

THE EUROPEAN *PHYLLONORYCTER* SPECIES FEEDING ON THE PLANTS OF THE TRIBE GENISTEAE (FABACEAE), WITH DESCRIPTIONS OF TWELVE NEW SPECIES (LEPIDOPTERA: GRACILLARIIDAE)

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Abstract

LAŠTŮVKA, A., LAŠTŮVKA, Z.: *The European Phyllonorycter species feeding on the plants of the tribe Genisteae (Fabaceae), with descriptions of twelve new species (Lepidoptera: Gracillariidae).* Acta univ. agric. et silvic. Mendel. Brun., 2006, LIV, No. 5, pp. 65–84

A review of 29 European species of the genus *Phyllonorycter* Hübner, 1822 developing on the plants of the tribe Genisteae with diagnostic characters, brief data on their biology and distribution is given. Twelve of them are new: *Phyllonorycter estrela* sp. n., probably from *Genista cinerea* (Vill.) DC., *P. telinella* sp. n. from *Genista monspessulana* (L.) L. A. S. Johnson, *P. tridentatae* sp. n. from *Genista tridentata* L., *P. deschkanus* sp. n. from *Genista cinerea* (Vill.) DC., *P. andalusicus* sp. n. probably from *Retama sphaerocarpa* (L.) Boiss., *P. echinosparti* sp. n. from *Echinospartum lusitanicum* (L.) Rothm., *P. baetica* sp. n. from *Genista versicolor* Boiss., *P. vueltas* sp. n. from *Genista florida* L. and *G. cinerea* (Vill.) DC., *P. scorpius* sp. n. from *Genista scorpius* (L.) DC., *P. pumila* sp. n. from *Genista versicolor* subsp. *pumila* (Hervier) Fern. Casas, *P. eugregori* sp. n. from *Cytisus austriacus* L. and *C. ratisbonensis* Schaeff., and *P. etnensis* sp. n. from *Genista aetnensis* (Biv.) DC. *Phyllonorycter purgantella* (Chrétien, 1915) is recognized as bona species. *Phyllonorycter dalmatinella* (Amsel, 1951) and *P. picardi* Buvat, 1995 are junior subjective synonyms of *Phyllonorycter lapadiella* (Krone, 1909). The lectotype of *Phyllonorycter haasi* (Rebel, 1901) is designated. The species are divided into three species groups, *Phyllonorycter cerasinella* (Reutti, 1853) standing apart from these groups. New country records of several species are given.

Phyllonorycter, Fabaceae, Genisteae, Europe

The species of the genus *Phyllonorycter* Hübner, 1822 feeding on legumes of the tribe Genisteae form the most numerous and taxonomically the most difficult group of this genus in Europe. The group is obviously monophyletic, either holophyletic or probably paraphyletic, because it may also include several species developing on other Fabaceae. About 23 taxa have been described from Europe and nearly 20 of them are considered as valid (Gregor & Povolný, 1960, Buzsko, 1996, 2004, de Prins & de Prins, 2005). Their complex taxonomy, inconspicuous life history and difficult collecting of mines are apparently the main reasons why this group evades attention and some problems have remain-

ed unsolved for many years. The aim of the following contribution is not to present a complex revision of this group, which is impossible without further comparative material and more detailed biological data. Rather, it should give an impulse to more extensive research of the group. It presents results of our investigations in Spain, Portugal, France, partly in Italy, Sicily, Croatia and Greece, and in several central European countries during the past 15 years. The contribution brings diagnostic characters with adequate figures, biological and distributional data (mostly revised) of known species and descriptions of 12 new ones. The host plant names are after ILDIS (2005).

The Genisteae feeding *Phyllonorycter* species

The most important diagnostic characters of this very homogeneous group are found in the male genitalia which, except for *Phyllonorycter cerasinella* with symmetrical valvae, show a broad left valva with a striking apical thorn, and a narrow right valva, sometimes with a slender subapical thorn or with a hair pencil on its base. The female genitalia are homogeneous and nearly or quite indistinguishable in many species, yet there are several morphological specializations developed probably in connection with the way of oviposition in some cases. A more or less distinct white central line on the thorax is always present. The colouration and design of the forewing vary from the basic *Phyllonorycter* pattern with a basal streak and several costal and dorsal strigulae, over tendencies to connections of strigulae resulting in transversal fasciae and other anastomoses, often also with the basal streak, up to a total reduction of the wing pattern. This situation is complicated by the fact that the evolution of the genital morphology, wing pattern and life history are evidently independent; in other words, different genitalia morphologies are connected with different forewing patterns and bionomics. Closely related species, hardly distinguishable by their genital morphology, often show quite different wing patterns (e.g. *Phyllonorycter haasi* and *P. purgantella*), and, on the contrary, species with certain genitalia and life history differences keep the basic wing pattern and are almost indistinguishable habitually. Moreover, many species are very variable both individually and geographically, and their intraspecific variability exceeds their interspecific differences in several cases. It is possible to divide the species into three groups, only *Phyllonorycter cerasinella* occupying an isolated position outside these groups.

Phyllonorycter cerasinella (Reutti, 1853) (Fig. 13)

Beitr. Rhein. Naturgesch., 1853(3): 205 (*Lithocolletis*); type locality: Germany, Freiburg, Hirzberg
Lithocolletis quinquenotella Herrich-Schäffer, 1855; *Syst. Bearb. Schm. Eur.*, 5: 324; Germany, Regensburg

Material. 10 ♂♂, 7 ♀♀: Spain, Lérida, Coll del Cantó, vii.1992, 9 ♂♂, 7 ♀♀ ex p. (6.vii.1992, mines on *Genista sagittalis*); France, Jura, Vincelles, vi.2004, mines in the stem wings of *Genista sagittalis*; Lózere, Laubert, 10.vi.2006, 1 ♂, all leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Wingspan 8.8–10.5 mm; forewing golden ochreous, partly suffused with brown scales in distal part; five costal and four dorsal strigulae white, distinct, with black edging on their basal side; the basal streak even; small group of black scales in apex; cilia line distinct.

Male genitalia. Valvae symmetrical (cf., e.g. Kuznetsov, 1981).

Biology. Univoltine, larva in the stem wings of *Genista sagittalis* L., ix.–vi., adult v.–vii.

Distribution. Southern and partly central Europe from Spain to Romania and Ukraine.

The *Phyllonorycter haasi* species group

The right valva narrow, elongate, more or less of the equal breadth in its whole length or enlarged in the basal third, with a distinct long rigid hair (thorn) before its end; vinculum narrow, without an inner band. The male genitalia of *P. scopariella* partly differs from the above diagnosis.

Phyllonorycter scopariella (Zeller, 1846) (Figs 14, 15, 34)

Linn. Ent., 1: 227 (*Lithocolletis*); type locality: Poland, Glogau [Głogów]

Material. 16 ♂♂, 5 ♀♀: Portugal, Serra da Estrela, Monteguinho, 18.vi.2005, 2 ♂♂, 1 ♀, Penhas da Saude, 17.vi.2005, 2 ♂♂, Manteigas, Pousada, 18.vi.2006, 1 ♂, 1 ♀; Spain, Ávila, Las Vueltas, 16.vi.2005, 1 ♂, Girona, Anglès, 24.vi.1991, 1 ♂; France, Pyrénées-Orientales, Vermet les Bains, 8.vii.1991, 1 ♂; Czech Republic, Moravia centr., Prostějov env., various localities, 1985–1990, 8 ♂♂, 3 ♀♀ ex p. (mines on *Cytisus scoparius*), all leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Wingspan 8.0–10.0 mm; forewing golden ochreous or ochreous brown, five costal and four dorsal strigulae narrow, variable, without dark edging, fourth and fifth costals and fourth dorsal usually indistinct; the basal streak angled slightly towards costa; various anastomoses of the basal streak and strigulae not rare; cilia line indistinct.

Male genitalia. Unique in the group; the left valva narrow; the right valva with a broad end.

Biology. Univoltine, larva in the stem mine on *Cytisus scoparius* (L.) Link., *C. grandiflorus* (Brot.) DC. and *C. striatus* (Hill) Rothm., ix.–vi., adult vi.–vii.

Distribution. Western and southwestern Europe, in northeast direction to Denmark, Poland and Germany, scattered localities in the Czech Republic and Slovakia, also given from Russia and Ukraine.

Phyllonorycter haasi (Rebel, 1901) (Figs 16, 36)

Dt. Ent. Ztschr. Iris, 13(1900): 177 (*Lithocolletis*); type locality: Spain, Castilia, San Ildefonso

Material. 11 ♂♂, 10 ♀♀: Lectotype ♀, [Spain], Cast. Mont., Str. 91, Type haasi, Prep. 896 P. Triberti, coll. NHMV (designated here); Portugal, Serra da Estrela, Penhas da Saúde, vi.2006, stem mines on *Cytisus balansae*; Spain, Ávila, Las Vueltas, 15.vi.2005, 1 ♂, 15.vi.2006, 1 ♂, leg.

A. & Z. Laštůvka, coll. A. Laštůvka; [Spain, Segovia], San Ildefonso, *haasi* Rbl. Type, Stgr. 1900, 1 ♀, coll. NHMV; France, Haute-Loire, Pradelles, 15.vi.2002, 2 ♂♂, 2 ♀♀, vi.2004, 1 ♀ ex p., St. Maurice de Lignon, v.2006, 2 ♂♂, 1 ♀ ex p., Ardèche, Berzème, v.2006, 1 ♂ ex p. (mines always on *Cytisus balansae*), Lézère, Laubert, 10.vi.2006, 4 ♂♂, 4 ♀♀, leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Wingspan 8.5–9.5 mm; antenna brownish grey; forewing copper brown, very sheeny, four costal and three dorsal strigulae, sometimes indistinct, edging with black scales; the basal streak narrow and bent slightly towards costa; distal part of the wing more or less suffused with black scales; cilia line indistinct or interrupted; cilia and hindwings dark grey.

Male genitalia. Saccus slightly elongate; very similar to *Phyllonorycter purgantella*.

Biology. Very probably univoltine, larva in the stem mines on *Cytisus balansae* (Boiss.) Ball (= *C. purgans* L.), ix.–vi., adult v.–viii.

Distribution. Portugal, Spain, France (new to Portugal).

Phyllonorycter purgantella (Chrétien, 1910), bona species (Figs 17, 18, 39)

Naturaliste, 32: 274 (*Lithocolletis*); type locality: France, Pyrénées-Orientales, Canigou

Phyllonorycter joannisella Walsingham, 1925; *Ent. Rec. J. Var.*, 37: 134; France, Ardèche, La Louvesc

Material. 16 ♂♂, 5 ♀♀: Spain, Ávila, Las Vueltas, 15.vi.2006, 8 ♂♂, 1 ♀, Lérída, Coll. del Canto, 7.vii.1991, 1 ♂, 5.vii.1992, 1 ♂, 19.vii.1993, 1 ♂, 4 ♀♀; France, Haute-Loire, St. Maurice de Lignon, 14.vi.2003, 1 ♂, Lézère, Laubert, 10.vi.2006, 4 ♂♂, all leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Wingspan 7.0–10.0 mm; antenna light greyish brown; forewing ochreous with a very variable design; the basal streak, the white dorsal spot and strigulae often connected in various way, sometimes partly reduced; black scales quite absent or they are dispersed in the apical part and along some strigulae; cilia line indistinct; hindwing greyish, cilia nearly white.

Male genitalia. Very similar or indistinguishable from *P. haasi*.

Biology. Probably at least bivoltine, larva in the underside leaf mine on *Cytisus balansae* (Boiss.) Ball, adult vi.–viii.

Distribution. Spain, France (new to Spain).

Remarks. Given groundless by several authors (Hering, 1957; Kuznetsov, 1981) as synonym of *P. haasi*; *Phyllonorycter joannisella* was synonymized with *P. purgantella* after a detailed analyse by Le Marchand (1936).

Phyllonorycter baldensis Deschka, 1986 (Figs 19, 38)

Nachrbl. Bayer. Entomologen, 35: 16; type locality: Italy, Trento, Monte Baldo, Bocca di Navene

Material. 5 ♂, 3 ♀♀: Italy, Trento, Monte Baldo, Bocca di Navene, 6.vii.1972, 2 ♀♀, leg. Burmann, coll. TLMF (paratypes), same locality, 29.vi.1985, 1 ♂, leg. Burmann, coll. TLMF, same locality, 27.vi.–7.vii.1984, 2 ♂♂ (paratypes) ex l. (10.vi.1984, mine on *Genista radiata*), 28.vi.1995, 1 ♂ ex l. (26.vi.1995, mine on *Genista radiata*), leg. et coll. G. Deschka, Mte Baldo, Corna piana, 9.–19.v.1999, 1 ♂, 1 ♀ ex l. (27.–28.iv.1999, mine on *Genista radiata*), leg. et coll. G. Deschka.

Diagnosis. Wingspan 8.0–9.0 mm; forewing ochreous with four costal and three dorsal strigulae, without dark edging; the basal streak narrow, angled slightly towards costa; the first costal and dorsal strigula broader than other, sometimes connected in the shape of an acute angle; cilia line indistinct.

Male genitalia. The right valva narrow, slightly bent, rounded at the end, with long fine hairs nearly in its whole length; saccus slightly elongate.

Biology. Univoltine, larva mines the stem of *Genista radiata* (L.) Scop., ix.–vi., adult vi.–vii.

Distribution. Northern Italy (Monte Baldo).

Phyllonorycter estrela sp. n. (Figs 1, 35, 64)

Type material. Holotype ♂, Portugal, Serra da Estrela, Monteguinho, 17.vi.2005; Paratypes 1 ♂, 2 ♀♀: Spain, Ávila, Villanueva de Ávila, 17.vi.2004, 1 ♂, Ávila, Las Vueltas, 15.vi.2006, 2 ♀♀, all leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Description. Wingspan 8.0–8.5 mm; head white with several ochreous hairs; antenna nearly white; thorax with a distinct white central line or nearly entire white; forewing ochreous, without dark scales; two costal and dorsal strigulae opposite in the shape of transverse bands, next strigulae indistinct; the basal streak slightly sinuate, connected with the first and second strigula; cilia line absent; hindwing and abdomen whitish grey; cilia and legs white.

Male genitalia. The right valva narrow, elongate; saccus long.

Female genitalia. Papillae anales large, only with individual long setae laterally and with dense, short setae caudally; apophyses enlarged in basal parts.

Biology. Unknown, the adults were collected in the bushes of *Genista cinerea* (Vill.) DC. in which leaves the larva can mine.

Distribution. Central Portugal and western Spain.

Etymology. Named after its type locality, Serra da Estrela (a noun in apposition).

Phyllonorycter telinella sp. n.

(Figs 2, 37, 65, 81)

Type material. Holotype ♂, Spain, Málaga, Gaucín, vi.2006 ex p. (23.vi.2006, mine on *Genista monspessulana*); Paratypes 8 ♂♂, 10 ♀♀: Spain, Málaga, Gaucín, 30.vi.1994, 3 ♂♂, 7 ♀♀, vi.2006, 1 ♂, 1 ♀ ex p. (mines 23.vi.2006); Málaga, Monda, 5.vii.2001, 2 ♂♂, 2 ♀♀, 23.vi.2006, 2 ♂♂, all leg. A. & Z. Laštůvka, coll. A. Laštůvka, two paratypes coll. RMNH, TLMF, ZMHB and A. Vives.

Description. Wingspan 7.0–8.8 mm; head white with individual brownish hairs; antenna whitish grey; thorax white in its fore part, with white central line and tegulae with broad white border; forewing golden ochreous; the basal streak connected with the white dorsal spot which is elongate towards base, and with the first costal strigula, the second costal strigula connected with the first dorsal, what makes two broken bands; these bands are sometimes also connected together; the second dorsal strigula broad and distinct, the next usually indistinct; strigulae usually with indistinct brownish edging, several brown scales in the apical part; cilia line distinct; hindwing, cilia, abdomen and legs light grey.

Male genitalia. The right valva narrow, slightly enlarged near base and with a sharp end; saccus indistinct.

Female genitalia. Papillae anales very oblique, with individual long setae laterally and with very short setae caudally; apophyses posteriores large.

Biology. Two or more generations; larva in the underside leaf mine on *Genista monspessulana* (L.) L. A. S. Johnson (= *Teline monspessulana* L.); adults of the second generation were collected in June and July.

Distribution. Spain, Andalusia.

Etymology. Named after one of generic names of its hostplant, used with the ending -ella as noun in apposition.

Phyllonorycter tridentatae sp. n.

(Figs 3, 40, 66)

Type material. Holotype ♂, Spain, Toledo, Buenasbodas, 14.vi.2005, leg. A. & Z. Laštůvka, coll. A. Laštůvka; Paratypes 16 ♂♂, 9 ♀♀: Spain, Ávila, Arenas de san Pedro, 3 km SW, iii.1997, 1 ♂ ex l. (mines on *Genista tridentata*), Huelva, 8 km SSE Valverde del Camino, iii.2000, 1 ♀ ex l. (mines on *G. tridentata*), both leg. E. J. van Nieukerken, coll. RMNH, Toledo, Buenasbodas, 19.vi.2002, 3 ♀♀, 16.vi.2004, 1 ♂, 1 ♀, 14.vi.2005, 2 ♂♂; Portugal, Serra da Estrela, Covilha, 21.vi.2002, 1 ♂, Serra da Estrela, Penhas da Saúde, 22.vi.2002, 5 ♂♂, 1 ♀, Serra da Estrela, Mantegás, Pousada, 18.vi.2006, 1 ♀, Coimbra, Vale Grande, 23.vi.2003, 6 ♂♂, 2 ♀♀, all leg. A. & Z. Laštůvka, coll. A. Laštůvka, two paratypes coll. ZMHB, TLMF and A. Vives.

Description. Wingspan 10.0–11.5 mm, conspicuously large species; head white with several brow-

nish hairs; antenna whitish grey; thorax with a white central line and with distinct white border on tegulae; forewing golden bronze, strigulae white; the basal streak long, slightly angled towards costa in its distal half; distinct four costal and three dorsal strigulae, the first dorsal very long and oblique; strigulae with more or less distinct, narrow edging of black scales on their basal side; a large elongate field (stripe) of black scales in the apical part, connected often with the edging of the first and second dorsal strigula; cilia line distinct; hindwing and cilia light grey; abdomen and legs whitish grey.

Male genitalia. The right valva very narrow, slightly angled in the basal half; saccus long.

Female genitalia. Papillae anales with dense long setae; apophyses posteriores thin, slightly enlarged in its basal half.

Biology. Uni- or bivoltine; larva mines the stem wings on *Genista tridentata* L., x.–vi., adult iii.–vii. Mendes (1905) mentions a second generation in autumn.

Distribution. W and SW Spain, Portugal.

Etymology. Named after specific name of the host plant used as a noun in genitive case.

Remark. The species is given by Mendes (1905) from Portugal as '*cerasinella*'.

Phyllonorycter deschkanus sp. n.

(Figs 4, 41, 67)

Type material. Holotype ♂, Spain, Granada, Diezma, 29.vi.2002; Paratypes 3 ♂♂, 5 ♀♀: Spain, Granada, El Molinillo, 28.vi.1992, 1 ♂, Diezma, 29.vi.2002, 2 ♀♀, 24.vi.2006, 1 ♀, Puebla de Don Fadrique, 26.vi.2005, 2 ♂♂, 2 ♀♀, all leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Description. Wingspan 7.5–9.0 mm; head hairs ochreous, partly white; antenna whitish grey; thorax with a white central line or nearly entire white; forewing ochreous with white strigulae; the basal streak narrow and long, connected with the first dorsal strigula which makes with the sinuate first dorsal strigula a very acute angle; other strigulae indistinct; several black scales in the apex; cilia line very indistinct; hindwing, cilia, abdomen and legs whitish grey.

Male genitalia. The right valva very narrow, tapering towards its end; saccus very long.

Female genitalia. Papillae anales with middle long setae; apophyses posteriores only slightly enlarged in its basal half, without a bulbous part.

Biology. Probably univoltine; larva mines the stem of *Genista cinerea* (Vill.) DC., viii.–vi., adult vi.–vii.

Distribution. Spain, Andalusia.

Etymology. Named after Gerfried Deschka, world known specialist for the genus *Phyllonorycter*, who has a considerable merit especially in the knowledge of western Palaearctic species of this genus.

The Phyllonorycter ulicicolella species group

The right valva of the equal breadth or broadest in the middle, without a hair pencil in the basal part and a distinct long thorn before its end; vinculum broad, with an inner band usually. The couple *P. phyllocytisi* and *P. eugregori* sp. n., and especially *P. nevadensis* show certain differences from the above characters and their ranging to this group is provisional.

Phyllonorycter hesperiella (Staudinger, 1859)
(Figs 20, 42)

Ent. Ztg Stettin, 20: 256 (*Lithocolletis*); type locality: Spain, Cádiz, Chiclana

Material. 10 ♂♂, 10 ♀♀: Spain, Cádiz, Chiclana, P.T. [type ?], 1 ♂, leg. Staudinger, coll. A. Laštůvka (ex coll. D. Povolný); Cádiz, Punta Paloma, 30.iii.–4.iv.1994, 3 ♂♂, 5 ♀♀, leg. H. van der Wolf, coll. A. Laštůvka, 22.vi.2006, 6 ♂♂, 5 ♀♀, leg. A. & Z. Laštůvka, coll. A. Laštůvka; Portugal, Algarve, Cabanas, 22.vi.2006, stem mines on *Retama monosperma*, leg. A. & Z. Laštůvka, Algarve, Monte Gordo, 2 km SW Vila Real de Santo António, 10.i.1987, stem mines with very young larvae on *Retama monosperma*, leg. E. J. van Nieukerken.

Diagnosis. Wingspan 9.0–10.5 mm; head whitish mixed with brownish hairs; forewing brownish ochreous; four costal and three dorsal strigulae narrow and very oblique, whitish ochreous with brown edging, the first dorsal very long, the third indistinct; the basal streak narrow and long, slightly angled towards costa, edging with brown scales above; apical spot of dark scales small, sharp; cilia line distinct.

Male genitalia. The right valva broad, slightly bent, with short rigid hairs in the distal half and with a projection in the place of this hairs.

Biology. At least bivoltine or polyvoltine; larva mines the young stem of *Retama monosperma* (L.) Boiss.; adults have been collected in iii.–iv. and in vi.

Distribution. Known from SW Spain and S Portugal (new to Portugal). Very probably broadly distributed in northern Africa, the stem mines on *Retama monosperma* have been found also in Canary Islands by Hering (1957: 467).

Phyllonorycter retamella (Chrétien, 1915)
(Fig. 21)

Ann. Soc. Ent. France, 84: 363 (*Lithocolletis*); type locality: Tunisia, Fériana

Material. Italy, Sicily, Licata, 18.vi.2000, 1 ♀, leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Very similar to *P. hesperiella*; wingspan 9.8 mm; head white with several rusty hairs; forewing more light and golden than in *P. hesperiella*, strigulae

as in *P. hesperiella*, but the dark apical spot large and unsharp.

Male genitalia. Not studied.

Biology. Larva in the stem mine of *Retama raetam* (Forssk.) Webb; the type specimens were reared by Chrétien (1915) in May, the female specimen from Sicily was beaten from the plants (bushes) of *Retama raetam* in June.

Distribution. Known from Tunisia and Sicily (new species to Sicily and the whole Europe).

Remark. The taxa *P. hesperiella* and *P. retamella* are very similar and maybe conspecific; a solution of this question is without more numerous North African material from both host plants impossible.

Phyllonorycter andalusicus sp. n.
(Figs 5, 43, 68)

Type material. Holotype ♂, Spain, Granada, Diezma, 1.vii.1992; Paratypes 2 ♀♀, same data 1 ♀, Granada, Caniles, 2.vii.1994, 1 ♀, all leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Description. Wingspan 9.5–10.0 mm; head white mixed with ochreous hairs; antenna whitish grey; thorax white in its forepart, with white central line and tegulae with white border; forewing golden ochreous, five costal and four dorsal strigulae white, the last two indistinct; the first dorsal narrow, long and nearly straight, the second short and broad; the basal streak narrow and long, slightly sinuate; apex with a group of brownish black scales; distal strigulae with interrupted brownish black edging; cilia line distinct; hindwing, cilia, abdomen and legs light whitish grey.

Male genitalia. The right valva broad, bent, slightly narrows before its end which is sharp; sacculus indistinct.

Female genitalia. Papillae anales flat, with long setae; apophyses posteriores with a distinct bulb in their basal third.

Biology. The species has been collected at light in bushes of *Retama sphaerocarpa* (L.) Boiss.; it develops maybe in young stems of this plant.

Distribution. Spain, Andalusia.

Etymology. Named after Andalusia, country of its origin.

Phyllonorycter lapadiella (Krone, 1909)
(Figs 22, 44)

Jahresber. Wien. Ent. Ver., 19 (1908): 130 (*Lithocolletis*); type locality: Croatia, Gravosa [= Dubrovnik], Lapad Peninsula

Lithocolletis dalmatinella Amsel, 1951; *Redia*, 36: 415; Montenegro, Igalo near Herceg Novi; **syn. n.**

Phyllonorycter picardi Buvat, 1995; *Alexanor*, 19: 15; France, Marseille, Le Roy d'Espagne; **syn. n.**

Material. 24 ♂♂, 15 ♀♀: France, Aude, Sigean, 23.vi.1991, 1 ♀; Italy, Campania, Atena Lucana, 25.vi.2000, 4 ♂♂, 3 ♀♀, Calabria, Santa Catarina delo Ionio, 6.vi.2000, 2 ♂♂; Sicily, Ficuzza, 16.vi.2000, 2 ♂♂, 2 ♀♀, Francavilla di Sicilia, 23.vi.2000, 2 ♂♂, 3 ♀♀, Mandanici, 8.vi.1995, 2 ♂♂, 1 ♀; Croatia, Istria, Pula, v.2003, 4 ♂♂ (1.v.2003, mines with pupae on *Spartium junceum*); Greece, Ioanina, Asprangelis, 10.vi.1997, 1 ♂, 1 ♀, Séres, Kalokastro, 24.vi.1997, 1 ♀, Fthiotida, Agios Haralambos, 22.vi.1998, 1 ♂, Ahaia, Kalávrita, 23.vi.1996, 2 ♂♂, 1 ♀, Messina, Exohori, 10.vi.1997, 1 ♂, 1 ♀, Kardamili, 17.vi.1998, 1 ♂, all leg. A. & Z. Laštůvka, coll. A. Laštůvka; Montenegro, Herceg Novi, Igalo, 15.iv.1938, 1 ♂, 1.v.1938, 1 ♂, 8.v.1938, 1 ♀, paratypes of *Lithocolletis dalmatinella*, leg. H. G. Amsel, coll. A. Laštůvka (ex coll. F. Gregor).

Diagnosis. Wingspan 8.0–11.0 mm; forewing golden rusty, four costal and three dorsal strigulae white, more or less edged with black scales; the basal streak long, narrow, slightly angled towards costa; distinct black apical spot, sometimes connected with black edging of strigulae; cilia line distinct; hindwing and cilia comparatively dark, grey.

Male genitalia. The right valva of the equal breadth, only slightly bent, with short rigid hairs in its distal half.

Biology. Probably univoltine, larva mines the young stem of *Spartium junceum* L., ix.–iv., adult iv.–vi.

Distribution. France, Italy, Sicily, Croatia, Montenegro, Greece (new to Sicily and Greece).

Remark. The identity of *Lithocolletis lapadiella* is obvious from the description by Krone (1909) with respect to the type locality, even when the figure is misshapen proportionally and the wingspan mentioned is slightly large; the conspecificity of the taxa *Phyllonorycter dalmatinella* and *P. picardi* is quite evident from the description by Buvat (1995). The Greek record of *P. ulicicolella* by Derra (1985) belongs very probably to this species.

Phyllonorycter vueltas sp. n.
(Figs 6, 45, 69, 84)

Type material. Holotype ♂, Spain, Ávila, Las Vueltas, 15.vi.2005; Paratypes 20 ♂♂, 32 ♀♀: Spain, Ávila, Las Vueltas, 18.vi.2004, 1 ♂, 2 ♀♀, 15.vi.2005, 6 ♂♂, 8 ♀♀, 15.vi.2006, 6 ♂♂, 17 ♀♀, leg. A. & Z. Laštůvka, coll. A. Laštůvka, Ávila, Sierra de Gredos, 2.5 km S Hoyos del Espino, 5.viii.1986, 1 ♂♂, 4 ♀♀, leg. E. J. van Nieukerken, coll. RMNH, Navarredonda de Gredos, 4.viii.1986, 2 ♂♂, 1 ♀♀, leg. E. J. van Nieukerken, coll. RMNH; Portugal, Serra da Estrela, Penhas da Saúde, vii.2002, 1 ♂ ex p. (22.vi.2002, mine on *Genista florida*), Manteigas, Pousada, 18.vi.2006, 3 ♂♂, 1 ♀♀, leg. A. & Z. Laštůvka, coll. A. Laštůvka, two paratypes coll. TLMF, ZMHB and A. Vives.

Description. Wingspan 7.8–9.0; head whitish mixed with ochreous hairs; antenna whitish grey; thorax with white central line and with white border on tegu-

lae; forewing golden ochreous, four costal and three dorsal strigulae white, the last dorsal indistinct; several black scales in apex; cilia line distinct; the basal streak slightly enlarged in its distal half; hindwing, cilia, abdomen and legs whitish or whitish grey.

Male genitalia. The right valva narrows in the last third, the rigid hairs begin before its middle; saccus short, but distinct.

Female genitalia. Papillae anales with individual long setae laterally and with dense short setae caudally; apophyses posteriores large, without a distinct bulb in their basal part.

Biology. Probably univoltine, larva mines the stem of *Genista florida* L. and *G. cinerea* (Vill.) DC., ix.–vi., adult v.–vii.

Distribution. Spain, Portugal.

Etymology. Named after its type locality used as a noun in apposition.

Phyllonorycter echinosparti sp. n.
(Figs 7, 46, 70, 83)

Type material. Holotype ♂, Portugal, Guarda, Pinzio, vi.2006 ex p. (17.vi.2006, mine with pupa on *Echinospartum lusitanicum*); Paratypes 4 ♂♂, 12 ♀♀: same data, 2 ♂♂, 11 ♀♀, 17.vi.2006, 2 ♂♂, 1 ♀, all leg. A. & Z. Laštůvka, coll. A. Laštůvka, two paratypes coll. RMNH, TLMF and ZMHB.

Description. Wingspan 8.5–10.0 mm; head ochreous with white hairs laterally; thorax white in its fore part, with white central line and bordered tegulae; forewing golden ochreous, four costal and three dorsal strigulae white, the last dorsal strigula often absent; costal strigulae small, the first dorsal long and oblique, the second short and broad; the basal streak angled towards costa in the middle and enlarged; a small spot of black scales in apex; second and next strigulae with weak black edging; cilia line distinct; hindwing, cilia and legs whitish or light grey; abdomen grey.

Male genitalia. The right valva long, broadest in its last third.

Female genitalia. Papillae anales covered equally with dense long setae; apophyses posteriores only slightly bulbed in the basal part.

Biology. Probably univoltine, larva lives in the thorn of *Echinospartum lusitanicum* (L.) Rothm., up to vi., adult vi.

Distribution. Portugal.

Etymology. Named after its host plant, a noun in genitive case.

Phyllonorycter baetica sp. n.
(Figs 8, 47, 71)

Type material. Holotype ♂, Spain, Almeria, Sierra de Baza, Padilla, 2000 m, 25.vi.2006; Paratypes 9 ♀♀: same data, leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Description. Wingspan 5.5–7.0 mm; head rusty with several white hairs; antenna grey; thorax with white central line; forewing golden ochreous, four costal and three dorsal strigulae white, the first dorsal long and broad, the second and next strigulae with weak edging of brownish scales; apical spot small; cilia line indistinct; the basal streak slightly angled towards costa in the middle; hindwing and cilia whitish grey; abdomen and legs grey.

Male genitalia. The right valva narrows in the middle, the rigid hairs before its end only.

Female genitalia. Papillae anales with middle long setae; apophyses posteriores thin, slightly enlarged in the basal third.

Biology. Probably univoltine, larva develops in the thorn of *Genista versicolor* Boiss., up to vi., adult vi.

Distribution. Spain, Andalusia.

Etymology. Named after one of host plant specific names '*baetica*', used as noun in apposition.

Phyllonorycter scorpius sp. n.
(Figs 9, 48, 72)

Type material. Holotype ♂, Spain, Teruel, Albarra-cin, 26.vi.2001; Paratypes 14 ♂♂, 3 ♀♀: Spain, Guada-lajara, Caseria El Monte, 13.vi.2006, 1 ♂, Teruel, Albar-racin, 26.vi.2001, 3 ♂♂, Vivel del Rio, 5.vii.1993, 4 ♂♂, 3 ♀♀, 21.vi.1994, 1 ♂, Montalban, 15.vi.2003, 1 ♂, Ejulve, 29.vi.2005, 3 ♂♂, Royuella, 16.vi.2003, 1 ♂, all leg. A. & Z. Laštůvka, coll. A. Laštůvka, two paratypes coll. RMNH and ZMHB.

Description. Wingspan 7.0–8.5 mm; head ochreous with white hairs laterally; antenna nearly white; thorax with white central line and with white border of tegulae, sometimes white in its forepart; the forewing design very similar to *P. echinosparti* sp. n.; four costal and three dorsal strigulae white, narrow, the last dorsal strigula often indistinct or absent; second and next strigulae with distinct black edging; the basal streak slightly sinuate; the black apical spot small, but distinct; cilia line distinct; hindwing, cilia, abdomen and legs whitish grey.

Male genitalia. The right valva enlarges equally towards its end which is sharp.

Female genitalia. Papillae anales broad, with dense long setae; apophyses posteriores enlarged in a slightly bulb in their basal part.

Biology. The adults have been collected in the bushes of *Genista scorpius* (L.) DC. in which thorns the species develops probably (the empty mines and mines with exuviae have been found). Probably univoltine, adults vi.–vii.

Distribution. Spain.

Etymology. Named after specific name of the host plant, a noun in apposition.

Phyllonorycter ulicicolella (Stainton, 1851)
(Figs 23, 49)

Suppl. Cat. Brit. Tin. & Pter.: 12 (*Lithocolletis*); type locality: England, Bristol, Durdham Downs

Material. 1 ♂, 1 ♀: France, Loire, La Baule, 10.v.1943, 1 ♀ ex l., 18.v.1943, 1 ♂ ex l. (mines on *Ulex europaeus*), leg. H. Buhr, coll. ZMHB.

Diagnosis. Wingspan 6.0–7.0 mm; forewing golden brown, four costal and three dorsal strigulae and slightly sinuate basal streak without any strong edging; distal strigulae sometimes indistinct; black apical spot small and obscure; cilia line present.

Male genitalia. The right valva comparatively broad, of more or less equal breadth in the whole length and with a sharp end; the left valva with a broadly cut end.

Biology. Univoltine, larva mines the young stem of *Ulex europaeus* L., ix.–v., adult vi.–vii.

Distribution. England, NW France. The records from other countries (cf. Buzsko, 2004) require a verification, especially from that where the host plant do not occur (cf. Derra, 1985).

Phyllonorycter pumila sp. n.
(Figs 10, 50, 82)

Type material. Holotype ♂, Spain, Cuenca, La Toba, 14.vi.2006; Paratypes 6 ♂♂: Spain, Cuenca, La Toba, 14.vi.2006, 1 ♂, 27.vi.2006, 5 ♂♂, all leg. A. & Z. Laštůvka, coll. A. Laštůvka, Zaragoza, Coscojar, 13.vi.2006, mines in thorns of *Genista versicolor* subsp. *pumila*, leg. A. & Z. Laštůvka.

Description. Wingspan 7.0–8.0 mm; head rusty brown with greyish hairs laterally and white caudally; antenna grey; thorax with white central line and with white border of tegulae; forewing ochreous rusty, four costal and three dorsal strigulae white, more distinct than in *P. baetica* sp. n. and *P. scorpius* sp. n., with distinct black edging; the basal streak slightly enlarged in its distal half; the apical spot small and distinct; cilia line distinct; cilia light grey; hindwing, abdomen and legs grey.

Male genitalia. The right valva more or less of the equal breadth, rounded on its end, with short rigid hairs in the second half; saccus only indicated.

Biology. Probably univoltine, larva develops in the thorn of *Genista versicolor* subsp. *pumila* (Her-vier) Fern. Casas, the exuviae and emerged adults were collected in June.

Distribution. Eastern central Spain.

Etymology. Named after the name of the host plant, a noun in apposition.

Phyllonorycter etnensis sp. n.
(Figs 12, 51, 73)

Type material. Holotype ♂, Italy, Sicily, Etna, Monte Arso, 21.vi.2000; Paratypes 6 ♂♂, 1 ♀: same locality, 17.vi.1995, 4 ♂♂, 1 ♀, 21.vi.2000, 2 ♂♂, all leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Description. Wingspan 9.0–9.7 mm; head ochreous brown with white hairs in its hind part; antenna grey; forewing ochreous rusty, with four costal and three dorsal, ochreous white strigulae, sometimes less distinct; the first dorsal long and oblique, the second dorsal broad; brownish black edging on the inner side of strigulae; the apical spot elongate, distinct; cilia line distinct; hindwing, cilia and abdomen grey, legs whitish grey.

Male genitalia. The right valva enlarged in the middle, with a long hair on the base; saccus short, but distinct.

Female genitalia. Papillae anales broad, flat, with dense setae of the middle length; apophyses posteriores thin, not enlarged in their basal part.

Biology. The adults have been collected in the bushes of *Genista aetnensis* (Biv.) DC., the larva has not been found, but the species lives quite certainly in the leaf or stem mines in this plant.

Distribution. Sicily.

Etymology. An adjective derived after the name of the type locality.

Phyllonorycter phyllocytisi M. Hering, 1936
(Figs 24, 52, 74)

EOS, Rev. Española Ent., 11(1935)(4): 351, fig. 5 (*Lithocolletis*); type locality: Spain, Montserrat

Material. 4 ♂♂, 8 ♀♀: France, Alpes-de-Haute-Provence, Sisteron, vii.1993, 3 ♂♂, 6 ♀♀ ex l. (22.vii.1993, mines on *Cytissophyllum sessilifolium*), leg. A. & Z. Laštůvka, coll. A. Laštůvka, Gourdon, 30.x.1997, 1 ♂, 2 ♀♀ ex l. (*Cytissophyllum sessilifolium*), leg. et coll. M. Petrů.

Diagnosis. Wingspan 7.3–8.5 mm; forewing golden ochreous brown, four costal and three or four dorsal strigulae white, distinct, edging with black scales; apical spot small; cilia line distinct.

Male genitalia. The right valva broadest in the middle, with dense fine hairs; saccus indistinct.

Female genitalia. Papillae anales with dense setae of the middle length; apophyses posteriores slightly enlarged in their basal third (without a bulb).

Biology. Two or more generations, larva in underside leaf mines on *Cytissophyllum sessilifolium* (L.) O. Lang. (= *Cytisus sessilifolius* L.).

Distribution. Spain, France, Italy (new to France).

Phyllonorycter eugregori sp. n.
(Figs 11, 53, 75, 77–80)

Type material. Holotype ♂, Czech Republic, Moravia, Brno, Stránská skála, iv.1986 ex l. (x.1985, mine on *Cytisus ratisbonensis*), leg. et coll. A. Laštůvka; Paratypes 15 ♂♂, 6 ♀♀: Czech Republic, Moravia, Brno, Stránská skála, iv.1985, 3 ♂♂ ex l. (x.1984, mines on *Cytisus ratisbonensis*), leg. F. Gregor, coll. A. Laštůvka, iv.1986, 3 ♂♂, 2 ♀♀ ex l. (x.1985, mines on *Cytisus ratisbonensis*); Slovakia, Kamenica nad Hronom, vii.1987, 4 ♂♂, 2 ♀♀ ex l. (2.vii.1987, mines on *Cytisus austriacus*); Hungary, Budaörs, vii.1988, 3 ♂♂, 2 ♀♀ ex l. (5.vii.1988, mines on *Cytisus austriacus*); Montenegro, Budva, 10.vi.1986, 1 ♂, all leg. et coll. A. Laštůvka; Croatia, Istria, Labin-Stepčiči 24.iv.1994, 1 ♂, leg. J. Liška, coll. A. Laštůvka; two paratypes coll. ZMHB.

Description. Wingspan 7.5–8.5 mm; head white, more or less mixed with rusty hairs; antenna grey; thorax with white central line and with white border on tegulae; forewing golden ochreous brown or ochreous rusty; four costal and dorsal strigulae short, white, distinct, with black edging; the first dorsal slightly shorter than in *P. phyllocytisi*; the apical spot of black scales small; cilia line distinct; cilia whitish grey; hindwing and abdomen grey; legs whitish grey or nearly white.

Male genitalia. The right valva of the equal breadth, rounded at the end, with shorter and more rigid hairs than in *P. phyllocytisi*.

Female genitalia. Papillae anales covered with several long setae and with many microsetae laterally and with dense short setae caudally; apophyses posteriores distinctly enlarged in their basal half.

Biology. Two or more generations, larva in the underside leaf mine on *Cytisus ratisbonensis* Schaeff. and *C. austriacus* L.

Distribution. Czech Republic, Slovakia, Hungary, Croatia, Montenegro.

Etymology. Named after František Gregor, who has found this species for the first time. The name 'gregori' was preoccupied by Povolný (1949) in this genus, that why 'eugregori' as 'the true gregori'.

Remark. The species has been previously published as *P. phyllocytisi* (cf. Laštůvka, 1993).

Phyllonorycter nevadensis (Walsingham, 1908)
(Figs 25, 54, 76)

Entomologist's Month. Mag., 44: 228 (*Lithocolletis*); type locality: Spain, Granada, Sierra Nevada

Material. 4 ♂♂, 13 ♀♀: Spain, Almería, Sierra de Baza, El Haza Del Riego, 1800 m, 25.vi.2006, 9 ♀♀, vii.2006, 2 ♀♀ ex l. (25.vi.2006, mines on *Adenocarpus decorticans*), leg. A. & Z. Laštůvka, coll. A. Laštůvka, Granada, Busquistar, 24.v.1991, 1 ♂, 1 ♀, leg. Langohr, coll. RMNH, Granada, Sierra Nevada, 4.5 km S Treveléz, i.1988, 3 ♂♂, 1 ♀ ex l. (on *Adenocarpus decorticans*), leg. E. J. van Nieukerken, coll. RMNH.

Diagnosis. Wingspan 4.2–7.5 mm; forewing nearly unicoloured, light ochreous brown, with white scales on the dorsal edge, or dispersed on its whole surface.

Male genitalia. The right valva of the invariable breadth in the whole length; saccus unusually long.

Female genitalia. Quite unusually in the group; papillae anales very small with short setae; apophyses, especially apophyses posteriores very long.

Biology. Two or more generations, larva in the underside leaf mine on *Adenocarpus decorticans* Boiss.

Distribution. Spain (Sierra Nevada and Sierra de Baza).

The *Phyllonorycter fraxinella* species group

The right valva narrow, pointed, with a hairpencil (or at least with a long hair) in the basal part and with a long rigid hair (thorn) in its distal third.

Phyllonorycter fraxinella (Zeller, 1846) (Figs 26, 57)

Linnaea Ent., 1: 216, pl. 1, fig. 21 (*Lithocolletis*); type locality: Austria, Wien

Material. Czech Republic, Moravia, Brno, iv.1988, 11 ♂♂, 8 ♀♀ ex p. (iv.1988, mines with pupae on *Genista germanica*), leg. et coll. A. Laštůvka.

Diagnosis. Wingspan 8.0–9.0 mm; forewing golden ochreous brown, four costal and three dorsal strigulae, the first, sometimes also the second strigulae connected in angled transverse bands; the dark apical spot absent; the black edging of strigulae more or less distinct, sometimes quite absent; several black scales in the central part of the wing occasionally; cilia line indistinct.

Male genitalia. The right valva broader than in other species of this group, pointed, only with one long hair in its basal part.

Biology. Bivoltine, larva in the underside leaf mine on *Genista germanica* L., occasionally on *G. tinctoria* L., it overwinters in the mine and pupates in spring, vi.–vii., ix.–iv, adult iv.–vi., vii.–viii.

Distribution. Central, partly western and southern Europe, from France to Ukraine, Greece and Turkey.

Phyllonorycter genistella (Rebel, 1901) (Figs 27, 55, 56)

Dt. Ent. Ztschr. Iris, 13 (1900): 178 (*Lithocolletis*); type locality: Spain, Castilia, San Ildefonso

Material. 11 ♂♂, 13 ♀♀: Spain, Ávila, Mijares, 2 km N, v.1997, 2 ♂♂, 2 ♀♀ ex l., El Hornillo, 3 km S El Arenal, iii.1997, 1 ♂ ex l., Madrid, Miraflores de la Sierra, 2 km N, v.1996, 1 ♂, 5 ♀♀ ex l. (mines always on *Genista florida*), all leg. E. J. van Nieukerken, coll. RMNH, Ávila, Las Vueltas, 18.vi.2004, 1 ♂, 1 ♀, Toledo, Robledo del Buey,

19.vi.2003, 2 ♂♂, 5 ♀♀, Zaragoza, Aguarón, vi.2006, 2 ♂♂ ex p. (13.vi.2006, mines on *Genista florida*); Portugal, Serra da Estrela, Penhas da Saúde, 22.vi.2002, 1 ♂, Manteigas, Pousada, 18.vi.2006, 1 ♂ and mines on *Genista florida*, all leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Wingspan 6.5–8.5 mm; forewing nearly unicoloured, golden ochreous brown, strigulae quite absent or partly only indicated, sometimes several white scales in the places of strigulae, on the dorsal edge and in the apex; the basal streak nearly indistinct, narrow, but very long.

Male genitalia. The right valva distinctly enlarged in its second half and with strong hair pencil in its basal part.

Biology. Probably polyvoltine, larva in the underside leaf mine on *Genista florida* L.

Distribution. Portugal, Spain (new to Portugal).

Phyllonorycter adenocarpi (Staudinger, 1863) (Figs 28, 58)

Ent. Ztg Stetin, 24: 270 (*Lithocolletis*); type locality: Spain, Ildefonso

Material. 3 ♂♂, 5 ♀♀: Spain, Ávila, 3 km N Mijares, iii.1997, 2 ♂♂, 3 ♀♀ ex l. (on *Adenocarpus hispanicus*), leg. E. J. van Nieukerken, coll. RMNH, Cáceres, Puerto de Honduras, vii.2003, 1 ♂, 2 ♀♀ ex l. (21.vi.2003, mines on *Adenocarpus hispanicus*), leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Wingspan 7.0–8.5 mm; head whitish ochreous; central line on the thorax nearly indistinct; forewing golden ochreous brown, strigulae absent, sometimes several white scales on the dorsal edge and in the apex; the basal streak short and nearly indistinct.

Male genitalia. The right valva slightly enlarged before its end and sharply pointed.

Biology. Two or more generations, the larva in the underside leaf mine on *Adenocarpus hispanicus* (Lam.) DC.

Distribution. Portugal, Spain.

Phyllonorycter parvifoliella (Ragonot, 1875) (Figs 29, 59)

Bull. Séances Soc. Ent. France, 1875: lxxiv (*Lithocolletis*); type locality: France, Landes, Dax

Material. 6 ♂♂, 7 ♀♀: Spain, Ávila, Arenas de San Pedro, 3 km SW, 6.viii.1986, 1 ♂, Madrid, Miraflores de la Sierra, 2 km N, v.1997, 4 ♀♀ ex l. (on *Adenocarpus commutatus*), all leg. E. J. van Nieukerken, coll. RMNH; Portugal, Serra da Estrela, Penhas da Saúde, 22.vi.2002, 5 ♂♂, 3 ♀♀, leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Wingspan 6.5–8.0 mm; head light brown; the central line on the thorax often nearly indistinct; forewing ochreous brown; four costal and two or three dorsal strigulae indistinct or nearly absent, regularly

with brownish edging or covered with brown scales; the basal streak very narrow, sometimes indistinct; cilia line indistinct or absent.

Male genitalia. Similar to *P. adenocarpi*, the right valva narrower.

Biology. Probably polyvoltine, larva in the upper-side leaf mine on *Adenocarpus complicatus* (L.) Gay (= *A. commutatus* Guss.).

Distribution. France, Spain, Portugal (new to Spain).

Remark. Very similar to *P. triflorella*, the relationship of these two taxa requires a next detailed study.

Phyllonorycter triflorella (Peyerimhoff, 1872)
(Figs 30, 31, 60, 61)

Ann. Soc. Ent. France (sér. 5), 2: 202, pl. 6, fig. 12 (*Lithocolletis*); type locality: France, Cannes

Material. 69 ♂♂, 40 ♀♀: Spain, Albacete, Riópar, 24.vi.1994, 1 ♀, Granada, Diezma, 28.vi.2003, 3 ♂♂, Málaga, Monda, 28.vi.2002, 2 ♂♂, 23.vi.2006, 1 ♂, Teruel, Montalbán, vii.1994, 2 ♂♂, 2 ♀♀ ex l. (4.vii.1994, mines on *Argyrobium zanonii*), leg. A. & Z. Laštůvka, coll. A. Laštůvka; France, Mas. de Maures, N.D. des Anges, 6.xi.2001, 1 ♀ ex l. (*Cytisus villosus*), Collobrières, 14.x.1996, 3 ♂♂ ex l. (*Cytisus villosus*), leg. et coll. M. Petrů; Italy, Liguria, Lévanto, vi.1992, 1 ♂, 1 ♀ ex l. (mines on *Calicotome*), leg. F. Gregor, coll. A. Laštůvka, Lévanto, ix.1995, 6 ♂♂, 4 ♀♀ ex l., (25.viii.1995, mines on *Cytisus villosus*), Noli, ix.1995, 2 ♀♀ ex l. (26.viii.1995, mines on *Cytisus villosus*), Sicily, Ficuzza, 16.vi.2000, 4 ♂♂, Castelbuono, 12.vi.1995, 2 ♂♂, Mandanici, 8.vi.1995, 1 ♂; Croatia, Istria, Rabac, ix.1995, 36 ♂♂, 28 ♀♀ ex l. (14.ix.1995, mines on *Argyrobium zanonii*), Dalmatia, Orašac, 23.viii.2001, 2 ♂♂, leg. A. & Z. Laštůvka, coll. A. Laštůvka, Dalmatia, Baška Voda, ix.1979, 2 ♂♂, 1 ♀ ex l. (mines on *Genista sericea*), leg. J. Klimesch, coll. A. Laštůvka; Greece, Arkádia, Pigadákia, 22.vi.1998, 1 ♂, Korinthia, Agios Vassilios, 17.vi.1996, 1 ♂, Argolida, Kandia, 28.v.1999, 2 ♂♂, all. leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Wingspan 6.0–8.0 mm; forewing golden brown, with a very variable design; four costal and three (two) dorsal strigulae, sometimes indistinct; the dark edging of strigulae usually distinct or very distinct, only occasionally quite absent; cilia line indistinct.

Male genitalia. The right valva not enlarged before its end.

Biology. Three or more generations, the development may realize during the whole year in the warm southern European habitats; larva in the upper-side leaf mine, it has been found on *Cytisus villosus* Pourr. (= *C. triflorus* L'Hér.), *Calicotome spinosa* (L.) Link, *Argyrobium zanonii* (Turra) P. W. Ball, and *Genista sericea* Wulfen.

Distribution. Southern Europe from the Iberian Peninsula to Greece, incl. Corsica, Sardinia and Sicily (new to Spain and Greece).

Remark. The type material of *Phyllonorycter cytisus* (Hartig & Amsel, 1952) from Sardinia has not been studied and the identity with *P. triflorella* is possible.

Phyllonorycter staintoniella (Nicelli, 1853)
(Figs 32, 33, 62, 63)

Proc. Ent. Soc. London, 2: 114 (*Lithocolletis*); type locality: Germany, Frankfurt am Main

Lithocolletis tinctoriella Le Marchand, 1926; *L'Amat. Papill.*, 3: 13; France, Vosges, Remiremont
Lithocolletis desertella Gregor & Povolný, 1946; *Folia Ent.*, 12: 7; Czech Republic, Brno, Hádý

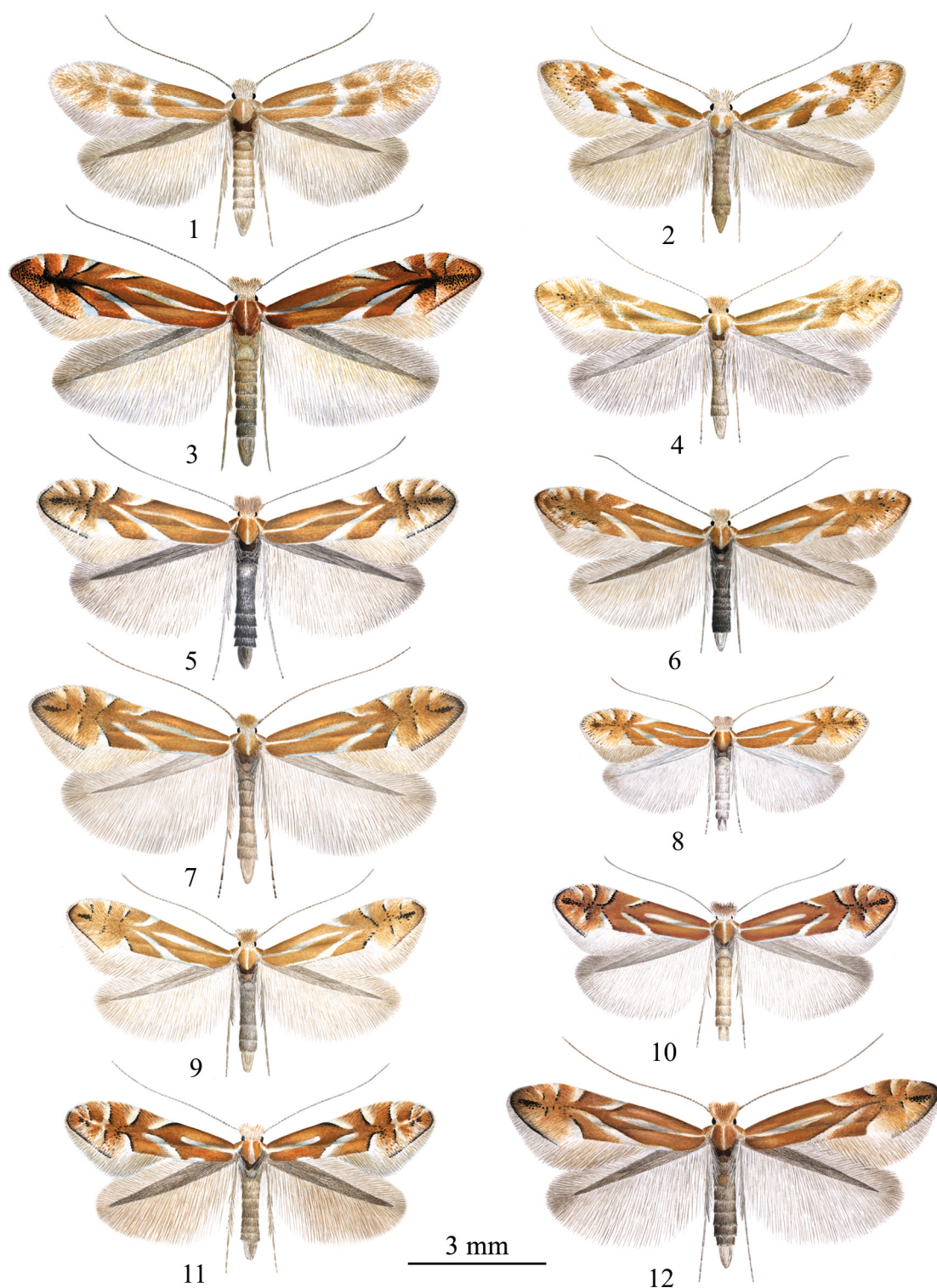
Material. 17 ♂♂, 22 ♀♀: Spain, Teruel, Segura de los Baños, 6.vii.2002, 2 ♀♀, Montalbán, 15.vi.2003, 1 ♂, 3 ♀♀, Cuenca, La Toba, 27.vi.2006, 1 ♂, 3 ♀♀; France, Vaucluse, La Motte d'Aigues, vii.1992, 1 ♂, 2 ♀♀ ex l. (9.vii.1992, mines on *Genista pilosa*); Czech Republic, Moravia, Popice near Znojmo, ix.1995, 4 ♂♂, 5 ♀♀ ex l. (6.ix.1995, mines on *Cytisus scoparius*), ix.2004, 3 ♂♂, 1 ♀ ex l. (12.ix.2004, mines on *Genista pilosa*), leg. A. & Z. Laštůvka, coll. A. Laštůvka, Dolní Dunajovice, 20.iv.2000, 2 ♂♂, 2 ♀♀ ex l. (x.1999, mines on *Cytisus austriacus*), leg. et coll. M. Petrů, Pavlov, xi.2005, 3 ♂♂, 1 ♀ ex l. (21.x.2005, mines on *Cytisus austriacus*); Slovakia, Dolné Vestenice, vi.1989, 1 ♀ ex l. (4.vi.1989, mines on *Genista pilosa*), Čachtice, vii.1989, 2 ♂♂, 2 ♀♀ ex l. (12.vii.1989, mines on *Genista pilosa*), leg. A. & Z. Laštůvka, coll. A. Laštůvka.

Diagnosis. Wingspan 5.9–8.0 mm; forewing golden brown, very variable in its design; four costal and three dorsal strigulae, more or less distinct or sometimes quite indistinct; black scales absent or they make unclear dark spots in the distal part of the wing, the black edging along strigulae always absent; cilia line indistinct.

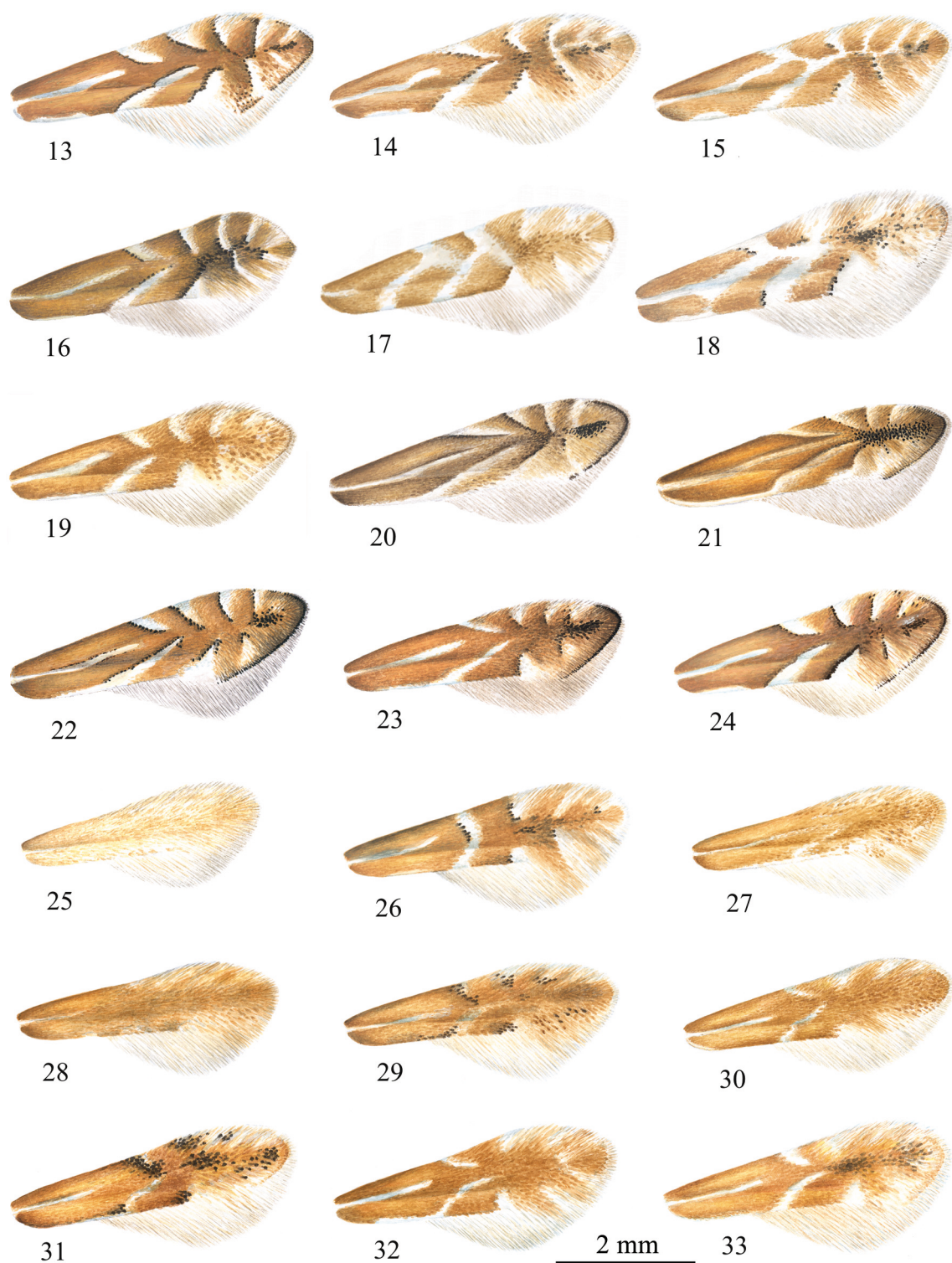
Male genitalia. The right valva only slightly enlarged before its end.

Biology. Polyvoltine, three or more generations iii.–xi., the development of one generation lasts about four weeks in southern Moravia; larva in the upper-side leaf mine on several *Genista* and *Cytisus* species, especially *Genista pilosa* L., also *Genista tinctoria* L., *G. scorpius* (L.) DC., *G. versicolor* Boiss., *Cytisus scoparius* (L.) Link, *C. procumbens* (Willd.) Spreng., *C. austriacus* L., *C. ratisbonensis* Schaeff., *Lembotropis nigricans* (L.) Griseb., and *Laburnum anagyroides* Medik.

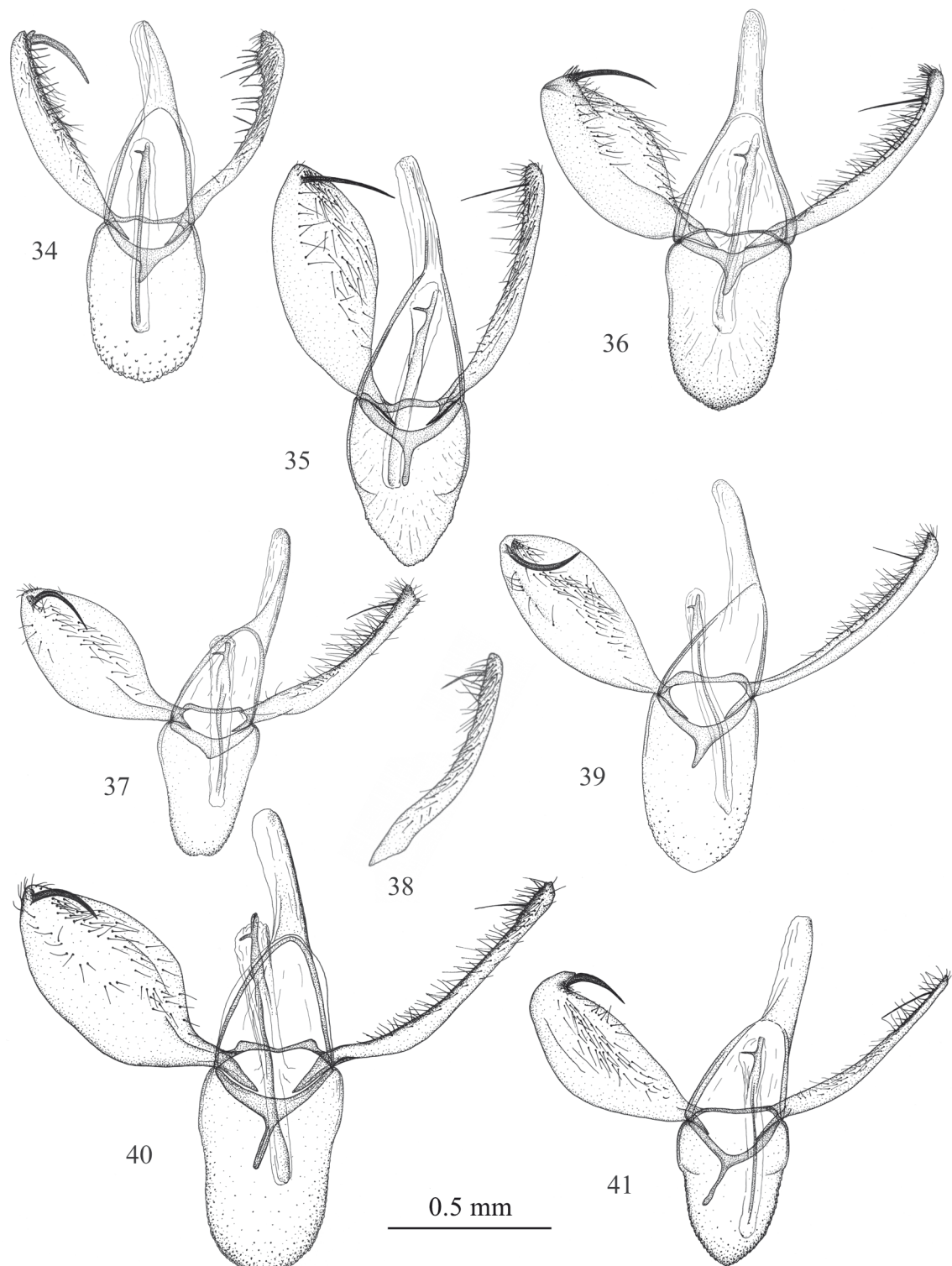
Distribution. The whole of southern, western and central Europe, northwards up to the south of Sweden.



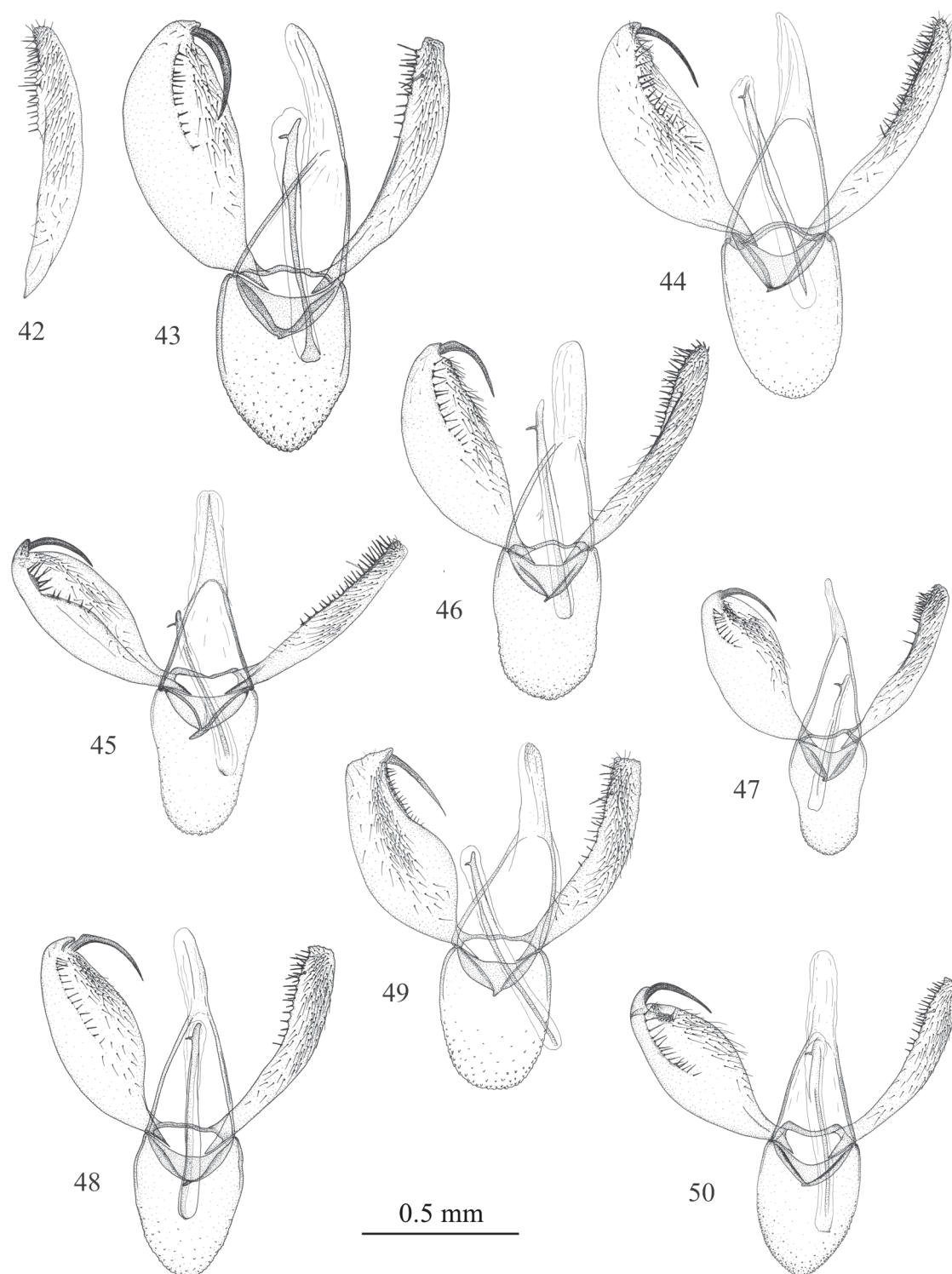
1–12: Holotypes of newly described *Phyllonorycter* species; 1 – *P. estrela*, 2 – *P. telinella*, 3 – *P. tridentatae*, 4 – *P. deschkanus*, 5 – *P. andalusicus*, 6 – *P. vueltas*, 7 – *P. echinosparti*, 8 – *P. baetica*, 9 – *P. scorpius*, 10 – *P. pumila*, 11 – *P. eugregori*, 12 – *P. etnensis*



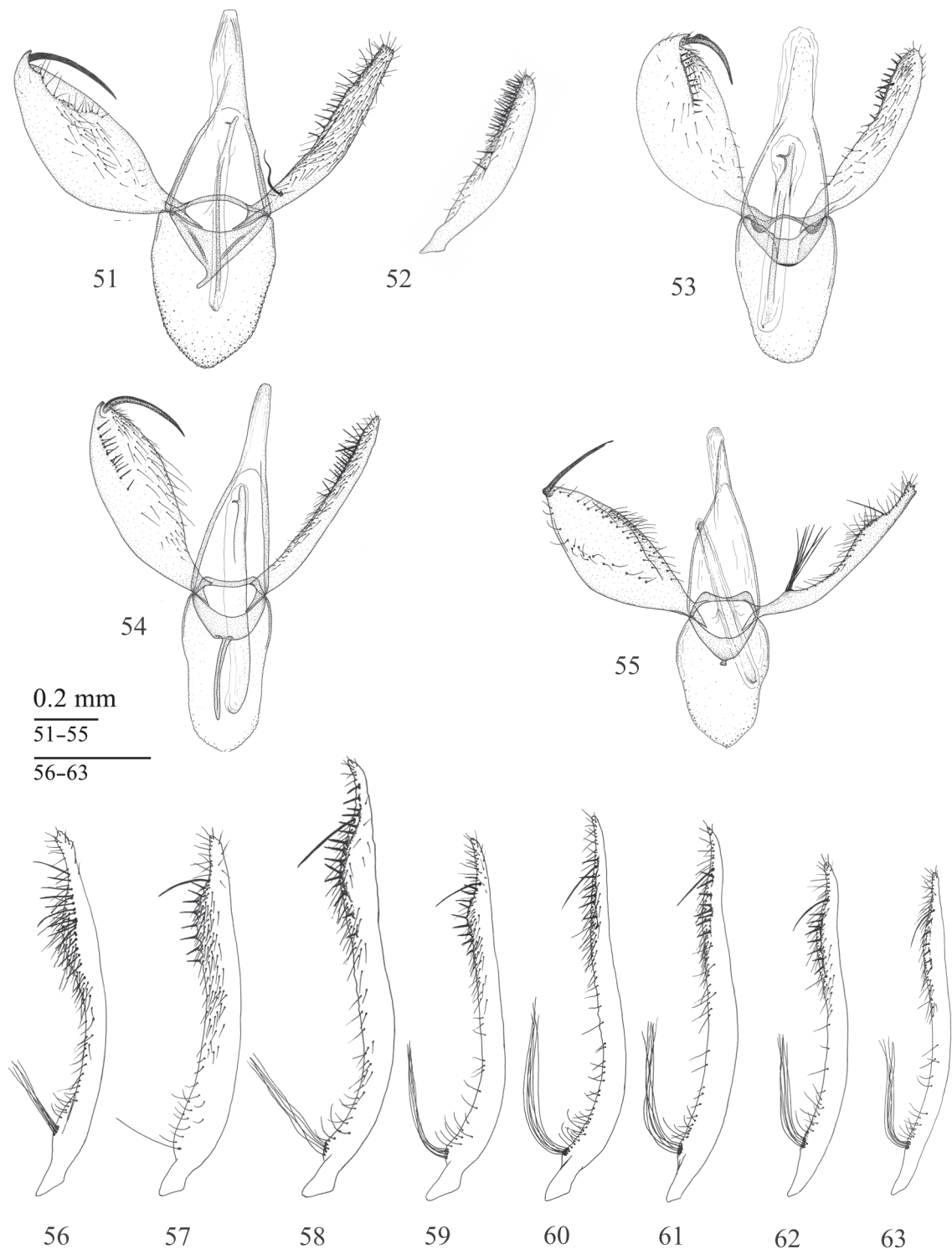
13–33: Forewings of European *Phyllonorycter* species living on *Genisteae*; 13 – *P. cerasinella*, 14 – *P. scopariella* (France, Vernet les Bains), 15 – *P. scopariella* (Czech Republic, Stinava, variability), 16 – *P. haasi*, 17 – *P. purgantella* (Pyrenees, Coll. del Canto), 18 – *P. purgantella* (Sra Gredos, Las Vuelas), 19 – *P. baldensis*, 20 – *P. hesperiella*, 21 – *P. retamella*, 22 – *P. lapadiella*, 23 – *P. ulicicolella*, 24 – *P. phyllocytisi*, 25 – *P. nevadensis*, 26 – *P. fraxinella*, 27 – *P. genistella*, 28 – *P. adenocarpi*, 29 – *P. parvifoliella*, 30 – *P. triflorella* (Croatia, Rabac), 31 – *P. triflorella* (Italy, Levanto), 32 – *P. staintoniella* (France, La Motte d'Aigues), 33 – *P. staintoniella* (Czech Rep., Popice near Znojmo)



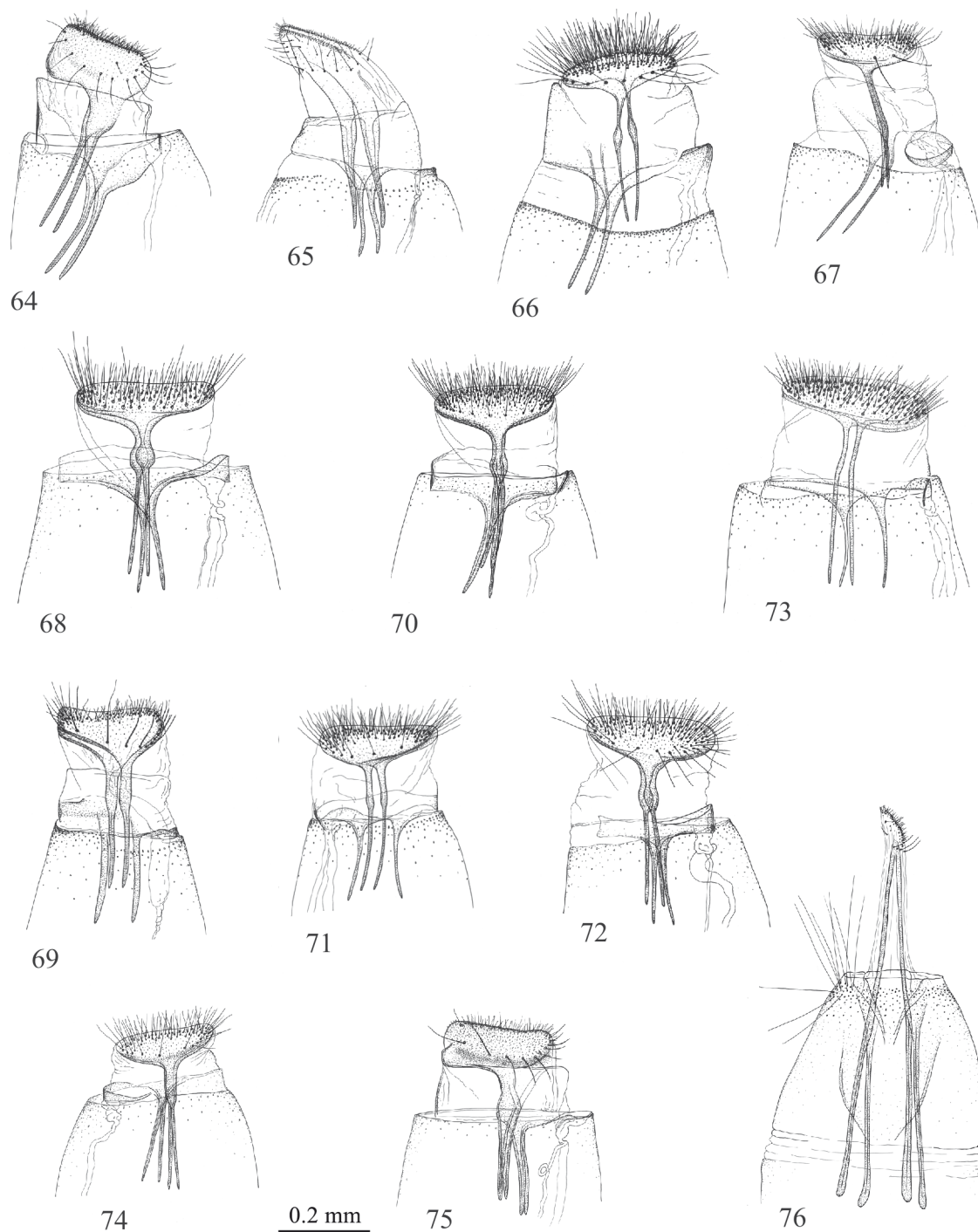
34–41: Male genitalia, *Phyllonorycter haasi* group; 34 – *P. scopariella* (Czech Rep., Stinava), 35 – *P. estrela* (holotype), 36 – *P. haasi* (France, St. Martin du Lignon), 37 – *P. telinella*, 38 – *P. baldensis*, right valva, 39 – *P. purgantella* (France, Laubert), 40 – *P. tridentatae*, 41 – *P. deschkanus* (holotype)



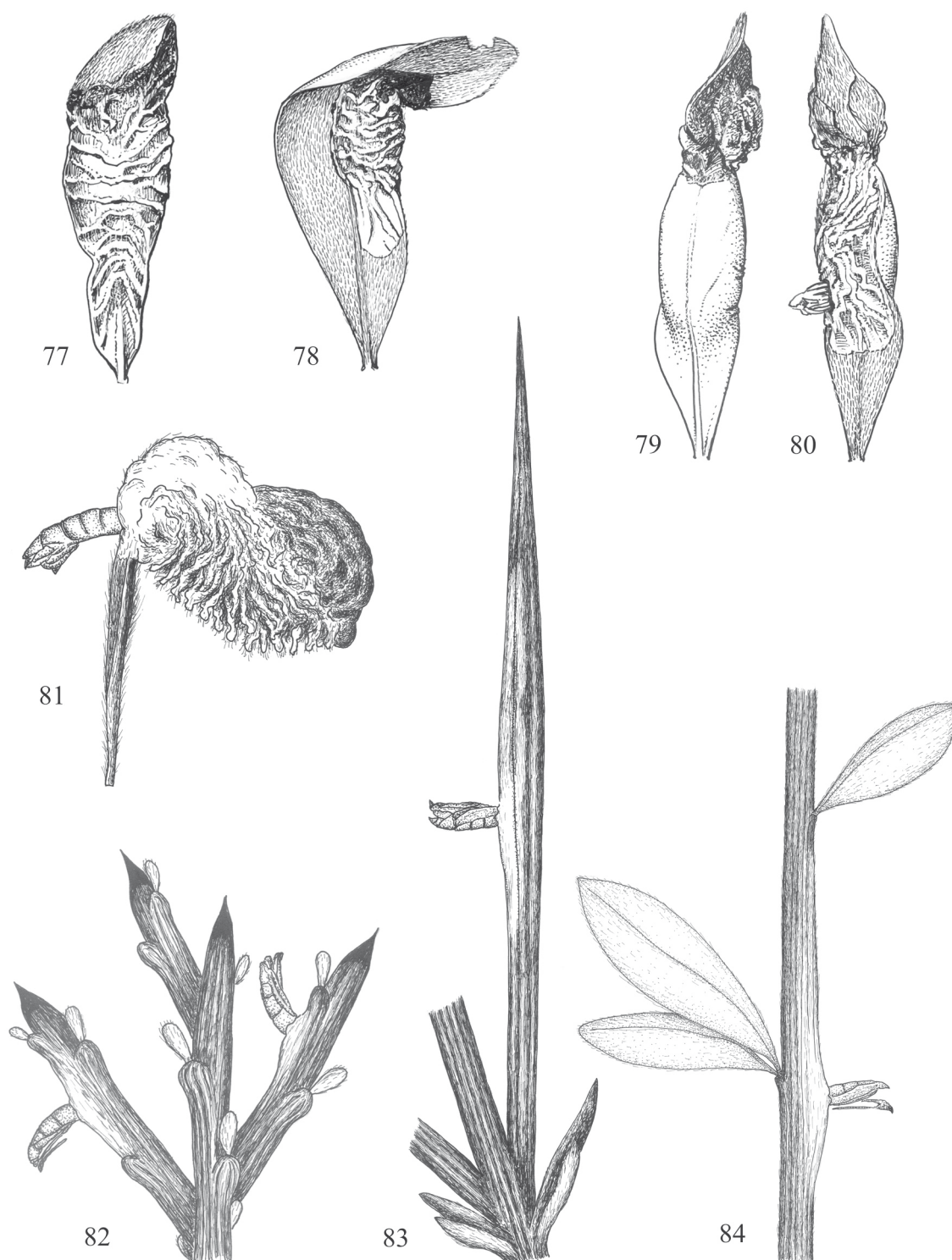
42–50: Male genitalia, *Phyllonorycter ulicicolella* group; 42 – *P. hesperiella*, right valva, 43 – *P. andalusicus* (holotype), 44 – *P. lapadiella*, 45 – *P. vueltas* (holotype), 46 – *P. echinosparti*, 47 – *P. baetica* (holotype), 48 – *P. scorpius* (holotype), 49 – *P. ulicicolella*, 50 – *P. pumila*



51–63: Male genitalia, 51–54 – *Phyllonorycter ulicicolella* group, 55–63 – *P. staintoniella* group (52, 56–63, right valva only); 51 – *P. etnensis*, 52 – *P. phyllocytisi*, right valva, 53 – *P. eugregori* (holotype), 54 – *P. nevadensis*, 55 – *P. genistella*, 56 – *P. genistella*, 57 – *P. fraxinella*, 58 – *P. adenocarpi*, 59 – *P. parvifoliella*, 60 – *P. triflorella* (Croatia, Rabac), 61 – *P. triflorella* (Italy, Levanto), 62 – *P. staintoniella* (France, La Motte d'Aigues), 63 – *P. staintoniella* (Czech Rep., Popice near Znojmo)



64–76: Female genitalia; 64 – *Phyllonorycter estrela*, 65 – *P. telinella*, 66 – *P. tridentatae*, 67 – *P. deschkanus*, 68 – *P. andalusicus*, 69 – *P. vueltas*, 70 – *P. echinosparti*, 71 – *P. baetica*, 72 – *P. scorpius*, 73 – *P. etnensis*, 74 – *P. phyllocytisi*, 75 – *P. eugregori* (Slovakia, Kamenica nad Hronom), 76 – *P. nevadensis*



77–84: Mines; 77–80 – *Phyllonorycter eugregori* on *Cytisus ratisbonensis* (after sketches by F. Gregor), 81 – *P. telinella* on *Genista monspessulana*, 82 – *P. pumila* on *Genista versicolor* subsp. *pumila*, 83 – *P. echinosparti* on *Echinospartum lusitanicum*, 84 – *P. vueltas* on *Genista florida*

SOUHRN

Evropské druhy rodu *Phyllonorycter* vyvíjející se na rostlinách tribu Genisteae (Fabaceae)
s popisy dvanácti nových druhů (Lepidoptera: Gracillariidae)

Přehled 29 evropských druhů klíněnek rodu *Phyllonorycter* Hübner, 1822 vyvíjejících se na bobovitých rostlinách tribu Genisteae s diagnostickými znaky, stručnými údaji o bionomii a rozšíření; z nich je 12 druhů nových: *Phyllonorycter estrela* sp. n. pravděpodobně z *Genista cinerea* (Vill.) DC., *P. telinella* sp. n. z *Genista monspessulana* (L.) L. A. S. Johnson, *P. tridentatae* sp. n. z *Genista tridentata* L., *P. deschkanus* sp. n. z *Genista cinerea* (Vill.) DC., *P. andalusicus* sp. n. pravděpodobně z *Retama sphaerocarpa* (L.) Boiss., *P. echinosparti* sp. n. z *Echinospartum lusitanicum* (L.) Rothm., *P. baetica* sp. n. z *Genista versicolor* Boiss., *P. vueltas* sp. n. z *Genista florida* L. a *G. cinerea* (Vill.) DC., *P. scorpius* sp. n. z *Genista scorpius* (L.) DC., *P. pumila* sp. n. z *Genista versicolor* subsp. *pumila* (Hervier) Fern. Casas, *P. eugregori* sp. n. z *Cytisus austriacus* L. a *C. ratisbonensis* Schaeff. a *P. etnensis* sp. n. z *Genista aetnensis* (Biv.) DC. *Phyllonorycter purgantella* (Chrétien, 1915) je shledán samostatným druhem, *Phyllonorycter dalmatinella* (Amsel, 1951) a *P. picardi* Buvat, 1995 jsou mladšími subjektivními synonymy jména *Phyllonorycter lapadiella* (Krone, 1909). Je designován lectotypus druhu *Phyllonorycter haasi* (Rebel, 1901). Druhy jsou rozděleny do tří skupin, *Phyllonorycter cerasinella* (Reutti, 1853) má izolované postavení vně těchto skupin. Jsou uvedeny nové faunistické údaje pro některé země.

Phyllonorycter, Fabaceae, Genisteae, Evropa

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We wish to dedicate this paper to Dr. Ing. František Gregor, CSc., Dr. h.c., our good friend and an expert in the *Phyllonorycter* species, on the occasion of his 80th birthday.

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