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Species of *Bicellaria* Macquart (Diptera: Hybotidae) of Europe, with descriptions of four new species

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Abstract

Species of the genus *Bicellaria* (Diptera: Hybotidae) of Europe are reviewed. Altogether four new species are described, viz *B. andorra* sp. nov. (Andorra, France), *B. italica* sp. nov. (Europe), *B. kocourek* sp. nov. (Bulgaria), and *B. setipalpus* sp. nov. (Italy). *Bicellaria dispar* Oldenberg, 1920 is redescribed and lectotype is designated. *Bicellaria bisetosa* Tuomikoski, 1936 is newly synonymized with *B. uvens* Melander, 1928. Illustrations of male terminalia and a key to all known European species are provided.

Key words: Hybotidae; *Bicellaria*; taxonomy; key; Hybotidae; Empidoidea; new species

Introduction

Bicellaria Macquart, 1823 is a middle-sized mostly Holarctic genus of Hybotidae with 34 previously described species or subspecies; 22 of them are Palaearctic and 11 Nearctic, a single one [*B. spuria* (Fallén)] was considered Holarctic in distribution (Melander 1965). Four new European species are described herein.

The first attempt to treat European species of *Bicellaria* was by Lundbeck (1910) in his “Diptera Danica” series. He distinguished and keyed five species, of which two were described as new. Later Tuomikoski (1936, 1955) described additional species and compiled a key (Tuomikoski 1955), which was taken over by Frey (1956) in Lindner’s “Die Fliegen der palaearktischen Region”. Collin (1961) added additional species; however, his key was restricted to British species only. Chvála (1983) gathered all information about European species of the genus including the key; however, *B. stackelbergi* Tuomikoski was omitted. Later Chvála (1991) described two additional species from European mountains and updated the key; however, most species were gathered under “complexes”. Moreover, all published keys have omitted *B. dispar* Oldenberg. These facts, beside descriptions of four new European species, necessitated the compilation of a new comprehensive key to European *Bicellaria*. Details of the phallus for species identifications are used here for the first time.

Life history of species of *Bicellaria* is very poorly known. Both sexes are predators hunting in short flights catching flying insects, most often small Diptera (Chvála 1980). Chvála (ibid.) reported aerial aggregations of males of *B. nigrita* Collin, without apparent connection with mating or hunting. Developmental stages are still unknown.

Material and methods

The material studied is deposited in the following collections: BMNH (The Natural History Museum, London), CNC (Canadian National Collection of Insects and Arachnids, Ottawa), CULSP (Czech University of Life Sciences, Prague), MHK (Museum of Hradec Králové, Czech Republic), MHNG (Muséum d’Histoire Naturelle, Geneva), MSNV (Museo di Storia Naturale Venezia, Italy), NHMH (Natural History Museum, Helsinki), OUMNH (Oxford University Museum of Natural History, Oxford), SDEI (Senckenberg Deutsches Entomologisches Institut,

Müncheberg), SZMO (Silesian Museum, Opava, Czech Republic), ZMMU (Zoological Museum, Moscow University). Acronyms are used further in the text.

Genitalia together with 2–3 pregenital segments were removed from the rest of body by means of small scissors and macerated in potassium hydroxide solution (approx. 10 %) in small vials submerged into a cup of hot water for 1–2 hours. After neutralizing with 8 % acetic acid the genitalia were dissected in glycerine and parts (hypandrium from ventral side, postgonites with phallus) were photographed by means of an Olympus E-41 digital camera mounted on an Olympus BX51 compound microscope and images were edited with the computer software Quick Foto micro 2.3 provided with Deep focus 3.1. Each image resulted usually from combining 7–15 layers. Images were improved by means of Microsoft Office Picture Manager, and served as models for outline of hand drawn illustrations; details were added observing genitalia under a stereoscopic microscope.

The morphological terms used here follow Merz & Haenni (2000), Sinclair (2000) and Sinclair & Cumming (2006). All body measurements (including body and setae length) were taken from dry specimens (therefore the actual length may differ) by means of ocular micrometer with a Nikon SMZ 1500 binocular microscope. Male body length was measured from antennal base to the tip of the genitalia and female body length from the base of antennae to the tip of the cerci. Terms “left” and “right” (e.g., right postgonite, left phallic hook) refer to the sagittal plane viewing the specimen from above.

Detailed distributional data of previously described species are not given here for the following reasons: 1) common misidentifications (Chvála (1983) stated: “the older published records of the distribution of European species cannot be accepted because of common misidentifications”, this statement we extend to 2012); 2) existence of easily accessible electronic versions of catalogues (Chvála 2012; Yang *et al.* 2007). The “Distribution” sections below for previously described species represents critical assessment of all data available including new records given in this paper. Unreadable data on locality labels are marked with a question mark (“?”) in “Material examined” sections.

Taxonomic account

Bicellaria Macquart

Bicellaria Macquart, 1823: 155. Type species: *Bicellaria nigra* Macquart, 1823: 156 [= *spuria* (Fallén, 1816)] (monotypy).

Cyrtoma Meigen, 1824: 1. Type species: *Cyrtoma atra* Meigen, 1824: 2, des. Westwood, 1840: 133 [= *spuria* (Fallén, 1816)].

Enicopteryx Stephens, 1829: 264 (catalogue name).

Calo Gistel, 1848: VIII, unjustified new name for *Cyrtoma*. Type species: *Cyrtoma atra* Meigen, 1824 [= *spuria* (Fallén, 1816)].

Diagnosis. Species of the genus are typically small flies (wing length 1.9–4 mm), dull black with black or white setae. Head hemispherical with prominent ocellar triangle and short proboscis; pedicel with circlet of setae, ventral ones often elongated. Thorax dull black, more or less arched, conspicuously setose. Acrostichals biserial and distinctly separated from dorsocentrals. Legs slender, hind tibia very slightly [*B. simplicipes* (Zetterstedt)] to strongly (*B. stackelbergi* Tuomikoski) swollen apically, usually less distinctly so in females. Wing sometimes darkened, cell dm absent, base of M veins often depigmented, vein A_1 reaching (or nearly so) wing margin, area between tips of veins Sc and R_1 stigma-like darkened. Abdomen elongate and narrow. Male genitalia very slightly rotated to the right, however, this rotation is mostly apparent only according to the slightly asymmetrical position of the epandrial bridge, remaining structures (including cerci, hypandrium, postgonites and phallus) are symmetrical or secondarily asymmetrical (right postgonite is broader than left postgonite in some species). Genitalia usually small: hypandrium with two processes (absent in one undescribed South Asian species), shape and chaetotaxy of hypandrium is species-specific and useful for species identifications; both lamellae of the epandrium connected dorsally forming the epandrial bridge; cerci simple, conspicuous hypoproct present, both without species specific structures; hypandrium articulates dorsally with postgonites (pgn on Fig. 5) which are mostly symmetrical (sometimes asymmetrical - usually right one elongated ventrally), usually roughly rectangular in shape, rarely triangular or narrow (*B. uvens* Melander), however, shape is species-specific, left and right postgonites are connected dorsally, ventral part of postgonites protrudes cranially forming paired median extensions of postgonites (mep on Fig. 5) which approach or fuse with the ventral apodeme (vap on Fig. 5; absent

in *B. longisetosa* Chvála); these extensions are sometimes saw-toothed ventrally (e.g., *B. albopilosa* Chvála). Extremely important (but overlooked by previous authors) is the structure of the phallus: the most conspicuous part are structures termed here “phallic hooks” (hph on Fig. 5), apical part of phallus is mostly membranous, scarcely visible after dissection (with the exception of *B. longisetosa*). In the presumably plesiomorphic state, phallic hooks are paired, elongate and narrow, originating caudad from the dorsal connected part of the postgonites, with their tips oriented ventrally, both hooks being identical in shape and length (appearing as a single structure in lateral view). In the more derived state they are represented by asymmetrical hooks, with one part shorter or differently bent, or one hook (usually right one) may be reduced or, contrastingly, usually left hook is modified being triangular-shaped and broadened (*B. simplicipes*) or bifurcate (species of *B. pilosa* complex), in *B. stackelbergi* both hooks are broadened laterally. The ejaculatory apodeme (eap on Fig. 5) is rod-shaped, mostly without conspicuous species specific characters.

Bicellaria albopilosa Chvála

(Figs 1–2)

Bicellaria albopilosa Chvála, 1991: 14.

Material examined (77♂, 97♀). **Austria:** 2♂, 1♀, Niedere Tauern, Sölker Pass, 47°16'N, 14°04'E, 1900 m, 7–8.viii.1995; 1♂, Schladminger Tauern, Donnersbachwald-Stallaalm, 1600 m, viii.-x.1999, Malaise trap; 1♂, 1♀, Grossglockner, spruce wood, 47°06'N, 12°43'E, 1400–1700 m, 31.vii.1988–all M. Barták–(CULSP). **Czech Republic:** 36♂, 19♀, Krkonoše Mts (Luční hora, Luční bouda, Labský důl, Labská bouda, Velká Kotelní jáma, Dvorský potok, Labská rokle, Pančava, Medvědní, U bufetu, Liščí hora), altitude range: 1040–1500 m, vii.-ix.–all J. Vaněk et M. Barták–(CULSP). **Germany:** 1♂, 2♀, Bayerische Wald, Spiegelau, 890 m, 48°57'N, 13°22'E, 7.ix.1995, M. Barták (CULSP). **Slovak Republic:** 26♂, 73♀, Vysoké Tatry, several localities (Javorová dolina, Tichá dolina, Malá Studená dolina, Hrebienok, Starý Smokovec), spruce forest, meadow and clearing in forest, 22.vii.-17.viii., altitude range: 1100–1700 m (CULSP). **Italy:** 10♂, Passo Rolle, larch wood and alpine meadow, 46°13'N, 11°42'E, 1700–1900 m, 8.viii.1988, M. Barták (CULSP). **Switzerland:** 1♀, GR, Lenzerheide, pasture, 2000 m, 14.–21.vii.2000, B. Merz (CULSP).

Diagnosis. The species has elongate-trapezoid postgonites, relatively narrow V-shaped divergent hypandrial processes, both phallic hooks present, connecting ventrally (forming closed ring, right hook slightly shorter than left hook), median extension of postgonites saw-toothed ventrally (Figs 1–2). Presutural area mostly similarly coloured as rest of mesoscutum in males but lighter in females.

Distribution. Mountains of Central and Southern Europe.

Remarks. *Bicellaria albopilosa* was described from numerous specimens originating from the Krkonoše Mts, Orlické hory, and Carpathian Mts (Slovak Republic and Romania), exclusively from high altitudes (from 800 to 2200 m) (Chvála 1991). Chvála (ibid.) illustrated the fore and hind legs, antenna and hypandrium.

There may be at least one similar species (see *Bicellaria* sp. 5 in section “Unidentified specimens”) and, therefore, careful examination of genitalia is necessary.

Bicellaria alpina Bezzi

(Figs 3–4, 48)

Bicellaria alpina Bezzi, 1918: 75.

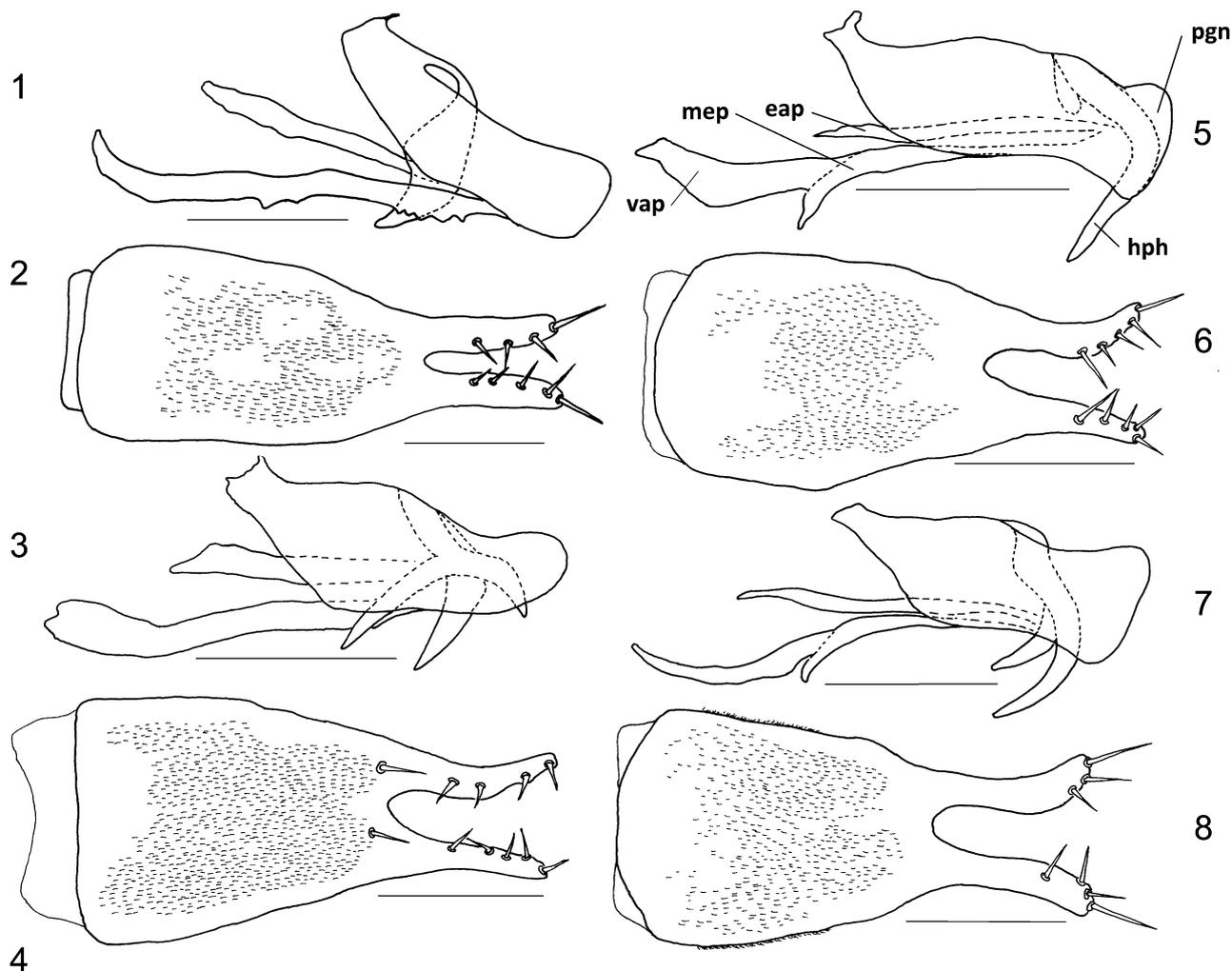
Type material examined. Val Bitto, 4.viii.1899, 1♂ (labelled: “*B. alpina*” det. Bezzi - probably a syntype, SDEI). **Additional material examined** (4♂, 6♀). **Italy:** 1♂, Cusiano(?), viii.1895; 2♀, Val Genova, vii.(?)1899; 1♀, same loc. 4.viii.1899; 1♀, San Martino, 30.vii.1914; 1♂, Venino, 11.vii.1902 (“*B. alpina*” det. Bezzi) (SDEI); 1♀, Passo Sella, alpine meadow, 8.viii.1988, 46°26'N, 11°43'E, 2100 m, M. Barták (CULSP). **Switzerland:** 1♂, Lenzerheide, pasture, 2000 m, 14–21.vii.2000, Malaise trap, B. Merz; 1♂, same locality, 21–31.vii.2000, B. Merz (CULSP); 1♀, Maloja, 23.vii.1906? (SDEI).

Diagnosis. *Bicellaria alpina* is a member of the *B. pilosa* complex of species (characterized by 4 or more black

setae on palpus, 1–3 dorsal setae on third antennal segment, all body setae black and bifurcate left phallic hook), the third species of this complex (*B. setipalpus* sp. nov.) differs from both remaining species in the structure of the genitalia (sharply bent anterior arm of left phallic hook). Chvála (1991) considered *B. alpina* and *B. pilosa* Lundbeck to be identical, listing *B. alpina* as a junior synonym of *B. pilosa* (although he had no specimens of *B. alpina* on hand). However, we remove this species from synonymy despite not finding any differences in the male genitalia (the presence or absence of a long seta on the base of the hypandrial processes is apparently a variable character in all three species of the *B. pilosa* complex). *Bicellaria alpina* may be easily recognised from *B. pilosa* according to the key.

Distribution. Mountains of Central and Southern Europe.

Remarks. Tuomikoski (1955) provided a short redescription and illustration of the hypandrium. For further remarks see under *B. pilosa*.



FIGURES 1–8. Hypandrium (ventral view) and phallus with postgonites (lateral view). 1–2. *Bicellaria albopilosa* Chvála. 3–4. *Bicellaria alpina* Bezzi. 5–6. *Bicellaria andorra* sp. nov. 7–8. *Bicellaria austriaca* Tuomikoski. Abbreviations: eap—ejaculatory apodeme, hph—phallic hooks, mep—median extensions of postgonites, pgn—postgonites, vap—ventral apodeme. Scale bars = 0.10 mm.

***Bicellaria andorra* sp. nov.**

(Figs 5–6)

Type material. HOLOTYPE ♂: Andorra, Pyrenees, Pto. de Envalira, 42°33'N, 1°42'E, 1800 m, pine wood nr. brook, M. Barták (CULSP). PARATYPES: Andorra, 7♂, 1♀, same data as holotype (CULSP); 7♂, 1♀, Pyrenees,

Pto. de Envalira, 42°32'N, 1°43'E, 2200 m, subalpine meadow, M. Barták (CULSP). **France**, 28♂, 10♀, Pyrenees, Pic Long, 42°49'N, 0°09'E, 9.vii.1990, 2200 m, alpine meadow, M. Barták (CULSP).

Diagnosis. Third antennal segment without dorsal setae; fore tibia with sparse and short posteroventral setae; abdomen almost entirely pale setose; hind femur without posteroventral setae. Male hypandrial processes with several long setae near apex, postgonites long and narrow, only left phallic hook long, simply curved, right one reduced.

Description. Male. Head black, dark grey microtrichose, black setose (including lower occiput). Eyes meeting on frons, about 14–17 facets in line of contiguity of eyes; facets on dorsal half much larger than on ventral half. Two pairs of long black ocellar setae, posterior pair shorter. Occiput rather densely setose. Face slightly narrowing ventrally, dorsal part just below antennae about 0.05 mm broad and ventral part about 0.04 mm broad at narrowest point. Clypeus slightly paler grey microtrichose. Palpus short, brown, with 3–5 setae. Labrum brown, lustrous. Antenna black, second segment short setose (longest setae about 0.10 mm); third without dorsal setae; ratio of broad part of segment 3: narrow part of segment 3: stylus (at 0.01 mm scale) = 15–17: 5–6: 15–20. **Thorax** black to brownish black, microtrichose, mesoscutum almost velvety black in dorsal view, prescutellar area evenly dark, only scutellum slightly lighter. All thoracic setae black including fringes on squama. Chaetotaxy: acrostichals broadly biserial and long even in presutural area (about 0.15 mm in front but longer posteriorly); dorsocentrals nearly evenly long, about 15 setae in posthumeral and intrahumeral areas; 1 longer and several slightly shorter postpronotals; notopleura with 4–7 unequally long setae in one irregular row; 1–2 supraalars and several setae in prealar area; 1 long postalar; 2–3 pairs of scutellars (often 2 setae on one side and 3 on other side). **Legs** including coxae black, microtrichose and black setose (only hind coxa sometimes with several pale setae posteriorly). Fore femur with row of very short anteroventrals and row of longer posteroventrals (half as long as depth of femur). Fore tibia with longest posterodorsals 1.5X as long as depth of tibia, posteroventrals in apical third short and sparse, shorter than depth of tibia (similar as in Fig. 46). Mid femur with sparse row of anteroventrals, half as long as depth of femur, with much stronger and longer posteroventrals slightly longer than depth of femur. Mid tibia with ventral setae equally long (about as long as depth of tibia), with 2–3 pairs of setae dorsally up to 3X as long as depth of tibia (0.15 mm). Hind femur with 16–17 anterodorsal setae slightly longer than depth of femur (on basal part) and with 14–16 rather strong anteroventrals about as long as depth of femur, posteroventral part without setae, covered with fine pilosity. Hind tibia swollen in apical half (0.13–0.14 mm at broadest point), slightly broader than hind femur (0.12–0.13 mm at broadest point), dorsal setae longer and ventral shorter than depth of tibia. Tarsi of all legs thin and short setose. **Wing** slightly brownish infuscated, stigma dark brown and narrow (0.04 mm), about 3.2X as long as distance between tips of veins R₁ and R₂₊₃. Squama dark brown with black fringes, halter dark brown. **Abdomen** black, dull brownish black microtrichose in dorsal view and grey in lateral view, densely and long yellowish-white setose on sides and ventrally, dorsally with very short pale or black setae. Genitalia (Figs 3–4) with hypandrial processes narrow, U-shaped, with several long setae near apex; postgonites long and narrow; only left phallic hook long, simply curved and situated close to apices of postgonites, right one reduced. **Female.** Similar to male. Hind tibia (0.12 mm at broadest point) equally broad or slightly narrower than hind femur. Tergites 6–8 narrowly lustrous in basal part and ventrally, sternites 6–7 microtrichose (at most with narrow lustrous streak laterally), sternite 8 lustrous. **Length:** body 2.3–3.0 mm, wing 2.3–2.7 mm.

Etymology. The species is named after the country where the holotype was collected (Andorra).

Distribution. Andorra, France.

Remarks. The species described above belongs to the *B. sulcata* complex of species as proposed by Chvála (1991). However, it differs from both remaining European representatives of this complex [*B. sulcata* (Zetterstedt) and *B. vana* Collin] in yellowish-white setose abdomen. Moreover, the absence of posteroventral setae on the hind femur is a unique feature of this species.

Bicellaria austriaca Tuomikoski

(Figs 7–8)

Bicellaria austriaca Tuomikoski, 1955: 70.

Type material examined. HOLOTYPE ♂: **Austria**, Obertillach, R. Frey (labelled: “Mus. Zool. H:fors, Spec. typ. No. 8202 *Bicellaria austriaca* Tuomikoski” and “Holotypus *Bicellaria austriaca* Tumikoski, 1955, Chvála 1980”).

PARATYPES: 1♂, 2♀, Obertillach, R. Frey (male labelled “Mus. Zool. H:fors, Spec. typ. No. 8203 *Bicellaria austriaca* Tuomikoski”)—(NHMH).

Additional material examined. (45♂, 7♀) **Austria:** 1♂, Niedere Tauern, Sölker Pass, 47°16'N, 14°04'E, 1900 m, 7–8.vii.1995, M. Barták; 1♂, Tauernalm, pasture, 15.vii.1998, M. Barták; 2♂, 1♀, Gerlos, spruce wood, 1600 m, 47°16'N, 12°03'E, 9.viii.1988, M. Barták (CULSP); 1♂, Tirol, Stafflach, 19–20.vi.1933, A.C.W. Wagner (NHMH). **Bulgaria:** 2♂, Pirin Mts, Begovica, 17.1 km NW from Sandanski, 41°40'09"N, 23°25'33"E, 1760 m, 10.viii.2005, J. Fechtner; 1♂, Pirin Mts, 5 km SE Vikhren, peak, 2100–2300 m, 1.vii.1988, B. Mocek; 1♂, Pirin Mts, Banderica, 7.vii.1982, 1800 m, F. Kocourek (CULSP). **Czech Republic:** 1♂, Šumava Mts, Antýgl, 2.viii.1995, Šumava Mts, Popelná, along brook, 49°06'N, 13°38'E, 880 m, 7.vii.1988, M. Barták; 1♂, Šumava Mts, S. slope of Pancíř, meadow, 49°09'N, 13°16'E, 1000 m, 24.viii.1989, M. Barták; 1♂, Šumava Mts, Nová hůrka, peat-bog, 49°09'N, 13°20'E, 850 m, 1.vii.1995, M. Barták; 1♂, same locality, 15.vi.1999; 2♂, 1♀, Šumava Mts, Tetřeví slaf, peat-bog, 49°01'N, 13°20'E, 23.vii.1989, M. Barták; 1♂, Šumava Mts, Rakouská louka, peat-bog, 48°46'N, 13°50'E, 1350 m, 16.viii.1994, M. Barták; 1♂, Šumava Mts, Prášily nr. Křemelná brook, 49°08'N, 13°23'E, 810 m, 8.vii.1994, M. Barták; 1♂, Šumava Mts, Zhůřské slatě, peat-bog, 1130 m, 49°04'N, 13°34'E, 17.vi.1999, M. Barták et Š. Kubík; 1♂, Šumava Mts, Boubín, mixed wood, 48°58'40"N, 13°49'00"E, 990 m, 2–17.vii.2002, K. Spitzer; 1♂, Bílina, Štěpánov, nr. brook, 50°33'N, 13°50'E, 370 m, 18.vi.1994; 1♂, Bílina, Chloumek, damp meadow nr. woods, 50°33'N, 13°50'E, 410 m, 18.vi.1994; 1♂, Janov nad Nisou, 50°46'N, 15°12'E, 700–800 m, 19.vi.1982; 1♂, Štířín, near pond, 49°55'N, 14°37'E, 380 m, 11.vii.1991—all M. Barták; 1♂, 2♀, Krkonoše Mts, Luční bouda, 50°44'19"N, 15°40'38"E, 1250 m, 9–16.viii.2007; 1♂, same locality, 16–26.vii.2007; 1♂, same locality, 16–25.v.2007; 1♂, Krkonoše Mts, Úpa, peat-bog, 50°44'14"N, 15°42'55"E, 1407 m, Malaise trap, 28.vi.–12.vii.2007; 1♂, Krkonoše Mts, Labská rokle, nr. brook, 50°46'19"N, 15°32'43"E, 1300 m, 25.vii.–15.viii.2007; 1♂, 1♀, Krkonoše Mts, Liščí hora, upper forest line, 50°42'04"N, 15°40'35"E, 1320 m, 29.vi.–26.vii.2005; 1♂, Krkonoše Mts, Dvorský potok, nr. brook, 50°45'54"N, 15°34'41"E, 18–29.viii.2006, Malaise trap—all J. Vaněk; 1♂, Podyjí NP, Braitava, mixed wood, 48°52'N, 15°49'E, 27.vi.2002; 1♂, 1♀, Beskydy Mts, Muřinkový vrch, peat-bog, 49°31'N, 18°39'E, 950 m, 23.viii.1987; 1♂, Beskydy Mts, Lysá hora, hilltop, 49°32'46"N, 18°26'53"E, 1323 m, 7–29.vii.2004, Malaise trap; 1♂, 2♀, Jeseník Mts, Velká Kotlina, 25–26.vi.1982; Horní Bečva, 26.vi.1975—all M. Barták—(CULSP). **Germany:** 1♂, Bayerischer Wald, Spiegelau, 48°57'N, 13°22'E, 760 m; 1♂, Bayerischer Wald, Hochgericht, Stangenfultz, 1185 m, 6.vii.1992, Weiss—(CULSP). **Italy:** 4♂, S. Stefano di Cadore, fiuma Piave, viii.1979, G. Raffone; 1♂, Lago Calaita, viii.1970; 1♂, Passo Monte, Croce Carnico, 23.viii.1964 (MSNV). **Switzerland:** 1♂, GR, Lenzerheide, pasture, 2000 m, Malaise trap, 14–21.vii.2000, B. Merz (CULSP).

Diagnosis. *Bicellaria austriaca* is a member of *B. austriaca* complex (incl. *B. italica* sp. nov., *B. collini* Tuomikoski, and *B. intermedia* Lundbeck) characterized by 1–2 long dorsal setae on the third antennal segment, 2–3 setae on palpus and both phallic hooks present and long. All four species of this complex may be easily identified in the male sex according to the key and genitalia. *Bicellaria austriaca* has two rather strong unequally long and unequally bent phallic hooks and relatively broad hypandrial processes with long setae on the apical part. We believe that females may be also distinguished from other species of the *B. austriaca* complex according to characters given in the key despite finding no specimens in copula. To be certain faunistic records based solely on females are omitted here.

Distribution. Europe, from Italy and Bulgaria to about 60° N latitude in Scandinavia.

Remarks. The species was described (and hypandrium illustrated) on the basis of many specimens from the mountains of Central and Southern Europe. Chvála (1983) redescribed this species and provided illustrations of the face, antenna, hind leg, genitalia, and identification of the holotype.

Bicellaria collini Tuomikoski

(Figs 9–10)

Bicellaria collini Tuomikoski, 1955: 70.

Material examined (53♂, 9♀). **Austria:** 1♂, Boden nr. Villach, edge of wood, 15.vii.1998; 5♂, Sulzgau, along river, 47°33'N, 13°11'E, 30.vii.1988; 8♂, 1♀, Brennersee, nr. lake, 47°00'58"N, 11°30'18"E, 1320 m—all M.

Barták—(CULSP); 3♂, Tirol, Stafflach, 19–20.vi.1933, A.C.W. Wagner (NHMH). **Italy:** 5♂, 4♀, Passo Rolle, alpine meadow, 46°13'N, 11°42'E, 1900 m, 8.viii.1988; 19♂, 1♀, Passo Nigra, meadow + wood, 46°26'39"N, 11°35'18"E, 1700 m, 5.vii.2011; 6♂, 1♀, Weisslahnbad, edge of forest, 46°28'40"N, 11°34'11"E, 1400 m, 4.vii.2011—all M. Barták—(CULSP). **Romania:** 5♂, 2♀, Mt. Bucegi, 16.vii.1970, M. Chvála (“*B. collini*” det. Chvála) (OUMNH).

Diagnosis. *Bicellaria collini* is a member of the *B. austriaca* complex of species as defined by Chvála (1991), for characters see under *B. austriaca*. All species of this complex may be easily identified according to the key using the male sex. Males have two rather long and almost equally shaped phallic hooks and broadly U-shaped hypandrial processes armed with rather long setae (Figs 9–10).

Distribution. Mountains of Central and Southern Europe.

Remarks. This species was described (and hypandrium illustrated) on the basis of four males and four females from “Bayern, Allgäu, Burgegg” (Germany).

Bicellaria dispar Oldenberg

(Fig. 47)

Bicellaria dispar Oldenberg, 1920: 221.

Taxonomic notes. The species was described on the basis of two males and one female from Tschamintal (=Val di Ciamin, Italy) and one female from Linthal (Switzerland). There are two specimens in Oldenberg’s collection (SDEI), one male from Tschamintal and one female from Linthal. The male labelled as “Tschamintal 19.6.14” “dispar m.” “dispar m. Old.”, “coll. Oldenberg” “Type” “Syntypus” and an unreadable label, was labelled as **LECTOTYPE** of *B. dispar* and it is herein designated. The female belongs obviously to a different species (leading in the key near to *B. spuria*, but it has an unusually pale grey thorax, almost globular broad part of third antennal segment and pale wings with M veins depigmented. This female syntype cannot be identified more precisely because a great part of the abdomen and halteres are missing).

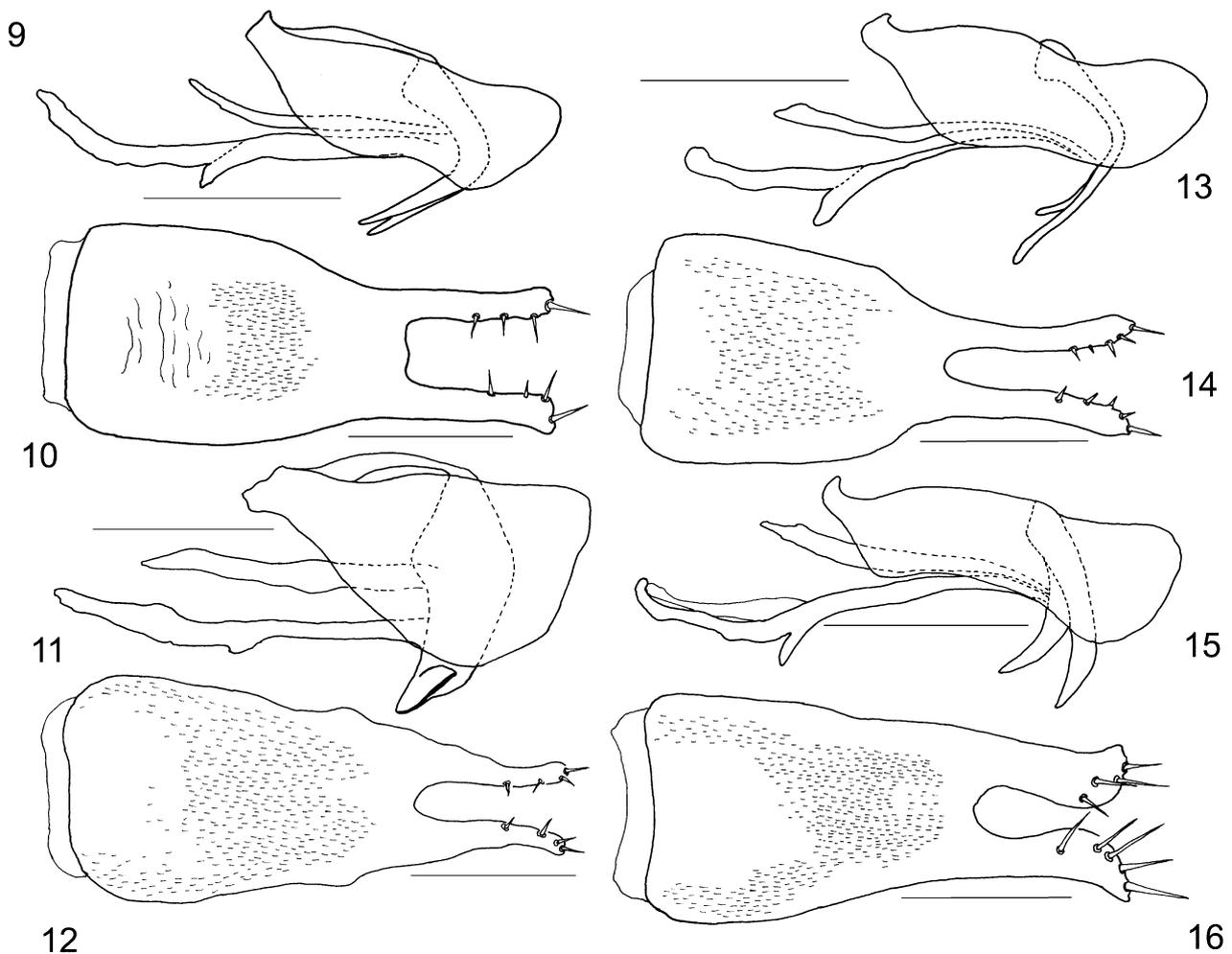
Diagnosis. Small species (wing 1.9 mm long); thoracic setae very short (less than 0.05 mm); antennal stylus together with slender portion of third segment half as long as broadest portion of third segment (Fig. 47).

Redescription. Male. Head black, brownish-grey microtrichose, black setose (occiput with somewhat paler setae). Eyes meeting on frons, facets on dorsal half much larger than on ventral half, about 18 facets in line of contiguity of eyes. One pair of short (0.11 mm) black ocellar setae. Occiput sparsely and short setose, setae approx. 0.06 mm long. Face slightly narrowing ventrally, dorsal part just below antennae about 0.04 mm broad and ventral part about 0.03 mm broad at narrowest point (but very slightly collapsed). Palpus short, brown, hardly visible (retracted within head), probably with 2 setae. Labrum short, brown, lustrous. Antenna black, peculiar and quite distinct among all known European species, with second segment short setose; third segment with single dorsal seta near apex (Fig. 47); ratio of broad part of segment 3: stylus (in 0.01 mm scale) = 15: 6. **Thorax** brownish black, microtrichose, prescutellar area not paler than remaining parts of mesoscutum. All thoracic setae black, some setae on squama appear paler. Chaetotaxy: acrostichals narrowly biserial (11–12 setae in each row) and very short (0.04 mm); dorsocentrals evenly short and irregularly uniserial, only 2 last pairs somewhat longer; 6–7 setae in posthumeral and intrahumeral areas; 1 longer and 3 slightly shorter postpronotals; notopleura with 2–3 setae; several very short setae in supraalar and prealar areas; 2 pairs of scutellars. **Legs** including coxae brown, microtrichose and dark setose (some setae appear paler). Fore and mid femora with very short setulae, less than ¼ as long as depth of femur. Fore tibia conspicuously spindle-shaped dilated, very short setose (posteroventrals ¼ as long as depth of tibia). Mid tibia narrow and very short setose, without prominent setae. Hind femur with 18 anteroventrals slightly shorter than depth of femur, arising from small warts, posteroventrals slightly shorter than anteroventrals, dorsal setae not differentiated. Hind tibia very slightly swollen in apical half (0.06 mm at broadest point and 0.04 at narrowest), short setose (all setae shorter than depth of tibia). Tarsi of all legs thin and short setose. **Wing** clear including apical section of cell sc; vein M depigmented almost throughout length; clear stigma about 0.40 mm long; distance between tips of veins R₁ and R₂₊₃ = 0.21 mm. Squama brownish yellow with dark or somewhat faded fringes, halter yellow with dark stem. **Abdomen** brown, microtrichose, very short setose. Genitalia: (undissected) epandrium and cercus of usual shape and setosity; hypandrium scarcely visible, processes

apparently long with long setae along inner margins (about 0.07 mm long); postgonites probably of triangular shape, both phallic hooks equal, rather long and simply bent. **Female.** Unknown. **Length:** body 1.8 mm (but somewhat collapsed), wing 1.9 mm.

Distribution. Italy.

Remarks. The specimen is rather immature and long time stored in collection. So it is difficult to decide if some setae are pale or only faded. We decided not to damage this specimen by genital dissection so its description is based on characters which are rather poorly visible. However, we hope that according to the key and redescription it is possible to recognize it easily. The species was omitted in previous studies including those of Tuomikoski (1955) and Chvála (1983) probably because syntypes were not found in the SDEI collection.



FIGURES 9–16. Hypandrium (ventral view) and phallus with postgonites (lateral view). **9–10.** *Bicellaria collini* Tuomikoski. **11–12.** *Bicellaria halterata* Collin. **13–14.** *Bicellaria intermedia* Lundbeck. **15–16.** *Bicellaria italica* sp. nov. Scale bars = 0.10 mm.

***Bicellaria halterata* Collin, 1961**

(Figs 11–12)

Bicellaria halterata Collin, 1961: 256.

Type material examined. SYNTYPES: Great Britain: 2♂, Tomintoul, Banff, 8–11, August 1937 (OUM); 5♂, 1♀, Banffshire, Tomintoul, 8–11.viii.1937, 1100 ft, R.L. & B.M. Coe; 1♂, Aberdeenshire, Braemar, 1.viii.1937, R.L. Coe—(BMNH).

Additional material examined (13♂, 15♀). Czech Republic: 1♂, Šumava Mts., Starý Brunst, along brook,

49°10'N, 13°16'E, 960 m, 21.viii.1989; 1♀, Šumava Mts, S slopes of Pancíř, damp meadow, 49°09'N, 13°16'E, 1000 m, 24.viii.1989—all M. Barták; 1♂, 1♀, Krkonoše Mts., Slunečná stráň, nr. pond, 50°38'12.5"N, 14°49'23.6"E, 645 m, Malaise trap, 1.ix.-13.x.2009; 7♂, 6♀, same locality, 4.viii.-1.x.2009; 2♂, same locality, 30.vi.-4.viii.2009; 1♂, Krkonoše Mts, Zrcadlový potok, nr. brook, 50°38'1.9"N, 14°43'54.6"E, Malaise trap, 18.viii.-1.ix.2009; 1♀, Krkonoše Mts, Pekelský potok, nr. brook, 50°38'13.3"N, 14°40'29.3"E, Malaise trap, 30.vii.-18.viii.2009—all J. Vaněk; 1♂, Orlické hory Mts, Popelov, valley of Zdobnice river, 14.ix.1995, B. Mocek; 1♀, Podyjí NP, Braitava, 48°52'35"N, 15°50'03"E, 26.vi.-30.vii.2002, Malaise trap; 1♀, same locality, 30.vii.-31.viii.2002—all M. Barták et Š. Kubík—(CULSP). **Russia:** 2♀, Moscow, Losiny ostrov, park vegetation, 55°19'N, 37°45'E, 4.ix.1988, M. Barták (CULSP); 1♀, Permskaja oblast' Kamenka, env. of Lysva, 31.vii.1963, V. Zherikhin (ZMMU). **Slovak Republic:** 1♀, Košecké Podhradie, mixed wood, 48°59'N, 18°17'E, 270 m, 29.vii.1989, M. Barták (CULSP).

Diagnosis. The species is a member of *B. nigra* complex of species as proposed by Chvála (1991) characterized by swollen hind basitarsus, short posteroventral setae on hind tibia, and narrow face and comprising three species in Europe (*B. nigra*, *B. nigrita*, *B. halterata*). Males may be recognised easily according to the structure of the genitalia, possessing both phallic hooks, the left one with lateral triangular-shaped process best visible from below [not apparent in Collin (1961, fig. 89, p. 256)] and relatively short postgonites (Fig. 11). It is possible to distinguish *B. nigra* from *B. halterata* without dissection of the genitalia according to the shape of the hypandrial processes which are parallel in *B. halterata* but divergent towards apex in *B. nigra* (but this character should always be verified by dissection). Females sometimes have only slightly swollen hind basitarsi, so they may erroneously lead in the key to the *R. sulcata* complex, but it may be distinguished by yellow halteres, pale setose base of abdomen and swollen hind tibiae (opposite of *B. simplicipes* which is not a member of this complex).

Distribution. Great Britain, Czech and Slovak Republics, European Russia. Probably more broadly distributed in temperate Europe but mixed in collections with *B. nigra* or *B. intermedia*.

Remarks. The species was described (including illustrations of genitalia) from an unknown number of males and a single female taken at Tomintoul and Braemar (G. Britain) early in August 1937 by R.L. Coe. Since the original description no other record of this species has been published.

Bicellaria intermedia Lundbeck

(Figs 13–14)

Bicellaria intermedia Lundbeck, 1910: 25.

Material examined (22♂). **Czech Republic:** 3♂, Šumava Mts, Prášily, nr. Křemelná brook, 49°08'N, 13°23'E, 810 m, 8.vii.1994; 2♂, Šumava Mts, Jezerní slat', spruce wood, 49°02'N, 13°34'E, 980 m, 6–7.viii.1996; 1♂, Šumava Mts, Nová Hůrka, spruce forest, 49°09'21"N, 13°20'00"E, 880 m, 24.vi.-28.vii.2000, Malaise trap; 1♂, Kašperské hory, nr. Losenice river, 49°08'N, 13°33'E, 600 m, 1.vii.1995; 1♂, Kunice, Vrchy, edge of mixed wood, 49°56'N, 14°42'E, 450 m, 11.vi.1983; 1♂, Kunice, 27.vii.1975; 1♂, Vráž nr. Písek, 49°23'N, 14°08'E, 400 m, 30.v.1994; 2♂, Nýdek, 49°39'N, 18°46'E, 2.viii.1981, 550 m—all M. Barták—(CULSP); 1♂, Šumava Mts, Horská Kvilda, spruce forest, 49°05'N, 13°33'E, 1130 m, 21.vii.-21.viii.1999, Malaise trap; 1♂, Podyjí NP, Terasy, mixed wood, 48°53'22"N, 15°50'18"E, 460 m, 2.vi.-2.vii.2003, Malaise trap; 1♂, Podyjí NP, Liščí skála, Quercetum, 48°49'52"N, 15°56'35"E, 410 m, 2.vii.-4.viii.2004, Malaise trap—all M. Barták et Š. Kubík—(CULSP); 1♂, České Meziříčí, Zbytka reserve, 50°17'N, 16°04'E, 250 m, 28.vi.1996, B. Mocek (MHK). **Italy:** 1♂, San Vigilio di Marebbe, 13.vii.1989, G. Raffone (MSNV). **Russia:** 1♂, Salla (probably collected in Russian part of county), R. Tuomikoski (NHMH); 1♂, Irkutskaya oblast, Bajkal port, 24.vi.1965, Negrobov (ZMMU). **Slovak Republic:** 2♂, Vysoké Tatry, Starý Smokovec, meadow, 49°09'N, 20°14'E, 1400 m, 22–23.vii.1986; 1♂, Vysoké Tatry, Hrebienok, clearing in forest, 49°10'N, 20°14'E, 1250 m, 24.vii.1986—all M. Barták—(CULSP).

Diagnosis. The species is a member of the *B. austriaca* complex (see under this species). Males of all four species of this complex (*B. italica*, *B. austriaca*, *B. intermedia*, *B. collini*) may be easily identified according to the key due to different genitalia. Males of *B. intermedia* may be easily recognized according to two long and narrow, irregularly bent phallic hooks [accurately illustrated by both Collin (1961) and Chvála (1983)]. We found no reliable character enabling to differentiate females from *B. italica*.

Distribution. Eurosiberian species.

Remarks. The species was originally described from many localities in Denmark. Tuomikoski (1955) provided a short redescription and illustration of the hypandrium. Collin (1961) provided a short redescription and illustrations of the hind leg, head, antenna and genitalia, in addition to notes to its identity (comparison with type specimens). Chvála (1983) also redescribed this species, provided illustrations of the face, antenna, hind leg, genitalia (incl. variations in the shape of hypandrium), and designated a lectotype.

***Bicellaria italica* sp. nov.**

(Figs 15–16)

Type material. HOLOTYPE ♂, Italy, Monti del Matese, pasture, 41°25'27"N, 14°27'20"E, 1550 m, 18.viii.2004, M. Barták (CULSP). PARATYPES: Andorra, 5♂, Pyrenees, Pto de Envalira, meadow nr. wood, 42°35'N, 1°40'E, 1400m, M. Barták (CULSP). Austria, 1♂, Lienz, 5 km E, edge of wood, 46°50'N, 12°45'E, 31.vii.1988, M. Barták (CULSP). France, 14♂, Fabian, pasture nr. brook, 42°48'N, 0°11'E, 9.vii.1990, 1100 m, M. Barták (CULSP); 1♂, Ax-les-Thermes, along river, 42°44'N, 1°50'E, 8.vii.1990, 750 m, M. Barták (CULSP). Italy, 6♂, same data as holotype (CULSP); 8♂, Mte. Terminillo, meadow nr. wood, 42°26'N, 13°07'E, 2000 m, 4.viii.1988, M. Barták (CULSP); 18♂, S. Martino, spruce wood, 46°11'N, 11°41'E, 1300–1500 m, 8.viii.1988, M. Barták (CULSP); 1♂, Lago di S. Croce, deciduous wood nr. lake, 46°07'N, 12°20'E, 1.viii.1988, M. Barták (CULSP); 9♂, Weisslahnbad, edge of forest, 46°28'40"N, 11°34'11"E, 1400 m, 4.vii.2011, M. Barták (CULSP); 2♂, S. Stefano di Cadore, fiuma Piave, viii.1979, G. Raffone (MSNV).

Diagnosis. Mesoscutum black setose; third antennal segment with dorsal seta; abdomen pale setose on sides of basal segments; halter yellow; male hypandrial processes swollen apically, with several rather long setae on apical part; female abdominal segments 6–7 nearly completely microtrichose.

Description. Male. Head black, brownish-grey microtrichose, black setose (lower occiput with pale setae). Eyes meeting on frons, facets on dorsal half much larger than on ventral half, about 11–14 facets in line of contiguity of eyes. One pair of long black ocellar setae. Face slightly narrowing ventrally, dorsal part just below antennae about 0.05 mm broad and ventral part about 0.04 mm broad at narrowest point. Palpus short, brown, with 2–3 setae. Labrum brown, lustrous. Antenna black, second segment short setose (longest ventral setae about 0.10 mm); third segment with single elongate dorsal seta; ratio of broad part of segment 3: narrow part of segment 3: stylus (in 0.01 mm scale) = 13–15: 4–5: 19–22. **Thorax** black to brownish black, microtrichose, prescutellar area and scutellum lighter than disc of mesoscutum, light prescutellar area triangular-shaped reaching hind acrostichals. All thoracic setae black, only fringes on squama mostly pale. Chaetotaxy: acrostichals broadly biserial (7–8 setae in each row) and long even in presutural area (about 0.10–0.13 mm in front but longer posteriorly); dorsocentrals nearly evenly long, about 5–7 setae in posthumeral and intrahumeral areas; 1 long and several slightly shorter postpronotals; notopleura with 3–5 unequally long setae in one irregular row; 1 supraalar and 0–1 seta in prealar area; 1 long postalar; 2 pairs of scutellars. **Legs** including coxae black, microtrichose and black setose (only hind coxa with several pale setae posteriorly). Fore femur with row of short anteroventrals in basal half and row of longer posteroventrals along whole length (half as long as depth of femur). Fore tibia with longest posterodorsals 1.5X as long as depth of tibia, posteroventrals about as long as depth of tibia (much longer than very short pilosity). Mid femur with row of short anteroventrals (one third as long as depth of femur) and with much longer posteroventrals about as long as depth of femur. Mid tibia with ventral setae equally long (about as long as depth of tibia) and with 1–2 antero- and 0–1 posterodorsal setae up to 3X as long as depth of tibia (0.20 mm). Hind femur slender (0.10 mm), with 14–16 dorsal and 16–19 anteroventral setae up to 2X as long as depth of femur (on basal part, apically shorter) and with much smaller posteroventrals. Hind tibia very slightly and evenly swollen in apical half (0.11 mm at broadest point), dorsal and ventral setae slightly longer than depth of tibia. Tarsi of all legs thin and short setose. **Wing** slightly brownish infuscated, stigma dark brown (0.06 mm broad), about 3.6X as long as distance between tips of veins R₁ and R₂₊₃. Squama brown with pale fringes, halter yellow. **Abdomen** black, brownish-grey microtrichose, setae on basal segments and ventrally pale, on apical segments and dorsally dark. Genitalia (Figs 15–16) with hypandrial processes swollen and with several rather long setae apically; both phallic hooks almost equally long, right one more sharply bent. **Female.** Similar to male. Tergites 6–7 nearly entirely microtrichose, sternite 8 lustrous. **Length:** body 2.8–3.9 mm, wing 2.7–3.4 mm.

Etymology. The species is named after the country of origin (Italy).

Distribution. Andorra, Austria, France, Italy.

Remarks. The species described above is a member of the *B. austriaca* complex of species as defined by Chvála (1991), for characters see under *B. austriaca*. Males of all four species of this complex (*B. italica*, *B. austriaca*, *B. intermedia*, *B. collini*) may be easily identified according to the key due to different genitalia. However, identification of females is difficult. In fact we found no characters to reliably differentiate *B. italica* sp. nov. from *B. intermedia* (originally described from Denmark). From this reason females were excluded from the type series of the above described species as well as from the faunistic records of *B. intermedia*.

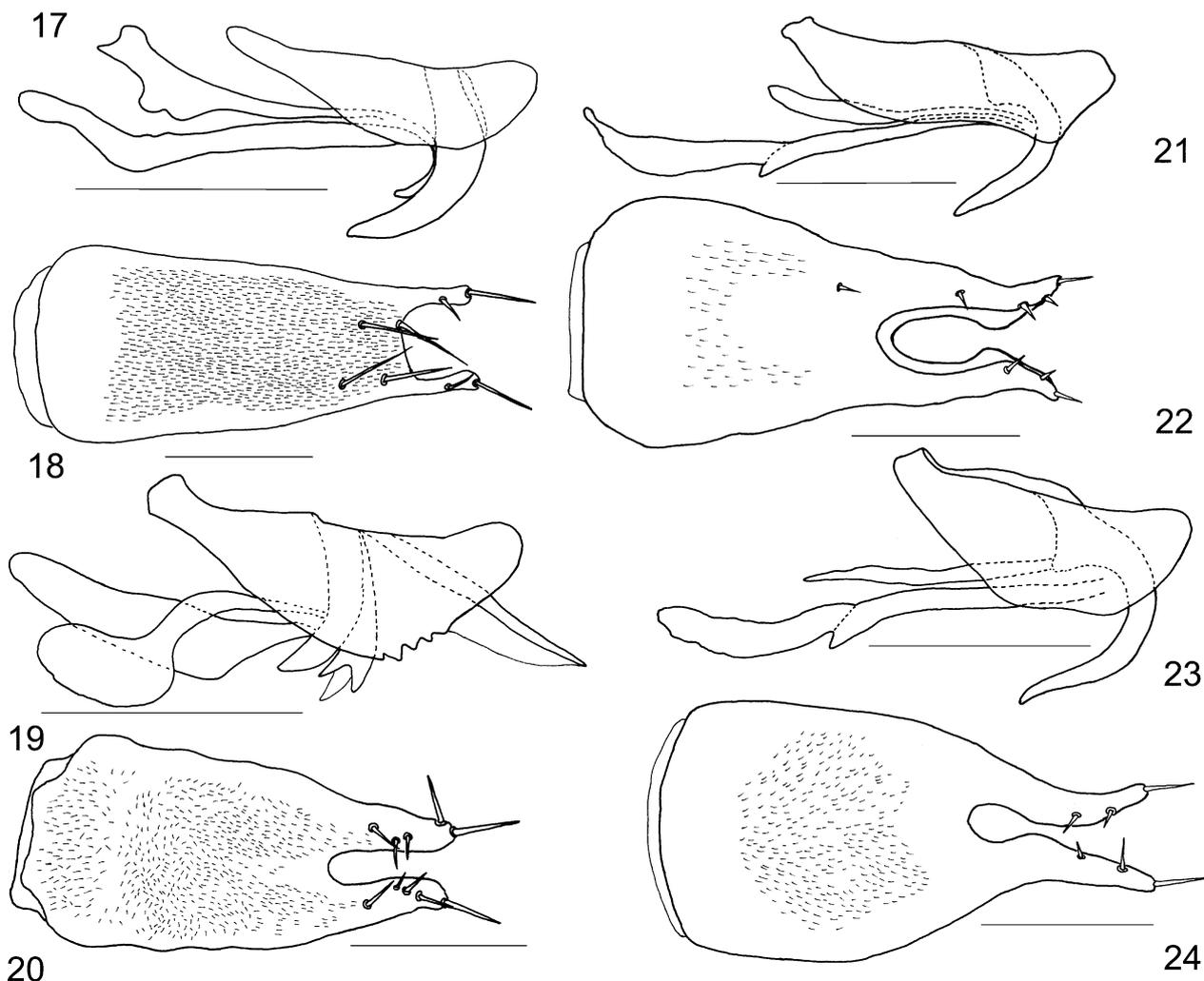
***Bicellaria kocourecki* sp. nov.**

(Figs 17–18)

Type material. HOLOTYPE ♂: Bulgaria, Pirin, Banderica, 1800 m, 7.vii.1982, F. Kocourek (CULSP).

PARATYPES: Bulgaria, 5♂, 7♀, same data as holotype (CULSP); 1♂, 2♀, Pirin, Begovica, 1760 m, 17.1 km NW from Sandanski, 41°40'09"N, 23°25'33"E, 10.viii.2005, J. Fechtner (CULSP).

Diagnosis. Entirely black setose species; third antennal segment without dorsal setae, broadened part of third segment very short in comparison to its narrow part and stylus; halter yellow in both sexes; male hypandrium with short and long setose processes; female tergites 5–8 almost entirely lustrous.



FIGURES 17–24. Hypandrium (ventral view) and phallus with postgonites (lateral view). 17–18. *Bicellaria kocourecki* sp. nov. 19–20. *Bicellaria longisetosa* Chvála. 21–22. *Bicellaria mera* Collin. 23–24. *Bicellaria nigra* (Meigen). Scale bars = 0.10 mm.

Description. Male. **Head** black, brownish grey microtrichose, black setose (including lower occiput). Eyes meeting on frons, facets on dorsal half much larger than on ventral half, about 10–12 facets in line of contiguity of eyes. One pair of long black ocellar setae. Occiput rather sparsely setose. Face nearly parallel-sided and about 0.05 mm broad, clypeus slightly paler grey microtrichose. Palpus short, brown, with 2 setae. Labrum brown, lustrous. Antenna black, second segment short setose (longest ventral setae about 0.08 mm); third segment without dorsal setae; ratio of broad part of segment 3: narrow part of segment 3: stylus (in 0.01 mm scale) = 9–12: 5–8: 17–25. **Thorax** black to brownish black, slightly subshining, prescutellar area (broad and reaching hind acrostichals) and scutellum lighter than disc of mesoscutum. All thoracic setae black including fringes on squama. Chaetotaxy: acrostichals biserial and long even in presutural area (about 0.15 mm in front but longer posteriorly); dorsocentrals (with exception of first 1–2 pairs) slightly longer than corresponding acrostichals; about 3–8 setae in posthumeral and intrahumeral areas; 1 longer and 2–3 slightly shorter postpronotals; notopleura with 3–6 unequally long setae in one irregular row; 1 supraalar and 1–2 setae in prealar area; 1 long postalar; 2–3 pairs of scutellars. **Legs** including coxae black, microtrichose (only trochanters partly lustrous) and black setose. Fore femur with row of short anteroventrals and row of slightly longer posteroventrals (half as long as depth of femur). Fore tibia with 1–3 longest posterodorsals (in basal half of tibia) 1.5X as long as depth of tibia, posteroventrals slightly longer than depth of tibia. Mid femur with sparse row of anteroventrals half as long as depth of femur, with posteroventrals subequally as long as depth of femur. Mid tibia with ventral setae about as long as depth of tibia, with 1–2 pairs of dorsal setae up to 0.20 mm long (longest about 4X as long as diameter of tibia). Hind femur with 14–15 anterodorsal and 14–15 anteroventral setae slightly longer than depth of femur, posteroventrals shorter than corresponding anteroventrals. Hind tibia slightly swollen in apical half (about 0.11 mm at broadest point), subequally broad or slightly narrower than hind femur (about 0.12 mm at broadest point), ventral setae about as long as depth of tibia, 2–3 pairs of dorsal setae up to 3X as long (0.20 mm). Tarsi of all legs thin and short setose. **Wing** slightly brownish infuscated, stigma light brown and narrow (0.04–0.05 mm), about 2.2X as long as distance between tips of veins R_1 and R_{2+3} . Squama brown with black fringes, halter yellow. **Abdomen** black, dull brownish black microtrichose in dorsal view and grey in lateral view and posteriorly, rather short and entirely black setose. Genitalia (Figs 17–18) unusual in view of European species of *Bicellaria*: hypandrium long, processes narrow and short, broadly U-shaped, covered with several rather long setae; postgonites small and narrow, both phallic hooks subequal in length, phallus with two smaller additional hooks derived probably from ejaculatory apodeme (appearing as additional smaller hook in lateral view), ventral apodeme slightly broadened laterally. **Female.** Similar to male. Last three abdominal segments (6–8) almost entirely lustrous. **Length:** body 2.5–3.5 mm, wing 2.3–2.9 mm.

Etymology. The species is named after the collector of the type series, Dr. František Kocourek (Prague).

Distribution. Bulgaria.

Remark. The species described above can be easily identified according to the key. It is rather isolated in position among European *Bicellaria* with possible affinity to the *B. uvens* complex of species.

Bicellaria longisetosa Chvála

(Figs 19–20)

B. longisetosa Chvála, 1991: 9.

Material examined (7♂, 2♀). **Austria:** 1♂, Radstadter Tauern, Obertauern, puddle Gruenwaldkopf, 2000 m, 26.viii.1999, Chvála (CULSP). **Russia:** 5♂, 2♀, Amurskaja oblast, g. (= town) Zeja, 7.ix.1981 (ZMMU and CULSP). **Switzerland:** 1♂, GR, Lenzerheide, pasture, 2000 m, Malaise trap, viii.2000, Merz (CULSP).

Diagnosis. The species may be easily identified according to the key. It differs from any other European species not only in external features (e.g., possessing curiously long lateral setae on the third antennal segment), but also in the structure of male genitalia (Figs 19–20): hypandrium with rather short and broad processes ending in a single long seta (not visible on Chvála's original illustration), two subequally long but differently shaped phallic hooks (right one branched at apex), median extension of postgonites not connecting cranially (ventral apodeme absent), and presence of a sclerotized phallus forming valve-like flat structure.

Distribution. Mountains of Central and Southern Europe, Russia (Amur region).

Remarks. This species was described from several specimens taken in high European mountains (2000–2380 m), viz Rila (Bulgaria), Belanské Tatry (Slovak Republic), and Wöltzer Tauern (Austria). The illustrations in the original description are not clear, including the hypandrium and fore tibia. Details of the phallus are illustrated here for the first time (Figs 19–20).

Bicellaria mera Collin

(Figs 21–22)

Bicellaria mera Collin, 1961: 258.

Type material examined. SYNTYPES: Great Britain: 1♀, Upware Cambs, 12.vii.1875; 2♀, Wicken, Cambs, 21.viii.1905; 1♂, same locality, 21.vi.1905—all G.H. Verrall—(BMNH).

Additional material examined (10♂, 2♀). **Czech Republic:** 6♂, 2♀, Čelákovice, lowland wood, 50°10'N, 14°49'E, 180 m, 10.ix.1991 (CULSP). **Great Britain:** 1♂, Wood Walton, Fen, Hunts, 16–18.vi.1923, F.W. Edwards (BMNH). **Slovak Republic:** 1♂, Šamorín, near river, 6–10.vi.1977 (“*B. spuria*” det. Chvála); 1♂, Štúrovo, 2 km N, damp meadow, 47°49'N, 18°56'E, 110 m, 24.vii.1989; 1♂, Jurský Šur, deciduous wood, 48°15'N, 17°16'E, 130 m, 24.viii.1989—all Barták—(CULSP).

Diagnosis. *Bicellaria mera* is very similar to *B. spuria*. Both species may be identified in the male sex according to the hypandrial processes which are foot-like bent near apex in *B. mera* but straight and narrow in *B. spuria* (Fig. 22). This character is sometimes poorly visible and requires dissection. Identification of females is difficult because two candidate characters from Collin’s description we tried to specify based on limited materials at hand (hind tibia at its broadest point usually narrower than 0.09 mm in *B. mera* but usually broader than 0.09 mm in *B. spuria*; narrow apical part of third antennal segment mostly about as long as the first segment of stylus in *B. mera*, but twice as long in *B. spuria*) proved to be variable. The only female character which appears constant is given in the key.

Distribution. Temperate Central and Western Europe. Published record [omitted by Chvála (2012) and Yang (2007)]: Romania (Parvu 2005), record from Italy (Raffone 2006) is doubtful.

Remarks. Described (alongside illustration of genitalia and hind leg) on the basis of unknown number of specimens taken in Wicken, Chippenham, Fens (Cambs) (England). Chvála (1983) redescribed this species and provided illustrations of the face, antenna, hind leg, and genitalia.

Bicellaria nigra (Meigen)

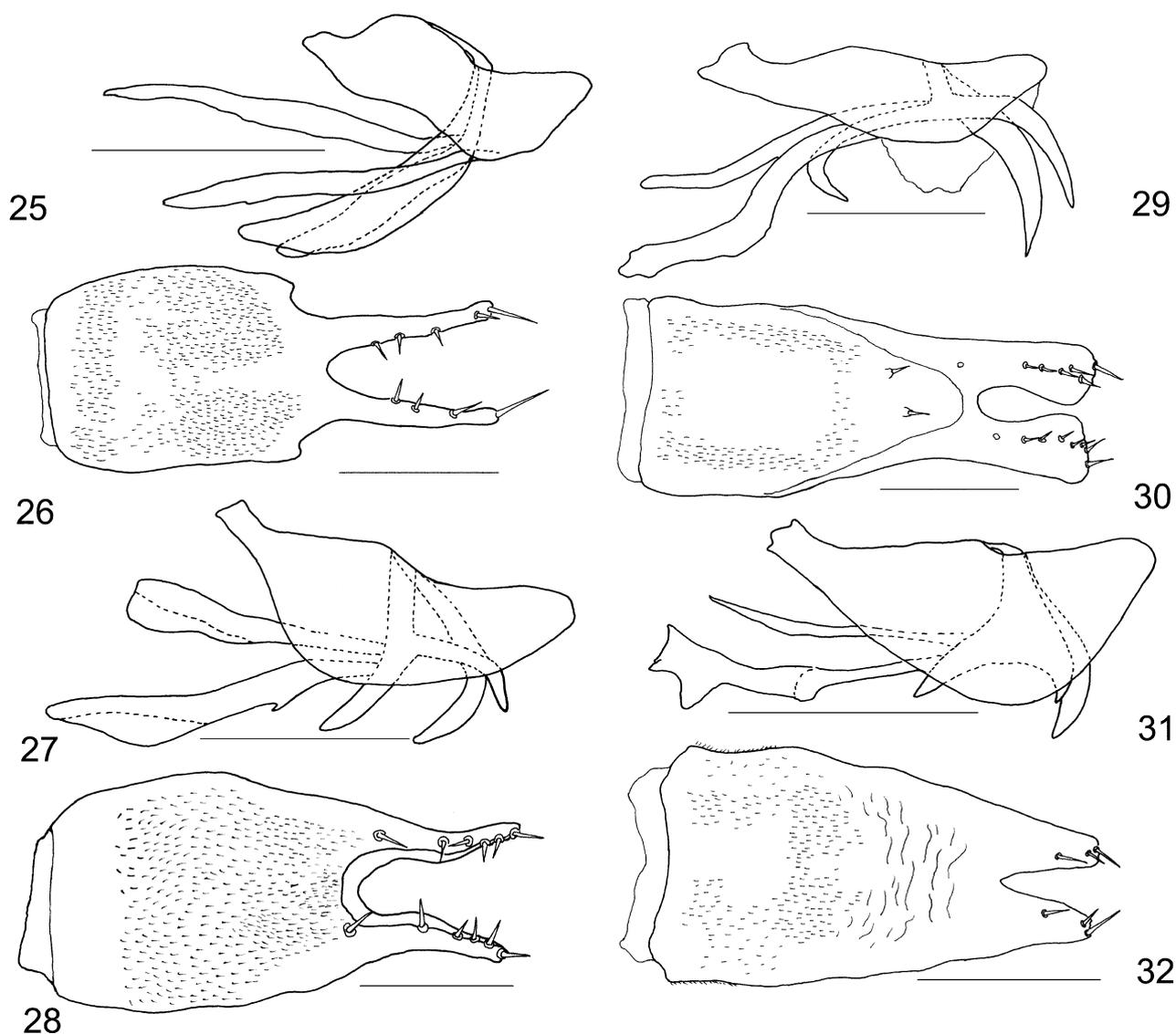
(Figs 23–24)

Cyrtoma nigra Meigen, 1824: 3.

Cyrtoma rufa Meigen, 1824: 3.

Material examined (27♂, 44♀). **Czech Republic:** 1♀, Šumava Mts, Nová Hůrka, spruce wood, 49°09'17"N, 13°19'46"E, 880 m, 24.vi.–28.vii.2000; 1♀, Šumava Mts, Horská Kvilda, 49°05'N, 13°33'E, 1130 m, 21.vii.–21.viii.1999—all M. Barták & Š. Kubík; 1♂, 1♀, Vracov, 48°58'N, 17°16'E, 200 m, 16.v.1990; 3♂, 6♀, Šumava Mts, Šmauzy, pine wood, 49°10'N, 13°14'E, 960 m, 20.viii.1989; 1♀, Šumava Mts, Malá Niva, peat-bog, 48°55'N, 13°49'E, 780 m, 5.vii.1988; 1♀, same locality, 21.v.1992; 3♀, Šumava Mts, S slope of Pancfř, meadow, 49°09'N, 13°16'N, 1000 m; 1♀, Šumava Mts, Spálenec, damp meadow, 48°56'N, 13°57'E, 800 m, 10.vi.1989; 3♀, Jizerské hory Mts, Janov nad Nisou, 50°46'N, 15°12'E, 700–800 m, 19.vi.1982; 2♂, Kokořínský důl, mixed forest, 50°26'N, 14°35'E, 260 m, 8.vii.1985; 1♂, 1♀, Kunice, garden vegetation, 49°56'N, 14°40'E, 13.vii.1985; 1♂, Břežanská rokle, mixed wood, 49°58'N, 14°25'E, 280 m, 20.vi.1990; 1♀, Kostelní Lhota, pine wood, 50°08'N, 15°02'E, 190 m, 12.v.1988; 1♂, 2♀, Sadská, pine forest, 50°10'N, 14°59'E, 180 m; 1♂, Velké Popovice, 49°54'N, 14°39'E, 470 m, 10.vii.1988; 2♂, Vráž nr. Písek, mixed wood, 49°23'N, 14°08'E, 400 m, 22.v.1995; 1♀, same locality, 1.vi.1994; 1♀, Bílina, Chloumek, hilltop steppe, 50°32'38"N, 13°51'32"E, 480 m, 15–25.vi.1998; 1♂, same locality, 1.vi.1996; 2♀, same locality, 13–28.v.1998; 1♂, 1♀, Bílina, Štrbický vrch, edge of wood, 50°33'10"N, 13°50'40"E, 400 m, 31.v.–1.vi.1997; 1♂, same locality, 8.v.1994; 1♂, Duchcov envir., oak wood, 50°37'N, 13°41'E, 29.v.1993;

1♂, same locality, 29.iv.-7.v.1996; 2♀, same locality, 16.vii.1992; 1♂, MS Beskydy, Horní Lomná, 49°32'N, 18°37'E, 650 m, 20.vi.1986; 1♀, same locality, 740 m, vi.-vii.1999; 1♂, MS Beskydy, Ostrý, meadow, 49°37'N, 18°41'E, 19.v.1990—all M. Barták; 1♂, Podyjí, Braitava, mixed wood, 48°52'32"N, 15°50'05"E, 530 m, 2.vii.-3.viii.2004, M. Barták & Š. Kubík—(CULSP); 1♀, Moravský Krumlov, steppe + forest, 31.v.1995; 2♀, Vysoké Chvojno, deciduous forest, 15°59'N, 50°08'E, 296 m, 4.vi.1998; 1♀, same locality, 12.v.1989; 1♀, same locality, 28.v.1998—all B. Mocek—(MHK). **France:** 1♀, Grand Bois (30 km S of Lyon), 45°30'55"N, 4°46'20"E, 440 m, 21.v.2006, M. Barták (CULSP). **Georgia:** 2♀, West Georgia, Borzhomskiy Zapovednik [Borzhomi Nature Reserve], 10-13.viii.1969; 1♀, West Georgia, Bakuriani, 18.vii.1969—all V. Kovalev—(ZMMU). **Germany:** 1♀, Bayerischer Wald, Spiegelau, 48°57'N, 13°22'E, 890 m, 8.vi.1995, M. Barták (CULSP). **Italy:** 1♂, Cansiglio, Ponte Val Cappella, 20.vi.1981, L. Munari; 1♀, S. Stefano di Cadore, fiuma Piave, viii.1979, G. Raffone—(MSNV); 3♂, 1♀, Passo Nigra, meadow + wood, 46°26'39"N, 11°35'18"E, 1700 m, 5.vii.2011, M. Barták (CULSP). **Russia:** 3♂, Salmi, R. Tuomikoski; 1♂, Salla [probably collected in Russian part of county], R. Frey—(NHMH); 2♀, Moskovskaya oblast: Skorotovo, bog in Picetum, 55°41'N, 36°53'E, 30.v.1989, 180 m; 1♀, Serpuchov, mixed wood, 54°52'N, 37°36'E, 150 m, 27.v.1989; 1♂, 1♀, Abramcevo, along brook, 56°14'N, 37°59'E, 200 m, 28.v.1989—all M. Barták—(CULSP).



FIGURES 25–32. Hypandrium (ventral view) and phallus with postgonites (lateral view). **25–26.** *Bicellaria nigrita* Collin. **27–28.** *Bicellaria pilosa* Lundbeck. **29–30.** *Bicellaria setipalpus* sp. nov. **31–32.** *Bicellaria simplicipes* (Zetterstedt). Scale bars = 0.10 mm.

Diagnosis. *Bicellaria nigra* is a member of the *B. nigra* complex of species as proposed by Chvála (1991), for characters see under *B. halterata*. Males may be recognised easily according to the structure of the genitalia, possessing long postgonites (more than twice as long as broad), left phallic hook long, without lateral process, right one strongly reduced (Fig. 23). Identification of females is difficult (see characters given in the key) and notes under *B. halterata*.

Distribution. West Palaearctic species, in Europe ranging from Spain (Chvála 1981) to the extreme north of Scandinavia (Chvála 1983).

Remarks. Tuomikoski (1955) provided a short redescription and illustration of the hypandrium. Collin (1961) provided a short redescription, illustrated the male hind leg and genitalia, and provided notes on the synonymy. Chvála (1983) redescribed the species and provided illustrations of the face, antenna, hind leg, mid tibia and genitalia, and provided a synonymy.

Bicellaria nigrata Collin

(Figs 25–26)

Bicellaria nigrata Collin, 1926: 190.

Material examined (7♂, 9♀). **Czech Republic:** 1♀, Dobříš, 3 km W, edge of wood, 49°47'N, 14°08'E, 400 m, 19.vi.1988; 1♂, Bojovské údolí, damp valley, 49°54'N, 14°22'E, 230 m, 22.v.1988—all M. Barták; 1♂, Podyjí NP, Hnanice, damp forest, 48°48'12"N, 15°58'22"E, 300 m, 24–27.v.2001; 1♀, Podyjí NP, Terasy, mixed wood, 48°53'22"N, 15°50'18"E, 460 m, 3.v.–2.vi.2003; 1♀, Podyjí NP, Hardegg, vyhlídka, mixed wood, 48°51'30"N, 15°51'35"E, 420 m, 21.v.–12.vi.2004—all M. Barták & Š. Kubík—(CULSP); 1♂, Pojihlaví, Mohelno reserve, 30.v.1995, B. Mocek (MHK). **France:** 1♂, 3♀, Col du Cabaretois, edge of wood, 43°32'02"N, 2°45'24"E, 940 m, 25.v.2006; 3♂, 2♀, Saint Etienne, forest edge, 43°28'15"N, 2°51'33"E, 540 m, 25.v.2006—all M. Barták—(CULSP). **Greece:** 1♀, 7 km E of Mt. Olympos, 40°06'13"N, 22°25'36"E, 1100 m, 23.v.2007, M. Barták (CULSP).

Diagnosis. *Bicellaria nigrata* may be, as are all three European species of the *B. nigra* complex, easily identified in males according to the genitalia. Postgonites are shortened, both phallic hooks present and longer than the postgonites. Moreover, males have a black setose body which differentiate it from both other species of this complex. However, identification of females may be difficult, differing by characters given in the key; however, the variation range of these characters remains unknown.

Distribution. Temperate and southern Europe from Great Britain to central European Russia, south to Bulgaria and Greece.

Remarks. Tuomikoski (1955) provided a short redescription and illustration of the hypandrium. Collin (1961) briefly redescribed this species and provided an illustration of the genitalia. Chvála (1983) redescribed this species and provided illustrations of the face, antenna, mid tibia, hind leg, and genitalia.

Bicellaria pilosa Lundbeck

(Figs 27–28)

Bicellaria pilosa Lundbeck, 1910: 27.

Material examined (46♂, 29♀). **Czech Republic:** 32♂, 25♀, Krkonoše Mts, many localities (Pančava, Luční bouda, Labská bouda, Úpské mire, Luční hora, Kotel, Čertův důl, Labská louka), 1250–1500 m, vi.–viii., M. Barták or M. Chvála; 2♂, 2♀, Bílina (Choumek, Holibka), 50°31–32'N, 13°49–51'E, v.–vi.1998, M. Barták; 9♂, 9♀, Kostelní Lhota, 50°08'N, 15°02'E, 190 m, 12.v.1988, M. Barták—(CULSP). **Norway:** 1♂, Hardangervidda Nat. Park, 1300 m, vii.2001, J. Farkač (CULSP). **Romania:** 1♀, Fagaras Mts., Bilea env., 13.vii.2001, P. Heřman (CULSP). **Russia:** 1♂, 1♀, Pummanki [= Zemljanoe], W. Hellén; 1♀, Kutsajoki river (near Kandalakša), W. Hellén; 1♂, Vuoremi [= Vorjema], W. Hellén—(NHMH).

Diagnosis. *Bicellaria pilosa* is very similar to *B. alpina* (see notes under latter). Chvála (1991) considered both to be identical, listing *B. alpina* Bezzi as a junior synonym of *B. pilosa* (but he had no specimens of *B. alpina* on hand). However, we remove this species from synonymy despite not finding any differences in the male genitalia (see also remarks under *B. alpina*).

Distribution. Europe.

Remarks. Tuomikoski (1955) provided a short redescription, illustration of the hypandrium, and differentiation from *B. alpina*. Collin (1961) also briefly redescribed the species and illustrated the genitalia. Chvála (1983) provided a redescription, synonymy, and illustrations of the genitalia, face, antenna, and hind leg. The species was described from several localities in Denmark; however, according to Chvála (1983), all syntypes from the Lundbeck collection were destroyed.

***Bicellaria setipalpus* sp. nov.**

(Figs 29–30)

Type material. HOLOTYPE ♂: **Italy**, Passo Rolle, 46°13'N, 11°42'E, 1700 m, 8.viii.1988, larch wood, M. Barták (CULSP). **PARATYPES: France:** 1♀, Pic Long, along brook, 42°49'N, 0°09'E, 1800 m, 9.vii.1990; 1♀, same locality, alpine meadow, 2200 m—all M. Barták—(CULSP). **Italy:** 1♂, same data as holotype (CULSP); 1♂, Mte. Terminillo, 42°26'N, 13°07'E, 2000 m, 4.viii.1988, meadow nr. wood, M. Barták (CULSP); 2♀, S. Stefano di Cadore, fiuma Piave, viii.1979; 1♀, Camposilvano, TN, 10.ix.1974; 1♂, Passo Monte, Croce Carnico, 23.viii.1964—all G. Raffone—(MSNV); 1♂, 1♀, S. Martino, spruce wood, 46°11'N, 11°41'E, 1500 m, M. Barták (CULSP).

Diagnosis. Entirely black setose species; third antennal segment with dorsal setae; palpus with about 10 strong setae; male hypandrial processes broadened apically; three phallic hooks present (left one bifurcate and its anterior arm bent); postgonites asymmetrical.

Description. Male. Head black, dark brownish grey microtrichose, black setose (including lower occiput). Eyes meeting on frons, facets on dorsal half much larger than on ventral half, about 16–17 facets in line of contiguity of eyes. One to two pairs of ocellar setae, posterior pair shorter. Occiput in middle hind part densely setose. Face nearly parallel-sided, about 0.06 mm broad in lower half and 0.07 mm broad in dorsal part, clypeus slightly paler grey microtrichose. Gena broad and lustrous (not easily visible if head collapsed). Palpus short, brown, with about 10 setae, some rather strong and more than 0.15 mm long. Labrum brownish black, lustrous. Antenna black, second segment long setose ventrally (longest ventral setae about 0.15 mm); third segment with 1–2 dorsal setae (as in Fig. 48); ratio of broad part of segment 3: narrow part of segment 3: stylus (in 0.01 mm scale) = 16–18: 7–8: 19–20. **Thorax** brownish black, slightly subshining, prescutellar area similarly coloured as rest of mesoscutum, scutellum slightly paler. All thoracic setae black including fringes on squama. Chaetotaxy: acrostichals broadly biserial (8–9 in each row) and long even in presutural area (about 0.15 mm in front but longer posteriorly); dorsocentrals slightly longer than corresponding acrostichals in postusutural area; about 10–12 setae in posthumeral and intrahumeral areas; 1 longer and 2–3 slightly shorter postpronotals; notopleura with 5–6 unequally long setae; 1 supraalar and 1–2 setae in prealar area (and 1–2 additional setae close to dorsocentral row); 1 long postalar; 2 pairs of scutellars. **Legs** including coxae black, microtrichose (only trochanters partly lustrous) and black setose. Fore femur in basal two-thirds with row of strong anteroventrals, half as long as depth of femur and complete row of posteroventrals slightly longer than depth of femur. Fore tibia with 3 posterodorsals 3X as long as depth of tibia (0.20 mm long), posteroventrals slightly longer than depth of tibia. Mid femur with sparse row of anteroventrals about as long as depth of femur in basal half but shorter apically and with posteroventrals slightly longer than depth of femur. Mid tibia with unequally long ventral setae, longest up to 2X as long as depth of tibia, with 2–3 pairs of dorsal setae up to 0.25 mm long (longest about 3X as long as diameter of tibia). Hind femur with 16–18 dorsal and 13–16 anteroventral setae 1.5X as long as depth of femur, and with complete row of fine and much shorter posteroventrals. Hind tibia slightly swollen in apical half (0.16 mm at broadest point), subequally broad as hind femur, ventral setae about as long as depth of tibia (in basal half and shorter in apical third), 3 antero- and 5 posterodorsal setae up to 0.25 mm long. Tarsi of all legs thin and short setose. **Wing** brownish infuscated, stigma brown and 0.10 mm wide. Squama dark blackish-brown with black fringes, halter brown. **Abdomen** black, dull brownish-black in dorsal view and lighter brownish grey microtrichose in lateral view, very long black setose (marginals up to 0.50 mm long). Genitalia (Figs 29–30): hypandrial processes long, broadened apically and somewhat truncate; postgonites asymmetrical: right one with ventral extension arising from caudal part of median extension; three long phallic hooks present (left hook bifurcate with anterior arm sharply bent). **Female.** Similar to male. Abdominal tegites 6–8 lustrous on basal third, sternite 8 lustrous. **Length:** body 2.0–4.0 mm, wing 3.0–3.6 mm.

Etymology. The species is named after the strongly setose palpus.

Distribution. France, Italy.

Remarks. The species described above is a member of the *B. pilosa* complex of species (characterized under *B. alpina*) comprising three European species (*B. pilosa*, *B. alpina* and *B. setipalpus*). *Bicellaria setipalpus* may be distinguished from both other species of this complex by narrower face, strongly bent anterior arm of the left phallic hook and asymmetrical postgonites. If numerous setae on the palpus are overlooked, the species is superficially very similar to *B. austriaca*; however, genitalia of both species are strikingly different.

Bicellaria simplicipes (Zetterstedt)

(Figs 31–32)

Cyrtoma simplicipes Zetterstedt, 1842: 331.

Material examined (7♂, 6♀). **Czech Republic:** 1♀, Písek-Čimelice (car net), 28.vi.1992; 2♀, Vráž nr. Písek, 49°23'N, 14°08'E, 400 m, 30.v.1994; 2♂, 1♀, same locality, 2.vi.1994; 1♀, Čertova voda nr. Děčín, 130 m, 50°48'47.3"N, 14°13'35.3"E, meat-baited Malaise trap, 21.v.-20.vi.2009; 1♂, Čelákovice, 4 km E, lowland wood, 50°10'N, 14°49'E, 180 m, 6.vi.1990; 1♀, Přerov nad Labem, river bank, 50°11'N, 14°48'E, 180 m, 6.ix.1983 all M. Barták—(CULSP). **Finland:** 1♂, Tvärminne, R. Frey; 1♂, Liminka, R. Tuomikoski (NHMH). **Russia:** 1♂, Tytärsaari (= Bolshoy Tyuters), W. Hellén; 1♂, Suistamo, R. Tuomikoski (NHMH).

Diagnosis. An easily recognisable species due to narrow (apically almost not swollen) hind tibia and peculiar genitalia with shortened postgonites (bearing small triangular-shaped extension best visible in ventral view), nearly triangular-shaped left phallic hook (somewhat similar to the situation in the *B. pilosa* complex), not visible in Chvála (1983, fig. 309, p. 145) or Collin (1961, fig. 92, p. 263) is probably due to the occasional alignment of the cranial part of the hook with the median extension of the postgonites, and short and broad hypandrial processes armed with apical setae.

Distribution. Europe. Published record from Italy (Raffone 2006) was based on a misidentification [not included in recent catalogs by Chvála (2012) and Yang (2007)].

Remarks. Tuomikoski (1955) provided a short redescription and illustration of the hypandrium. Collin (1961) also wrote a short redescription, illustrated the male genitalia and hind leg, and provided notes to the synonymy. Chvála (1983) gave a redescription, synonymy, lectotype designation, and illustrations of the genitalia, face, antenna, and hind leg. The species is rather isolated in position without clear affinities.

Bicellaria spuria (Fallén)

(Figs 33–34, 45)

Empis spuria Fallén, 1816: 33.

Bicellaria nigra Macquart, 1823: 156.

Cyrtoma atra Meigen 1824: 2.

Cyrtoma melaena Haliday, 1833: 158.

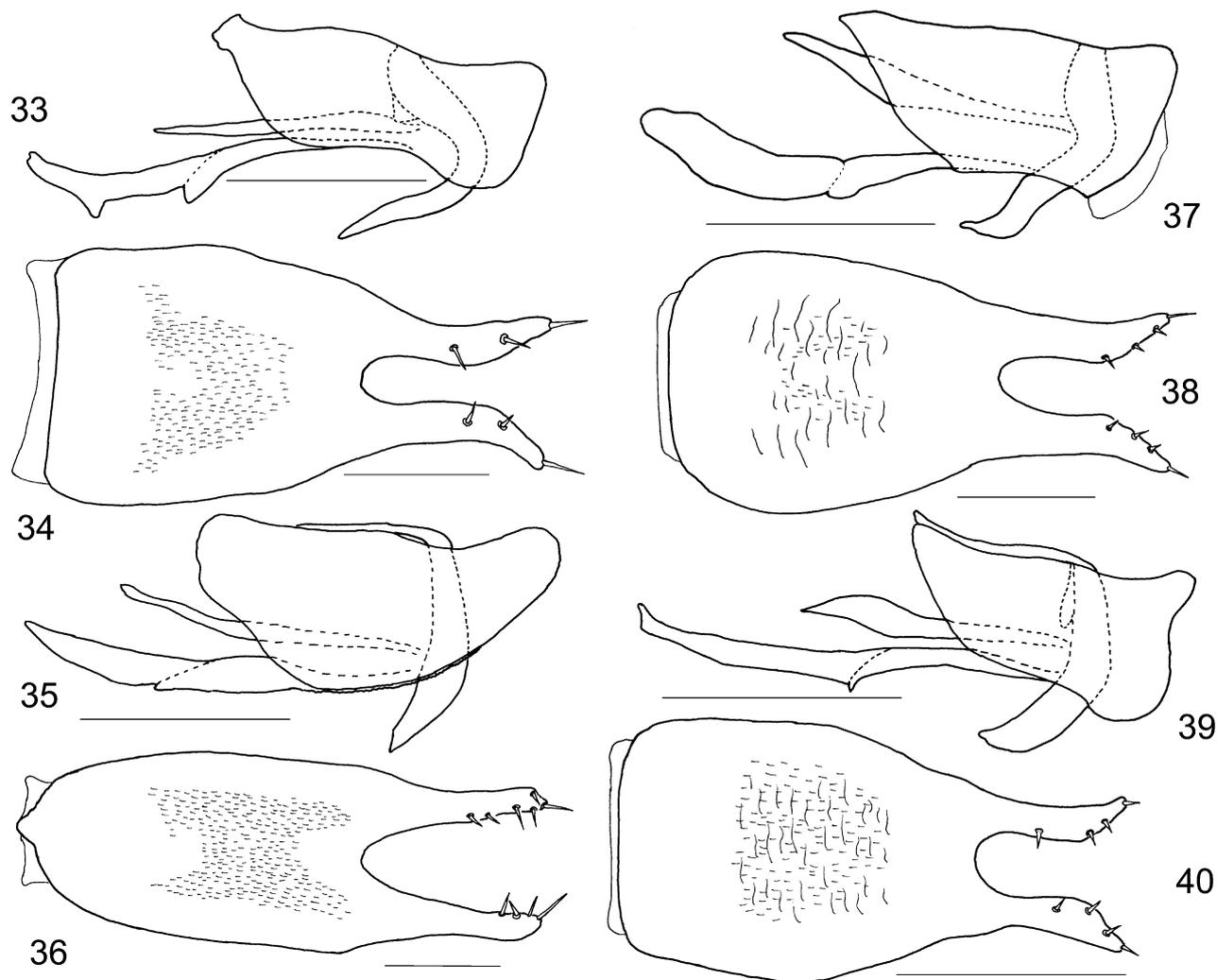
Material examined (57♂, 12♀). **Czech Republic:** 12♂, 5♀, Vráž nr. Písek, damp meadow, 49°23'N, 14°08'E, 410 m, 1.vi.1994; 3♂, same locality, 31.v.1993; 11♂, 1♀, same locality, 1.vi.1992; 4♂, Kunice envir., 49°56'N, 14°40'E, 430 m, 5.vii.1984; 4♂, Šumava Mts, Spálenec, damp meadow, 48°56'N, 13°57'E, 800 m, 28.vi.1992; 1♂, Šumava Mts, Starý Brunst, along brook, 49°10'N, 13°16'E, 960 m, 21.viii.1989—all M. Barták; 3♂, 4♀, Šumava Mts, Rokytecká sláť, peat-bog, 49°00'59"N, 13°25'05"E, 1100 m, 17.vi.1999; 1♂, Šumava Mts, Nová Hůrka, peat-bog, 49°09'N, 13°20'E, 870 m; 1♂, Šumava Mts, Zhůřské slatě, peat-bog, 49°04'N, 13°34'E, 1130 m, 21.vii.1999—all M. Barták & Š. Kubík; 1♂, Ralsko, 20 km W Liberec, 27.v.1992, B. Mocek; 1♂, 1♀, Jince, meadow nr. wood, 49°48'N, 14°00'E, 420 m, 1.ix.1987; 1♂, 1♀, Nová Rabyň, 49°49'N, 14°26'E, 300 m, 11.vi.1987; 1♂, Dobříš, edge of wood, 49°47'N, 14°08'E, 400 m, 19.vi.1988; 1♂, Velké Popovice, forest edge, 49°54'N, 14°39'E, 10.vii.1988; 1♂, same locality, 15.vii.1990—all M. Barták—(CULSP). **Finland:** 1♂, Al Foglo, Bano [= Alandy, Föglö], 26.vi.1939, A. Nordman; 1♂, Joutseno, 24.vi.1947, E. Thuneberg ("B. bisetosa" det.); 1♂, Geta, Al.,

5.vii.1949, E. Thunberg (“*B. bisetosa*” det.)–(NHMH). **France**: 2♂, 7.2 km SW of Gelles, meadow, 45°43'41"N, 2°41'42"E, 1000 m, 20.v.2008, M. Barták (CULSP). **Germany**: 1♂, Dachau, moos, 22.v.1916, Engel collection (NHMH). **Great Britain**: 1♂, Hunts, Wood Walton, 9–11.vii.1939, R.L. Coe (BMNH). **Italy**: 1♂, S. Martino, spruce wood, 46°11'N, 11°41'E, 1300 m, 8.viii.1988, M. Barták (CULSP). **Russia**: 1♂, Salla (probably collected on Russian part of the county), R. Tuomikoski; 1♂, Kuusamo, W. Hellén; 1♂, Neminga, Onezh. u. Arch. g. (= Archangel'skaya Prov.), 3.vii.1929, Vorobjeva–(NHMH).

Diagnosis. *Bicellaria spuria* may be identified according to the key; however, there are several other very similar (still undescribed), species and some will be described elsewhere (see also “Unidentified specimens” section). The main differential characters are as follows: prescutellar part of mesoscutum equally dark as the rest of mesoscutum, usually at most 9 setae in posthumeral and intrahumeral area, body entirely black setose, fore tibia with elongated posteroventral setae, face medium wide (about as 2–3 facets), only left phallic hook long and simply bowed, right one reduced, and hypandrium with narrow and apically straight processes. Because of uncertainty of identification of females, records based solely on females are omitted here.

Distribution. West Palaearctic species. Melander (1965) recorded this species from North America, but this record remains doubtful as well as a record from the Oriental Region [*B. spuria*?: Bezzi (1912)].

Remarks. Tuomikoski (1955) provided a short redescription, and illustration of the hypandrium. Collin (1961) also provided a short redescription, with notes on synonymy. Chvála (1983) again redescribed this species, provided a habitus figure, and illustrations of the mouthparts, face, antenna, fore tibia, hind leg, and genitalia, and examined the synonymy.



FIGURES 33–40. Hypandrium (ventral view) and phallus with postgonites (lateral view). **33–34.** *Bicellaria spuria* (Fallén). **35–36.** *Bicellaria stackelbergi* Tuomikoski. **37–38.** *Bicellaria subpilosa* Collin. **39–40.** *Bicellaria sulcata* (Zetterstedt). Scale bars = 0.10 mm.

***Bicellaria stackelbergi* Tumikoski**

(Figs 35–36)

Bicellaria stackelbergi Tumikoski, 1955: 74.

Type material examined. HOLOTYPE ♂: **Russia**: Kamtschatka, Ozernaja, 30.vii.1917, Y. Wuorentaus (labelled: “Mus. Zool. H:fors, Spec. typ. No. 8200 *Bicellaria Stackelbergi* Tuomikoski”). **PARATYPE**: 1♂, Kamtschatka, Bolscherjetsk [now Ust—Bolsheretsk], 20.vii.1917, Y. Wuorentaus—(NHMH).

Additional material examined (3♂, 2♀). **Russia**: 2♂, 2♀, Archangel'skaya oblast, Kanin, B. Poppius; 1♂, Republic Khakassia, r. Abakan, s. Nemir (r. = river, s. = village), 11.v.197?, Wagner—(NHMH).

Diagnosis. The species may be easily recognized according to the key. Almost silvery dusted abdomen is similar to *B. alpina*, but this latter species has black setose body and a long seta on the third antennal segment (Fig. 48). Lustrous legs is a unique feature of this species among European fauna (remaining known species have microtrichose legs except sometimes posterior part of hind femur). Male postgonites are narrowed apically, both phallic hooks present, nearly equally long, left one strongly (right one slightly) broadened laterally (best visible from behind). Interestingly, one female paratype represents in fact *B. uvens*.

Distribution. Poorly known, probably Palaearctic species, in Europe known only from extreme North (Kola, Kanin).

Remarks. The species was described (and hypandrium illustrated) on the basis of specimens from Kola, Kamtschatka (Bolscherjetsk [now Ust—Bolsheretsk]), Ozernaja river), Jakutsk and Altai.

***Bicellaria subpilosa* Collin**

(Figs 37–38)

Bicellaria subpilosa Collin, 1926: 190.

Material examined (58♂, 35♀). **Andorra**: 2♂, 15♀, Pto. de Envalira, pine wood and subalpine meadow, 42°32'–33'N, 14.42–43'E, 1800–2200m, 8.vii.1990, M. Barták (CULSP). **Czech Republic**: 40♂, 12♀, Šumava Mts (several localities: Horská Kvilda, Spálenec, Chalupská slat' Rokytecká slat' Zhůřské slatě, Borová Lada, Kyselovský les), peat-bog, damp meadow, 725–1170 m, 17.v.–17.vi.—all M. Barták; 1♀, Albeř, 16.vi.1974, M. Chvála—(CULSP); 2♂, Úvalenské louky nr. Opava, boggy meadow, 26.v.1982, J. Roháček (SZMO). **Finland**: 1♂, Kilpisjärvi, R. Frey; 1♀, R. Tuomikoski; 1♀, Utsjoki, 20.vii.1948, Ahlqvist; 1♂, Pelkosenniemi, 29.vi.1951, Lindeberg—(NHMH). **France**: 1♂, Col du Cabaretous, edge of wood, 940 m, 43°32'02"N, 2°45'24"E, 25.v.2006, M. Barták (CUSP). **Germany**: 1♀, Dachau, moos, 22.v.1916, Engel collection (NHMH). **Italy**: 1♀, Val di Bresimo, 21.viii.1991, Fattoreto (MSNV). **Norway**: 1♂, Hardangervidda Nat. Park, 1300 m, vii.2001, J. Farkač (CULSP). **Russia**: 2♂, 1♀, Zehlau, Dampf [now Kaliningradskaya Prov.], 25–28.iv.1921 (“*B. spuria*“ det.?, “*B. sulcata*?” det.?) (SDEI); 1♂, 1♀, Moscow Prov., Abramcevo, along brook, 56°14'N, 37°59'E, 200 m, 28.v.1989, M. Barták (CULSP); 2♂, 1♀, Vladimirskaia Prov., Strunino, 10 km W Alexandrova, 10.vi.1952; 1♂, same locality, 27.v.1952—all E. Smirnov; 1♂, Ryazanskay Prov., Meščerskaja nizmennost' Okskij zapovednik, 17.vi.1965, V. Kovalev—(ZMMU); 1♂, Salla [probably collected in Russian part of county], R. Tuomikoski; 1♀, Sortavala, Tiensuu—(NHMH).

Diagnosis. The species may be easily identified according to the key. Males have typically S-shaped and apically bent left phallic hook (right one reduced), slightly asymmetrical postgonites (right one slightly broader than left) and relatively short and broad, apically slightly diverging and short setose hypandrial processes. Moreover, it differs from similar species (*B. spuria*, *B. mera*) by paler prescutellar depression in both sexes, broader face and longer anteroventral setae on mid femur and ventral setae on hind tibia. We found a single male specimen with one dorsal seta on base of left third antennal segment.

Distribution. West Palaearctic species, distributed in Europe from Andorra, Italy, Bulgaria and Greece in the south up to the extreme north of Scandinavia.

Remarks. Tuomikoski (1955) provided a short redescription and illustration of the hypandrium. Collin (1961) also included a short redescription, and illustrations of the hind leg and genitalia (however, phallic hook on his fig.

91a appears as in *B. vana* not showing typical strong curves). Chvála (1983) also redescribed this species and provided illustrations of the face, antenna, hind leg, and male genitalia.

Bicellaria sulcata (Zetterstedt)

(Figs 39–40)

Cyrtoma sulcata Zetterstedt, 1842: 331.

Bicellaria sulcata vanella Tuomikoski, 1936: 82.

Material examined (27♂, 24♀). **Austria:** 1♂, Felsőlövo (= Oberschützen), 24.v.1909 (SDEI). **Czech Republic:** 1♂, Božejovice-Jezviny, 4.vi.1983, M.Chvála (OUMNH); 1♂, Žehuňská obora, Kopičácký rybník, 28.iv.2004; 2♂, Žďárské vrchy Mts, Radostín, peat-bog, 16.v.1995; 1♀, Běleč nad Orlicí, damp meadow, 25.v.1995—all B. Mocek—(MHK); 1♂, Běleč nad Orlicí, nr. river, 28.iv.1995; 1♂, Vráž nr. Písek, damp meadow, 49°23'N, 14°08'E, 12.v.1991; 1♀, Bílina, Holibka, lowland wood, 50°31'19"N, 13°49'47"E, 360 m, 9.viii.–23.ix.1998; 4♂, Beskydy Mts, Muřinkový vrch, peat-bog, 49°31'N, 18°39'E, 950 m, 13.vi.1987; 1♂, Šumava Mts., Libínské sedlo, 48°59'N, 13°59'E, 800 m, 9.v.1987; 1♂, same locality, 17.v.1997; 1♂, 2♀, Šumava Mts, Spálenec, damp meadow, 48°56'N, 13°57'E, 800 m, 21.v.1992; 5♀, Šumava Mts, Nová Hůrka, peat-bog, 49°09'N, 13°20'E, 870 m, 15.vi.1999; 1♂, Šumava Mts, Kyselovský les, Alnetum, 48°42'N, 14°04'E, 725 m, 17.v.1997; 1♀, same locality, 16.vi.1997; 1♀, Šumava Mts, Chalupská slať, damp meadow, 49°01'N, 13°39'E, 860 m, 4.vi.1996; 1♀, same locality, peat-bog, 10.vi.1989—all M. Barták—CULSP). **Croatia:** 1♂, 1♀, Jasenak, 30.v.1905(?), K. Kertész (CULSP). **Finland:** 1♂, Joutseno, 30.v.1962, E. Thuneberg; 2♂, Utsjoki, R. Frey; 1♂, Malla, R. Frey—(NHMH); 1♀, Esbo, Kolmpera, 6.vii.1980, M. Chvála (OUMNH). **Germany:** 1♀, Bayerischer Wald, Spiegelau, 48°57'N, 13°22'E, 760 m, 8.vi.1995, M. Barták (CULSP); 1♂, Berlin, Jungfhd., v.97; 1♂, 1♀, Berlin, Schildhorn; 1♀, Mecklenburg, Bützov, 23.v.(?), C. F. Kettel; 1♀, same loc., 16.v.—(SDEI). **Russia:** 4♀, Moscow prov.: Serpuchov, mixed wood, 54°52'N, 37°36'E, 150 m, 27.v.1989; 1♂, Moscow, Losiny ostrov, park vegetation, 55°49'N, 37°45'E, 180 m, 26.v.1989; 1♂, Abramcevo, along brook, 56°14'N, 37°59'E, 200 m, 28.v.1989—all M. Barták—(CULSP). **Slovakia:** 1♀, V. Fatra, Kantorská dol. (= valley), 29.vi.1975, M. Barták (OUMNH); 1♂, Vysoké Tatry, Dolný Smokovec, 28.v.1968, M.Chvála—all "*B. sulcata*" det. Chvála—(OUMNH). **Sweden:** 1♀, Lk. Tarraure, 19.vii.1962, A.C. Pont; 1♂, Sala Distr., 1km E Brodabo, 18.vi.1986, A.C. Pont—(OUMNH).

Diagnosis. Males may be easily identified according to the key (but see *Bicellaria* sp. 3 in "Unrecognized specimens" section); differences in genitalia of two allied species, *B. sulcata* and *B. vana*, are discussed under the latter species. The left phallic hook is long and broad, right one strongly reduced. Females may be identified according to characters given in the key.

Distribution. A broadly distributed West Palaearctic species. Record from East Siberia (Tuomikoski 1955) needs verification.

Remarks. Tuomikoski (1955) briefly redescribed this species, illustrated the hypandrium and synonymized it with his *B. sulcata vanella*. Collin (1961) provided a short redescription and illustrated the male genitalia. Chvála (1983) also redescribed this species, illustrated the face, antenna, hind leg, and genitalia, discussed the synonymy, and designated the lectotype.

Bicellaria uvens Melander

(Figs 41–42)

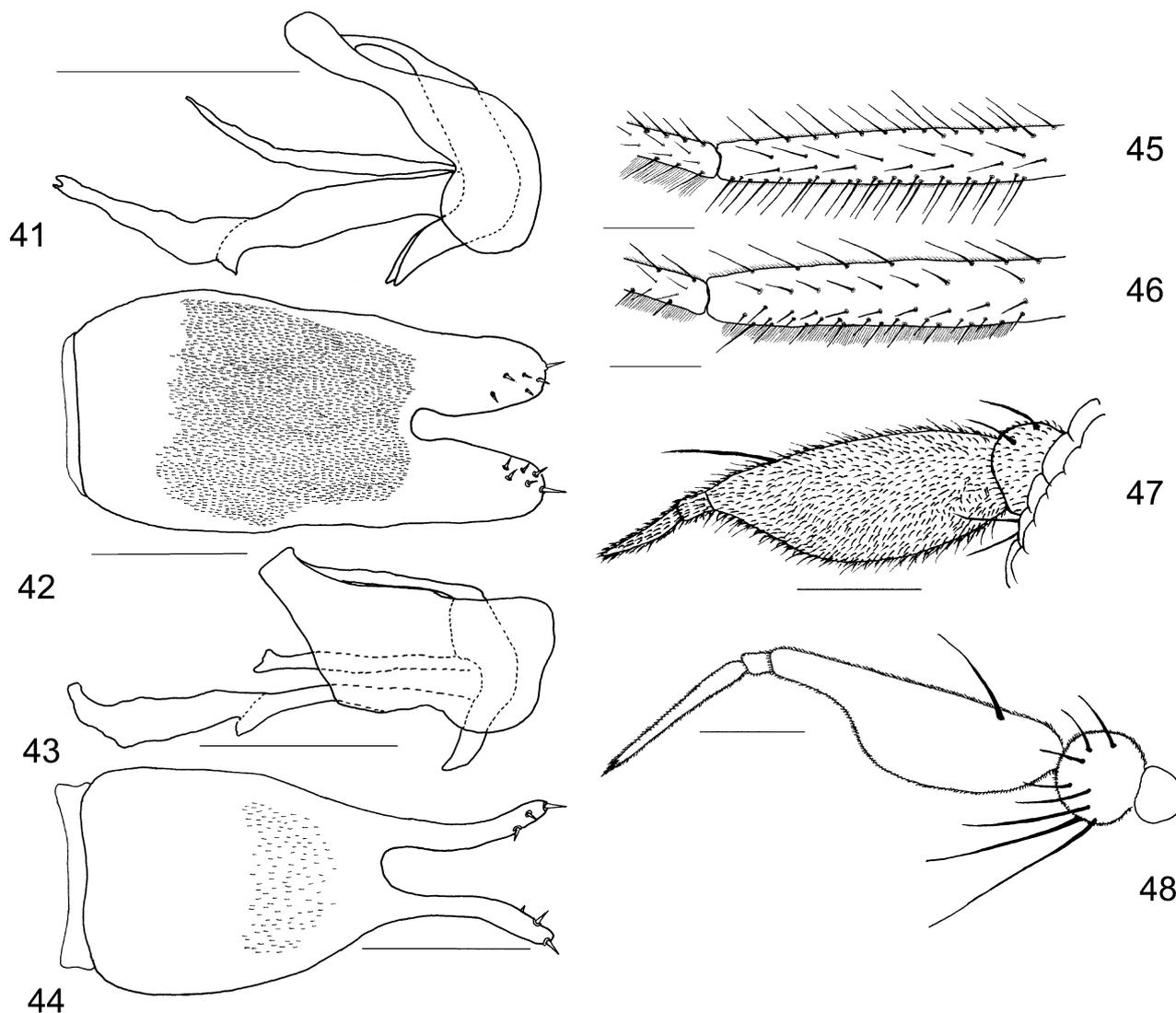
Bicellaria uvens Melander, 1928: 74.

Bicellaria bisetosa Tuomikoski, 1936: 84, **syn. nov.**

Type material examined. *B. bisetosa*: **PARALECTOTYPES:** **Russia:** 1♂, Kuusamo [probably collected in area of today's Russia], 21.vii.1934, Krogerus (labelled: "Mus. Zool. H:fors, Spec. typ. No. 8143 *Bicellaria bisetosa* Tuomikoski"); 1♂, same locality, 19.vii.1934, Krogerus (labelled: "Mus. Zool. H:fors, Spec. typ. No. 8142 *Bicellaria bisetosa* Tuomikoski"); 1♂, same locality, 13.vii.1934, Krogerus (labelled: "Spec. Typ.")—(NHMH).

Additional material examined (19♂, 9♀). **NEARCTIC:** **Canada:** BC, 1♂, Summit L., Alaska Hwy mi. 392,

4500', 17–19.vii.1959, E.E. McDougall; 1♂, Atlin, 2200', 23.vii.1955, B.A. Gibbart; **Labrador**, 1♂, Hebron, 10.vii.1954, J.F. McAlpine; **Quebec**, 1♂, Ft. Chimo [= Kuujuaq], 16.vii.1948, H.N. Smith; 1♂, Indian House Lk., 24.vii.1954, W.R. Richards; 2♀, same locality, 5.vii.1954, R. Coyles—all "*B. uvens*" B. Sinclair det.-(CNC). **USA**: **Alaska**, 1♂, King Salmon, Naknek, 13.vii.1952, J.B. Hartley; 1♂, Unalakleet, 4.vii.1961, B.S. Heming; 1♀, same locality, 5.viii.1961, B.S. Heming—all "*B. uvens*" B. Sinclair det.-(CNC). **PALAEARCTIC**: **Finland**: 1♂, Utsjoki, R. Tuomikoski; 1♂, same locality, R. Frey; 1♀, Muonio, 2.vii.1867, J. Sahlberg-(MHNH). **Russia**: 1♀, Kuusamo, 13.vii.1934, Krogerus; 1♂, same locality, 19.vii.1934; 5♂, 2♀, same locality, 19.vii.1934; 1♀, same locality, 21.vii.1934; 1♂, same locality, 29.vii.1934; 1♂, Suistamo, R. Tuomikoski; 1♂, Kamtschatka, Bolscherjetsk [now Ust-Bolsheretsk], 20.vii.1917, Y.Wuorentaus; 1♀, same locality, 3.vii.1917 ("Mus. Zool. H:fors, Spec. typ. No. 8201 *Bicellaria stackelbergi* Tuomikoski"—paratype of *B. stackelbergi*)-(MHNH); 1♂, Amurskaja oblast, Zeja, 8.vii.1981, A. Shatalkin (ZMMU).



FIGURES 41–48. 41–44. Hypandrium (ventral view) and phallus with postgonites (lateral view). 41–42. *Bicellaria uvens* Melander. 43–44. *Bicellaria vana* Collin. 45–46. Distal part of front tibia and proximal part of front basitarsus (posterior view). 45. *Bicellaria spuria* (Fallén). 46. *Bicellaria vana* Collin. 47–48. Antennae. 47. *Bicellaria dispar* Oldenberg. 48. *Bicellaria alpina* Bezzi (microchaetae mostly omitted). Scale bars = 0.10 mm.

Diagnosis. The species belongs to a distinct complex of species [along with at least *B. pilipes* (Loew) and one still undescribed species from Siberia] characterized by broad hypandrial processes and usually more than 10 setae on intra- and posthumeral areas. Two dorsal setae usually occur on the fore trochanter (hence the name “bisetosa”); however, we found also specimens with only a single seta here (two of them being paralectotypes of *B. bisetosa*), and, contrary, other species may have occasionally two such setae (e.g., *B. sulcata*). Males of *B. uvens* may be

easily identified according to the genitalia with both phallic hooks present and postgonites slightly broadened laterally and narrow in lateral view (Figs 41–42). There is considerable variability between individual specimens of the species in colour of mesoscutum (being usually darker in Nearctic specimens), in length of ventral setae on hind tibia, in number of scutellar setae (4–6), and in the shape of hind basitarsus (which is sometimes slightly broadened). However, these characters are not consistently different between specimens from North Europe, Eastern Asia and North America; moreover, genitalia of all specimens studied are identical. There may be problems with identification of females of this complex of species.

Distribution. Holarctic species. In Europe known only from Fennoscandia. Published records from Italy (Raffone 2008) and Romania (Parvu 2003) are both probably based on misidentifications and were not included in recent catalogs (Chvála 2012; Yang 2007).

Remarks. The species *B. uvens* was described from numerous specimens from Fort Chimo [= Kuujuaq], Ungava Bay, Hudson Straits, and northern Labrador (Canada). The species *B. bisetosa* was described from an unknown number of specimens from Finland and North European part of Russia. In a later work (Tuomikoski 1955), “Ussuri” was added. Chvála (1983) redescribed this species (under *B. bisetosa*), provided illustrations of the face, antenna, fore and hind leg, and genitalia, and designated the lectotype. According to the study of Nearctic materials of *B. uvens*, we consider both species identical.

Bicellaria vana Collin

(Figs 43–44, 46)

Bicellaria vana Collin, 1926: 190.

Material examined (64♂, 58♀). **Andorra:** 2♂, 1♀, Pto. de Envalira, pine wood, 42°33'N, 14.42'E, 1800 m, 8.vii.1990, M. Barták (CULSP). **Austria:** 1♂, 1♀, Tauernalm, pasture, 15.vii.1998; 1♂, Boden nr. Villach, edge of wood, 15.vii.1998—all M. Barták—(CULSP); 1♂, Bludenz, R. Frey (NHMH). **Czech Republic:** 1♂, Kunice, 21.ix.1974, M. Barták (“*B. sulcata*” det. Chvála); 1♂, Podyjí NP, Havraníky, forest steppe, 48°48'52"N, 15°59'48"E, 330 m, 16.v.–11.vi.2002; 1♀, Podyjí National Park, Široké Pole, river bank, 48°51'30"N, 15°51'01"E, 230 m, 3.v.–2.vi.2003; 1♀, Podyjí NP, Čížovský rybník, nr. pond, 48°52'55"N, 15°53'11"E, 380 m, 27.v.–7.vi.2001; 1♀, same locality, 28–30.viii.2001; 1♀, same locality, 9.ix.–28.x.2004; 1♂, Podyjí NP, Břečkov, nr. pond, 48°53'28"N, 15°52'32"E, 400 m, 26.vi.–24.vii.2001; 1♂, Podyjí NP, Pod Ledovými slujemi, wetland nr. river, 48°53'09"N, 15°50'29"E, 400 m, 26.vi.–24.vii.2001; 2♂, 1♀, same locality, 30.vii.–31.viii.2002—all M. Barták & Š. Kubík; 3♂, 3♀, Šumava Mts, Špičácké sedlo, meadow, 49°10'N, 13°13'E, 900 m, 21.viii.1989; 1♀, Šumava Mts, Horská Kvilda, damp meadow, 49°03'N, 13°34'E, 1000 m, 21.vii.1992; 1♀, Šumava Mts, Antýgl, 49°02'N, 13°30'E, 23.viii.1989; 1♂, Šumava Mts, S Slope of Pancíř, meadow, 49°09'N, 13°16'E, 1000 m, 24.viii.1989; 2♂, Šumava Mts, Spálenec, damp meadow, 48°56'N, 13°57'E, 800 m, 15.ix.1990; 2♀, Šumava Mts, Popelná, 49°06'N, 13°38'E, 3–9.vii.1988—all M. Barták—(CULSP); 1♀, Šumava Mts, Černý Kříž, peat–bog, 48°52'N, 13°50'E, 760 m, 13.vii.1986, K. Špatenka; 3♀, Šumava Mts, Rokytecká slat', peat–bog, 49°00'59"N, 13°25'05"E, 1100 m, 20.vii.–24.ix.1999; 1♂, same locality, 21.vii.–20.viii.1999—all M. Barták & Š. Kubík; 1♀, Šumava Mts, Jezerní slat', peat–bog, 49°02'N, 13°34'E, 980 m, 5.viii.–6.ix.1996; 1♂, same locality, 5–7.viii.1996; 4♂, Šumava Mts, Chalupská slat', 49°01'N, 13°39'E, 860 m, 5–7.viii.1996; 1♀, same locality, 4.vii.1996—all M. Barták & J. Roháček; 1♀, Šumava Mts, Malá Niva, peat–bog, 48°54'N, 13°49'E, 21.viii.1997, Š. Kubík (CULSP); 1♂, Kunice, 49°56'N, 14°40'E, 30.vii.1985; 1♂, same locality, 17.viii.1975; 1♀, same locality, 21.ix.1974; 1♀, same locality, 11.vi.1983; 1♂, same locality, 17.vi.1984; 1♂, same locality, 14.ix.1984; 1♀, same locality, 19.ix.1982; 1♀, Buchlov, edge of mixed wood, 49°07'N, 17°18'E, 400 m, 16.x.1987; 1♂, Velké Popovice, 49°54'N, 14°39'E, 470 m, 16.vii.1989; 1♀, same locality, 26.ix.1982; 1♂, Lukavec, damp meadow, 49°34'N, 15°00'E, 14.v.1990; 2♂, 3♀, Sázava, damp meadow, 49°55'N, 14°55'E, 26.ix.1991; 1♂, same locality, 10.vi.1990; 1♂, 1♀, Davle, edge of mixed wood, 49°54'N, 14°23'E, 300 m, 22.v.1988; 3♂, Duchcov, 50°37'N, 13°41'E, 29.v.1993; 1♀, same locality, 21.ix.1992; 1♀, Čelákovice, lowland wood, 50°10'N, 14°49'E, 180 m, 10.ix.1991; 1♂, Skuteč, edge of damp wood, 49°49'N, 16°00'E, 440 m, 1.vii.1994; 1♂, Kozlov, meadow, 49°24'N, 15°41'E, 340 m, 27.v.1986; 1♂, Mnichovice, meadow nr. pond, 49°56'N, 14°41'E, 370 m, 3.vi.1984; 1♂, Vráž nr. Písek, 49°24'N, 14°7'E, 400 m, 20–26.vi.2009; 1♂, same locality, 18–22.vi.2007; 1♀, Bílina, Štěpánov, mixed wood, 50°31'59"N, 13°51'39"E, 380 m, 13–28.v.1998;

1♀, Bílina, Chloumek, 50°33'N, 13°51'E, 25.vi.–24.vii.1998, 480 m; 1♀, same locality, 18.vi.1994—all M. Barták–(CULSP). **France:** 1♂, Col du Cabaretous, edge of wood, 43°32'02"N, 2°45'24"E, 940 m, 25.v.2006; 1♂, 1♀, Grand Bois, edge of wood, 45°30'55"N, 4°46'20"E, 21.v.2006; 4♂, Sainte Baume, 43°20'N, 5°44'E, 400–600 m, 15–16.v.2012—all M. Barták–(CULSP). **Georgia:** 1♀, West Georgia, env. Poti, 22.v.1969; 1♀, West Georgia, Borzhomskij Nature Reserve, 7.vii.1969—all V. Kovalev—(ZMMU). **Germany:** 1♂, Hamburg, Eppendorfer moor, 10.ix.1933, O. Kröber; 1♂, Allgäu, Burgegg, 14–28.vii.1933, O. Kröber; 1♂, Allgäu, Einödsbach, 1933, O. Kröber—(NHMH). **Great Britain:** 1♀, Coppersole, 27.viii.1950; 1♀, Pennington Hants, 24.v.1948—all C.N. Colyer—(BMNH); 1♀, Surrey, Ranmore, 30.v.1948; 1♀, Surrey, Bookham, 13.vii.1947; 1♀, same locality, 12.vi.1948—all L. Parmenter—(BMNH). **Italy:** 11♀, Torbiera di Lipoi, 7.vi.1981, L. Munari; 1♂, Lases, 4.v.1990, Brigolli; 1♂, 1♀, Veneto, Onara Tombolo, 20.iv.1985; 1♀, Sila, 18.v.1985; 1♂, Torino, 26.v.1918, T. Sangone; 1♀, S. Stefano di Cadore, fiuma Piave, viii.1979, G. Raffone—(MSNV); 1♂, Lago di S. Croce, 46°07'N, 12°20'E, nr. lake, 1.viii.1988; 1♂, Passo Nigra, 46°26'39"N, 11°35'18"E, 1700 m, meadow + wood, 5.vii.2011; 1♀, Weisslahnbad, edge of wood, 46°28'40"N, 11°34'11"E, 1400 m, 4.vii.2011—all M. Barták—(CULSP). **Romania:** 1♂, Orsova, 3.vi.1912 (“*B. sulcata*” det.?) (SDEI). **Russia:** 1♂, Moskovskaja oblast, Abramcevo, 3.viii.1965, Usačev; 1♂, Moskovskaja oblast, Golicyno, 7.vii.1983, A. Shatakin; 1♂, Karachay—Cherkesskaya Republic, Caucasus, Teberda, 1200 m, 14.vi.1965, N. Lapšina—(ZMMU); 1♂, Moscow Prov., Chořkovo, 56°14'N, 37°53'E, mixed wood, 31.viii.1988; 1♂, Moscow Prov., Abramcevo, along brook, 56°14'N, 37°59'E, 200 m, 28.v.1989—all M. Barták—(CULSP). **Slovak Republic:** 1♂, Nížké Tatry, Demanovská dol., 2.vii.1975, M. Barták (“*R. sulcata*” det. Chvála); 1♂, Vysoké Tatry, Dolný Smokovec, 28.v.1968, M. Chvála (“*R. sulcata*” det. Chvála)—(OUMNH). **Spain:** 1♂, Picos Europa, R. Frey (NHMH). **Ukraine:** 1♀, Carpathians, Jasinja, Stanislav-Gat, 26.vii.1972, V. Kovalev (ZMMU).

Diagnosis. The species may be easily identified and distinguished from allied *B. sulcata* according to the genitalia: *B. sulcata* has distinctly pronounced (elongated) upper dorsal angle of the postgonites, which is more rounded and less pronounced in *B. vana* [this character was properly illustrated by both Chvála (1983, fig. 356: *B. vana* and fig. 352: *B. sulcata*) and Collin (1961, fig. 91: *B. sulcata* and fig. 92: *B. vana*)]. Left phallic hook long, right one much shortened; ventral apodeme broadened in lateral view, but very narrow in dorsal view; hypandrium of both species is also different with much narrower processes in *B. vana* (Figs 43–44) than in *B. sulcata* (Figs 39–40). We believe that also females of both species may be distinguished according to characters given in the key despite we had no pair in copula. We have specimens similar to *B. vana* from southern Spain, which may represent different species, see section “Unidentified specimens”.

Distribution. Broadly distributed West Palaearctic species. Published record [omitted in catalogs by Chvála (2012) and Yang (2007)]: Romania (Parvu 2003).

Remarks. Collin (1961) provided a short redescription, and illustrations of the hind leg and genitalia. Chvála (1983) also redescribed this species and provided illustrations of the face, antenna, hind leg, and genitalia.

Key to species of *Bicellaria* of Europe

Remarks. Absolute measures given in the text (performed on dry mounted material) are only benchmarks: they may slightly differ in unusually small or large individuals. Only those setae on the palpus are counted which are longer than 0.05 mm (those occurring on the palpifer are not counted). Long setae on dorsal side of the third antennal segment may be broken or their presence/absence may be variable (we found a single specimen of *B. subpilosa* with long fine seta on the third antennal segment). Those setae on intrahumeral and posthumeral areas are counted which occur outside the single row of dorsocentrals in the presutural area. Prescutellar depression in some species contains differently long and more erect microtrichia giving this area lighter appearance in dorsal view, this area is mostly sharply delimited and this character state is referred in the text as follows: “prescutellar depression lighter than other parts of mesoscutum in dorsal view”. Nearly all characters sometimes vary (including precise shape of male hypandrial processes) which makes identification extremely difficult. Females are sometimes indistinguishable (most notably: *B. italica* - *B. intermedia*), thus faunistic records should be based only on males and always be supported by dissection of the genitalia. Both *B. albopilosa* and *B. spuria* probably represent complexes of sibling species. For this reason, some recently published records should be considered carefully due to possible misidentifications (e.g. Raffone 2006, 2008; Jonassen 1984; Parvu 2003, 2005).

- 1 Antennal stylus together with slender portion of third segment half as long as broad basal portion of third segment (Fig. 47); acrostichals and dorsocentrals (except last two pairs of dorsocentrals) very short (less than 0.05 mm long); all tibiae without any setae obviously longer than setulae; male hypandrial processes long setose along the whole inner margin; very small species (wing length 1.9 mm) ***B. dispar* Oldenberg**
- Antennal stylus together with slender portion of third segment at least as long as broad basal portion of third segment (as in Fig. 48); acrostichals and dorsocentrals longer than 0.05 mm; remaining characters disagree 2
- 2 (1) Palpus with 4 or more black setae; third antennal segment with dorsal seta(e); all body setae black 3
- Palpus with 1–3 black setae (rarely with an additional pale seta), if palpus with more than 4 setae (*B. andorra* sp. nov.), then sides of abdomen with yellowish-white setae; third antennal segment with or without dorsal seta(e) 6
- 3 (2) Mesoscutum with two pale (silvery) stripes between rows of acrostichals and dorsocentrals apparent from both dorsal and caudal views (in female covering most of mesoscutum); usually less than 9 setae outside rows of dorsocentrals at presutural area; abdomen light bluish grey in lateral view; male genitalia as in Figures 3–4 (*B. pilosa* complex-part) ***B. alpina* Bezzi**
- Mesoscutum uniformly dark velvety black without any stripes; usually 10 or more setae outside rows of dorsocentrals at presutural area; abdomen dark greyish to blackish brown in lateral view 4
- 4 (3) Third antennal segment usually with 4 or more dorsal setae, second segment with curiously long lateral setae pointing forwards; fore tibia with posteroventral setae shorter than diameter of tibia and with a row of 4–6 erect posterodorsal setae about 4X longer than diameter of tibia (0.25 mm long); hind tibia broadly thickened on apical third in male and slender in female; male hypandrium with short and broad processes bearing long apical seta, two phallic hooks present, phallus strongly sclerotized, forming flat and long valve-like structure (Figs 19–20) ***B. longisetosa* Chvála**
- Third antennal segment usually with 1–3 dorsal setae, second segment with short lateral setae (but with long ventral setae); fore tibia differently setose; hind tibia more evenly dilated in both sexes; male hypandrial processes without long apical seta, three phallic hooks (left hook bifurcate), phallus membranous, not forming valve-like structure. (*B. pilosa* complex-part) 5
- 5 (4) Face narrow (about 5–6 facets combined), almost parallel throughout (0.06–0.07 mm); about 10 setae on posthumeral and intahumeral areas; male hypandrial processes broadened near apex, left phallic hook bifurcate, its anterior arm bent, postgonites strongly asymmetrical, right one with ventral extension (Figs 29–30) ***B. setipalpus* sp. nov.**
- Face broad (about 8–9 facets combined), in lower half even broader (0.11 mm) than in upper half (0.10 mm); usually more than 10 setae on posthumeral and intrahumeral areas; male hypandrial processes apically narrow; left phallic hook bifurcate, its anterior arm straight (Figs 27–28) ***B. pilosa* Lundbeck**
- 6 (2) Hind basitarsus (and usually also the hind tarsomeres 2) distinctly swollen (usually more than 2.3X broader than hind tarsomere 3 and usually broader than 0.10 mm); additional characters: fore tibia with ventral pilosity on apical third at most slightly shorter than on fore basitarsus and posteroventral setae short, at most as long as pilosity and usually shorter than depth of tibia (as in Fig. 46), face very narrow (less than 3 facets combined, less than 0.03 mm at narrowest point), abdomen at least partly pale setose (exception: male *B. nigrita*), third antennal segment without dorsal seta(e), hypandrial processes never strikingly shortened (*B. nigra* complex) 7
- Hind basitarsus slender (usually less than 2.0X broader than hind tarsomere 3 and usually narrower than 0.10 mm); additional characters in different combinations 9
- 7 (6) Third antennal segment arched dorsally; mid tibia usually without dorsal setae differentiated from short hairs; hind femur shorter than 1.2 mm; hind tibia dilated in basal third; male: postgonites shortened (about 0.10 mm long), both phallic hooks present, long and strong, longer than postgonites, right one slightly shorter and narrower than left one (Fig. 25), squamae mostly with dark fringes ***B. nigrita* Collin**
- Third antennal segment nearly straight dorsally; mid tibia with 1–3 outstanding dorsal setae, about twice as long as short hairs on limb; hind femur longer than 1.3 mm; hind tibia equally slender in basal third; male: postgonites not reduced (slightly shortened in *B. halterata*), phallic hooks different, squamae mostly with pale fringes 8
- 8 (7) All large setae on mesoscutum black; male: halter usually dark, postgonites long (more than twice as long as broad), left phallic hook long, without lateral process, right one strongly reduced (Fig. 23); female: broad portion of third antennal segment usually longer than 0.15 mm, lustrous portions of abdominal tergites 6–7 comprise about basal third of these tergites ***B. nigra* (Meigen)**
- Large setae on mesoscutum mostly white to brownish-yellow (at least scutellars, last pair of dorsocentrals and notopleurals); male: halter yellow, postgonites shorter (about 1.5X as long as broad), both phallic hooks long, left one with lateral process (best visible from below, Fig. 11); female: broad portion of third antennal segment usually shorter than 0.14 mm, lustrous portions of abdominal tergites 6–7 comprise more than basal half of these tergites ***B. halterata* Collin**
- 9 (6) Third antennal segment with one to several long dorsal setae; male with two phallic hooks (both exceeding postgonites) (*B. austriaca* complex) 10
- Third antennal segment without long dorsal setae; male with 1–2 phallic hooks 16
- 10 (9) Male 11
- Female 14
- 11 (10) Prescutellar depression lighter than other parts of mesoscutum in dorsal view (lighter area reaches hind acrostichals); halter yellow; hypandrial processes swollen apically, bearing several rather long setae on apex, both phallic hooks almost equally long, right one more sharply bent (Figs 15–16) ***B. italica* sp. nov.**
- Prescutellar depression usually evenly dark in dorsal view (rarely lighter in a narrow area not reaching halfway between scutellum and hind acrostichals); halter dark brown to yellowish brown; remaining characters disagree 12
- 12 (11) Face parallel-sided or slightly broadened ventrally (about 5 facets combined, 0.06 mm broad at narrowest point); hypan-

- drial processes short (0.09–0.10 mm) and broadly U-shaped (distance between their inner margins of processes about 0.04–0.05 mm), both phallic hooks equally long and equally bent (Figs 9–10) ***B. collini* Tuomikoski**
- Face narrowing ventrally (about 3 facets combined, 0.04 mm broad at narrowest point); hypandrial processes longer and narrowly U-shaped (distance between inner margins of processes about 0.02–0.03 mm), phallic hooks different 13
- 13 (12) Usually more than 9 setae in posthumeral and intrahumeral areas; hypandrial processes broader, with several rather long setae near apex, phallic hooks unequal, shorter and broader (Figs 7–8) ***B. austriaca* Tuomikoski**
- Usually less than 7 setae in posthumeral and intrahumeral areas; hypandrial processes narrower, with at most a single longer seta on apex, other setae much shorter, long and narrow phallic hooks nearly equal in length (Figs 13–14)
..... ***B. intermedia* Lundbeck**
- 14 (10) Face parallel-sided or slightly broadening ventrally (about 5 facets combined, 0.06 mm broad at narrowest point); abdominal tergites 6–7 broadly lustrous on basal half or more ***B. collini* Tuomikoski**
- Face narrowed ventrally (about 3 facets combined, 0.04 mm broad at narrowest point); abdominal tergites 6–7 nearly completely microtrichose 15
- 15 (14) Halter brown; usually more than 9 setae in posthumeral and intrahumeral areas ***B. austriaca* Tuomikoski**
- Halter yellow; usually less than 9 setae in posthumeral and intrahumeral areas
..... ***B. intermedia* Lundbeck, *B. italica* sp. nov.**
- 16 (9) Fore tibia with ventral pilosity on apical third at most slightly shorter than pilosity on fore basitarsus and/or posteroventral setae on apical third of tibia shorter than depth of tibia (as in Fig. 46, observe in exactly posterior view) 17
- Fore tibia with ventral pilosity on apical third at most one-third as long as on fore basitarsus and posteroventral setae on apical third of tibia at least twice as long as pilosity, and usually longer than depth of tibia (as in Fig. 45) 20
- 17 (16) Hind tibia slender throughout; lower occipital setae mostly pale; male: hypandrial processes short and broad, right phallic hook long, simply curved and exceeding postgonites, left one slightly shorter, triangular in shape (Figs 31–32)
..... ***B. simplicipes* (Zetterstedt)**
- Hind tibia distinctly swollen apically (less so in female); lower occipital setae black; male: hypandrial processes not conspicuously short and broad, right phallic hook strongly reduced or absent, left one long and simply curved (*B. sulcata* complex) 18
- 18 (17) Abdomen with long white setae on sides; the antermost acrostichals and dorsocentrals subequally long as those just before suture (first three about 0.15 mm long or even longer in males); hind femur without posteroventral setae
..... ***B. andorra* sp. nov.**
- Abdomen entirely black setose; the antermost acrostichals and dorsocentrals distinctly shorter than those just before suture (first three about 0.09 mm long); hind femur with posteroventral setae (if abdomen partly pale setose, compare *B. halterata*) 19
- 19 (18) Face very narrow (less than 2 facets combined, 0.02 mm), narrowed ventrally; male presutural area evenly dark in dorsal view (male) or with pale spot sharply triangular-shaped (female); hind tibia more equally swollen towards tip, at its broadest point subequally broad as hind femur even in male (both 0.12–0.13 mm); male hypandrial processes slender; apical corner of postgonites broadly rounded (Figs 43–44) ***B. vana* Collin**
- Face broader (about 3 facets combined, 0.03 mm), parallel-sided; presutural area lighter in dorsal view than remaining parts of mesoscutum in both sexes, of rectangular to semicircular appearance; hind tibia strongly swollen towards tip (usually more than 0.15 mm at broadest point in male and some 0.14 mm in female), at its broadest point broader than hind femur (0.12 mm); male hypandrial processes broader; apical corner of postgonites narrower and more pronounced (Figs 39–40) ***B. sulcata* (Zetterstedt)**
- 20 (16) Abdomen partly pale setose (at least on sides of tergite 2) 21
- Abdomen entirely black setose 22
- 21 (20) Legs microtrichose, with longer and slender tarsi (combined length of fore+mid+hind basitarsus usually more than 1.3 mm); usually less than 7 setae in posthumeral and intrahumeral areas; male hind tibia gradually slightly swollen, lateral parts of abdomen brown; hypandrial processes shorter (0.11 mm), both phallic hooks narrow, connected ventrally (Figs 1–2); female tergites 6–8 at least partly microtrichose ***B. albopilosa* Chvála**
- Legs lustrous, with shorter tarsi (combined length of fore+mid+hind basitarsus usually less than 1.2 mm); usually more than 8 setae in posthumeral and intrahumeral areas; male hind tibia strongly and abruptly swollen, lateral parts of abdomen pale and almost silvery grey; hypandrial processes long (0.15 mm), both phallic hooks present, left one hoe-like broadened laterally (best visible from behind) (Figs 35–36); female tergites 6–8 almost entirely lustrous
..... ***B. stackelbergi* Tuomikoski**
- 22 (20) Halter yellow; male hypandrium large with contrastingly short, narrow, broadly U-shaped and long setose processes (Fig. 18); female tergites 5–8 almost entirely lustrous ***B. kocourecki* sp. nov.**
- Halter brownish yellow to black; male hypandrium different; female tergites 5–8 at least partly microtrichose 23
- 23 (22) Male 24
- Female 27
- 24 (23) Postgonites slightly broadened laterally and narrow in lateral view, hypandrium with short (0.06–0.09 mm) and broad processes (3–4X as long as broad), two equally shaped and long phallic hooks (Figs 41–42) ***B. uvens* Melander**
- Postgonites not broadened laterally and trapezoid in lateral view, hypandrium with narrower and longer processes, a single long phallic hook present (the other less than one-quarter as long) 25
- 25 (24) Face broad in ventral portion (usually more than 5 facets combined, 0.06 mm); mid femur with complete row of anteroventrals at least half as long as depth of femur at mid-length; hind tibia with ventral setae about twice as long as depth of tibia; prescutellar depression paler than remaining parts of mesoscutum in dorsal view; phallic hook bent in S-shaped (Fig. 37) .

	<i>B. subpilosa</i> Collin
-	Face narrow in ventral portion (less than 4 facets combined, 0.04 mm); mid femur with anteroventrals shorter than half of femur depths at mid-length; hind tibia with ventral setae at most slightly longer than tibia depth of tibia; prescutellar depression paler or evenly dark as remaining parts of mesoscutum in dorsal view; phallic hook simply bowed (Figs 33, 21)	26
26 (25)	Hyandrium with rather long (0.13 mm), slender and straight processes (Fig. 34)	<i>B. spuria</i> (Fallén)
-	Hyandrium with rather short (0.09–0.11 mm), apically foot-like bent and broadened processes (Fig. 22)	<i>B. mera</i> Collin
27 (23)	Face broad in ventral part (usually broader than 0.05 mm, more than 4 facets combined); mid femur with complete row of anteroventrals at least half as long as depth of femur at mid-length; hind tibia with ventral setae about twice as long as depth of tibia; prescutellar depression paler than remaining parts of mesoscutum in dorsal view	<i>B. subpilosa</i> Collin
-	Face narrower in ventral part (usually less than 0.04 mm, about 3 facets combined); mid femur with anteroventrals shorter than one-third of femur depth at mid-length; hind tibia with ventral setae at most slightly longer than depth of tibia; prescutellar depression paler than remaining parts of mesoscutum in dorsal view or evenly dark	28
28 (27)	Usually two dorsal setae on fore trochanter; usually more than 9 setae in posthumeral and intrahumeral areas; hind tibia swollen (usually about 0.13 mm at broadest point)	<i>B. uvens</i> Melander
-	Usually a single seta on fore trochanter; usually less than 9 setae in posthumeral and intrahumeral areas; hind tibia less swollen (usually less than 0.12 mm at broadest point)	29
29 (28)	Tergite 8 at least in basal half lustrous	<i>B. spuria</i> (Fallén)
-	Tergite 8 almost entirely microtrichose	<i>B. mera</i> Collin

Unidentified specimens

We found several specimens representing highly probably still undescribed species; however, description is impossible at this time because the materials on hand are either damaged or we have only a single specimen at our disposal.

***Bicellaria* sp. 1:** a series of specimens deposited in MSNV (all from Italy, Venezia envir.) differ from northern populations of *B. spuria* in slightly narrower face (almost as in *B. sulcata*), slightly longer broad part of third antennal segment and pale prescutellar depression in female; male genitalia are almost identical, only phallic hook seems to be slightly shorter and ventral apodeme slightly narrower in dorsal view.

***Bicellaria* sp. 2:** a single male from Italy (San Martino, spruce wood, 46°11'N, 11°41'E, 1300 m, 8.viii.1988, CULSP) externally similar to *B. spuria* (black setose, with long posteroventrals on fore tibia, slender hind basitarsus, no dorsal seta(e) on third antennal segment, narrow and long hypandrial processes); however, with different genitalia (postgonites are rather triangular-shaped, with sharpened dorsoapical corner, both phallic hooks present but short, shorter than postgonites are wide).

***Bicellaria* sp. 3:** a single male from Switzerland (Lenzerheide, 2000 m, pasture, 14–21.vii.2000, B. Merz, CULSP) similar to *B. sulcata* (palpus with 2 setae, third antennal segment without dorsal seta, fore tibia with very short posteroventrals in apical third but almost without pilosity); however, genitalia more similar to *B. albosetosa* (two phallic hooks present, connected ventrally, hypandrial processes slender and slightly V-shaped).

***Bicellaria* sp. 4:** Several specimens from Sierra Nevada (Spain) in poor condition (NHMH and CULSP) very similar to *B. vana*; however, prescutellar depression paler than remaining parts of mesoscutum in dorsal view, face slightly broader and body size smaller; genitalia very similar to *B. vana*.

***Bicellaria* sp. 5:** a single male from Italy (San Martino, spruce wood, 46°11'N, 11°41'E, 1500 m, 8.viii.1988, CULSP) that is externally similar to *B. albopilosa* (third antennal segment without long seta, fore tibia without ventral pilosity and with relatively long posteroventrals, abdomen pale setose on sides) but has more than 10 setae on posthumeral and intrahumeral area, face narrow (almost as in *B. vana*) and different genitalia (only left phallic hook present, long and narrow, right one reduced, median extensions of postgonites not saw-toothed ventrally).

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