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Genitalia and wing pattern drawings of eighty Palaearctic Crambinae species (Lepidoptera: Crambidae)

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Abstract. In the present paper, there are genitalia drawings of 80 Palaearctic Crambinae species drawn by the author and supplemented by many wing-pattern images. In several images, the author indicates the most important distinguishing characters by arrows.
Keywords. Lepidoptera, Crambidae, genitalia, wing pattern, drawing, Palaearctic region.

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Introduction

During the last three decades I published genitalia drawings of Crambinae species in several papers (Fazekas 1986ab, 1987abc, 1989, 1990ab, 1991ab, 2002ab). However, in many occasions, I figured not only genitalia but also wing, head, leg and further morphological characters necessary for precise identification. Beside illustrating Crambinae species I got the task also to prepare the genitalia drawings of Evergestinae species (see Goater et al. 2005).

During the previous decades besides illustrating genitalia, I figured the habitus of many Lepidoptera species. Such work was the drawing of arctiid, sphingid and bombycid moth species for the book series „Fauna Hungariae" (see Vojnits et al. 1991). For many years I supported several colleagues preparing various drawings for them. For example, I mention the publications of Edmond de Laever (B-Liege | 1979). Many pieces of my art-works have been used for illustrating Lepidoptera monographs published in Italy (cf. Flamingi et al. 2007, pp. 285-286). All the drawings were done using ink and tracing paper.

In the middle of the 1990ies together with the colleague Rob Schouten (NL-Den Haag), we started to prepare the monograph of European Crambinae species. My duty was to prepare the genitalia drawings and the distribution maps. The monograph was to be published in the series of „Microlepidoptera of Europe". I was working on the project for several years, when the job of my colleague R. Schouten changed in the museum, and then he was unable to continue the planned joint work.

Many years passed and now I decided that my drawings will be not left hidden in the drawer of my writing desk, but will be published in an independent paper giving an end for my drawing activity. This is justified by the following factors.

1. As a result of the advancement of the technics in the past 10-15 years, the ink marker and the tracing paper have been replaced by digital pen and table. Precise digital images can be taken from genitalia preparations with the aid of a microscope and the camera attached. Any good quality image can serve as the basis of an absolute realistic vector graphic illustration using the program Corel Draw.
2. During my studies, I faced with the reality, that the genitalia drawings of the Palaearctic and European Crambinae species are schematic (see Bleszynski 1965, Slamka 2008), and they are difficult to apply in identification works.
3. In this work, my drawings already published in previous papers will be supplemented by more realistic genitalia illustrations, and where it seems to be necessary I indicate characters for identification.

Material and methods

The genitalia preparations of the examined Crambinae species (details are given in the list) are deposited in the following institutes: Museon in The Hague (The Netherlands), Naturhistorisches Museum Wien, (Austria), Museum für Naturkunde der Humboldt-Universität zu Berlin (Germany, Zoologische Staatssammlung München (Germany) and Pannon Institute, Pécs (Hungary). The dissections were done by Stanislav Bleszynski, Imre Fazekas, Rob Shouten.

Various structures of genitalia have different nomenclature depending on authors. In this publication primarily I follow the terminology of Bleszynski (1965), Goater (1986), Landry (1995) and Huemer & Karsholt (2010) with some additions and corrections.

The schematic generalized diagrams of male and female genitalia are given as Figure 1–2.

In the list of species, the data are supplied verbatim what can be found in the microscopic slides. In some cases, there are given only country names. In certain cases, the locality names on the labels cannot be identified without any controversy. These are cited between quotation marks.

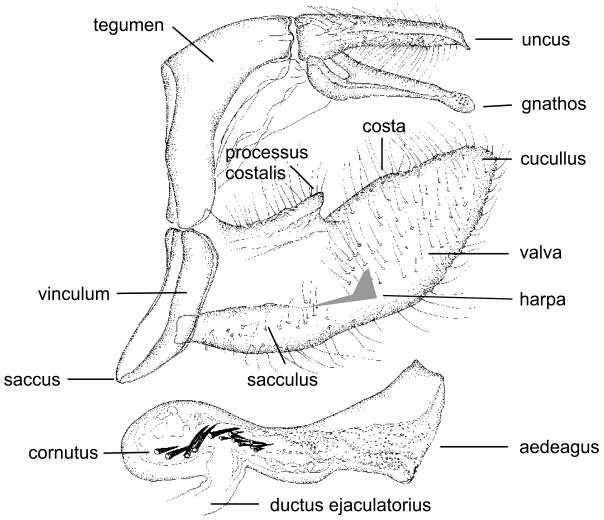
Taxonomic notes

Chrysocrambus linetellus (Fabricius, 1781)

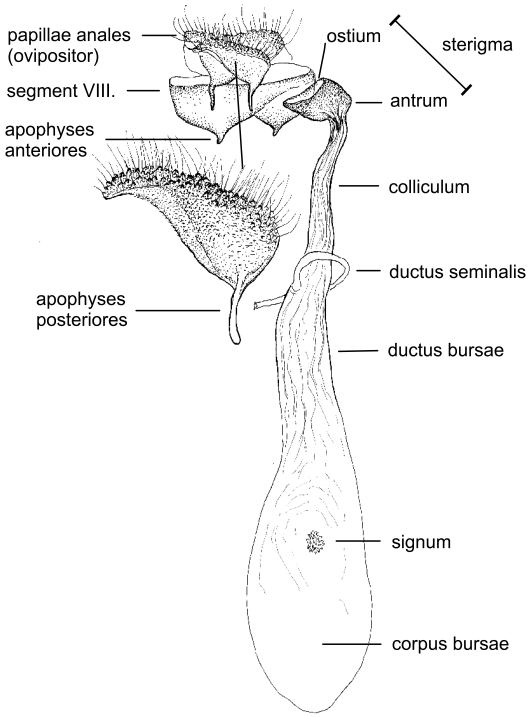
Tinea linetella Fabricius, 1781; Spec. Insect. 2: 291, Locus typicus: Italy, Piemont.

Similar species: *Chrysocrambus craterellus* (Scopoli, 1763). Diagnostic characters are given in Table 1, where the similar species can be compared and identified. I examined 157 specimens.

Slamka (2008) considers the species as synonym of *Ch. craterellus*, but there is no evidence given. According to my studies, this standpoint cannot be hold (see Fig. 45a). I illustrate the similarities and differences of the genitalia in Table 1. According to my opinion, the species *Ch. linetellus* is a valid species, as the genitalia



Text-fig. 1. Terminology of ♂ genitalia in Crambinae



Text-fig. 2. Terminology of ♀genitalia in Crambinae

differences of *Ch. cratelellus* and *Ch. linetellus* can be clearly seen. The basic elements of the wing patterns are rather similar. The differences are shown in the text-figs 3 and figure 45b.

The species *Chrysocrambus linetellus* is distributed in Great Britain, France, Spain, Switzerland, Austria, Italy, Slovakia, Hungary, Croatia, Bosnia and Herzegovina, Albania, the Republic of Macedonia, Greece, Bulgaria and Romania, „Transcaucasia", „Asia Minor", Armenia, Syria, Jordan, Iraq, Iran and Turkmenistan (see Bleszynski 1965, Goater 1986, Leraut 2012).

Table 1. Diagnostic characters of the *Chrysocrambus linetellus* and *Chrysocrambus craterellus* by examination of the genitalia.

Characters	***Ch. linetellus***	***Ch. craterellus***
Male Genitalia		
Gnathos	Apex dilated, squared at tip.	Apex not dilated, rounded at tip.
Valva	About twice as long as broad, cucullus tapered, costal arm absent.	About five times as long as broad, cucullus parallel sided, costal arm broadly tapered.
Aedeagus	Small, lacking cornuti.	Very large, with two well-developed cornuti
Female Genitalia		
Ostium	Ductus strongly sclerotized.	Ductus weakly sclerotized.
Corpus bursae	Signum, minute, hardly discernible	Two larger signa, weakly developed.

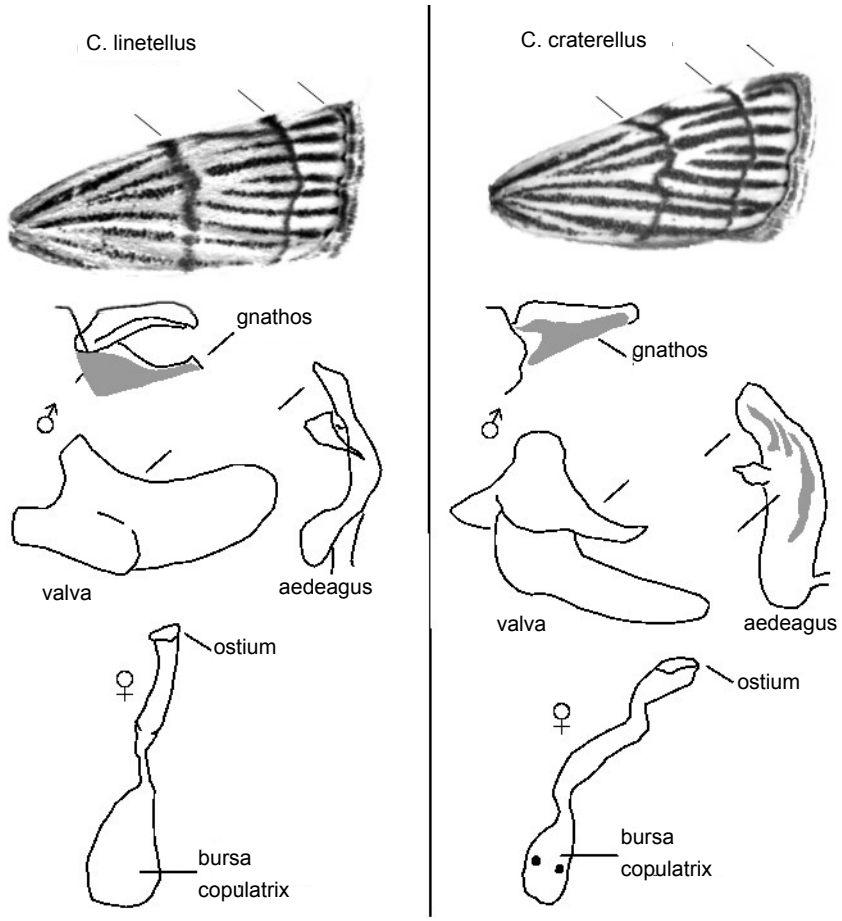
Talis renatae Ganev & Hacker, 1984

Talis renatae Ganev & Hacker, 1984; Nota lepidopterologica 7 (3): 249–250, photo of paratype p. 243, male genitalia Abb. 8; Locus typicus: TR-Prov. Ankara, Tuz Gölu, 900 m.

Similar species: *Talis afra* (Bethune-Baker, 1894), *T. arenella* Ragonot, 1887; and *T. caboensis* Asselbergs, 2009. The differences between these four species are shown in table 2 and text-fig. 4.

Table 2. Diagnostic characters of the four *Talis* species

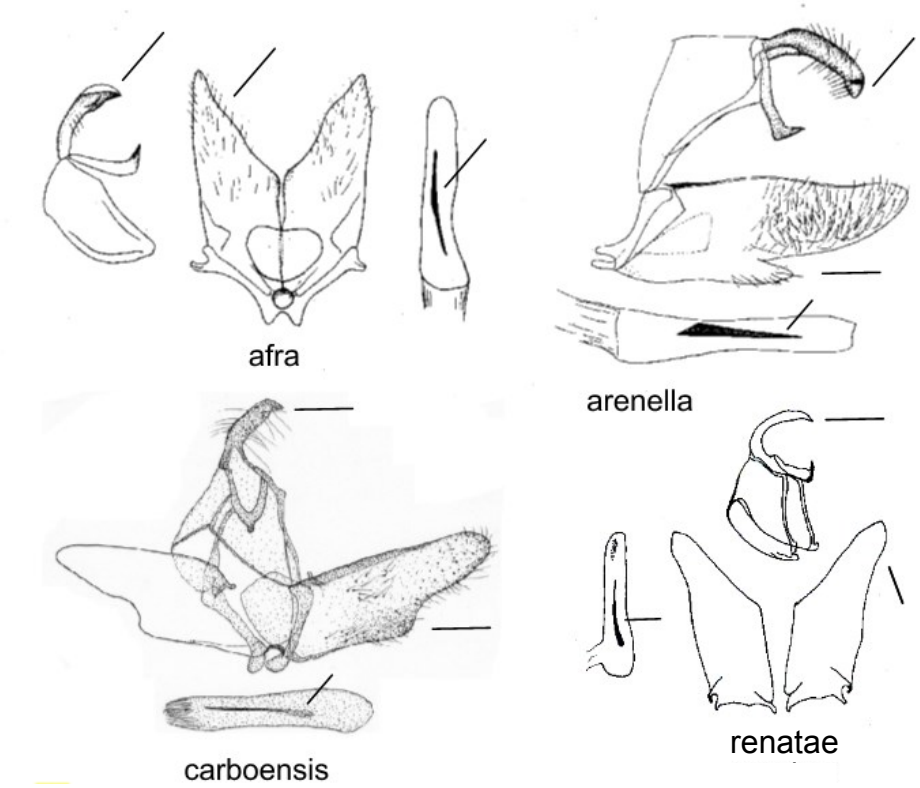
T. afra	***T. arenella***	***T. carboensis***	***T. renatae***
Exp. 19–21 mm (♂)	28–29 mm (♂)	26,5 mm (♂) 21 mm (♀)	30–32 mm (♂)
Valva ventrally without projection.	Valva ventrally with well-defined, rather slender projection.	Valva outwardly curved.	Valva dorsally curved, with slender apex.
Cornutus in vesica slender, slightly bent in middle.	Cornutus in vesica broader	Cornutus in aedeagus very slender, at base wide, straight.	Cornutus in aedeagus well developed, gently arched.



Text-fig. 3. *Chrysocrambus linetellus* and *Ch. craterellus*: similarities and differences of the wings and genitalia

According to Slamka (2008), the species *Talis afra* is most probably a synonym of *T. arenella*. The author did not prove this statement by any evidence. The male genitalia drawing of the species described from Turkey is schematic, it does not suitable for any identification (see Fig. 2). Female specimens are not known. In his new European book Leraut (2012) is on a different opinion. According to him, *T. renatae* is a subspecies of *T. afra* . Most recently Leraut considers differently this matter than in 2012: „Four years ago, I studied only one specimen and thought it was probably a good species..." (pers. comm. 04.IV.2017). The taxa of the species group are in need of further investigations, but specimens from Turkey and Northern Africa are lacking. Hence I consider *Talis renatae* as a valid species.

Remark: This species is newly reported from Iran (Roohigohar et al. 2016).



Text-fig. 4. Diagnostic characters (indicated by solid lines) of the four *Talis* species of male genitalia (after Bleszynski 1965, Ganev & Hacker 1984 and Asselbergs 2009; modifications by the author).

List of species examined
(Species index in the last page of the study.)

The present study is based on material (specimens, genitalia slides) from the following collections: (with abbreviations used in the present paper)

IF Imre Fazekas
SB Stanislav Bleszynski
RS Rob Shouten

Museon in The Hague, The Netherlands (MUS)
Natuhistorisches Museum Wien, Austria (NHMW)
Museum für Naturkunde der Humboldt-Universität zu Berlin, Germany (MNH)
Pannon Institute (PI)

01. *Agriphila argentistrigella osseella* (Hampson, 1900)
1a. ♂ E-Cadis Tarifa, Rio Jata RS 994 (MUS); 1b. highly questionable ♂ genitalia, ibidem, RS 994 (MUS).
02. *Agriphila biarmica* Tengström, (1848)
♀ Russia, „ЧЦТЦНСКАЯ", RS1357 (MUS).
03. *Agriphila brioniella* (Zerny, 1914)
3a-f. Wings (by Fazekas 1990); 3g. Pars basalis (by Fazekas 1990, p. 123, Abb. 8–23.); 3h. ♂ lectotype (by Fazekas 1990, p. 122, Abb. 7.); 3i. ♀ (Fazekas 1990, p. 124, Abb. 24–25.).
04. *Agriphila cyrenaicella* (Ragonot, 1887)
4a. ♂ E-Almeira, RS 963 (MUS); 4b. ♀ E-Almeira, RS 964 (MUS).
05. *Agriphila dalmatiella* (Hampson, 1900)
5a. ♂ "Typus", Lissa, BS No.1. (ZMB); 5b. Dalmatia, Knin, IF 2506 (NHMW); 5c. ♂ Dalmatia, Knin, IF 2419 (NHM).
06. *Agriphila deliella* (Hübner, [1813])
6a. ♂ NL-Ameland, RS 1355 (MUS); 6b. ♀ TR- Prov. Nevsehir, RS 1305 (MUS).
07. *Agriphila geniculea* (Haworth, [1841])
7a. ♂ E-Murcia, RS 998 (MUS); 7b. ♂ GR-Wales, RS 813 (MUS; 7c, d. ♂ H-Bakony Mts., FI 1799, 1800 (PI); 7e. ♀ I-Abruzzo, FI 1282 (PI);
Agriphila geniculea andalusiella (Caradja, 1910), 7g. ♂ F-Korsika, IF 2158 (NHMW); 7h. ♀ ibidem, IF 2157 (NHMW).
08. *Agriphila inquinatella* ([Denis & Schiffermüller], 1775)
8a. Head (Fazekas 1990); 8b. ♂ E-Albarracin, RS 821 (MUS); 8c. ♀ Nederland, RS 1127 (MUS).
09. *Agriphila latistria* (Haworth, [1811])
9a. wings; 9b. ♂ gen. (Fazekas 1990, Abb. 30.); 9c. Pars basalis (Fazekas 1990, Abb. 31–34.); 9d. ♀ gen. Fazekas 1990, Abb. 35–38).
10. *Agriphila poliella* (Treitschke, 1832)
10a. ♂ TR-Kars, 3 km E Karakurt, RS 1075 (MUS); 10b. ♀ ibidem, RS 1078 (MUS).
11. *Agriphila selasella* (Hübner, [1813])
11a. ♀ NL-Koedyk, RS 1350 (MUS); 11b. ♀ France, RS 1351 (MUS).
12. *Agriphila straminella* ([Denis & Schiffermüller], 1775)
12a. ♂ „Swiss" RS 1353, RS (MUS); 12b. ♀ CH-Uster, RS 1352 (MUS).
13. *Agriphila tersella* (Lederer, 1855)
13a. ♂ E- San Rogue Cadiz, RS 822 (MUS); 13b. ♀ TR-Kars, 3 km E Karakurt, RS 1130 (MUS).
14. *Agriphila tolli* (Bleszynski, 1952)
14a-e. *Agriphila tolli beieri* Bleszynski, 1955; 14a. Wings: after Fazekas (1991, Abb. 1-4.); 14b. ♂ Mesopotamia, Mossul, SB 9148 (NHMW); 14c. ♀ ibidem, allotype, SB 9208 (NHMW); 14d ♀ Syria, Haifa, paratype, IF 2421 (NHMW); 14e. ibidem, paratypus, SB 9207 (NHMW).
Remarks: In 2012, *Agriphila beieri* Bleszynski was considered by Leraut as a syn-

onym of *A. dalmatinella* (Leraut 2012). This is very question according to me.
14f-h. *Agriphila tolli pelsonius* Fazekas, 1985; Holotype: wings venation, habitus and male genitalia; 14i. ♂ H-Pécs, valva, IF 2102 (PI); 14j. ♂ A-Wien, IF 2176 (NHMW). 14k. *Agriphila tolli tolli* (Bleszynski, 1952), ♂ AL-Kula Ljums, IF 2174 (NHMW).

15. *Agriphila trabeatella* (Herrich-Schäffer, 1848)
♂ E-Almeira, RS 965 (MUS).
16. *Agriphila tristella* ([Denis & Schiffermüller], 1775)
16a. ♂ H-Kiskunság, IF 687 (PI); 16b. ♀ H-Szarvas, IF 810 (PI)
17. *Angustalius malacellus* (Duponchel, 1836)
17a. ♀ E-Malaga, RS 1342 (MUS); 17b. ♀ E-Granada, RS 1341 (MUS).
18. *Calamotropha paludella* (Hübner, [1824])
18a. ♂ Belgium, RS 1325 (MUS); 18b. ♀ I-Emilia, RS 1344 (MUS).
19. *Catoptira incertella* (Herrich-Schäffer, [1852])
19a. ♂ TR-Agri, Kagizman, RS 852 (MUS); 19b. ♂ TR-Kars, Pasli Pass, RS 1082 (MUS); 19c. ♀ TR-Kars, 3 km E Karakurt, RS 1084 (MUS); 19d. ♀ TR-Kars Pasli Pass, RS 1083 (MUS).
20. Catoptria *colcichella* (Lederer, 1870)
♂ TR-S Erzurum, RS 850 (MUS).
21. *Catoptria confusella* (Staudinger, 1881)
21a. ♂ GR-Kapnophiton RS 1089 (MUS); 21b. ♀ SK-Krupinska u. Plastorec RS 1088 (MUS).
22. *Catoptria falsella* ([Denis & Schiffermüller], 1775)
22a. ♂ CZ-Tjekhie, RS 1037 (MUS); 22b. ♀ ?-Parco Nationalae RS 1381 (MUS).
23. *Catoptria fulgidella* (Hübner, [1813])
23a. ♂ Denmark (?), RS 1378 (MUS); 23b. ♀ NL-Lexmond RS 1379 (MUS).
24. *Catoptria kasy* Bleszynski, 1960
♂ GR-Florina RS 909 (MUS).
25. *Catoptria laevigatella* (Lederer, 1870)
25a. ♂ "Turkey", RS 1004 (MUS); 25b. ♀ TR-Turkey Rize RS 1380 (MUS).
26. *Catoptria lithargyrella* (Hübner, 1796)
♂ TR-Erzurum, RS 940 (MUS).
27. *Catoptria margaritella* ([Denis & Schiffermüller], 1775)
27a. ♂ (?) "Reuhe Ös", RS 1376 (MUS); 27b. ♀ CH-Lenzerheide RS 1377 (MUS).
28. *Catoptria myella* (Hübner, 1769)
28a-d. ♂ I-Pineta San Pietro, RS 1363, 1364, 1148, 1359 (MUS); 28e-f. ♀ F-Tournoux, RS 1369 & 985 (MUS).
29. *Catoptria olympica* Ganev, 1983
♀ GR-Olympos, RS 1373 (MUS).
30. *Catoptria osthelderi* (De Lattin, 1950)
30a. ♂ H-Szakonyfalu FI 0000 (PI); 30bc. ♀ "Nederland" RS 1368 (MUS).
31. *Catoptria mytilella* (Hübner, [1805]

31a. ♂ H-Balatonfüred, IF (Fazekas 1987, Fig. 7.); 31b. scedule wings.
32. *Catoptria permiaca* (Petersen, 1924)
32a. ♂ "Chunsung, GW" RS 1375 (MUS); 32b. ♀ "Mt. Samag, Gn." RS 1374 (MUS).
33. *Catoptria permutatella* (Herrich-Schäffer, 1848)
33a. ♂ CH-Volketzwil, RS 1278 (MUS); 33b. ♀ CH-Wolketswil, RS 1370 (MUS); 33c. ♀ NL-Leusden, RS 1346 (MUS); 33d. Variation of valves, Hungary (after Fazekas 1986, p. 247, Abb. 1–6).
34. *Catoptria pinella* (Linnaeus, 1758)
34a. ♂ "Spain" RS 1388 (MUS); 34b. ♀ CH-Volketswil, RS 1277 (MUS) 34c. ♀ ibidem RS 1391 (MUS).
35. *Catoptria staudingeri* (Zeller, 1863)
35a. ♂ E-Malaga RS 1385 (MUS); 35b. ♀ P-Val de Torno RS 1386 (MUS).
36. *Catoptria verella* (Zincken, 1817)
36a. ♂ „Helvetia"RS 1392 (MUS); 36b. ♀ "Helvetia" RS 1383 (MUS).
37. *Catroptria confusella* (Staudinger, 1881)
37a. ♂ GR-Kapnophiton, 600 m, RS 1089 (MUS); 37b. SK-Krupinska u. Plastorec, RS 1088 (MUS); 37c. GR-Pindos, RS 1090 (MUS).
38. *Chilo phragmitella* (Hübner, [1810])
38a. ♂ NL-Ried, RS 1322 (MUS); 38b. ♀ NL-Koeduin, RS 1323 (MUS).
39. *Chilo pulverosellus* Ragonot, 1859
♂ TR-Prov. Ankara, RS 1309 (MUS).
40. *Chrysocrambus brutiellus* Bassi, 1985
♂ I-Campania, Pietraroja, ca 800 m, RS 165 (MUS).
41. *Chrysocrambus chrysonuchelloides* (Rothschild, 1925)
♂ MA-Rif Mts, Bab Taza, RS 899 (MUS).
42. *Chrysocrambus craterellus* (Scopoli, 1763)
♀ GR-Peleponnisos, RS 814 (MUS).
43. *Chrysocrambus dentuellus* (Pierce & Metcalfe, 1938)
43a. ♂ E-Ronquillo Sevilla, RS 807 (MUS); 43b. ♀ E-Teruel, RS 750 (MUS).
44. *Chrysocrambus linetellus*(Fabricius, 1781)
44a. ♂ TR-Erzurum, RS 883 & 816 (MUS); 44b. ♀ F-Drôme, La Penne, RS 793 (MUS).
45. *Chrysocrambus sardiniellus* (Turati, 1911)
♂ I-Sardinia, Monti del, RS 898 (MUS).
46. *Chrysoteuchia culmella* (Linnaeus, 1758)
46a. ♂ Sardegna Monti del Gennargentu, RS 901 (MUS); 46b. ♀ CH-Volketswil, RS 1348 (MUS).
47. *Crambus alienellus* (Germar & Kaulfuss, 1817)
♀ "Bohemia", RS 1330 (MUS).
48. *Crambus ericellus* (Hübner, [1813])
48a. ♂ "Nederland", RS 1328 (MUS); 48b. ♀ "Nederland", RS 1329 (MUS).
49. *Crambus lathoniellus* (Zincken, 1817)
49a. ♂ E-Teruel, RS 1339 (MUS); 49b. ♀ "Nederland", RS 1338 (MUS).
50. *Crambus perlellus* (Scopoli, 1763) [subspecies or semispecis]

50a-c. *Crambus perlellus perlellus* (Scopoli, 1763) – 50a. ♂ Neotypus, SL-Carniola, Krain, IF 2520 (NHMW); 50b. ♀ SL-Ljubjana, apex of abdomen (lateral) 50c. ♀ "Nederland" RS 1340 (MUS); – 50d-e. *Crambus perlellus aurellus* Zerny, 1914, 50d. ♂ Paralectotype, Nord Persien, Poin Schahkuh, IF 2497 (NHMW); 50e. ♀ Lectotype, N-Persien, Poin Schah Kuh, IF 2498 (NHMW); 50f. – *Crambus perlellus cupriacellus* Zerny, 1914 ♂ Holotype, Armenia, Goroda, SB 3702 (NHMW); 50g. *Crambus perlellus flavonitellus* Zerny, 1935, ♂ Type, Marokko, Gr. Atlas, Tachdirt, IF 2500 (PI); 50h-i. Crambus perlellus monochromellus ♂ Neotypus, A-Grossglockner, IF 2501 (PI); 50i. ♀ I-Grödner Joch, Südtirol, IF 2504 (NHMW); 50j. *Crambus perlellus pseudorostrellus* Müller-Rutz, 1923 ♂ Topotypus, Alpen Fusio, IF 2529 (NHMW).

51. *Crambus pascuellus* (Linnaeus, 1758)
51a. ♂ H-Balatonfüred, IF 1783 (PI); 51b. ♂ I-Sardegna, RS 902 (MUS); 51c. ♀ I-Castelli, RS 1327 (MUS).
52. *Crambus pratellus* (Linnaeus, 1758)
52a. ♂ "Nederland", RS 1337 (MUS); 52b. ♀ I-Piemonte, RS 1331 (MUS).
53. *Crambus uliginosellus* Zeller, 1850
♂ NL-Hezingen, RS 893 (MUS).
54. *Euchromius anapiellus* (Zeller, 1847)
54a. ♂ E-Timpone del Castello, RS 438 (MUS); 54b. ♀ F-Bonnieux, RS 291 (MUS).
55. *Euchromius bellus* (Hübner, 1796)
55a. male wing venation; 55b. ♂ BG-Bunkera, RS 436 (MUS); 55c. ♀ BG-Kozuch, RS 437 (MUS).
56. *Euchromius cambridgei* (Zeller, 1867)
56a. ♂ E-Murcia, RS 1324 (MUS); 56b. ♀ E-Murcia, RS 1320 (MUS).
57. *Euchromius confuses* Schouten, 1992
♂ Paratype, "Ghorbantal, 1900 m", RS 355 (MUS).
58. *Euchromius gozmanyi* Bleszynski, 1956
58a. ♂ E-Cádiz, RS 1318 (MUS); 58b. ♀ E-Cádiz, El Puerto de Santa Maria, RS 340 (MUS).
59. *Euchromius gratiosellus* (Caradja, 1910)
59a. ♂ TR-Konya, RS 182 (MUS); 59b. ♀ RU-Novosibirsk, Karasukskya, RS 585 (MUS).
60. *Euchromius jaxartellus* (Erschoff, 1874)
60a. ♂ TM-Kara-Kala, RS 180 (MUS); 60b. ♀ TM-Kopet-Dag, Kara-Kala, RS 600 (MUS).
61. *Euchromius keredjellus* (Amsel, 1949)
♂ IR-Salzsee 90 km S Teheran, RS 353 (MUS).
62. *Euchromius ocelleus* (Haworth, [1815])
62a. ♂ BG-Kozuch, RS 161 (MUS); 62b. ♀ GR-Peloponnisos, RS 1315 (MUS).
63. *Euchromius pulverosus* (Christoph, 1887)
♀ IR-Nissa, Elburs, RS 244 (MUS).
64. *Euchromius ramburiellus* (Duponchel, 1836)

64a. ♂ E-Granada, RS 662 (MUS); 64b. ♀ E-Malaga, RS 498 (MUS).
65. *Euchromius rayatellus* (Amsel, 1949)
65a. ♂ GR-Iráklion RS 440 (MUS); 65b. ♀ BG-Nessebar, RS 342 (MUS).
66. *Euchromius subcambridgei* Bleszynski, 1965
66a. ♂ TN-Sfax, RS 1319 (MUS); 66b. ♀ "Tunesia", RS 660 (MUS).
67. *Euchromius superbellus* (Zeller, 1849)
67a. ♂ BG-Kozuch, RS 439 (MUS); 67b. ♀ GR-Peloponnisos RS 1317 (MUS).
68. *Euchromius vinculellus* (Zeller, 1847)
68a. ♂ E-El Ronquillo, Sevilla, RS 292 (MUS); 68b. ♀ YAR-Sugas Sabi, RS 533 (MUS).
69. *Glaucocharis euchromiella* (Ragonot, 1895)
♂ TR-Gümüşhane RS 1314 (MUS).
70. *Metacrambus carectellus* (Zeller, 1847)
70a. ♂ E-Cuenca, RS 832 (MUS); 70b. ♂ AZ-Lankaran, valva, lateral, Bleszynski 9543 (NHMW); 70c. ♂ GR-Peloponnisos, valva, lateral, RS 811 (MUS); 70d. ♂ NW Ganges 3 km, valva, lateral.
71. *Metacrambus pallidellus* (Duponchel, 1836)
♂ E-Granada, RS 568 (MUS).
72. *Pediasia bolivarella* (Schmidt, 1930)
72a. ♂ E-Huelva, Torre La Higuera, RS 995 (MUS; 72b. ♀ E-ibidem, RS 1001 (MUS).
73. *Pediasia kenderesiensis* Fazekas, 1987
73a. ♂ Holotypus, H-Kenderes, IF 2126 (PI); 73b. ♀ genitalia; 74c. ♂ habitus, holotypus.
74. *Pediasia matricella* (Treitschke, 1832)
74a. ♂ TR-Kars, Karakurt, RS 1116 (MUS); 74b. ♀ TR-Kars, Mt. Ararat, RS 1117 (MUS).
75. *Pediasia serraticornis* (Hampson, 1900)
75a. ♂ E-Almeria, Mini Hollywood, RS 931 (MUS); 75b. ♀ E-Almeria, Tabernas, RS 997 (MUS).
77. *Pediasia siculella* (Duponchel, 1836)
♂ E-Cádiz, Tarifa, Rio Jara, RS 996 (MUS).
78. *Pseudobissetia terrestrella* (Christoph, 1885)
♀ E-Guadalajara RS 1292 (MUS).
79. *Talis quercella* ([Denis & Schiffermüller], 1775)
79a. ♂ TR-Kars, N Tuzluca 950 m, RS 1048 (MUS); 79b. ♀ ibidem, RS 1055 (MUS).
80. *Talis renetae* Ganev & Hacker, 1984 ♂ TR-Kars,
Mt. Ararat, RS 1041 (MUS).

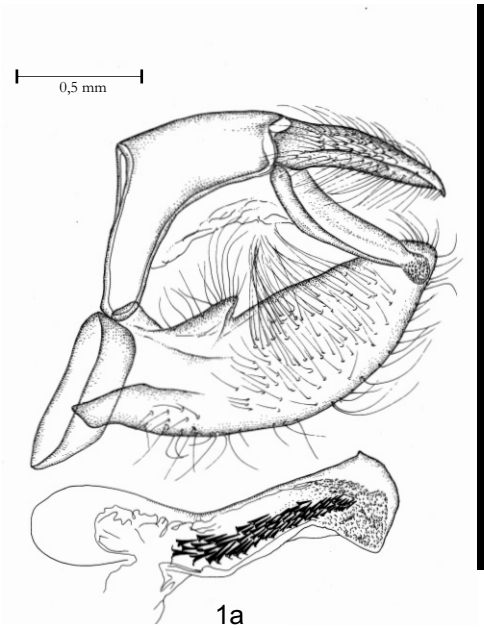


Fig. 1a. *Agriphila argentistigella* (Ragonot, 1888): ♂ genitalia, E-Cadis Tarifa, Rio Jara

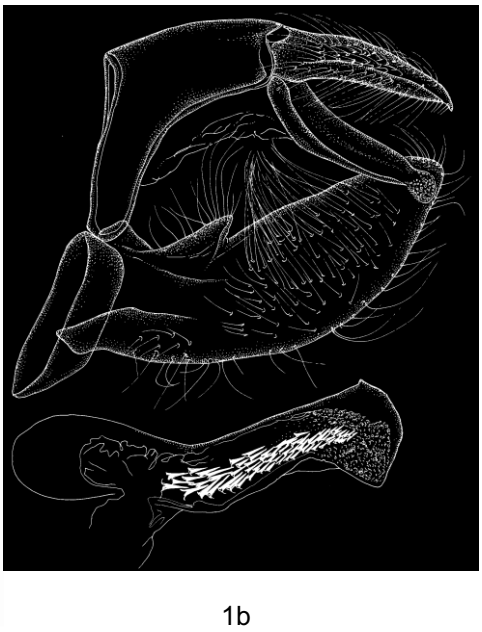


Fig. 1b. *Agriphila argentistigella*: highly questionable ♂ genitalia, ibidem

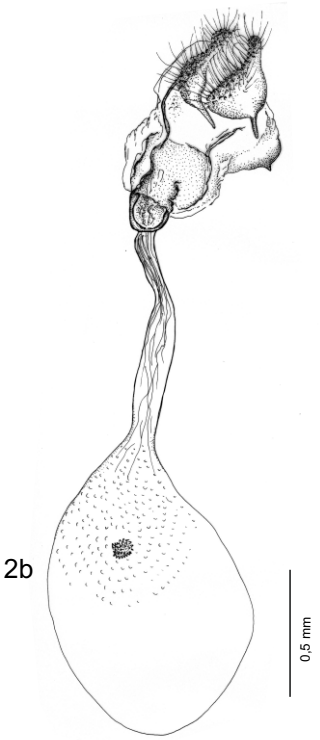
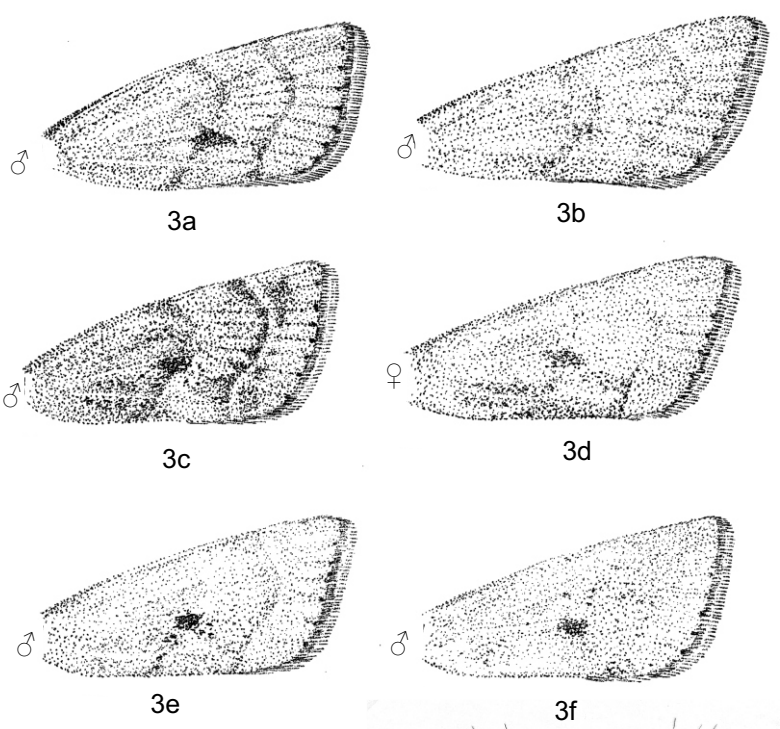


Fig. 2. *Agriphila biarmica* (Tengström, 1848): ♀, Russia, „УЦТЦНСКАЯ": **2a.** wing pattern, **2b.** female genitalia



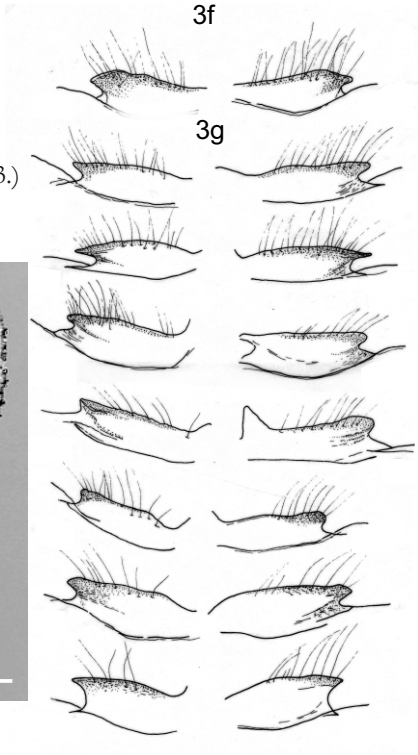
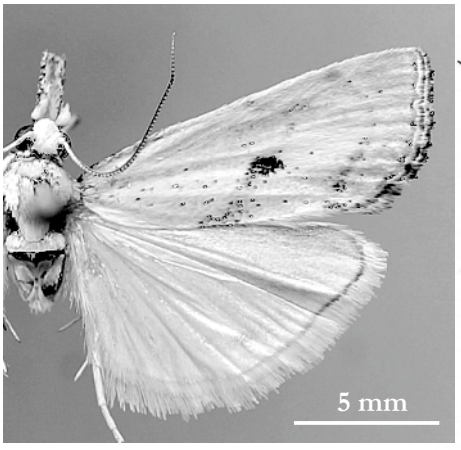


Fig. 3. *Agriphila brionella* (Zerny, 1914):
3a-f. wings (by Fazekas 1990),
3g. Male genitalia: processus costalis in valva (by Fazekas 1990, p. 123, Abb. 8–23.)



Agriphila brioniella, H-Bakony Mts.

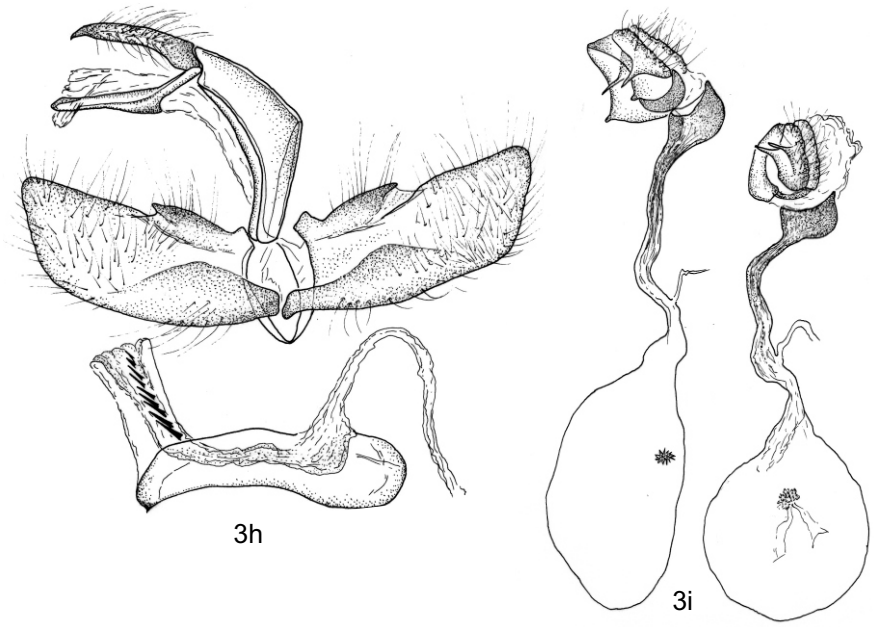


Fig. 3. *Agriphila brionella* (Zerny, 1914): **3h.** ♂ lectotype (by Fazekas 1990, p. 122, Abb. 7); **3i.** ♀ (Fazekas 1990, p. 124, Abb. 24–25)

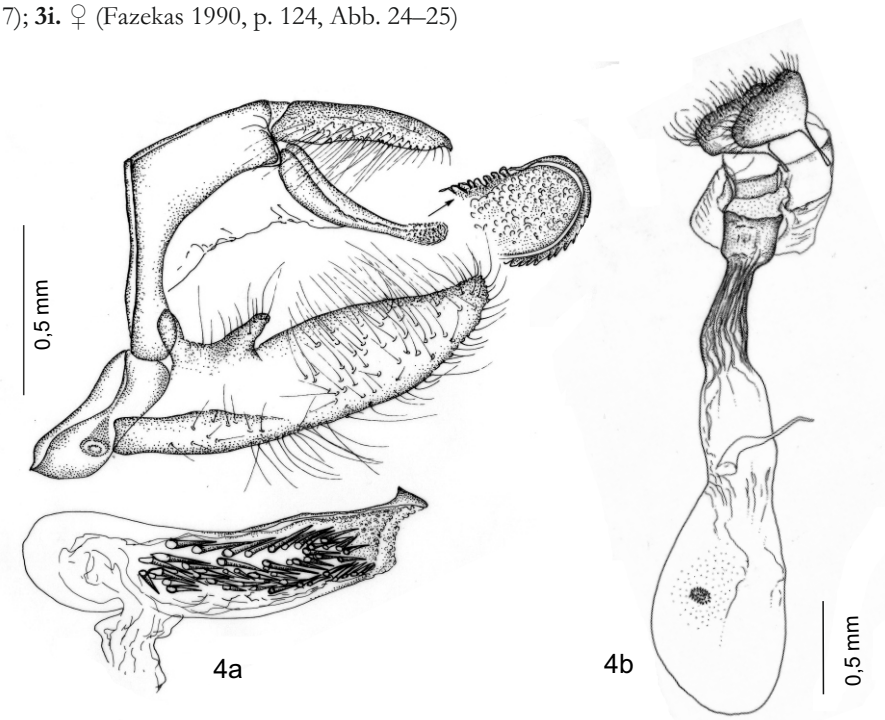


Fig. 4. *Agriphila cyrenaicella* (Ragonot, 1887): **4a.** ♂ genitalia E-Almeira; **4b.** ♀ genitalia, E-Almeira

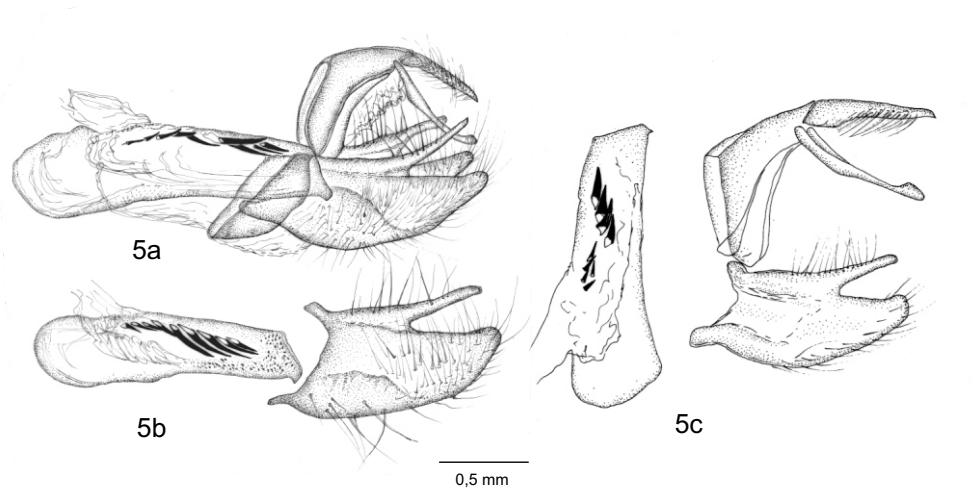


Fig. 5. *Agriphila dalmatiella* (Hampson, 1900): **5a.** ♂ „Typus", Lissa; **5b.** Dalmatia, Knin; **5c.** ♂ Dalmatia, Knin

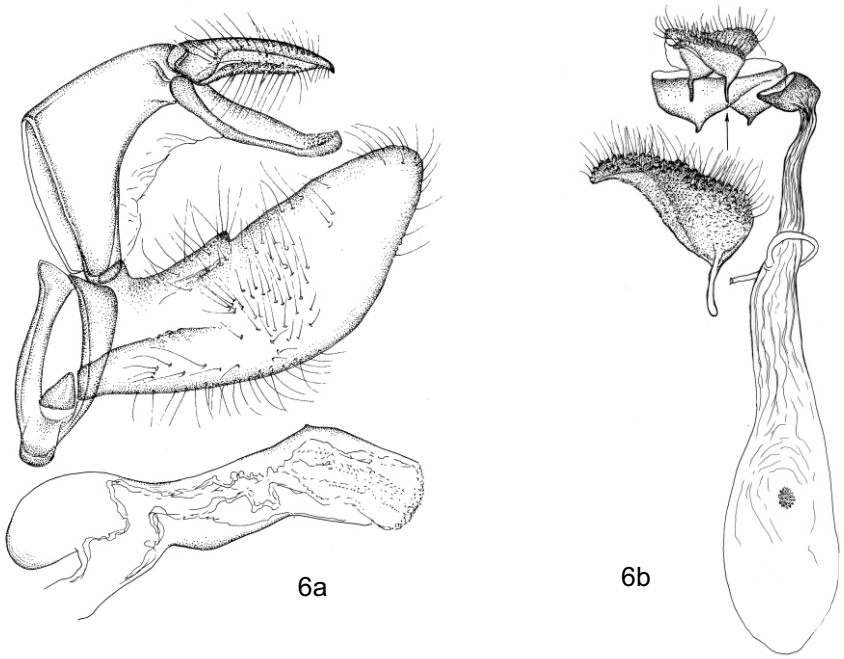


Fig. 6. *Agriphila deliella* (Hübner, [1813]): **6a.** ♂ NL-Ameland; **6b.** ♀ TR- Prov. Nevsehir

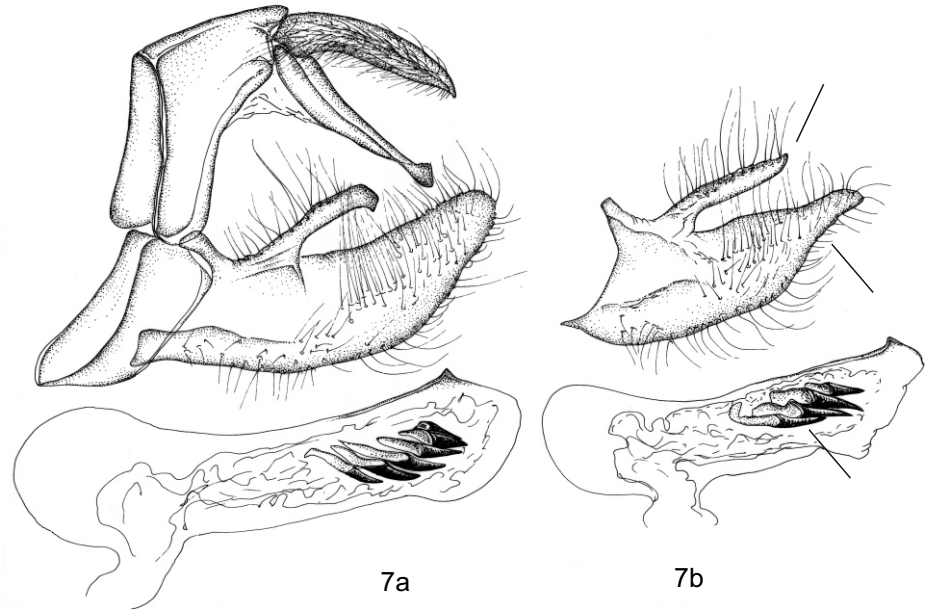
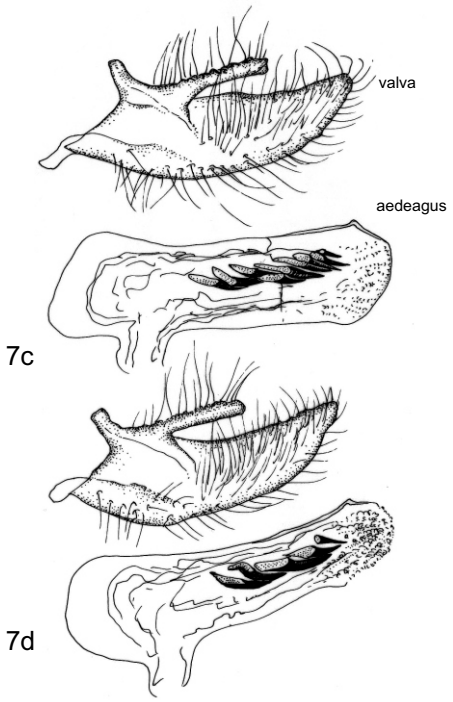


Fig. 7 (abcd).
Agriphila geniculea (Haworth, [1841]):
7a. ♂ E-Murcia;
7b. ♂ GR-Wales;
7c d. ♂ H-Bakony Mts.



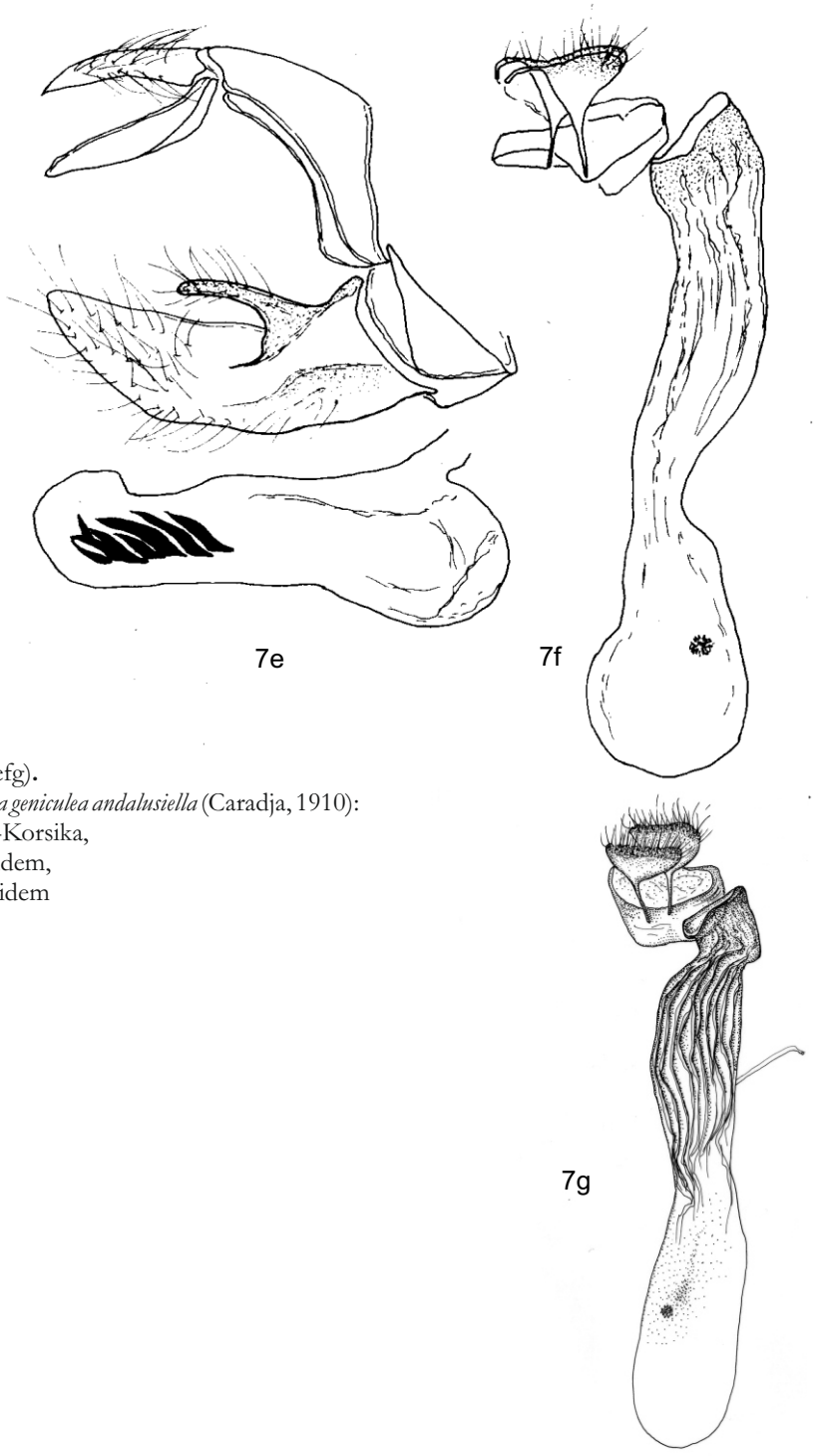
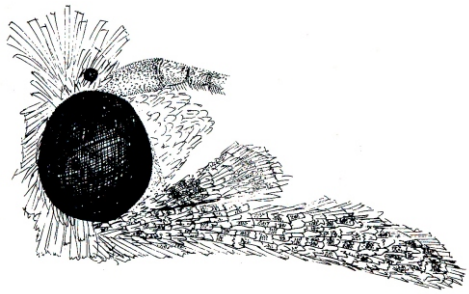
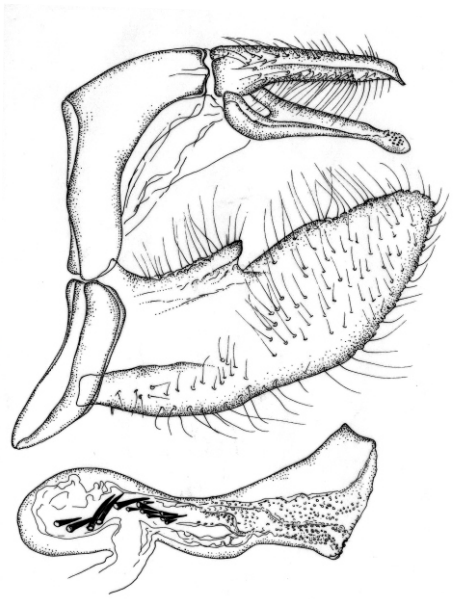


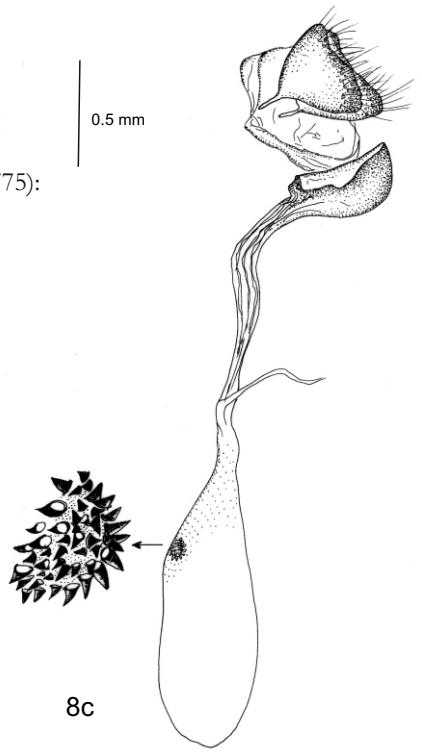
Fig. 7 (efg).
Agriphila geniculea andalusiella (Caradja, 1910):
7e. ♂ F-Korsika,
7f. ♀ ibidem,
7g. ♀ ibidem



8a

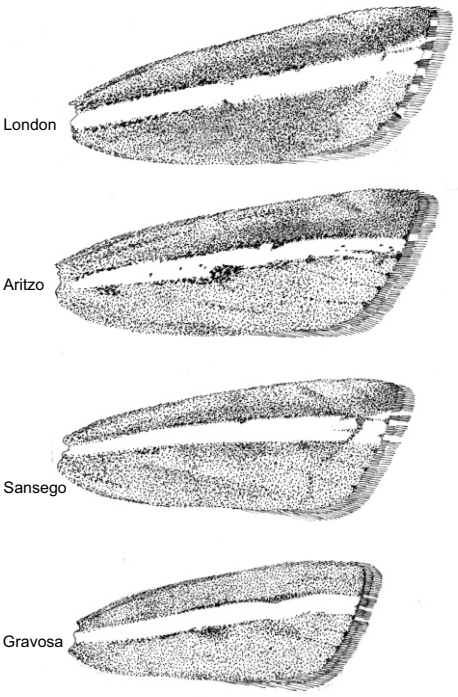


8b

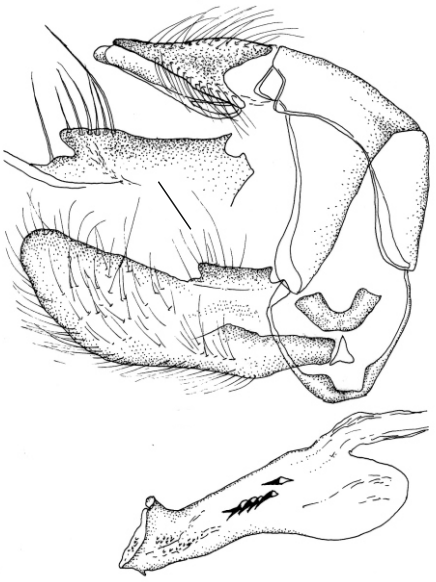


8c

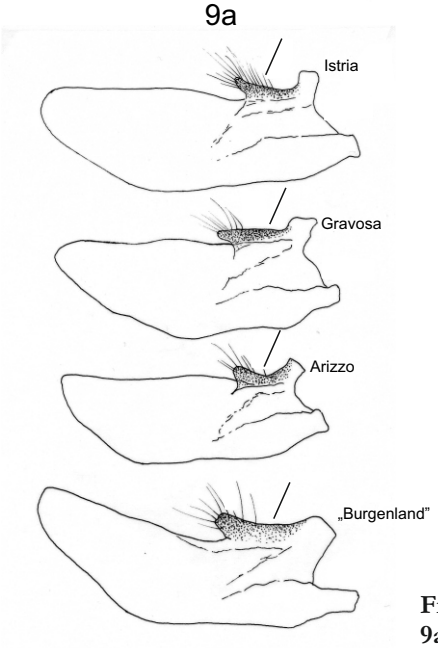
Fig. 8.
Agriphila inquinatella ([Denis & Schiffermüller], 1775):
8a. Head (Fazekas 1990);
8b. ♂ E-Albarracin,
8c. ♀ Nederland



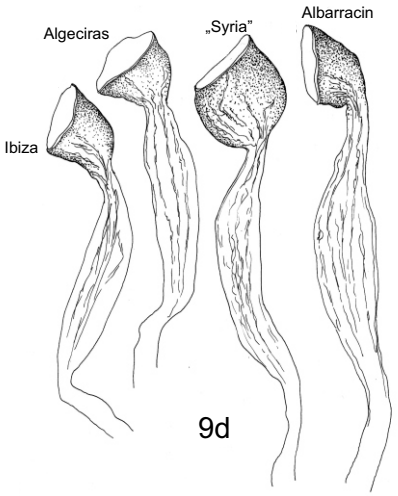
9a



9b



9c



9d

Fig. 9. *Agriphila latistria* (Haworth, [1811]):
9a. wings; **9b.** ♂ genitalia, London (Fazekas 1990)
9c. Processus costalis [Pars basalis]
(Fazekas 1990, Abb. 31–34);
9d. ♀ genitalia (Fazekas 1990, Abb. 35–38)

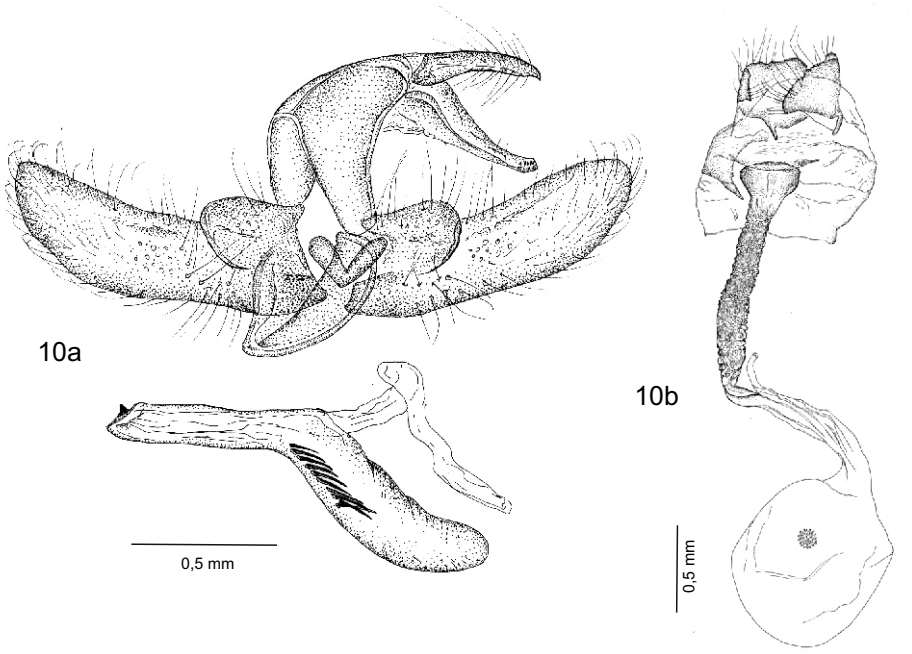


Fig. 10. *Agriphila poliella* (Treitschke, 1832): **10a.** ♂ TR-Kars, 3 km E Karakurt; **10b.** ♀ ibidem

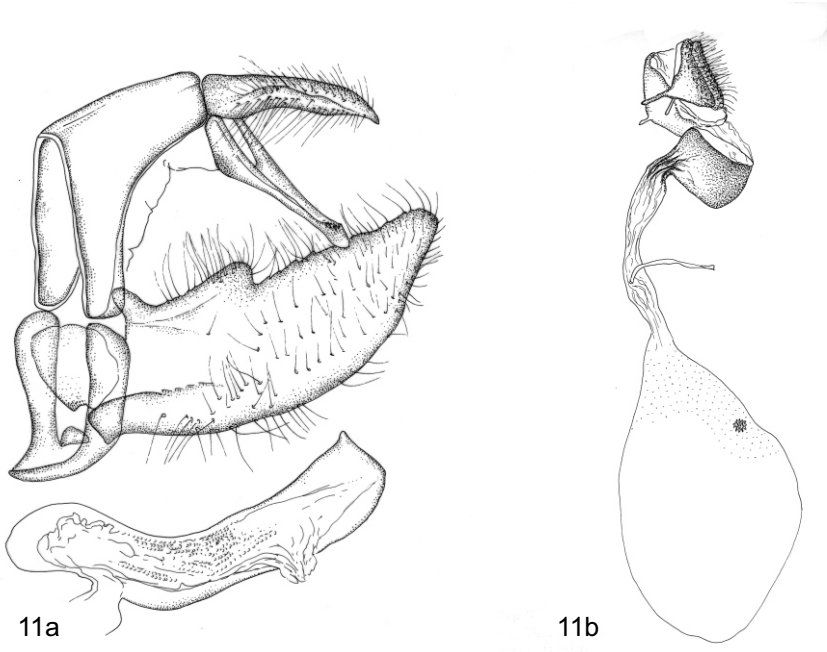


Fig. 11. *Agriphila selasella* (Hübner, [1813]): **11a.** ♂ NL-Koedyk; **11b.** ♀ „France"

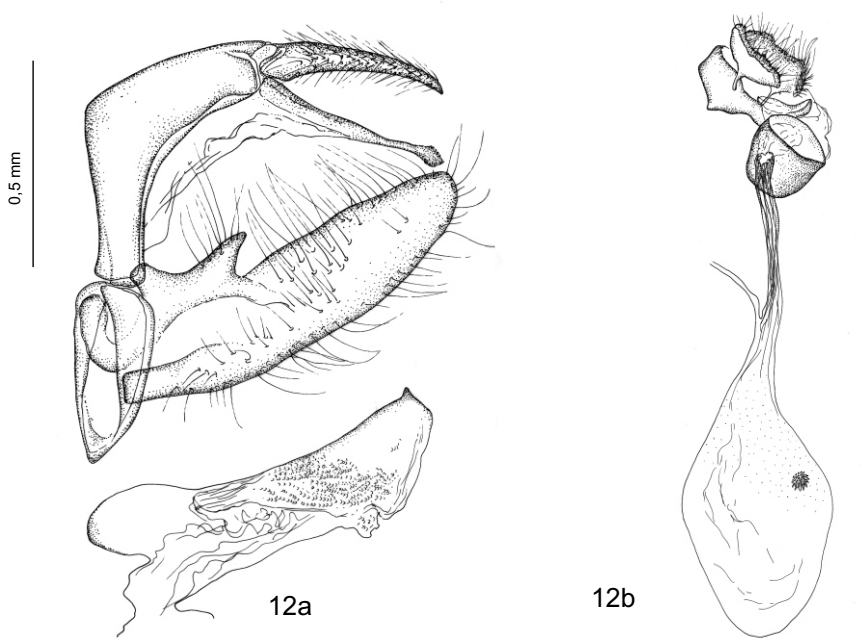


Fig. 12. *Agriphila straminella* ([Denis & Schiffermüller], 1775): **12a.** ♂ „Swiss" ; **12b.** ♀ CH-Uster

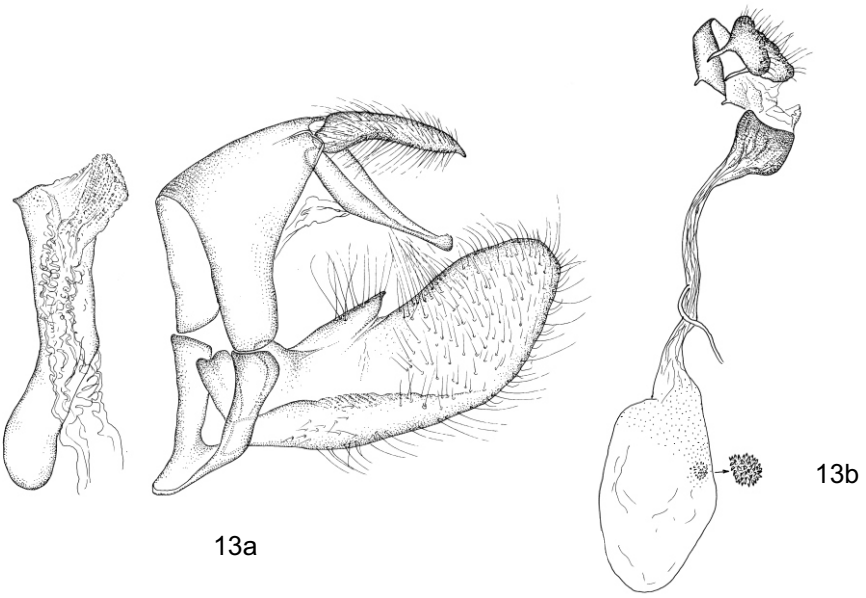


Fig. 13. *Agriphila tersella* (Lederer, 1855): **13a.** ♂ E- San Rogue Cadiz; **13b.** ♀ TR-Kars, 3 km E Karakurt

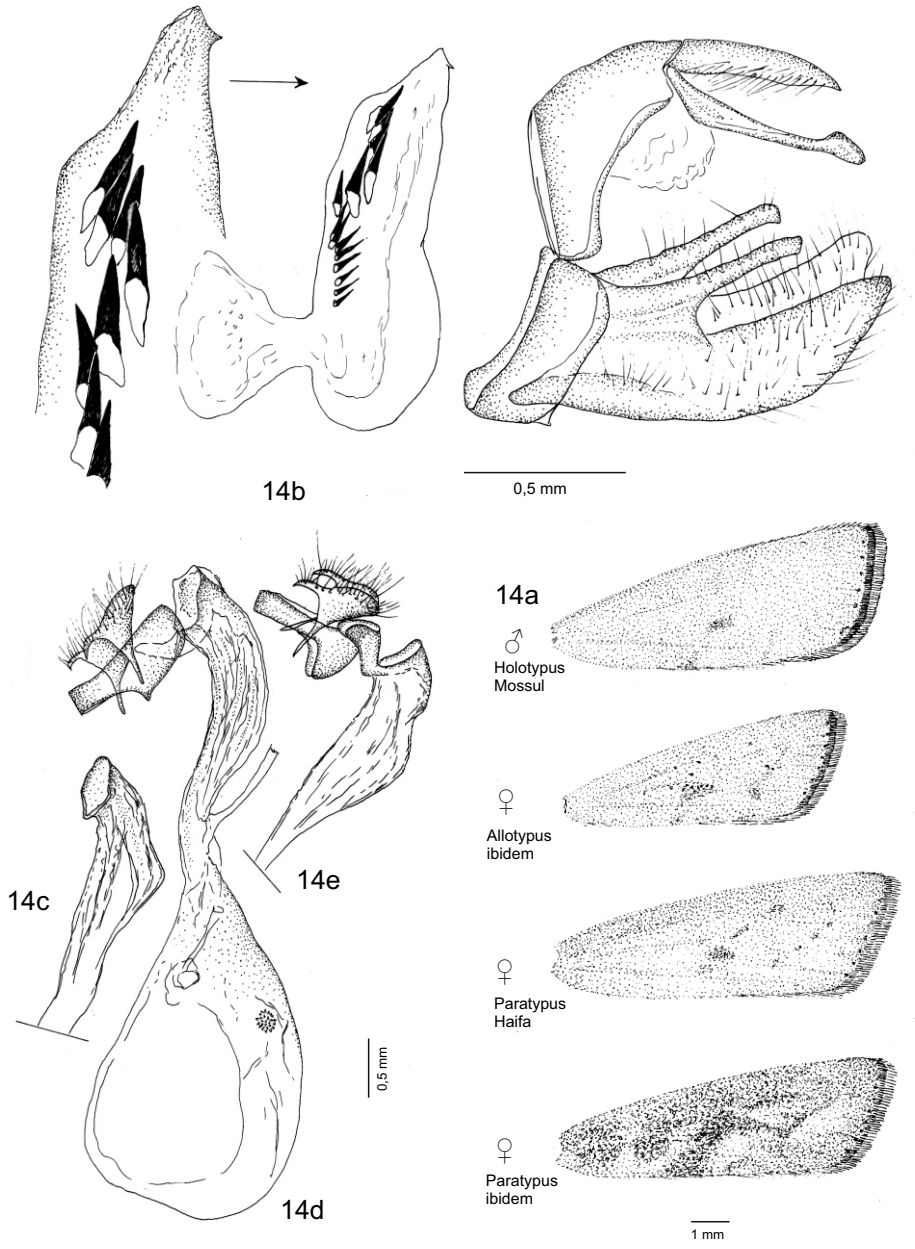
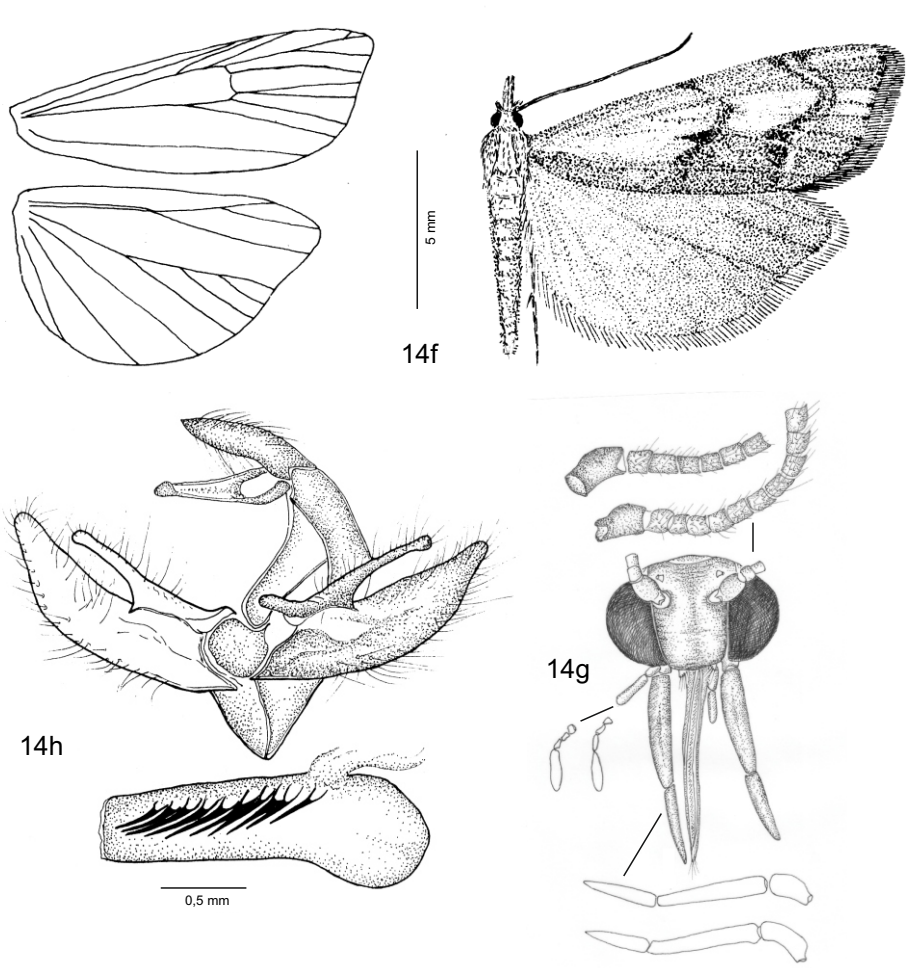


Fig. 14 (a-e). *Agriphila tolli beieri* Bleszynski, 1955;
14a. Wings (after Fazekas 1991);
14b. ♂ genitalia, holotypus, Mesopotamia, Mossul; **14c.** ♀ genitalia, allotypus, Mossul;
14d. ♀ paratypus, Haifa; **14e.** ♀ paratypus, Haifa



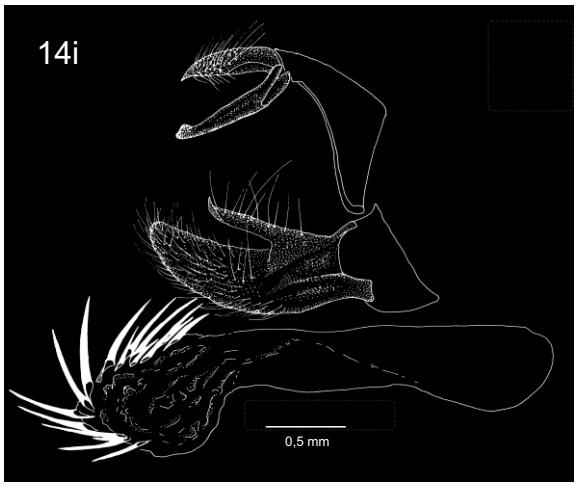


Fig. 14 (f-i).
Agriphila tolli pelsonius
Fazekas, 1985:
14f. Holotype: wings venation, and habitus;
14g. head, H-Pécs;
14h. ♂ genitalia, H-Pécs;
14i. ♂ genitalia, A-Wien (invert)

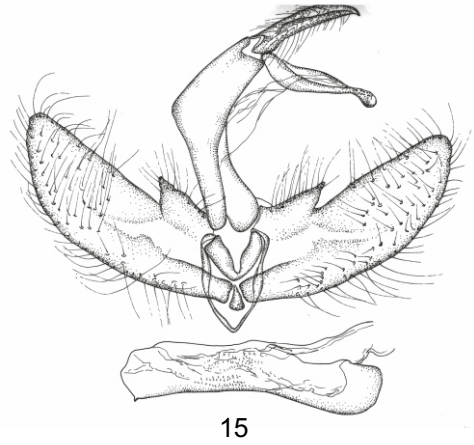


Fig. 15. *Agriphila trabeatella* (Herrich-Schäffer, 1848): ♂ E-Almeira

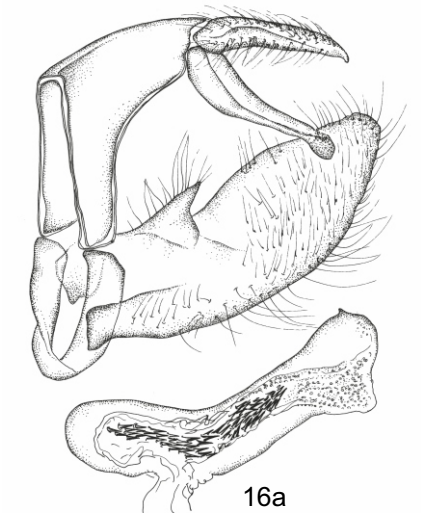


Fig. 16a. *Agriphila tristella* ([Denis & Schiffermüller], 1775): ♂ H-Kiskunság

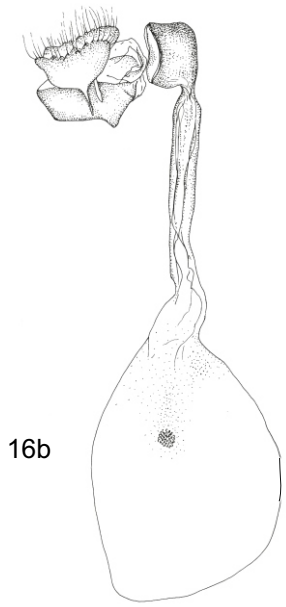


Fig. 16b. *Agriphila tristella* ([Denis & Schiffermüller], 1775): ♀ H-Szarvas

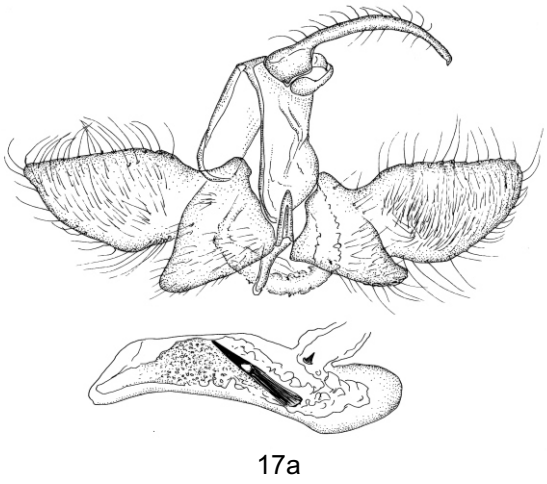


Fig. 17a. *Angustalius malacellus* (Duponchel, 1836): ♀ E-Malaga

Fig.17b. *Angustalius malacellus* (Duponchel, 1836): ♀ E-Granada

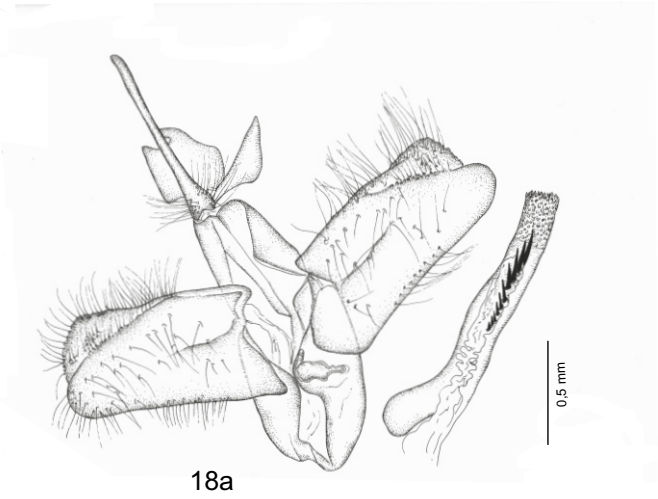


Fig. 18a. *Calamotropha paludella* (Hübner, [1824]): ♂ „Belgium"

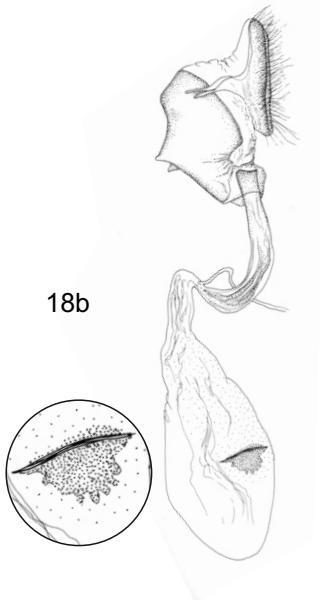


Fig. 18b. *Calamotropha paludella* (Hübner, [1824]): ♀ I-Emilia

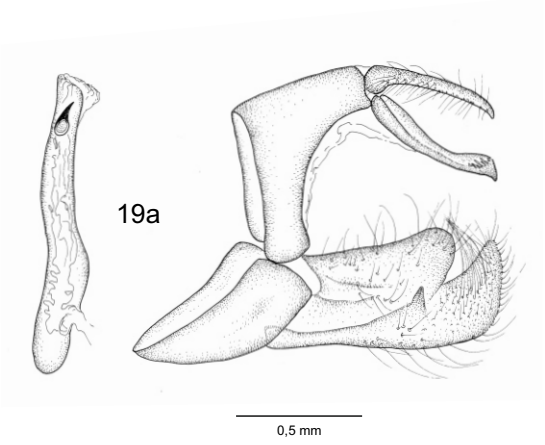


Fig. 19a. *Catoptira incertella* (Herrich-Schäffer, [1852]): ♂ TR-Agri, Kagizman

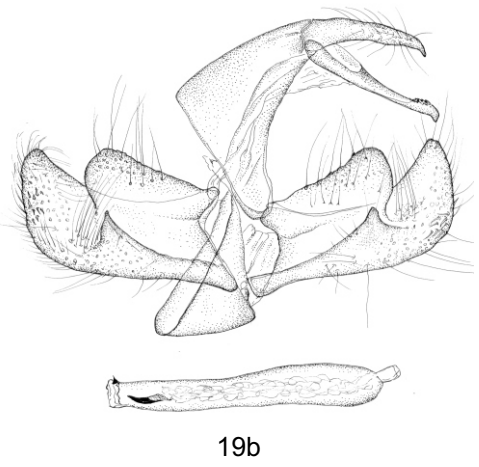


Fig. 19b. *Catoptria incertella* (Herrich-Schäffer, [1852]): ♂ TR-Kars, Pasli Pass

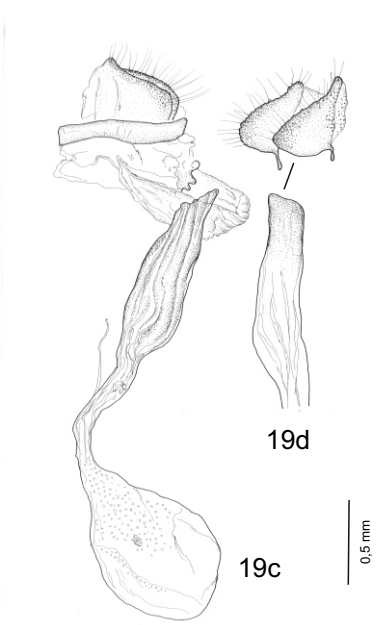


Fig. 19cd. *Catoptria incertella*: **19c.** ♀ TR-Kars, 3 km E Karakurt; **19d.** ♀ TR-Kars, Pasli Pass

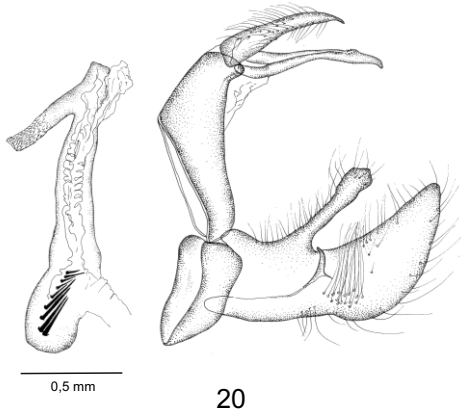


Fig. 20. *Catoptria colcichella* (Lederer, 1870): ♂ TR-S Erzurum

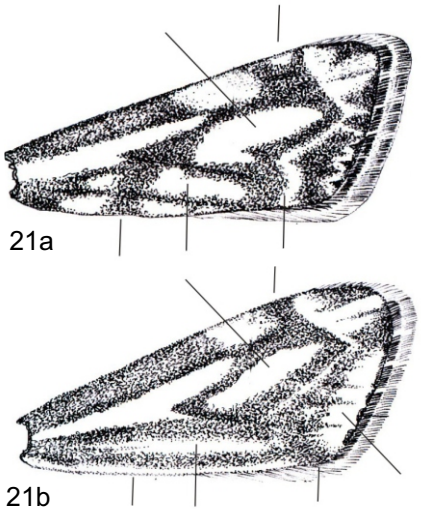


Fig. 21ab. Forewing pattern: **21a.** *Catoptria confusella*; **21b.** *C. incertella*

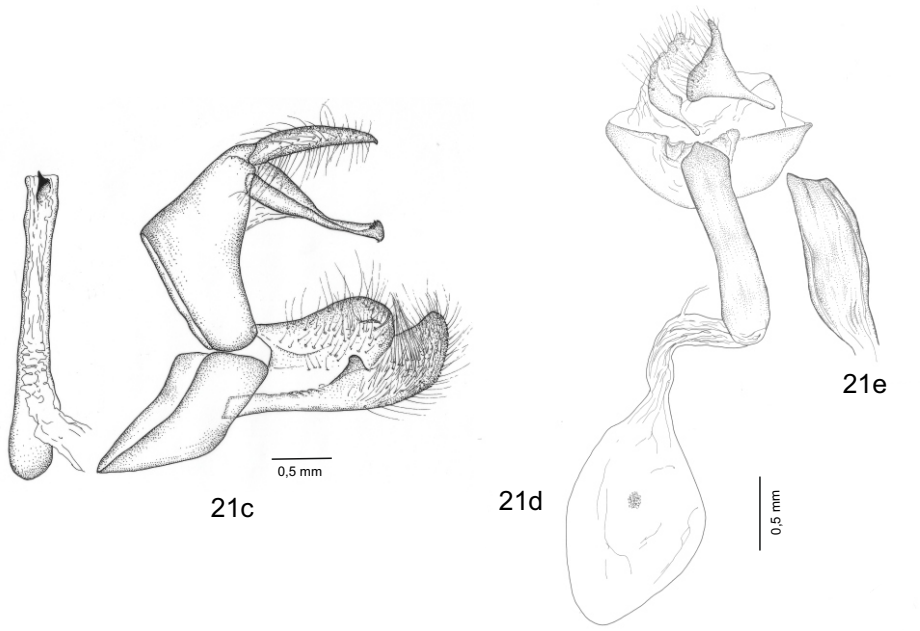


Fig. 21cde. *Catoptria confusella* (Staudinger, 1881): **21c.** ♂ GR-Kapnophiton; **21d.** ♀ SK-Krupinska u. Plastorec; **21e.** ♀ GR-Pindos

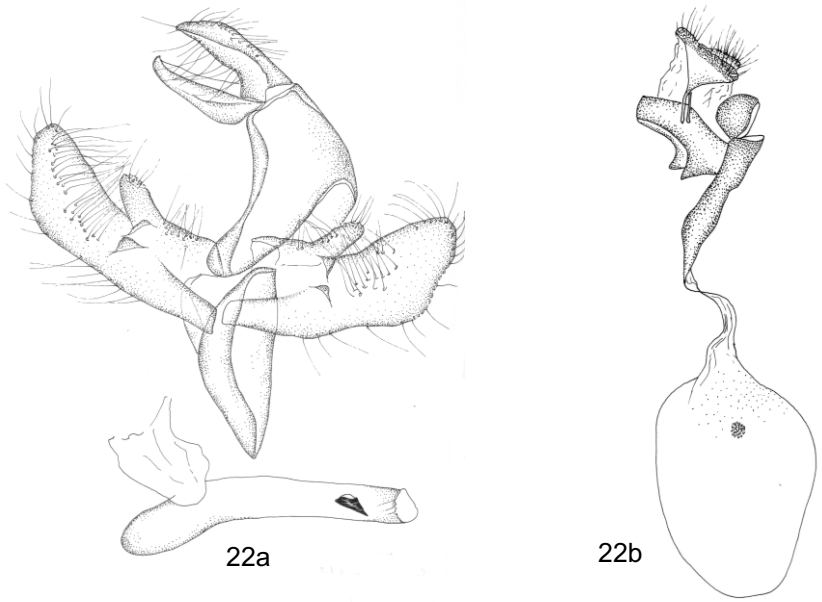


Fig. 22. *Catoptria falsella* ([Denis & Schiffermüller], 1775) **22a.** ♂ CZ-Tjekhie; **22b.** ♀ ?-"Parco Nationalae"

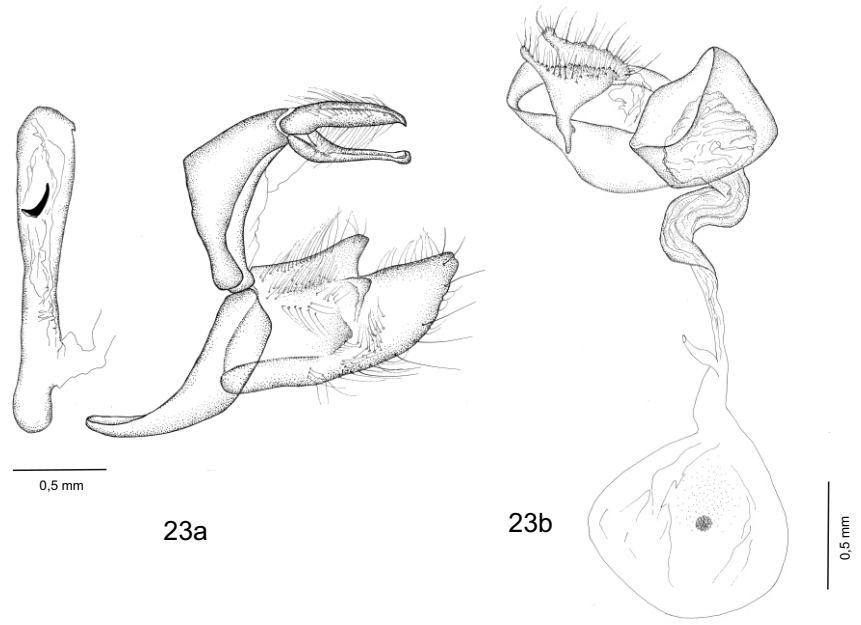
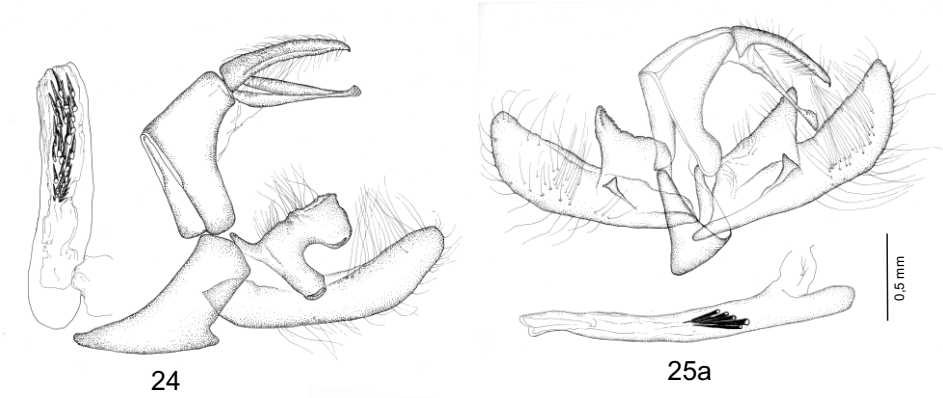


Fig. 23. *Catoptria fulgidella* (Hübner, [1813]): **23a.** ♂ „Denmark"; **23b.** ♀ NL-Lexmond



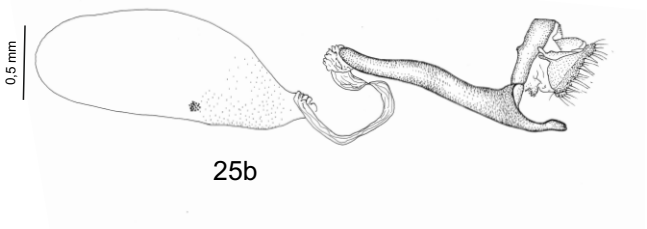


Fig. 24. *Catoptria kasy*i Bleszynski, 1960: ♂ GR-Florina

Fig. 25. *Catoptria laevigatella* (Lederer, 1870): **25a.** ♂ "Turkey"; **25b.** ♀ TR-Turkey, Rize

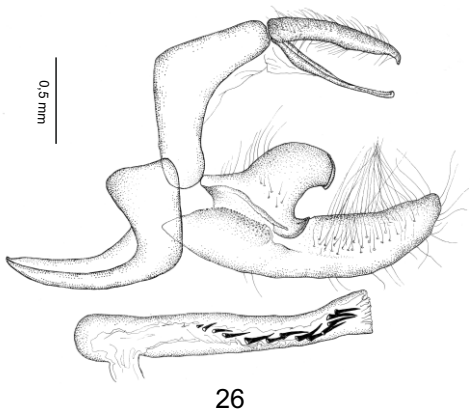


Fig. 26. *Catoptria lithargyrella* (Hübner, 1796): ♂ TR-Erzurum

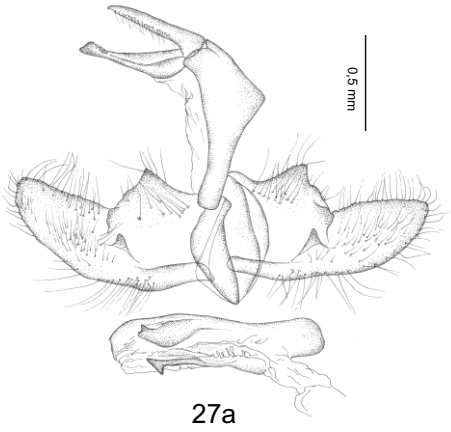


Fig. 27a. *Catoptria margaritella* ([Denis & Schiffermüller], 1775): ♂ (?) "Reuhe Ös"

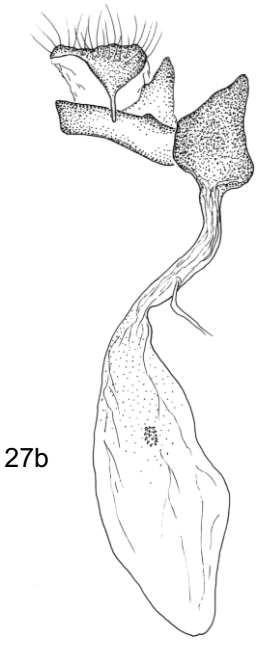


Fig. 27b. *Catoptria margaritella* ([Denis & Schiffermüller], 1775): ♀ CH-Lenzerheide

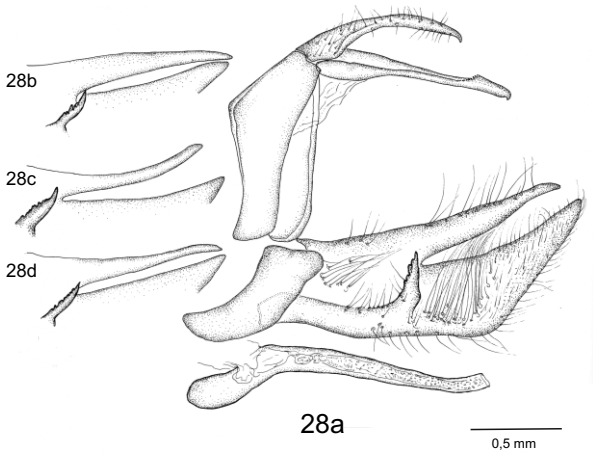


Fig. 28. *Catoptria myella* (Hübner, 1769): **28a-d.** ♂ I-Pineta San Pietro

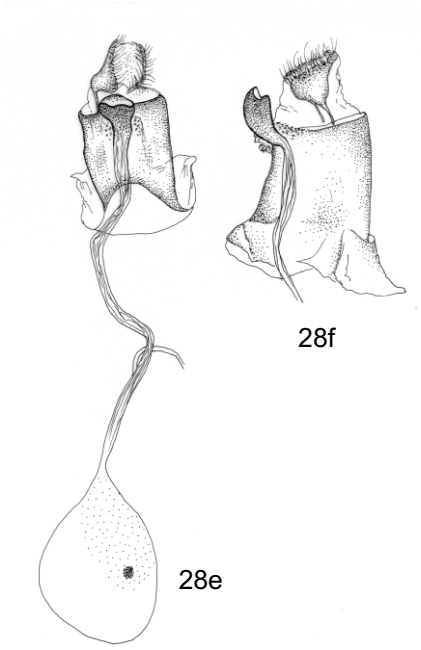


Fig. 28ef. *Catoptria myella* (Hübner, 1769): ♀ F-Tournoux

Fig. 29. *Catoptria olympica* Ganev, 1983: ♀ GR-Olympos

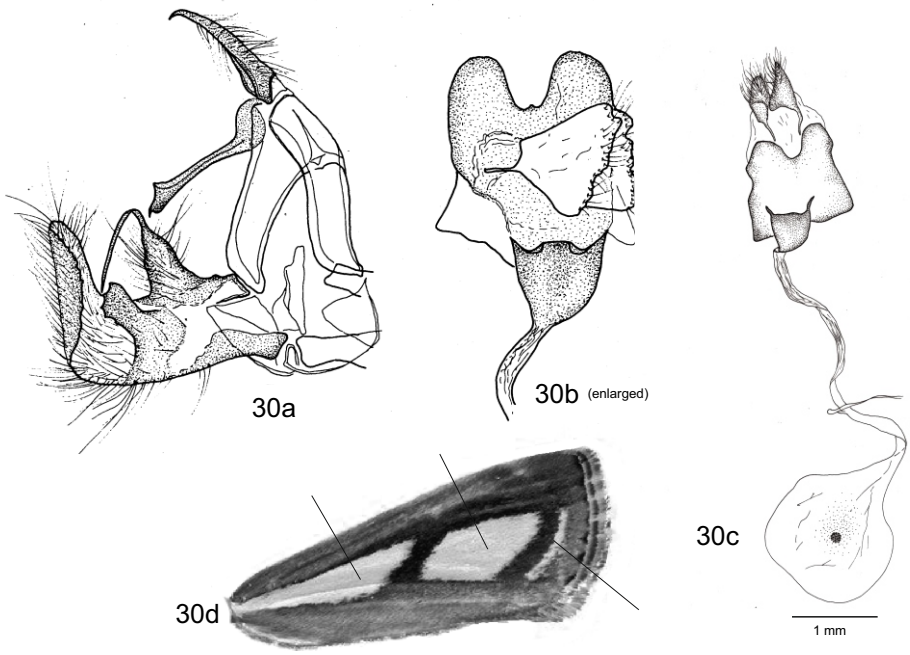


Fig. 30. *Catoptria osthelderi* (De Lattin, 1950): **30a.** ♂ H-Szakonyfalu; **30bc**. ♀ "Nederland"; **30d.** diagram of the fore wing

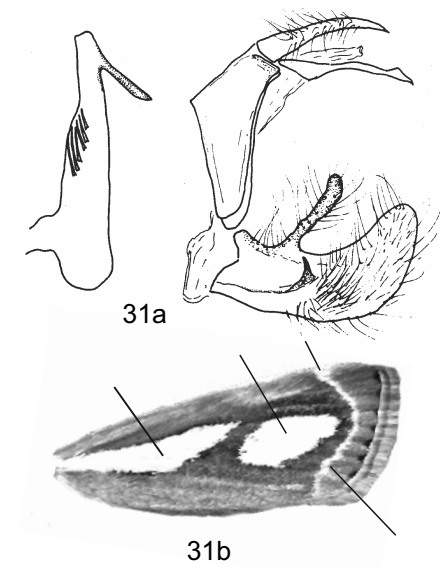


Fig. 31. *Catoptria mytilella* (Hübner, [1805]: **31a.** ♂ H-Balatonfüred; **31b.** diagram of the forewing

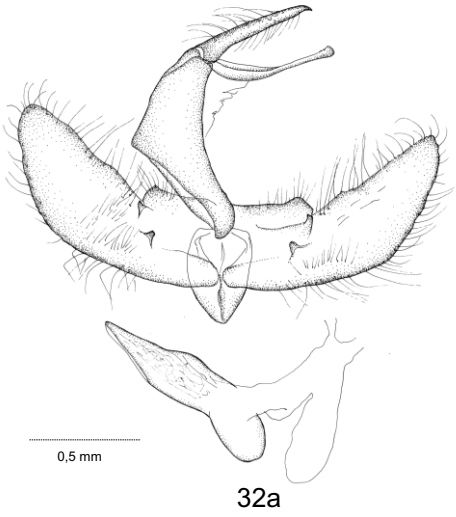


Fig. 32a. *Catoptria permiaca* (Petersen, 1924): ♂ "Chunsung" (?)

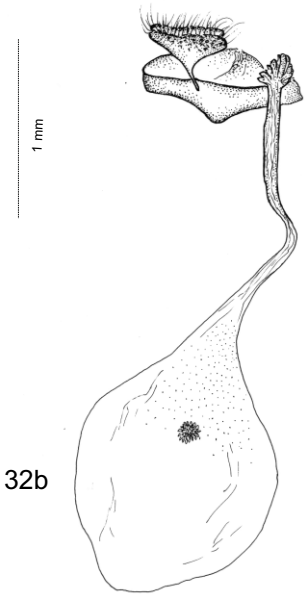


Fig. 32b. *Catoptria permiaca* (Petersen, 1924): ♀ "Mt. Samag, Gn."

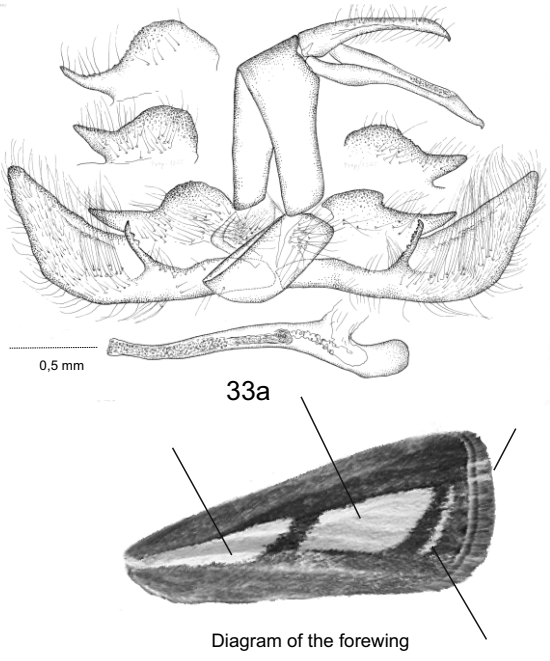
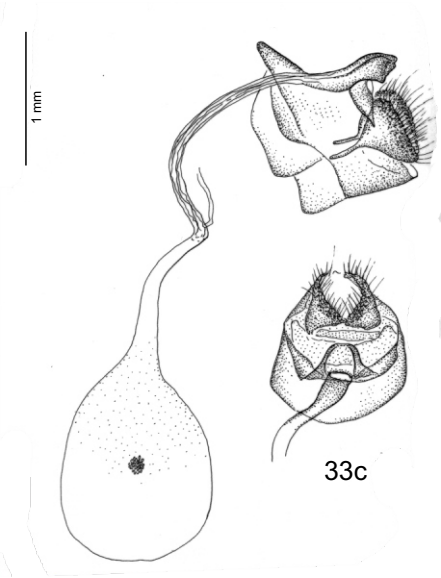


Fig. 33a. *Catoptria permutatella* (Herrich-Schäffer, 1848): ♂ CH-Volketzwil



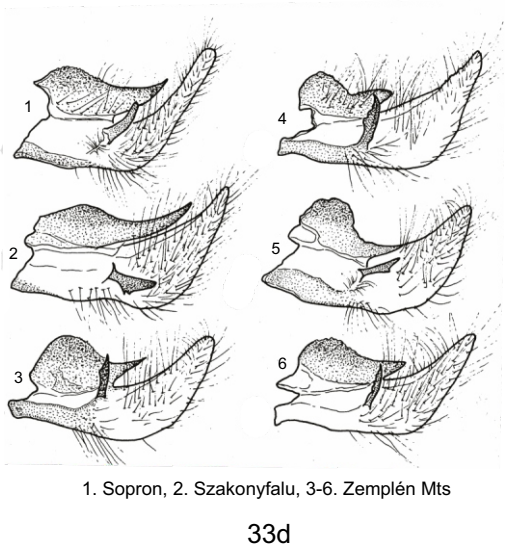


Fig. 33bc. 33b. *Catoptria permutatella* (Herrich-Schäffer, 1848): ♀ CH-Wolketswil; **33c.** ♀ NL-Leusden

Fig. 33d. *Catoptria permutatella*, ♂ genitalia: Variation of valves in Hungary (1-6)

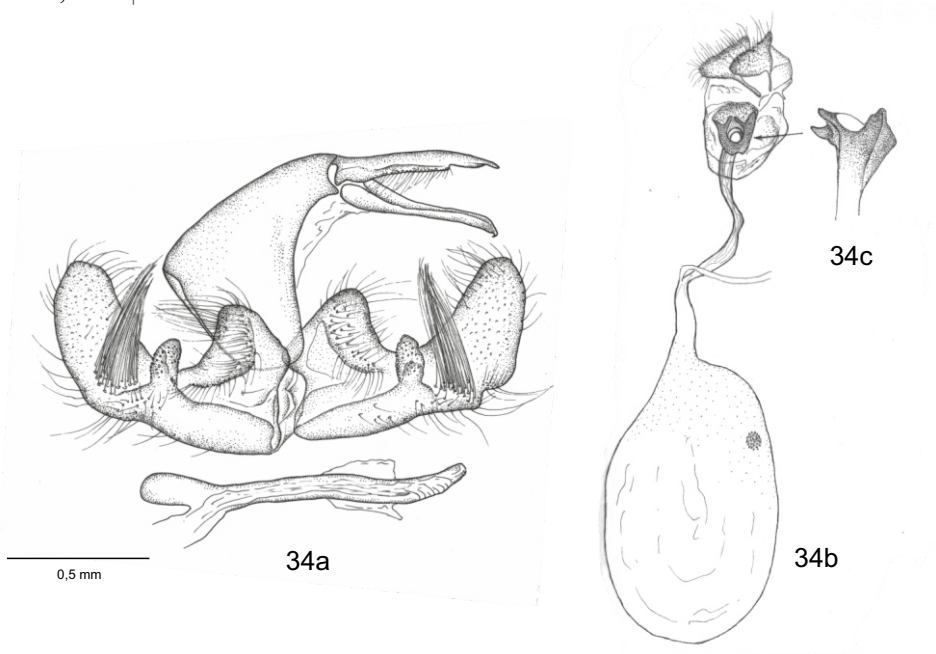


Fig. 34. *Catoptria pinella* (Linnaeus, 1758): **34a.** ♂ "Spain" RS 1388 (MUS); **34b.** ♀ CH-Volketswil; **34c.** ♀ ibidem

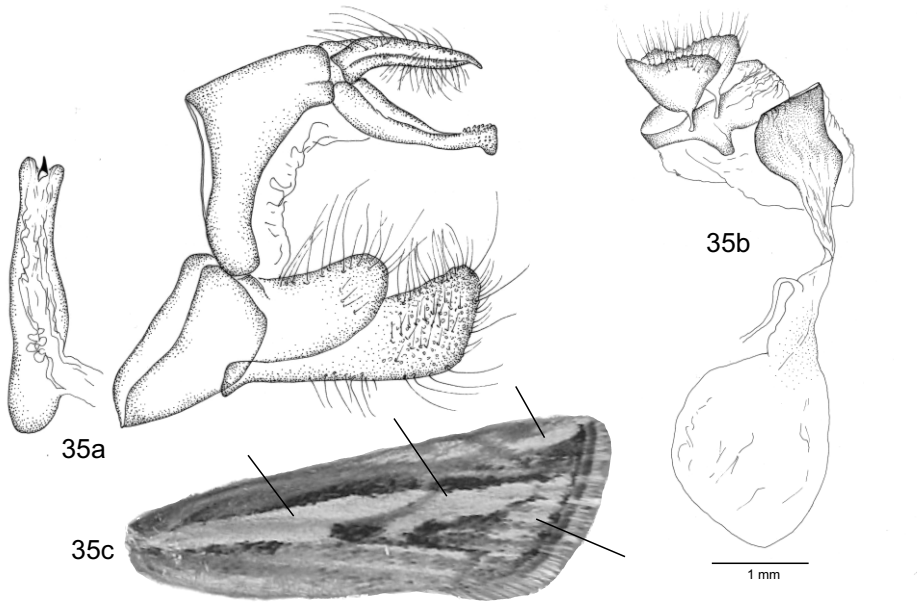


Fig. 35. *Catoptria staudingeri* (Zeller, 1863): **35a.** ♂ E-Malaga ; **35b.** ♀ P-Val de Torno; **35c.** diagram of the forewing

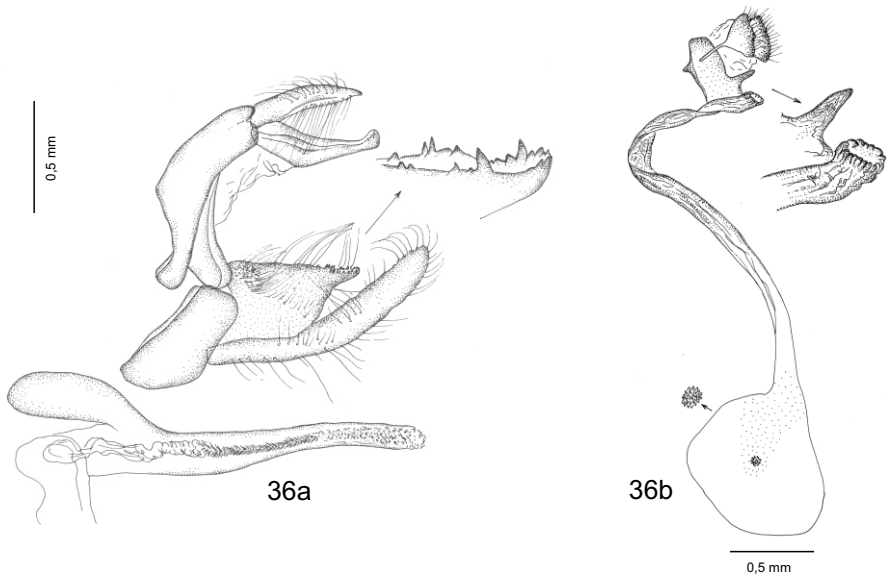


Fig. 36. *Catoptria verella* (Zincken, 1817): **36a.** ♂ „Helvetia"; **36b.** ♀ "Helvetia"

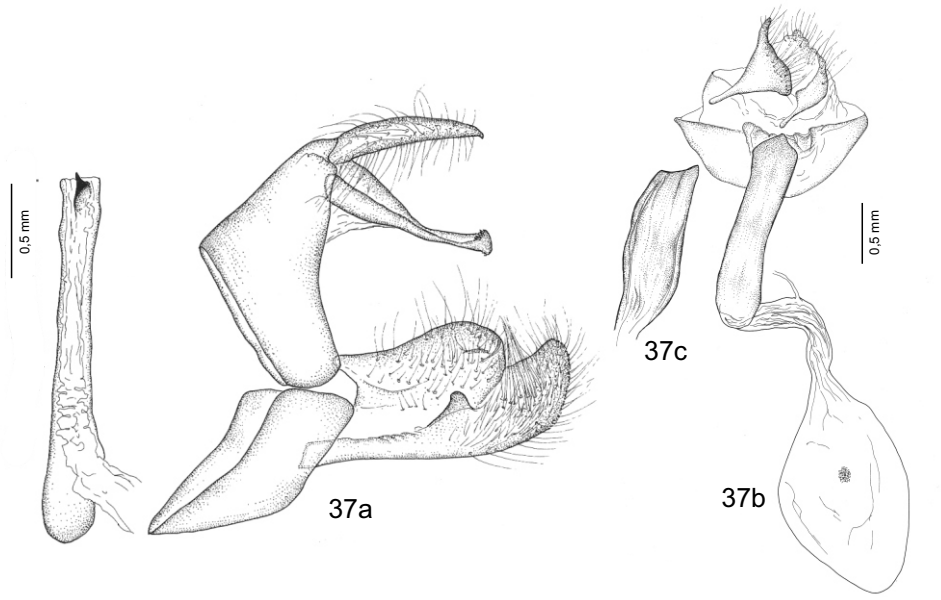


Fig. 37. *Catroptria confusella* (Staudinger, 1881): **37a.** ♂ GR-Kapnophiton, 600 m; **37b.** SK-Krupinska u. Plastorec; **37c.** GR-Pindos

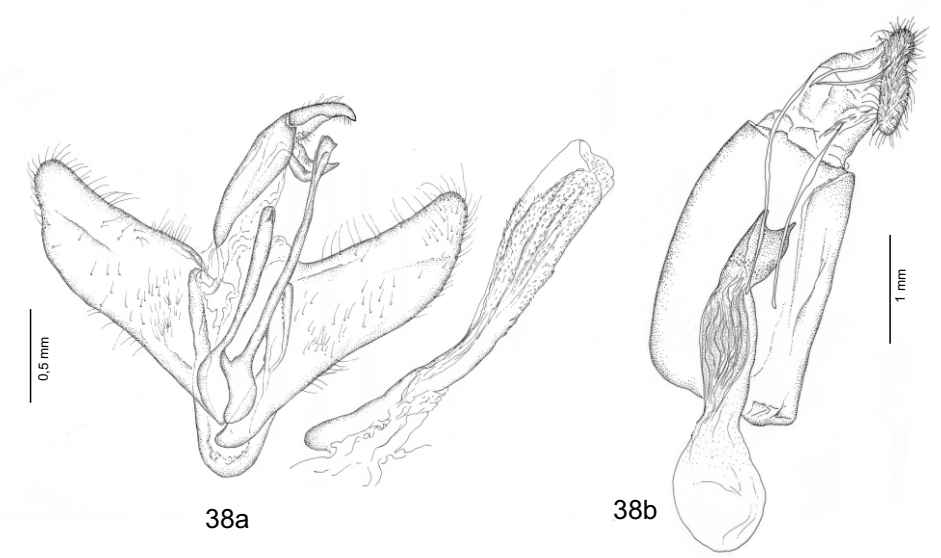


Fig. 38. *Chilo phragmitella* (Hübner, [1810]): **38a.** ♂ NL-Ried; **38b.** ♀ NL-Koeduin

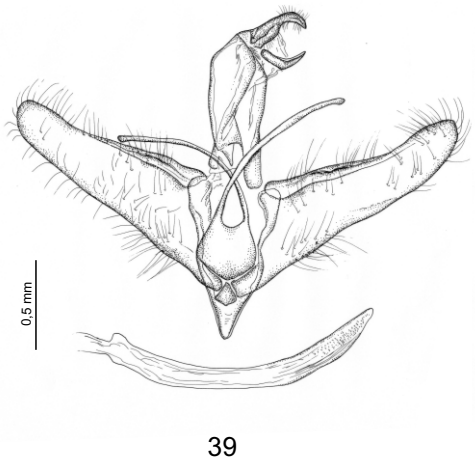


Fig. 39. *Chilo pulverosellus* Ragonot, 1859: ♂ TR-Prov. Ankara

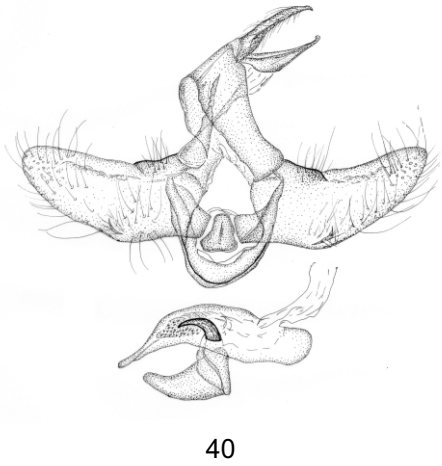


Fig. 40. *Chrysocrambus brutiellus* Bassi, 1985: ♂ I-Campania, Pietraroja

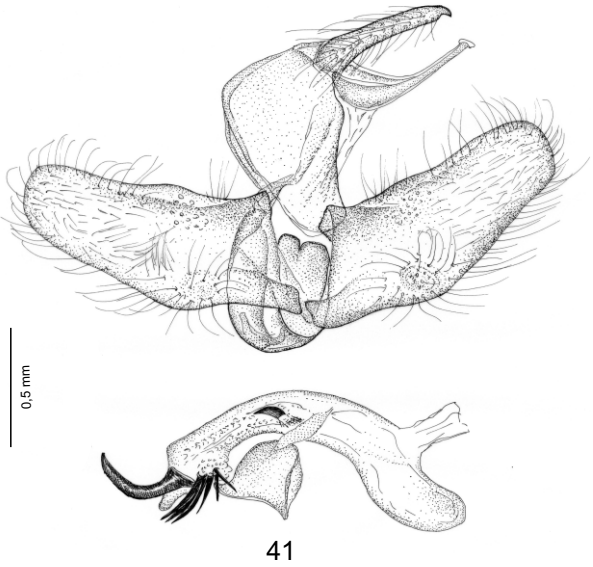


Fig. 41. *Chrysocrambus chrysonuchelloides* (Rothschild, 1925): ♂ MA-Rif Mts

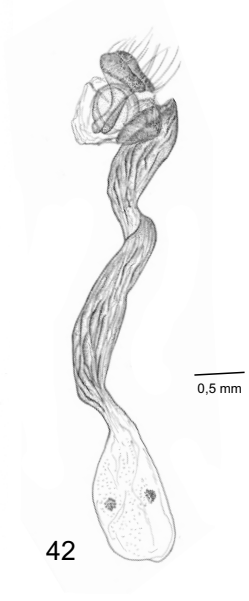


Fig. 42. *Chrysocrambus craterellus* (Scopoli, 1763): ♀ GR-Peleponnisos

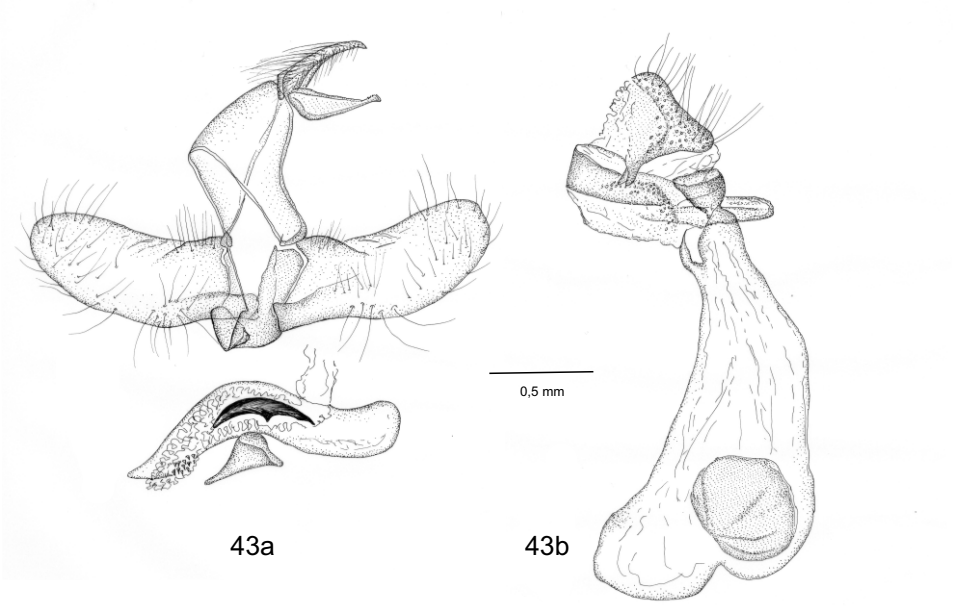


Fig. 43. *Chrysocrambus dentuellus* (Pierce & Metcalfe, 1938): **43a.** ♂ E-Ronquillo Sevilla; **43b.** ♀ E-Teruel

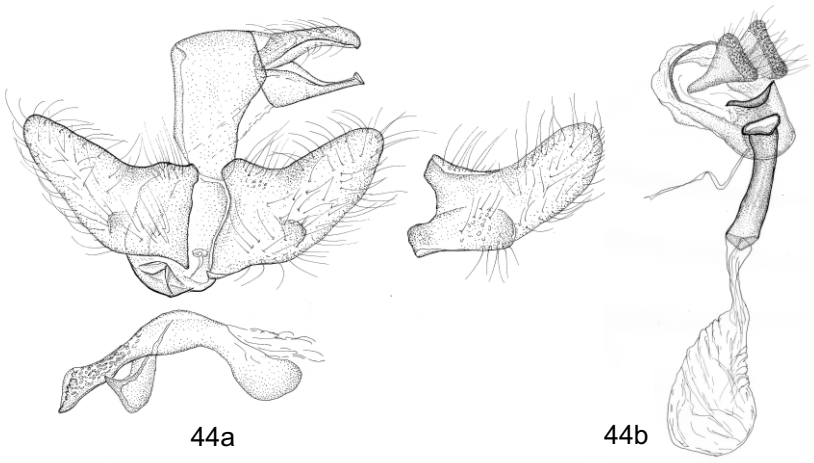


Fig. 44. *Chrysocrambus linetellus*(Fabricius, 1781): **44a.** ♂ TR-Erzurum; **44b.** ♀ F-Drôme, La Penne

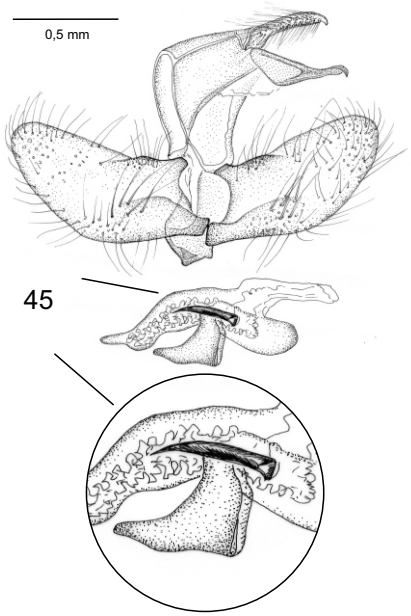


Fig. 45. *Chrysocrambus sardiniellus* (Turati, 1911): ♂ I-Sardinia, Monti del

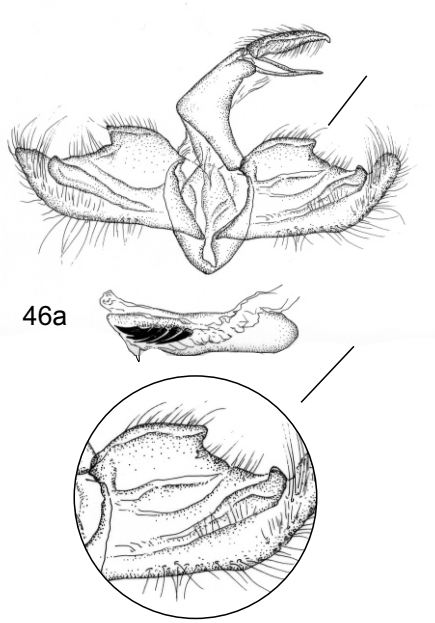


Fig. 46a. *Chrysoteuchia culmella* (Linnaeus, 1758): ♂ Sardegna Monti del Gennargentu

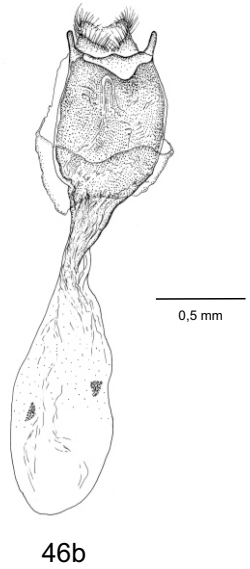


Fig. 46b. *Chrysoteuchia culmella***:** ♀ CH-Volketswil

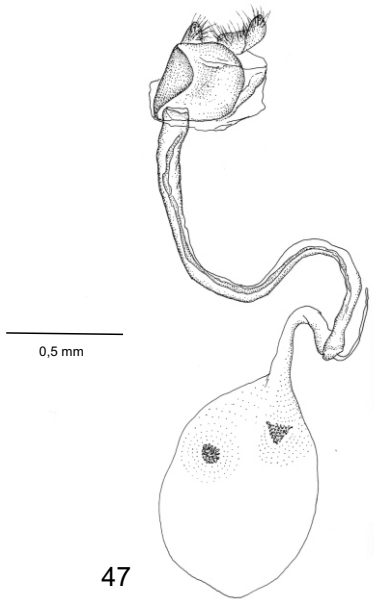


Fig. 47. *Crambus alienellus* (Germar & Kaulfuss, 1817): ♀ "Bohemia"

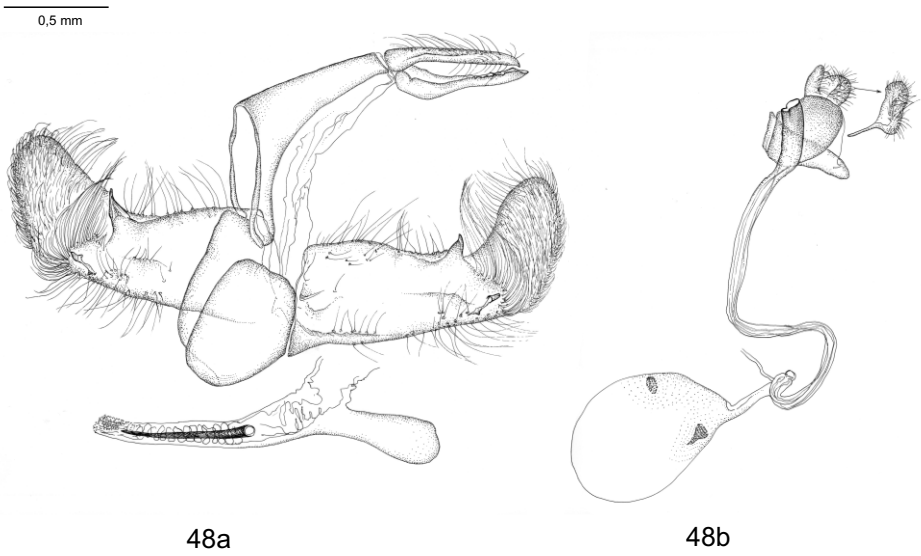


Fig. 48. *Crambus ericellus* (Hübner, [1813]): **48a.** ♂ "Nederland"; **48b.** ♀ "Nederland"

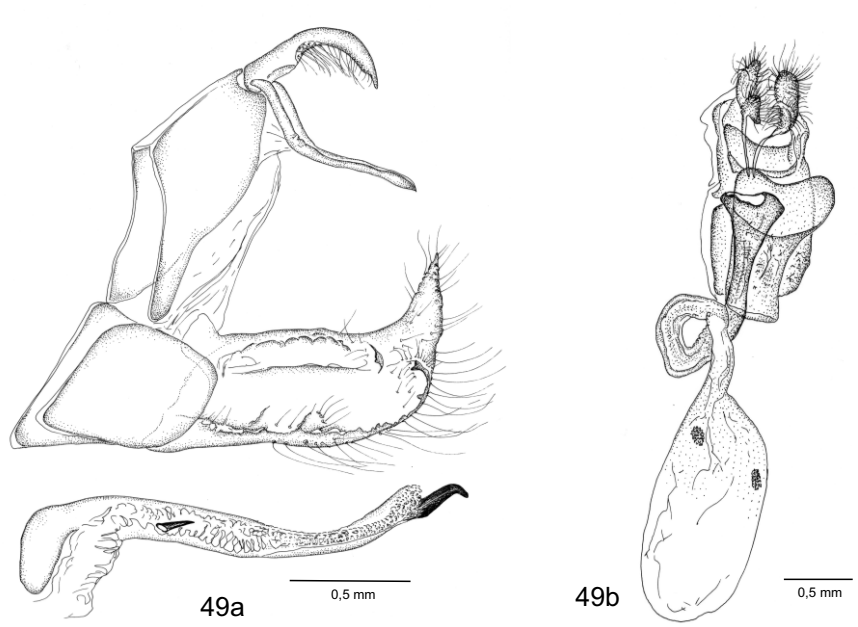


Fig. 49. *Crambus lathoniellus* (Zincken, 1817): **49a.** ♂ E-Teruel; **49b.** ♀ "Nederland"

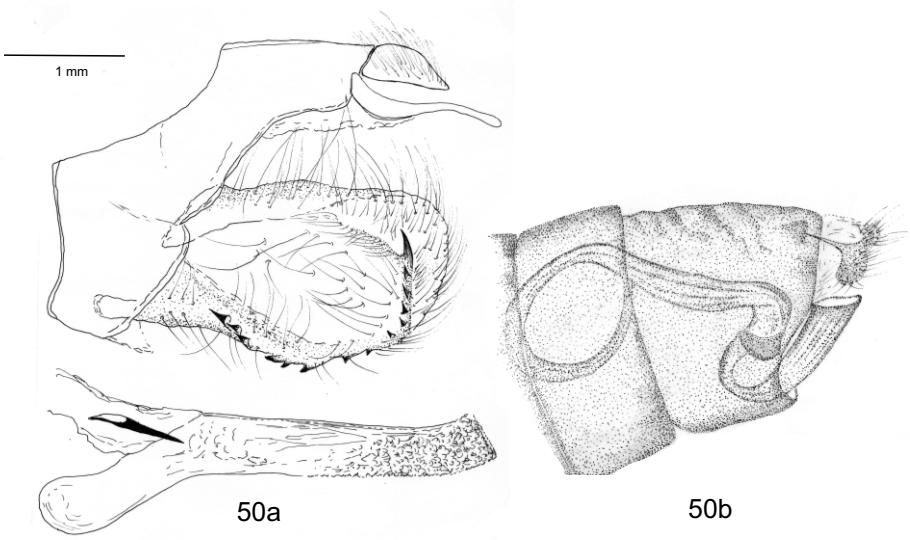


Fig. 50ab. Crambus perlellus perlellus (Scopoli, 1763): **50a.** ♂ Neotypus, SL-Carniola, Krain; **50b.** ♀ SL-Ljubjana, apex of abdomen (lateral)

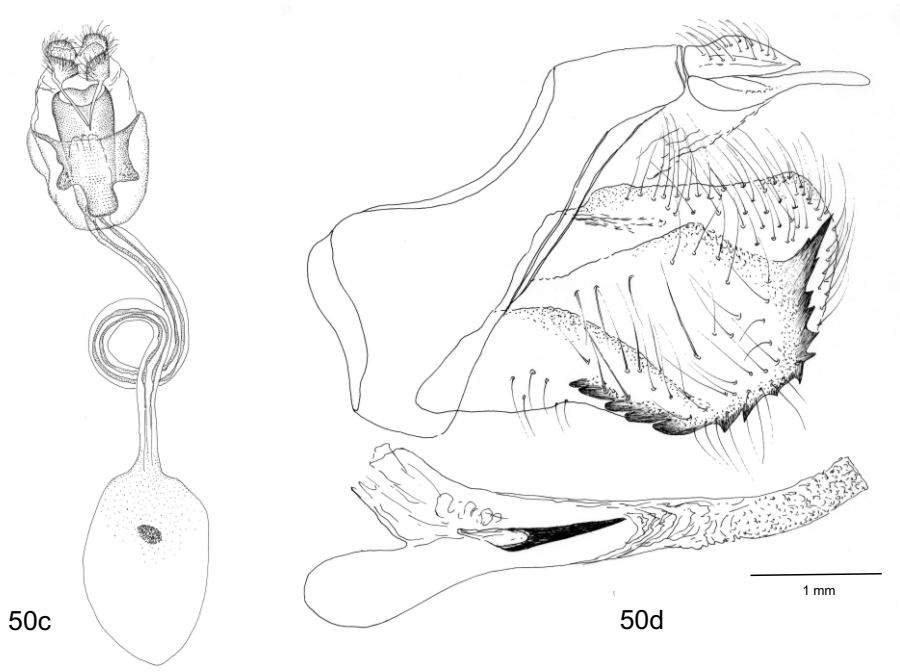
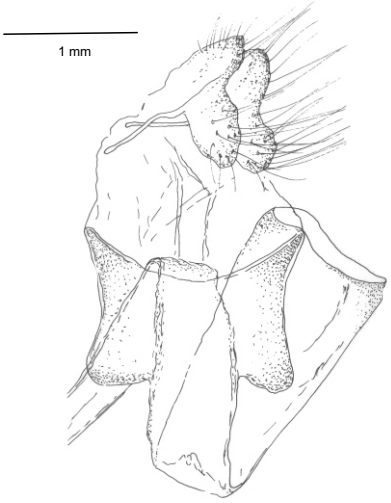


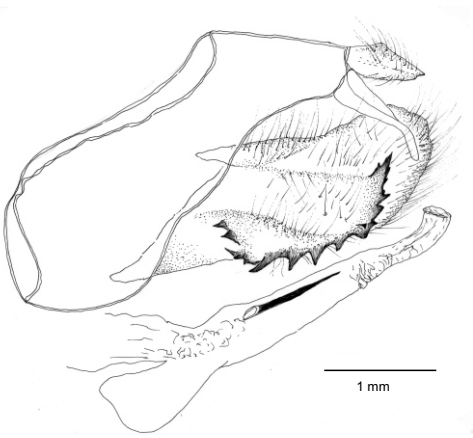
Fig. 50c. *Crambus perlellus*: ♀ "Nederland"

Fig. 50d. *Crambus perlellus aurellus* Zerny, 1914: ♂ Paralectotype, Nord Persien, Poin Schahkuh



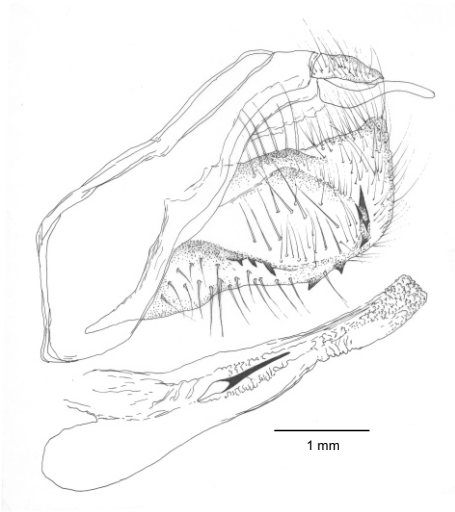
50e

Fig. 50e. *Crambus perlellus aurellus* Zerny, 1914: ♀ Lectotype, N-Persien, Poin Schah Kuh



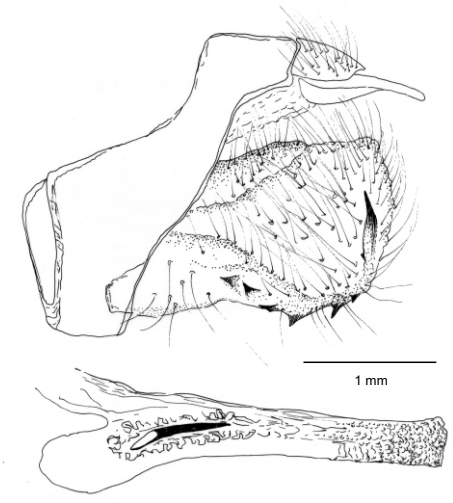
50f

Fig. 50f. *Crambus perlellus cupriacellus* Zerny, 1914: ♂ Holotype, Armenia, Goroda,



50g

Fig. 50g. *Crambus perlellus flavonitellus* Zerny, 1935: ♂ Type, Marokko, Gr. Atlas, Tachdirt



50h

Fig. 50h. *Crambus perlellus monochromellus* Herrich-Schäffer, 1852: ♂ Neotypus, A-Grossglockner

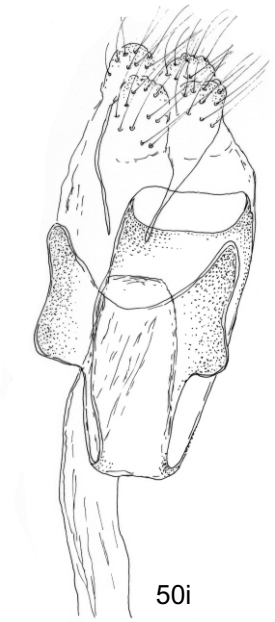


Fig. 50i. *Crambus perlellus monochromellus* Herrich-Schäffer, 1852: ♀ I-Grödner Joch, Südtirol

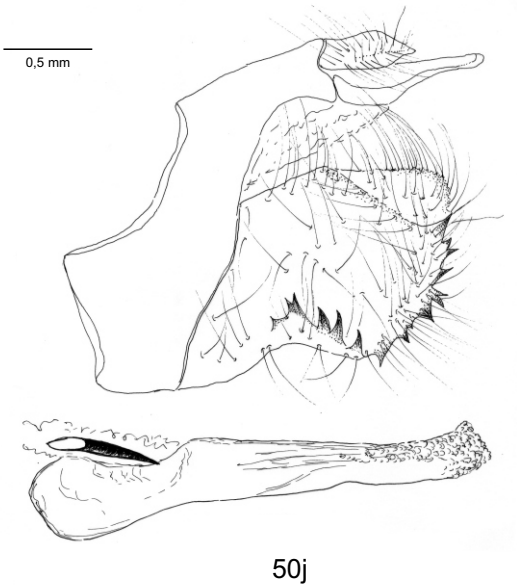


Fig. 50j. *Crambus perlellus pseudorostrellus* Müller-Rutz, 1923: ♂ Topotypus, Alpen Fusio

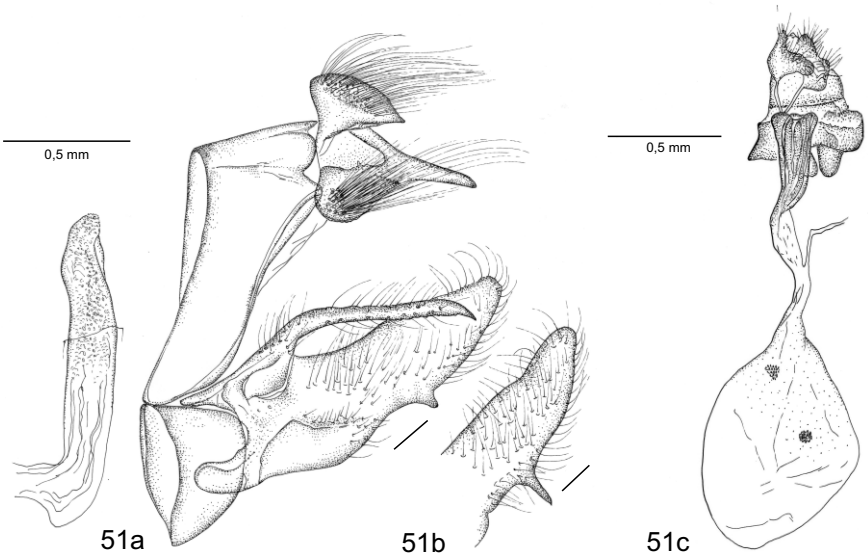


Fig. 51. *Crambus pascuellus* (Linnaeus, 1758): **51a.** ♂ H-Balatonfüred; **51b.** ♂ I-Sardegna; **51c.** ♀ I-Castelli

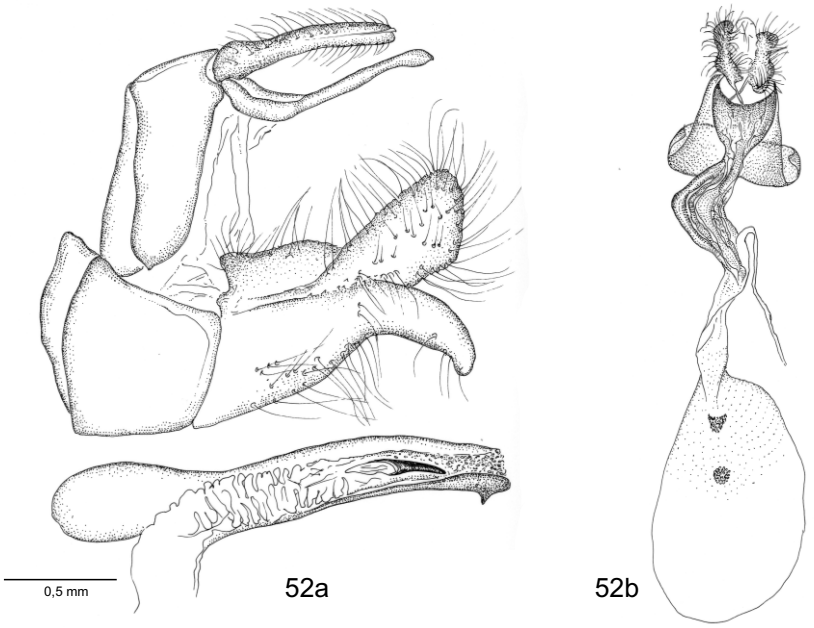


Fig. 52. *Crambus pratellus* (Linnaeus, 1758): **52a.** ♂ "Nederland"; **52b.** ♀ I-Piemonte

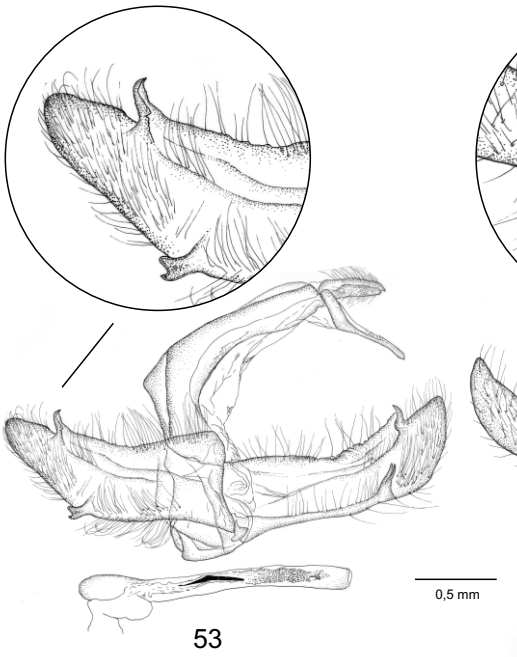


Fig. 53. *Crambus uliginosellus* Zeller, 1850: ♂ NL-Hezingen

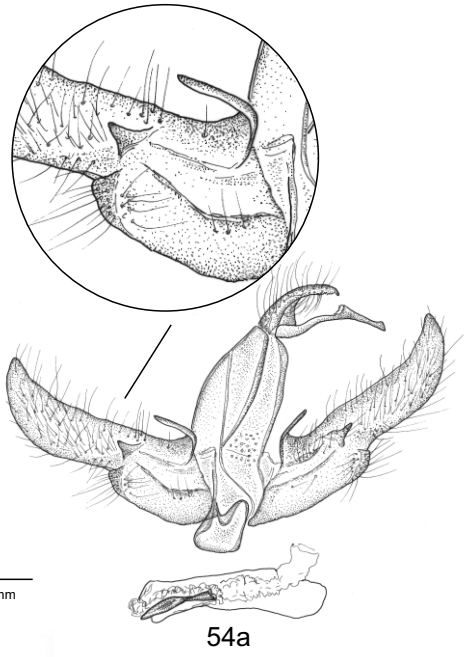
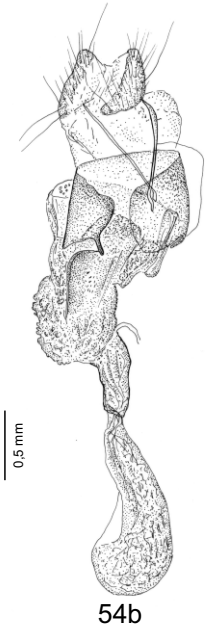
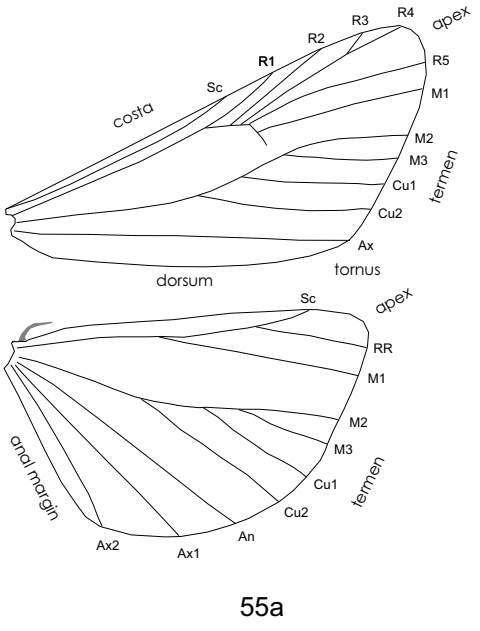


Fig. 54a. *Euchromius anapiellus* (Zeller, 1847): ♂ E-Timpone del Castello



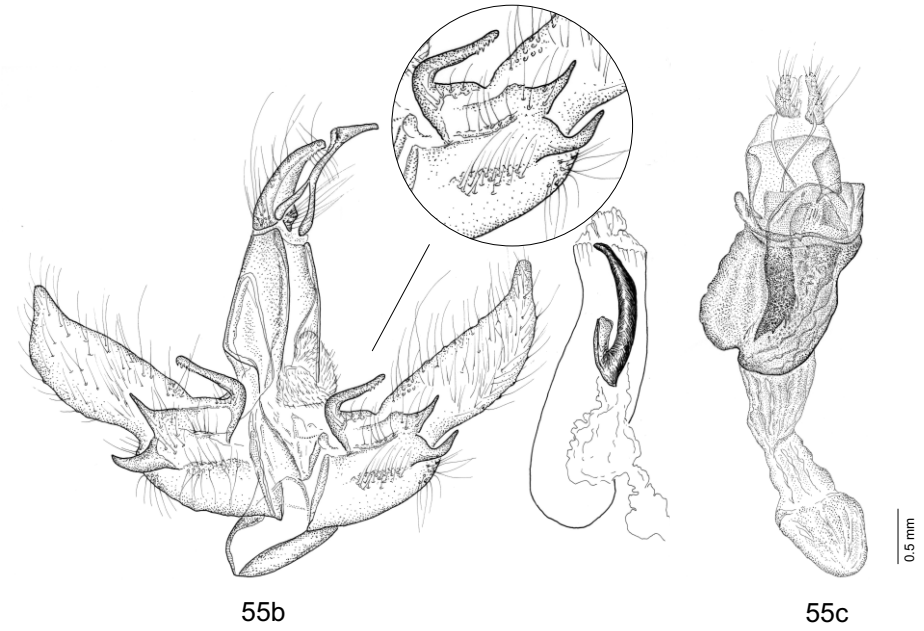
54b

Fig. 54b. *Euchromius anapiellus* (Zeller, 1847): ♀ F-Bonnieux



55a

Fig. 55a. *Euchromius bellus* (Hübner, 1796): wing margins and venation (terminology)



55b 55c

Fig. 55bc. *Euchromius bellus* (Hübner, 1796): **55b.** ♂ BG-Bunkera; **55c.** ♀ BG-Kozuch,

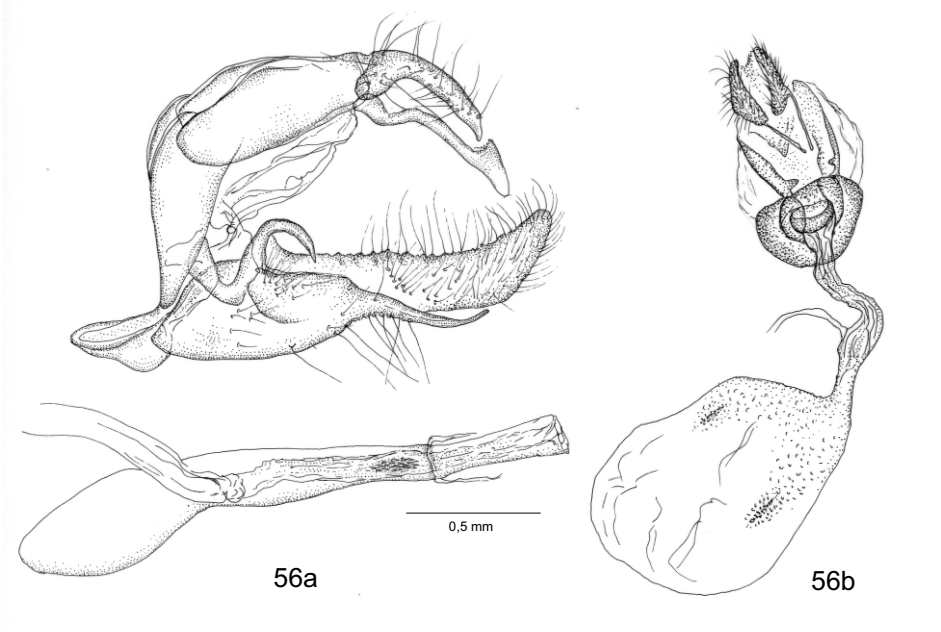


Fig. 56. *Euchromius cambridgei* (Zeller, 1867): **56a.** ♂ E-Murcia; **56b.** ♀ E-Murcia

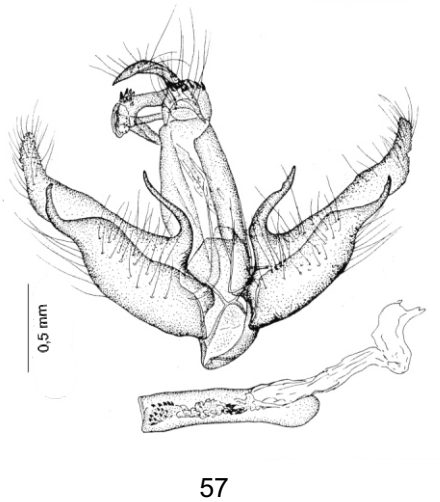


Fig. 57. *Euchromius confuses* Schouten, 1992: ♂ Paratype, Ghorbantal, 1900 m

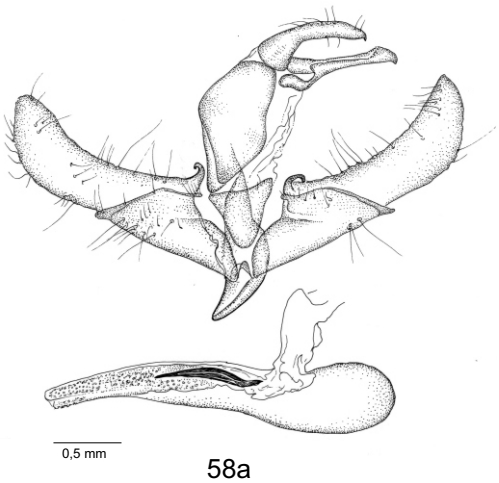
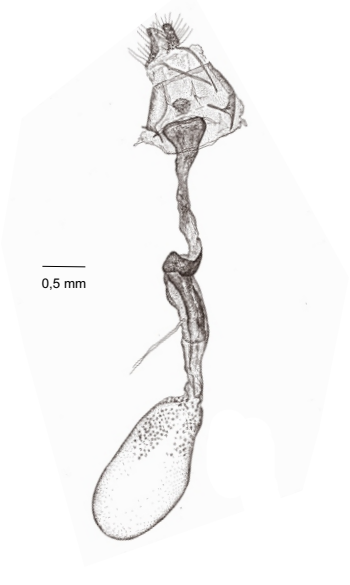
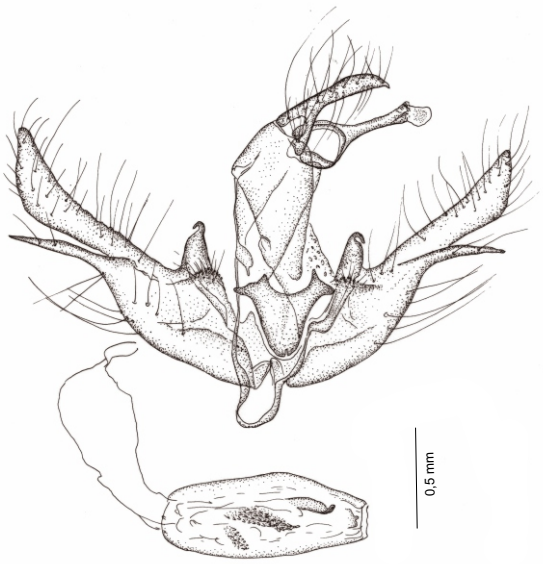


Fig. 58a. *Euchromius gozmanyi* Bleszynski, 1956: ♂ E-Cádiz



58b

Fig. 58b. *Euchromius gozmanyi* Bleszynski, 1956: ♀ E-Cádiz, El Puerto de Santa Maria

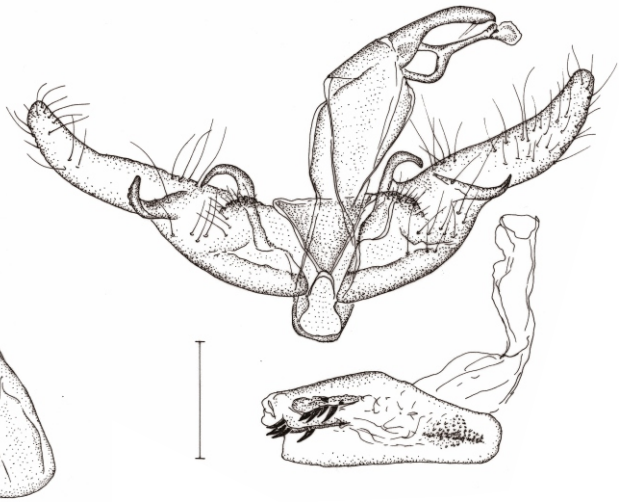


59a

Fig. 59a. *Euchromius gratiosellus* (Caradja, 1910): ♂ TR-Konya

59b

Fig. 59b. *Euchromius gratiosellus*: ♀ RU-Novosibirsk, Karasukskya



60a

Fig. 60a. *Euchromius jaxartellus* (Erschoff, 1874): ♂ TM-Kara-Kala

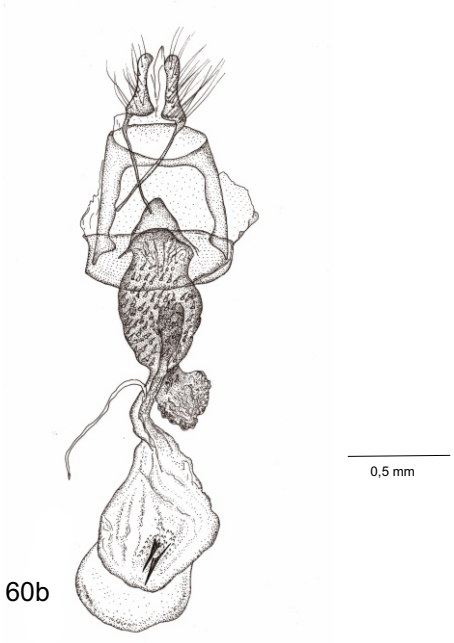


Fig. 60b. *Euchromius jaxartellus* (Erschoff, 1874): ♀ TM-Kopet-Dag, Kara-Kala

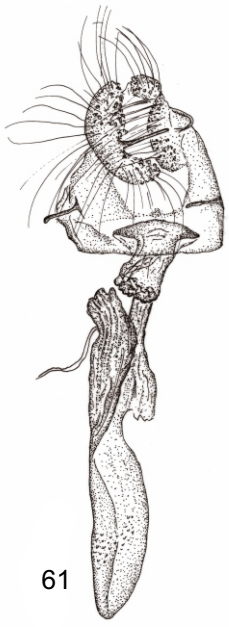


Fig. 61. *Euchromius keredjellus* (Amsel, 1949): ♀ IR-Salzsee 90 km S Teheran

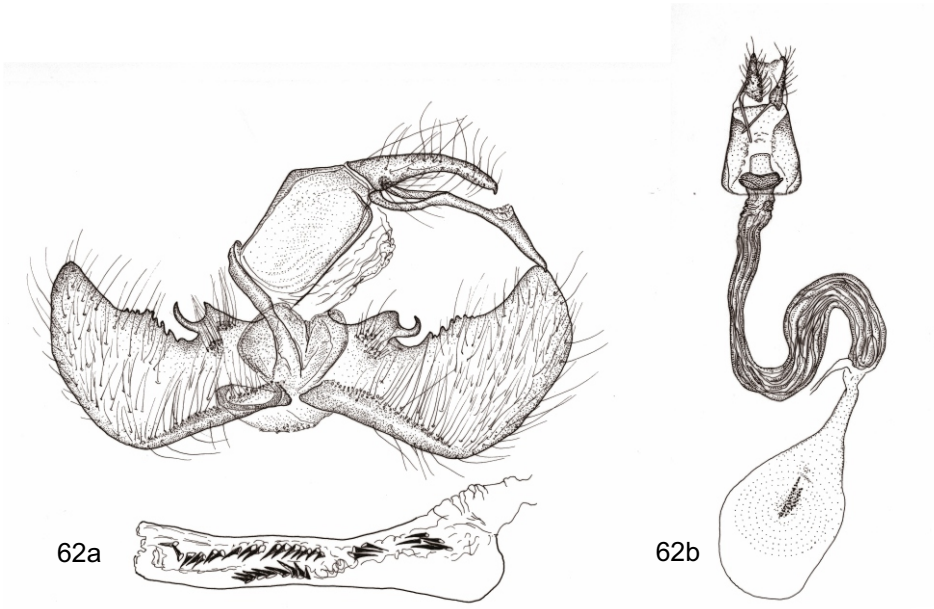


Fig. 62. *Euchromius ocelleus* (Haworth, [1815]): **62a.** ♂ BG-Kozuch; **62b.** ♀ GR-Peloponnisos

Fig. 63. *Euchromius pulverosus* (Christoph, 1887): ♀ IR-Nissa, Elburs

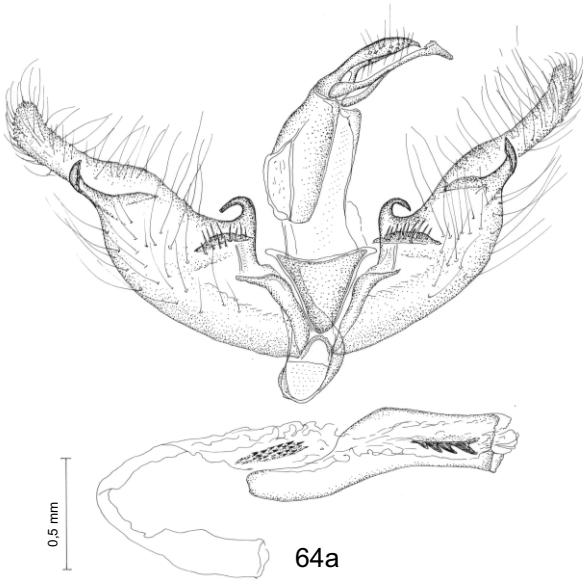


Fig. 64a. *Euchromius ramburiellus* (Duponchel, 1836): ♂ E-Granada

Fig. 64b. *Euchromius ramburiellus* (Duponchel, 1836): ♀ E-Malaga

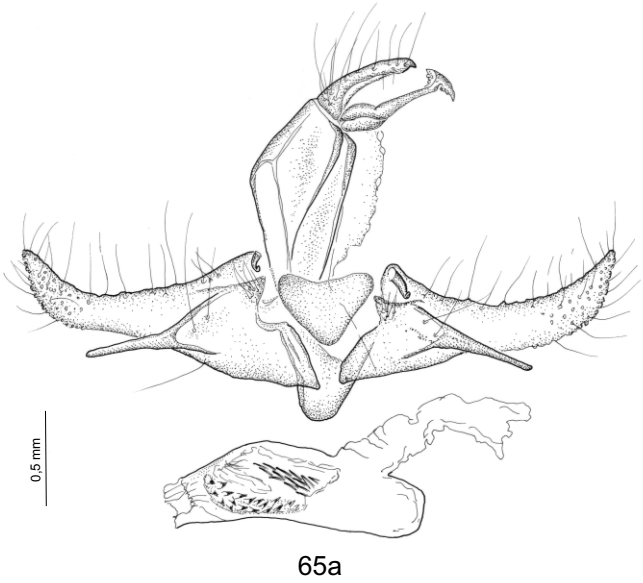


Fig. 65a. *Euchromius rayatellus* (Amsel, 1949): ♂ GR-Iráklion

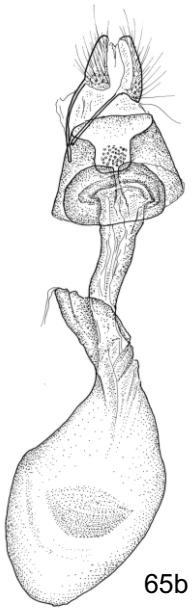


Fig. 65b. *Euchromius rayatellus* (Amsel, 1949): ♀ BG-Nessebar

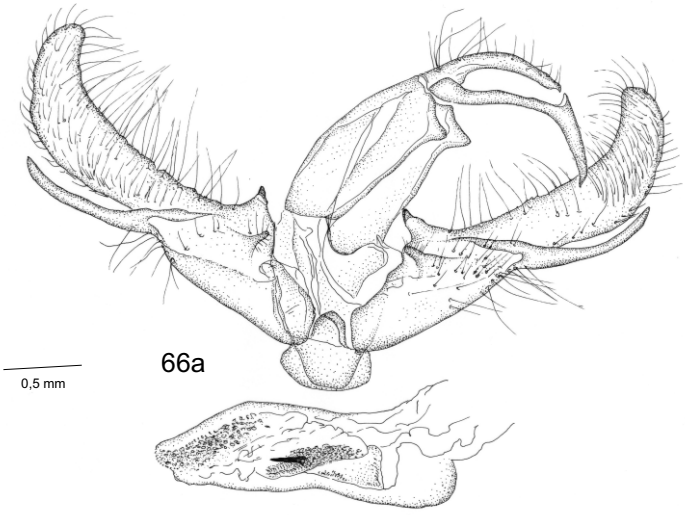


Fig. 66a. *Euchromius subcambridgei* Bleszynski, 1965: ♂ TN-Sfax

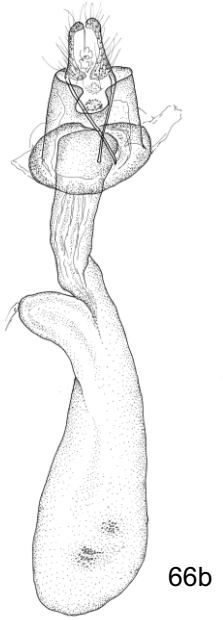


Fig. 66b. *Euchromius subcambridgei* Bleszynski, 1965: ♀ "Tunesia"

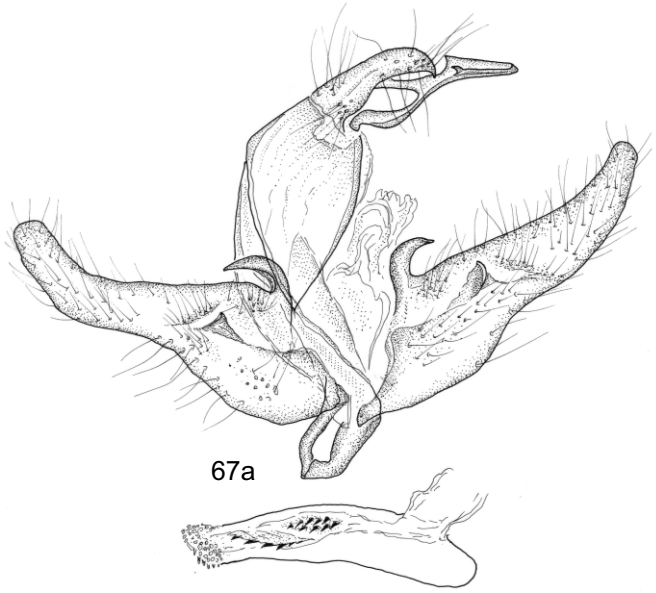


Fig. 67a. *Euchromius superbellus* (Zeller, 1849): ♂ BG-Kozuch

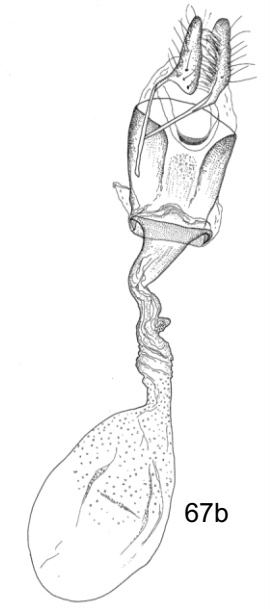


Fig. 67b. *Euchromius superbellus* (Zeller, 1849): ♀ GR-Peloponnisos

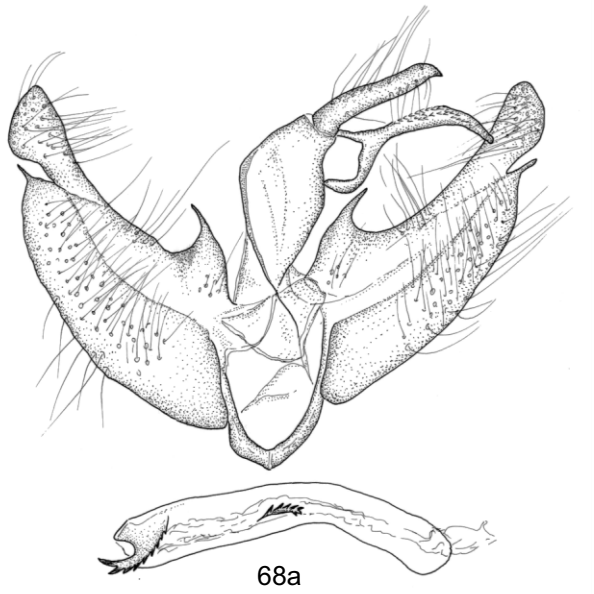


Fig. 68a. *Euchromius vinculellus* (Zeller, 1847): ♂ E-El Ronquillo, Sevilla

Fig. 68b. *Euchromius vinculellus*: ♀ YAR-Sugas Sabi

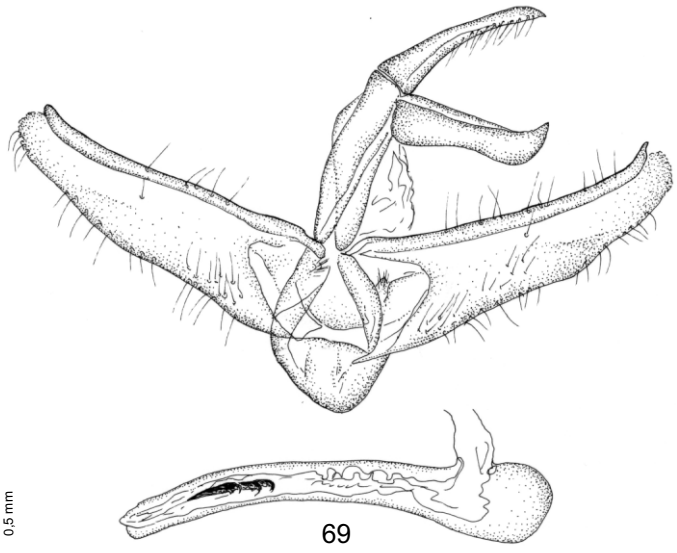


Fig. 69. *Glaucocharis euchromiella* (Ragonot, 1895): ♂ TR-Gümüşhane

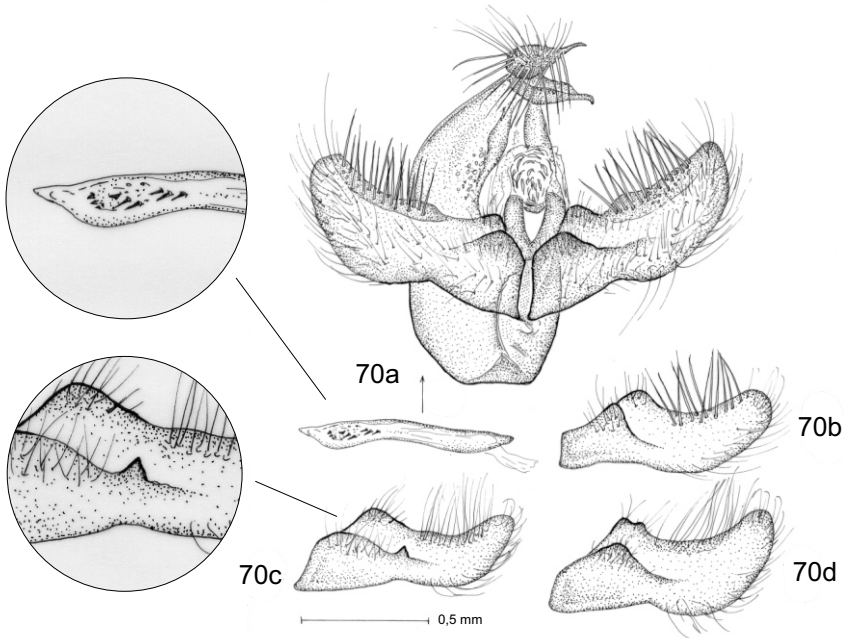


Fig. 70. *Metacrambus carectellus* (Zeller, 1847): **70a.** ♂ E-Cuenca; **70b.** ♂ AZ-Lankaran, valva, lateral; **70c**. ♂ GR-Peloponnisos; **70d**. ♂ NW Ganges 3 km

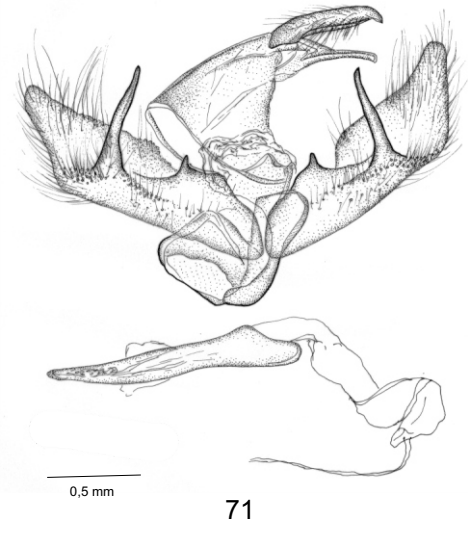


Fig. 71. *Metacrambus pallidellus* (Duponchel, 1836): ♂ E-Granada

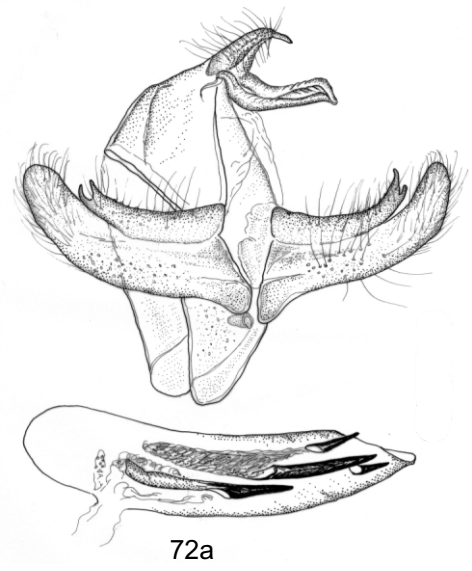


Fig. 72a. *Metacrambus pallidellus* (Duponchel, 1836): ♂ E-Granada

Fig. 72b. *Pediasia bolivarella* (Schmidt, 1930): E-Huelva, Torre La Higuera

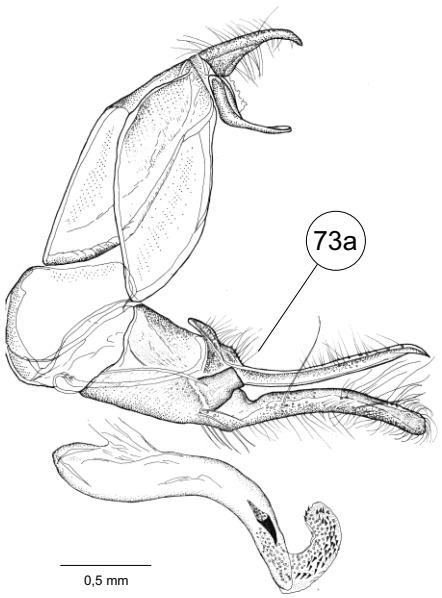


Fig. 73a. *Pediasia kenderesiensis* Fazekas, 1987 ♂ Holotypus, H-Kenderes

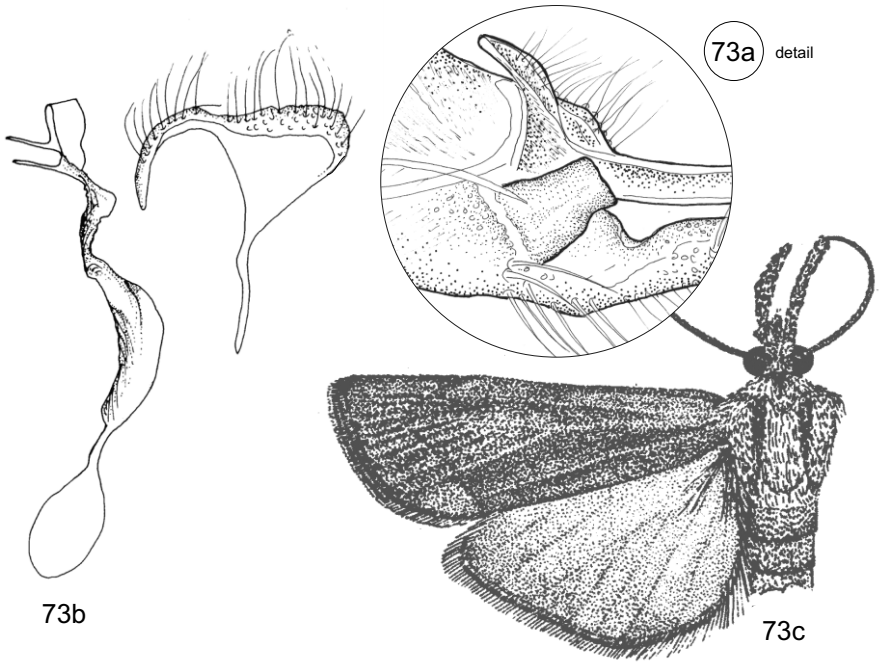


Fig. 73bc. *Pediasia kenderesiensis*: **73b.** ♀ genitalia, H-Kendres; **73c.** ♂ habitus, holotypus

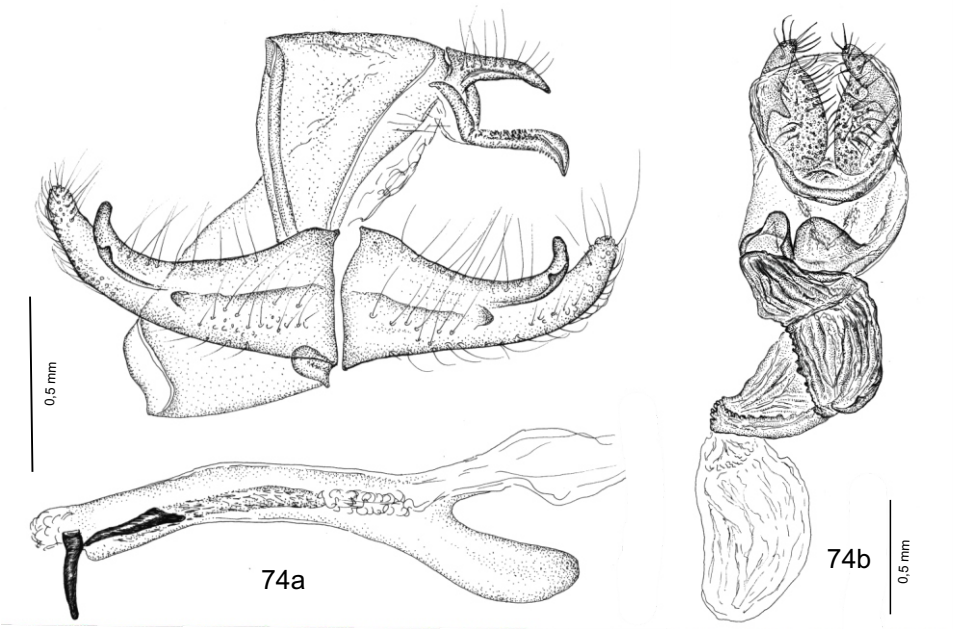


Fig. 74. *Pediasia matricella* (Treitschke, 1832): **74a.** ♂ TR-Kars, Karakurt; **74b.** ♀ TR-Kars, Mt. Ararat

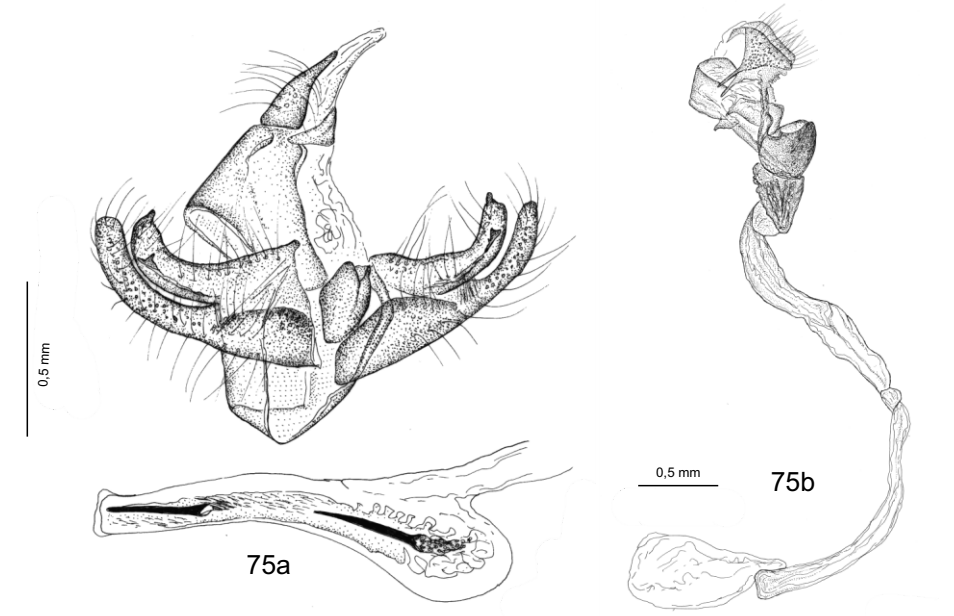


Fig. 75. *Pediasia serraticornis* (Hampson, 1900): **75a.** ♂ E-Almeria, Mini Hollywood; **75b.** ♀ E-Almeria, Tabernas

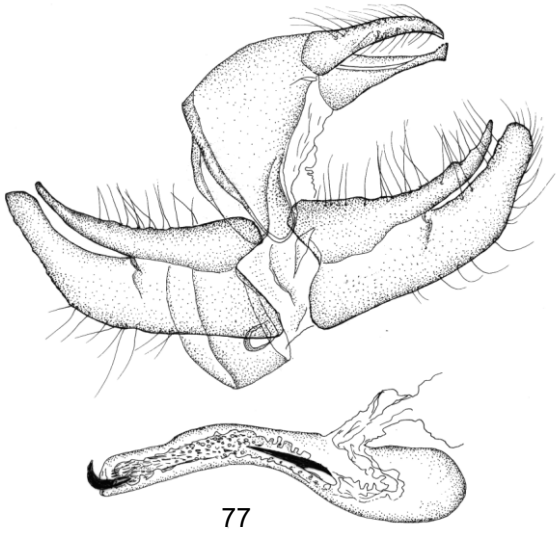


Fig. 77. *Pediasia siculella* (Duponchel, 1836): ♂ E-Cádiz, Tarifa, Rio Jara

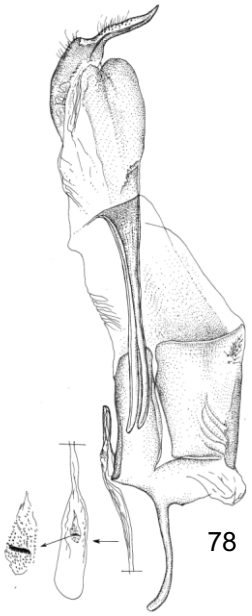


Fig. 78. *Pseudobissetia terrestrella* (Christoph, 1885): ♀ E-Guadalajara

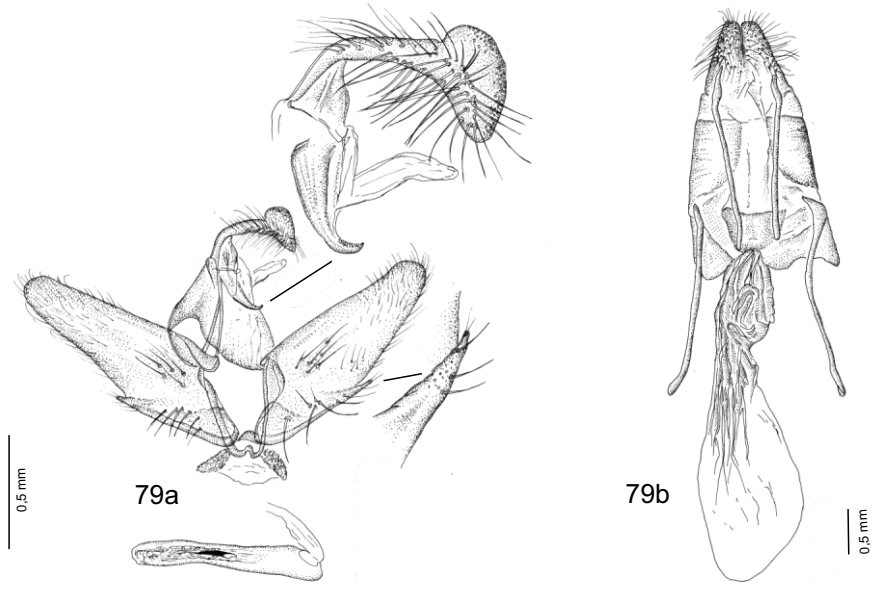


Fig. 79. *Talis quercella* ([Denis & Schiffermüller], 1775): **79a.** ♂ TR-Kars, N Tuzluca 950 m; **79b.** ♀ ibidem

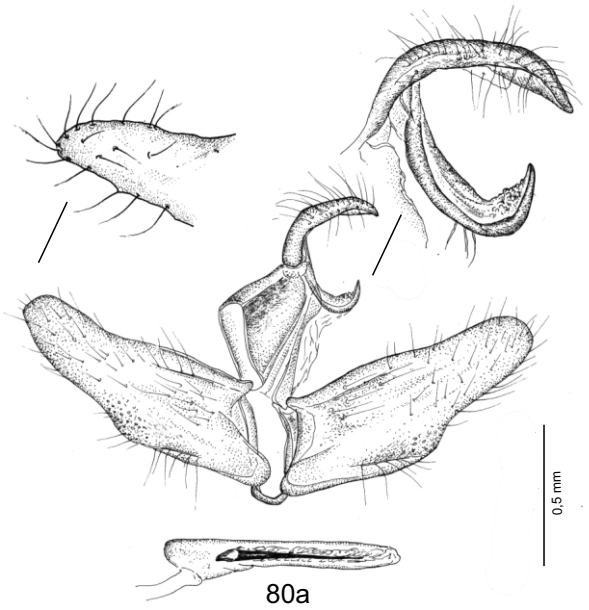


Fig. 80a. *Talis renetae* Ganev & Hacker, 1984: ♂ TR-Kars, Mt. Ararat

Fig. 80b. *Talis renetae* Ganev & Hacker, 1984: ♂ wingpattern, TR- Bitlis Prov., Süphan Mt.

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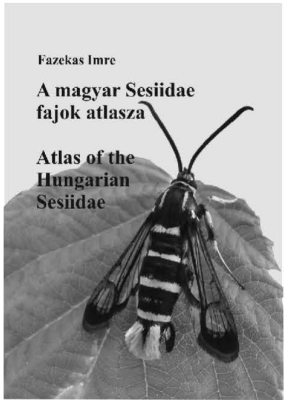

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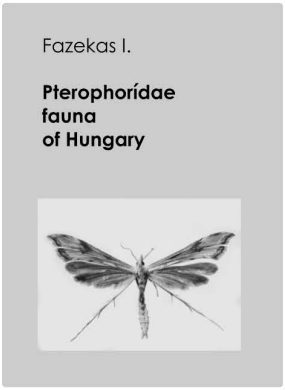

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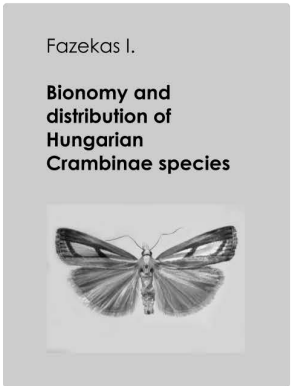

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