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New and little known *Coptotriche* and *Tischeria* species (Lepidoptera: Tischeriidae) from Primorskiy Kray, Russian Far East

JONAS R. STONIS^{1,3}, ARŪNAS DIŠKUS¹, AGNĖ ROCIENĖ¹,
VIRGINIJUS SRUOGA¹ & DONALD R. DAVIS²

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

²Department of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, D.C., 20013-7012, USA

³Corresponding author. E-mail: stonis@leu.lt

Abstract

The paper provides data on two new and two little known *Coptotriche* Walsingham and *Tischeria* Zeller species from Primorskiy Kray (=Primorskiy Territory), Russian Far East: *Coptotriche minuta* Diškus & Stonis, **sp. nov.**, *Tischeria unca* Diškus & Stonis, **sp. nov.** are described, *T. decidua siorkionla* Kozlov and *T. sichotensis* Ermolaev are redescribed. Currently, together with the described new species, the fauna of Tischeriidae of Far Eastern Russia comprises three *Coptotriche* species and seven *Tischeria* species. A neotype, replacing the missing type series of *T. sichotensis*, is designated here. For the first time all four species treated from Russian Far East are illustrated with photographs of the adults and genitalia (*T. sichotensis* also with photographs of the leaf-mines).

Key words: *Coptotriche*, new species, Primorskiy Kray, Russian Far East, *Tischeria*, Tischeriidae

Introduction

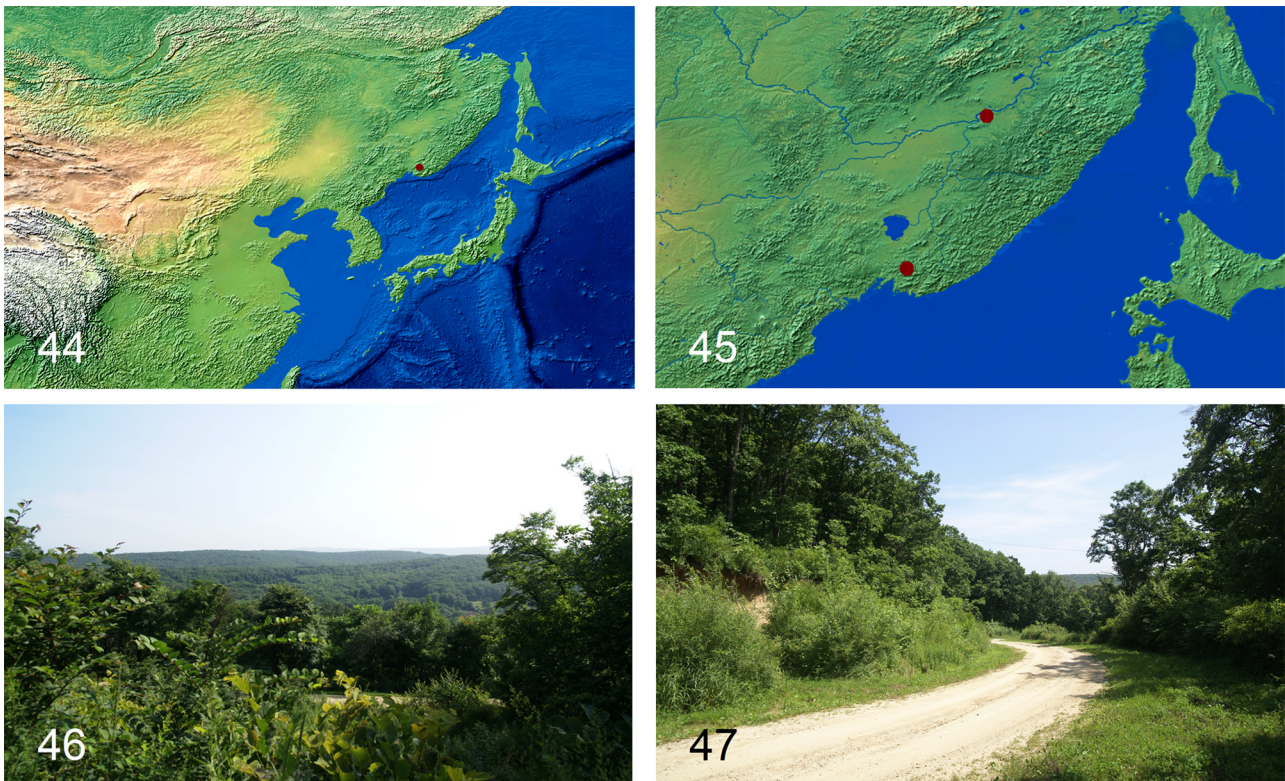
The Tischeriidae is a family of highly intriguing monotrystsians which together with Palaephatidae represent a possible sister clade for all ditrysian Lepidoptera (Davis 1999). Larvae of Tischeriidae are leaf-miners throughout the larval stages and form trumpet or irregular blotch mines (Figs 1–4) (Davis 1999).

At present three genera (*Tischeria* Zeller, *Coptotriche* Walsingham and *Astrotischeria* Puplesis & Diškus) and 113 species are recognized world-wide. Most recently twenty-two species were described from Europe, East Asia, South America and South Africa by Diškus & Puplesis (2003a), of which three were left unnamed. Two new species from the Galapagos Islands were described by Landry & Roque-Albelo (2004). A new species has also been recognized from Madagascar (Lees & Stonis 2007), two from East Africa (Mey 2010), and one species from the equatorial Africa was moved from Gracillariidae and redescribed (Puplesis & Diškus 2005). Three new species from Central America were described by Stonis & Diškus (2007, 2008). Fifty additional new species from Belize, Guatemala, Ecuador, Peru and adjacent countries are currently recognized by Stonis and Diškus with co-authors, and are being published separately.

Although East Asia is well known for high general biodiversity, currently only ten species of Tischeridae are known from Russian Far East, eight of which were recently listed in the world catalogue of the Nepticuloidea and Tischerioidea by Diškus & Puplesis (2003b) as well in the catalogue of the Lepidoptera of Russia (Sinev 2008).

Here we describe *Coptotriche minuta* Diškus & Stonis, **sp. nov.** and *Tischeria unca* Diškus & Stonis, **sp. nov.**, and provide new data on two little known *Tischeria* species. The material studied from East Asia yielded a few morphological interpretations of the family. The transtilla of *T. unca* **sp. nov.** is replaced with a long, strongly chitinized anterior bar of the tegumen; the transtilla of *T. sichotensis* is replaced with an unusually reinforced, strongly chitinized and elaborate anterior margin of the tegumen, which we refer to here as a pseudotranstilla.

Zoological Institute of the Russian Academy of Sciences, we designated a neotype for *T. sichotensis*. The neotype specimen was collected precisely at the same locality as the missing paratype (Gornotayezhnoe). It also seems to match the drawing of the missing holotype published in the original description of the species (Ermolaev 1986: fig. 2).



FIGURES 44–47. Maps and habitat. 44, map of the region (courtesy of T. Patterson, USA), showing the collecting locality (red dot) in Primorskiy Krai (= Primorskiy Territory) in August 2011 (see Methods and material); 45, currently known distribution of *Tischeria sichotensis* Ermolaev (red dots); 46, 47, habitat of *Coptotriche minuta* Diškus & Stonis, **sp. nov.**, *Tischeria unca* Diškus & Stonis, **sp. nov.**, *T. decidua siorkionla* Kozlov and *T. sichotensis* Ermolaev—dense deciduous, predominantly broadleaf forest near Gornotayezhnoe Biological Station, 20 km E Ussuriysk, Primorskiy Krai (Primorskiy Territory, Russian Far East).

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References

- Davis, D.R. (1999) The monotrystian Heteroneura. *In*: Kristensen, N.P. (Ed.), *Lepidoptera, Moths and Butterflies. Handbuch der Zoologie*, 4 (35), pp. 65–90.
- Diškus, A. & Puplesis*, R. (2003a) Nepticuloidea & Tischerioidea – the World context. *In*: Puplesis, R. & Diškus, A. (Eds.), *The Nepticuloidea & Tischerioidea (Lepidoptera) – a global review, with strategic regional revisions*. Lututė Publishers, Kaunas, pp. 38–175.
- Diškus, A. & Puplesis*, R. (2003b) 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]
- Ermolaev, V.P. (1986) Novye vidy odnosvetnykh molej-minerov (Lepidoptera, Tischeriidae) s Dal'nego Vostoka [New species of monochromatic miner moths (Lepidoptera, Tischeriidae) from the Far East] In: Ler, P.A. (Ed.), *Sistematika i ekologija cheshuekrylykh Dal'nego Vostoka SSSR [Systematics and ecology of Lepidoptera from the Far East of the USSR]*. Vladivostok, pp. 6–8. [in Russian]
- Kozlov, M.V. (1986) Odnocvetnye moli-minery (Lepidoptera, Tischeriidae) Primorskogo Kraja. In: *Sistematika i ekologija nasekomykh Dal'nego Vostoka.* Vladivostok, pp. 23–28. [in Russian]
- Kozlov, M.V. (1997) Sem. Tischeriidae – odnocvetnye moli-minery In: Ler, P.A. (Ed.), *Key to the insects of Russian Far East. Trichoptera and Lepidoptera, 5 (1).* Dal'nauka Publishers, Vladivostok, pp. 324–326. [in Russian]
- Landry, B. & Roque-Albelo, L. (2004) First report of Tischeriidae (Lepidoptera) on the Galapagos Islands, Ecuador, with descriptions of two new endemic species. *Revue suisse de Zoologie*, 111 (3), 599–609.
- Lees, D.C. & Stonis, J.R. (2007) The first record of Tischeriidae (Insecta: Lepidoptera) from Madagascar, with description of *Coptotriche alavelona* sp. n. and an update distributional checklist of Afrotropical Tischeriidae. *Zootaxa*, 1645, 35–45.
- Puplesis*, R. (1994) *The Nepticulidae of Eastern Europe and Asia: western, central and eastern parts.* Backhuys Publishers, Leiden, 552 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. & Diškus, A. (2005) Checklist of African Tischeriidae (Insecta: Lepidoptera) with a Redescription of the Formerly Neglected *Tischeria urticicolella* from Equatorial Africa. *Zoological Science*, 22 (9), 1051–1055.
<http://dx.doi.org/10.2108/zsj.22.1051>
- Sato, H. (1993) *Tischeria* Leafminers (Lepidoptera, Tischeriidae) on Deciduous Oaks from Japan. *Japanese Journal of Entomology*, 61 (3), 547–556.
- Sinev, S.Yu. (2008) Tischeriidae. In: Sinev, Yu.S. (Ed.), *Catalogue of the Lepidoptera of Russia.* KMK Scientific Press, St. Petersburg, Moscow, pp. 27.
- Stonis, J.R. & Diškus, A. (2007) Description of *Tischeria gouaniae* sp. n. from the tropical forest of Belize – an exotic new addition to the American fauna of *Tischeria* (Insecta: Lepidoptera: Tischeriidae). *Zoological Science*, 24 (12), 1286–1291.
<http://dx.doi.org/10.2108/zsj.24.1286>
- Stonis, J.R. & Diškus, A. (2008) Checklist of American *Coptotriche* (Insecta: Lepidoptera: Tischeriidae) with descriptions of two new species from the tropical forest of Belize (Central America). *Zoological Science*, 25 (1), 99–106.
<http://dx.doi.org/10.2108/zsj.25.99>
- Wocke, M.F. (1876) Beiträge zur Lepidopterenfauna Schlesiens. *Zeitschrift für Entomologie*, 7, 39–45.
- * Stonis, J. R., formerly Puplesis, R.