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Descriptions of two new species of the family Scythrididae from Europe (Lepidoptera: Scythrididae)

K. Nupponen & N. Savenkov

Abstract

Two new species of the family Scythrididae are described from Europe: *Scythris spiniferella* Nupponen & Savenkov, sp. n. from Southern Spain, and *Scythris rowecki* Nupponen & Savenkov, sp. n. from the Southern Ural Mountains, Russia. The former taxon belongs to the *schleichiella* species-group, and the latter one is related to the *canescens* species-group s. l. The external appearance of the adult and the genitalia of the new species are illustrated.
KEY WORDS: Lepidoptera, Scythrididae, new species, Spain, Russia.

Descripción de dos nuevas especies de la familia Scythrididae de Europa (Lepidoptera: Scythrididae)

Resumen

Se describen de Europa dos nuevas especies de la familia Scythrididae: *Scythris spiniferella* Nupponen & Savenkov, sp. n. del sureste de España y *Scythris rowecki* Nupponen & Savenkov, sp. n. del sur los Montes Urales, Rusia. El taxón pertenece a la especie-grupo de *schleichiella* y el último está relacionado con la especie-grupo s. l. de *canescens*. Se ilustra la apariencia externa del adulto y la genitalia de la nueva especie.
PALABRAS CLAVE: Lepidoptera, Scythrididae, nuevas especie, España, Rusia.

Introduction, material and methods

Since a review of Western Palaearctic Scythrididae (BENGTSSON, 1997), altogether 29 new scythridid taxa have been described from Europe. The majority (75 %) of the new species were discovered either from the Volgo-Ural region (16 spp.) or Spain (6 spp.), both known to be diverse in Scythrididae. However, systematical research focused on Scythrididae has been made only in very restricted areas even in Europe, and due to that scarce but potentially valuable materials often remain undetermined in collections. One such collection, comprising about 50 specimens of Scythrididae, is housed in the Kiel University, Germany. We were allowed to borrow that material for determination, and the results revealed to be very interesting, including discoveries of two undescribed species. The two new taxa are described and illustrated in the present paper. The holotypes of both new species are deposited to the collection of Ecology-Centre, Kiel University, Germany (ECKU).

Descriptions of new species

Scythris spiniferella Nupponen & Savenkov, sp. n.

Type material. Holotype ♂ (Fig. 1): SPAIN, prov. Alicante, Parcent, 38º 43’ N 0º 03’ W, 500 m,

9-V-2011, H. Rietz leg. Genitalia slide: K. Nupponen prep. no. 1/12-XII-2018. DNA sample (Lepid. Phyl., green label): KN01112. In coll. ECKU. Paratype ♂, SPAIN, prov. Alicante, 38° 43' N 0° 04 'W, 800 m, Coll de Rates, 29-IV-2006, H. Rietz leg. In coll. A. Vives, Museo Nacional de Ciencias Naturales, Madrid, Spain.

Diagnosis: *S. spiniferella* Nupponen & Savenkov, sp. n. belongs to the *schleichiella* species-group, and it is a sibling species of *S. gratiosella* Jäckh, 1978. Externally the new taxon may be separated from *S. gratiosella* by narrower streak in fold and more whitish pattern on the forewings. Both taxa also resemble several species belonging to the *knochella* species-group. In the male genitalia, *S. spiniferella* and *S. gratiosella* differ from related species by peculiar shape of the tegumen. *S. spiniferella* is readily separated from *S. gratiosella* by a distally truncate and spinose valva with a narrow ventral process.

Description (Fig. 1): Wingspan 11.5 mm. Head, collar, neck tuft, haustellum, tegula and thorax dark brown. Few dirty white scales exist around eye. Antenna dark brown, 0.7 x length of forewing. Labial palp: segment I and base of segment II cream white, otherwise dark brown. Legs uniform dark brown, except lower surface of foreleg tibia mixed with dirty white. Abdomen fuscous, ventrally paler. Forewing dark brown, with faint purplish tinge; white streak in fold from base to midwing, and separate dash of same colour above tornus. Hindwing dark brown, slightly paler than forewing.

Male genitalia (Fig. 2): Gnathos thorn-like, basally very broad, tip bent downwards and pointed. Tegumen rectangular, posteriorly truncate, margins reinforced; medially a bifurcate setose sclerotization (socii fused to tegumen?). Phallus 1.3 times longer than valva, bent, slightly tapering at distal third. Valva moderately short and broad, slightly broadening at medial third, distally truncate with narrow and pointed ventral process; distal margin with a row of about 10 stout spines. Saccus about 0.6 x length of valva, distally round. Sternum VIII subtriangular, posteromedially broadly indented, anterior margin concave. Tergum VIII pentagonal, anterior margin reinforced and medially concave.

Female genitalia: Unknown.

Bionomy: Unknown. The two specimens were collected in late April and early May. Collecting site of the holotype is illustrated in Fig. 5.

Distribution: Spain. So far the species is only known from prov. Alicante in south-eastern Spain.

Remarks: *Scythris spiniferella* Nupponen & Savenkov, sp. n. is assigned to the *schleichiella* species-group sensu BENGTSSON (1997). Its closest relative is *S. gratiosella*, based on shape of tegumen in the male genitalia.

Etymology: Lat. *spina* = spine; *fero* = to carry. The species name alludes to spinose distal margin of the valva.

Scythris rowecki Nupponen & Savenkov, sp. n.

Type material. Holotype ♂ (Fig. 3): RUSSIA, S Ural, Orenburg district, 51º 05' N 55º 29' E, 220 m, Akbulak near Pokrovka village, Chalk Hills, 9-11-VII-2015, H. Roweck & N. Savenkov leg. Genitalia slide: K. Nupponen prep. no. 1/24-IV-2017. DNA sample (Lepid. Phyl., green label): KN01031. In coll. ECKU.

Diagnosis: Externally *S. rowecki* Nupponen & Savenkov, sp. n. resembles several pale scythridids with similar indistinct forewing pattern, e. g. *S. ghaemii* Bengtsson & Huemer, 2003 and *S. nielseni* Passerin d'Entrèves & Roggero, 2004, but may be separated from those by its small size. *S. rowecki* is readily separated from related taxa by combination of characters in the male genitalia: a laterally compressed uncus, a semicircularly extended gnathos base, and the valva with a triangular ventral process subapically.

Description (Fig. 3): Wingspan 8 mm. Head, collar, tegula and thorax pale beige. Neck tuft cream white. Antenna brown, 0.7 x length of forewing. Haustellum pale beige, laterally with few cream white scales. Labial palp cream white, except lower surfaces of segment III and distal half of segment II pale brown. Legs: femur cream white, tarsus and tibia pale beige. Abdomen dorsally pale beige, ventrally white. Forewing pale beige; cream white scales in fold forming indistinct streak from base to midwing, separate dash of same colour above tornus extending obliquely near costa; scattered cream white scales apically at margins. Hindwing pale fuscous.

Male genitalia (Fig. 4): Uncus stout, laterally somewhat compressed, with sub-semicircular bulge ventrally; ventral surface covered by spinules. Gnathos base rather large, upper part semicircularly extended and shallowly furrowed; distal arm as long as uncus, straight and tapered, tip hooked. Phallus long and slender, tapered at middle, distal half bent. Valva in situ chute-shaped all along, as long as phallus, slightly tapered, shallowly broadening beyond middle, apically setose; subapically a triangular ventral process with few stout setae. Sternum VIII pentagonal, anterior margin deeply incurved, posterior margin shallowly concave; at middle a transverse reinforcement. Tergum VIII quadrangular, anterior and posterior margins concave.

Female genitalia: Unknown.

Bionomy: Unknown. The holotype was collected in July. The habitat is a chalk steppe at low altitude (Fig. 6).

Distribution: Russia (S Ural). So far the species is only known from the type locality.

Remarks: *Scythris rowecki* Nupponen & Savenkov, sp. n. is not possible to assign to any species-group for the moment. The genitalia of the new taxon resemble to some extent those of certain Asian species, e. g. *S. achyropa* Meyrick, 1916, which are tentatively placed in the heterogeneous *canescens* species-group. However, the *canescens* species-group s. l. is in urgent need of re-evaluation, as it evidently consists of species that are not closely related to *S. canescens* (Staudinger, 1880). The DNA barcoding might be a useful tool to improve understanding of taxonomic relationships within Scythrididae. Unfortunately most of the south Asian species are not barcoded so far, and probably it will be not easy either in the future, because available material of many species is too old for sequencing, and due to the present political situation it is dangerous to explore many countries in the region. The holotype of *S. rowecki* was sequenced successfully, resulting in full-length (658 bp) barcode fragment. The barcode of *S. rowecki* reveal a distinct divergence between other barcoded taxa, with a South African *S. ugabensis* Bengtsson, 2014 as a closest relative differ by the minimum distance of 6.24 % from the former.

Etymology: The species name is dedicated to Hartmut Roweck, a German lepidopterist and one of the collectors of the holotype.

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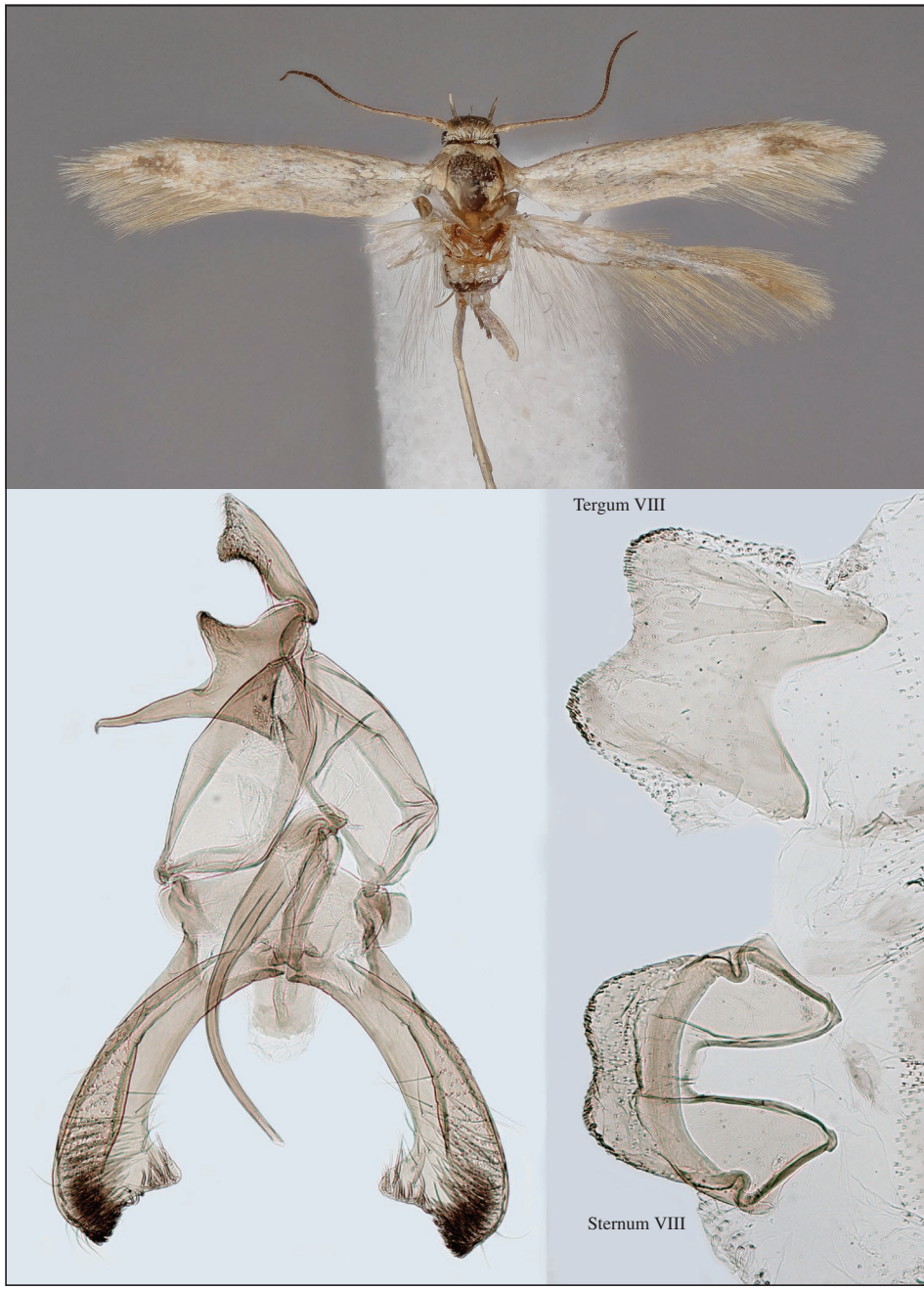
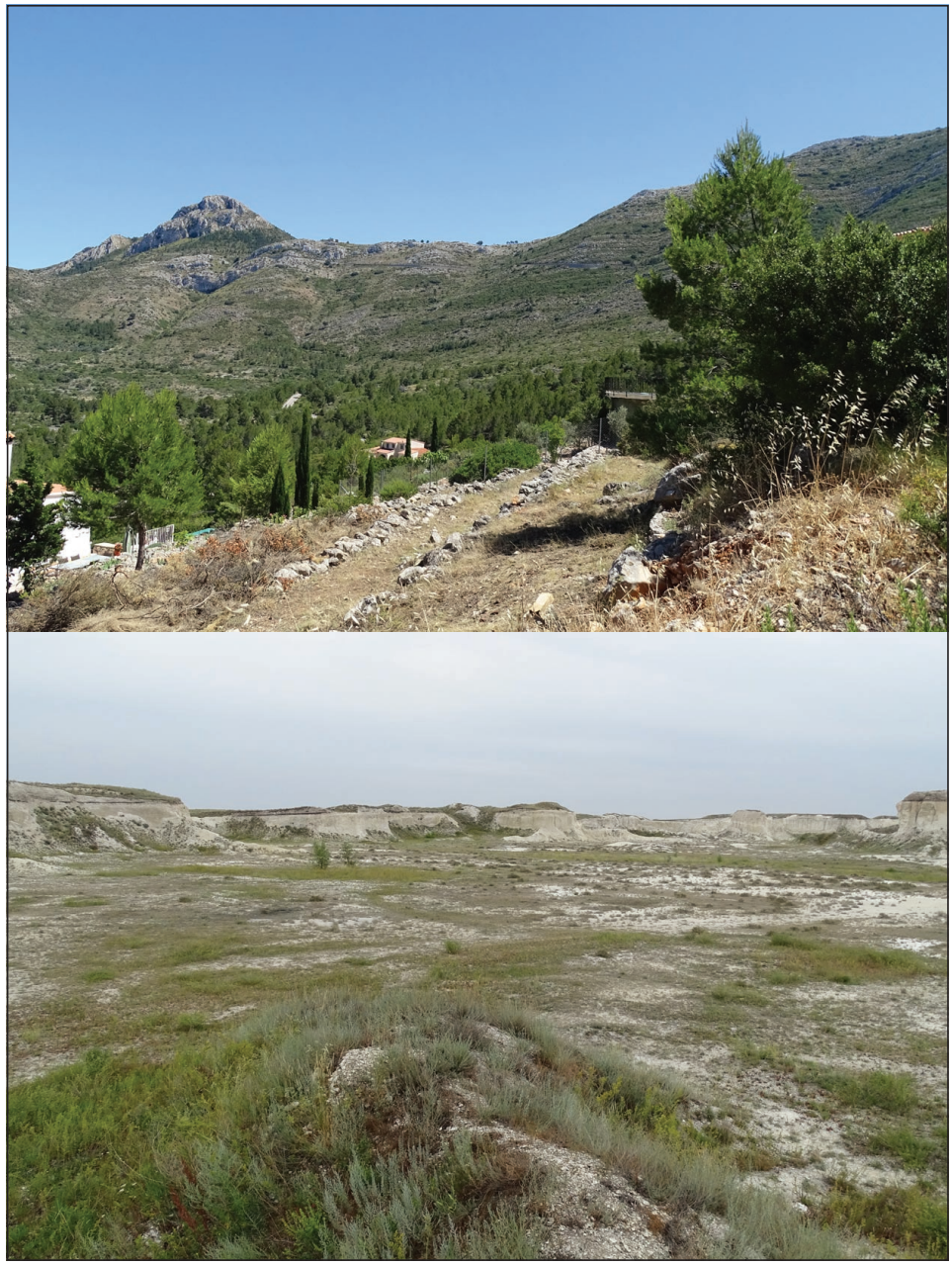
Figs. 1-2.– 1. Adult (male, holotype) of *Scythris spiniferella* Nupponen & Savenkov, sp. n. **2.** *Scythris spiniferella* Nupponen & Savenkov, sp. n. Left: male genitalia; Right: abdominal segment VIII (holotype; slide 1/12-XII-2018 KN).



Figs. 3-4.– 3. Adult (male, holotype) of *Scythris rowecki* Nupponen & Savenkov, sp. n. **4.** *Scythris rowecki* Nupponen & Savenkov, sp. n. Left: male genitalia; Right: abdominal segment VIII (holotype; slide 1/24-IV-2017 KN).



Figs. 5-6.– 5. Habitat of *Scythris spiniferella* Nupponen & Savenkov, sp. n. in Parcent, prov. Alicante, Spain. (Photo: N. Savenkov). **6.** Chalk steppe in Akbulak, Southern Urals, Russia: habitat of *Scythris rowecki* Nupponen & Savenkov, sp. n. (Photo: N. Savenkov).