



A review of the genus *Nothris* Hübner, 1825, with description of new species (Lepidoptera: Gelechiidae)

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Abstract

The West Palaearctic genus *Nothris* is reviewed. Eight species are distinguished, and adults and genitalia are described and figured. Two species are described as new for science: *Nothris gregersenii* sp. n. and *N. skyvai* sp. n. New synonymies are established: *Nothris discretella* Rebel, 1889 syn. n. and *N. verbascella clarella* Amsel, 1935 stat. n. are considered synonyms of *N. verbascella* ([Denis & Schiffermüller], 1775); and *N. magna* Nel & Peslier, 2007 syn. n. is synonymized with *N. sulcella* Staudinger, 1879. Most *Nothris* species occur in Turkey.

Key words: Taxonomy, Lepidoptera, Gelechiidae, *Nothris*, new species, Turkey

Introduction

The genus *Nothris* (Gelechiidae, Anacampsinae) consists of large to very large gelechiids (wingspan 16–36 mm) with yellowish, brownish, greyish or black forewings, and with segment 2 of the labial palpus having a distinct ventral brush, a characteristic feature which is only found in relatively few gelechiid genera. The aim of the present paper is to review the species currently assigned to *Nothris* and to describe two undescribed species from Europe. In the past more species were described or placed in the genus *Nothris*, but most of them were later transferred to other genera or families. Here the genus is restricted in the sense of Sattler (1960), and we recognize eight species as valid in this paper. The results are based on study of the type material of all taxa with the exception of *N. congressariella* (Bruand, 1858), *N. lemniscellus* (Zeller, 1839) and *N. verbascella* ([Denis & Schiffermüller], 1775). For the two last mentioned species material from their type localities was studied.

Material and methods

The present study is based primarily on material in the following collections:

BÅB	coll. Bengt Åge Bengtsson, Färjestaden, Sweden
MFN	coll. Museum für Naturkunde, Berlin, Germany
NHMW	coll. Naturhistorisches Museum Wien, Austria
NMPC	coll. National Museum, Natural History Museum, Prague, Czech Republic
PF	coll. Per Falck, Neksø, Denmark
IGR	coll. Ignác Richter, Malá Čausa, Slovakia
SK	coll. Jan Skyva, Prague, Czech Republic
SMNS	coll. Staatliches Museum für Naturkunde Stuttgart, Germany

ZSM coll. Zoologische Staatssammlung München, Germany
ZMUC coll. Zoological Museum, Natural History Museum of Denmark, Copenhagen, Denmark

Type material is quoted literally from the labels of specimens, whereas other material is quoted in a standardized way. Apart from type specimens, examined material is listed in detail only for some countries, especially former Yugoslavia and Turkey, unless of special faunistic interest. For other material only the number of examined specimens are given from each country. Examined material (other than types) is listed alphabetically after country and province, and specimens from the same province are listed chronologically.

We examined several genitalia slides of each species (and of each sex when available).

Genitalia preparation followed the techniques described by Huemer & Karsholt (2010). Photographic documentation of adults was made by using of Canon G12 with B.I.G. Medical macro CU +8dpt. Photographies of genitals were taken with a Canon EOS 1100D installed in microscope Olympus BX41 with a 10x objective and 10x ocular. All photos were edited in Helicon Focus 6.3.5 Pro and Adobe Photoshop CC.

Results

Check-list of *Nothris*

congressariella (Bruand, 1858)
declaratella Staudinger, 1859
lemniscellus (Zeller, 1839)
gregersenii sp. n.
verbascella ([Denis & Schiffermüller], 1775)
discretella Rebel, 1889 syn. n.
clarella Amsel, 1935 stat. n.
sulcella Staudinger, 1879
magna Nel & Peslier, 2007 syn. n.
sabulosella Rebel, 1935
radiata (Staudinger, 1879)
skyvai sp. n.

Nothris Hübner, 1825: 411

Type species: *Tinea verbascella* [Denis & Schiffermüller], 1775 by subsequent designation by Meyrick (1925) (see Sattler 1973: 229).

Description. Adult. Wingspan 16–36 mm. Segment 2 of labial palpus with a distinct ventral brush; segment 3 longer than segment 2, thin. Forewing rather slender with rounded apex; three black spots in fold and at ½ and 2/3 in middle of wing. Hindwing greyish, broadly trapezoidal, with hardly sinuate termen. Tergum I–IV with yellowish scales.

Male genitalia. Sternum VIII and tergum VIII a united ring; tegumen subrectangular, lateral margins subparallel, anterior margin with emargination; uncus large, partly setose, apex rounded; gnathos with a large hook; valva long, slender, straight, setose, ventrobasally with small bulge; sacculus digitate or thumb-like, curved, dorsally set with strong spines; juxta lobes rounded, setose, fused with anellus embracing phallus; saccus mostly short and slender; phallus slender, with oval base, apically flagellate; vesica without cornuti.

Female genitalia. Ovipositor short; papillae anales different in shape; apophyses posteriores about double length of apophyses anteriores; segment VIII broad, cylindrical, with strongly sclerotized band around posterior margin, ventromedially membranous; antrum tubular, membranous, more or less transversely wrinkled, ostium bursae broadening; ductus seminalis from the middle of ductus bursae; colliculum absent; ductus bursae long and narrow, variously coiled from ductus seminalis to corpus bursae; corpus bursae oval, spinose; signum an irregular plate of different shape.

Bionomics. Larva on Scrophulariaceae and Globariaceae. *Nothris* species seem to prefer open, sunny biotopes. Adults are attracted to light.

Distribution. Western Palaearctic, with only one species extending to southern Siberia. Most species occur in Greece and Turkey.

Remarks. The convolutions of ductus bursae should be observed before transferring the female genitalia into strong alcohol because they thereby become distorted.



FIGURES 1–2. Slovenia, Nanos Mts.: 1. Habitat of *Nothris skyvai* sp. n.; 2. *Scrophularia canina* — host plant of *N. skyvai* sp. n.

Key to the species based on male genitalia

1. Valvae not reaching the apex of uncus (Figs 52, 62, 70, 84, 90) 2
- Valvae markedly overlapping the uncus (Figs 41, 46, 101) 6
2. Sacculus narrow, long and conspicuously curved under apex (Figs 66–67) *verbascella*
- Sacculus comparatively broader and short, not curved under apex 3
3. Apex of uncus with a hat-like extension (Figs 90–91, 96) *radiata*
- Uncus without a hat-like extension 4
4. Phallus conspicuously curved near apex, caecum without lamina (Figs 59–61) *gregersenii* sp. n.
- Phallus slightly curved in the whole length, lamina present (76–78, 80–82) 5
5. Coecum short and broad, apex of sacculus covered with four irregular rows of sclerotized spines, saccus broad, uncus slightly broadened (Figs 73, 76–78) *sulcella*
- Coecum long and narrow, apex of sacculus covered with two irregular rows of spines, saccus narrow, uncus markedly broadened (Figs 80–89) *sabulosella*
6. Uncus densely covered with long setae, gnathos only slightly curved, phallus conspicuously curved near the apex, vinculum very small (Fig. 46–51) *lemniscella*
- Uncus sparsely covered with short setae, gnathos markedly curved, phallus only slightly curved, vinculum conspicuous 7
7. Lamina present, gnathos short, stout, its apex in shovel-shape and strongly sclerotized (Figs 41–45) *congressariella*
- Lamina absent, gnathos comparatively longer and thinner (Figs 101–107) *skyvai* sp. n.

Key to the species based on female genitalia

Females of *N. sulcella* and *N. sabulosella* are not known.

1. Ductus bursae very long, signum elongated without ventral plates (Figs 109–110) 5
- Ductus bursae comparatively shorter, signum a round plate with ventral plates (Figs 108, 111–113) 2
2. Papillae anales narrow, pointed apically (Fig. 111) *verbascella*
- Papillae anales broad and rounded (Figs 108, 112–113) 3
3. Ductus bursae before corpus bursae with approximately eight to nine coils (Fig. 112) *radiata*
- Ductus bursae with five or fewer coils (Figs 108, 113) 4
4. Subgenital plate excised medially (Fig. 114) *congressariella*
- Subgenital plate excised distally (Fig. 134) *skyvai* sp. n.

5. Signum with many small spines (Figs 117–119) *lemniscella*
 - Signum with fewer stout spines (Figs 122–124) *gregersenii* **sp. n.**

***Nothris congressariella* (Bruand, 1858)**

(Figs 3–8, 41–45, 108, 114–115)

Ypsolopha congressariella Bruand, 1858: 471, pl. 11, fig. 7, 7a.

Nothris declaratella Staudinger, 1859: 238

Type material examined. Lectotype ♂: ‘28/6’ | ‘Lectotype’ | ‘Orign’ | ‘Chiclana m’ | ‘Lectotypus Nothris declaratella Stdge. teste K. Sattler, 1986’ | ‘ex col Staudinger’ (MFN); 1 ♂, ‘29/4’ | ‘Orign.’ | ‘Paralectotype’ | ‘ex col Staudinger’ (MFN).

Other material studied. France (2); Greece (8), Greece, Crete (3), Great Britain (4), Italy (1), Spain (5), Spain, Canary Islands (7).

Croatia. Omiš env., Marušići, 15 ♂, 11 ♀, 130 m, 3.–17.viii.2008, leg. J. Šumpich, gen. prep. Šumpich 14/001 (NMPC). **Macedonia.** Galicica NP, 3.4 km NNE Stenje, Oteshevo, 850 m, 1 ♀, 17.vi.2013, leg. P. Skou (ZMUC). **Slovenia.** Nanos Mts., Lovska koča, 700 m, 2 ♂, 3.vii.2013, leg. J. Šumpich (NMPC); **Tunisia.** North of Gafsa, 3 ♂, 6.iv.1998, leg. F. Iversen (ZMUC). **Turkey.** Amasya, Sakarat Dagi, Karatas, 1700 m, 1 ♂, 1 ♀, 24.vii.1998, leg. K. Larsen (ZMUC); Corum, Cekerek, 1300 m, 1 ♀, 17.vii.1989, leg. M. Fibiger & N. Esser (ZMUC); Gümüşhane, Kop Geçidi, 2400 m, 1 ♂, 13–14.ix.1993, leg. M. Fibiger (ZMUC); Kars, Pasli Pass, 2020 m, 1 ♂, 1 ♀, 10.ix.1993, leg. M. Fibiger (ZMUC); Konya, 15 km S Kurukaova, 1100 m, 1 ♂, 1.viii.1998, leg. K. Larsen (ZMUC).

Description. Adult (Figs 3–8). Wingspan 16–21 mm. Segment 2 of labial palpus black at base, apically white; segment 3 cream-white. Scape of antenna black; flagellum light at base, becoming blackish towards tip, indistinctly darker ringed. Head cream-white, greyish in middle; thorax blackish brown; tegula light yellowish brown. Forewing light brown with lighter costa and blackish brown in basal part of the wing, along fold and a streak from base to middle of wing; black dots in fold (followed by white scales) and at ½ and 2/3 in middle of wing; veins in apical part of wing black; black spots along termen; cilia grey with dark grey cilia line. Hindwing grey.

Variation. A variable species especially with regard to the amount of black scales in the forewing (specimens from the Canary Islands can be almost without black). The veins are normally black, but they can also be concolorous with the forewing. Sometimes there are white scales before the terminal spots in the forewing.

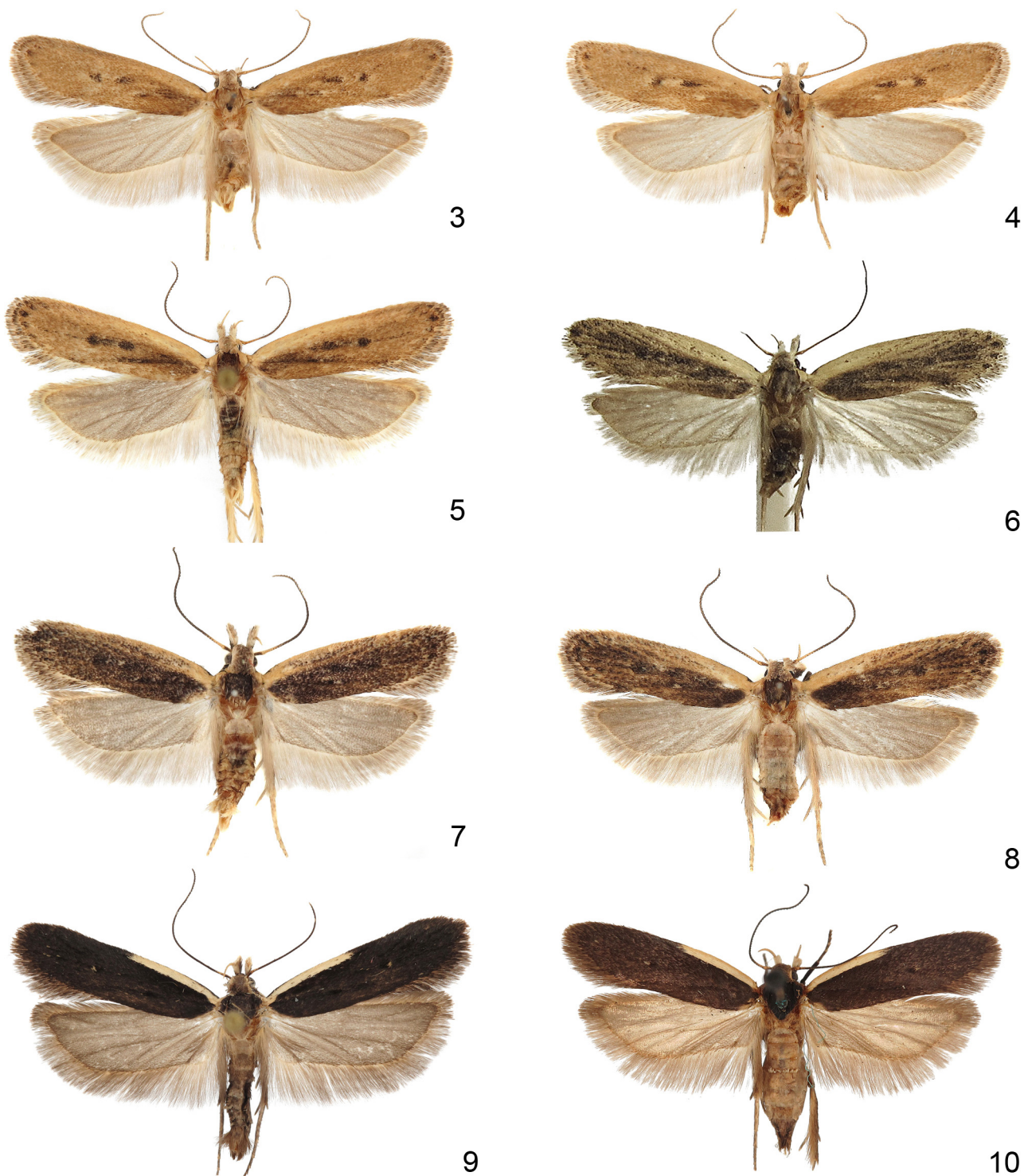
Male genitalia (Figs 41–45). Valva comparatively broad, bulging medially, sparsely covered with long setae, more densely only in its medial parts. Sacculus nearly erect, slightly pointed terminally covered with an irregular row of strong spines along the whole of its length (with more spines concentrated basally). Uncus broad, with slightly broadened apex, rounded, sparsely covered with setae. Gnathos markedly arcuate, terminally flattened in lateral view and with a thumb-like termination in frontal view. Saccus broad, subrectangular. Phallus very narrow, only slightly curved terminally, ending with a long flagellum in shape of a double loop. Bulbus ejaculatorius with one elongated lamina.

Female genitalia (Figs 108, 114–115). Papillae anales small, broadly oval. Apophyses posteriores very short, less than twice as long as apophyses anteriores. Subgenital plate broad, in lateral view deeply concave medially. Ductus bursae distally straight and coiled approximately five times proximally. Ductus seminalis arising in the middle of ductus bursae, slightly broadened and membranous proximally, distally with a short, sparsely spined section followed by elongated bulla seminalis. Corpus bursae oval, signum prominent, basal plate elongated, then terminally rounded and bearing two large lateral plates of rounded shape.

Differential diagnosis. *N. congressariella* is characterized by the brownish forewings with a lighter costa, and with dark scales on the veins. It may resemble *N. verbascella*, but that species is on average larger and is without blackish brown in basal part of the forewing.

A distinctive species with characteristic shape of gnathos, medially broadened valva, narrow, long and erect sacculus and a very long flagellum in male genitalia and characteristic shape of subgenital plate and ductus seminalis in female genitalia.

Distribution. From the Canary Islands, Tunisia, SW Europe, Greece, Macedonia to Turkey; northwards to south-western part of the British Isles.



FIGURES 3–10. Adults of *Nothris* species. 3–8. *N. congressariella*: 3. ♂, Canary Islands, Teneriffe; 4. ♀, Canary Islands, Teneriffe; 5. ♂, Spain; 6. ♂, Slovenia; 7. ♂, Croatia; 8. ♀, Croatia; 9–10. *N. lemniscellus*: 9. ♂, Czech Republic; 10. ♀, Hungary ('Ofen').



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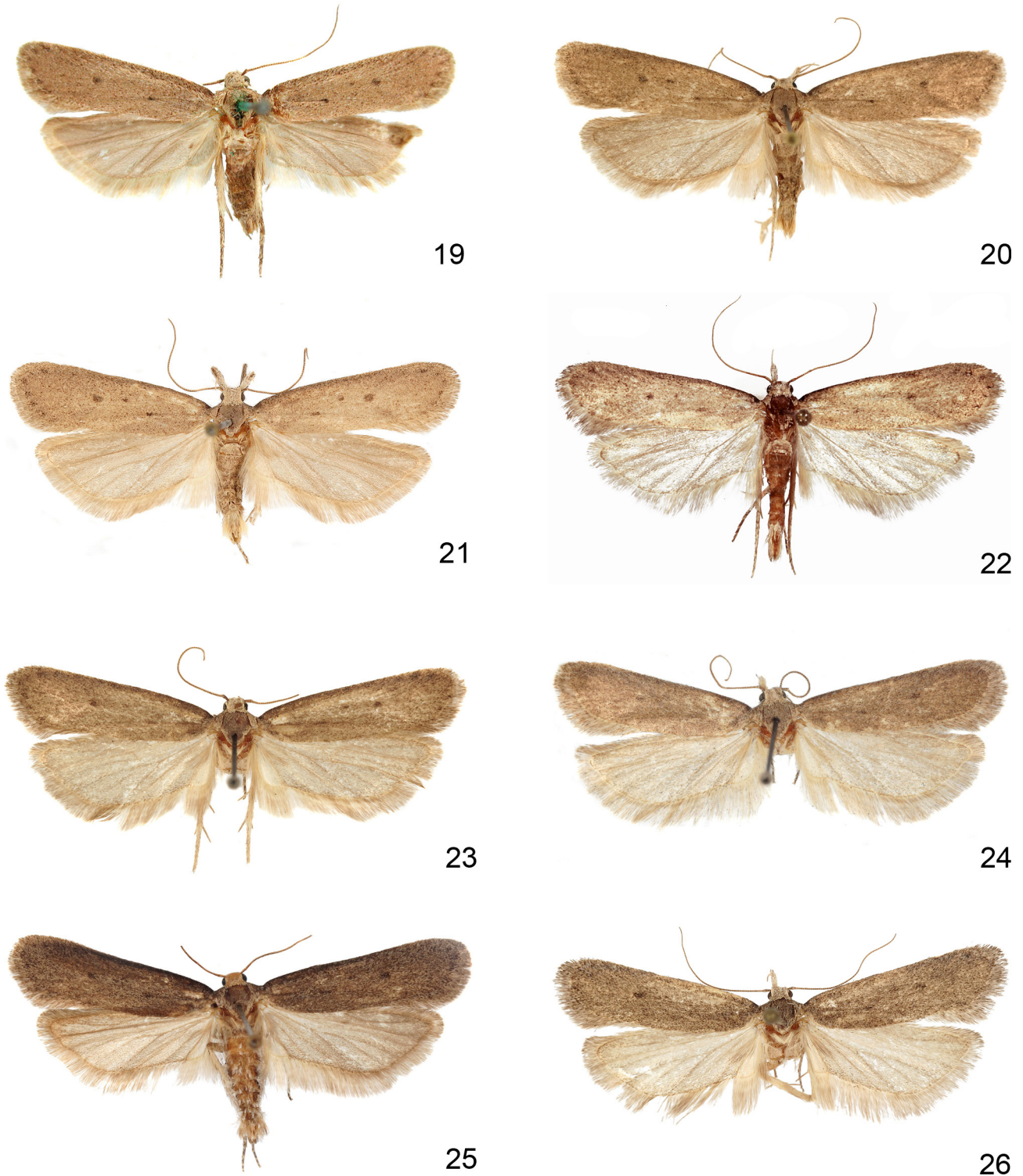


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FIGURES 11–18. Adults of *Nothris* species. 11–13. *N. gregersenii* sp. n.: 11. ♂, Sweden, paratypus; 12. ♀, Sweden, paratypus; 13. Turkey; 14–18. *N. verbascella*: 14. ♂, Austria, holotypus of *N. discretella*; 15. ♂, Czech Republic; 16. ♀, Hungary; 17. ♂, Croatia; 18. ♂, Jericho, paratypus of *N. verbascella clarella*.



FIGURES 19–26. Adults of *Nothris* species. 19–22. *N. sulcella*: 19. ♂, Greece, lectotypus (copyright of the Trustees of the Museum für Naturkunde der Humboldt-Universität, Berlin); 20. ♂, Greece; 21. ♂, Macedonia; 22. ♂, Greece, holotypus of *N. magna* (photo S. Peslier); 23–26. *N. sabulosella*, ♂, Turkey: 23. lectotypus; 24. typus.



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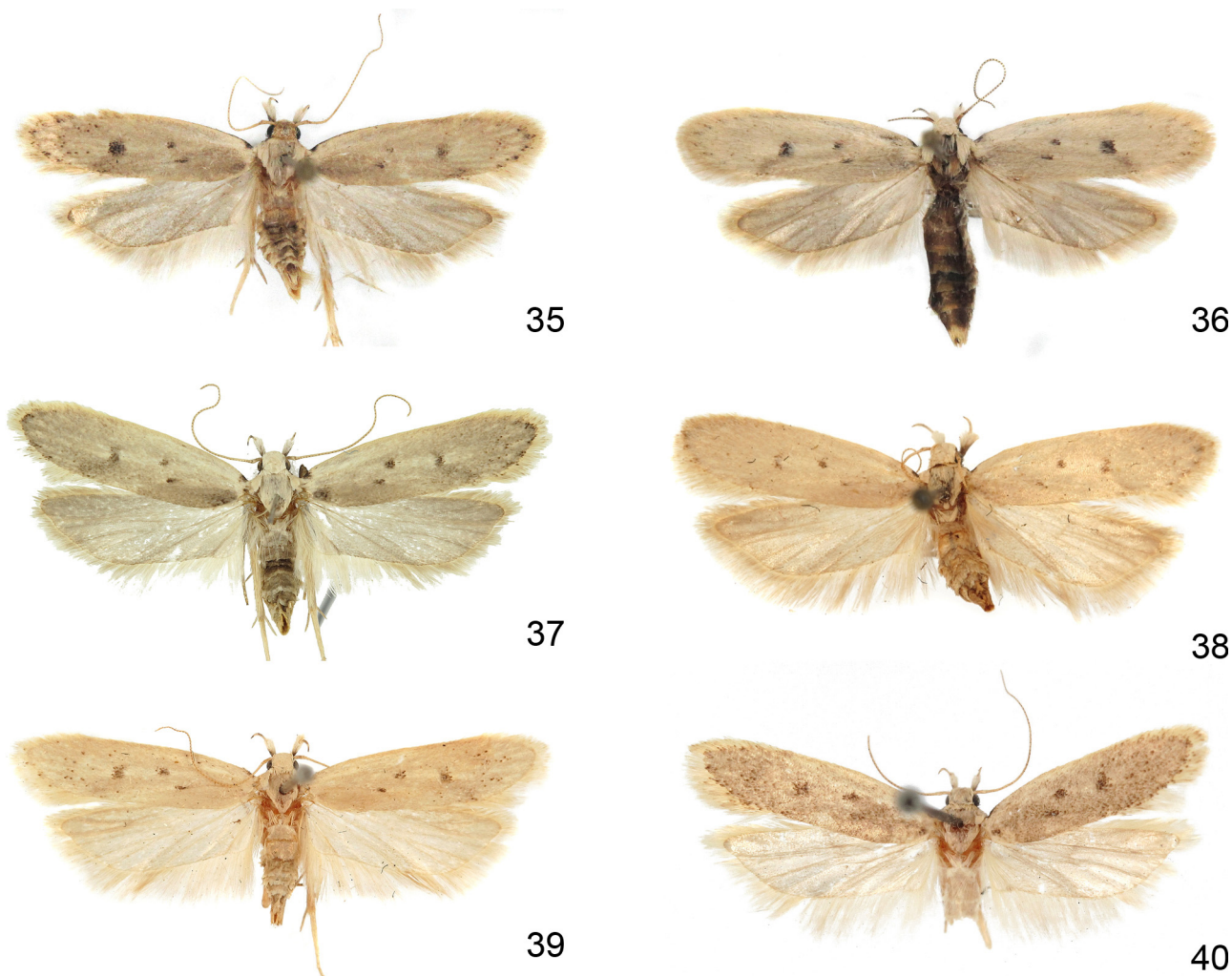


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FIGURES 27–34. Adults of *Nothris radiata*, Turkey. 27. ♀, lectotypus (copyright of the Trustees of the Museum für Naturkunde der Humboldt-Universität, Berlin); 28. ♀, Paralectotypus of *N. sulcella* (copyright of the Trustees of the Museum für Naturkunde der Humboldt-Universität, Berlin); 29. ♂, paralectotypus of *N. sabulosella*; 30. ♀, paralectotypus of *N. sabulosella*; 31–34. ♂.



FIGURES 35–40. Adults of *Nothris skyvai* sp. n. 35. ♂, Slovenia, holotypus; 36. ♀, Slovenia, paratypus; 37. ♀, Croatia, paratypus; 38. ♀, Bosnia, paratypus; 39. ♀, Montenegro, paratypus; 40. ♂, Turkey.

Bionomics. The larva has been described by e.g. Emmet & Heckford (2002: 223). It feeds on *Scrophularia* L., although *Inula* L. and *Vincetoxicum* Wolf have also been reported as host plants (Lhomme 1946–1949: 635). In early instars the larva feeds between two spun leaves; later under a folded spun leaf. It pupates in a light cocoon among detritus (Emmet & Heckford, *op cit.*).

Remarks. *Ypsolopha congressariella* was described from an unstated number of specimens (probably one), bred from a larva found on *Inula viscosa* (now *Dittrichia viscosa* (L.) Greuter) at Montpellier in France in June 1857. It is not clear from the description if the larva was feeding on the *Inula* plant, or it was only found resting there.

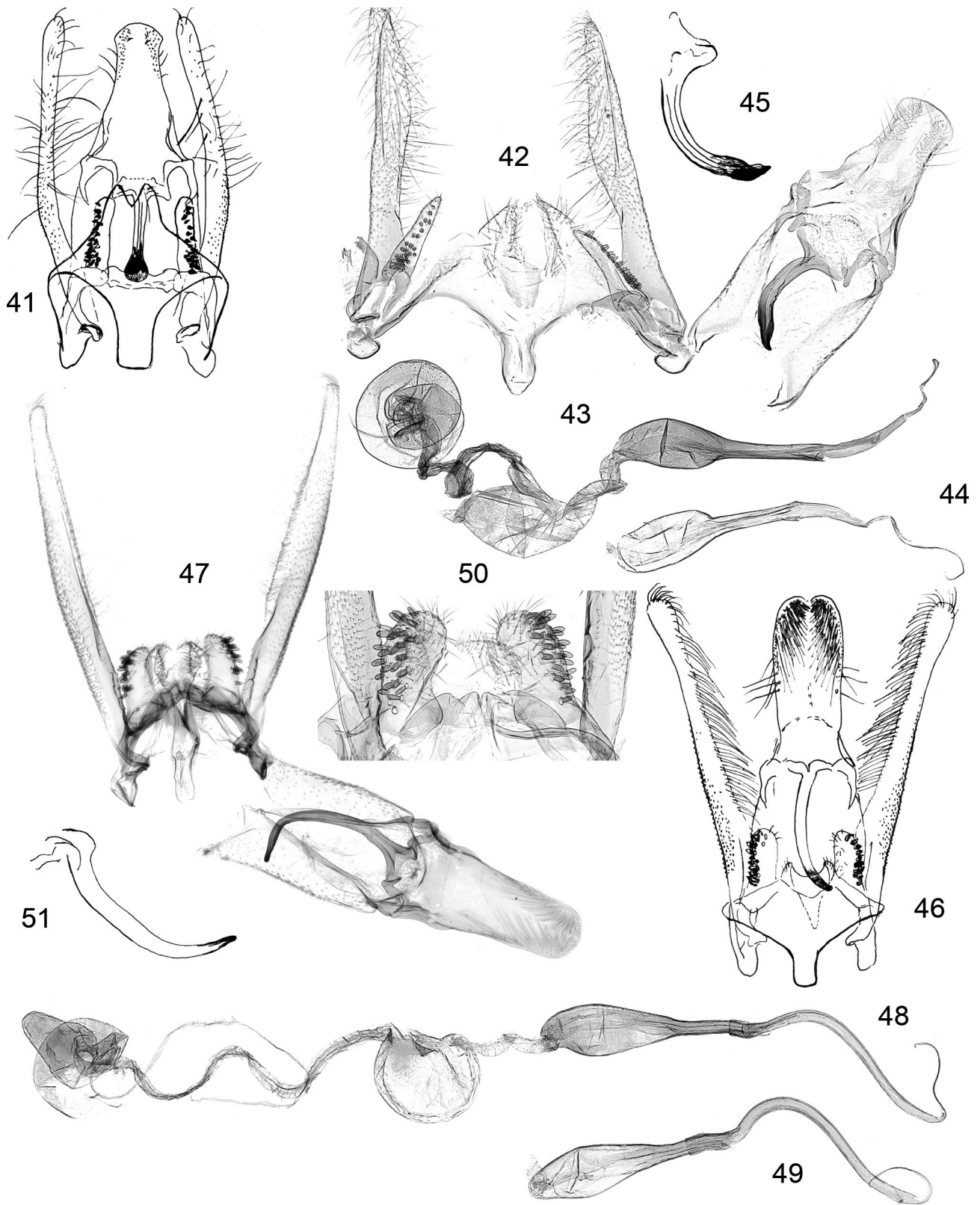
Nothris declaratella was described from one female from 29.iv. and one male from 23.vi. collected in Spain (Andalusia: Chiclana).

The figures of *N. verbascella* and *N. congressariella* female genitalia are reversed in the work of Emmet & Heckford (2002, 63; fig. 43b belongs to *N. congressariella*).

Nothris lemniscellus (Zeller, 1839)

(Figs 9–10, 46–51, 109, 116–120)

Ypsolophus (*Ypsolophus*) *lemniscellus* Zeller, 1839: 190.



FIGURES 41–51. Male genitalia of *Nothris* species. 41–45. *N. congressariella*: 41–42. General view (42, unrolled); 43–44. Phallus; 45. Gnathos. 46–51. *N. lemniscella*: 46–47. General view (47, unrolled); 48–49. Phallus; 50. Sacculus; 51. Gnathos. 41, 45. Croatia, gen. prep. 14/001 J. Šumpich; 42.–43. Sicily, slide Hendriksen 1843; 43. Spain, gen. prep. 15031 J. Šumpich; 46, 51. Slovakia, gen. prep. 15003 J. Šumpich; 47, 49. Hungary ('Ofen'), gen. prep. 15007 J. Šumpich; 48. Hungary ('Ofen'), gen. prep. 15008 J. Šumpich.

Material examined. Austria (11), Czech Republic (13), France (12), Hungary (9), Italy (5), Slovakia (3).

Slovenia. Ajdovščina env., Predmeju, 1250 m, 1 ♂, 10.viii.2001, leg. J. Šumpich, gen. prep. Šumpich 15005 (NMPC). **Croatia.** South Velebit, 1 ♂, 14.viii.2004, leg. I. Richter, gen. prep. Šumpich 15056 (NMPC). **Spain.** Barcelona, 2 km NW Gurb, Vic, 600 m, 1 ♂, 11.ix.2002, leg. P. Skou (ZMUC); Huesca, Esteña, 700 m, 4 ♂, 2 ♀, 18–19.viii.2001, leg. B. Skule & P. Skou, genitalia slide Karsholt 5281 (ZMUC).

Description. Adult (Figs 9–10). Wingspan 17–21 mm. Segment 2 of labial palpus black in basal half, apically dirty white, especially on inner surface; segment 3 yellowish white. Antenna black, underside with lighter base. Head grey, lighter on frons and around eye; thorax and tegula black, the latter with white base. Forewing black; costa from base to around middle of wing white with yellow outer margin; indistinct black spots in fold and at 2/3 in middle of wing; cilia black with dark grey tips. Hindwing grey.

Variation. The examined specimens show only minor variation.

Male genitalia (Figs 46–51). Valva narrow, markedly broadened in its proximal part and gradually tapering from there to the apex, densely covered by long setae. Sacculus stout, bluntly terminated and covered with strong spines along nearly the whole of its length. Gnathos long, only slightly deflected, pointed and strongly sclerotized only at the very tip. Uncus long, comparatively broad, densely covered with long setae. Saccus short, subrectangular. Phallus very thin, markedly bent in its apical third, terminated by a short flagellum.

Female genitalia (Figs 109, 116–120). Papillae anales broad, round. Subgenital plate in shape of a narrow sheath, only slightly excised. Ductus bursae long and thin, broader only in its basal part, uncoiled. Ductus seminalis broader at base, coiled once, membranous, then followed by a relatively long, slightly sclerotized part with about 7 convolutions. Corpus bursae comparatively large, oval, nearly triangular, signum in the distal part of corpus bursae, simple and elongated with many small spines.

Differential diagnosis. The black forewings with the basal half of costa clear white makes *N. lemniscellus* one of the most characteristic species among European Gelechiidae. It can be confused only with *N. gregersemi* **sp. n.** (see under that species).

Distribution. Central and South Europe. Also recorded from the Ural Mountains, Altai Mountains and southern Siberia (Ponomarenko, 2008), but these records may refer to *N. gregersemi* **sp. n.**

Bionomics. The larva is described by Klimesch (1951). It feeds on *Globularia punctata* and *Anthyllis vulneraria*. The young larva lives in a narrow, sinuate gallery mine, starting with a small opening from where frass is extruded; later the mine widens and the larva spins together basal rosette leaves, among which it finishes its development (Klimesch, *op cit.*). Photographs of the early stages can be seen in Rennwald & Rodeland et al. (2013).

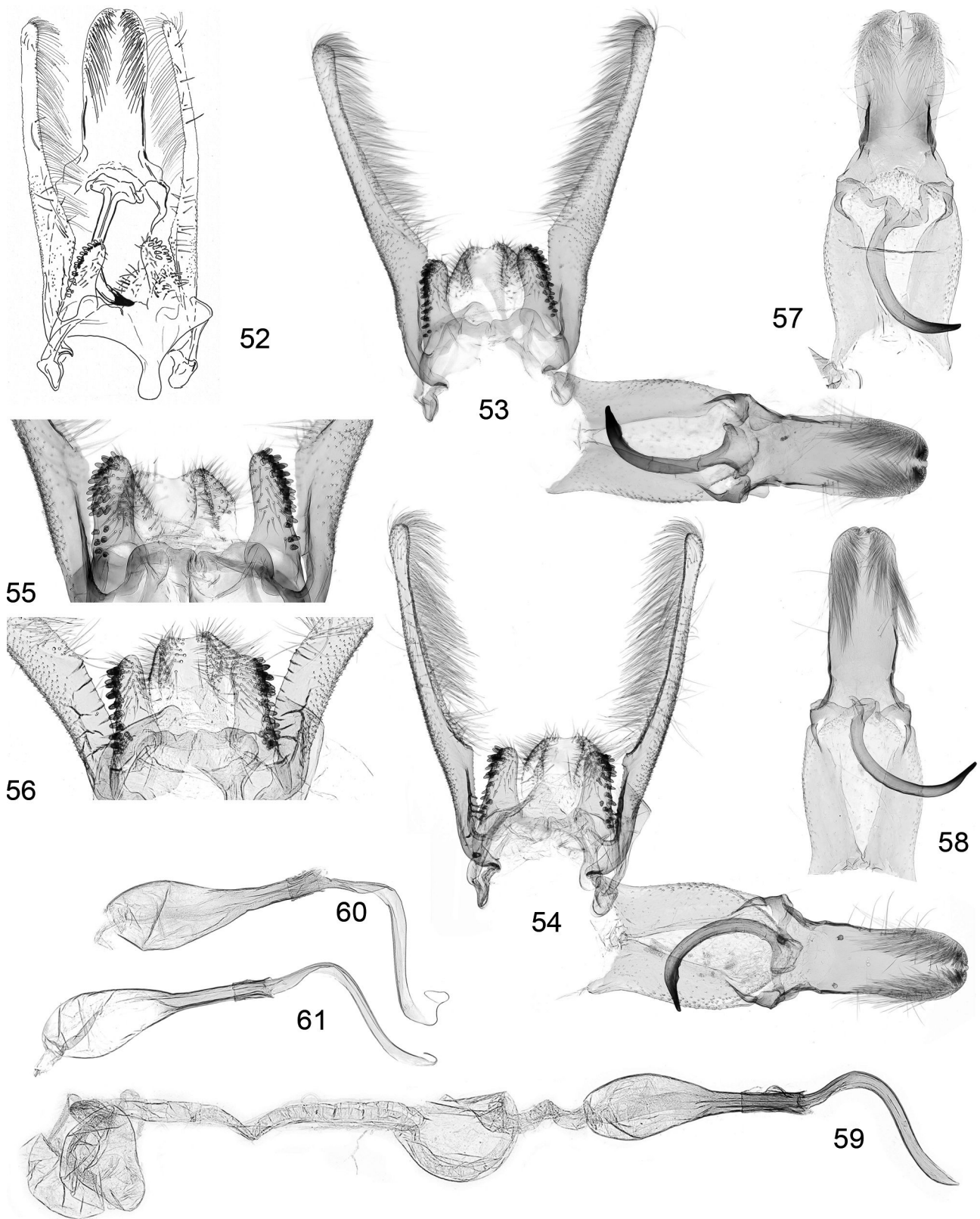
Remarks. *Ypsolophus lemniscellus* was described from one male from Ofen (the German name for Buda, western part of Budapest, Hungary) from Fischer von Röslerstamm's collection ("*Lemniscellus* FR.") (Zeller, 1839). Whereas the original description by Zeller was very short, Fischer von Röslerstamm (1842: 286–287, pl. 95) gave a detailed and for that time good illustrated description of adult. The holotype of *Ypsolophus lemniscellus* is kept in the Natural History Museum in London, U.K. It was not available for dissection, but we examined a series of old, syntopic material in the NMPC, probably dating back to the first half of the 19th century, to confirm its identity.

Nothris gregersemi Karsholt & Šumpich, **sp. n.**

(Figs 11–13, 52–61, 110, 121–128)

Type material. Holotype ♂: 'Suecia, Öl Tocknekärr 29-VII-1975 O. Karsholt' (ZMUC).

Paratypes. **Denmark.** B, Årsdale, 1 ♂, 8.viii.2006, 1 ♂, 11.viii.2010, leg. P. Falck, genitalia slide Karsholt 5274; B, Arnager, 1 ♂, 10.viii.2006, leg. P. Falck (all PF). **Sweden.** Öl, Resmo, 2 ♂, 1-3.ix.1956, leg. I. Svensson, genitalia slide Hendriksen 1182 (ZMUC); same data but, 1 ♂, 3.viii.1983, leg. P. Stadel Nielsen (ZMUC); Öl, Vickleby, 1 ♂, 30.vii.1973, leg. B. Å. Bengtsson (ZMUC); same data but 1 ♂, 5.viii.1967, leg. R. Johansson (ZMUC); Öl, Mensalvar, 1 ♀, 17.viii.1977, leg. B. Å. Bengtsson, genitalia slide Karsholt 5273 (BÅB); Öl, St. Alvar, Tornrör, 1 ♂, 3.viii.1995, 24 ♂, 1 ♀, 5.viii.1995, 4 ♂, 7.viii.1996, 1 ♂, 25.vii.1997, leg. H. Hendriksen, genitalia slide Hendriksen 1518, gen. prep. Šumpich 15013, 15014 (ZMUC, NMPC); Öl, Löttorp, 1 ♀, 19.viii.1973, leg. B. Å. Bengtsson, gen. prep. Šumpich 15015 (BÅB).



FIGURES 52–61. Male genitalia of *Nothris gregerseni* sp. n. 52–54. General view (53–54, unrolled); 55–56. Sacculus; 57–58. Tegumen; 59–61. Phallus. 52–53, 55, 59–60. Sweden, paratypus: 52, 55. gen. prep. 15014 J. Šumpich; 53, 59. gen. prep. 15013 J. Šumpich; 57, 60. slide Hendriksen 1182; 54, 56, 58, 61. Turkey: 54. gen. prep. 15017 J. Šumpich; 56. gen. prep. 15016 J. Šumpich; 58, 61. slide 5267 O. Karsholt.

Material excluded from the type series (see remarks). **Turkey.** Agri, 5 km W Eleskirt, 2000 m, 1♂, 4.ix.1993, leg. M. Fibiger (ZMUC); Erzinean, Kizildag Geçidi, 2100 m, 1♂, 19.viii.1993, leg. F. Schepler (ZMUC), same data but 2450 m, 1♂, 1♀, leg. F. Schepler (ZMUC); Erzerum, Kireçli Geçidi, 2450 m, 1♀, 27-29.viii.1993, leg. F. Schepler, genitalia slide Karsholt 5272 (ZMUC); Erzurum, Kop Geçidi, 1750 m, 6♂, 15–16.ix.1993, leg. M. Fibiger, genitalia slide Karsholt 5267, gen. prep. Šumpich 15016 (ZMUC); Erzurum, 50 km NE Erzerum, 1600 m, 3♂, 17.ix.1993, leg. M. Fibiger (ZMUC); Gümüşhane, Kop Geçidi, 2400 m, 6♂, 13–14.ix.1993, leg. M. Fibiger, genitalia slide Hendriksen 1201 (ZMUC); Kars, Pasli pass, 2020 m, 2♂, 10.ix.1993, leg. M. Fibiger (ZMUC); Kars, 3 km E Karakut, 1450 m, 2♂, 12.ix.1993, leg. M. Fibiger, gen. prep. Šumpich 15017 (ZMUC); Kayseri, 8 km SE Pınarbaşı, 1400 m, 2♂, 23–26.ix.1993, leg. F. Schepler, Šumpich 15018 (ZMUC); Kayseri, Ala Dağlar, 1600 m, 1♂, 30.vii.1998, leg. K. Larsen (ZMUC). **Morocco.** Hoher Atlas, Oukaïmeden, 2500 m, 2♂, 2.x.1996, A. Lingenhölle leg., Šumpich 15058 (SMNS); Hoher Atlas, Tizi-n-Tichka, 1800 m, 1♂, 6.x.1996, A. Lingenhölle leg. (SMNS).

Description. Adult (Figs 11–13). Wingspan 19–21 mm. Segment 2 of labial palpus black, apically dirty white, especially on inner surface; segment 3 cream-white. Basal part of antenna brownish white, otherwise black. Head blackish grey, lighter at frons and around eye; thorax and tegula black, the latter with white base. Forewing black; costa from base to around middle of wing white with yellow outer margin; indistinct black spots in fold and at 2/3 in middle of wing followed by a few white scales; cilia black with dark grey tips. Hindwing grey.

Variation. Specimens from Turkey and Morocco are larger (wingspan 23–27 mm) and furthermore differ in having a larger part of segment 2 of the labial palpus whitish, the base of the antenna yellow-white and the head lighter grey.

Male genitalia (Figs 52–61). Valva broad, comparatively short, densely covered with long setae. Sacculus slender, comparatively long, covered with strong spines. Gnathos short, rounded. Uncus generally short, densely covered with long setae. Saccus short, subrectangular. Phallus slim, markedly curved, terminated by a short flagellum.

Female genitalia (Figs 110, 121–128). Subgenital plate narrowly sheath-shaped, without distinct excision. Ostium anteriorly extended. Ductus bursae long and thin, broader only in its basal part, with 7-10 convolutions. Ductus seminalis broader at base, membranous. Corpus bursae oval to nearly circular; signum elongated and covered by rather few stout spines.

Differential diagnosis. *N. gregersenii* **sp. n.** is externally very similar to *N. lemniscellus*. It differs in having segment 3 of the labial palpus whitish (yellowish in *N. lemniscellus*), by having more whitish at the base of the antenna, a darker grey head, and by the presence of some whitish scales after the black spots in the forewing. In the male genitalia of *N. gregersenii* **sp. n.** sacculus is rather slender, valvae are shorter and broader and uncus is shorter and rounded compared with *N. lemniscellus*. The shape of the signum is the most striking difference in the female genitalia.

Distribution. With certainty known from North-east Europe. Records from the Ural Mountains, Altai Mountains and southern Siberia (Ponomarenko, 2008) may prove to refer to *N. gregersenii* **sp. n.** Specimens from Turkey and Morocco are tentatively also referred to this species.

Bionomics. Early stages and host plant unknown. Adults fly in late summer, in North Europe at low altitudes, and in Turkey in mountains at altitudes between 1400 and 2450 m.

Derivatio nominis. Named after the Danish lepidopterist Keld Gregersen, acknowledging his study of the north-west European Gelechiidae.

Remarks. Although the studied specimens from Turkey and Morocco are similar overall both externally and in the genitalia to specimens from NE Europe we have chosen to exclude them from the type series due to the small differences described above. Future studies of their DNA may reveal if they should be regarded as a distinct species.

Nothris verbascella ([Denis & Schiffermüller], 1775)

(Figs 14–18, 62–69, 111, 129–130)

Tinea verbascella [Denis & Schiffermüller], 1775: 136. Its description has been erroneously attributed to Hübner (1796) (see Sattler 1973: 229)

Nothris discretella Rebel, 1889: 318, pl. 8, fig. 14 **syn. n.**

Nothris verbascella clarella Amsel, 1935: 298, pl. 10, fig. 54 **syn. n.**

Type material examined. Holotype (*discretella*) ♂: ‘Holotype’ | ‘Graz 24.VIII.88’ | ‘60 coll. Rbl. Vind.’ | ‘Discretella Rbl. Type. %’ | ‘Holotype ♂ *Nothris discretella* Rebel teste K. Sattler, 1969’ | ‘Type photographed’ | ‘Mus. Vind. Gen. Präp. 3474 ♂’ (NHMW); (*clarella*) ♂, ‘Jericho (Pal) Lichtfang 28.4.1930 H. Amsel’ | ‘Paratypus leg. H. Amsel’ | ‘♂’ (NHMW).

Other material studied. Austria (7), Bulgaria (4), Czech Republic (15), Denmark (222), France (14), France (2), Corse (3), Greece (31), Greece, Crete (4), Hungary (1), Italy (13), Italy, Sardinia (2), Italy, Sicily (4), Slovakia (2), Spain (14), Sweden (10).

Croatia. Zengg, 1♂, leg. Dobias (ZMUC); Pelješac Peninsula, Žuljana, 100 m, 1–13.vii.2005, 3♂, leg. J. Šumpich (NMPC); Pirovac env., Tijesno, 15.–17.vii.2003, 1♂, leg. J. Šumpich (NMPC). **Greece.** Samos, 1 km N Spatharei, 700 m, 1♀, 19–21.v.2009, leg. G. Jeppesen et al. (ZMUC). **Israel.** Tel Aviv, 1♂, 18.iv.[19]25, Bodenheimer leg. (NHMW). **Lebanon.** Becharré (= Bcharre), 1400 m, 2♂, 11–20.vi.[19]31, 2♂, 21–28.vi.[19]31, leg. Zerny (NHMW). **Macedonia.** Galicica NP, 3.4 km NNE Stenje, Oteshevo, 850 m, 1♀, 17.vi.2013, leg. P. Skou (ZMUC). **Morocco.** 40 km S Larache, 0–20 m, 2♂, 23–24.iv.1989, leg. O. Karsholt (ZMUC). **Serbia.** Vojvodina, Băcka Topola, 1♂, 23.viii.1986, leg. E. Baraniak (ZMUC). **Turkey.** Antalya, Beydaglari, 17 km E Göltaria, 1800 m, 1♂, 8.viii.1997, leg. K. Larsen (ZMUC); Antalya, Saklikent, 1850 m, 1♂, 1♀, 19.x.2000, leg. P. Svendsen (ZMUC); Bolu, Fakilar Pass, 1100 m, 1♂, 10.vi.1987, leg. F. Fibiger (ZMUC); Erzinean, Kizildag, Geçidi, 2100 m, 1♀, 19.viii.1993, leg. F. Schepler (ZMUC); Erzurum, Kop Geçidi, 1750 m, 1♂, 15–16.ix.1993, leg. M. Fibiger (ZMUC); Erzurum, 10 km S Erzurum, 2200 m, 1♂, 20.vii.1989, leg. M. Fibiger & N. Esser (ZMUC); Isparta, Bagkonak, 1650 m, 1♀, 22.vii.1996, leg. K. E. Stougaard (ZMUC); Kars, 3 km E Karakut, 1450 m, 2♂, 12.ix.1993, leg. M. Fibiger (ZMUC); Kayseri, Erdschias Mts., 1♂, 16.vi., leg. Penther (NHMW); Kayseri, 8 km SE Pinarbaşı, 1400 m, 1♂, 23–26.ix.1993, leg. F. Schepler (ZMUC); Kayseri, 2 km W Inces, 1100 m, 1♂, 30.ix–1.x.1993, leg. F. Schepler (ZMUC); Kayseri, Incesu, 1100 m, 1♂, 28.vii.1996, leg. K. E. Stougaard (ZMUC); Konya, Eskihisar, 12 km E Ivriz, 1100 m, 1♂, 28.vii.1997, leg. K. Larsen (ZMUC); Mersin, 10 km SE Arslanköy Taurus, 1300m, 1♂, 13.vii.1987, leg. M. Fibiger (ZMUC); Nevşehir, 10 km V Ürgüp, Göreme, 1300 m, 2♀, 2–6.x.1993, leg. F. Schepler (ZMUC); Sivas, 12 km S Gürün, Gökpinar, 1500 m, 1♂, 25.vii.1998, leg. K. Larsen (ZMUC).

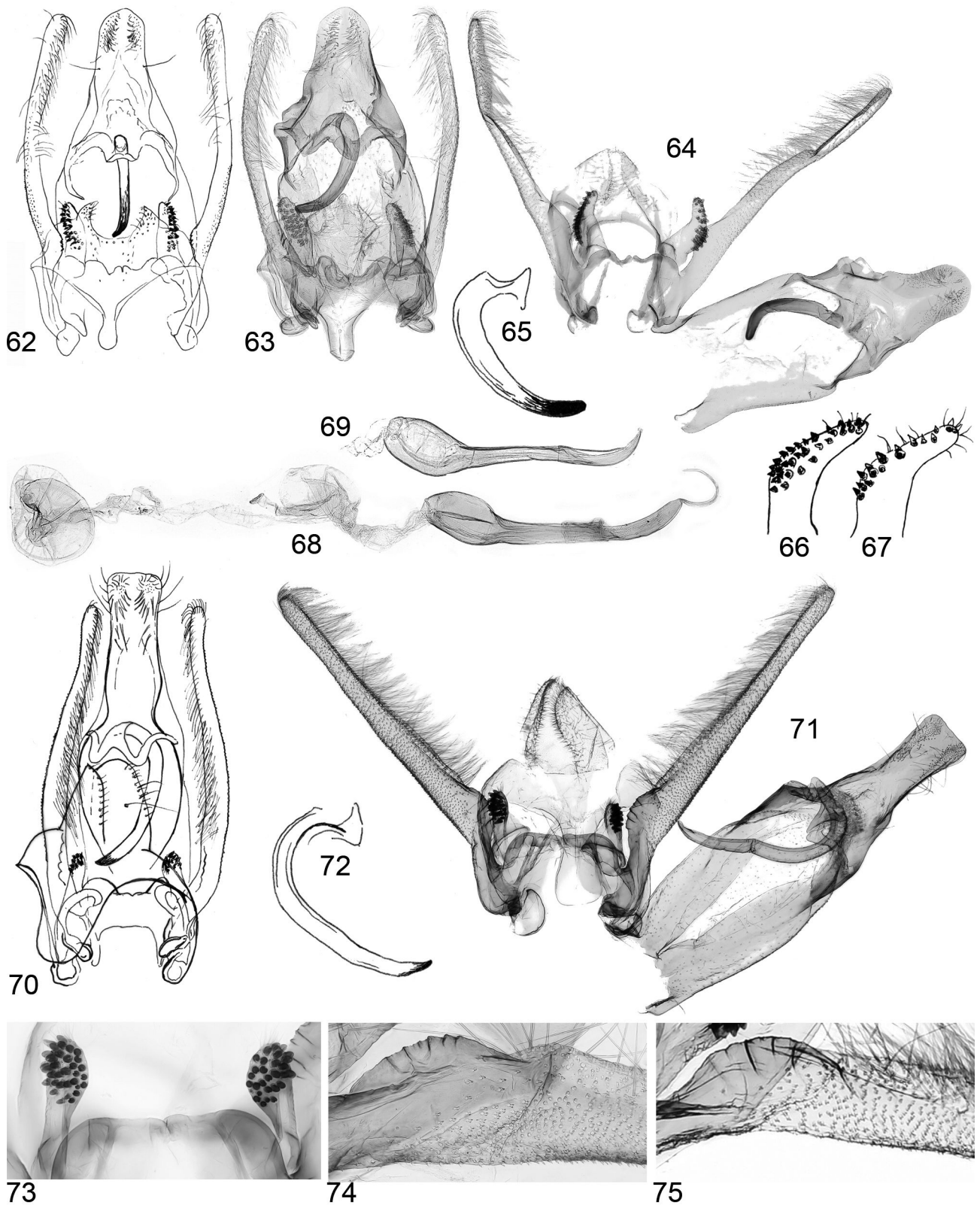
Description. Adult (Figs 14–18). Wingspan 16–23 mm. Segment 2 of labial palpus black at base, apically white, especially on inner surface; segment 3 cream-white. Scape of antenna black; flagellum light yellow-brown, indistinctly darker ringed. Head cream-white, darker in middle; thorax and tegula as forewing. Forewing light yellow-brown with black spots at base, in fold and at ½ and 2/3 in middle of wing; scattered black scales along veins, especially in apical part; black spots along termen; cilia grey with dark grey cilia line. Hindwing grey.

Variation. A moderately variable species. The colour of the forewing varies from light yellow to brown, and the amount of black scales in the forewing varies from few to numerous. In some specimens the black spot at 2/3 is very prominent. Specimens from the south-eastern part of the distribution area have generally lighter yellow forewings (see also Remarks). Specimens bred from larvae are sometimes clearly smaller than specimens collected as adults.

Male genitalia (Figs 62–69). Valva very narrow, slightly broadening apically, with an indistinct conchoidal bulge at base and covered with setae in its distal part. Uncus broad, bluntly terminated, slightly tapering apically. Gnathos narrow, arcuate, strongly sclerotized in its last third. Sacculus narrow, long, markedly bent in middle, tapering apically, from the bend to the apex covered with strong sclerotized spines. Saccus thumb-like. Phallus comparatively short, terminated by a filiform flagellum forming one loop. Coecum bulbous.

Female genitalia (Figs 111, 129–130). Papillae anales thin, elongated. Apophyses posteriores comparatively long, approximately two times as long as apophyses anteriores. Subgenital plate very narrow, slightly more narrow distally. Ductus bursae comparatively short and broad in its whole length, membranous, distally straight, proximally approximately four times coiled. Ductus seminalis broad and membranous at first, then tapered and forming a loop, spined. Corpus bursae oval, elongated, signum conspicuous, basal plate broad, elongated, terminally rounded with two large lateral plates which together form a circle.

Differential diagnosis. *N. verbascella* is characterized by its yellowish or light brownish forewings with three black dots and scattered black scales. It may be confused with the somewhat lighter *N. skyvai* (for differences see under this species). See also *N. congressariella*.



FIGURES 62–75. Male genitalia of *Nothris* species. 62–69. *N. verbascella*: 62–64. General view (64, unrolled); 65. Gnathos; 66–67. Lateral view of sacculus; 68–69. Phallus. 70–75. *N. sulcella*: 70–71. General view (71, unrolled); 72. Gnathos; 73. Sacculus; 74–75. Basal part of valva. 62, 65–66. Czech Republic, gen. prep. 14/002 J. Šumpich; 63, 68. Austria, slide Mus. Vind. 3474; 64. Sweden, slide Hendriksen 662; 67. Israel, paratypus; 70, 72. Greece, gen. prep. 15025 J. Šumpich; 71, 73, 76. Macedonia, gen. prep. 15026 J. Šumpich; 74. Turkey, gen. prep. 15029 J. Šumpich; 75. Macedonia, gen. prep. 15027 J. Šumpich.

In the male genitalia an easily distinguishable species with respect to the very narrow and markedly curved sacculus, short gnathos and a thumb-like saccus. Females are easily distinguishable with respect to the long and narrow papillae anales, narrow subgenital plate and characteristic shape of signum.

Distribution. Europe, northwards to central Scandinavia, European Russia, North Africa, Middle East, Turkey. Also recorded from Iran (e.g. Zerny 1939), Iraq (Amsel 1949) and Turkmenistan (Christoph 1885).

Bionomics. The larva is described by e.g. Emmet & Heckford (2002: 222). It lives gregariously among spun leaves and within shoots of *Verbascum* L. species, pupating underneath the lowest dead leaves. It has been reported as a pest on cultivated *Verbascum phlomoides* L. (Łęgosz-Owsianna 1954).

Remarks. *Tinea verbascella* was described from an unstated number of specimens from the Vienna area (Austria), bred from *Verbascum thapsus* (“Verbasci Tapsi”). Koçak (1984) has argued that the description is unavailable, but his argument has not been generally accepted, and stability of nomenclature is best served by accepting the description of this and other species in Denis & Schiffermüller’s work as valid (Sattler & Tremewan, 1984).

Nothris discretella was described from a single male collected near Graz in south-eastern Austria. Due to its dark brownish grey forewings, Rebel (1889) compared it with *N. congressariella*, but its genitalia show it to be a synonym of *N. verbascella*.

Nothris verbascella clarella was described from an unstated number of specimens from Israel (Karmel) and Palestine (Jericho). Amsel (1935) stated the subspecies *clarella* to be about 3 mm smaller than nominotypical *N. verbascella*, much lighter and with smaller and fewer black scales in the forewing. We examined a paratype which, apart from being lighter, does not differ from specimens from other parts of the distribution area. Also the (male) genitalia are very similar, with only the apex of sacculus being narrower and more distinctly tapering into the tip. Although specimens from the eastern Mediterranean area generally are paler (especially the hindwings) *N. verbascella* is a variable species, and we do not find specimens from that area sufficiently distinct to deserve status as a subspecies.

Vives Moreno (2015) listed *Recurvaria lutarea* (Haworth, 1828) as a synonym of *N. verbascella*. Here we follow the opinion of Beccaloni et al. (2005) and treat it as a synonym of *Pexicopia malvella* (Hübner, 1796).

***Nothris sulcella* Staudinger, 1879**

(Figs 19–22, 70–79)

Nothris sulcella Staudinger, 1879: 328.

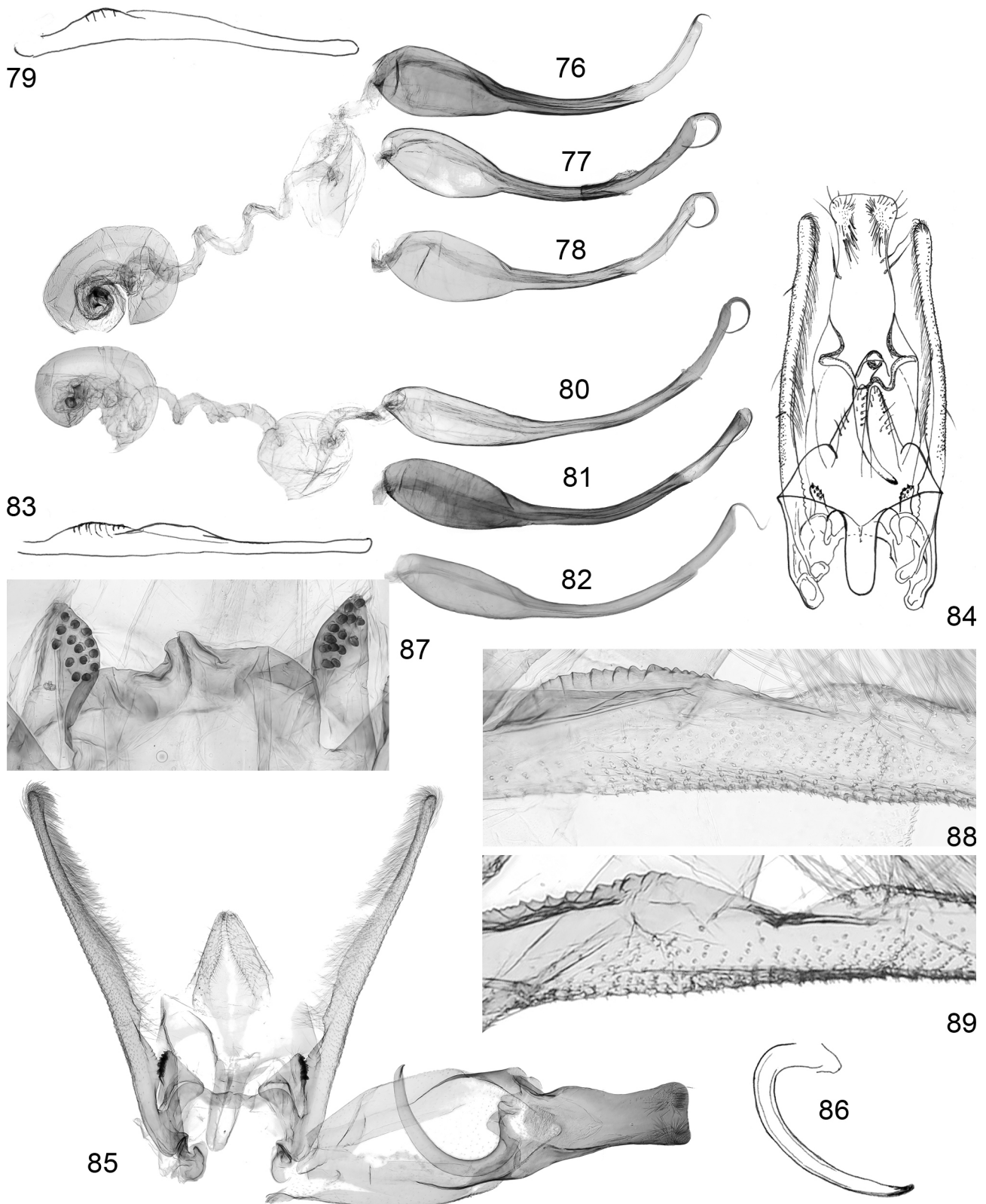
Nothris magna Nel & Peslier, 2007: 101-103 **syn. n.**

Type material examined. (*sulcella*): Lectotype ♂: ‘Lectotype’ | ‘Krüper’ | ‘Orign’ | ‘coll. Led.’ | ‘Lectotype ♂ *Nothris sulcella* Stgr. teste K. Sattler 1981’ | ‘Gen. prep. nr. 5275 ♂ O. Karsholt’ | ‘*Sulcella* Stgr’ | ‘ex coll. Staudinger’ (MFN). (*magna*): Holotype ♂: ‘HOLOTYPE’ | ‘Greece: PELOPON. Mt. Parnonas 4-IX-2002 1470 m Peslier leg.’ | ‘Gen JN ♂ 21537 *Nothris magna* Nel et Peslier n. sp.’

Other material studied. **Greece.** Aroania Ori, Chelmos, 1500 m, 1♂, 20.ix.1991, leg. F. Schepler, gen. prep. Karsholt 5276 (ZMUC); Flórina, Lake Prespa, 1000 m, 10♂, 28.viii.1990, leg. K. Larsen, gen. prep. Šumpich 15028 (ZMUC); Flórina, 2 km W Kariés, Little Prespa Lake, 970 m, 4♂, 28.viii.2008, leg. P. Skou (ZMUC); Ioánina, above Monodendri, Vicos Gorge, 1300 m, 4♂, 9.ix.2008, leg. P. Skou (ZMUC); Kastoria, Vatachorion, 1000 m, 29.viii.1983, 3♂, leg. M. Fibiger & A. Moeberg, gen. prep. Šumpich 15025 (ZMUC, NMPC); Kastoria, 3 km E Krustalopi, Kastoria, 1000 m, 1♂, 19–20.ix.1984, leg. M. Fibiger, genitalia slide Karsholt 4325 (ZMUC); Menikion, Kapnophiton, 600 m, 10♂, 4–5.ix.1991, leg. F. Schepler (ZMUC); Peloponnes, Maenalon, Kardaras, 1♂, 1400 m, 22.ix.1991, leg. F. Schepler (ZMUC). **Macedonia.** Petrina plan., 1600m, 1♂, 7.ix.1953, leg. J. Thurner, gen. prep. Šumpich 15026 (ZSM); Petrina plan., Ochrid Lake, 1♂, ix.1937, leg. Wolfschläger, gen. prep. Šumpich 15027 (ZSM). **Turkey.** Sivas, Darende, Günpinar, 900 m, 2♂, 18.x.1986, leg. A. Moeberg & J. Hillman, gen. prep. Šumpich 15029 (ZMUC) (see comment below).

Description. Adult (Figs 19–22). Wingspan 28–32 mm. Segment 2 of labial palpus black, lighter grey on upper and inner surfaces; segment 3 dirty white mottled with some darker scales. Antenna light grey-brown, indistinctly ringed with black; ciliae almost as long as breadth of flagellum. Head and tegula light grey; thorax as forewing. Forewing with slightly pointed apex, grey-brown mottled with lighter scales; rather indistinct black spots in fold

and at $\frac{1}{2}$ and $\frac{2}{3}$ in middle of wing; veins in apical part of wing finely dusted with black and ending in black dots at termen; cilia grey with darker cilia line. Hindwing grey.



FIGURES 76–89. Male genitalia of *Nothris* species. 76–79. *N. sulcella*: 76–78. Phallus; 79. Valva. 80–89. *N. sabulosella*: 80–82. Phallus; 83. Valva; 84–85. General view (85, unrolled); 86. Gnathos; 87. Sacculus; 88–89. Basal part of valva. 76. Macedonia, gen. prep. 15026 J. Šumpich; 77, 79. Greece, gen. prep. 15025 J. Šumpich; 78. Macedonia, gen. prep. 15027 J. Šumpich; 80–89. Turkey: 80, 83, 86. gen. prep. 15033 J. Šumpich; 81, 89. gen. prep. 15032 J. Šumpich; 82, 84. Turkey, lectotype, slide Mus. Vin. 3857; 85. slide 5261 O. Karsholt; 87–88. gen. prep. 15034 J. Šumpich.

Variation. The colour of the forewing varies from lighter to darker grey-brown, and the black spots in middle of the forewing and along termen can be more or less distinct (most distinct in light or worn specimens). Sometimes the black spot at ½ in the forewing is obsolete.

Male genitalia (Figs 70–79). Valva very narrow, broader and bearing a conchoidal bulge at base, then gradually tapering up to its middle and from there narrow and parallel-sided up to the apex, densely covered with setae. Uncus narrow, subrectangular, only slightly broadened apically. Gnathos long, curved. Sacculus stout but comparatively short, with several (usually more than twenty) sclerotized spines apically. Vinculum well developed, bluntly terminated. Saccus broad, rounded terminally. Phallus narrow, comparatively short, with a short flagellum. Coecum broad and short, two laminae present in bulbus ejaculatorius.

Female genitalia. Unknown.

Differential diagnosis. Very similar to *N. sabulosella*, but the forewing is more pointed in *N. sulcella*, the black spots are usually more distinct, and veins in apical part of wing finely dusted with black, ending in black spots at termen. Also the head of *N. sulcella* is lighter than the head of *N. sabulosella*. In the male genitalia, the sacculus is more broadened basally and more densely covered with spines in its apex. The phallus is about 20 % shorter, the coecum broader, bulbous. The vinculum is more bluntly terminated. *N. sulcella* is one of the largest species of Gelechiidae in Europe – only comparable to females of *Atremaea lonchoptera* Staudinger, 1871, but that species has no ventral brush on segment 2 of the labial palp.

Distribution. Macedonia, Greece, Turkey (?). A record from Bosnia (Aigner, 1905) and probably also a record from Israel (Bodenheimer, 1930) refer to *N. skyvai* **sp. n.** We examined two specimens from Turkey, prov. Sivas, but the occurrence of *N. sulcella* there needs to be confirmed as there are indications that they may be mislabelled. Other records from Turkey refer to *N. sabulosella*.

Bionomics. Early stages and host plant unknown. The species is found at altitudes between 600 m and 1600 m. All studied material was collected in late summer and autumn.

Remarks. *Nothris sulcella* was described from two specimens: one female (wingspan 24 mm) from Amasya in northern Turkey, and one larger (32 mm) male from the collection of J. Lederer, labelled only “Krüper” (name of the collector), and assumed to originated from Smyrna in western Turkey (Staudinger, 1879). The male has been labelled as lectotype by K. Sattler and it is published here for the first time. The female (labelled as paralectotype by K. Sattler) belongs to *N. radiata*.

Staudinger (1879) assumed that the lectotype originated from Turkey, but that was doubted by Rebel (1904) who argued that it probably originated from Greece. We agree with Rebel because we did not find specimens from Turkey agreeing with the lectotype of *N. sulcella*.

N. magna was described from two males from Mont Parnonas in southern Greece collected 4.ix.2002 by S. Peslier (Nel & Peslier 2007). We examined the holotype which agree with *N. sulcella*.

The two specimens from Turkey, prov. Sivas originated from a collecting trip to both Greece and Turkey and were kept in cotton layers. When sorted by O. Karsholt the material from different localities was not sufficiently separated to exclude the possibility of mislabelling.

***Nothris sabulosella* Rebel, 1935**

(Figs 23–26, 80–89)

Nothris sabulosella Rebel, 1935: 41.

Type material examined. Lectotype ♂, ‘Asia min.c. | Anatolia c. Aksehir | 16–30 IX 34 1200m’ | ‘*Nothris sabulosella* Rbl. Type ♂’ | ‘Paralectotype ♂ *Nothris sabulosella* Rebel teste K. Sattler, 1970’ | ‘Mus. Vind. Gen. Präp. 3857 ♀’ (NHMW) | LECTOTYPE ♂ *Nothris sabulosella* Rebel teste O. Karsholt & J. Šumpich 2015 [red label]; ♂, ‘Asia min.c. | Anatolia c. Aksehir | 16–30 IX 34 1200m’ | ‘*Nothris sabulosella* Rbl. Holotype ♂’ | ‘*Nothris sabulosella* Rbl. Type ♂’ | ‘503’ | ‘coll. Osthelder’ | ‘K. Sattler 433a’ (ZSM); ♂, ‘Asia min.c. | Anatolia c. Aksehir | 1–15 X 34 1200m’ | ‘*Nothris sabulosella* Rbl. Cotype ♂’ | ‘*Nothris sabulosella* Rbl. Type ♂’ | ‘504’ | ‘coll. Osthelder’ (ZSM).

Other material studied. **Turkey.** Anatolia, Kizilcahamam, 1 ♂, 4–14.ix.1967, leg. M. & W. Glaser, gen. prep. Šumpich 15033 (NHMW); Kurdistan, Van, 2000 m, 1 ♂, 22–27.viii.1935, leg. Osthelder, gen. prep. Šumpich

15032 (NHMW); Erzurum, Kop Geçidi, 1750 m, 2♂, 15–16.ix.1993, leg. M. Fibiger (ZMUC); Kars, 3 km E Karakut, 1450 m, 21♂, 12.ix.1993, leg. M. Fibiger & F. Schepler, gen. prep. Šumpich 15034 (ZMUC); Kayseri, 8 km SE Pinarbaşı, 1400 m, 3♂, 23–26.ix.1993, leg. F. Schepler, gen. prep. Karsholt 5277 (ZMUC); Sivas, 20 km S Gürün, 1700 m, 1♂, 15.ix.1985, leg. M. Fibiger & A. Moeberg (ZMUC); Sivas, 24 km E Zara, 1750 m, 2♂, 20.ix.1993, leg. F. Schepler, genitalia slide Karsholt 5261 (ZMUC); Sivas, 5 km W Gürün, 1500 m, 2♂, 21.ix.1993, leg. F. Schepler, gen. prep. Šumpich 15035 (ZMUC).

Description. Adult (Figs 23–26). Wingspan 29–36 mm. Segment 2 of labial palpus black, lighter grey on upper and inner surfaces; segment 3 dirty white mottled with darker scales. Antenna ringed with black and light grey-brown; ciliae almost as long as breadth of flagellum. Head and tegula grey; thorax as forewing. Forewing with rounded apex; dark grey-brown mottled with lighter scales; rather indistinct black spots in fold and at ½ and 2/3 in middle of wing and along termen; cilia dark grey. Hindwing grey.

Variation. The black spots in middle of the forewing and along termen can be more or less distinct (most distinct in light or worn specimens). Sometimes the black spot at ½ and the spots along termen in the forewing are obsolete.

Male genitalia (Figs 80–89). Valva very narrow, in basal half with two conspicuous bulges, densely covered with long setae. Sacculus comparatively short, apex slightly deflected laterally and covered with several spines (mostly less than twenty). Uncus comparatively broad, markedly broadened apically. Gnathos long, curved, pointed terminally. Saccus comparatively long and narrow, rounded. Vinculum well developed. Phallus very narrow and comparatively long, terminated by a short flagellum. Coecum very slender and long, two laminae present in the bulbus ejaculatorius.

Female genitalia. Unknown.

Differential diagnosis. Very similar to *N. sulcella*. For differences see under that species. In the male genitalia the apex of uncus is more distinctly broadened, the valva bears two conspicuous bulges on its ventral edge, the coecum is narrower and longer, phallus about 20% longer, saccus narrower, vinculum more sharply terminated and the sacculus with smaller number of spines, in most cases 12–16.

Distribution. Turkey.

Bionomics. Early stages and host plant unknown. Adults have been collected from late August to early October at altitudes between 1200 m and 2000 m.

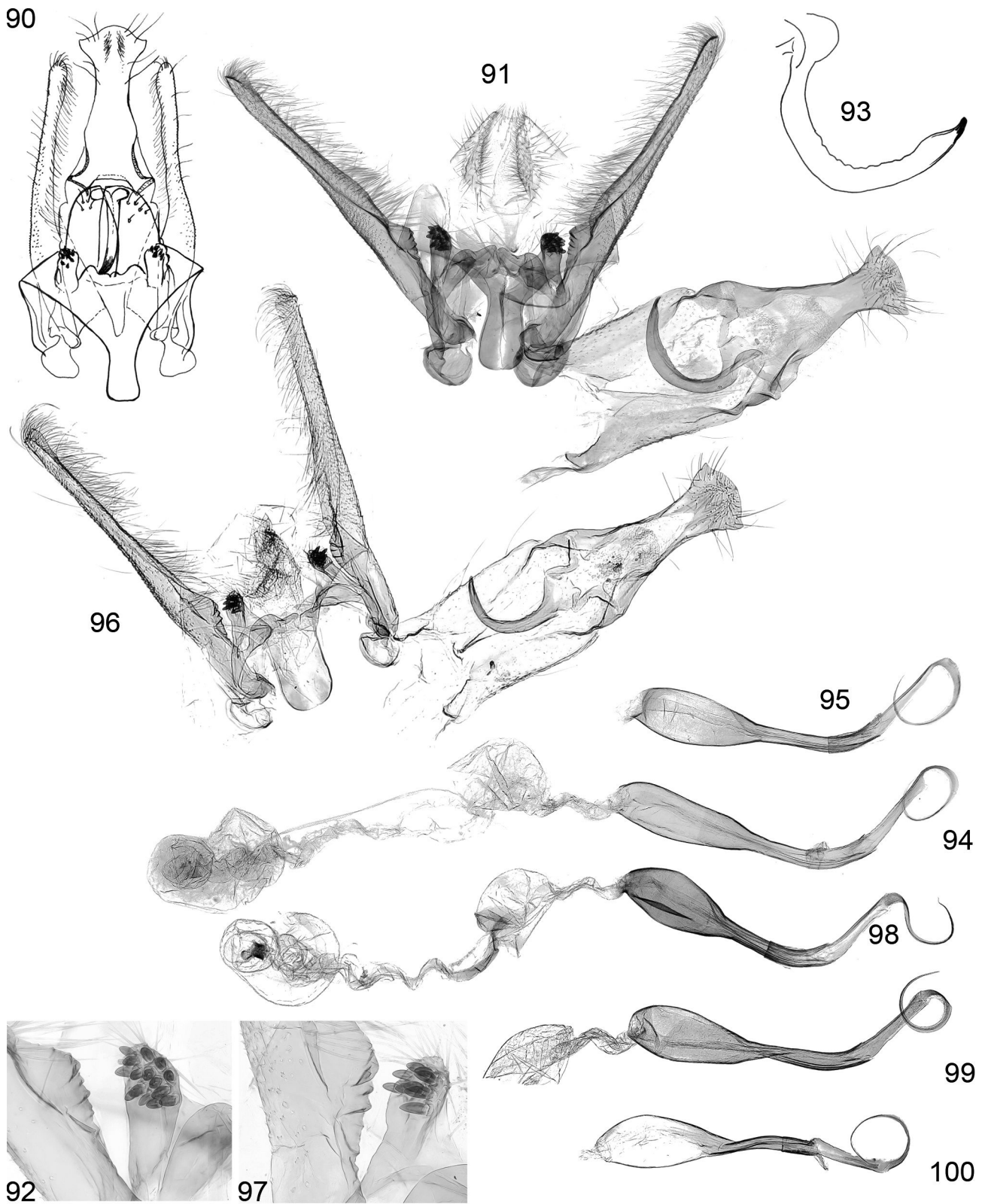
Remarks. *N. sabulosella* was described from several males collected in the second half of September at 1200 m altitude at Akşehir in central Turkey. It was compared with *N. sulcella*, but stated to be larger and having much lighter and less concolorous forewings. That was probably because Rebel (1935) compared it with specimens of *N. skyvai* sp. n. which he had published as *N. sulcella* (Rebel, 1904). We were able to examine the three type specimens of *N. sabulosella* listed above. The genitalia slides of two of them are probably lost; the third male was designated by K. Sattler as paralectotype, but not published. This specimen is designated as lectotype in the present paper. Two further syntypes of *N. sabulosella* belong to *N. radiata* and are listed in detail under that species.

***Nothris radiata* (Staudinger, 1879)**

(Figs 27–34, 90–100, 112, 131–133)

Depressaria radiata Staudinger, 1879: 302

Type material examined. Lectotype ♂: '25/6' | 'Lectotype' | 'Orign' | 'Amasia m.' | 'Lectotypus Nr. 86' | 'Radiata Stgr. "Depressaria"' | 'Lectotype ♀ *Depressaria radiata* Stdgr. teste K. Sattler, 1986 | 'teste 482 XII.53 Hannem.' | 'ex coll. Staudinger' | 'Box 90.' [on reverse side] (MFN); 1 ♀, 'Paralectotype' | 'Amasia Joh.' | 'Orign.' | 'Paralectotype ♀ *Nothris sulcella* Stgr. teste K. Sattler.1981' | 'ex coll. Staudinger' | 'abdomen missing' (MFN); 1 ♀, '1/8' | 'Orign.' | 'Paralectotype' | 'Paratypoid Nr. 87.' | '2/4 ex coll. Staudinger' | 'Abdomen missing' (MFN); 1 ♀, '10/5' | 'Orign.' | 'Paralectotype' | 'Paratypoid Nr. 88' | 'teste 391 Dec. 52 Hannem.' | '3/4 ex col Staudinger' (MFN); 1 ♂, "teste 392 Dec. 52 Hannem." | '4/4 ex col Staudinger' (MFN); 1♂, 'Paralectotype' | 'Asia min.c. Aksehehir 10–20.ix. '31 coll. Wagner, Wien' | 'Nothris sabulosella Rbl. Type ♂' | 'Paralectotype ♀ *Nothris sabulosella* Rebel teste K. Sattler, 1970' | 'Mus. Vind. Gen. Präp. 3855 ♀' (NHMW); 1♀, 'Paralectotype' | 'Asia min.c. Aksehehir 10–20.ix. '31 coll. Wagner, Wien' | 'Nothris sabulosella Rbl. Type ♀' | 'Paralectotype ♀ *Nothris sabulosella* Rebel teste K. Sattler, 1970' | 'Mus. Vind. Gen. Präp. 3856 ♀' (NHMW).



FIGURES 90–100. Male genitalia of *Nothris radiata*, Turkey. 90–91, 96. General view (91,96, unrolled); 92, 97. Detail of sacculus; 93. Gnathos; 94–95, 98–100. Phallus. 90, 94. slide Mus. Vin. 3855, paralectotypus of *N. sabulosella* (teste K. Sattler); 91, 95. slide 5265 O. Karsholt; 92, 96–97, 100. slide 5266 O. Karsholt; 93. gen. prep. 15036 J. Šumpich; 98. gen. prep. 15039 J. Šumpich; 99. gen. prep. 15038 J. Šumpich.

Other material studied. **Turkey.** Artvin, Kaçkar Mts., 23 km NW Sangöl, 2000 m, 1♂, 20.vii.1993, leg. K. Larsen (ZMUC); Konya, 15 km S Akşehir, Sultandağları, 1600 m, 1♀, 31.viii.1983, leg. W. Wolf, genitalia slide Karsholt 5278 (ZMUC); Erzurum, Kop Geçidi, 2250 m, 22.viii.1993, leg. F. Schepler (ZMUC); Kars, 20 km NW Kagizman, 1500 m, 1♂, 11.ix.1993, leg. M. Fibiger (ZMUC); Kars, 3 km E Karakut, 1450 m, 1♀, 12.ix.1993, leg. M. Fibiger (ZMUC); Kayseri, 25 km S Kayseri, Erciyes Dağı, 2000 m, 2♂, 28.vii.1989, leg. M. Fibiger & N. Esser (ZMUC); same data but 2800 m, 2♂, 29.vii.1989, genitalia slide Karsholt 5266♂, gen. prep. Šumpich 15038 (ZMUC); Konya, Taurus, road Bozkor-Hadim, 5 km SE Üçpınar, 1100 m, 2♂, 1♀, 13.vii.1986, leg. M. Fibiger, genitalia slide Karsholt 5265♂, gen. prep. Šumpich 15036, 15037 (ZMUC, NMPC); Konya, Üçpınar, 3 km SE, 1500 m, 3.x.1995, K. Larsen, gen. prep. Šumpich 15040 (ZMUC); Nevşehir, 10 km V Ürgüp, Göreme, 1300 m, 1♂, 11–13.viii.1993, leg. F. Schepler, gen. prep. Šumpich 15039 (ZMUC).

Description. Adult (Figs 27–34). Wingspan 20–25 mm. Segment 2 of labial palpus blackish brown, white on upper and inner surfaces; segment 3 cream-white. Antenna light yellow-brown, indistinctly darker ringed. Head, collar and tegula whitish grey-brown; thorax as forewing. Forewing light grey-brown with black veins; black spots in fold and at ½ and 2/3 in middle of wing followed by light scales; cilia grey with darker cilia line. Hindwing light grey.

Variation. The examined specimens vary slightly in the colour of the head and forewings – from lighter to darker. Two specimens have some black scales along the veins in apical part of the forewing, and one specimen has segment 2 of the labial palpus light brown. Specimens from higher altitude localities (especially Erciyes Dağı, Figs 33–34) differ in having the forewings without black veins, only a weak black streak and some black scales along the veins in the apical part of the wing.

Male genitalia (Figs 90–100). Valva narrow, comparatively short, with a conchoidal projection basally, gradually tapering to the apex. Saccus short, medially narrowed; its club-like apex is covered with about 13 strongly sclerotized spines. Uncus comparatively long, conspicuously hat-like broadened apically, very densely covered with short setae. Gnathos markedly curved, seen from lateral view distinctly broadened before end, terminated by a spike. Saccus subrectangular. Phallus comparatively short, conspicuously curved, terminated by a long flagellum. Large elongated lamina present in bulbus ejaculatorius.

Female genitalia (Figs 112, 131–133). Papillae anales small, broadly oval. Apophyses posteriores comparatively long, slightly more than double length of apophyses anteriores. Subgenital plate markedly narrowing dorsally, with large unsclerotized areas laterally. Ductus bursae comparatively long, twice rotated round its axis distally and approximately nine times coiled proximally. Ductus seminalis broad and coiled at first, then very narrow and straight, gently spined. Corpus bursae oval, signum distinctive, basal plate broad and regularly rounded in shape of a circle sector, with two large lateral triangular plates.

Differential diagnosis. *N. radiata* is characterized by having the veins in the forewing black. This is also found in *N. congressariella*, but not so distinctly, and that species is also smaller. Specimens of the form almost without black veins resemble *N. sabulosella*, but they are smaller and more slender-winged. In the genitalia a very distinct species with characteristic uncus and gnathos, short valvae and clubbed saccus in males; in females with numerous spirals of ductus bursae and characteristic shape of subgenital plate and signum.

Distribution. Turkey. A record from Ohrid in Macedonia published by Klimesch (1968) as *N. radiata* belongs to *N. sulcella*.

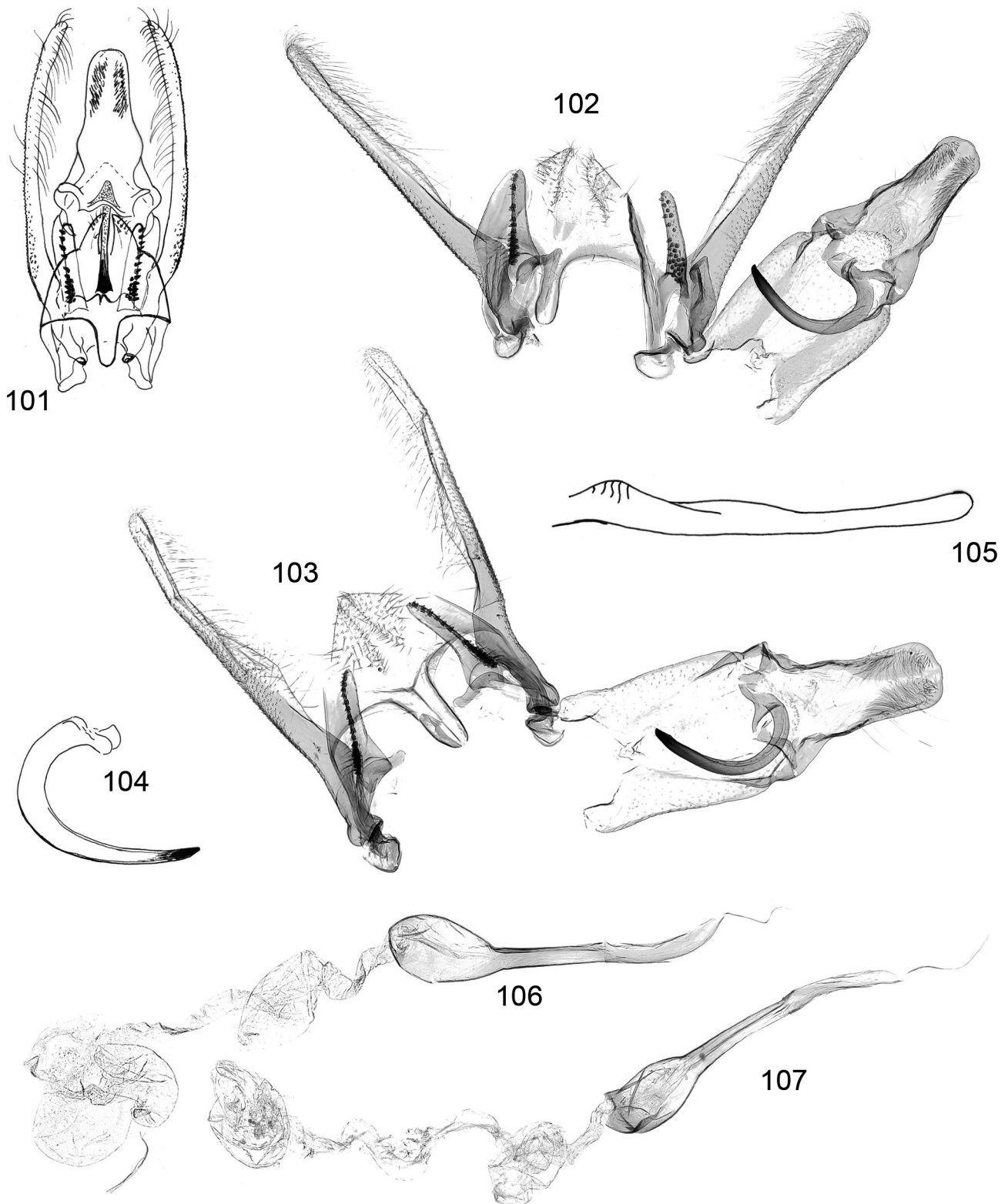
Bionomics. Early stages and host plant unknown. One specimen from the type series was bred on 1st August from a larva, but no further details were given (Staudinger, 1879).

Remarks. *Depressaria radiata* was described from five females from Karaman in southern Turkey. A lectotype was published by Hannemann (1954), who figured the female genitalia and the wing venation and transferred *radiata* to the Gelechiidae, however, without being able to place it in a genus. Two syntypes of *N. sabulosella* belong to *N. radiata*.

***Nothris skyvai* Šumpich & Karsholt, sp. n.**

(Figs 35–40, 101–107, 113, 134–136)

Type material. Holotype ♂: ‘Slovenia Nanos 700 m 1.7.2001 e.l. J. Skyva lgt.’ | ‘Gen. prep. nr. 5270♂ O. Karsholt’ (NMPC).



FIGURES 101–107. Male genitalia of *Nothris skyvai* sp. n. 101–103. General view (102–103, unrolled); 104. Gnathos; 105. Valva. 106–107. Phallus. 101–102, 104–106. Slovenia, holotypus, slide 5270 O. Karsholt; 103, 107. Croatia, paratypus, slide 5269 O. Karsholt.

Paratypes: **Slovenia.** 1♀, Nanos Mts., 700 m, 4.vii.2001, e.l., leg. J. Skyva (SK). **Bosnia.** Prenj, Podasje, 1♀, 1300 m, 29.vii.1901, leg. Penther, gen. prep. Šumpich 15023 (NHMW). **Montenegro.** Durmitor, Klek, 1♀, 4.ix.1904, leg. Penther, gen. prep. Šumpich 15022 (NHMW). **Croatia.** South Velebit Mts., 1♀, 2.ix.2013, leg. I.

Richter, gen. prep. Šumpich 15021 (NMPC), same data but 1 ♂, 26.viii.2011, genitalia slide Karsholt 5269 ♂ (IGR). **Greece.** Evritania, 38°56'N, 21°48', 12 km N Karpenisi, 1900 m, 1 ♂, 26.vii.1998, leg. B. Skule, genitalia slide Karsholt 5264♂ (ZMUC).

Material excluded from the type series. **Turkey.** ['Syr. sept.'], Marasch, Achyr Dag sept., Bertiz Jaila, 1800 m, 1 ♂, 13.vi.1929, genitalia slide Sattler 435a [missing] (ZSM).

Description. Adult (Figs 35–40). Wingspan 18–23 mm. Segment 2 of labial palpus with lower and outer surface black in basal 3/4 (lighter on inner surface), white in apical fourth; segment 3 cream-white at base and in middle, otherwise blackish brown. Antenna light brown, ringed with black. Head, thorax and tegula cream-white. Forewing greyish white; extreme base of costa black; black dots in fold followed by white scales; a small black spot at 1/2 and a larger one at 2/3 in middle of wing separated by a cream-white streak; a black shadow from the latter spot to tornus; diffuse black spots along termen; cilia light grey. Underside of forewing grey. Hindwing light grey, with lighter cilia.

Variation. The colour of the forewings varies from whitish grey to light greyish brown. There is some variation in the amount of blackish scales in the forewing. The holotype and paratype from Slovenia have few such scales, but they have the black spot at 2/3 on the forewings larger and more distinct. Two old specimens from the Balkans (Figs 38–39) are overall lighter and less contrasting, probably because of being faded; in one of them the black spot at 2/3 in the forewing is divided into two.

Male genitalia (Figs 101–107). Valva slender, with a basal conchoidal and notched bulge. Sacculus very narrow, slightly curved near base; on the whole of its length an irregular row sparsely covered with strongly sclerotized spines (more dense basally). Uncus comparatively narrow, apically rounded and covered with short setae. Gnathos slender, long, strongly curved, terminally flattened. Saccus short, terminally rounded. Phallus very narrow, slightly curved, flagellum very short, coecum long and narrow.

Female genitalia (Figs 113, 134–136). Papillae anales broad, round. Apophyses posteriores and apophyses anteriores comparatively short. Subgenital plate excised distally. Basal part of ductus bursae straight, apical part about five times coiled. Ductus seminalis short, broad and membranous at first, then narrow, slightly sclerotized, curved. Corpus bursae oval, membranous, signum an elongated basal plate, terminally rounded and with two lateral plates in shape of nearly regular semicircles.

Differential diagnosis. *N. skyvai* is characterized by its whitish grey to light greyish brown forewings with a rather large, black spot at 2/3, and by the black spots at 1/2 and 2/3 in middle of wing separated by a cream-white streak. It may resemble *N. verbascella*, but that species has more yellowish forewings with more distinct black terminal spots and is without a cream-white streak between the black spots.

N. skyvai is reliably distinguishable by genitalia characters. Males are distinguishable from all remaining species of the genus by the very long, slender and basally bent sacculus and the narrow valva with the apex markedly overtopping the apex of uncus. In females, the apophyses posteriores are extremely short and ductus bursae is very slender.

Distribution. Slovenia, Bosnia, Croatia, Greece, Montenegro, and probably also Turkey and Israel.

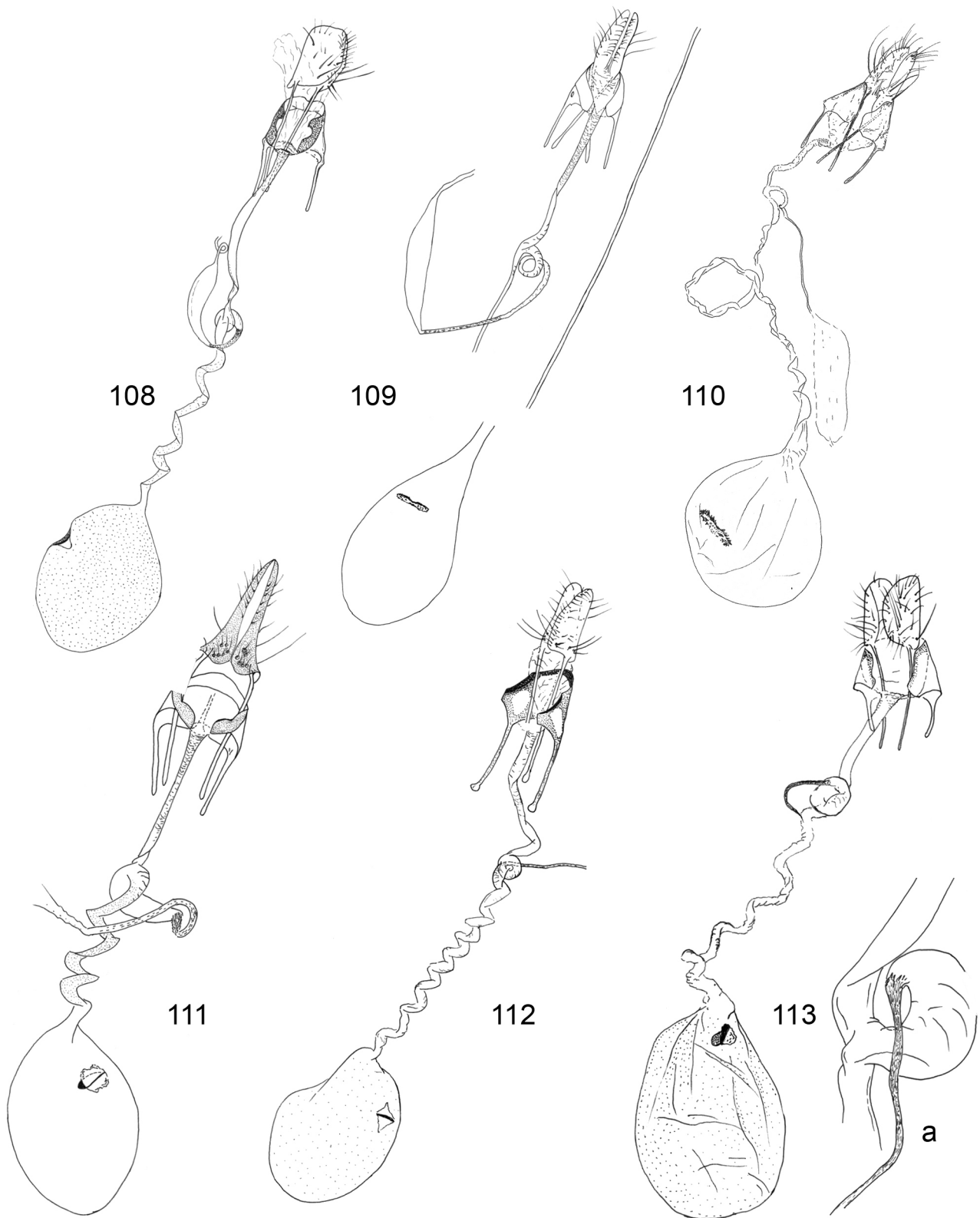
Bionomics. Early stages unknown. The holotype and one paratype emerged from cocoons found on *Scrophularia canina*. Adults have been found from June to September at altitudes between 700 m and 1900 m (Figs 1–2).

Derivatio nominis. Named after the Czech lepidopterist Jan Skyva, who collected the holotype and one paratype of this new species.

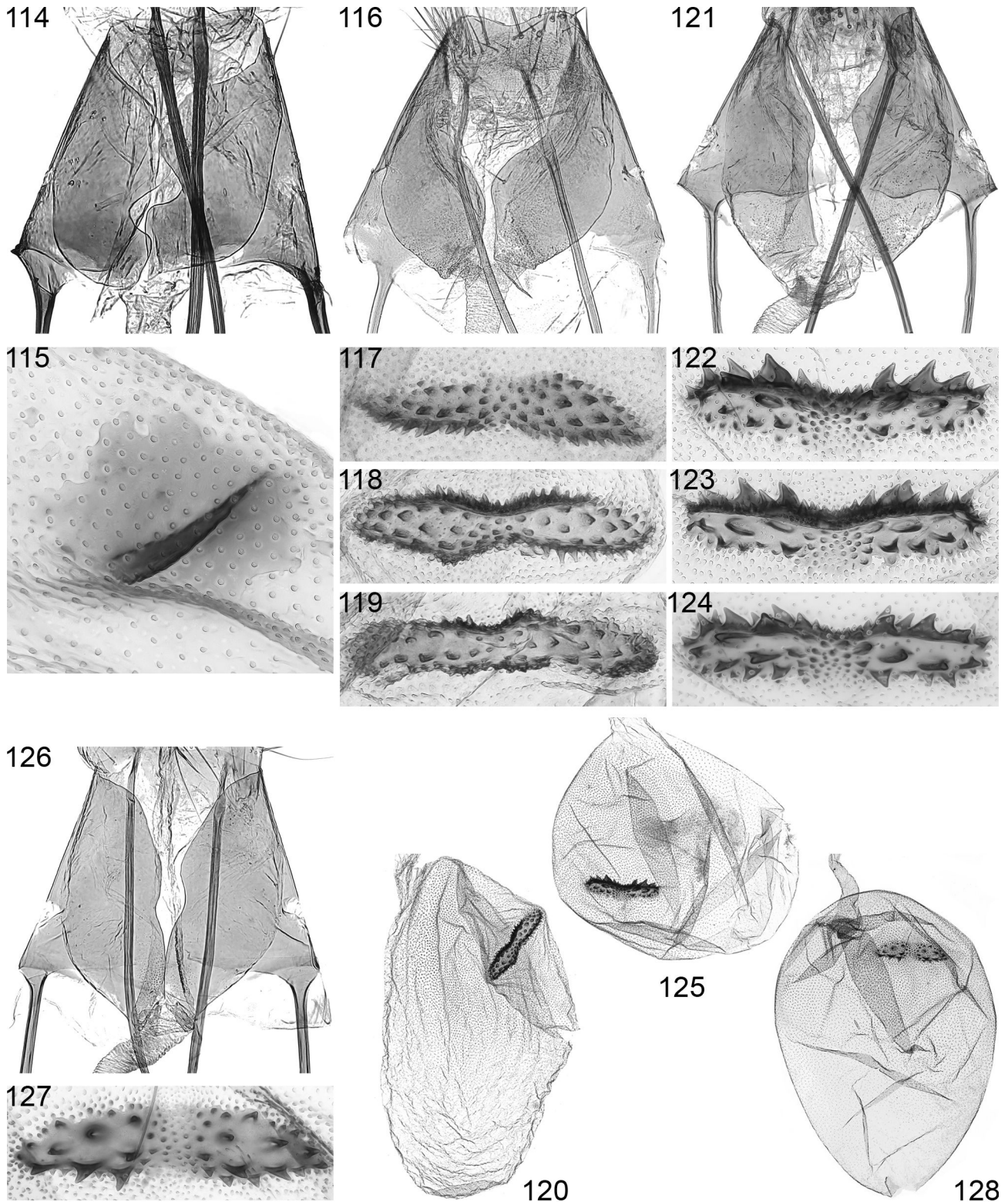
Remarks. The paratype of *N. skyvai* from Bosnia was discussed and figured by Rebel (1904) but was, together with the specimen from Turkey here excluded from type material, misidentified as *N. sulcella* by him and Aigner (1905). Rebel (*op cit.*) stated the locality of the paratype to be Klek in Croatia (instead of Klek in Montenegro).

The specimen excluded from type material (because the slide with its genitalia could not be located) was collected by Pfeiffer near Marasch (now Kahramanmaraş) in Turkey and identified as *N. sulcella* by Rebel. The species was stated to be a new record to Syria (Osthelder, 1936), as Marasch was part of Syria at that time.

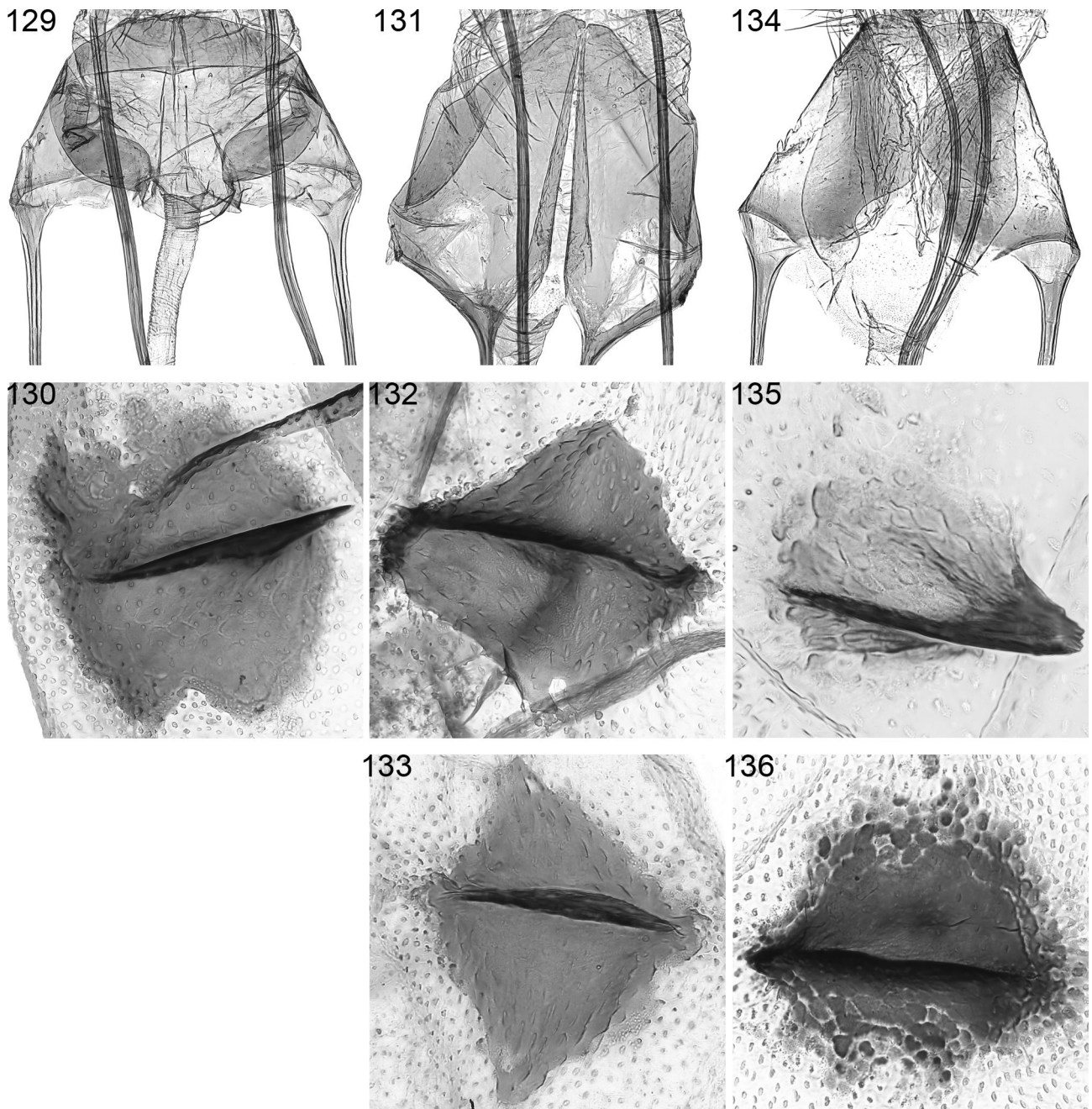
A record of *N. sulcella* from Israel (Bodenheimer 1930) may belong to *N. skyvai* (see above).



FIGURES 108–113. Female genitalia of *Nothris* species. 108. *N. congressariella*, Croatia, gen. prep. 15030 J. Šumpich; 109. *N. lemniscella*, Slovakia, gen. prep. 15012 J. Šumpich; 110. *N. gregersenii* **sp. n.**, Sweden, paratypus, prep. 15015 J. Šumpich; 111. *N. verbascella*, Czechia, prep. 15020 J. Šumpich; 112. *N. radiata*, Turkey, gen. prep. 15037 J. Šumpich; 113. *N. skyvai* **sp. n.**, Bosnia, paratypus, gen. prep. 15023 J. Šumpich (a – enlarged outlet ductus seminalis).



FIGURES 114–128. Female genitalia of *Nothris* species. 114–115. *N. congressariella*, Croatia, gen. prep. 15030 J. Šumpich; 116–120. *N. lemniscella*: 116–117. Hungary, gen. prep. 15010 J. Šumpich; 118, 120. Hungary ('Ofen'), gen. prep. 15011 J. Šumpich; 119. Slovakia, gen. prep. 15012 J. Šumpich; 121–125. *N. gregersenii* sp. n., Sweden, paratypus, gen. prep. 15015 J. Šumpich; 126–128. *N. gregersenii* sp. n., Turkey, slide 5272 O. Karsholt. 114, 116, 121, 126. VIII. sternite; 115, 117–119, 122–124, 127. Signum; 120, 125, 128. Corpus bursae.



FIGURES 129–136. Female genitalia of *Nothris* species. 129–130. *N. verbascella*, Czech Republic, gen. prep. 15020 J. Šumpich; 131–133. *N. radiata*, Turkey: 131–132. gen. prep. 15037 J. Šumpich; 133. slide Mus. Vin. 3959, paralectotypus; 134–136. *N. skyvai* sp. n.: 134–135. Montenegro, paratypus, gen. prep. 15022 J. Šumpich; 136. gen. prep. 15021 J. Šumpich. 129, 131, 134. VIII. sternite; 130, 132–133, 135–136. Signum.

Discussion

The shape of the labial palpus was in former times considered an important systematic character within the Gelechiidae, and species with segment 2 of the labial palpus having a distinct ventral brush were often considered as related. As *Nothris* is one of the oldest and most well-known genera of Gelechiidae having such a labial brush, a number of unrelated species were described in or transferred to that genus. Since the classification of the Gelechiidae became based primarily on the structures of the genitalia (e.g. Sattler 1960), such species have now been transferred to the genera where they belong according to present day systematics, e.g. *Anarsia* and *Mesophleps* (Anacampsinae), *Dichomeris* (Dichomeridinae), *Gelechia* (Gelechiinae) and *Megacraspedus*

(Anomologinae). It is beyond the scope of the present study to list and discuss all species which have been described in or subsequently placed in the genus *Nothris*.

The Gelechiidae are a diverse family with about 4700 described species in about 500 genera (Nieukerken et al. 2011), and with probably at least equally many still to be described (Karsholt et al. 2013). Most taxonomic studies of the family result in increasing the number of described species. It was therefore a main result – and surprising to us – that this was not the case with *Nothris*. We can of course not exclude the discovery of additional species, either by field work or by molecular studies of especially some of the taxa occurring in Turkey, but we are convinced that *Nothris* will not in the future become a species-rich genus.

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