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The Eublemminae of Israel (Lepidoptera: Erebiidae)

V. D. Kravchenko, M. Fibiger, J. Mooser, A. Junnila & G. C. Müller

Abstract

To date, 26 Eublemminae species from 5 genera are known in Israel. Five (*Eublemma cynerea*, *Eublemma cornutus*, *Eublemma pallidula*, *Eublemma hansa* and *Honeyana ragusana*) were recorded for the first time within the Israeli-German Lepidoptera project. Half of the known species (13) are rare and localized; two species are uncommon and eight are at least locally common. *Eublemma subvenata* was not seen since the 1930's and *Eublemma suppura* was not seen since the 1890's. Only five species (*Eublemma gratissima*, *Eublemma ostrina*, *Eublemma parva*, *Metachrostis velox*, *Eublemma scitula*), which are typical grassland and steppe species, were found throughout the country. Twelve species are restricted to the arid region, five species occur predominantly in the semi-arid region and four species are characteristic of the Temperate region. The distribution, phenology, habitat preferences and known host plants are summarized.

KEY WORDS: Lepidoptera, Erebiidae, Eublemminae, Israel.

Los Eublemminae de Israel (Lepidoptera: Erebiidae)

Resumen

Hasta la fecha, son conocidas en Israel 26 especies de Eublemminae de 5 géneros. Cinco (*Eublemma cynerea*, *Eublemma cornutus*, *Eublemma pallidula*, *Eublemma hansa* and *Honeyana ragusana*) fueron registradas por primera vez dentro del Proyecto Germano-israelí de Lepidoptera. La mitad de las especies conocidas (13) son raras y localizadas; dos especies son desconocidas y ocho son comunes localmente. *Eublemma subvenata* no fue vista desde 1930 y *Eublemma suppura* no fue vista desde 1890. Sólo cinco especies (*Eublemma gratissima*, *Eublemma ostrina*, *Eublemma parva*, *Metachrostis velox*, *Eublemma scitula*), son especies típicas de praderas y de estepas, fueron encontradas por todo el país. Doce especies están restringidas de la región áridas, cinco especies ocurren, predominantemente, en la región semi-árida y cuatro especies son características de la región templada. Se resumen la distribución, la fenología, el hábitat y las plantas nutricias preferidas.

PALABRAS CLAVE: Lepidoptera, Erebiidae, Eublemminae, Israel.

Introduction

The faunistic data presented here were compiled under the auspices of the Israeli-German project for the study of Israeli Lepidopteran fauna. Intensive collecting was conducted from 1986-2004 in all major phyto-geographic zones. This project was a joint effort of the Tel Aviv University, The Hebrew University, the Nature Reserves and Park Authority of Israel, the Zoologische Staatssammlung Munich in Germany and the Museum Witt, Munich, Germany.

Israel is located in the eastern part of the Mediterranean Basin in the northern part of the Syrian East African Rift Valley. In contrast to the more uniform and monotonous landscapes of the Levant, Israel is morphologically distinctive with a large variety of different habitats (KOSSWIG, 1955). The northern part of Israel includes Mt Hermon (2200m above sea-level) which receives annual snow and contains typical *Tragacanth* vegetation, while the Dead Sea area is about 400 m below sea-level with Ethiopian pockets rich in afro-tropical fauna and flora (BYTINSKI-SALZ, 1961; ZOHARY & ORSHANSKY, 1949). The centre

of the country is Mediterranean while in the south and east Irano-Turanian grassland and deserts are found (MULLER *et al.*, 2005). The Arava Valley and the Negev are known for numerous natural and artificial oases (ORNI & EFRAT, 1980). These alternating geographical and climatic zones are conducive to the development of a rich faunal and floral assemblage of different origins (EIG, 1926; LATTIN, 1967; ZOHARY, 1962, 1966). Many species in Israel are found at their furthest point of geographical distribution (BODENHEIMER, 1930; 1935; FURTH, 1975; JAFFE, 1988).

In Israel, the Subfamily Eublemminae Forbes, 1954 is represented in by 5 genera with 26 species, most of them inhabiting semi-arid and arid regions. As far as is known, the larvae feed oligophagously on various Asteraceae (Compositae). The larvae of some species are predating on Coccidae (Coccoidea), pests of various shrubs and trees. Most of the Eublemminae are multivoltine, flying from April to June and again from August to November. Some desert species, however, are apparently univoltine, with restricted flight periods in spring.

Faunistic survey of the Eublemminae

Calymma communimacula ([Denis & Schiffermüller], 1775)

Distribution: Mediterranean-Iranian. Southern France, South Italy, South Eastern Europe, Turkey, Armenia, Israel, Lebanon and Syria and Iran. In Israel in the Temperate region, so far only known from the Upper Golan Heights, in the area of Majdal Shams. Rare and very localized.

Bionomics: in Israel a montane steppe species, bivoltine, flying from May to June and from August to September. Host Plants: in Europe the larvae are predating in all stages on Coccid pests living on various fruit tree species including Peach, Plum etc.

Eublemma ostrina (Hübner, 1808)

Distribution: Mediterranean-Turanian. Northern Africa, Southern Europe, the Near and Middle East and Central Asia. In Israel, all over the country in all climatological regions. Widespread but only locally common.

Bionomics: in Israel multivoltine, steppe species flying from March to November with the highest rate of occurrence in April and in November. Host Plants: in Europe oligophagous on Compositae especially *Helichrysum*, *Carduus* and *Carlina*.

Eublemma parva (Hübner, 1808)

Distribution: Mediterranean-Turanian. Southern Europe, Northern Africa, the Near and Middle East, Sudan, Central Asia and Northern India. In Israel all over the country. Widespread but uncommon.

Bionomics: in Israel multivoltine, steppe species flying from March to November with the highest rate of occurrence in April and in October. Host Plants: in Europe oligophagous on Compositae including *Carduus*, *Carthamus*, *Centaurea*, *Helichrysum* and *Gnaphalium*.

Eublemma cynerea (Turati, 1924)

New record for the fauna of Israel.

Distribution: (West-)Eremic. Lybia, Egypt (Sinai), Israel and Jordan. In Israel in the Arid region, in the Arava Valley, the Central and Southern Negev. Rare and localized.

Bionomics: in Israel deserticolous, univoltine species flying from March to April. Host Plants: unknown.

Eublemma cochylioides (Guenée, 1852)

Distribution: Palearctic. Northern Africa, Southern Europe, Israel, Lebanon, Jordan, the Arabian Peninsula, the African and Indo-Australian Tropics and Australia. In Israel: in the Arid and Semi-arid regions and along the Coastal Plain. Fairly common.

Bionomics: in Israel multivoltine, steppe species flying from February to November with the highest rate of occurrence from March to April, in July and from October to November. Host Plants: in Europe oligophagous on Asteraceae (Compositae) especially *Prenanthes*, *Lactuca* and *Vigna*.

Eublemma polygramma (Duponchel, 1836)

Distribution: Mediterranean-Turanian. In Northern Africa in Morocco and Algeria in Europe from Southern France to south Romania, the European part of Southern Russia, Turkey, Israel, Lebanon, Jordan, Iraq, South Iran to Central Asia. In Israel: along the Rift Valley, through all the climatological regions, from Eilat to Mt. Hermon (up to 1600 m a.s.l.) and along the Coastal Plain. Rare but widespread.

Bionomics: in Israel bivoltine, steppe species flying from March to June and from September to October. Host Plants: unknown.

Eublemma apicipunctalis (Brandt, 1939)

Distribution: (East-)Eremic. Saudi Arabia, Oman, Pakistan, Iran and the Israel. In Israel: in the Arid region, in the northern part of the Arava Valley and in the Dead Sea area. Rare and localized.

Bionomics: in Israel bivoltine, deserticolous species flying from April to June and in October. Host Plants: unknown.

Eublemma cornutus Fibiger & Hacker, 2004

New record for the fauna of Israel.

Distribution: (Central-)Eremic. Only known from Yemen and Israel. In Israel: in the Arid region, so far only collected in the northern part of the Arava Valley near Hazeva and the Western Negev near Niz-zana. Rare and very localized.

Bionomics: in Israel probably univoltine, spring deserticolous species, so far only collected in April; also in Yemen only observed in April. Host Plants: unknown.

Eublemma tomentalis Rebel, 1947

Distribution: (Central-)Eremic. Egypt, Israel and all over Arabian Peninsula. In Israel: in the Arid region, so far only collected in the northern part of the Arava Valley near Hazeva. Rare and very localized.

Bionomics: in Israel univoltine, spring deserticolous species flying from February to April. Host Plants: unknown.

Eublemma gratissima (Staudinger, 1892)

Distribution: Iranian. Turkey, Iraq, Turkmenistan, Iran, Afganistan, Israel, Lebanon and Jordan. In Israel: in all climatological regions all over the country. Rare and localized in the arid part of the Rift Valley, fairly common in the semi-arid areas, localized and rare on the western foot hills of the Judean Mts.

Bionomics: in Israel univoltine spring grassland species, flying from March to May, in the mountains till June. Host Plants: in Europe endophagous in *Echinops* ssp.

Eublemma siticulosa (Lederer, 1858)

Distribution: (Central-)Eremic. Bahrain, Saudi Arabia, Oman, United Arabian Emirates, Israel, Syria, Jordan and Sinai (Egypt). In Israel: all over the Arid region. Locally common in the southern part of the Arava Valley, especially in the Yotvata area, rare elsewhere.

Bionomics: in Israel univoltine spring deserticolous species, flying from March to May. Host Plants: unknown.

Eublemma albina (Staudinger, 1898)

Distribution: (Central-)Eremic. Recorded from Israel and Jordan. In Israel: all over the Arid and Semi-arid regions. Fairly common in the Rift Valley, rare elsewhere.

Bionomics: in Israel univoltine summer oasis species, flying from April to July. Host Plants: unknown.

Eublemma deserti Rothschild, 1909

Distribution: (West-)Eremic. Algeria, Libya, Israel, Syria, Sinai (Egypt) and the Arabian Peninsula. In Israel: all over the Arid region. Fairly common in the Negev and southern part of the Dead Sea region, elsewhere rare and localized.

Bionomics: in Israel probably bivoltine, oasis species flying from March to April and from June to July. Host Plants: unknown.

Eublemma subvenata (Staudinger, 1892)

Distribution: (West-)Eremic. Known only from Algeria and Israel. In Israel: probably in arid areas of the Jordan Valley and the Dead Sea Region. Not seen since 1930th.

Bionomics: in Israel probably a deserticolous species collected in May, in Algeria probably multivoltine, collected from February to May, from July to September and from November to December. Host Plants: unknown.

Eublemma albivestalis Hampson, 1910

Distribution: (West-)Eremic. From Algeria and Tunisia to Israel, Lebanon and Jordan. In Israel: in the Arid region, in the Dead Sea area and the northern Arava Valley. Rare and localized.

Bionomics: in Israel probably multivoltine, deserticolous species flying from March to May and in November. Host Plants: unknown.

Eublemma pallidula (Herrich-Schäffer, 1856)

New record for the fauna of Israel.

Distribution: (East-)Eremic. Turkey, Transkaspia, Turkmenistan, Southern Russia, Israel, Jordan Lebanon, Syria, Iraq, Iran and the Arabian Peninsula. In Israel: widespread in the Arid region especially in large oases like 'En Avedat, Sede Boqer and 'En Gedi. Rare and localized.

Bionomics: in Israel probably univoltine, spring oasis species, so far collected only in April. Host Plants: in Israel and elsewhere unknown.

Eublemma suppura (Staudinger, 1892)

Distribution: (East-)Mediterranean. South-east Turkey, Israel, Lebanon and Jordan. In Israel: only known from the vicinity of Jerusalem. Not seen since the 1890th.

Bionomics: in Israel unknown, probably steppe species. The specimens in the vicinity of Jerusalem were collected in May; in Turkey bivoltine, flying from May to June and in early autumn. Host Plants: unknown.

Eublemma hansa (Herrich-Schäffer, 1851)

New record for the fauna of Israel.

Distribution: (East-)Mediterranean-Iranian. Greece, Turkey, Cyprus, Caucasian-Armenian region, Northern Iran, Israel, Lebanon and Jordan. In Israel: in the Temperate region, on Mt. Hermon at medium elevation from about 1200-1600 m a.s.l. Rare and very localized.

Bionomics: in Israel a montane steppe species, so far only collected in May; in Turkey bivoltine, flying from May to June and from September to November. Host Plants: in Turkey *Echinops* spp.

Eublemma gayneri (Rothschild, 1901)

Distribution: (Central-)Eremic. Widespread in the Arabian Peninsula, Yemen, Israel, Jordan, Sinai (Egypt) and Sudan. In Israel: in the Arid region, in the Dead Sea area especially in 'En Gedi and 'En Fashkha, to a much smaller extent in the Central Negev near Mitzpe Ramon. Uncommon and localized.

Bionomics: in Israel probably bivoltine, oasis species flying from March to April and from November to December. Host Plants: in the Near East on flowers of numerous trees, including *Acacia* sp., *Eriobotega japonica* and *Zizyphus* spp.; in Egypt this species was observed preying on coccids (Coccoidea) which live on *Tamarix* and on *Hibiscus*.

Eublemma kruegeri (Wiltshire, 1970)

Distribution: (West-)Eremic. Israel, Jordan, Sudan and Libya. In Israel: in the Arid region, in the Dead Sea Area and in the northern part of the Arava Valley near Hazeva and 'Iddan. Rare and localized.

Bionomics: in Israel probably bivoltine, deserticolous species flying from April to June and in October; in Sudan flying in May and July; in Libya from September to October. Host Plants: unknown.

Eublemma scitula (Rambur, 1833)

Distribution: Paleotropical. Widespread in the tropics and subtropics of the Old World, India, eastward to Australia, through all Africa, the Arabian Peninsula, and the Mediterranean. In Israel: in all climatological zones, along all the Rift Valley and the Coastal Plain. Locally common.

Bionomics: in the Rift Valley multivoltine, oases species flying from March to November, with the highest rate of occurrence from March to May, along the Coastal Plain probably bivoltine flying from April to May and in October, in the tropics multivoltine. Host Plants: in Israel, in Northern Israel the larvae were observed to predate in all stages on Coccidae pests on various shrubs and trees including *Oleander* and *Yucca*.

Honeyana ragusana (Freyer, 1844)

New record for the fauna of Israel.

Distribution: Paleotropical. Widespread in the Oriental Tropics (Taiwan, New Caledonia, Australia), in the African Tropics (Sudan, Northern Nigeria), in Southern Europe (Southern Italy, Dalmatia, Albania, Greece) and Israel and Lebanon. In Israel: in the Temperate zone, in the Hula Valley. Rare and very localized.

Bionomics: in Israel a wetland species so far only collected in May; in Turkey probably bivoltine, flying from May to June and again in autumn. Host Plants: unknown.

Rhypagla lacernaria (Hübner, 1813)

Distribution: Mediterranean-Iranian. Southern Europe, Turkey, Iran, Israel, Lebanon and Jordan. In Northern Africa only in Algeria. In Israel: in the Temperate zone along the eastern part of the Central Mountain Ridge, around the Sea of Galilee to Mt. Hermon up to 1600 m a.s.l. and the Golan Heights (Majdal Shams), in the Semi-arid zone on the higher mountains of the Judean Desert and Samaria. Rare and localized.

Bionomics: in Israel univoltine spring steppe species, flying from March to May; in Southern Europe bivoltine, flying in spring and late summer. Host Plants: in Europe *Phlomis* spp.

Metachrostis velox (Hübner, 1813)

Distribution: Mediterranean-Iranian. Southern Europe, Turkey, Iran, Israel, Lebanon, Jordan and Northern Africa. In Israel: widespread all over the country. Fairly common in the Semi-arid region, rare elsewhere.

Bionomics: in Israel multivoltine, steppe species flying from spring to autumn with the highest rate of occurrence from June to August and in October. Host Plants: unknown.

Metachrostis velocior Staudinger, 1892

Distribution: (East-)Mediterranean. Southern Italy, Greece, Turkey, Israel, Lebanon, Jordan and Syria. In Israel: along the Rift Valley, through all the climatological regions, from the Dead Sea area to Mt. Hermon up to 1600 m a.s.l., in Judea and Samaria above 400 m a.s.l. and along the Northern and Central Coastal Plain. Rare and rather localized.

Bionomics: in Israel bivoltine, steppe species flying from April to November with the highest rate of occurrence in May and from August to September. Host Plants: unknown.

Metachrostis dardouini (Boisduval, 1840)

Distribution: Mediterranean-Iranian. Southern half of Europe, Turkey, Iran, Israel, Lebanon, Jordan and Turkmenistan. In Israel: in the Semi-arid region, so far only observed in the Judean Desert in 'En Perat, Nabi Musa and Jericho. Rare and localized.

Bionomics: in Israel steppe species so far only collected from February to March, in Europe bivoltine, flying in spring and from late summer to autumn. Host Plants: in Europe endophagous in fruits of *Anthericum ramosum*.

Results and discussion

To date, 26 Eublemminae species of five genera are known from Israel. Most of the species (20) belong to the genus *Eublemma*, three belong to the genus *Metachrostis* and one species each belong to the genera *Calymma*, *Rhypagla* and *Honeyana*.

Five Eublemminae are recorded in Israel for the first time: *Eublemma cynerea*, *Eublemma cornutus*, *Eublemma pallidula*, *Eublemma hansa* and *Honeyana ragusana*. Half of the Israeli Eublemminae (13) are rare and localized, two species are uncommon and eight are only locally common. Two species are only known from old collections in Tel Aviv University: *Eublemma subvenata* was not seen since 1930^s and *Eublemma suppura* not since the 1890^s. Most of the species (12) are Eremic elements, followed by Mediterranean elements (10). Three species (*E. cochylionides*, *E. scitula*, *H. ragusana*) are Paleotropical and one (*E. gratissima*) is of Iranian origin.

Only five species (*Eublemma gratissima*, *Eublemma ostrina*, *Eublemma parva*, *Metachrostis velox* and *Eublemma scitula*) were found throughout the country. All of them inhabit different types of open steppe and grassland areas. In the arid region they concentrate in oases while in the temperate region they are common on south facing slopes. Twelve species are restricted to the Arid region, four of them (*Eublemma albina*, *Eublemma deserti*, *Eublemma pallidula* and *Eublemma gayneri*) occur in the periphery of oases. They avoid both the central part of the oases which are usually overgrown by reeds (*Phragmites*) and the nearby open desert. Eublemminae occur in the desert mainly along seasonal water ways, shallow wadis and water-catchments associated with thickets of different shrubs and semi-shrubs on different types of soft sediment soils. Five species occur predominantly in the semi-arid region and penetrate locally in to the Arid region where they inhabit different types of steppes, especially in areas with less than 250mm of annual rainfall, often in semi-shrub communities on hard and fissured limestone and dolomite slopes. Only four species are characteristic for the temperate region. Three of these (*Eublemma hansa*, *Calymma communimacula*, *Rhypagla lacernaria*) prefer steppes on medium elevations, while *Honeyana aena ragusana* is restricted to the wetlands of the Hula valley.

Nine species, mostly of Eremic origin, are univoltine, flying from March to June. Ten species are bivoltine, flying from March to June and again from August to November. Seven species are multivoltine and also fly in the hot summer months of July and August.

The host plants for most of the species (17) are unknown. Several species are known to feed polyphagously on Compositae. The larvae of *Eublemma gayneri*, *Calymma communimacula* and *Eublemma scitula* prey, in all stages, on Coccidae (Coccoidea) which were found in Israel on various shrubs and trees including *Tamarix aphylla*, *Acacia raddiana*, *A. tortilis*, *Oleander* and *Yucca*.

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