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STIGMELLA ROLANDI SP. N.: A WIDESPREAD SOUTHERN EUROPEAN SPECIES ON *ROSA* (LEPIDOPTERA: NEPTICULIDAE)

Nieukerken, E. J. van, 1990. *Stigmella rolandi* sp. n.: a widespread southern European species on *Rosa* (Lepidoptera: Nepticulidae) – Tijdschrift voor Entomologie 133: 239-243, figs. 1-10. [ISSN 0040-7496]. Published 14 December 1990.

Stigmella rolandi sp. n., belonging to the *Stigmella sanguisorbae* group, is described from southern Europe. It has previously been misidentified as *S. spinosissimae* Waters, a western European species. The species is characterized by a costal hair pencil on the male hindwing. The distribution is mapped, and the biology described: the larva feeds on *Rosa* and *Sanguisorba.*

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Key-words. – Nepticulidae, leaf-miners, taxonomy, Palaearctic, Rosaceae.

The aim of this paper is to name a widespread species of *Stigmella*, which has been known for almost 40 years, but until recently was misidentified as *Stigmella spinosissimae* (Waters). This misidentification followed Klimesch (1951), who described the genitalia and biology of the present species, which he identified as *S. spinosissimae*, on the basis of the same hostplant (*Rosa pimpinellifolia* L.) and the description of external features by Waters (1928). Study of type material of *Nepticula spinosissimae* Waters, however, showed that this is a species in the *anomalella* species group, whereas *spinosissimae* sensu Klimesch belongs to the *sanguisorbae* species group (van Nieukerken 1986, Johansson & Nielsen 1990).

The European species of *Stigmella* Schrank are relatively well known: Johansson & Nielsen (1990) treated the 76 species of Northwest Europe in detail. Only 20 additional species from southern Europe and the mediterranean region were listed by van Nieukerken (1986). Most of these have been satisfactorily described, including figures of male genitalia, and in some cases female genitalia, by Johansson (1971) and in papers by Klimesch (references in Johansson & Nielsen 1990). To date only about six more undescribed European species of the genus are known in collections, and not many more are expected to be found. Therefore, identification of European *Stigmella* species can be achieved with a fairly high degree of certainty. In this light, description of a single widespread new species seems justified and will facilitate identification. The other undescribed species belong to different species groups, mainly the *ruficapitella* and *malella* species groups, and will be described in due time.

The *Stigmella sanguisorbae* group counts four species (van Nieukerken 1986): of these, *S. sanguisorbae* (Wocke) and *S. thuringiaca* (Petry) have been described and illustrated in detail by Johansson & Nielsen (1990) and *S. muricatella* Klimesch in the original description (Klimesch 1978). The fourth species is (re)described and named below.

The methods and abbreviations are largely the same as in the previous paper (van Nieukerken 1990), but genitalia measurements were taken at 400 ×.

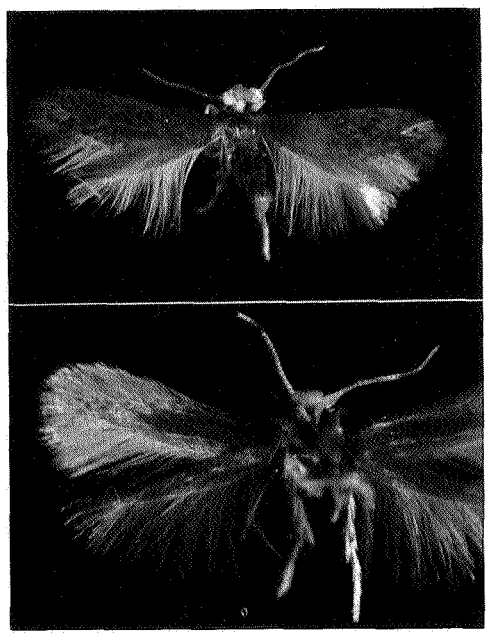
Stigmella rolandi sp. n.
(figs. 1-10)

[*Nepticula spinosissimae* Waters; Klimesch 1951: 4, 1958: 95, 1961: 751, Szőcs 1955: 170, 1956: 390, 1963: 108, 1965: 59, 1973: 452, 1977: 92, 1978: 267, 1981: 213. Misidentifications]

Nepticula 'spec. nov.'; Zimmermann 1944: 63.

Stigmella spinosissimae sensu Klimesch; van Nieukerken 1986: 9.

Type material. – Holotype ♂: Greece, Parnassós Oros, 5-6 km S. Polídhroson (Fókis), Abies-Pinus W., 1000-1200 m, 38.36N-22.33E [UTM: 34S FH37], 28.ix.1980, st. 59, Rosa e.l. 25/29.iv.1981, VU no 80690KE, S. B. J. Menken & E. J. van Nieukerken, Genitalia slide EvN 2780 (RMNH). – Paratypes: 81 ♂, 2 ♀. – Austria: 1 ♂, Dürnstein, UTM: 33U WP46, el 8.iv.1936, J. Klimesch



Figs. 1,2. *Stigmella rolandi*, male. – 1 (top), habitus holotype; 2 (bottom), Underside wings, showing special scales and hair-pencil, Austria.

(RMNH). – Czechoslovakia: 1 ♂, Dětkovice (Moravia), UTM: 33U XQ57, 30.viii.1988, el iii.1989, *Rosa*; 1 ♂, 1 ♀, Mikulov (Moravia), UTM: 33U XQ20, 29.ix.1989, el ii.1990, *Sanguisorba minor*; 2 ♂, Sl. Kras-Zádiel, UTM: 33U DU88, 15.ix.1988, el ii-iii.1989, *Rosa*, (all coll. A. and Z. Laštúvka) – France: 1 ♂, La Penne-sur-l'Ouvèze (Drôme), UTM: 31T FK70, 25-27.vi.1986 (coll. H. van der Wolf); 4 ♂, Viens (Vaucluse), UTM: 31T GJ06, 22.vii.1964, 24.viii.1971, 8.viii.1975, 18.viii.1976, R. Buvat (RMNH, coll. Buvat). – Italy: 1 ♂, Abruzzo, Sulmona (l'Aquila), UTM: 34T EL88, 7.viii.1982 (coll. J. H. Kuchlein); 10 ♂, Monti Aurunci (Latina), 4 km NW Castelforte, UTM: 33T VF07, 400 m, 22-23.vi, 1.vii.1969; 2 ♂, Monti Aurunci, 6 km N Itri, UTM: 33T UF77, 15.viii.1972 (coll. R. Johansson, RMNH); Sardegna, Mt. Istiddi, UTM: 31T NK12, 1.ix.1978 (coll. G. Derra); 1 ♂, Sardegna, Belvi (Nuoro), UTM: 31T:NK12, 650 m, 20.vii.1984; 1 ♂, Sardegna, Fontana Raminosa (Nuoro), UTM: 31T NK11, 900 m, 4.viii.1984; 3 ♂, Sardegna, Sarcidano (Nuoro), UTM: 31T NK00, 720 m, 1.vii.1984 (all. leg. and coll. J. H. Kuchlein). – Spain: 3 ♂, Cadalso de los Vidrios (Madrid), UTM: 30T UK8062, 7.viii.1986, E. J. van Nieukerken (RMNH); 1 ♂, 8 km E of Orcera (Jaen), 1150 m, UTM: 30S WH24, 19.vii.1986 (coll. Gielis); 5 ♂, San Roque (Cadiz), UTM: 30S TF81, 26.vii.1986, C. Gielis (RMNH, coll. Gielis); 2 ♂, Vega del Codorno (Cuenca), UTM: 30T WK97, 1350 m, 23.vii.1985 (coll. J. H. Kuchlein, RMNH). – Yugoslavia: 1 ♂, Drenovo, Kavadarci (Macedonia), UTM: 34T EL88, 1-10.vi.1957, F. Kasy (NHMW); 31 ♂, 1 ♀, Krk, Misucaynica, road Krk-Vrbnik (Kroatia), UTM: 33T VK78, 20.vii-11.viii, 1986-1988, G. Baldizzone (RMNH, coll. Baldizzone); 3 ♂, Krk, Draga Baska (Kroatia), UTM: 33T VK78, 15.viii.1988 (coll. Baldizzone). – USSR, Ukraine: 1 ♂, Krim, Kara-Dag, 20 km W Feodosia, UTM: 36T XQ78, 14.vii.1977, Reznik (ZMAS); 4 ♂, same locality, 5-22.vii.1987, R. Puplesis (ZKVV, RMNH).

Description

Male (fig. 1). – Forewing length 1.6-2.1 mm (1.88 ± 0.11, 56), wingspan 3.7-4.7 mm. Head: frontal tuft pale yellowish orange to ferruginous, collar yellowish white. Antenna fuscous, with 25-29 segments (26.6 ± 1.1, 44); scape yellowish white. Forewing and thorax dark fuscous to fuscous black, scale bases often paler greyish; terminal cilia dark grey, occasionally separated by a more or less distinct cilia line. Underside of forewing (fig. 2) with an elongated andraconial patch, extending from base to ⅔, on costal side of fold, with fuscous grey special scales, leaving a narrow furrow in middle; all scales outwards oblique towards furrow. Hindwing grey, first three to four costal bristles normal strong and short, followed by group of more than 20 hairlike costal bristles of ½ wing length, forming a hair-pencil (fig. 3), which in rest is inserted in furrow in forewing andraconial patch. Abdomen fuscous, with distinct yellowish grey anal tufts.

Female. – Forewing length 1.8-1.9 mm (N=2), wingspan 4.1-4.2 mm. Antenna with 20-22 segments. Forewing without special scales, hindwing with costal bristles of normal length. No anal tufts.

Male genitalia (figs. 4-6) – Capsule length (from tip of tegumen to central part of anterior margin of vinculum) 163-210 μm (188.4 ± 12.5, 19). Vinculum with anterior margin emarginate. Tegumen hood-shaped. Uncus distinctly bilobed, lobes separate, each with some setae on prominent sockets. Gnathos with posterior horns widely separate, transverse bar anteriorly slightly protruding at corners, forming indistinct anterior processes. Valva length 148-180 μm (164.2 ± 8.4, 17), widest beyond middle, suddenly tapering towards long curved distal process; transverse bar of transtilla long, sublateral processes small. Aedeagus 104-185 μm (146.5 ± 16.7, 17) long, tube broad, but slightly variable in dimensions. Vesica with relatively few small cornuti, some being a little larger.

Female genitalia (figs. 7, 8) – T8 with three longitudinal bands of setae and scales; anal papillae without setae. Posterior and anterior apophyses long and narrow, approximately of same length. Bursa globular, densely covered with pectinations, no signum apparent. Accessory sac small, no reticulate field visible. Ductus spermathecae without distinct coils.

Diagnosis

The male can be recognized from all other uniformly coloured *Stigmella* species by the coastal hairpencil and androconial scales on the forewing underside. From above *S. rolandi* resembles *S. sanguisorbae* most, and females cannot be reliably separated. *S. thuringiaca* has paler olive-brown to

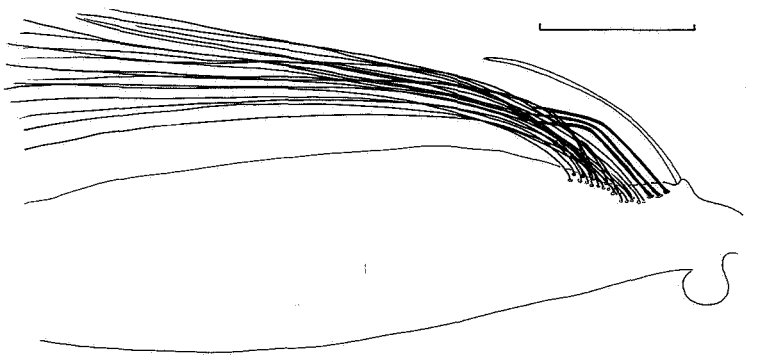


Fig. 3. *Stigmella rolandi*, male hindwing: costal bristles and costal hair-pencil (Italy: Monti Aurunci). Scale: 0.2 mm.

grey-brown and more shining forewings, is somewhat larger, and usually has a darker head. Not likely to be confused with species of the *anomallela* group, that feed on the same hosts: *S. anomalella* (Goeze) has distinct purplish wing tips, *S. spinosissimae* (Waters) has a fuscous head and bronze forewings with copper reflections and *S. centifoliella* (Zeller) has a postmedial fascia.

The male genitalia resemble also *sanguisorbae* most, but *rolandi* has much less cornuti. *S thuringiaca* has still more cornuti, plus pectinations on the vesica and pectinate hairs on the dorsal face of the valvae. Female genitalia with smaller accessory sac than *sanguisorbae* or *thuringiaca* and without signum. See illustrations in Johansson & Nielsen (1990).

Biology

Hostplants. – *Rosa* spp., including *R. pimpinellifolia* L. (= *R. spinosissima* L.) and *Sanguisorba minor* Scop.

Mine (fig. 9). – A gallery mine. Egg deposited on under- or upperside, often near a vein. Mine often following the serrations of leaf-margin. Frass in midline, leaving very narrow white margins in early mine, but filling only about half mine width later. Larva yellow. Mines are difficult or not to separate from those of the *anomalella* group.

Life history. – Probably bivoltine. Larvae have been found in late August and September, adults reared from February to April. Early summer larvae have not yet been found, but adults are found from early June until early September, thus at least partly from a probable second generation. Adults usually taken at light.

Distribution (fig. 10)

Widespread in southern and southern central Europe: eastern Austria, eastern Czechoslovakia, southern France, Spain, Italy, Sardinia, Yugoslavia, Greece and Soviet Union: Ukraine.

Literature records: Hungary: Budapest region (Szőcs 1955, 1956, 1963, 1981), Bakony mountains (Szöcs 1973), Matra mountains (Szöcs 1977) and Pilis mountains (Szöcs 1978).

Etymology

A noun in genitive singular. Named in honour of my friend Roland Johansson, specialist of Nepticulidae, and outstanding painter of these moths.

Acknowledgements

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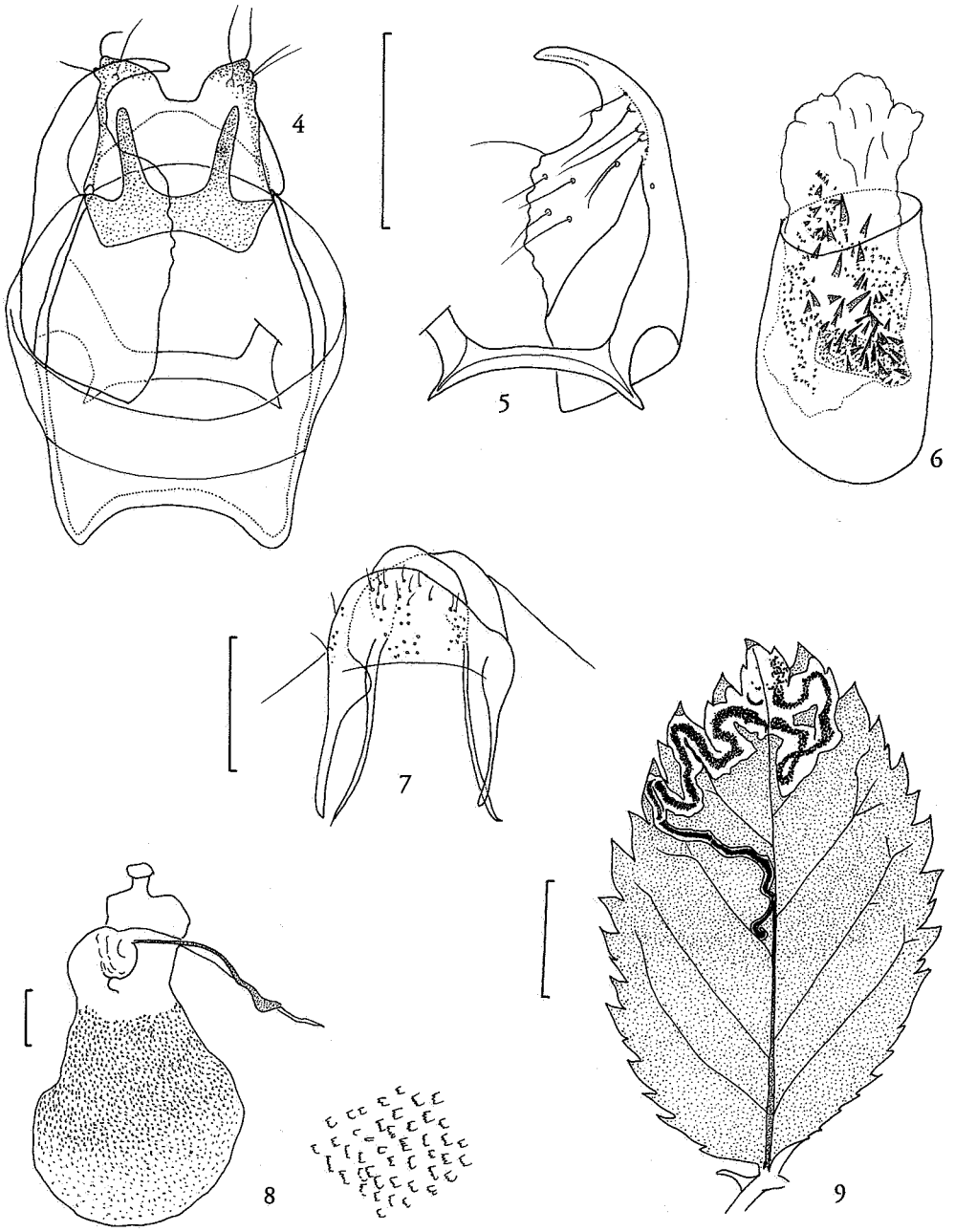

Figs. 4-9. *Stigmella rolandi*, genitalia and leafmine. – 4, Capsule male genitalia, slide 2563 (Spain: Cadalso); 5, Valva, inner aspect, slide 2563; 6, Aedeagus, holotype, slide 2780; 7, Female terminal segments, dorso-lateral view, slide 2783 (Yugoslavia: Krk); 8, Bursa copulatrix, detail showing enlarged pectinations, slide 2783; 9, leaf-mine on *Rosa* sp. from type-locality, one of three mines from which holotype was reared. Scales: 0.1 mm (figs. 4-8), 5 mm (fig. 9); 4-6 and detail of 8 on same scale.

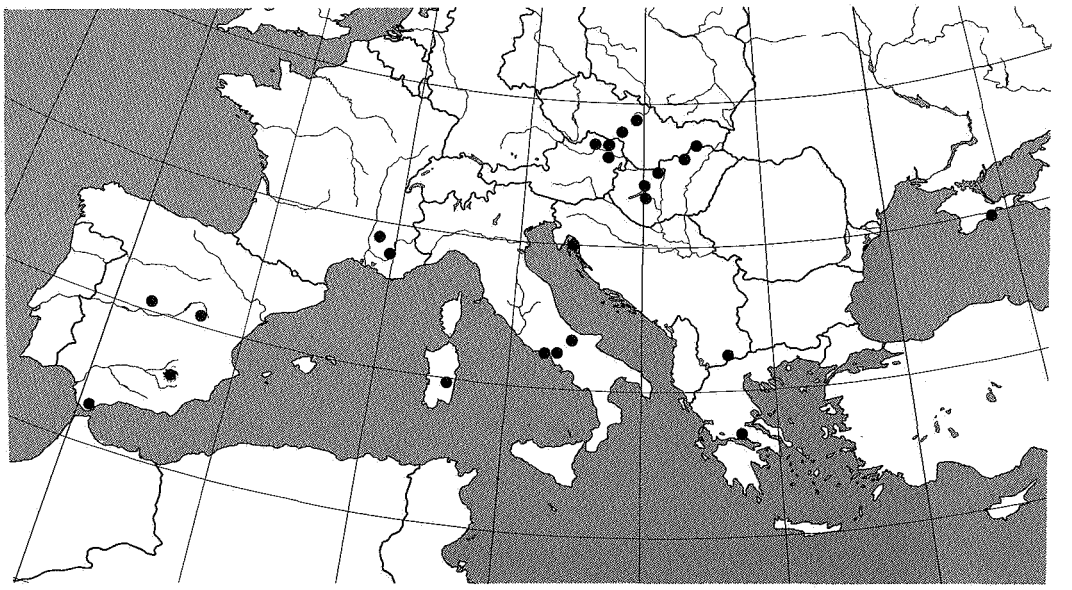

Fig. 10. Distribution of *Stigmella rolandi*, mapped on 50 × 50 km UTM squares.

Spiegel ihrer Landtierwelt, 2: 481-789. Universitätsverlag Wagner, Innsbruck.

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68. Nieukerken, E. J. van, 1990. The *Trifurcula subnitidella* group (Lepidoptera: Nepticulidae): taxonomy, distribution and biology. — Tijdschrift voor Entomologie 133: 205-238, figs. 1-108, 1 table. [14 December 1990]

Rectifications

Unfortunately I have overlooked the following errors before sending my ms to press, and during proof-reading:

p. 207: Figs. 7-10: figs 9 and 10 have been accidentaly interchanged, the left figure with no. 9 actually is fig. 10 (*T. coronillae*), the right one is fig. 9 (*T. subnitidella*). Arrows in figs 8-10 have been omitted.

p. 222: Figs. 57-60. Abbreviations: bs=black scales; cf=costal fold; fw=forewing; hw=hindwing; yp=yellow patch.

p. 228: the sentences after the last paragraph of p. 228 (male genitalia of *iberica*) were accidentally omitted during page formatting:

[sublat-]eral processes. Aedeagus 335-340 µm long, with ventral carina fringed; aedeagal tube posteriorly spatulate, dorsal lobe at right side conspicuous, with serrate margin; vesica with one long spinelike cornutus (125-145 µm), with blunt tip, joined basally to a conical cornutus (50 µm); further a large cornutus with serrate tip; very few long spine-like cornuti and numerous small ones.

p. 230: line 1-2, right column: read hind-wing in stead of hindw-ing.

In some holotype designations, the genitalia slide number has not been mentioned, they are:

p. 219, 5. *T. victoris*: Genitalia slide EvN 2743.
p. 225, 7. *T. josefklimeschi*: Genitalia slide EvN 2744.
p. 228, 8. *T. iberica*: Genitalia slide EvN 1928.
p. 230, 9. *T. silviae*: Genitalia slide EvN 2742.

I apologize for the relatively poor quality of the adult photographs in figs. 1-10.

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69. Nieukerken, E.J. van, 1990. *Stigmella rolandi* sp. n.: a widespread southern European species on *Rosa* (Lepidoptera: Nepticulidae). — Tijdschrift voor Entomologie 133: 239-243, figs. 1-10. [14 December 1990]

Rectifications

p. 241: line 1, 2 right column: read Szőcs in stead of Szöcs.
p. 243: line 14 left column, read: "133: 205-238."