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SHILAP Revista de Lepidopterología, vol. 34, núm. 136, 2006, pp. 345-352
Sociedad Hispano-Luso-Americana de Lepidopterología
Madrid, España

Available in: http://www.redalyc.org/articulo.oa?id=45513604
A new Euchalcia Hübner, [1821] species from Israel (Lepidoptera: Noctuidae)

V. D. Kravchenko, G. C. Muller, M. Fibiger, J. Mooser & L. Ronkay

Abstract

New species of Plusiinae - Euchalcia olga Kravchenko, Muller, Fibiger, Mooser & Ronkay, sp. n. describe from southern part of Israel (Northern Negev) and Jordan (Wadi Rum, about 900 m.a.s.l.). The new species resembles two Western Asian species Euchalcia hedeia Dufay, 1978 and E. aureolineata Gyulai & Ronkay, 1997. The Euchalcia olga differs from the E. aureolineata by its somewhat broader and more acutely pointed forewings and the slightly more prominently darker filling of the three stigmata. Both species differ from E. hedeia by their golden-greenish irrorated forewings with narrower, less shining golden antemedial and postmedial lines and dark filled stigmata. The E. olga was so far only collected in the Israel and Jordan where it seems to be very rare and local. It is probably deserticolous species of sandy-loess soils.

KEY WORDS: Lepidoptera, Noctuidae, Euchalcia, new species, Israel.

Introduction

The Euchalcia is one of the largest Plusiinae genera with some forty described species and usually clearly recognisable by their “Euchalcia-like” external appearance. Most of species are with Palearctic range of distribution, but only two species of them are Trans-Palearctic, others are rather stenochorous. Different Euchalcia species inhabit wide range of biotopes, from humid conifer woodlands to extremely dry, hot deserts, and from lowlands to the snow-line. Some specimens collected even above 4500 - 5000 m altitude in the Himalayan-Tibetan region. The Euchalcia contains both univoltine and bivoltine species, the early stages and the food plants are known in only a small minority of species. They feed either on species of Boraginaceae or Ranunculaceae (Helleboraceae) (GOATER, RONKAY & FIBIGER, 2003). In Near East most of species occurs in steppe - desert biotopes and fly once a year in March, April.

Material and Methods

Within the Israeli-German project for the study of the Israeli Lepidoptera fauna, intensive collect-
ing was conducted from 1986-2004. This project was a joint effort of the Tel Aviv University, The Hebrew University, the Nature Reserves and Park Authority of Israel and Museum Witt and the Zoologische Staatssammlung in Munich Germany. Lepidoptera were collected during a period of 18 years totalling about 3000 nights of mobile light traps powered by generator (250 Watt bulbs HQL & ML) and about 1500 nights of mobile light trap systems powered by batteries (12 Volt 8 Watt & 20 Watt, 6 Volt 4 Watt Black light UVB tubes) moved on a daily basis. Additionally an intensive network of permanent light traps (220 V 20 W Black light UVB & UVC tubes) was maintained. Traps were relocated on an annual basis. From year to year 10-34 traps were operated.

Abbreviations:
TAU: Tel Aviv University, Israel.
JMF: Collection of J. Mooser, Freising, Germany.

Systematic part:

*Euchalcia olga* Kravchenko, Muller, Fibiger, Mooser & Ronkay, sp. n.

Holotype: 1♂, Israel, Northern Negev, Mamshit Nature Reserve, about 400 m.a.s.l., 15-IV-2004; slide No. 8587 Ronkay, leg. V. D. Kravchenko & G. Müller, (coll. TAU) (figs. 1a & 1b).
Paratypes: 3♂ 3♀, same data like holotype; (coll. TAU) (figs. 2a & 2b). 3♂, from Jordan, Wadi Rum, about 900 m.a.s.l., 2-V-2002, leg. V. D. Kravchenko, O. Orlova & G. Müller (coll. JMF).

Diagnosis: The new species externally resembles two Western Asian species having golden antemedial and postmedial cross lines (but lacking the silvery-whitish stigma), *Euchalcia hedeia* Dufay, 1978 (figs. 5-6) and *E. aureolineata* Gyulai & Ronkay, 1997 (fig. 3). *Euchalcia olga* differs from the similar *E. aureolineata* by its somewhat broader and more acutely pointed forewings and the slightly more prominently darker filling of the three stigmata, otherwise the two species are confusingly similar. Both species differ from *E. hedeia* by their golden-greenish irrorated forewings with narrower, less shining golden antemedial and postmedial lines and dark filled stigmata.

*E. hedeia* can be characterized by the uniform deep red-brownish forewing ground colour without strong golden iroration in the median area, the much broader antemedial and postmedial lines forming broad golden fasciae and the finely whitish encircled stigmata filled with ground colour.

The male genitalia of these three species differ surprisingly strongly from each other, revealing that the closest relative of *E. olga* is, in fact, *E. maria* (Staudinger, 1891) (fig. 4), that of *E. aureolineata* is *E. emichi* (Rogenhofer & Mann, 1873) while *E. hedeia* represents a rather remote lineage within the genus. *Euchalcia olga* and *E. maria* have short, drawing pin-like terminal cornutus sitting on the narrow tubular distal part of the vesica(plural) with a small group of medial teeth at the dorsal surface of the vesica. The male genitalia of *E. aureolineata* (figs. 13-14) are most similar to those of *E. emichi* (see GYULAI & RONKAY, 1997; figs 29-32); they differ from those of *E. olga* (figs. 15-16) and *E. maria* (figs. 20-21) by their much (more than three times) longer terminal cornutus, considerably longer clavi and more angular valvae. *Euchalcia hedeia* differs from all known *Euchalcia* species by the presence of one (or two) spiniform, not bulbed subbasal cornutus (cornuti) and a rather short, bulbed medial cornutus of the vesica while the terminal cornutus is lacking.

*Euchalcia olga* differs from *E. maria* by its significantly longer, more pointed harpe and the much stronger armature of the vesica. The medial group of cornuti is much larger and stronger in sclerotisation, the tooth-like cornuti are also at least twice as long as in *E. maria*; the terminal cornutus is also about twice as large and remarkably more robust than that of the sister species.

Description: Wingspan 27-28 mm, length of forewing 12-12.5 mm. Head and thorax dark ochreous brown, tip of collar and edges of tegulae with whitish-ochreous hairs; metathoracic tuft large. Abdomen ochreous, dorsal tuft of 2nd segment large, dark brown. Forewings relatively short, high triangular with apex acute, outer margin slightly concave below apex. Ground colour dark ochreous brown
with rather intense greenish-ochreous iroration and fine golden brilliance, especially in median area; marginal field scarcely irorated with silvery white and golden scales. Basal area narrow, creamy whitish-ochreous with fine golden sheen. Ante- and postmedial lines relatively narrow, more or less straight, double, rather diffuse, golden-ochreous, running strictly parallel with each other. Median area narrow, brownish ground colour strongly shadowed by greenish-ochreous iroration. Orbicular, reniform and subcellular stigmata present, finely encircled with silvery white and filled with dark brown, being the darkest part of the wing. Orbicular stigma small, rounded, reniform stigma narrow, strongly constricted at middle, forming an oblique 8-mark; subcellular stigma more or less rounded, larger than orbicular stigma. Subterminal line fine, partly interrupted, silvery whitish; terminal line also fine, continuous, dark brown followed by thin whitish shadow-line. Cilia as ground colour, with fine ochreous medial line. Hindwing ochreous with intense dark fusous suffusion, marginal area slightly darker; cilia brown with fine, pale basal line. Underside of wings olive-ochreous, forewing strongly, hindwing weakly suffused with grayish brown, cross lines obsolete or missing.

Male genitalia. Uncus strong, rather slender, curved, apex finely hooked. Tegumen low, narrow. Juxta with rounded deltoidal basal (ventral) plate and long, narrow apical (dorsal) process; vinculum rather long, V-shaped. Valva relatively short, broad, with more or less parallel costal and ventral margined and broadly rounded apex. Sacculus very short, clavus tiny, broadly triangular, with a few apical sensory setae. Harpe situated rather basally, long and slightly arched, surpassing costal margin, its apex acute. Aedeagus shortly cylindrical, arcuate, carina with fine dorsal and stronger, broader ventro-lateral bars. Vesica tubular, everted forward, basal half broader, finely scobinate, distal half significantly narrower. Broadest section of basal part with large dorsal field of short but rather strong, tooth-like cornuti, distal tubular part with short but strong, drawing-pin-like terminal cornutus sitting on small diverticulum.

Biomics

*E. olga* was so far only collected in the Levant in Israel and Jordan where it seems to be very rare and local. The probably deserticolous species was observed in Israel (fig. 1) in a rather flat area (around 400 m) with sandy-loess soils dominated by psamophilous vegetation, like *Anabasis articulata*, *Thymelae a hirsuta* and patches of *Artemisia sieberi*. The small seasonal water ways in the area are accompanied by *Calligonum comosum*, *Retama raetam* and *Atriplex halimus*. Small depressions are covered in rainy years with numerous annuals, perennial grasses and sporadic semi-shrubs. The whole area is heavily grazed by sheep, goats and camels.

In southern Jordan it was observed in Wadi Rum (fig. 2), a tract of sandstone and granite mountains intercepted by rather flat valleys dominated by mobile and consolidated sand dunes. The average altitude of the valleys is around 1000 m while some of the mountains reach almost 1800 m. The vegetation is dominated by sparse scattered bushes of *Haloxylon persicum* and *Atriplex halimus* and contracted semi-shrub communities along seasonal water courses. In water catchments dense patches of annual herbs and grasses are found in rainy years. The area is moderately grazed by some camels and sheep.

*E. olga* is probably a univoltine spring species flying in lower altitudes in April and in higher altitude as late as May. All specimens were collected after midnight.

The congeners of this species are typical steppe and grassland species (DUFAY, 1968). *E. olga* is the only species which was so far exclusively observed in typical desert habitats. Average annual precipitation in its small and fragmented distribution area is below 200 mm, nevertheless in shady places and water catchments some relict Irano-Turanian and even Mediterranean fauna and flora survived the regional desertification at both sites (EHRENDORFER, 1958; DANIN & PLITMANN, 1987).

Possibly *E. olga*, like some other local endemic species, is a relic of extending steppes and grasslands of the Irano-Turanian phyto-geographical zone which during the Tertiary period extended much further south.

Etymology: The species is dedicated to Dr. Olga Orlova, the curator of the Micropaleontological Collection of Tel Aviv University, for her scientific achievements in taxonomy and faunistic studies of the ancient and present invertebrate fauna of Israel.
Acknowledgements

We thank all our colleagues and the many generous Israeli citizens who helped with this survey. We are grateful to the Israeli Nature and Parks Authority (NPA), who supplied the collecting permits, especially to Dr. Rueven Ortal, Mr. Amos Sabah, the late Dr. Dafna Lavee and Mr. Dror Hawlena, Dr. Roni King, Dr. Benni Shalmon and the staff of the NPA regional rangers, Nature Reserves and National Parks directors throughout Israel.

We also thank the many Jordanian citizens who helped with this survey especially Mr. A. Awwad from Amman who helped us to establish and maintain a light trap system.

This study would not have been possible without the generous help of Prof. Y. Schlein, Hebrew University, Hadassah En Karem Medical School.

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(Recibido para publicación / Received for publication 3-III-2006)
(Revisado y aceptado / Revised and accepted 16-IV-2006)
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SHILAP Revta. lepid., 34 (136), 2006 351