

Lyonetiidae of Turkey with notes on their distribution and zoogeography (Lepidoptera)

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Abstract

Five species of Lyonetiidae are reported from Turkey: *Lyonetia prunifoliella* (Hübner, 1796), *Lyonetia clerkella* (Linnaeus, 1758), *Leucoptera malifoliella* (Costa, 1836), *Bedellia somnulentella* (Zeller, 1847), and *Leucoptera laburnella* (Stainton, 1851). The last was collected from *Genista tinctoria* in Ordu province and is considered a new pest in Turkey.

Key words: Lepidoptera, Lyonetiidae, Türkiye, pest, distribution, host plants

Introduction

The family Lyonetiidae is one of the least known groups of Microlepidoptera, with 150 described species worldwide (Baryshnikova 1996). The family was studied by Buszko (1981) in Poland and by Seskjaeva (1981) in the European part of Soviet Russia. Mey (1994) reported 20 species of *Leucoptera* (*sensu lato*) from the western Palearctic region, providing distribution maps of each species.

The larvae of lyonetids mine under the epidermis of fruit and leaves of the host plants, consequently some species are of economic importance. In Turkey there are few faunistic or biological studies on the family; only four species in three genera have been documented. Among these, *Leucoptera prunifoliella* (Hübner, 1796) and *Leucoptera malifoliella* (Costa, 1836) were first reported by Mann (1862). Ecevit et al. (1987) reported *L. malifoliella* as a pest of hazelnut, and Özbek et al. (1996) reported *Lyonetia clerkella* as a pest of peach and cherry trees. *Bedellia somnulentella* was reported from Turkey by Koçak (2001). *Leucoptera laburnella*, which is distributed in Europe and the Dagestan region of Russia, is reported for the first time from Turkey. With this new record, the number of species of the family in Turkey increases to five.

There are still significant gaps in our knowledge of the distribution of the species of Lyonetiidae owing to inadequate faunistic studies in many regions. Evaluation of the actual distributions of the species and zoogeographical analyses require future regional studies. In this study we present data on, and a map (Fig. 2) of the distribution of the species in Turkey

Material and methods

A list of the species of Lyonetiidae from Turkey was compiled from a survey of relevant literature. In addition, a field collected specimen from province of Ordu was examined. It was prepared according to standard methods, labeled, and identified by comparing it with descriptions and illustrations in the literature. This specimen is deposited in CESA (Centre of Entomological Studies Ankara). Species distributions in Turkey are mapped, and the material examined, host plants, and general distribution of each species are provided. Additional data about the species are given in the Remarks.

Results

Lyonetia prunifoliella (Hübner, 1796)

Synonyms: *prunifoliella* Hübner, 1796; *padifoliella* Hübner, [1813]; *sittaepenella* Hübner, 1825; *acerifoliella* Curtis, 1850.

Host plants

Chaenomeles, *Cotoneaster*, *Crataegus*, *Cydonia*, *Malus*, *Mespilus*, *Prunus*, *Pyrus*, *Sorbus*, *Persica*, *Amygdalus*, and *Betula* (Hering 1957, Balachowsky 1966, Seksyaeva 1981).

Distribution

Kazakhstan, southeastern Siberia (Trans-Baikal), Far East, Europe, and Japan (Seksyaeva 1981), and North America (Schmitt et al. 1996).

Distribution in Turkey (Fig. 2): Bursa (Mann 1862).

Remarks

Although this taxon is an important and widely distributed pest, the only record from Turkey is that presented by Mann (1862).

***Lyonetia clerkella* (Linnaeus, 1758)**

Synonyms: *clerkella* Linnaeus, 1758; *penicilla* Borkhausen, 1794; *cerasifoliella* Hübner, 1796; *malifoliella* Hübner, 1796; *malella* Schrank, 1802; *autumnella* Curtis, 1829; *unipunctella* Stephens, 1829; *semiaurella* Stephens, 1829; *nivella* Stephens, 1829; *aereella* Treitschke, 1833.

Host plants

Amelanchier, *Betula*, *Chaenomeles*, *Crataegus*, *Cydonia*, *Malus*, *Mespilus*, *Prunus*, *Pyrus*, *Pyracantha*, *Humulus*, *Ribes*, *Salix*, *Sorbus*, *Cotoneaster*, *Castane*, and *Cerasus laurocerasus* (Hering 1957, Balachowsky 1966, Seksyaeva 1981, Özbek et al. 1996, Parenti 2000).

Distribution

Northwest Siberia, Far East, Europe, northern Africa, Middle East, India, and Japan (Seksyaeva 1981).

Distribution in Turkey (Fig. 2): Erzincan (Merkez, Kemaliye, Üzümlü), Iğdir (Merkez), Kars (Kagizman), Erzurum (Ispir, Oltu, Olur, Pazaryolu, Tortum, Uzundere), Artvin (Yusufeli) (Özbek et al. 1996).

Remarks

Özbek et al. (1996) report that the larvae of this species feed on the fruit of peach and cherry and mine the leaves of sour cherry. They also state that the species is becoming more widespread in Üzümlü and is causing economic damage in the region.

***Bedellia somnulentella* (Zeller, 1847)**

Synonyms: *somnulentella* (Zeller, 1847); *orpheella* Stainton, 1849; *convolutella* Heydenreich, 1851; *staintoniella* Clemens, 1860; *mnesileuca* Meyrick, 1928; *ipomoeae* Bradley, 1953.

Host plants

Calystegia sepium, *Convolvulus arvensis*, *Ipomoea somnulenta*, and *I. batatas* (Hering 1957, Balachowsky 1966, Seksyaeva 1981, Parenti 2000).

Distribution

Northwest, South; Uzbekistan (Bukhara). Europa, Japan, North America, Australia, New Zealand (Seksyaeva 1981).

Distribution in Turkey (Fig. 2): Türkiye (Koçak 2001).

Remarks

This species has a Palearctic distribution (Balachowsky 1966) and was listed in the

“Lepidoptera of Turkey” by Koçak (2001). However, we found no records of this species in Turkey. The host plants reported in the literature, e.g., *Convolvulus*, *Calystegia*, and *Ipomea*, all occur in Turkey; therefore this species may be present.

***Leucoptera malifoliella* (Costa, 1836)**

Synonyms: *malifoliella* (Costa, 1836); *scitella* Zeller, 1839.

Host plants

Chaenomeles, *Crataegus*, *Cydonia*, *Malus*, *Mespilus*, *Prunus*, *Pyrus*, *Sorbus*, *Cotoneaster*, *Cerasus*, *Alnus*, *Amelanchier*, *Cotoneaster*, *Betula*, and *Corylus?* (Heinemann 1877, Hering 1957, Balachowsky 1966, Seksyaeva 1981, Ecevit et al. 1987, Parenti, 2000).

Distribution

Russia: European part (except northernmost regions), Siberia (Irkutsk, Yakutia), Ukraine, Transcaucasia, Kazakhstan, Middle Asia, Europe (except northern part), Asia Minor, Middle East, Iran, North Africa, and China (Baryshnikova 1996).

Distribution in Turkey (Fig. 2): Bursa (Mann 1862), Ordu (Ünye), Giresun (Bulancak) (Ecevit et al. 1987).

Remarks

Ecevit et al. (1987) report this species as an important pest of hazelnut in Samsun, Ordu, Giresun, and Trabzon. However, because there are no other literature records of this species feeding on hazelnut, the information provided by Ecevit et al. (1987) is suspect.

***Leucoptera laburnella* (Stainton, 1851)**

(Fig. 1a, b)

Synonym: *laburnella* Stainton, 1851; *f. wailesella* Stainton, 1858.

Material examined

Ordu: Perşembe, Çaytepe, 100 m, 12.06.1995, leg. M. Özdemir, 1 ♂ (GPNo: 2054 ♂).

Host plants

Laburnum, *Genista*, occasionally *Lupinus polyphyllus*, *Koeleria*, *Petteria*, *Cytisus laburnum*, and *Astragalus* (Heinemann 1877, Hering 1957, Balachowsky 1966, Seksyaeva 1981, Baryshnikova 1996).

Distribution

Russia (Dagestan, Derbent) and Europe (Baryshnikova 1996).

Distribution in Turkey (Fig. 2): Ordu (new record for Turkey).



FIGURE 1. *Leucoptera laburnella* (Stainton). a) adult moth; b) male genitalia.

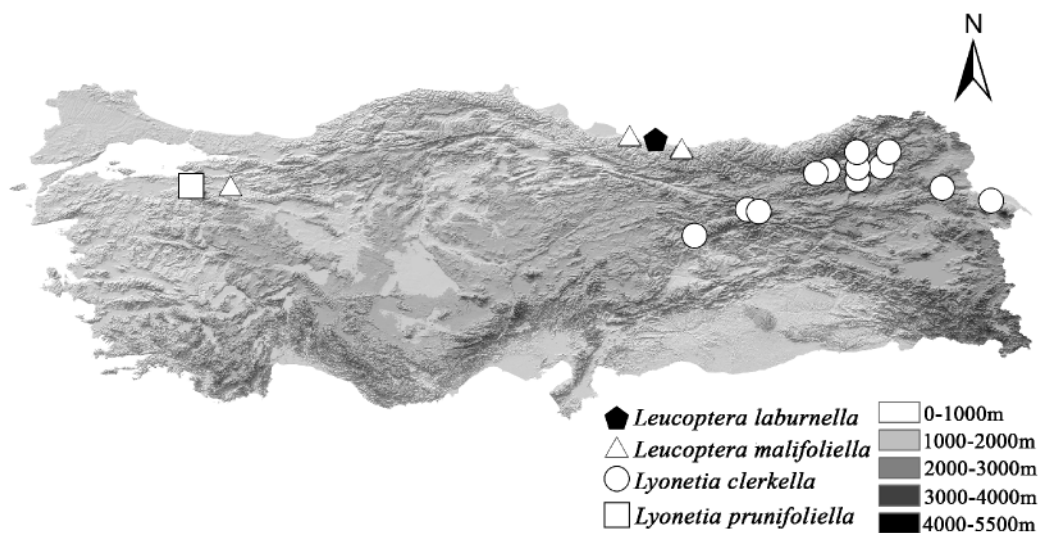


FIGURE 2. Geographic distribution of Lyonetiidae in Turkey.

Remarks

This species was collected together with *Coleophora vibicella* (Hübner, [1813]) from galleries in *Genista* in Ordu province. *L. laburnella* is new to Turkey, and this record confirms the use of *Genista tinctoria* which has been mentioned as the food plant of *L. laburnella* elsewhere.

Literature cited

- Balachowsky, A.S. (1966) *Entomologie Appliquee a l'agriculture, Tome II Lepidopteres*, 1057 pp.
- Baryshnikova, S.V. (1996) Review of Leaf Miners (Lepidoptera, Lyonetiidae) of the Fauna of Russia: I. Subfamily Cemiostominae. *Entomological Review*, 79, 191–199.
- Buszko, J. (1981) Cemiostomidae, Phyllocnistidae, Lyonetiidae, Oinophilidae. *Klucze do oznaczania owadów polski*, 27 (25–28): 1–58.
- Ecevit, O., Isik, M., Kurt, M. A. & Yüceci, T. (1987) *Doğu Karadeniz Bölgesi Findik Bahçelerinde Entegre Savas Olanakları Üzerine Araştırmalar*. Ondokuz Mayıs Üniversitesi Yayınları, No: 20, 1–95.
- Heinemann, H. (1877) *Schmetterlinge Deutschlands und der Schweiz. Zweite Abteilung Kleinschmetterlinge Band II*, Germany, 825 pp.
- Hering, M. (1957) *Blattminen von Europa I–III*. Dr. W. Junk's-Gravenhage. I, 1–425, II, 426–853, III, 854–1123.
- Koçak, A.Ö. (2001) Tentative Checklist of the Turkish Lepidoptera Pt.3 (Available from: <http://www.members.tripod.com/entlep/Checklist3.htm>).
- Mann, J. (1862) Verzeichniss der im Jahre 1851 bei Brussa in Kleinasien gesammelten Schmetterlinge. *Wiener entomologische Monatschrift*, 6, 356–409.
- Mey, W. (1994) Taxonomische Bearbeitung der westpalaearktischen Arten der Gattung *Leucoptera* Hübner, [1825], s.l. (Lep.: Lyonetiidae). *Deutsche Entomologische Zeitschrift, N.F.* 41 (1), 173–234.
- Özbek, H., Güçlü, S. & Hayat, R. (1996) Investigations on the phytophagous and predator insect species on stone fruits in the north-east agricultural region of Turkey.
- Parenti, U. (2000) *A Guide to the Microlepidoptera of Europa*, 81 pp, 156 Pl.
- Schmitt, J.J., Brown, M.W. and Davis, D.R. (1996) Taxonomy, Morphology, and Biology of *Lyonetia prunifoliella* (Lepidoptera: Lyonetiidae), a Leaf Miner of Apple. *Entomological Society of America*, 89(3), 334–345.
- Seksyaeva, S.V. (1981) Lyonetiidae. In: Falkovich, M. I. & G. S. Medvedev (eds.), *Keys to the Insects of the European Part of the USSR*, Volume IV, Part 2, 1092 pp.