Vestnik zoologii, **36**(5): 77–80, 2002

UDC 595.782(569.4)

NEW RECORDS OF YPONOMEUTOID MOTHS (LEPIDOPTERA, YPONOMEUTIDAE, PLUTELLIDAE) FROM ISRAEL

Z. S. Gershenson [1], T. Pavlíček [2], V. I. Chikatunov [3], E. Nevo [2]

[1] *Schmalhausen Institute of Zoology, vul. B. Khmelnits'kogo, 15, Kyiv-30, MSP, 01601 Ukraine*
[2] *Institute of Evolution, University of Haifa, Mt. Carmel, Haifa, 31905 Israel*
E-mail: rabi316@uvm.haifa.ac.il
[3] *Department of Zoology, Tel Aviv University, Ramat Aviv, Tel Aviv, 69978 Israel*

Accepted 23 October 2001

New Records of Yponomeutoid Moths (Lepidoptera, Yponomeutidae, Plutellidae) from Israel. Gershenson Z. S., Pavlíček T., Chikatunov V. I., Nevo E. — Ten species of moths belonging to families Plutellidae and Yponomeutidae are newly recorded from Israel: *Yponomeuta albonigratus* Gershenson, *Y. cagnagellus* (Hübner), *Y. meridionalis* Gershenson, *Kessleria saxifragae* (Stainton), *Ypsolopha asperella* (Linnaeus), *Y. dentella* (Fabricius), *Y. instabilella* Mann, *Y. mucronella* (Scopoli), *Y. persicella* (Fabricius), and *Plutella porrectella* (Linnaeus). The majority of these species were collected at the "Evolution Canyon", Lower Nahal Oren, Mt. Carmel, Israel.

Key words: Microlepidoptera, Yponomeutidae, Plutellidae, Israel, new records.

Новые находки ипономеутоидных молей (Lepidoptera, Yponomeutidae, Plutellidae) из Израиля. Гершензон З. С., Павличек Т., Чикатунов В. И., Нево Е. — Впервые для фауны Израиля указаны 10 видов молей из семейств Plutellidae и Yponomeutidae: *Yponomeuta albonigratus* Gershenson, *Y. cagnagellus* (Hübner), *Y. meridionalis* Gershenson, *Kessleria saxifragae* (Stainton), *Ypsolopha asperella* (Linnaeus), *Y. dentella* (Fabricius), *Y. instabilella* Mann, *Y. mucronella* (Scopoli), *Y. persicella* (Fabricius), and *Plutella porrectella* (Linnaeus). Большинство видов собрано в «Evolution Canyon», Нижний Нахал Орен, г. Кармел, Израиль.

Ключевые слова: Microlepidoptera, Yponomeutidae, Plutellidae, Израиль, новые находки.

Introduction

Yponomeutoid moths occur worldwide on all continents with temperate, tropical, and subtropical climate (Gershenson, Ulenberg, 1998). Some of them might considerably damage fruit trees, and arboreal and bushy plants. In Israel, the fauna of Yponomeutoid moths stayed poorly known apart of pests of cultivated plants. According to our knowledge, only five species of this group have been recorded from Israel thus far: the olive moth, *Prays oleae* (Bernard, 1788) (= *P. oleellus* Fabricius, 1794), the citrus blossom moth, *P. citri* Millière, 1873, the diamondback moth, *Plutella xylostella* (Linnaeus, 1788) (= *P. maculipennis* Curtis, 1832), *Ypsolopha eremellus* Amsel, 1933 and *Y. sculpturella* (Herrich-Schäffer, 1854) (Amsel, 1933; Avidov, Harpaz, 1969; Bodenheimer, 1937; Bytinski-Salz, 1966; Halperin, Sauter, 1992).

Our preliminary study, mostly conducted at the "Evolution Canyon" microsite, Lower Nahal Oren, Mt. Carmel, Israel (Nevo, 1995, 1997, 2001) indicates that number of species of this group in Israel is larger then of the species mentioned above. Classification of moths in this paper is given according to Heppner (1998).

Material is deposited in the insect collection at the Schmalhausen Institute of Zoology (SIZK) and at the Department of Zoology, Tel Aviv University (TAU). The following species are recorded from Israel for the first time.

FAMILY YPONOMEUTIDAE (S. STR.)

Yponomeuta albonigratus Gershenson, 1972

Material examined. ♂, Lower Nahal Oren (north-facing slope), 20.05.2000 (collected by Gershenson and Pavlíček) (TAU).

Comments. This species is known from Tajikistan, Uzbekistan, Kyrghyzstan where is trophically associated with willows (*Salix* sp.) (Gershenson, 1972; Sherniya-

zova, 1975). No willows grow in the Lower Nahal Oren (Nevo et al., 1999) but at least five willow species are known from the other parts of Israel (Zohary, 1966).

Yponomeuta cagnagellus (Hübner, 1813)

Material examined. 5 ♂, 3 ♀, Lower Nahal Oren (north-facing slope), 18.05.2000 (Gershenson and Pavlíček) (TAU; SIZK).

Comments. This species is common in Europe and also widespread in Caucasus region (Gershenson, Ulenberg, 1998) where it is trophically connected with the spindle *Euonymus verrucosus*, *E. europaeus* (Friese, 1960; Kurbanova, 1963; Gershenson, 1974). No autochthonous *Euonymus* sp. is known from Israel.

Yponomeuta meridionalis Gershenson, 1972

Material examined. ♂, ♀, Mount Carmel, forest park near of the Haifa University, 16.05.2000 (collected by Gershenson) (TAU).

Comments. Till now, this species was known only from Tajikistan (Gershenson, 1972; Shernijazova, 1975) where it feeds on hawthorns *Crataegus korolkowii*, *C. songarica*, *C. turkestanica* (Rosaceae) (Sherniyazova, 1975).

Kessleria saxifragae (Stainton, 1868)

Material examined. 2 ♀, Lower Nahal Oren (north-facing slope), 21.05.2000 (Gershenson and Pavlíček) (TAU; SIZK).

Comments. The species was known from Ireland, Scotland, Germany, Austria, Switzerland, Yugoslavia, Poland, Romania, and the former Czechoslovakia (Gershenson, Ulenberg, 1998). Larvae feed on *Saxifraga oppositifolia*, *S. spathularis*, *S. paniculata*, *S. aizoides*, *S. grisebachii* (Huemer, Tarmann, 1991; Agassiz, 1996). *S. hederacea* is the only native species of the genus *Saxifraga* in Israel, growing also in the Lower Nahal Oren (Pavlíček, pers. obs.).

FAMILY PLUTELLIDAE

Ypsolopha asperella (Linnaeus, 1761)

Material examined. ♂, ♀, Revivim, 10.06.1952 (Bytinski-Salz) (TAU).

Comments. Known from Europe, Asia Minor, East Mediterranean, and South Siberia where it develops on a host plant of the family Rosaceae (Zagulajev, 1981).

Ypsolopha dentella (Fabricius, 1775)

Material examined. ♀, Ein Gedi, 25.04.1961 (TAU).

Comments. Palearctic species recorded from Europe, Caucasus, Siberia, Russian Far East and Japan where it develops on honeysuckle (*Lonicera* sp.) (Zagulajev, 1981; Gershenson, Ulenberg, 1998). *L. etrusca* is a native Israel species, but some other species of the genus have been already introduced.

Ypsolopha instabilella Mann, 1866

Material examined. 2 ♂, Lower Nahal Oren (north-facing slope), 17.05.2000 (Gershenson and Pavlíček) (TAU; SIZK).

Comments. This species occurs in Uzbekistan, Tajikistan, Kyrghyzstan, Asia Minor, and in the southern part of Eastern Europe, where develops on *Ephedra* sp. (Zagulajev, 1981). *E. foemina* grows in the Lower Nahal Oren (Nevo et al., 1999).

Ypsolopha mucronella (Scopoli, 1763)

Material examined. ♂, Lower Nahal Oren (north-facing slope), 16.05.2000 (Gershenson and Pavlíček) (TAU).

Comments. East European species, also known from Asia Minor where feeds on spindle (*Euonymus* sp.) (Zagulajev, 1981).

Ypsolopha persicella (Fabricius, 1787)

Material examined. 2 ♀, Lower Nahal Oren (valley bottom), 21.05.2000 (Gershenson and Pavlíček) (TAU and SIZK).

Comments. This species is known from Central and south-eastern Europe, Crimea, Caucasus, and Asia Minor, where feeds on host plants of the family Rosaceae (Zagulajev, 1981).

Plutella porrectella (Linnaeus, 1758)

Material examined. 2 ♂, Lower Nahal Oren (south-facing slope), 26.05.2000 (Gershenson and Pavlíček) (TAU; SIZK).

Comments. European species also recorded from Caucasus, southern Siberia and Asia Minor where larvae feed on host plants of the family Brassicaceae (Zagulajev, 1981).

Discussion

A preliminary study of the yponomeutoid moths in Israel shows that this group is richer in the Middle East than previously reported. At the "Evolution Canyon" microsite alone (Nevo, 1995, 1997, 2001), Lower Nahal Oren, Mt. Carmel, Israel, we recorded seven new species for Israel. In addition, one new species for Israel was collected in the forest near the University of Haifa (ca. 14 km north-east of "Evolution Canyon") and two newly recorded species for Israel were found unidentified in the insect collection deposited at the Department of Zoology, Tel Aviv University.

All the newly recorded species for Israel are widespread distributed in the world. Two of the species (*P. porrectella*, *Y. dentella*) collected at "Evolution Canyon" are mostly distributed in the Oriental Region, whereas the rest of species mentioned in the paper are distributed in the Palearctic region. At the "Evolution Canyon" microsite, five species were collected from the cooler, microclimatically less variable and dense north-facing slope, whereas only one species was collected from the warmer, microclimatically more fluctuating and African-savanna-like south-facing slope.

This study was supported by the Israel Discount Bank Chair of Evolutionary Biology, and by the Ancell-Teicher Research Foundation for Genetics and Molecular Evolution.

Agassis D. J. L. Yponomeutidae (including Roelerstammiidae) // Emmet A. M. The Moths and Butterflies of Great Britain and Ireland. — 1966. — P. 39–114.

Amsel H. G. Die Lepidopteren Palдstinas // Zoogeographica. — 1933. — **2**. — P. 1–146.

Avidov Z., Harpaz I. Plant Pest of Israel. — Jerusalem : Israel Univ. Press, 1969. — 549 p.

Bodenheimer F. S. Prodromus Faunae Palaestinae // Mém. Institut. Egypte. — 1937. — **33**. — P. 1–286.

Bytinski-Salz H. An annotated list of insects and mites introduced into Israel // Isr. J. Zool. — 1966. — **1**. — P. 15–48.

Friese G. Revision der paläarktischen Yponomeutidae unter besonderer Berücksichtigung der Genitalien // Beitr. Ent. — 1960. — **10**. — P. 1–131.

Gershenson Z. S. New species of Ermine Moths of the genus Yponomeuta Latr. (Lepidoptera, Yponomeutidae) from Middle Asia // Revue d'Entomologie de l'URSS — 1972. — **51**, N 3. — P. 633–636 (In Russian).

Gershenson Z. S. Small Ermine Moths. Yponomeutidae, Argyresthiidae. — Kyiv : Nauk. Dumka, 1974. — 130 p. — (Fauna of Ukraine; **15**, 6) (In Ukrainian).

Gershenson Z. S., Ulenberg S. A. The Yponomeutinae (Lepidoptera) of the World exclusive of the Americas. — Kon. Ned. Akad. Weten. Verh. Afd. Naturkunde, 1998. — 202 p.

Halperin J., Sauter W. An annotated list with new records of Lepidoptera associated with forest and ornamental trees and shrubs in Israel // Isr. J. Entomol. — 1992. — 25–26. — P. 105–147.

Huemer P., Tarmann G. Westpaldarktische Gespinstmotten der Gattung Kessleria Nowicki: Taxonomie, Ökologie, Verbreitung (Lepidoptera, Yponomeutidae) // Mitt. Münch. Ent. Ges. — 1991. — **81**. — P. 5–110.

Kurbanova D. D. Hyponomeuta cognatellus Hb. (Lepidoptera, Yponomeutidae) in Azerbaijan // Ent. Obozr. — 1963. — **42**, N 1. — P. 5–110.

Nevo E. Asian, African, and European biota meet at „Evolution Canyon“ Israel: Local tests of global biodiversity and genetic diversity patterns // Proc. R. Soc. Lond. B. — 1995. — **262**. — P. 149–155.

Nevo E. Evolution in action across phylogeny caused by microclimatic stresses at "Evolution Canyon" // Theor. Pop. Biology. — 1997. — **52**. — P. 231–243.

Nevo E. Evolution of genome-phenome diversity under environmental stress // PNAS. — 2001. — **98**. — P. 6233–6240.

Nevo E., Fragman O., Dafni A., Beiles A. Biodiversity and interslope divergence of vascular plants caused by microclimatic differences at "Evolution Canyon", Lower Nahal Oren, Mount Carmel, Israel // Isr. J. Plant Sci. — 1999. — **47**. — P. 49–59.

Sherniyazova R. M. On the fauna and ecology of the Microlepidoptera of Gissar mountain-ridges // Entomology of Tadzhikistan, 1975. — P. 187–190 (In Russian).

Zagulajev A. K. Family Plutellidae // Keys to the Insects of European part of the USSR. Vol. IV. Lepidoptera. 2 nd part. — Leningrad : Nauka, 1981. — P. 359–397 (In Russian).

Zohary D. Flora Palaestina, part 1. — Jerusalem : Israel Academy of Sciences and Humanities, 1966. — 364 p.