculi small, semi-globular. Thoracal sclerites on fig. 7. Wings lancet-shaped, clear, 2.2 - 2.7 mm long, holotype 2.6. Strengthened veins (Sc, R<sub>1</sub>, R<sub>2+3</sub>, R<sub>2</sub>, R<sub>5</sub>, M<sub>4</sub>, Cu) and their parts (endings of R<sub>3</sub>, M<sub>2</sub>, M<sub>3</sub>) on fig. 8. Basal costal nodes well visible, Sc uninterrupted. M<sub>3</sub>, M<sub>4</sub> and Cu are not connected basally. R<sub>5</sub> extends distally to reach wing margin almost in the apex of wing. Medial wing angle 154°(BCD) [points A, B, C, D were explained by Ježek (1977)]. Indices of wing AB:AC:AD = 3.5:3.8:4; BC:CD:BD = 1:1.3:2.2. Index of basis of M<sub>1+2</sub>A (basis of basal cell + A) to maximum width of wing 2.0. Ratio of maximum length of halteres to its maximum width 2.8:1. Ratios of lengths of femora, tibiae and first tarsal segments (paratype INS 7344): P<sub>1</sub> = 1.9:2.2:1; P<sub>2</sub> = 2.1:2.9:1.2; P<sub>3</sub> = 2:3.3:1.2. Claw of P<sub>1</sub> on fig. 9. Basal apodeme of male genitalia straight from dorsal aspect, bent and widened from lateral view, compressed laterally. Distal part of basal apodeme forked in two diverging caudal arms. Furca developed. Copulatory organ as figured (10, 11). Paired external additional protuberances of aedeagal complex fully developed, long, thin, pointed, boomerang-shaped, basal half of which is narrow and joined in the same axis as apodemal arms. Gonocoxites (figs 10, 12) rather long, straight, without protuberances. Gonostyli inconspicuously S-shaped, very long (longer than gonocoxites), thin, with hook-shaped pointed tips from dorsal view. Epandrium almost bare (figs 13, 14), only central aperture developed. Aperture elliptical, constricted in the middle. Sclerotized remainders of 10th tergite and sternite inside of epandrium of characteristic shape. Hypandrium narrow, cracked transversally. Epiproct small, almost circular, haired. Hypoproct long, tongue-shaped, as well haired. Surstyli much longer than epandrium (both in dorsal and lateral view), straight from dorsal view, C-shaped from lateral one, subapically with 18 retinaculi.

**Female.** Unknown.

**Material examined:** Holotype, male, Czech Republic, Lomnice (Sokolov distr.), Lomnický les forest, CGM 5741, 443 m a. s. l., central water reservoirs, 7.6.1995, Ježek leg., NMP, dissected, slide Cat. No. 33755, INS 7343, Canada balsam. Paratypes: 5 males, all Ježek leg., more or less dissected, slides, Canada balsam; 3 specimens with the same data as holotype, Cat. No.

33756-33758, INS 7344-7346; one specimen dtto, swamps near a crossroad, 19.6.1996, Cat. No. 33759, INS 7347; one specimen Lomnice-Pastviny dump, soaks shaded by many trees near prefabricated way, 8.5.1996, Cat. No. 33760, INS 7348. Figures are based mostly on holotype, fig. 4 on the last paratype (INS 7348).

**Bionomy:** Unknown. Males were collected by sweeping in the coalmining area, "taiga" formation with water bodies and dump with soaks (Pls A, 4); vegetation: *Acer*, *Alnus*, *Betula*, *Populus*, *Quercus*, *Salix*, *Sambucus*; *Carex*, *Equisetum*, *Filipendula*, *Juncus*, *Lemna*, *Lychnis*, *Musci*, *Rosa*, *Rubus*, *Scirpus*, *Typha*, *Urtica*.

**Derivatio nominis:** The name of this species is dedicated to RNDr. Ivo Přikryl [Research Institute of Fish Culture and Hydrobiology of the University of South Bohemia (Vodňany), now the ecological company ENKI o. p. s. (Třeboň - Vodňany)], head of the ecological research experiments financed by the Sokolov coalmining company (Sokolovská uhelná a. s. - Vřesová).

#### *Philosepedon hrudkai* sp. n.

Pl. 2, figs 15 - 28

**Differential diagnosis:** Aedeagal complex (fig. 24) with two inner hook-shaped protuberances of the same length; external genitalian processes sabre-shaped, conspicuously curved, thus differing from the related *Philosepedon carpaticus* VAILLANT, 1974, which has inner protuberances of different length, only right protuberance similar to fish-hook, external processes thorn-shaped, only inconspicuously curved. Medial wing angle 102°, hypandrium very broad in the middle; in *carpaticus* this has 91° and hypandrium only a little widened in the middle.

**Male.** Eyes separated, the lower part of frons with irregularly arranged dorsoventral set of insertions of several hairs (fig. 15). The minimum distance between eyes corresponds to more than one facet diameter. Ratios of distance of eye's apices to minimum width of frons mostly 9:1, to facet (fig. 16) diameter 12:1. Frontal suture triangular. Antenna (figs 17, 18) 16-segmented. Scape and pedicel very short. Scape almost cylindrical, 1.5 times longer than pedicel. Flagellar segments amphora-shaped, only a little asymmetrical, with long necks, in contrast to the last 4 reduced apical segments. Thirteenth segment oval-shaped, with very short neck, segments 14-16 very minute, formed as a spindle (14), egg (15) and cut spindle (16). Sensory filaments rather robust, long, three-branched, paired. Ratios of lengths of segments of maxillary palps (fig. 20) 1:1.6:2.3:2.2; apical segment not annulate, with very long and strong terminal bristle. Terminal lobe of labium on fig. 19. Ratio of maximum length of cibarium to length of epipharynx 1.2:1. Thoracal sclerites as fig. 21. Wings (fig. 22) clear, lanceolate, 2.3 mm long (holotype), paratype 2.1, wing membrane bare. Some veins are completely strengthened (Sc, R<sub>1</sub>, R<sub>5</sub>, M<sub>4</sub>), others only in their basal parts (M<sub>1+2</sub>, Cu). Basal costal nodes distinct, Sc uninterrupted. M<sub>3</sub> and Cu without a visible connection to M<sub>4</sub>. R<sub>5</sub> extends distally to reach wing margin in the apex of wing. Medial wing angle 102°(BCD). Indices of wing AB:AC:AD = 2.6:3.3:2.9; BC:CD:BD = 1:1.4:1.9. Index of basis

of  $M_{1+2}, A$  to maximum width of wing 2.0. Ratio of maximum length of halteres to its maximum width 2.7:1. Ratios of lengths of femora, tibiae and first tarsal segments:  $P_1 = 1.8:1.9:1$ ;  $P_2 = 2.2:6:1.1$ ;  $P_3 = 1.9:3.3:1.2$ . Paired tarsal claws (fig. 23) of  $P_1$  with doubled tips, hook-shaped. Basal apodeme of male genitalia as figured. Aedeagal complex (figs 24, 25) with two inner hook-shaped protuberances of the same length. External processes sabre-shaped, conspicuously bent. Gonocoxites (figs 24, 26) thick basally, with long thin pointed tips. Gonocoxites a little longer than gonostyli. Epandrium (figs 27, 28) haired. Central aperture and sclerotized remainders of 10th tergite and sternite inside of epandrium reduced. Hypandrium very broad in the middle. The width of epiproct greater than its length, hairs minute. Hypoproc tongue-shaped, small, haired. Surstyli C-shaped, longer than epandrium in lateral view, subapically with two retinacula.

Female. Unknown.

Material examined: Holotype, male, Czech Republic, between Svatava and Lomnice (Sokolov distr.), Lomnický potok brook, Kukla and Štíkárna water reservoirs, CGM 5741 and 5841, 407-443 m a. s. l., 7.9.1993, Ježek leg., NMP, dissected, slide Cat. No. 33761, INS 7349, Canada balsam. Paratype: One male, Hroznětín (Karlovy Vary distr.), dried-up swamps in Alnetum near a brook, CGM 5643, 449 m a. s. l., 21.9.1997, Ježek leg., NMP, dissected, Cat. No. 33762, INS 7350. Figures are based on the holotype.

Bionomy: Unknown. Two males were collected by sweeping on the swampy banks of a water reservoir or a brook with growth of *Alnus*, *Salix* and *Sambucus*; undergrowth with *Caltha*, *Daucaceae*, *Filipendula*, *Glyceria*, *Impatiens*, *Iris*, *Mentha*, *Rubus* and *Urtica*. Habitats: the inundated funnelled holes of sunken shafts in the coalmining area (Pls A, 4); field and pasture swamps.

Derivatio nominis: I take pleasure in naming this species in honour of Mr. Josef Hrudka, open cast technical manager of the Sokolov coalmining company (Sokolovská uhléna a. s. - divize Jiří), who willingly organized the construction of morphologically different water reservoirs for new ecologically valuable ecosystems in the area of dumps (Sokolov landscape scientific experiment I and II).

#### *Berdeniella chvojkai* sp. n.

Pl. 3, figs 29 - 42

Differential diagnosis: Gonostyli (fig. 38) straight, uniformly thick basally and afterwards abruptly tapering to tip, aedeagal complex with characteristic inner structures, hypandrium with conspicuous oblong strengthening in the middle. In contrast, *Berdeniella longispinosa* (VAILLANT, 1958) has gonostyli gradually contracted towards tip, inconspicuously S-shaped, aedeagal complex quite different in details, hypandrium with tongue-shaped swelling.

Male. Frons wide, haired, index of minimum distance of eyes to facet diameter 3.5. Frontal suture triangular (fig. 29). Index of distance of eye's apices to minimum width of frons mostly 3.9, to facet (fig. 30) diameter 13.5. Antennae (figs 31, 32) 16-segmented. Scape short, cylindrical, a little longer than pedicel which is almost globular. Basal flagellar segments spindle-shaped, apical ones formed as casks. Terminal anten-

nal segment with a short stick-like protuberance. Sensory filaments rather short, as a structural unit, simple, paired. Ratios of lengths of segments of maxillary palps (fig. 34) 1:1.3:1.4:2.2. Last segment of maxillary palpus annulate, connected basally with apical end of the foregoing segment. Terminal lobe of labium on fig. 33. Ratio of maximum length of cibarium to length of epipharynx 1:1.8. Thoracal sclerites on fig. 35. Wings (fig. 36) widely lancet-shaped, clear, 2.3 - 2.7 mm long (holotype 2.5). Some veins are completely strengthened ( $Sc$ ,  $R_{2+3}$ ,  $R_5$ ,  $M_4$ ,  $Cu$ ), some only in their basal parts ( $R_4$ ,  $M_{1+2}$ ) or distal ones ( $R_1$ ,  $R_2$ ,  $R_3$ ). Basal costal nodes distinct,  $Sc$  uninterrupted.  $M_3$  and  $Cu$  without a connection to  $M_4$ .  $R_5$  extends distally to reach wing margin closely below rounded apex. Medial wing angle 166°(BCD). Indices of wing AB:AC:AD = 4.1:4:4; BC:CD:BD = 1:1.6:2.6. Index of basis of  $M_{1+2}, A$  to maximum width of wing 1.8. Ratio of maximum length of halteres to its maximum width 2.7:1. Ratios of lengths of femora, tibiae and first tarsal segments:  $P_1 = 1.8:1.9:1$ ;  $P_2 = 2.2:3.1:1.1$ ;  $P_3 = 2.2:2.7:1.2$ . Paired tarsal claws of  $P_1$  S-shaped with doubled tips (fig. 37). Aedeagal complex with characteristic inner structures (figs 38, 39). Gonocoxites (figs 38, 40) rather long, outside without protuberances. Gonostyli a little shorter than gonocoxites, uniformly thick basally and afterwards abruptly tapering to tip. Epandrium (figs 41, 42) haired, with two circular apertures, sclerotized remainders of 10th tergite and sternite inside of epandrium in form of a small pointed blade. Hypandrium with conspicuous oblong strengthening in the middle. The width of epiproct larger than its length. Hypoproc small, tongue-shaped. Both parts haired. Surstyli long, almost straight, thickened basally, conspicuously longer than epandrium, subapically with very long retinaculum and two short spines.

Female. Unknown.

Material examined: Holotype, male, Czech Republic, Lobézský potok brook (S of Sokolov) between Zlatý vrch 777.1 m a. s. l. and Vítkov 721 m, CGM 5842, 4.6.1993, Chvojka leg., NMP, dissected, slide Cat. No. 33763, INS 7351, Canada balsam. Paratypes: 9 males, dtto, Cat. No. 33764 - 33772, INS 7352 - 7360, the last paratype is incomplete. Figures are based on the holotype, figs 34 and 37 on the first paratype (INS 7352).

Bionomy: Unknown. Males were collected by sweeping on the banks of a brook with trout water (Pl 4).

Derivatio nominis: The name of species is dedicated to my colleague and friend RNDr. Pavel Chvojka (NMP), who participated in the research of the Sokolov area.

#### Faunistic part

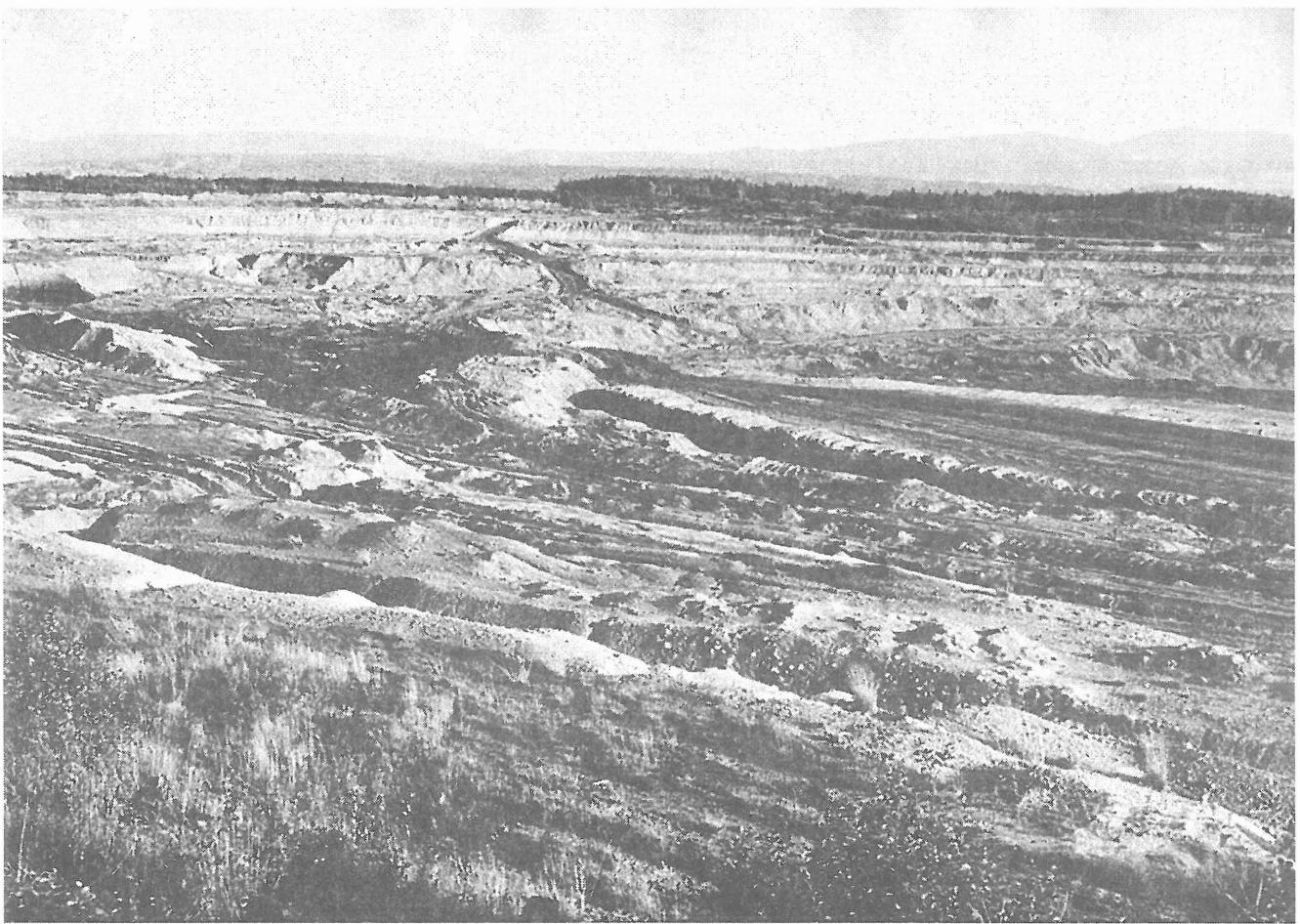
Review of the species of moth flies (selected material, slides only) collected in the Sokolov open cast coalmining area (Western Bohemia) during 1993 - 1996:

#### *Trichomyia urbica* CURTIS, 1839

1 male, 1 female, EUR, VI, CGM 5741 and 5841.

Marie open-cast mine foreground, water reservoirs and swamps, 22.6.1993, J., INS 4172; Lomnický potok brook between Svatava and Lomnice, 23.6.1993, J., INS 4154.

Veg.: 4, 53, 61; 73, 74, 83, 88-90.



**Text-fig. 1.** The moonscape as a result of the surface mining in the piedmont of the Krušné hory Mts.

***Psychomormia incerta* (EATON, 1893)**

3 males, EUR, VII-VIII, CGM 5741.

Pastviny dump, 1.5 km NE of Lomnice, water reservoirs, gutters, swamps, 11.8.1993 and 20.7.1995, C., INS 4272, 4289 and 5838.

Veg.: data missing.

***Psychomormia vaillanti* (WAGNER, 1977)**

2 males, EUR, V-VII, CGM 5741.

Pastviny dump, 1.5 km NE of Lomnice, swamps and gutters, 20.7.1995, C., INS 5912; dtto, crusted swamps, 8.5.1996, J., INS 5864.

Veg.: 13, 39, 60; 74, 82, 83, 88.

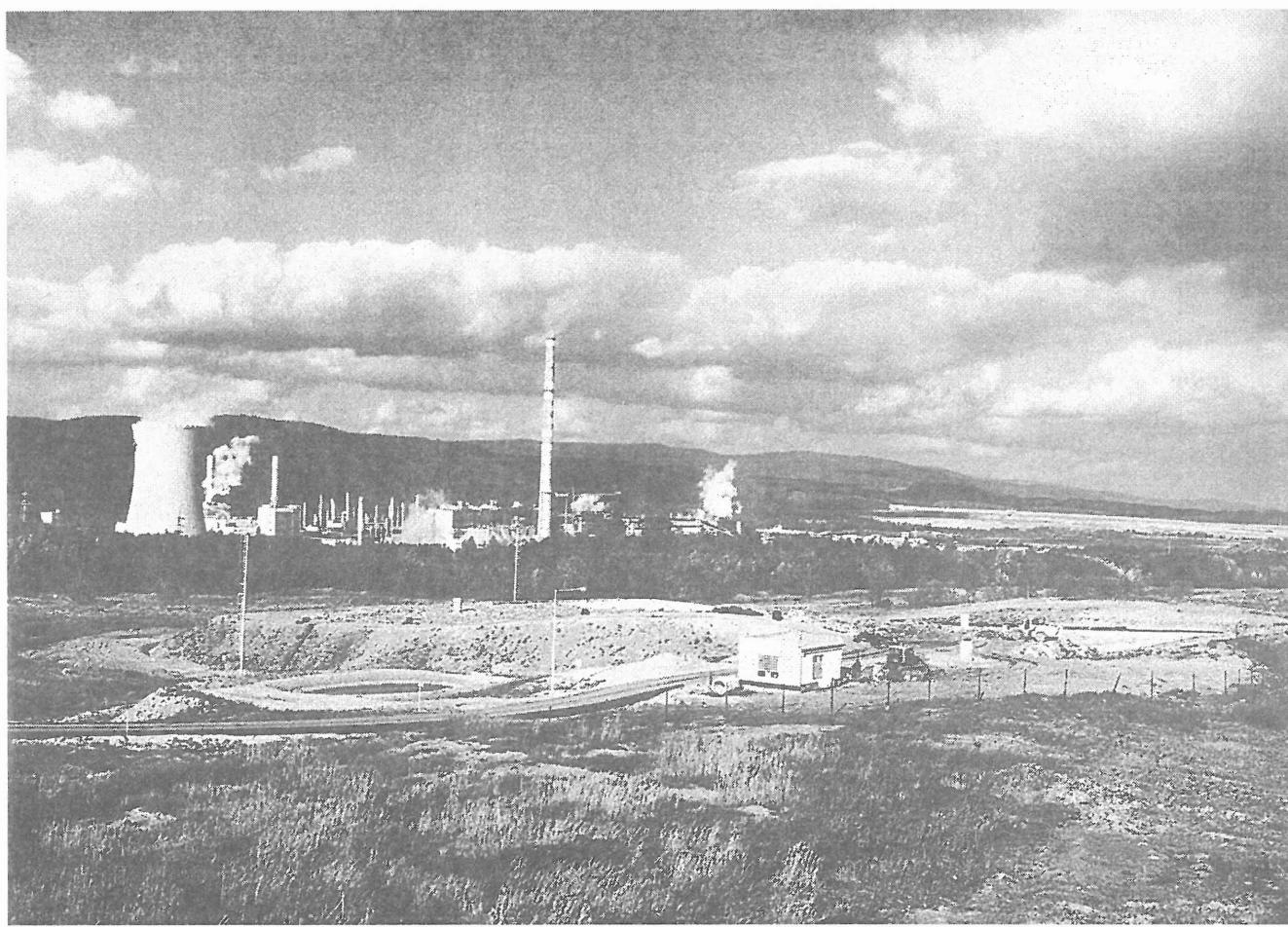
***Peripsychoda auriculata* (CURTIS, 1839)**

32 males, EUR, VI-VIII, CGM 5741-5743, 5841 and 5842.

Dvory nr. Loket, valley, brook, meadows, swamps, 23.6.1994, J., INS 5039 and 5953; Karlovy Vary-Vřídlo, river, 6.7.1994, J.,

INS 5075; Královské Poříčí, Prádlo pond, 9.8.1993, C., INS 4294; Loket, Lněný vrch 604,9 m, small forest lake, 23.6.1994, J., INS 5056; Lomnice, Starý Jiří open-cast mine, water reservoir (Fe), 19.6.1996, J., INS 5794 and 5853; Lomnický potok brook, swamps, 22.6.1994, J., INS 4623 and 4643; dtto, 27.6.1995, C., INS 5865; Pastviny dump, marginal marshes (Fe), small stream, 20.6.1996, J., INS 5982; dtto, 1.5 km NE of Lomnice, water reservoirs, 27.6.1995, C., INS 5891; dtto, marshes, 6.7.1995, J., INS 5014 and 5047; dtto, crusted swamps, 28.6.1995, C., INS 5019 and 5071; dtto, 22.6.1994 and 6.7.1995, J., INS 4606, 4638 and 5109; Lomnický les forest, water bodies, 5.7.1995 and 19.6.1996, J., INS 5106 and 5918; Marie open-cast mine foreground, water reservoirs and swamps, 22.6.1993 and 24.6.1994, J., INS 4174, 4096, 4654, 4670 and 4685; Nové Sedlo, pond, small stream, swamps, 1.6.1993, C., INS 4126; dtto, 24.6.1993, J., INS 4165; Svatava, Lomnický potok brook, 23.6.1993, J., INS 4158 and 4182; between Svatava and Lomnice, Kukla water reservoir, 24.6.1993, J., INS 4176; between Vintířov and Vřesová, water body, soaks (Fe), 18.6.1996, J., INS 5817.

Veg.: 2, 4, 8, 9, 11-13, 15, 17, 19, 21, 23, 25, 26, 28, 29, 31, 34, 36, 38, 42, 44-47, 50, 53, 56, 59-61; 71-74, 77, 78, 80, 82, 85, 87-89, 92.



**Text-fig. 2.** Many of the various extreme water biotopes, suitable for the development of the interesting moth flies (Diptera, Psychodidae), have originated from the activity of the Sokolov coalmining company (Sokolovská uhelná a. s.) with the power-fuel combine Vřesová.

*Telmatoscopus carthusianus* (VAILLANT, 1972)

4 males, EUR, V-VI, CGM 5741, 5742 and 5842.

Loket, Lněný vrch 604.9 m, small forest lakes, 23.6.1994, J., INS 5054; Lomnice, Starý Jiří open-cast mine, water reservoir (Fe), 19.6.1996, J., INS 5796; Lomnický les forest, water reservoirs, 18.5.1995, J., INS 5183; Tatrovice, brook, swamps, 24.6.1993, J., INS 4232.

Veg.: 8, 13, 18, 19, 23, 25, 46, 50, 53, 61; 71, 73, 74, 77, 78, 89, 92.

*Telmatoscopus gressicus* (VAILLANT, 1972)

5 males, EUR, V-VI, CGM 5741 and 5742.

Lomnice, Matyáš dump, forest brook, slope soak area, 18.5.1995, J., INS 5203, 5195; Pastviny dump, swamps, 6.6.1995, J., INS 5169; Nové Sedlo, small stream, 1.6.1993, C., INS 4125; between Vintířov and Vřesová, water reservoir, soaks (Fe), 18.6.1996, J., INS 5823.

Veg.: 3, 9, 13, 23, 26, 35, 44, 49, 50, 53, 56, 61; 71, 73, 74, 77, 83, 85, 89.

*Panimerus denticulatus* KREK, 1971

16 males, EUR, VI-VII, CGM 5741, 5742 and 5841.

Lomnice, spring area near the church, 22.6.1994, J., INS 4641;

Starý Jiří open-cast mine, water reservoir (Fe), 19.6.1996, J., INS 5799; Lomnický potok brook (outflow from dumps), 22.6.1994, J., INS 4624; Pastviny waste dump, settlement's margin, 6.7.1995, J., INS 5015 and 5049; dtto, crusted marsh, 28.6. and 6.7.1995, C. + J., INS 5020 and 5108; dtto, 1.5 km NE of the settlement, small water reservoir, swamps, 27.6.1995, C., INS 5893; dtto, 2.5 km NE of the same, inflow of large water reservoir, 28.6.1995, C., INS 5887; Lomnický les forest, water bodies, small stream, swamps, 5.7.1995 and 19.6.1996, J., INS 5102, 5061 and 5925; between Sokolov and Svatava, Riesel dumps, water reservoir, 6.7.1995, J., INS 5023; between Svatava and Lomnice, Kukla water reservoir and brook, 23.-24.6.1993, J., INS 4156 and 4175; between Vintířov and Vřesová, water body, soaks, 18.6.1996, J., INS 5820.

Veg.: 8, 9, 13, 15, 19, 23, 25, 26, 28, 31, 34, 35, 42, 44, 50, 53, 59-61; 71, 73, 74, 77, 83, 85, 87-89, 92.

*Panimerus kreki* VAILLANT, 1972

3 males, EUR, VI, CGM 5741 and 5742.

Lomnice, Lomnický potok brook (outflow from dump), 22.6.1994, J., INS 4625; between Lomnice and Vintířov, very rapid outflow from Pastviny dump, 22.6.1994, J., INS 4634;



**Text-fig. 3.** Lomnice open-cast mine in the Sokolov coal basin with the central extremely acid water reservoir. The view from the Pastviny dump (photo see Ježek, 1999), where ecologically valuable ecosystems (substitutive wetlands with marshy waters, shallows and quiet swamps, small and large water bodies) are formed within the scientific experiment.

between Lipnice and Vintířov, soaks (Fe), recultivated Alnetum, 18.6.1996, J., INS 5852.

Veg.: 6, 8, 12, 13, 19, 20, 23, 28, 34, 47, 59, 60; 71, 73, 74, 87, 88.

#### *Panimerus notabilis* (EATON, 1893)

17 males, EUR, V-IX, CGM 5741, 5742 and 5841.

Lomnice, brook (outflow from dumps), spring area and swamps near the church and football pitch, 22.6.1994 and 7.9.1994, J., INS 4574, 4601, 4618 and 4645; Starý Jiří open-cast mine, water reservoir (Fe), 19.6.1996, J., INS 5855; Lomnický les forest, water bodies, 7.6.1995, J., INS 5957; between Lomnice and Vintířov, Pastviny dump, water reservoirs and swamps, 11.8.1993, C., 7.9.1994 and 2.5.1995, J., INS 4274, 4594, 4727 and 5153; dtto, crusted marshes, 18.6.1996, J., INS 5960; Sokolov, Antonín dump, salt marsh, collected by 30 yellow pan traps, 6.-26.6.1995, J.+C., INS 5141; between Svatava and Lomnice, Lomnický potok brook, 23.6.1993, J., INS 4155; between Lipnice and Klondajk, Panský rybník pond, dumps, 18.6.1996, J., INS 5804; between Lipnice and Vintířov, water cascades, soaks (Fe), recultivated Alnetum, 17.5.1995 and 18.6.1996, J., INS

5858 and 5885; between Vintířov and Vřesová, water reservoir, soaks, 18.6.1996, J., INS 5824.

Veg.: 4, 8, 9, 11, 13, 15, 19, 23, 26, 28, 29, 34, 42, 44, 45, 47, 48, 50, 53, 57, 59-61; 71, 73, 74, 80, 82, 83, 87-90.

#### *Psycmera integella* (JUNG, 1956)

5 males, EUR, VI, CGM 5741 and 5842.

Dvory nr. Loket, valley, brook, meadows, swamps, 23.6.1994, J., INS 5952; Lomnice, Starý Jiří open-cast mine, water reservoir (Fe), 19.6.1996, J., INS 5797; Pastviny dump, swamps, 6.6.1995, J., INS 5171; Lomnický les forest, water reservoirs, 7.6.1995, J., INS 5035 and 5959.

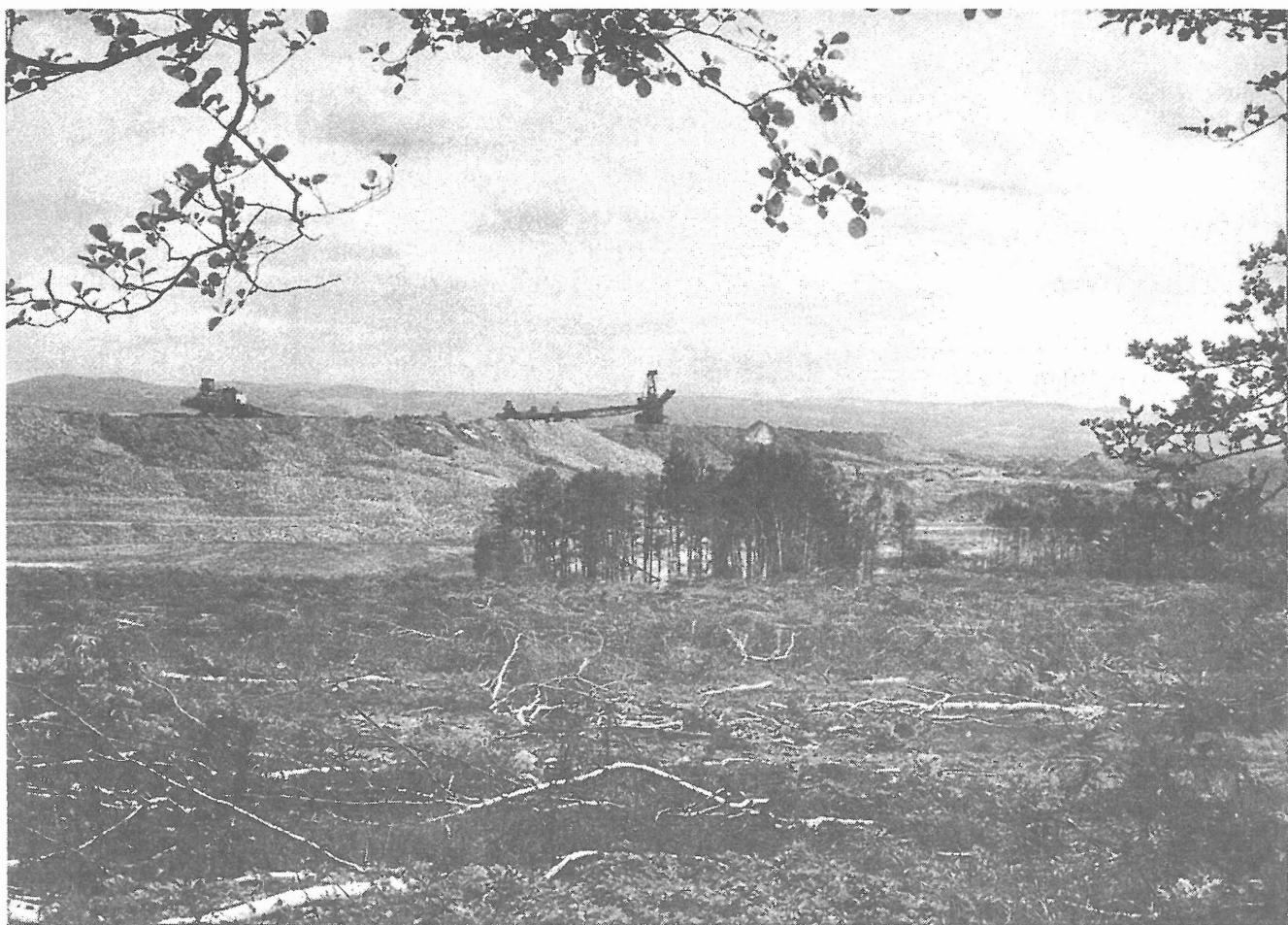
Veg.: 2, 4, 8, 9, 13, 15, 17, 19, 23, 25, 38, 49, 50, 53, 61; 71, 73, 74, 77, 83, 85, 87-89, 92.

#### *Parajungiella consors* (EATON, 1893)

2 males, EUWS, VII-VIII, CGM 5741.

Lomnice, Lomnický les forest, water reservoirs, 12.8.1993 and 25.7.1994, C., INS 4277 and 4700.

Veg.: data missing.



Text-fig. 4. There is a decrease of the wild life marshy biotopes of moth flies in the area between Boučí and Dolní Nivy (Sokolov distr.) because of the deforestation and new drainage system at the border of the Velká podkrušnohorská výsypka dump.

*Parajungiella ellisi* (WITHERS, 1987)

2 males, EUWS, VI, CGM 5741.

Lomnice, Starý Jiří open-cast mine, water reservoir (Fe), 19.6.1996, J., INS 5856; Lomnický les forest, water reservoir, swamps, 19.6.1996, J., INS 5928.

Veg.: 9, 11, 15, 23, 25, 28, 45, 47, 50, 53, 60; 71, 74, 80, 85, 89.

*Parajungiella longicornis* (TONNOIR, 1919)

29 males, EUWS, V-VIII, CGM 5741, 5742, 5841 and 5842.

Lomnice, brook (outflow from dump), small stream and swamps, 22.6.1994 and 20.6.1996, J., INS 4616 and 5985; brook near football pitch, swamps, 22.6.1994, J., INS 4603; Starý Jiří open-cast mine, water reservoir (Fe), 19.6.1996, J., INS 5793 and 5857; Matyáš dump, forest, brook, swamps, 6.6.1995, J., INS 5201; Pastviny dump, swamps, 6.6.1995, J., INS 5166; dtto, 2.5 km NE of the settlement, inflow of a large water body, 28.6.1995, C., INS 5886; Lomnický les forest, central water reservoirs, swamps, 18.5., 7.6. and 5.7.1995, 19.6.1996, J., INS 5036, 5100, 5127, 5182, 5923 and 5940; between Lipnice and Klondajk, Panský rybník pond, 18.6.1996, J., INS 5803; between Lomnice and Vintířov, rapid outflow from dumps (Pastviny), 11.8.1993, 22.6.1994 and 28.6.1995, C. + J., INS 4292, 4608, 4633,

5018 and 5069; Marie open-cast mine foreground, outflow from a water reservoir, soaks, 22.6.1993 and 24.6.1994, J., INS 4099, 4169, 4653, 4669 and 4684; Nové Sedlo, pond and swamps, 24.6.1993, J., INS 4161; Sokolov, pools, 2.6.1993, C., INS 4134; between Svatava and Lomnice, Lomnický potok brook, 23.6.1993, J., INS 4179; between Vintířov and Vřesová, water reservoir, soaks (Fe), 18.6.1996, J., INS 5821.

Veg.: 3, 4, 7-9, 11-13, 15, 19, 21, 23, 25, 26, 28-31, 34, 42, 44, 45, 47, 48, 50, 53, 56, 59-61; 71, 73, 74, 77, 80, 82, 83, 85, 87-90, 92.

*Parajungiella pseudolongicornis* (WAGNER, 1975)

2 males, EUR, VI, CGM 5741 and 5742.

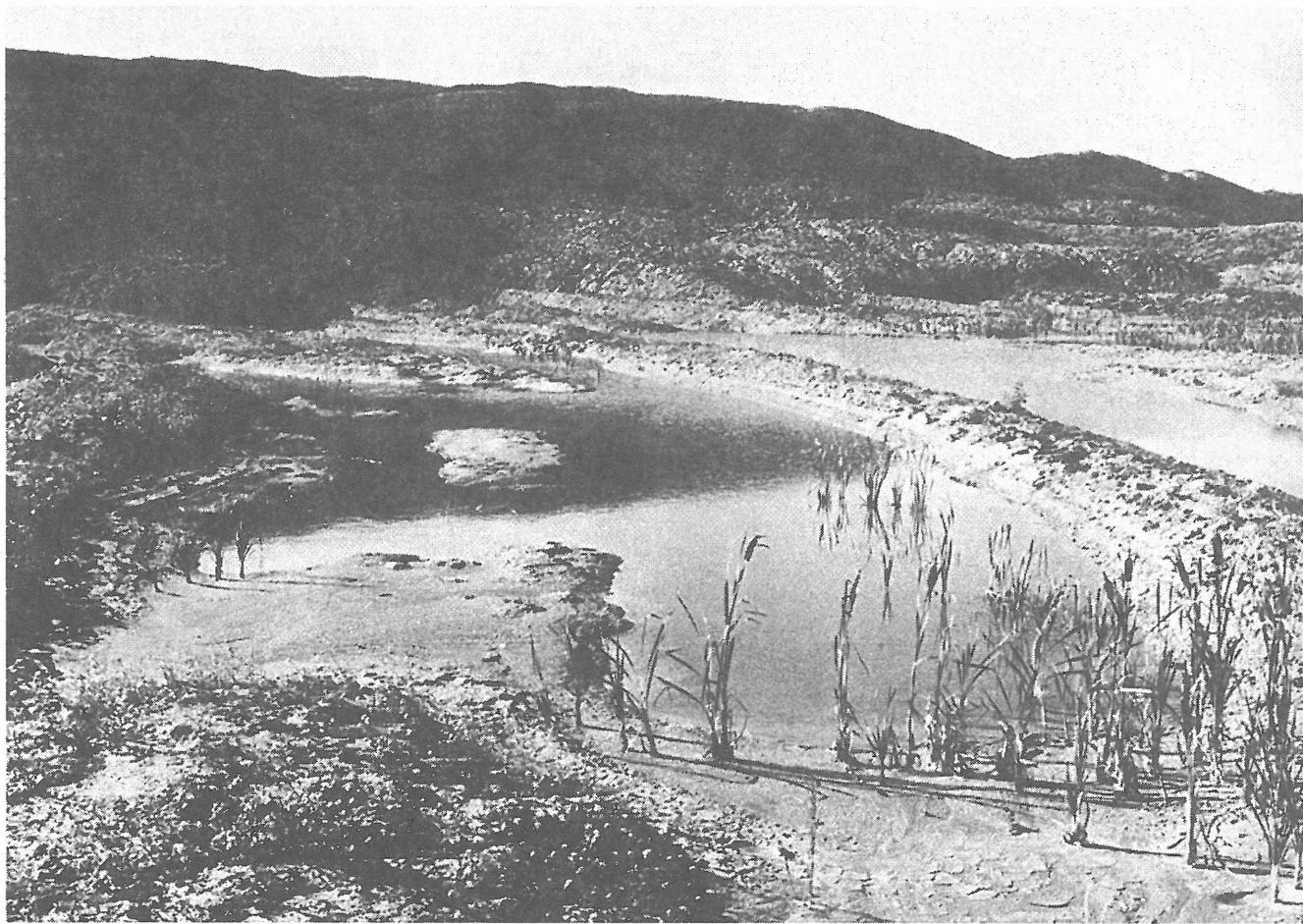
Lomnice, Lomnický les forest, central water reservoir, swamps, 19.6.1996, J., INS 5927; between Vintířov and Vřesová, water body, soaks (Fe), 18.6.1996, J., INS 5816.

Veg.: 9, 13, 15, 25, 26, 44, 61; 71, 73, 74, 85, 89.

*Parajungiella serbica* (KREK, 1985)

6 males, SBM, VI, CGM 5741 and 5841.

Lomnice, 1.5 km NE, Pastviny dump, water reservoir, swamps, 27.6.1995, C., INS 5894 and 5896; Lomnický les forest, central



**Text-fig. 5.** The ridges of the Velká podkrušnohorská výsypka dump (Sokolov distr.) with the Chvojka's lake experimental area. The furrows originated from the activity of the dump stowing machines by chance; the grooves were spontaneously flooded from soaks or by rainfall. Two years old inaction of the man made possible the succession of *Typha* and the occurrence of small insects, e.g. moth fly *Panimerus notabilis* (EAT.).

water reservoir, swamps, 19.6.1996, J., INS 5924; Sokolov, Antonín dumps, salt marsh, 30.YPT 6.-26.6.1995, J.+C., INS 5137-5139.

Veg.: 9, 15, 25, 42; 71, 73, 74, 85, 89.

#### *Jungiella (J.) hygrophila* JEŽEK, 1987

2 males, CEU, VI, CGM 5741.

Lomnice, Starý Jiří open-cast mine, water reservoir (Fe) and Lomnický les forest, central water body, swamps, 19.6.1996, J., INS 5798 and 5917.

Veg.: 9, 13, 15, 19, 25, 50, 53; 71, 73, 74, 77, 85, 89, 92.

#### *Jungiella (J.) soleata* (WALKER, 1856)

3 males, EUR, VI, CGM 5741.

Lomnice, Starý Jiří open-cast mine, water reservoir (Fe) and Lomnický les forest, central water reservoir, 19.6.1996, J., INS 5922 and 5791; Matyáš dump, forest, brook and swamps, 6.6.1995, J., INS 5200.

Veg.: 3, 8, 9, 13, 15, 19, 25, 50, 53, 56; 71, 73, 74, 77, 83, 85, 89, 90, 92.

#### *Jungiella (J.) valachica* (VAILLANT, 1963)

3 males, EUR, VI, CGM 5741.

Lomnice, Starý Jiří open-cast mine, water reservoir (Fe) and Lomnický les forest, central water reservoir, 19.6.1996, J., INS 5792 and 5921; Matyáš dump, forest, brook and swamps, 6.6.1995, J., INS 5202.

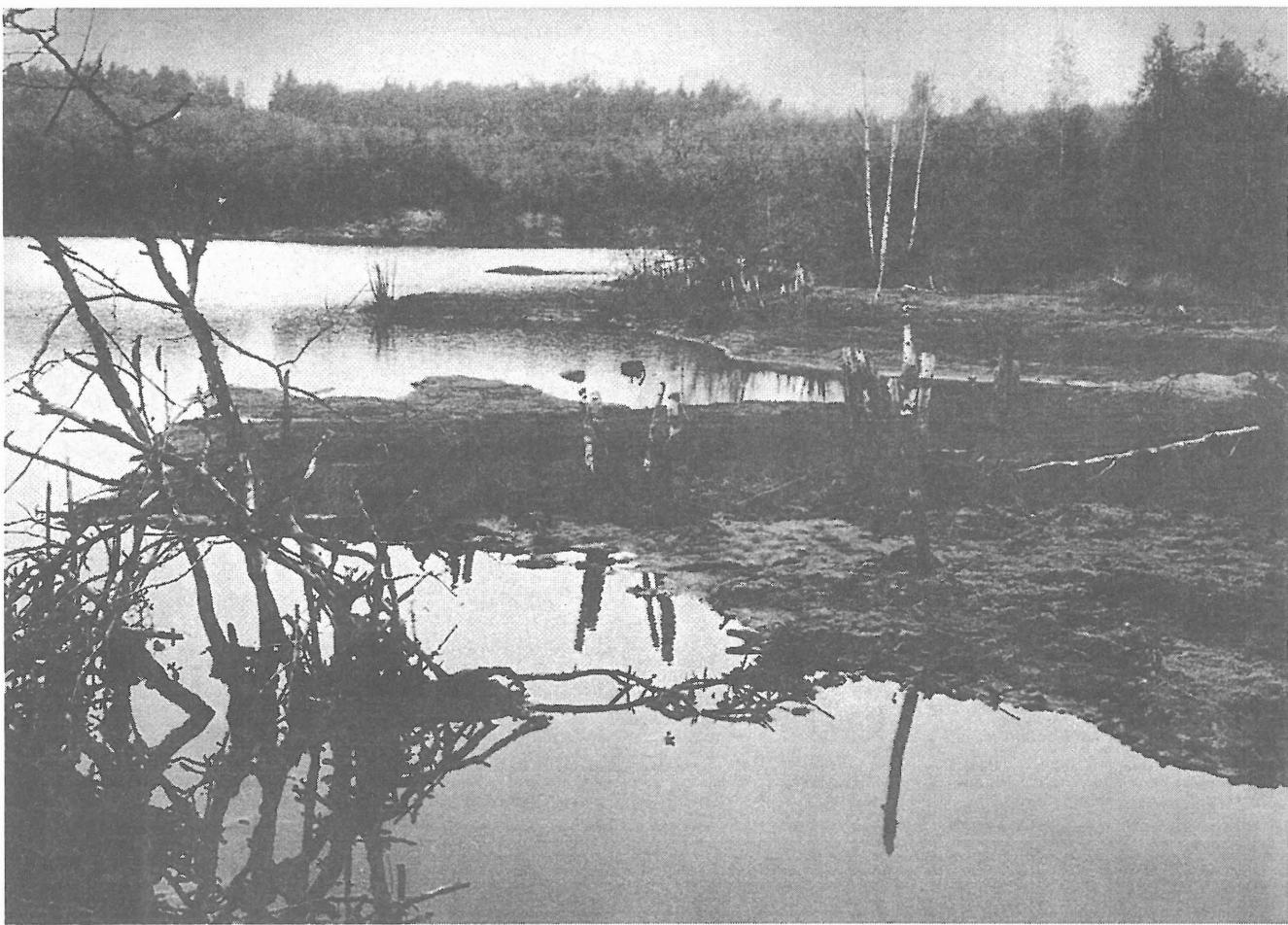
Veg.: 3, 8, 9, 13, 15, 19, 25, 50, 53, 56; 71, 73, 74, 77, 83, 85, 89, 90, 92.

#### *Paramormia (P.) polyascoidea* (KREK, 1971)

6 males, EUR, VI-IX, CGM 5741, 5742 and 5841.

Lomnice, brook (outflow from dump), 491.8 m, spring area and swamps near the church, 22.6.1994, J., INS 4621 and 4640; between Lomnice and Vintířov, Pastviny dump, water reservoir and rapid outflow, 22.6.1994, J., INS 4635; dtto, swamps 1.5 km NE of Lomnice, 27.6.1995, C., INS 5916; between Svatava and Lomnice, Kukla water reservoir, 26.7.1994, C., INS 4738; Vřesová, water body, 7.9.1994, J., INS 4584.

Veg.: 8, 9, 11-13, 19, 23, 34, 47, 53, 59, 61; 71, 73, 74, 87-89.



**Text-fig. 6.** Starý Jiří open pit nr. Lomnice (Sokolov coalmining area) - one of the most extreme water reservoirs (acidity), where oxidation of Fe is in progress during the periodical drawing and flooding of the aggressive mine water (value pH/H<sub>2</sub>O of the litoral slime represents about 2.3). Twenty one species of adults of sewage flies were ascertained by sweeping exactly here.

*Paramormia (D.) ustulata* (WALKER, 1856)

11 males, 1 female, HOL, V-X, CGM 5741, 5742 and 5841.  
Chranišov env. Nové Sedlo, swamps, 7.9.1994, C., M.+J., INS 4739 and 4613; Lomnice, Lomnický les forest, central water reservoir, 7.6.1995, J., INS 5124; between Lomnice and Vintířov, Pastviny dump, central water reservoir, inflow, 28.6.1995, C., 7.9.1994 and 4.10.1995, J., INS 4592, 5026 and 5070; Sokolov, Vilém open-cast mine, water reservoir, 25.7.1994, C., INS 4692 (female); between Lipnice and Klondajk, Panský rybník pond, dump, 6.5. and 18.6.1996, J., INS 5805 and 5873; between Sokolov and Svatava, Riesel dump, water reservoir, 5.10.1995, J., INS 5190; Vřesová, water body, swamps, 7.9.1994, C., J., INS 4718, 4583.

Veg.: 4, 9, 11, 13, 23, 29, 35, 42, 44, 50, 53, 59-61; 73, 74, 83, 88, 89.

*Trichopsychoda hirtella* (TONNOIR, 1919)

1 male, 2 females, EUR, VI-IX, CGM 5741, 5742 and 5841.  
Olovíenv. Kraslice, river, 5.7.1994, J., INS 5148 (male); between Svatava and Lomnice, Kukla and Štíkárna water reservoirs, 7.9.1993, J., INS 4193; Tatrovice, small stream and swamps in the village, 24.6.1993, J., INS 4303.

Veg.: 8, 12, 15, 19, 21, 50, 61; 73, 74, 82, 83, 88.

*Philosepedon austriacum* VAILLANT, 1974

5 males, EUWS, IV-V, CGM 5741 and 5841.  
Between Sokolov and Svatava, Riesel dump, swamps, 2.5.1995 and 9.5.1996, J., INS 5144 and 5835; between Svatava and Lomnice, Lomnický potok brook, 22.-23.4.1993 and 2.5.1994, J., INS 4116, 4146 and 4659.  
Veg.: 5, 8, 13-15, 35, 37, 42, 48, 50, 61, 62; 71, 73-75, 77, 80, 83, 85, 88, 89.

*Philosepedon humerale* (MEIGEN, 1818)

2 males, EUR, V-IX, CGM 5841.  
Between Sokolov and Svatava, Riesel dump, swamps, 18.5.1995, J., INS 5184; Svatava, river, weir, 9.9.1994, M., INS 4631.  
Veg.: 11, 35, 45, 61; 73, 74, 89.

*Feuerborniella obscura* (TONNOIR, 1919)

3 males, 4 females, EUR, VI, CGM 5741 and 5841.  
Lomnice, Starý Jiří open-cast mine, water reservoir (Fe), 19.6.1996, J., INS 5802; Lomnický les forest, central water reservoir, 7.6.1995, J., INS 5125 and 5941; Matyáš dump, forest,



**Text-fig. 7.** The inundated funnelled central holes of sunken shafts and old deep mining works in the area Lomnický les forest (Sokolov distr.) have produced secondary unique "taiga" biotopes in nearly one hundred years. These localities are critically endangered by the planned open pit coalmining. Type-locality of *Parajungiella prikryli* sp. n.

brook and swamps, 6.6.1995, J., INS 5198; between Lomnice and Vintířov, Pastviny dump, water reservoir, swamps, 22.6.1994, J., INS 4636; dtto, 2.5 km NE of Lomnice, inflow of water body, 28.6.1995, C., INS 5888; between Svatava and Lomnice, Lomnický potok brook, 23.6.1993, J., INS 4180.

Veg.: 3, 4, 8, 9, 12, 13, 19, 21, 23, 25, 29, 30, 47, 50, 53, 56, 60, 61; 71, 73, 74, 77, 83, 87, 88, 90, 92.

#### *Threticus lucifugus* (WALKER, 1856)

6 males, EUR, V-IX, CGM 5640, 5741, 5742, 5842 and 5843. Loket, Lněný vrch 604.9 m, gorge, small stream, 4.5.1994, J., INS 5042; Lomnice, border of the settlement, Pastviny dump, swamps, 4.9.1996, J., INS 5938; Rotava, railway station, brook, swamps, 9.9.1994, J., INS 5882; Sněžná nr. Kraslice, Hlinitý 700.3 m, forest, small streams, swamps, 8.9.1993, M.+J., INS 4202; Stanovice (Slavkovský les Mts.), dam, border of forest, narrow brook, 9.9.1993, M.+J., INS 4229; between Vřesová and Tatrovice, brook, "Na Skále", 14.8.1993, C., INS 4747.

Veg.: 8, 13, 31, 35, 38, 41, 50, 53, 55, 60, 61; 73, 74, 82, 83, 88, 89.

#### *Threticus silvaticus* JEŽEK, 1985

4 males, CEU, IX, CGM 5640.

Sněžná nr. Kraslice, Hlinitý 700.3 m, forest, small streams, swamps, 8.9.1993, M.+J., INS 4236-4239.

Veg.: 8, 13, 35, 55; 73, 82, 83.

#### *Psychodocha cinerea* (BANKS, 1894)

2 males, 2 females, COS, V-X, CGM 5741, 5841 and 5842.

Horní Slavkov, Třídomí (forester's house), wet meadow, 4.5.1994, J., INS 5910; Královské Poříčí, hostel (WC), 9.9.1993, J., INS 4208; Lomnice, Lomnický les forest, central water reservoir, 3.10.1995, J., INS 5089; between Sokolov and Svatava, Riesel dump, swamps, 2.5.1995, J., INS 5143.

Veg.: 4, 8, 9, 13, 14, 23, 25, 50, 53, 55, 60, 61; 73-75, 80, 81, 87-89.

#### *Psychodocha gemina* (EATON, 1904)

10 males, 14 females, EUR, V-IX, CGM 5641, 5741, 5841 and 5842. Královské Poříčí, periodical outflow of mine, 7.9.1993, J.,

INS 4205; Lomnice, Starý Jiří open-cast mine, water body (Fe), 4.9.1996, J., INS 5789 and 5844; Lomnický les forest, water reservoirs, 12.8.1993 and 25.7.1994, C., 5.7.1995, J., INS 4276, 4694 and 5107; dtto, forester's house, pools, 8.9.1994, J.+C., INS 4588; Marie open-cast mine foreground, outflow of water reservoir, spring area, 22.6. and 7.9.1993, J., INS 4093, 4168 and 4185; dtto, small water reservoir (*Lemna*), 7.9.1993, M., INS 4197; Matyáš dump, slope swamps, 18.5.1995, J., INS 5185, 5192 and 5205; Smolná env. Kraslice, brook, 9.9.1994, M., INS 5898; Sokolov, Antonín dump, salt marsh, 5.7.1995, J., INS 5088; Riesel dump, swamps, 5.9.1996, J., INS 5833; between Svatava and Lomnice, Kukla, Štíkárna, Wolf water bodies and Lomnický potok brook, 23.6. and 7.9.1993, 2.5.1994, J., 12.8.1993, C., INS 4152, 4184, 4194, 4302, 4676 and 4680; Šindelová env. Kraslice, forest, meadows, brook, swamps, 8.9.1993, M.+J., INS 4270.

Veg.: 3, 4, 7-11, 13, 15, 19, 21, 23, 25-29, 34, 35, 42, 44, 45, 48-50, 53, 56, 60-62; 71, 73, 74, 77, 80, 82, 83, 85, 87-90.

#### *Psycha grisescens* (TONNOIR, 1922)

1 male, 1 female, EUR, IV, CGM 5841 and 5842.  
Královské Poříčí, Prádlo pond, boar's bath in forest, 21.4.1993, J., INS 4108 (female); between Svatava and Lomnice, Lomnický potok brook, swamps, 23.4.1993, J., INS 4115.

Veg.: 35, 59, 62; 73, 74, 82.

#### *Psychomora trinodulosa* (TONNOIR, 1922)

1 male, HOL, IX, CGM 5641.  
Šindelová env. Kraslice, forest, meadows, brook, swamps, 8.9.1993, M.+J., INS 4264.  
Veg.: 13, 53; 74, 82, 88.

#### *Chodopsycha lobata* (TONNOIR, 1940)

13 females, EUR, VI-X, CGM 5641, 5741, 5742 and 5841.  
Královské Poříčí, Pískový vrch hill, forest, ponds, 8.9.1994, M.+J., INS 4600; Lomnice, margin of the settlement, Pastviny dump, water reservoir, swamps, 7.9.1994 and 4.9.1996, J., INS 4577 and 5933; Lomnický les forest, central water bodies (large and small), 7.6. and 5.7.1995, J., INS 5078, 5097, 5105 and 5831; Rotava, railway station, brook, swamps, 9.9.1994, J., INS 5883; Sokolov, Antonín dump, salt marsh, 30.YPT 6.-26.6.1995, J.+C., INS 5140; between Svatava and Lomnice, Kukla and Štíkárna water bodies, 7.9.1993, J., INS 4189; Šindelová env. Kraslice, forest, meadows, brook, swamps, 8.9.1993, M.+J., INS 4279; Vintířov, Panský rybník pond, crusted swamps, 3.10.1996, C., INS 5945; Vřesová, water reservoir, swamps, 7.9.1994, C., INS 4716.  
Veg.: 7-9, 13, 15, 23, 25, 31, 34, 35, 41, 45, 46, 50, 53, 55, 60, 61; 73, 74, 81-83, 87-89.

#### *Psychodula minuta* (BANKS, 1894)

1 male, 1 female, HOL, VI-IX, CGM 5641 and 5841.  
Between Svatava and Lomnice, Lomnický potok brook, 23.6.1993, J., INS 4153 (female); Šindelová env. Kraslice, forest, meadows, brook, swamps, 8.9.1993, M.+J., INS 4263.  
Veg.: 13, 44, 53, 61; 73, 74, 82, 88, 89.

#### *Psychoda phalaenoides* (LINNÉ, 1758)

6 males, 11 females, HOL, IV-X, CGM 5641, 5741, 5742, 5841 and 5842.

Královské Poříčí, Prádlo and Lesní rybník ponds, forest boar's bath, 21. and 25.4.1993, J., INS 4107 and 4110; Loket, hill Lněný vrch 604.9 m, valley, small stream, 4.5.1994, J., INS 5041; Lomnice, Starý Jiří open-cast mine, water reservoir (Fe), 4.9.1996, J., INS 5790; Lomnický les forest, water reservoirs (small and large) and pools with fallen trees near forester's house, 25.7.1994, 3.5.1995 and 5.7.1995, J., INS 4693, 5096, 5103 and 5904; Matyáš dump, slope swamps, 5.9.1996, J., INS 5807; between Lomnice and Vintířov, Pastviny dump, 2.5 km NE of Lomnice, inflow of water reservoir, 28.6.1995, C., INS 5068; Milíře, Lobézský vrch 729.7 m, small wet meadows, 3.5.1994, J., INS 5064; Sokolov, Antonín dump, salt marsh, 19.5. and 5.7.1995, J., INS 5086 and 5172; between Svatava and Lomnice, Lomnický potok brook, swamps, 23.4.1993 and 2.5.1994, J., INS 4121 and 4656; Šindelová env. Kraslice, forest, meadows, brook, swamps, 8.9.1993, M.+J., INS 4267; Vintířov, Panský rybník pond, crusted swamps, 3.10.1996, C., INS 5944.

Veg.: 4, 7-9, 13, 15, 23, 24, 26-29, 35, 37, 38, 42, 44, 48-50, 53, 55, 60-62; 73, 74, 76, 77, 82, 83, 85, 87-90.

#### *Psychoda uniformata* HASEMAN, 1907

4 males, 2 females, HOL, VI-IX, CGM 5741 and 5841.  
Lomnice, Lomnický les forest, central water reservoirs, 12.8.1993, 25.7.1994, C., 5.7.1995, J., INS 4275, 4699, 4710 and 5076; between Svatava and Lomnice, Lomnický potok brook, Kukla and Štíkárna water reservoirs, 23.6. and 7.9.1993, J., INS 4151 and 4195.

Veg.: 8, 15, 21, 25, 42, 53, 61; 73, 74, 81, 83, 87-89.

#### *Tinearia alternata* (SAY, 1824)

1 female, COS, IX, CGM 5741.  
Lomnice, Starý Jiří open-cast mine, water reservoir (Fe), 4.9.1996, J., INS 5841.  
Veg.: 23, 26, 35, 50, 61; 71, 73, 74, 77, 80, 89.

#### *Logima albipennis* (ZETTERSTEDT, 1850)

16 females, COS, IV-X, CGM 5640, 5641, 5741, 5841 and 5842.  
Královské Poříčí, periodical outflow from a mine, 7.9.1993, J., INS 4206; Lomnice, Lomnický les forest, central water reservoirs (small and large), small streams and pools with fallen trees near forester's house, 3.5. and 5.7.1995, J., INS 5063, 5095, 5104, 5868 and 5906; between Lomnice and Vintířov, central part of Pastviny dump, swamps, 2.5.1995, J., INS 5149; Marie open-cast mine foreground, water reservoirs, 12.8.1993, C., INS 4296; Matyáš dump, slope swamps, 6.7.1995, J., INS 5113; Nové Sedlo, 24.6.1993, J., INS 4162; Sněžná nr. Kraslice, Hlinitý 700.3 m, forest, small streams, swamps, 8.9.1993, M.+J., INS 4241; between Sokolov and Svatava, Riesel dump, water reservoir and swamps, 18.5. and 5.10.1995, J., INS 5186 and 5187; Svatava, Lomnický potok brook, swamps, 21. and 23.4.1993, J., INS 4143 and 4120; Šindelová env. Kraslice, forest, meadows, brook, swamps, 8.9.1993, M.+J., INS 4262.

Veg.: 5, 8, 9, 11, 13, 19, 23, 28, 31, 35, 37, 42, 45, 48, 50, 53, 55, 60-62; 71, 73, 74, 77, 82, 83, 85, 87-89.

*Logima erminea* (EATON, 1893)

2 females, PAL, VI-VIII, CGM 5741.

Lomnice, Starý Jiří open-cast mine, water body (Fe), 19.6.1996, J., INS 5801; Lomnický les forest, water reservoir, 12.8.1993, C., INS 4287.

Veg.: 13, 19, 25, 50, 53; 71, 73, 77, 92.

*Logima satchelli* (QUATE, 1955)

7 males, 3 females, HOL, IV-X, CGM 5640, 5641, 5741, 5841 and 5842.

Královské Poříčí, Prádlo pond, forest boar's bath, 21.4.1993, J., INS 4106; Lomnice, border of the settlement, Pastviny dump, swamps, 2.5.1995, J., INS 5160; Lomnický les forest, pools with fallen trees near forester's house, 3.5.1995, J., INS 5905; between Lomnice and Vintířov, Pastviny dump, water reservoir, 4.10.1995, J., INS 5027; Marie open-cast mine foreground, water reservoir, 12.8.1993, C., INS 4295; Milíře, hill 689.5 m nr. Lobézský vrch 729.7 m, small wet meadows, 3.5.1994, J., INS 5131; Sněžná nr. Kraslice, Hlinitý 700.3 m, forest, small streams, swamps, 8.9.1993, M.+J., INS 4240; Sokolov, Antonín dump, salt marsh, 5.7.1995, J., INS 5087; Svatava, river, weir, 9.9.1994, M.+J., INS 4595; Šindelová env. Kraslice, forest, meadows, brook, swamps, 8.9.1993, M.+J., INS 4269.

Veg.: 8, 9, 13, 23, 27-29, 35, 42, 44-46, 50, 53, 55, 59-62; 73, 74, 82, 83, 88, 89.

*Logima zetterstedti* JEŽEK, 1983

1 male, 3 females, EUWS, IV-IX, CGM 5741 and 5842.

Královské Poříčí, Lesní rybník pond, forest boar's bath, 25.4.1993, J., INS 4111; Lomnice, Lomnický potok brook, 23.4.1993, J., INS 4147; dtto, border of the settlement, Pastviny dump, swamps, 6.7.1995, J., INS 5048; Oloví, brook NE, 9.9.1994, C., INS 5877.

Veg.: 5, 14, 15, 31, 35, 48, 50, 53, 61; 73, 74, 77, 82, 83, 89, 90.

*Clytocerus (B.) ocellaris* (MEIGEN, 1804)

70 males, EUR, IV-X, CGM 5641, 5741, 5742, 5841 and 5842. Chranišov env. Nové Sedlo, swamps, 7.9.1994, M.+J., INS 4614; Horní Slavkov, forester's house Třídomí, meadows, swamps, 4.5.1994, J., INS 5909; Královské Poříčí, ponds nr. Pískový vrch hill and Lesní rybník pond, 9.8.1993 and 28.7.1994, C., 8.9.1994, C., M.+J., INS 4306, 4581, 4599, 4627, 4630, 4733 and 4743; dtto, stone-pit, polluted brook with rubbish, 25.4.1993, J., INS 4105; Loket, Lněný vrch 604.9 m, valley, small stream, 4.5.1994, J., INS 5043; Lomnice, hill 491.8 m, dump's outflow, 22.6.1994, J., INS 4622; dtto, Starý Jiří open-cast mine, water body (Fe), 19.6. and 4.9.1996, J., INS 5788, 5795 and 5854; dtto, border of the Pastviny dump NE of the settlement, swamps (Fe), 7.9.1994, 2. and 17.5.1995, 8.5.1996, 4.9.1996, J., INS 4579, 5155, 5159, 5950 and 5981; dtto, water reservoir 1 km SE, 8.9.1994, J., INS 4632; Matyáš dump, water reservoirs, swamps and slope soaks, 2. and 18.5., 6.6., 6.7. 1995, J., INS 5115, 5128, 5194, 5197 and 5204; Lomnický les forest, small and large central water reservoirs, outflows, small streams, 12.8.1993, 25.7.1994 and 19.7.1995, C., 3. and 18.5., 7.6., 5.7. and 3.10.1995, 19.6. and 5.9.1996, J., INS 4288, 4697, 4708, 5034,

5060, 5081, 5092, 5099, 5121, 5122, 5126, 5177, 5179, 5813, 5869, 5926, 5958, 5969 and 5971; between Lomnice and Vintířov, Pastviny dump, water reservoir and rapid outflow, crusted swamps, 22.6.1994 and 6.7.1995, J., INS 4637 and 5110; Marie open-cast mine foreground, water reservoirs and outflows, soaks, pools, 22.6.1993 and 24.6.1994, J., 2.6. and 12.8.1993, 25.7.1994, C., 8.9.1994, C., J., INS 4095, 4135, 4171, 4305, 4652, 4687, 4701 and 4715; Nové Sedlo, outflow of bathing place, 28.7.1994, C., INS 4730; Sokolov, Antonín dump, salt marsh, 19.5.1995, J., INS 5174; dtto, Lobézský potok brook, swamps, 3.5.1994, J., INS 5132; among Sokolov, Hrušková and Rovná, open-cast mine, swamps, 3.5.1994, J., INS 5830; between Sokolov and Svatava, Riesel dump, water reservoir and swamps, 6.7.1995 and 5.9.1996, J., INS 5024 and 5832; Svatava, Svatavský vrch 507.7 m, small pond, 5.7.1994, J., INS 4611; between Svatava and Lomnice, Kukla, Štíkárna, Wolf water reservoirs and Lomnický potok brook, 5. and 6.5.1993, M., 7.9.1993 and 2.5.1994, J., INS 4124, 4131, 4196, 4648, 4661 and 4673; Šindelová env. Kraslice, forest, meadows, brook, swamps, 8.9.1993, M.+J., INS 4266; Vintířov, Pastviny dump, swamps, 17.5.1995, J., INS 5850.

Veg.: 3-5, 7-10, 12-16, 19, 22, 23, 25, 26, 28, 29, 31, 32, 34, 35, 38, 42-56, 59, 60-62; 71, 73, 74, 77, 80-83, 85, 87-92.

*Clytocerus (B.) rivosus* (TONNOIR, 1919)

10 males, EUR, V-IX, CGM 5741, 5742 and 5841.

Lomnice, Pastviny dump, soaks, 8.5.1996, J., INS 5948; dtto, swamps and gutters 1.5 km NE of the settlement, 18.7.1995, C., INS 5875; Lomnický les forest, small stream, 5.7.1995, J., INS 5062; Marie open-cast mine foreground, water reservoirs and outflows, soaks, 22.6. and 7.9.1993, 2.5.1994, J., INS 4094, 4170, 4188 and 4691; Sokolov, Antonín dump, salt marsh, collected by 30 YPT, 5.-21.7.1995, J.+C., INS 5142; Vintířov, house's outflow, polluted pond, 6.5.1996, J., INS 5862; Vřesová, water body, swamps, 7.9.1994, C., INS 4717.

Veg.: 2, 4, 9, 13, 15, 23, 35, 42, 48, 49, 53, 60, 61; 71, 73, 74, 83, 85, 88, 89.

*Saraiella rotunda* (KREK, 1970)

2 males, SBM, VIII-IX, CGM 5741 and 5742.

Oloví, brook NE of the settlement; 9.9.1994, C., INS 5878; between Vřesová and Tatrovice, brook, "Na Skále", 14.8.1993, C., INS 4749.

Veg.: data missing.

*Szaboiella hibernica* (TONNOIR, 1940)

1 male, EUR, VII, CGM 5843.

Háje nr. Březová, Karlovy Vary distr., forest, small stream, 6.7.1994, J., INS 5848.

Veg.: 16, 21, 35, 50, 61; 73, 83.

*Ulomyia annulata annulata* (TONNOIR, 1919)

29 males, EUWS, V-IX, CGM 5741, 5742 and 5841.

Lomnice, Starý Jiří open-cast mine, water body (Fe), 4.9.1996, J., INS 5787; dtto, border of the settlement, Pastviny dump, marshes (Fe), 2.5. and 6.7.1995, 8.5. and 4.9.1996, J., INS 5052,

5165, 5932, 5949 and 5980; dtto, 1.5 km NE, water reservoir, gutter and swamps, 20.7.1995, C., INS 5840; Lomnický les forest, swamps near the forester's house, central water reservoirs, outflow, 12.8.1993, 25.7.1994, 3.5. and 5.7.1995, C., J., INS 4278, 4695, 5077, 5101 and 5968; between Lomnice and Vintířov, Pastviny dump, water reservoirs and marshes, crusted swamps, 11.8.1993, 7.9.1994, 2.5. and 6.7.1995, C., J., INS 4271, 4291, 4578, 4591, 4711, 4726, 5112 and 5150; cross-road among Lomnice, Vintířov and Vřesová, swamps, 6.5.1996, J., INS 5812; Sokolov, Antonín dump, salt marsh, 19.5. and 5.7.1995, J., INS 5084 and 5173; dtto, Lobézský potok brook, swamps, 3.5.1994, J., INS 5134; between Svatava and Lomnice, Lomnický potok brook and Kukla water body, 5.5. and 23.6.1993, 26.7.1994, C., J., M., INS 4127, 4181, 4157 and 4736; Vřesová, water body, swamps, 7.9.1994, C., INS 4722.

Veg.: 4, 7-10, 13-15, 19, 21, 23, 25-29, 31, 32, 35, 42, 49, 50, 53, 60, 61; 73, 74, 81-83, 85, 87-89.

#### *Ulomyia cognata* (EATON, 1893)

2 males, EUR, VIII, CGM 5742.

Vřesová, Chodovský potok brook near water body, 11.8.1993, C., INS 4282; between Vřesová and Tatrovice, brook, "Na Skále", 14.8.1993, C., INS 4748.

Veg.: data missing.

#### *Ulomyia fuliginosa* (MEIGEN, 1804)

48 males, EUR, IV-X, CGM 5641, 5741-5743, 5841-5843.

Březová nr. Karlovy Vary, small stream, 6.7.1994, J., INS 5066; Dvory nr. Loket, valley, meadows, small stream, swamps, 23.6.1994, J., INS 5037 and 5956; Háje nr. Březová, Karlovy Vary distr., forest, small stream, 6.7.1994, J., INS 5847; Karlovy Vary-Vřídlo, river, 6.7.1994, J., INS 5072; Kraslice, brook SE of the town, 9.9.1994, C., INS 5870; Loket, Lněný vrch 604.9 m, valley, small stream, small forest lakes, 4.5. and 23.6.1994, J., INS 5046 and 5055; Lomnice, dump's outflow and spring area near the church, brook, 22.6.1994, J., INS 4619 and 4642; dtto, Starý Jiří open-cast mine, water body (Fe), slope pools and gutters, 4.9.1996, J., INS 5809 and 5843; dtto, small stream N of the settlement, 27.6.1995, C., INS 5867; dtto, border of the Pastviny dump, swamps (Fe) and small stream, 2. and 17.5., 6.6., 6.7., 4.10.1995, 8.5., 20.6. and 4.9.1996, J., INS 5009, 5013, 5030, 5050, 5157, 5164, 5167, 5934, 5946, 5979 and 5984; Lomnický les forest, swamps near the forester's house, central water reservoirs, outflow, soaks, 3. and 18.5.1995, 19.6. and 5.9.1996, J., INS 5118, 5815, 5920, 5962 and 5970; dtto, Matyáš dump, swamps, 6.6.1995, J., INS 5199; between Lomnice and Vintířov, Pastviny dump, swamps, 22.6.1994, J., INS 4605; Nové Sedlo, bathing place, outflow, 28.7.1994, C., INS 4732; dtto, pond, swamps, 24.6.1993, J., INS 4166; Oloví, brook, 9.9.1994, M.+J., INS 5872; Smolná env. Kraslice, valley, forest, brook, 9.9.1994, J., M., INS 5899 and 5902; among Sokolov, Hrušková and Rovná, open-cast mine, swamps, 3.5.1994, J., INS 5826; Stanovice, outflow of a pond, overhanging banks, meadows, 9.9.1993, J., INS 4223; dtto, dam, narrow brook, border of forest, the same, 9.9.1993, M.+J., INS 4231; between Svatava and Lomnice, Lomnický potok brook, Kukla and Štíkárna water reservoirs, swamps, 23.4. and 5.5.1993, 2.5.1994, J., M., INS 4112, 4130, 4647 and 4662; Šindelová env. Kraslice, forest, meadows, brook,

swamps, 8.9.1993, M.+J., INS 4265; Tatrovice, brook, swamps, 24.6.1993, J., INS 4234; Vintířov, dump's outflow, 22.6.1994, J., INS 4626; between Vintířov and Vřesová, water reservoir, soaks (Fe), 18.6.1996, J., INS 5818; Vřesová, Chodovský potok brook and water body, 11.8.1993, C., INS 4286;

Veg.: 1-3, 8, 9, 11-19, 21, 23, 25, 26, 28, 31-36, 38, 42, 44, 46, 48-54, 56, 58-61; 71-74, 77-83, 85, 87-91.

#### *Bazarella (P.) subneglecta* (TONNOIR, 1922)

16 males, EUA, IV-IX, CGM 5741, 5742, 5841 and 5842.

Královské Poříčí, stone-pit, mine's periodical outflow and brook, 25.4. and 7.9.1993, J., INS 4102 and 4207; Lomnice, Lomnický potok brook, 22. and 23.4.1993, J., INS 4136 and 4448; dtto, Matyáš dump, water reservoirs, 2.5.1995, J., INS 5129; Sokolov, Lobézský potok brook, swamps, 3.5.1994, J., INS 5133; Svatava, brook, swamps, 23.4.1993, J., INS 4114; between Svatava and Lomnice, Lomnický potok brook (fallen bridge), Kukla, Štíkárna and Wolf water reservoirs, 22. and 23.4.1993, 2.5.1994, J., INS 4100, 4132, 4140, 4145, 4646, 4664, 4679 and 4681; Vřesová, water body, swamps, 7.9.1994, C., INS 4723.

Veg.: 5, 8, 10, 13-15, 28, 35, 42, 45, 48, 50, 53, 61, 62; 73, 74, 77, 83, 88-90.

#### *Pneumia canescens* (MEIGEN, 1804)

13 males, EUWS, IV-IX, CGM 5741, 5742 and 5841.

Lomnice, border of the settlement (NE), Pastviny dump, Lomnický potok brook, water reservoirs and swamps, 22. and 23.4.1993, J., 7.9.1994, C., J., INS 4137, 4149, 4580 and 4712; Lomnický les forest, swamps near the forester's house, central water reservoirs, outflows and swamps, 3.5.1995, J., INS 5117 and 5965; between Lomnice and Vintířov, Pastviny dump, swamps, 11.8.1993 and 7.9.1994, C., INS 4273, 4290 and 4728; between Svatava and Lomnice, Lomnický potok brook, swamps, 22. and 23.4.1993, 2.5.1994, J., INS 4118, 4133, 4141 and 4658.

Veg.: 5, 8, 13-15, 25, 35, 37, 48, 50, 60, 61; 73, 74, 77, 81, 83, 88, 89.

#### *Pneumia gracilis gracilis* (EATON, 1893)

3 males, EUR, V, CGM 5741 and 5841.

Lomnice, Lomnický les forest, swamps near the forester's house, water reservoir, outflow, 3.5.1995, J., INS 5966; between Svatava and Lomnice, Lomnický potok brook and Wolf water reservoir, 2.5.1994, J., INS 4660 and 4677.

Veg.: 8, 13-15, 25, 42, 48, 50, 61; 73, 74, 83, 89.

#### *Pneumia mutua* (EATON, 1893)

12 males, EUR, VI-VII, CGM 5741, 5742, 5842 and 5843.

Březová nr. Karlovy Vary, small stream, 6.7.1994, J., INS 5067; Dvory nr. Loket, valley, meadows, small stream, swamps, 23.6.1994, J., INS 5040 and 5951; Háje nr. Březová, Karlovy Vary distr., small stream, 6.7.1994, J., INS 5846; Komáří potok brook nr. Horní Slavkov (Protected Landscape area Slavkovský les) with left tributary stream, 640 m a. s. l., 4.6.1993, C., INS 4092; Lomnice, margin of the settlement, Pastviny dump, swamps (Fe), 6.6. and 6.7.1995, 20.6.1996, J., INS 5053, 5170 and 5983; dtto, dump's outflow, 22.6.1994, J., INS 4620; between

Lomnice and Vintířov, Pastviny dump, swamps, 22.6.1994, J., INS 4607; Nové Sedlo, pond, swamps, 24.6.1993, J., INS 4167; Tatrovice, brook, swamps, 24.6.1993, J., INS 4235.

Veg.: 2, 8, 12, 13, 15-19, 21, 23, 26, 31, 33-36, 38, 42, 46, 50, 53, 59-61; 71, 73, 74, 77, 82, 83, 85, 87-89.

#### *Pneumia nubila* (MEIGEN, 1818)

65 males, EUR, IV-X, CGM 5741, 5742, 5841, 5842 and 5844. Bochov, Karlovy Vary distr., data missing, 7.5.1993, M., INS 4211; Dvory nr. Loket, valley, meadows, small stream, swamps, 23.6.1994, J., INS 5955; Horní Slavkov, forester's house Třidomí, meadows, swamps, 4.5.1994, J., INS 5908; Královské Poříčí, Pískový vrch hill, ponds in forest, 8.9.1994, M.+J., INS 4597; Loket, Lněný vrch hill 604.9 m, valley, small stream and small forest lakes, 4.5. and 23.6.1994, J., INS 5045 and 5058; Lomnice, brook near footbal pitch, swamps and pools, 22.6.1994 and 4.9.1996, C., J., INS 4602 and 5837; dtto, Starý Jiří open-cast mine, water body, gutter and pools (Fe), 4.9.1996, J., INS 5808 and 5842; dtto, Matyáš dump, water reservoirs and swamps near sewage filter, 2. and 18.5., 6.7., 5.10. 1995, J., INS 5093, 5114, 5130 and 5191; dtto, border of the settlement, Pastviny dump, soaks, 2.5., 6.7. and 4.10.1995, 4.9.1996, J., INS 5012, 5031, 5161 and 5937; dtto, Lomnický les forest, small and large central water reservoirs and outflows, spring area and swamps near the forester's house, 12.8.1993, 25.7.1994, 3. and 18.5., 7.6., 3.10.1995, 19.6. and 5.9.1996, C., J., INS 4285, 4698, 5091, 5119, 5176, 5180, 5814, 5919, 5939, 5964 and 5972; crossroad among Lomnice, Vintířov and Vřesová, soaks, 6.5.1996, J., INS 5811; Marie open-cast mine foreground, small (with *Lemna*) and large water reservoirs, soaks, 22.6. and 7.9.1993, 2.5. and 24.6.1994, 19.7.1995, C., J., M., INS 4098, 4186, 4199, 4668, 4688 and 5080; Nové Sedlo, pond, swamps, outflow from the bathing-place, 24.6.1993 and 28.7.1994, C., J., INS 4164 and 4731; Oloví, brook NE, 9.9.1994, C., INS 5880; Sokolov, Antonín dump, salt marsh, 5.7.1995, J., INS 5083; dtto, Lobézský potok brook, swamps, 3.5.1994, J., INS 5135; open-cast mine among Sokolov, Hrušková and Rovná, swamps, 3.5.1994, J., INS 5828; between Sokolov and Svatava, Riesel dump, water reservoir, 6.7. and 5.10.1995, J., INS 5022 and 5188; Svatava, Svatavský vrch 507.7 m, small pond, 5.7.1994, J., INS 4612; dtto, Lomnický potok brook, swamps, 21. and 23.4., 23.6.1993, J., INS 4113, 4142 and 4160; between Svatava and Lomnice, Lomnický potok brook, Kukla, Štíkárna and Wolf water reservoirs, 5.-6., 24.6. and 7.9.1993, 2.5. and 26.7.1994, C., J., M., INS 4122, 4128, 4177, 4192, 4651, 4663, 4671, 4682 and 4737; Vintířov, outflow of sewage water from a village house, polluted pond, 6.5.1996, J., INS 5861; dtto, dump, crusted swamps near Panský rybník pond, 3.10.1996, C., J., INS 5930 and 5943; between Vintířov and Vřesová, water reservoir, soaks (Fe), 18.6.1996, J., INS 5822; Vřesová, water body, swamps, 11.8.1993 and 7.9.1994, C., J., INS 4280, 4585 and 4720; between Vřesová and Tatrovice, brook, "Na Skále", 14.8.1993, C., INS 4746.

Veg.: 2-5, 7-11, 13-17, 19, 21-23, 25-31, 34, 35, 38, 42, 44-46, 48, 50, 52-56, 59-62; 71, 73, 74, 76-78, 80, 81, 83, 85, 87-91.

#### *Pneumia palustris* (MEIGEN, 1804)

3 males, EUR, V, CGM 5741 and 5841.

Between Svatava and Lomnice, Štíkárna and Wolf water

reservoirs, Lomnický potok brook, 2.5.1994, J., INS 4650, 4655 and 4674.

Veg.: 8, 13, 15, 42, 48, 50, 61; 73, 74, 83, 89.

#### *Pneumia pilularia* (TONNOIR, 1940)

24 males, EUR, IV-X, CGM 5741, 5742, 5841 and 5842.

Královské Poříčí, quarry, brook, 25.4.1993, J., INS 4101; Lomnice, border of the settlement, Pastviny dump, swamps (Fe), 2. and 17.5., 4.10.1995, 4.9.1996, J., INS 5010, 5032, 5156, 5162, 5936 and 5978; between Lomnice and Vintířov, Pastviny dump, water reservoirs and swamps, 2.5. and 4.10.1995, J., INS 5029 and 5152; crossroad among Lomnice, Vřesová and Vintířov, swamps, 6.5.1996, J., INS 5810; Sokolov, Antonín dump, salt marsh, 5.10.1995, J., INS 5021; open-cast mine among Sokolov, Hrušková and Rovná, swamps, 3.5.1994, J., INS 5829; between Sokolov and Svatava, Riesel dump, swamps, 2.5.1995, J., INS 5146; between Svatava and Lomnice, Wolf water reservoir and Lomnický potok brook, swamps, 23.4.1993 and 2.5.1994, J., INS 4119, 4139, 4666 and 4675; Vintířov-Lipnice, dump, slope soaks in open landscape, marshes near waste heaps and crusted swamps near Panský rybník pond, waterfalls of aggressive mine water, 2. and 17.5.1995, 6. and 8.5., 3.10.1996, C., J., INS 5849, 5851, 5859, 5863, 5874, 5929 and 5942.

Veg.: 5, 7-10, 13-15, 19, 23, 27, 29, 31, 32, 35, 37, 42, 44, 48, 50, 53, 59-62; 71, 73-75, 77, 80, 82, 83, 87-90.

#### *Pneumia trivialis* (EATON, 1893)

129 males, EUR, IV-X, CGM 5543, 5640, 5641, 5740-5743, 5841-5844.

Bochov, Karlovy Vary distr., data missing, 7.5.1993, M., INS 4210; Boží Dar, Krušné hory Mts., peatbog, brook, 13.8.1993, C., INS 4301; Březová nr. Karlovy Vary, small stream, 6.7.1994, J., INS 5065; Chránišov env. Nové Sedlo, swamps, 7.9.1994, C., M.+J., INS 4615 and 4740; Dvory nr. Loket, valley, meadows, small stream, swamps, 23.6.1994, J., INS 5038 and 5954; Horní Slavkov, Třidomí-forester's house, meadow, swamps, 4.5.1994, J., INS 5911; Karlovy Vary-Vřídlo, river, 6.7.1994, J., INS 5074; Královské Poříčí, quarry, brook, 25.4.1993, J., INS 4103; dtto, Lesní rybník and Prádlo ponds (near hill Pískový vrch), bogs (wild boar's bath), 25.4. and 9.8.1993, 28.7. and 8.9.1994, C., J., M., INS 4109, 4293, 4582, 4598, 4628, 4629, 4724, 4734, 4742 and 5884; Loket, Lněný vrch 604.9 m, valley, small stream, small lakes in forest, 4.5. and 23.6.1994, J., INS 5044 and 5057; Lomnice, spring area near the church and brook near footbal pitch, pools and swamps, 22.6.1994 and 4.9.1996, C., J., INS 4604, 4644 and 5836; dtto, Starý Jiří open-cast mine, water body (Fe) and slope pools, 7.5. and 4.9.1996, J., INS 5806 and 5845; dtto, Lomnický potok brook and outflow of aggressive mine water from dumps NE of the settlement (near a hill 491.8 m), small water reservoir, swamps, 23.4.1993, 22.6. and 7.9.1994, 2. and 17.5., 27.6. and 6.7.1995, C., J., INS 4150, 4575, 4617, 5016, 5154, 5163 and 5866; dtto, Matyáš dump (near sewage treatment work), swamps, 18.5., 6.6., 6.7. and 5.10.1995, J., INS 5094, 5116, 5193 and 5196; dtto, margin of the village, Pastviny dump, swamps (Fe), 6.6., 6.7. and 4.10.1995, 8.5. and 4.9.1996, J., INS 5033, 5051, 5168, 5935, 5947 and 5977; dtto, small reservoirs, gutters and marshes 1.5 km NE of Lomnice, 27.6. and 18.7.1995, C., INS 5876 and 5892, 5897 and 5915; dtto, Lomnický les fo-

rest, pools near the forester's house, fallen trees, small and large central water reservoirs, outflows, small streams and swamps, 8.9.1994, 3. and 18.5., 29.6., 5.7. and 3.10.1995, C., J., J.+C., INS 4589, 5059, 5079, 5090, 5098, 5120, 5175, 5181, 5903, 5963, 5973 and 5986; between Lomnice and Vintířov, Pastviny dump, 2.5 km NE of Lomnice, water reservoirs and crusted swamps, rapid outflow, 22.6. and 7.9.1994, 28.6., 6.7. and 4.10.1995, C., J., INS 4590, 4609, 4639, 4713, 5017, 5028 and 5111; Marie open-cast mine foreground, small (with *Lemna*) and large water reservoirs and outflows, soaks, 22.6. and 7.9.1993, 2.5., 24.6. and 8.9.1994, 19.7.1995, C., J., M., INS 4097, 4173, 4187, 4198, 4204, 4667, 4683, 4686, 4690, 4702-4704 and 5082; 3 km N of Luby env. Kraslice, meadows, brook, 8.9.1993, M.+J., INS 4203; Mezihorská nr. Vřesová, pond (NW), 14.8.1993, C., INS 5881; Nadlesí nr. Údolí, Loket env., meadows, small pond, 9.9.1993 and 4.5.1994, J., INS 4299 and 5889; Nové Sedlo, pond, swamps, outflow from the bathingplace, 24.6.1993 and 28.7.1994, C., J., INS 4163 and 4729; Oloví env. Kraslice, river and brook, 5.7. and 9.9.1994, C., J., J.+M., INS 5147, 5871 and 5879; Smolná env. Kraslice, small valley, forest, 9.9.1994, M.+J., INS 5901; Sněžná nr. Kraslice, hill Hlinitý 700.3 m, forest, small streams, swamps, 8.9.1993, M.+J., INS 4201; Sokolov, Antonín dump, salt marsh, 5.7.1995, J., INS 5085; dtto, Lobézský potok brook nr. Vítkov 721.7 m, swamps, 4.6.1993 and 3.5.1994, C., J., INS 4298, 5136 and 5890; open-cast mine among Sokolov, Hrušková and Rovná, swamps, 3.5.1994, J., INS 5827; between Sokolov and Svatava, Riesel dump, water reservoir and swamps, 2.5. and 5.10.1995, 5.9.1996, J., INS 5145, 5189 and 5834; Stanovice, meadows, outflow of a pond, overhanging banks, 9.9.1993 J., INS 4222; dtto, dam, border of a forest, small stream, 9.9.1993, M.+J., INS 4230; Staré Sedlo nr. Královské Poříčí, brook, 10.8.1993, C., INS 4707; Svatava, brook and swamps, river's weil, pond near Svatavský vrch 507.7 m, 23.4.1993, 5.7. and 9.9.1994, C., J., M.+J., INS 4117, 4596, 4610 and 4741; between Svatava and Lomnice, Kukla, Štíkárna and Wolf water reservoirs, Lomnický potok brook, 22.-23.4., 5.-6.5., 23.-24.6., 7.9.1993, 2.5. and 26.7.1994, C., J., M., INS 4123, 4129, 4138, 4144, 4159, 4178, 4183, 4191, 4649, 4657, 4672 and 4744; Šindelová env. Kraslice, forest, meadows, brook, swamps, 8.9.1993, M.+J., INS 4268; Tatrovice, small stream, swamps, 24.6.1993, J., INS 4233 and 4304; Vintířov, house sewage outflow, pond with polluted water, 6.5.1996, J., INS 5860; dtto, Panský rybník pond, crusted slope swamps, 3.10.1996, J., INS 5931; between Vintířov and Vřesová, water reservoir, soaks (Fe), 18.6.1996, J., INS 5819; Vřesová, Chodovský potok brook and water body, 11.8.1993 and 7.9.1994, C., J., INS 4283, 4297, 4586 and 4721; between Vřesová and Tatrovice, brook, "Na Skále", 14.8.1993, C., INS 4745.

Veg.: 1-5, 8-15, 17-19, 21-23, 25-29, 31-38, 40, 42, 44, 45-51, 53, 55, 56, 59-62; 71-90.

#### *Tonnoiriella nigricauda* (TONNOIR, 1919)

5 males, EUR, V-VII, CGM 5741.

Lomnice, Lomnický les forest, forester's house, small and large water reservoirs, outflows, spring areas and swamps, 25.7.1994, 3. and 18.5.1995, C., J., INS 4709, 5178, 5967 and 5975; Marie open-cast mine foreground, water reservoirs, 2.5.1994, J., INS 4689.

Veg.: 9, 13, 14, 23, 25, 46, 50, 55, 60, 61; 71, 73, 74, 83, 85, 88, 89.

#### *Tonnoiriella pulchra* (EATON, 1893)

15 males, EUR, V-X, CGM 5641, 5741 and 5842.

Lomnice, margin of the settlement, Pastviny dump, water reservoir, swamps, 7.9.1994, 2.5. and 4.10.1995, J., INS 4576, 5008 and 5158; dtto, reservoirs, gutters and marshes 1.5 km NE of Lomnice, 20.7.1995, C., INS 5914; dtto, Lomnický les forest, forester's house, central water bodies, outflows and marshes, spring areas, 3. and 18.5., 3.10.1995, J., INS 5011, 5123, 5961 and 5976; between Lomnice and Vintířov, Pastviny dump, water bodies and swamps, 7.9.1994, 2.5. and 4.10.1995, C., J., INS 4593, 4714, 4725, 5025 and 5151; Smolná env. Kraslice, small valley, forest, small stream, 9.9.1994, J.+M., INS 5900; open-cast mine among Sokolov, Hrušková and Rovná, swamps, 3.5.1994, J., INS 5825.

Veg.: 1, 3, 8, 9, 13-15, 23, 25, 29, 35, 48, 50, 53, 59-61; 71, 73, 74, 81-83, 85, 87-89.

#### *Berdeniella manicata* (TONNOIR, 1920)

1 male, EUR, VIII, CGM 5842.

Staré Sedlo env. Královské Poříčí, brook, 10.8.1993, C., INS 4706.

Veg.: data missing.

#### *Pericoma (Pach.) blandula* EATON, 1893

12 males, EUR, IV-IX, CGM 5741, 5841-5844.

Bochov, Karlovy Vary distr., data missing, 7.5.1993, M., INS 4209; Královské Poříčí, quarry, brook, 25.4.1993, J., INS 4104; Loket, Ohře river, 28.7.1996, C., INS 5907; Lomnice, Starý Jiří open-cast mine, water body (Fe), 19.6.1996, J., INS 5800; dtto, Pastviny dump 1.5 km NE of the settlement, water reservoirs, gutters and swamps, 27.6. and 20.7.1995, C., INS 5839, 5895 and 5913; dtto, Lomnický les forest, central water reservoirs, spring areas, 18.5.1995, J., INS 5974; Stanovice, meadows, outflow of a pond, overhanging banks, 9.9.1993, J., INS 4221; Staré Sedlo env. Královské Poříčí, brook, 10.8.1993, C., INS 4705; between Svatava and Lomnice, Wolf water reservoir and Lomnický potok brook, 2.5.1994, J., INS 4665 and 4678.

Veg.: 8, 10, 13, 15, 19, 23, 25, 42, 48, 50, 53, 61, 62; 71, 73, 74, 77, 83, 85, 88, 89, 92.

#### *Pericoma (Pach.) fallax* EATON, 1893

9 males, EUWS, VII-IX, CGM 5741-5743 and 5841.

Karlovy Vary-Vřídlo, river, 6.7.1994, J., INS 5073; Lomnice, Lomnický les forest, central water reservoir, 25.7.1994, C., INS 4696; Marie open-cast mine foreground, water reservoirs, 7.9.1993, M., INS 4200; between Svatava and Lomnice, Kukla and Štíkárna water reservoirs, 7.9.1993 and 26.7.1994, C., J., INS 4190 and 4735; Vřesová, Chodovský potok brook, water reservoir and swamps, 11.8.1993 and 7.9.1994, C., J., INS 4281, 4284, 4587 and 4719.

Veg.: 8, 9, 11, 15, 21, 23, 25, 35, 46, 50, 53, 61; 71-74, 80, 88.

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## Explanations to the plates

### Plate A

The aerial photograph of several type localities of moth flies in the Sokolov coalmining area [for explanations see the corresponding map - Plate 4]. The print of this colour photograph was supported by the ecological company ENKI o. p. s., Du-kelská 145, 379 82 Třeboň, CZ.

### PLATE 1

*Parajungiella prikryli* sp. n.,  
male. 1 - head; 2 - facets; 3 - basal antennal segments; 4 - apical antennal segments; 5 - terminal lobe of labium; 6 - maxilla and palpus maxillaris; 7 - lateral view of thoracal sclerites; 8 - wing; 9 - claw of  $P_1$ ; 10 - dorsal view of aedeagal complex and gonopods; 11 - lateral view of aedeagal complex; 12 - lateral view of gonocoxite and gonostyle; 13 - dorsal view of epandrium and surstyli (retinaculi omitted); 14 - lateral view of epandrium and surstylus. Scales 0.1 mm, in fig. 8 1 mm.

### PLATE 2

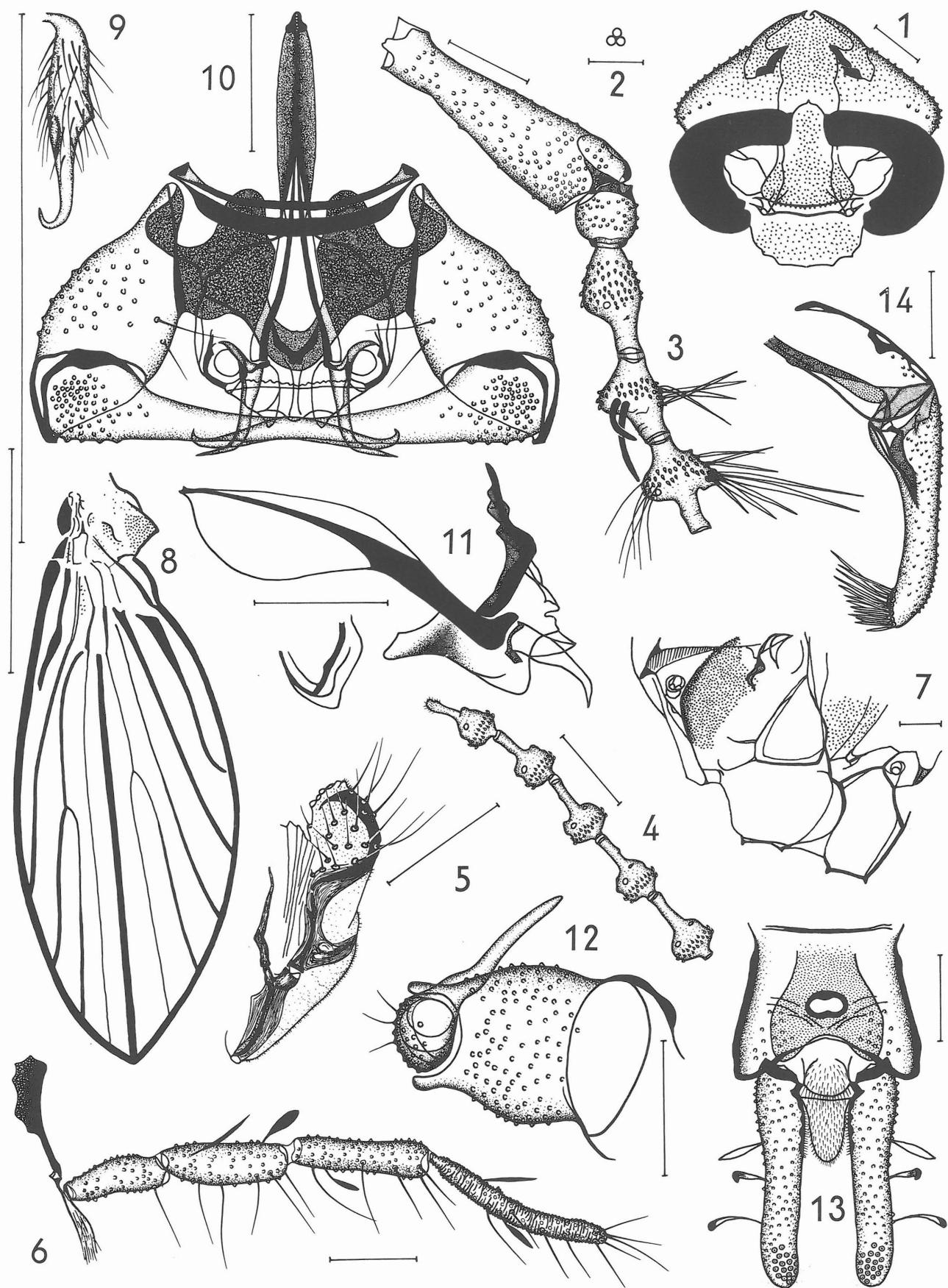
*Philosepedon hrudkai* sp. n.,  
male. 15 - head; 16 - facets; 17 - basal antennal segments; 18 - apical antennal segments; 19 - terminal lobe of labium; 20 - maxilla and palpus maxillaris; 21 - lateral view of thoracal sclerites; 22 - wing; 23 - claw of  $P_1$ ; 24 - dorsal view of aedeagal complex and gonopods; 25 - lateral view of aedeagal complex; 26 - lateral view of gonocoxite and gonostyle; 27 - dorsal view of epandrium and surstyli; 28 - lateral view of epandrium and surstylus. Scales 0.1 mm, in fig. 22 1 mm.

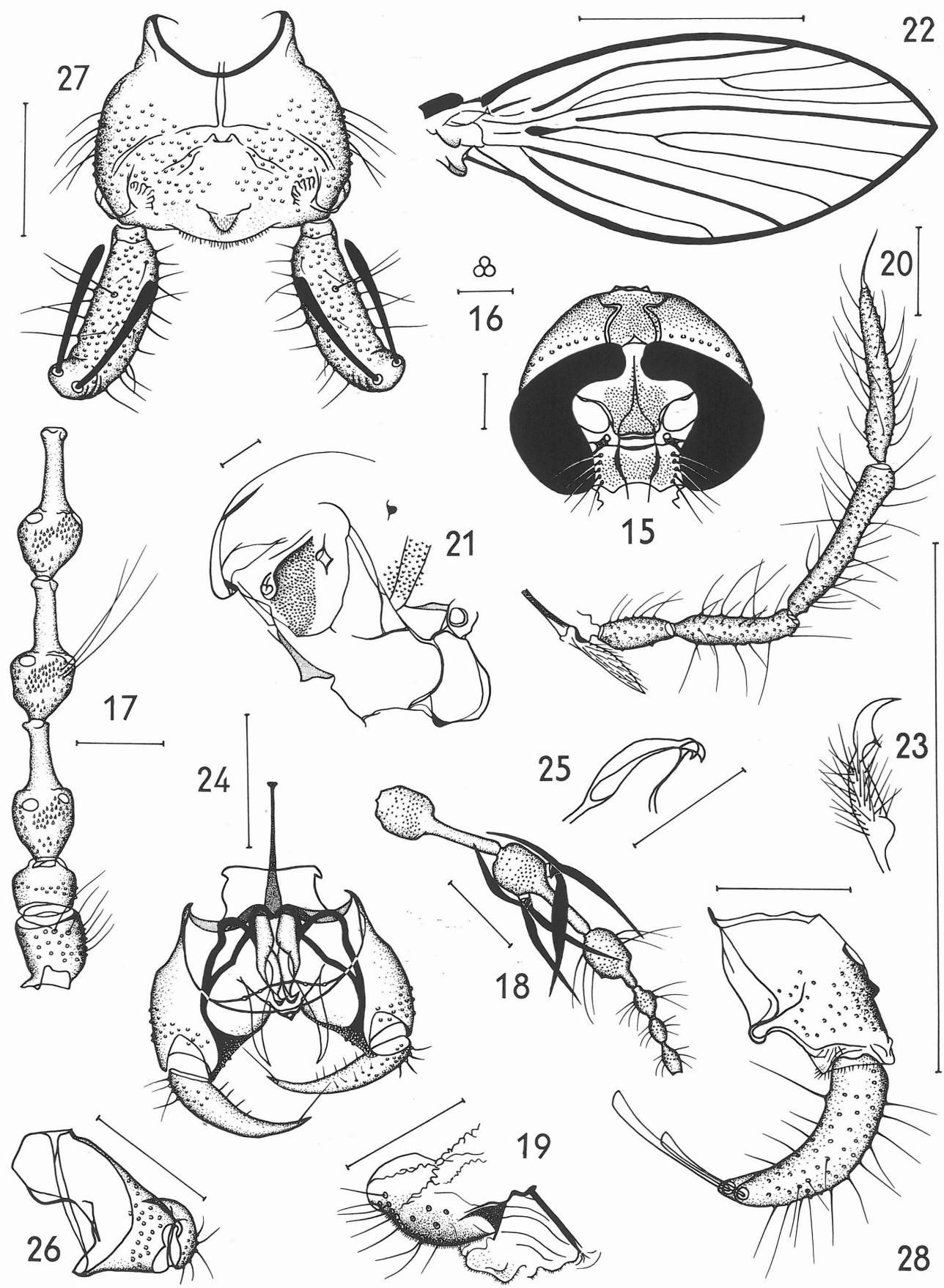
### PLATE 3

*Berdeniella chvojkai* sp. n.,  
male. 29 - head; 30 - facets; 31 - basal antennal segments; 32 - apical antennal segments; 33 - terminal lobe of labium; 34 - maxilla and palpus maxillaris; 35 - lateral view of thoracal sclerites; 36 - wing; 37 - claw of  $P_1$ ; 38 - dorsal view of aedeagal complex and gonopods; 39 - lateral view of aedeagal complex; 40 - lateral view of gonocoxite and gonostyle; 41 - dorsal view of epandrium and surstyli; 42 - lateral view of epandrium and surstylus. Scales 0.1 mm, in figs 35 and 36 1 mm.

### PLATE 4

Map of a part of the Sokolov basin with the marked localities of spp. n.: 1 - *Parajungiella prikryli*; 2 - *Philosepedon hrudkai*; 3 - *Berdeniella chvojkai*.





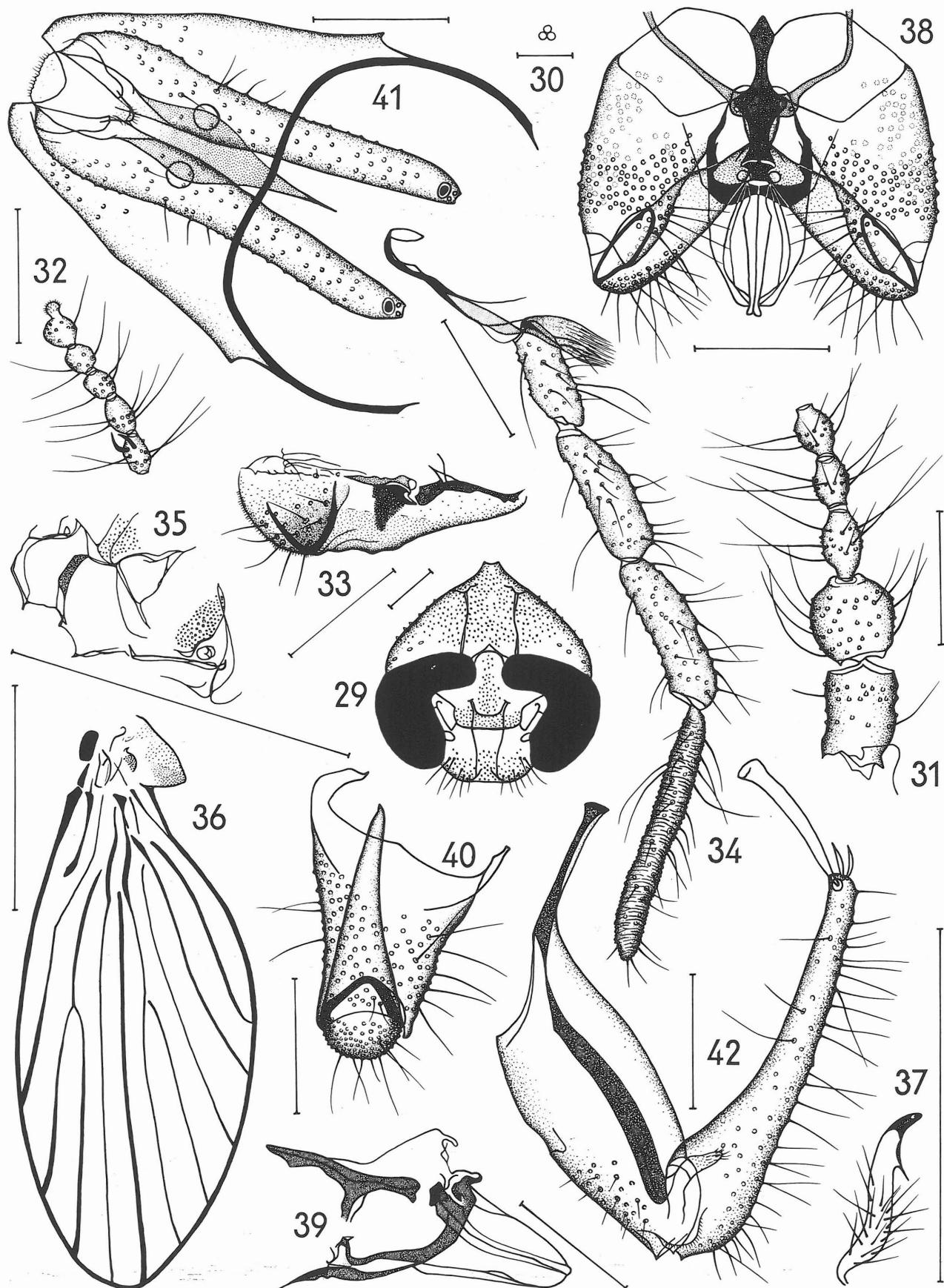


Plate 4 (4)

Ježek, J.: Moth flies ...

