

<http://dx.doi.org/10.11164/zootaxa.3887.3.3>
<http://zoobank.org/urn:lsid:zoobank.org:pub:25338EEF-328B-442A-A44C-7C412D16DDAA>

Ten new species from the Patagonian Andes (Argentina and Chile), mostly belonging to a newly designated *Stigmella purpurimaculæ* group (Lepidoptera: Nepticulidae)

JONAS R. STONIS^{1,4}, ANDRIUS REMEIKIS² & DONALD R. DAVIS³

¹Department of Biology, Faculty of Science and Technology, Lithuanian University of Educational Sciences, Studentų St. 39, Vilnius LT-08106, Lithuania.

²Laboratory of Entomology, Institute of Ecology, Nature Research Centre, Akademijos St. 2, Vilnius LT-08412, Lithuania.

³Department of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, D.C., 20013-7012, USA.

⁴Corresponding author. E-mail: stonis@leu.lt

Abstract

Ten new *Stigmella* Schrank species are described: *Stigmella purpurimaculæ* Remeikis & Stonis, sp. nov., *S. cana* Remeikis & Stonis, sp. nov., *S. truncata* Remeikis & Stonis, sp. nov., *S. sceptræ* Remeikis & Stonis, sp. nov., *S. concreta* Remeikis & Stonis, sp. nov., *S. pseudoconcreta* Remeikis & Stonis, sp. nov., *S. quadrata* Remeikis & Stonis, sp. nov. (all belonging to the newly designated *S. purpurimaculæ* group), and *S. semilactea* Remeikis & Stonis, sp. nov., *S. brutea* Remeikis & Stonis, sp. nov., *S. pseudodigitata* Remeikis & Stonis, sp. nov. (not attributed to a species group) are described from the Andes (Patagonia: Argentina and Chile). For the species of the *purpurimaculæ* group, a partial reduction of phallus, dentate cornuti, and strong development of utriculus (which can be equal or longer of the corpus bursae) are characteristic. Some of the species of the *purpurimaculæ* group were collected near *Nothofagus pumilio* (Poepp. & Endl.) Krasser, Nothofagaceae, but there is still no confirmation that *Nothofagus* is a host-plant. All new *Stigmella* species are illustrated with photographs and drawings of the adults and genitalia.

Key words: the Andes, Nepticulidae, new species, Patagonia, the *purpurimaculæ* group, *Stigmella*

Introduction

Nepticulidae are a very distinct, isolated family of primitive monotrysian Microlepidoptera with a global distribution. Only the European nepticulid fauna can be considered to have been more or less thoroughly studied (van Nieuwerken 1985, 1990, 2007; Johansson *et al.* 1990; Puplesis 1994; van Nieuwerken & Johansson 2003; Laštuvka & Laštuvka 1998, 2009; van Nieuwerken *et al.* 2010; Laštuvka *et al.* 2013, etc.). Studies in other regions of the world are much less complete in reflecting the actual diversity of the group, although general coverage compares well with some other groups of Microlepidoptera.

The Neotropical region, while vast and with a hugely diverse biota, is comparatively unexplored with respect to the collection and study of Nepticulidae. The first two species recorded from the region, *Stigmella johannis* and *Fomoria molybditis*, were described by Zeller (1877) (as *Nepticula*) from Colombian material collected by Johann and Nolcken in 1871. Much later, five additional species were reported from Peru and two from Guyana by Meyrick (1915); however, one of the Guyanese species (*Enteucha cyanochlora*) was placed in the Lyonetiidae and only recognized as nepticulid some 70 years later (Davis 1984, 1985). Until the first monographic review of the known Neotropical fauna with the documentation of 37 new taxa from Belize, Peru and Argentina by Puplesis & Robinson (2000) there have been practically no investigations of Neotropical Nepticulidae, except for isolated descriptions of a few new species from Puerto Rico (Forbes & Leonard 1930) and Argentina (Meyrick 1931; Bourquin 1962) and a few relatively recent discoveries in Florida (Davis 1978; Wilkinson 1981) of species with Neotropical affinities. *Stigmella plumosetaella* was described by Newton & Wilkinson (1982) from Arizona, USA, and Puplesis & Robinson (2000) later recorded the species from southwestern Mexico. In Puplesis &

Acknowledgements

Ole Karsholt and Niels P. Kristensen (ZMUC) provided the initial stimulus for the present project together with generous support during its course. We thank Patricia Gentili-Poole (USNM) for her consultation. We are grateful to Jean-François Landry (Agriculture & Agri-Food Canada, Ottawa) and anonymous referees for their numerous corrections and suggestions. For support the authors thank the Science Foundation of the Lithuanian University of Educational Sciences (Vilnius).

References

- Bourquin, F. (1962) Microlepidopteros nuevos con sus biologías. *Revista de la Sociedad Entomologica Argentina*, 23, 31–46.
- Davis, D.R. (1978) New leaf-mining moths of the family Nepticulidae from Florida. *Florida Entomologist*, 61 (4), 209–224.
<http://dx.doi.org/10.2307/3494210>
- Davis, D.R. (1984) Nepticulidae. In: Heppner, J.B. (Ed.), *Atlas of Neotropical Lepidoptera. Checklist: part 1. Micropterigoidea – Immoidea*. Junk, den Haag, xxvii + 112 pp.
- Davis, D.R. (1985) A re-examination of *Enteucha cyanochlora* Meyrick and its subsequent transfer to the Nepticulidae (Lepidoptera: Nepticuloidea). *Proceedings of the Entomological Society of Washington*, 87 (1), 142–145.
- Diškus, A. & Puplesis*, R. (2003) Catalogue of the world Nepticuloidea & Tischerioidea. In: Puplesis*, R. & Diškus, A. (Eds.), *The Nepticuloidea & Tischerioidea (Lepidoptera) – a global review, with strategic regional revisions*. Lututė Publishers, Kaunas, pp. 318–436.
- Diškus, A. & Stonis, J.R. (2012) *Leaf-mining insects of Lithuania. The Nepticulidae (Lepidoptera): taxonomy, chorological composition and trophic relationships*. Monograph. Lututė Publishers, Kaunas, 220 pp. [in Lithuanian]
- Forbes, W.T.M. & Leonard, M.D. (1930) A new leaf-miner of cotton in Porto Rico (*Nepticula gossypii* n. sp.). *Journal of the Department of Agriculture, Porto Rico*, 14, 149–157.
- Johansson, R., Nielsen, E.S., Nieukerken, E.J. van & Gustafsson, B. (1990) The Nepticulidae and Opostegidae (Lepidoptera) of north west Europe. *Fauna Entomologica Scandinavica*, 23 (1/2), 1–739.
- Laštuvka, Z. & Laštuvka, A. (1998) Beitrag zur Kenntnis der Nepticulidenfauna Griechenlands (Lepidoptera, Nepticulidae). *Stapfia*, 55, 313–326.
- Laštuvka, A. & Laštuvka, Z. (2009) Morphology, biology and distribution of *Stigmella irregularis* Puplesis (Lepidoptera: Nepticulidae). *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 57 (5), 193–196.
<http://dx.doi.org/10.11118/actaun200957050193>
- Laštuvka, Z., Laštuvka, A. & Nieukerken, E.J. van. (2013) The *Bupleurum* (Apiaceae) feeding species of *Trifurcula (Glaucolepis)*: new species, biology and distribution (Lepidoptera: Nepticulidae). *Tijdschrift voor Entomologie*, 156, 191–210.
<http://dx.doi.org/10.1163/22119434-00002028>
- Meyrick, E. (1915) Descriptions of South American Micro-Lepidoptera. *The Transactions of the Entomological Society of London*, 48 (2), 201–256.
<http://dx.doi.org/10.1111/j.1365-2311.1915.tb02527.x>
- Meyrick, E. (1931) Micro-Lepidoptera from South Chile and Argentina. *Anales del Museo Nacional de Historia Natural, Buenos Aires*, 36, 377–415.
- Newton, P.J. & Wilkinson, C. (1982) A taxonomic revision of the North American species of *Stigmella* (Lepidoptera: Nepticulidae). *Systematic Entomology*, 7 (4), 367–463.
<http://dx.doi.org/10.1111/j.1365-3113.1982.tb00455.x>
- Nieukerken, E.J. van. (1985) A taxonomic revision of the Western Palaearctic species of the subgenera *Zimmermannia* Hering and *Ectoedemia* Busck s. str. (Lepidoptera, Nepticulidae), with notes on their phylogeny. *Tijdschrift voor Entomologie*, 128 (1), 1–164.
- Nieukerken, E.J. van. (1990) *Stigmella rolandi* sp. n.: a widespread southern European species on *Rosa* (Lepidoptera: Nepticulidae). *Tijdschrift voor Entomologie*, 133 (2), 239–243.
- Nieukerken, E.J. van. (2007) *Acalyptris* Meyrick: revision of the *platani* and *staticis* groups in Europe and the Mediterranean (Lepidoptera: Nepticulidae). *Zootaxa*, 1436, 1–48.
- Nieukerken, E.J. van & Johansson, R. (2003) The *Quercus* feeding *Stigmella* species of the West Palaearctic: new species, key and distribution (Lepidoptera: Nepticulidae). *Tijdschrift voor Entomologie*, 146, 307–370.
<http://dx.doi.org/10.1163/22119434-900000129>
- Nieukerken, E.J. van, Laštuvka, A. & Laštuvka, Z. (2010) Western Palaearctic *Ectoedemia* (*Zimmermannia*) Hering and *Ectoedemia* Busck s. str. (Lepidoptera, Nepticulidae): five new species and new data on distribution, hostplants and recognition. *ZooKeys*, 32, 1–82.
<http://dx.doi.org/10.3897/zookeys.32.282.app.1.ds>
- Puplesis*, R. (1994) *The Nepticulidae of Eastern Europe and Asia: western, central and eastern parts*. Backhuys Publishers,

- Leiden, 291 pp. + figs. 840.
- Puplesis*, R. & Diškus, A. (2003) *The Nepticuloidea & Tischerioidea (Lepidoptera) – a global review, with strategic regional revisions*. Lututė Publishers, Kaunas, 512 pp., figs. 612.
- Puplesis*, R. & Robinson, G.S. (2000) A review of the Central and South American Nepticulidae (Lepidoptera) with special reference to Belize. *Bulletin of the Natural History Museum, London (Entomology)*, 69 (1), 3–114.
- Puplesis*, R., Diškus, A. & Robinson, G.S. (2002a) New Neotropical Nepticulidae (Lepidoptera) from the western Amazonian rainforest and the Andes of Ecuador. *Bulletin of the Natural History Museum: Entomology*, 71 (1), 19–58. [London]
<http://dx.doi.org/10.1017/s0968045402000020>
- Puplesis*, R., Diškus, A., Robinson, G.S. & Onore, G. (2002b) A review and checklist of the Neotropical Nepticulidae (Lepidoptera). *Bulletin of the Natural History Museum: Entomology*, 71 (1), 59–76. [London]
- Stonis, J.R., Diškus, A., Remeikis, A., Navickaitė, A. & Rocienė, A. (2013a) Description of new species of oak leaf-miners (Lepidoptera: Nepticulidae), with notes on the species groups of *Stigmella* Schrank associated with *Quercus* as a host-plant. *Zootaxa*, 3737 (3), 201–222.
<http://dx.doi.org/10.11646/zootaxa.3737.3.1>
- Stonis, J.R., Diškus, A., Remeikis, A., Noreika, R. & Schuster, J. (2013b) Four new leaf-mining *Acalyptris* species from Guatemala and Belize, with new data on bionomics of *Stigmella pruinosa* (Lepidoptera: Nepticulidae). *Zootaxa*, 3737 (2), 101–117.
<http://dx.doi.org/10.11646/zootaxa.3737.2.1>
- Stonis, J.R., Diškus, A., Remeikis, A. & Schuster, J. (2013c) First discovery of *Quercus* feeding Nepticulidae (Lepidoptera) in Central America. *Zootaxa*, 3737 (1), 1–23.
<http://dx.doi.org/10.11646/zootaxa.3737.1.1>
- Stonis, J.R., Remeikis, A., Diškus, A. & Noreika, R. (2013d) New Nepticulidae species (Insecta: Lepidoptera) from the Yucatán peninsula (SE Mexico). *Zootaxa*, 3609 (2), 223–230.
<http://dx.doi.org/10.11646/zootaxa.3609.2.8>
- Šimkevičiūtė, A., Stonis, J.R. & Diškus, A. (2009) Taxonomic checklist of Nepticulidae of Mexico, with the description of three new species from the Pacific Coast (Insecta, Lepidoptera). *Acta Zoologica Lituanica*, 19 (4), 268–277.
<http://dx.doi.org/10.2478/v10043-009-0037-0>
- Wilkinson, C. (1981) A supplement to the genus *Ectoedemia* Busck (Nepticulidae: Lepidoptera) in North America, dealing with some difficult species and also some new ones. *Tijdschrift voor Entomologie*, 124 (3), 93–110.
- Zeller, P.C. (1877) Exotische Microlepidoptera. II. *Horae Societatis Entomologicae Rossicae*, 13, 289–493.

(* Stonis, J.R., formerly Puplesis, R.)