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THREE NEW SPECIES OF THE GENUS COLEOPHORA HÜBNER FROM BULGARIA AND ADJACENT COUNTRIES (LEPIDOPTERA: COLEOPHORIDAE)
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Three new species of the genus *Coleophora* Hübner from Bulgaria and adjacent countries (Lepidoptera: Coleophoridae)

G. Baldizzone (*) & J. Tabell

Abstract

Three new species of Coleophoridae are described: *C. parvicuprella* Baldizzone & Tabell, sp. n., *C. varnella* Baldizzone & Tabell, sp. n. and *C. pseudodianthi* Baldizzone & Tabell, sp. n. Notes on biology are presented and the know distribution range of each taxa is given.
KEY WORDS: Lepidoptera, Coleophoridae, new species, Bulgaria.

Tres nuevas especies del género *Coleophora* Hübner de Bulgaria y países adyacentes (Lepidoptera: Coleophoridae)

Resumen

Se describen tres nuevas especies de Coleophoridae: *C. parvicuprella* Baldizzone & Tabell, sp. n., *C. varnella* Baldizzone & Tabell, sp. n. y *C. pseudodianthi* Baldizzone & Tabell, sp. n. Se dan notas sobre su biología y se presenta el rango de distribución conocida de cada taxa.
PALABRAS CLAVE: Lepidoptera, Coleophoridae, nuevas especies, Bulgaria.

Introduction

The present article is based partly on the material collected from Bulgaria during short expeditions in 2000-2002 by Jari Junnilainen and Jari-Pekka Kaitila, determined by the junior author, and partly on the results of the patient study of Museum collections made by the senior author. The investigations of collected material revealed three species which are unknown to us, and they are described as new in this paper. One further specimen belonging to one of these new taxa was found on the material obtained from Greece. The specimens are deposited in the collections of Zoological Museum of Copenhagen (ZMUC), Zoological Museum of Helsinki (ZMH), G. Baldizzone, J. Tabell, J. Junnilainen and J.-P. Kaitila.

Description of new species

Coleophora parvicuprella Baldizzone & Tabell, sp. n.

Type material: Holotype ♂ (GP Bldz 11484) "TURKEY, Prov. Izmir, 30 km NW Bergama, 10-12-V-1993, 500-750 m, O. Karsholt leg.", in coll. ZMUC. Paratypes: 1 ♂ (GP Bldz 11491) idem, in coll. Baldizzone; 1 ♂ (GP JT 3604) "BULGARIA (SW), Kresna, 31-V-02-VI-2002, J.-P. Kaitila leg.", in coll.

(*) Contribution to the knowledge of Coleophoridae. CXII.

Kaitila; 1 ♂ ibidem, J. Junnilainen leg., in coll. Tabell; 1 ♂ (GP JT 3692) "GREECE, Makedonia, Kozani NE, 23-24-V-2003, J. Junnilainen leg.", in coll. Junnilainen.

Derivation of name: Lat. *parvus* = small, *cuprum* = copper. The specific name alludes to the small size of the adult and to the metallic sheen of the forewing.

Diagnosis: Externally the unicoloured dark antennae are typical to the new taxon and to some other members of the *trifolii* group (EMMET, 1996), as well as *C. argentifimbriata* Walsingham, 1907, *C. fuscicornis* Zeller, 1847*, C. fuscoaenea* Toll, 1952 and *C. etrusca* Baldizzone, 1990, but the small size of adult distinguishes it from those species. According to the structure of male genitalia (female unknown) *parvicuprella* most resembles *C. deauratella* Lienig & Zeller, 1846, but the combination of different characters, above all the elongate sacculus, gradually tapered phallotheca without dorsal ridges and the long formation of cornuti, differentiates *parvicuprella* from all known metallic-green coloured coleophorids.

Description (Fig. 1): Wingspan 9,5-10,5 mm. Head greenish brassy with violet hue, thorax greenish brassy. Labial palpus dark olive brown with purple and brassy sheen, second and third segments of equal length. Antenna uniformly dark brown, apical fifth lightly paler, flagellum not thickened. Forewing metallic brassy, apically more or less widely covered with purple sheen. Cilia dark brown, basal half with brassy or purple sheen. Hindwing and cilia brown.

Male genitalia (Figs. 4-6): Gnathos knob small, oval, arms long. Tegumen constricted medially, pedunculi arched. Transtilla elongate, bent down. Costa slightly concave. Cucullus oblique, basally narrower, ventral margin curved. Valvula broad, densely covered with small bristles, outer margin well delineated, rounded. Sacculus elongate; ventral margin slightly and evenly upcurved, lined with several bristles of different size; lateral margin rounded, terminating in inwardly projected triangular tooth at dorsal margin. Phallotheca straight, fusiform tube, evenly tapered distally, apex sharp. In vesica about 7 slender cornuti grouped into long, curved bundle.

Abdomen (Fig. 7): No lateral struts. Transverse strut narrow, straight or slightly convex, distal margin slightly sinuous. Spine patches (3rd tergite) 1,5-2 times longer than wide, each with 25-30 conical spines.

Female genitalia: Unknown.

Bionomy: Biology unknown. Specimens from Bulgaria and Greece have been captured with artificial light on meadows with luxurious flora, comprising e.g. several different *Trifolium* species.

Distribution: Known from three different localities situated in western Turkey, northern Greece and southern Bulgaria.

Coleophora varnella Baldizzone & Tabell, sp. n.

Type material: Holotype ♂ "BULGARIA (NE), Tuzlata by Black Sea, 05-VI-2002, J.-P. Kaitila leg.", in coll. Kaitila. Paratypes: 27♂ ♂, 18 ♀ ♀ idem, in colls. ZMH, Kaitila and Tabell; 7 ♂ ♂, 5 ♀ ♀ ibidem, 14-16-VI-2001; 1♂, 2 ♀♀ ibidem, 26-VI-2001; 1 ♂, 4 ♀ ♀, ibidem, 28-VI-2001. In coll. Kaitila; 19 ♂ ♂, 14 ♀♀ (GP Bldz 13094, 13095, 13251, 13712; GP JT 3411, 3412, 3487, 3505) "BULGARIA, Varna 40 km NE, Tuzlata, 14-16-VI-2001, J. Junnilainen leg."; 9 ♂ ♂, 10 ♀ ♀ ibidem, 5-VI-2002; 9 ♂ ♂, 1 ♀ ibidem, 08-09-VI-2002; 5 ♂ ♂, 1 ♀ ibidem, 26-VI-2001; 1 ♂, 5 ♀♀ ibidem, 28-VI-2001. In colls. ZMH, Baldizzone, Junnilainen and Tabell.

Derivation of name: The specific name refers to the town Varna situated close to the type locality.

Diagnosis: The new taxon belongs to the 17th group of TOLL's (1952) system. Externally *varnella* is similar to many other representatives of this species group, but the unstreaked costal vein 12(Sc) separates it from all allied dark-veined species. In the male genitalia the characteristic details distinguishing *varnella* are the shape of valvula and the long finger-like protuberance in sacculus, as well as numerous cornuti in vesica and the absence of a strong hair at the base of costa, typical for C. *brevipalpella* Wocke, 1874, C. *albipennella* Staudinger, 1880 and C. *didymella* Chrétien, 1899. The structure of the female genitalia most resembles that of *albipennella*, but in *varnella* both sterigma and spinulate section of ductus bursae are longer.

Description (Fig. 2): Wingspan 17-18 mm. Head and thorax white, with hue of pale beige. Labial palpus whitish, suffused with beige, segment III half the length of segment II. Antenna white, scape with

beige and white projecting scales forming a long tuft. Forewing white, striped with narrow brown streaks along nerves in male, in female streaks paler, costa broadly white, vein 12(Sc) unlined. White costal cilia divided by grey line, dorsal cilia light beige at base, broadly white at apex. Hindwing light greyish brown, cilia basally light beige, apically whitish. Abdomen shining dirty white.

Male genitalia (Figs. 8-10): Gnathos knob transversely oval. Tegumen and pedunculi long. Cucullus strongly sclerotized, long, slightly upcurved, narrower at base, apical half and slightly sinuous costa lined with long bristles. Transtilla triangular, apex long and narrow. Valvula distinct, roundish, outer margin slightly sinuous, broadly and strongly sclerotized, densely covered with long bristles. Ventral margin of sacculus more sclerotized, slightly concave, ventral angle roundish, lined with bristles, lateral margin almost vertical, dorsal angle with robust, apically round, out-curved protuberance. Phallotheca arched, dorsally sclerotized tube. Several small spine-formed cornuti in short, arched bundle.

Abdomen (Figs. 11, 14): No posterior lateral struts. Transverse strut broad, slightly convex, distal margin thicker. Spine patches (3rd tergite) oval, about 2,5 times longer than wide, each with 60-70 conical spines.

Female genitalia (Figs. 12-13): Papillae anales oval, broad, area between papillae densely covered with small spinules. Anterior apophyses short, posterior apophyses 3,5 times longer, widening gradually towards papillae anales. Sterigma trapezoidal, with two long, narrow, longitudinal ridges near lateral margins, their surface densely covered with very small setae, proximal margin strongly convex medially, distal margin rounded, with several short bristles. Ostium bursae oval, colliculum chaliced, sclerotized. First section of ductus bursae about 5 times longer than sterigma, narrow, with median line and two lateral bands, widening and coiled once before ductus seminalis, in coiled section several small spinules. Second section transparent, widening to oval corpus bursae with one thornlike signum.

Bionomy: Specimens were collected in June by netting on shore hills. Biology still unknown, but several empty and parasited larval cases probably belonging to this new taxon have been found around *Centaurea* sp. on the collecting site of the adults.

Distribution: Only known from the type locality, Tuzlata, on the shore of the Black Sea in eastern Bulgaria.

Coleophora pseudodianthi Baldizzone & Tabell, sp. n.

Type material: Holotype ♀ "BULGARIA, Sliven, 23-VI-2000, J. Junnilainen leg.", in coll. Junnilainen. Paratypes: 25 ♂ ♂, 24 ♀ ♀ (GP Bldz 13086, 13087, 13651, 13710, 13711; GP JT 3342, 3343, 3384, 3385) idem, in colls. ZMH, Baldizzone, Tabell and Junnilainen; 4 ♂ ♂, 5 ♀ ♀ (GP JT 3345) ibidem, 18-19-VI-2000; 2 ♂ ♂ ibidem, 25-VI-2001. In colls. Tabell and Junnilainen; 1 ♂ (GP Bldz 13267) "[UKRAINE], Krim, Karadag, 06-V-1986 (lux), Budashkin leg.", in coll. Budashkin.

Derivation of name: The specific name refers to the close affinity with *C. dianthi* Herrich-Schäffer, 1855.

Diagnosis: Externally *pseudodianthi* may be confused with several other species of the 30th group of TOLL's (1952) system. Judging from the characters in the genitalia structures it is very close to *dianthi, albilineella* Toll, 1960 and *bucovinella* Nemeş, 1968 (last two taxa are considered here as distinct species, the synonymy (BALDIZZONE, 1985) will be refuted in forthcoming paper). Compared to *dianthi* the main features in male genitalia distinguishing *pseudodianthi* are shorter and broader cucullus and the shape of sacculus with rounded extension at ventrocaudal angle, and larger protuberance at dorsocaudal angle. In *albilineella* and *bucovinella* the cucullus is shorter and the edge of sacculus at ventrocaudal angle is rounded, without any protuberance. In female genitalia distinguishing characters are above all the shape of sterigma and posterior apophyses: in *pseudodianthi* the sterigma is 2,5-3 times, in *bucovinella* 1,5 times, in *dianthi* 1,25 times and in *albilineella* 1,1 times longer than wide. Apical fourth of posterior apophyses is abruptly thinned and arched in *bucovinella* and *albilineella*, in *pseudodianthi* and *dianthi* it is straight and gradually attenuated.

Description (Fig. 3): Wingspan 14-18 mm, female bigger. Head and thorax light beige, laterally white. Labial palpus brown, ventrally and dorsally broadly white, segment II about 3x length of segment III,

ventrally tufted. Basal half of antenna annulated with white and beige, distal half unicolorous whitish, scape beige, not tufted. Forewing beige, sprinkled with blackish scales, white streaks along costa, dorsum and main veins distinct. Fringes light brown, apically paler. Hindwing greyish brown, fringes paler. Abdomen shining pale brown.

Male genitalia (Figs. 15-17): Gnathos knob suborbicular. Tegumen slender, reinforced by sclerotized "Y", pedunculi broad. Transtilla quadrate. Valvula triangular, as wide as cucullus, dorsally covered with long bristles. Cucullus finger-shaped, elongate, basally slightly narrowed, costa straight. Sacculus rectangular, strongly and broadly sclerotized along margins, ventral margin almost straight, ventrocaudal angle slightly bulged and rounded, lateral margin vertical, terminating in robust, apically rounded protuberance extended to cucullus. Phallotheca formed of two slender, well sclerotized and slightly arched rods, extended beyond sacculus; upper rod shorter, apex pointed, lower rod terminated in obtuse tooth. One thin cornutus with roundish base.

Abdomen (Figs. 18, 21): Sternum 8 elongate, trapezoid. Posterior lateral struts absent. Transverse strut convex, characterized by sclerotized in middle thicker proximal margin, which in female extends to distal margin. Spine patches (3rd tergite) 3 times longer than wide, covered with 25-40 conical spines.

Female genitalia (Figs. 19-20): Papillae anales elongate, membranous, scattered with short bristles, apex rounded. Apophyses very long, anterior one length of sterigma, posterior apophyses half the length of abdomen, straight, well sclerotized, gradually tapered towards papilla. Tergum 8 membranous, apically scattered with bristles. Sterigma rectangular, 3 times longer than wide, sclerotized only basally and narrowly along straight lateral margin, proximal margin straight, darkly sclerotized except for middle portion. Ostium bursae broadly U-shaped, situated in anterior fourth of sterigma. Colliculum asymmetrical, anterior half membranous, bag-shaped, posterior half subquadrate with darkly sclerotized lateral margin. Ductus bursae transparent, without coils, swollen towards oval corpus bursae. Signum small, formed of short spine and roundish base.

Bionomy: Biology unknown. The adults have been captured on light in May (Ukraine) and June (Bulgaria). In Bulgaria the type locality is a xerothermic rocky slope with rather diverse flora, e. g. *Dianthus* sp., which is assumed to be a host plant of the larva.

Distribution: Only known from central Bulgaria, Sliven, and from southern Ukraine, Krim.

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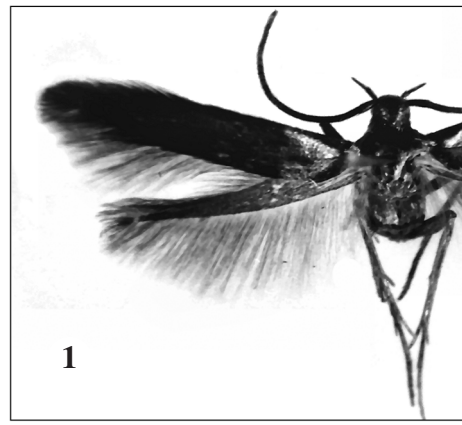
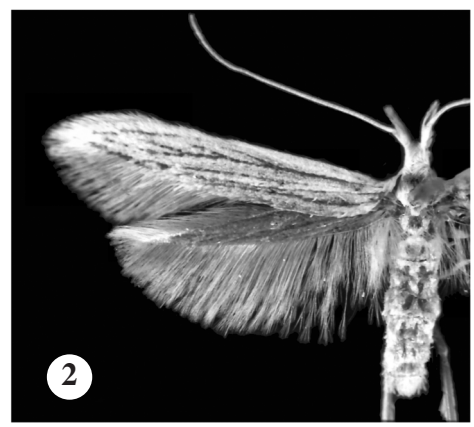
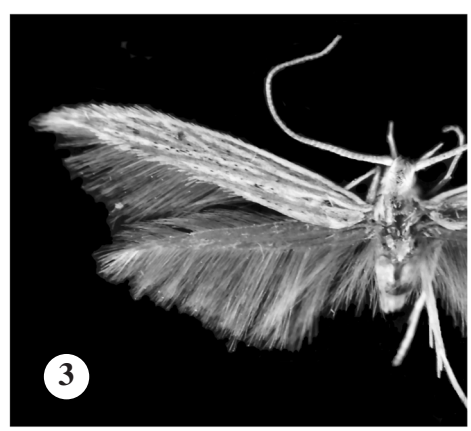
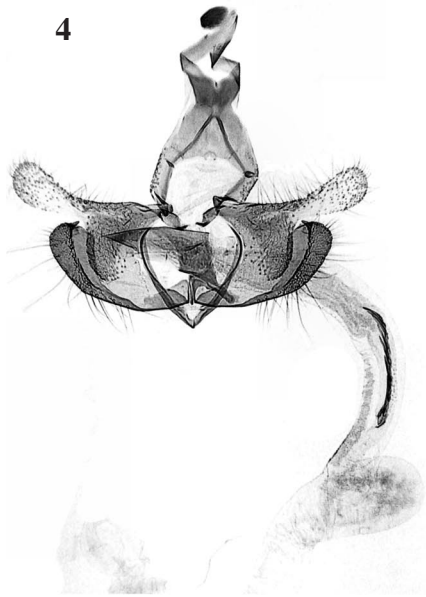
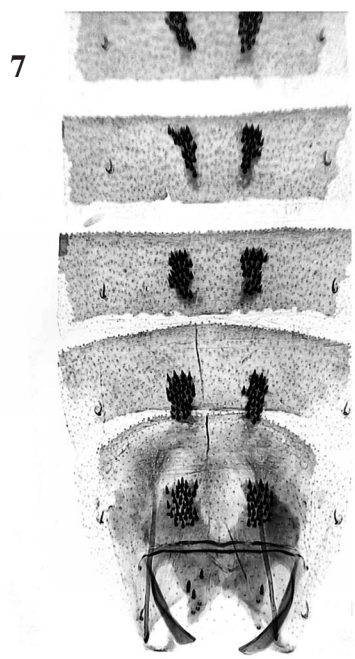


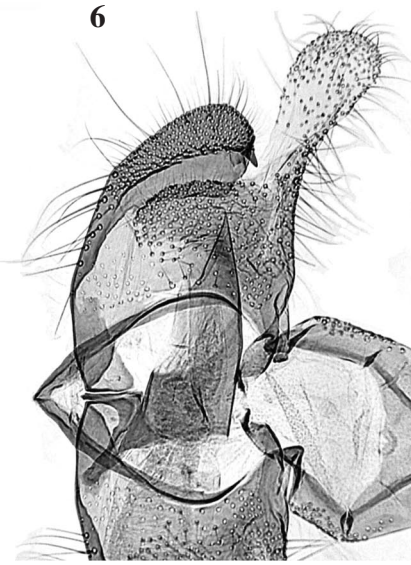




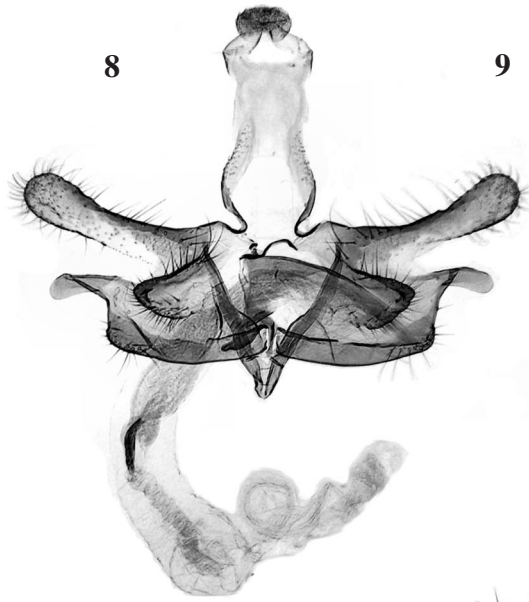
Figs. 1.–3.– *Coleophora* spp.– Imago. **1.** *C. parvicuprella* Baldizzone & Tabell, sp. n. **2.** *C. varnella* Baldizzone & Tabell, sp. n. **3.** *C. pseudodianthi* Baldizzone & Tabell, sp. n.

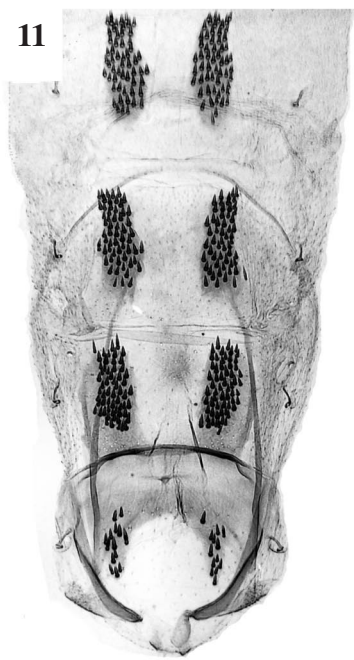


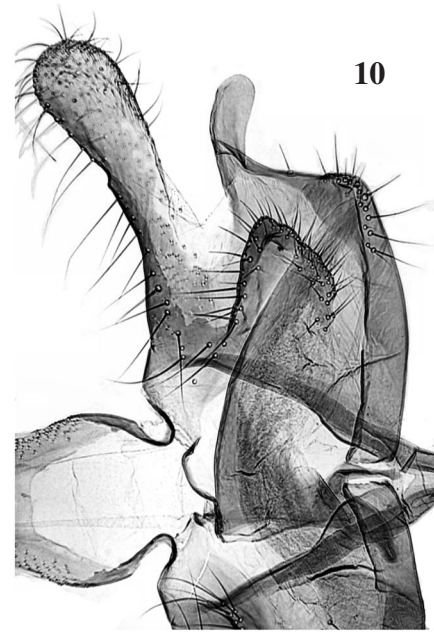




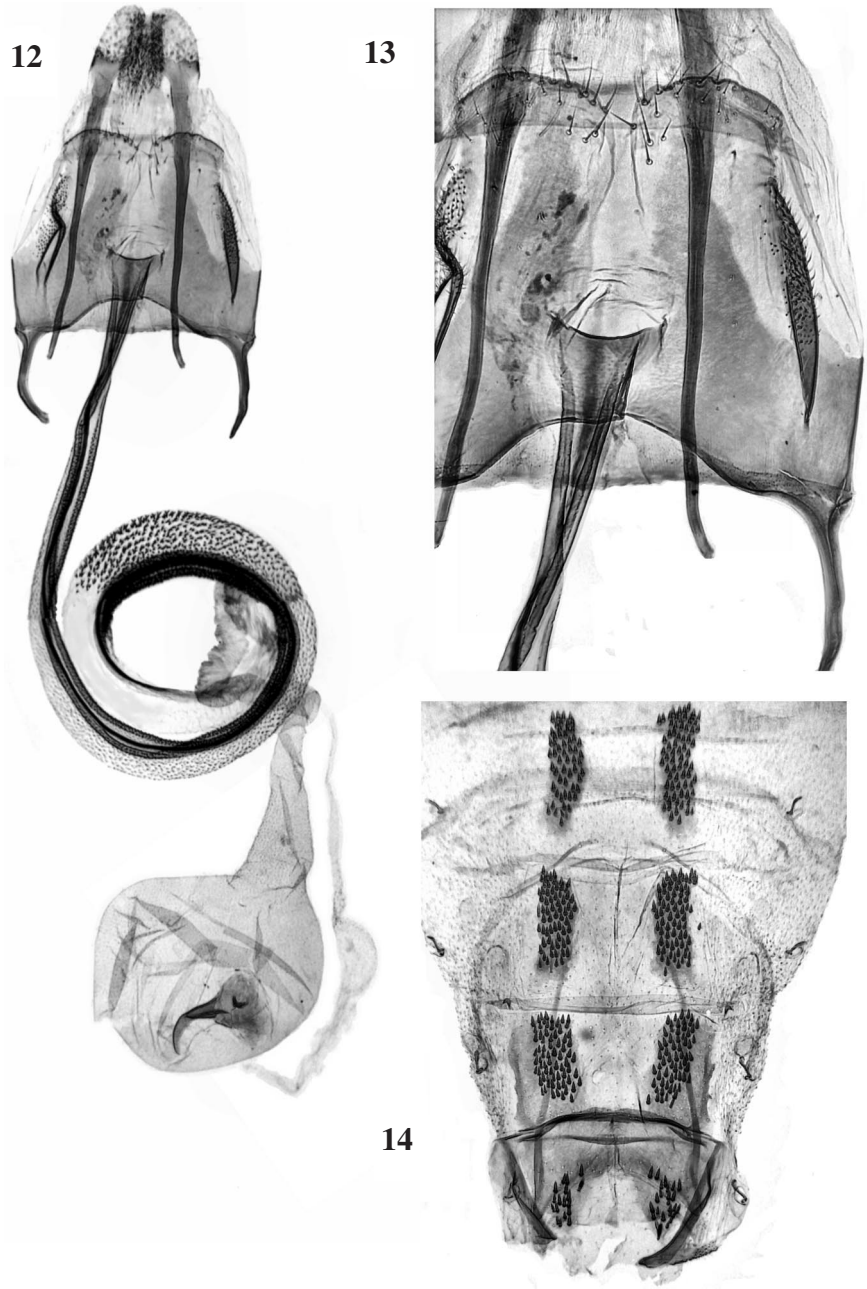
Figs. 4.–7.– *C. parvicuprella* Baldizzone & Tabell, sp. n. **4.** Male genitalia (GP Bldz 11491). **5.** Cornuti enlarged. **6.** Cucullus, sacculus and phallotheca enlarged. **7.** Abdomen.



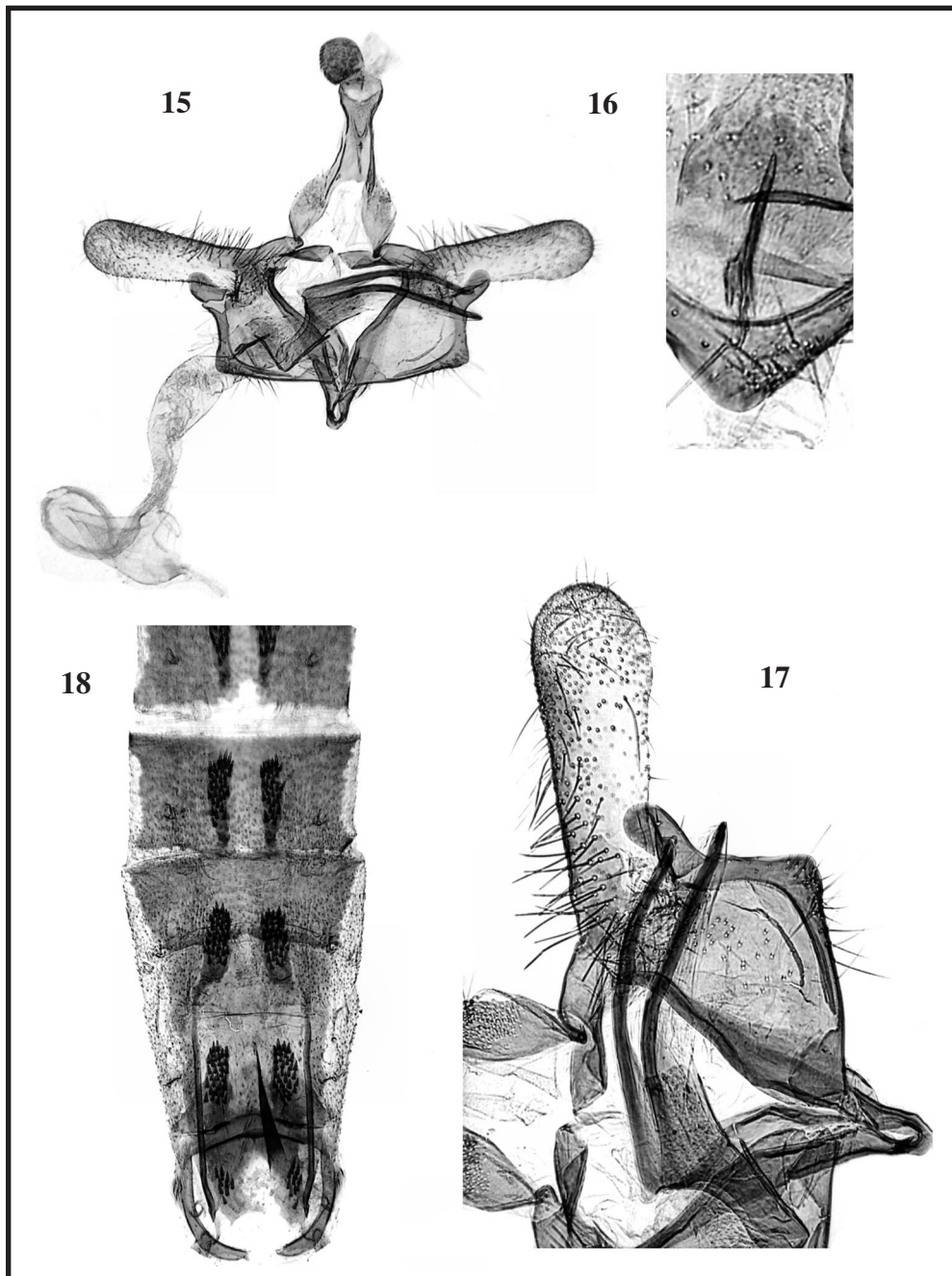




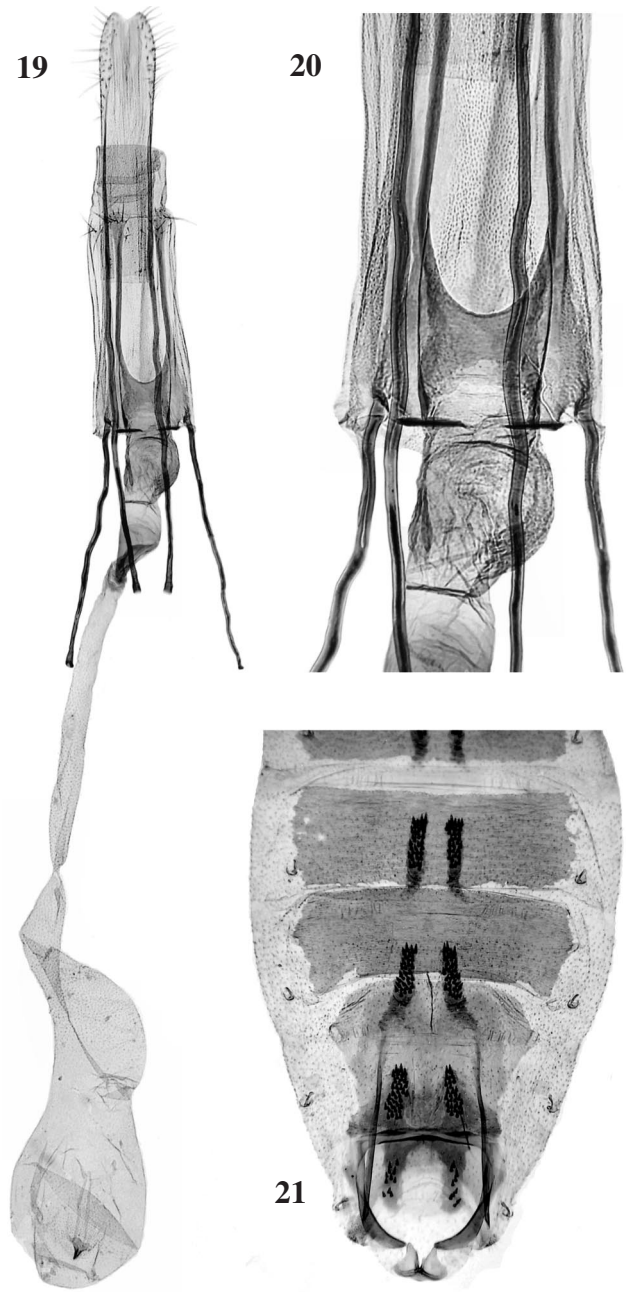
Figs. 8.–11.– *C. varnella* Baldizzone & Tabell, sp. n. **8.** Male genitalia (GP Bldz 13251). **9.** Cornuti enlarged. **10.** Cucullus, sacculus and phallotheca enlarged. **11.** Abdomen.



Figs. 12.–14.– *C. varnella* Baldizzone & Tabell, sp. n. **12.** Female genitalia (GP Bldz 13094). **13.** Sterigma and colliculum enlarged. **14.** Abdomen



Figs. 15.–18.– *C. pseudodianthi* Baldizzone & Tabell, sp. n. **15.** Male genitalia (GP Bldz 13711). **16.** Cornutus enlarged. **17.** Cucullus, sacculus and phallotheca enlarged. **18.** Abdomen.



Figs. 19.–21.– *C. pseudodianthi* Baldizzone & Tabell, sp. n. **19.** Female genitalia (GP Bldz 13711). **20.** Sterigma and colliculum enlarged. **21.** Abdomen.