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Redescription of female of *Paranthrene insolita polonica* SCHNAIDER 1939 (Lepidoptera: Sesiidae)

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ABSTRACT. A redescription of a female of *Paranthrene insolita polonica* SCHNAIDER 1939, based on the holotype of this species, is given. The type is one of the few known female specimens of *Paranthrene insolita* LE CERF. The female genitalia of *P. insolita* are described for the first time. Distribution and biology of the species are presented.

Key words: entomology, taxonomy, redescription, Lepidoptera, Sesiidae, *Paranthrene insolita polonica*, female.

INTRODUCTION

Genus *Paranthrene* HÜBNER, 1819 is represented by 57 species, but the generic position of many Oriental and Afrotropical species is unclear. In the Palearctic region four species of *Paranthrene* are known: *P. tabaniformis* (ROTTEMBURG, 1775), *P. diaphana* DALLA TORRE et STRAND, 1925, *P. insolita* LE CERF 1914 and *P. flammans* HAMPSON, [1893] (PÜHRINGER and KALLIES 2004).

P. tabaniformis has an extensive Holarctic distribution, *P. diaphana* shows East Mediterranean distribution, being known from the Balkans and Anatolia. *P. flammans* was described from Pakistan, but the taxonomic status of this species is unclear.

P. insolita has been reported from scattered localities in central and southern Europe as well as Anatolia and Syria. *P. insolita* similar to *P. tabaniformis* is a clear-wing species with a considerable morphological variation across its geographic range (ŠPATENKA *et al.* 1999).

P. insolita is polytypic taxon with four described subspecies. The nominal subspecies *P. insolita insolita* LE CERF, 1914 is known from southern Turkey and Syria. ŠPATENKA and LAŠTŮVKA (1997) described two new subspecies: *P. insolita hispanica* from Spain and *P. insolita mardina* from southeastern Turkey. Females of both subspecies are unknown. SCHNAIDER (1939) based on a female specimen, reared from oak branche, collected him in 1935 in Brzuchowice near Lvov (Ukraine) described a new species *P. polonica*. TOŠEVSKI (1987) described a new species, *P. novaki*, based on specimens collected in Dalmatia (Yugoslavia). ŠPATENKA *et al.* (1993) reduced *P. polonica* to subspecies of *P. insolita* and treated *P. novaki* TOŠEVSKI 1987 as a junior synonym of *P. insolita polonica*. It has a wide distribution, having been recorded from central and southern Europe (LAŠTŮVKA and LAŠTŮVKA 2001).

Until now the type specimen of *P. insolita polonica* was presumed lost, and thus not included in revisions of Palaearctic Sesiidae. The type and its feeding traces now reside in the collection of the Forest Research Institute in Warsaw. The female reared by SCHNAIDER is one from few known females of *P. insolita*. The males are considerably more frequently encountered, and are sometimes collected in great numbers using sex pheromone traps.

Except for a cursory overview (SCHNAIDER 1939, SCHNAIDER *et al.* 1961), the female genitalic structures of *P. insolita* have never been examined. At the same time, descriptions of those of the male have been presented in a number of papers, the most important being TOŠEVSKI (1987) and ŠPATENKA and LAŠTŮVKA (1997).

TAXONOMY

***Paranthrene insolita polonica* SCHNAIDER, 1939**

(Figs 1-4)

Paranthrene polonica SCHNAIDER, 1939:143. Type locality: Ukraine, Brzuchowice near Lvov. Holotype, female (Forest Research Institute, Warsaw, Poland).

= *Paranthrene novaki* TOŠEVSKI, 1987:178. Figs 1.2. Type locality: Croatia, Muc Donji near Split. Holotype, male (Institute for Plant Protection, Beograd, Serbia).

REDESCRIPTION

Female (holotype) (Figs 1, 2).

Wingspan 32 mm; body length 15.6 mm; forewing 13.9 mm; antenna 7.5 mm.

Head: antenna yellow- orange, irregularly spaced ventrally with black scales towards apex, apex pale brown ventrally; proboscis pale brown, functional, reaching hind coxa; frons: shining black with pale yellow lateral stripes before eyes; labial palpus - first segment of labial palpus black, second yellow ventrally, black dorsally, third segment yellow; vertex black; pericephalic hairs yellow.

Thorax: black with dark blue sheen; patagia black dorsally, laterally with yellow spot; white-yellow spots with large scales near base of forewing; tegula black, inner margins yellow; distal edge of metathorax yellow, metathorax with a long yellow transverse "V" shaped mark.

Legs: fore coxa black blue sheen, externally with pale elongated yellow spot, fore femur black; fore tibia with tufted black scales externally, inner margin of tibia covered with short yellow hairs; tarsus pale yellow to yellow-orange sheen, internally with little black spurs; mid coxa and femur black; mid tibia dorsally pale orange, ventrally black,



1, 2. *Paranthrene insolita polonica* SCHNAIDER, 1939, holotype female (FRI): 1 – dorsal side, 2 – ventral side

spurs yellow; tarsus pale orange, underneath with black scales; hind coxa and femur black; hind tibia: dorsally with yellow to yellow-orange hair-like scales, internally covered with white to pale yellow scales, ventrally with black scales and hairs, spurs long and yellow; hind tarsus yellow-orange, ventrally with individual black little spurs.

Abdomen: dorsally and ventrally black with dark blue sheen; tergite 2 with broad yellow stripe posteriorly, tergite 3 with individual, elongated yellow scales medially; tergite 4 with narrow yellow stripe posteriorly, marked with white scales, broadened laterally; tergite 5 with a narrow yellow posterior margin; tergite 6: broad yellow stripe with many individual white scales. Abdomen ventrally black with dark blue sheen, sternite 2 and 3; entirely black, sternite 4 with a broad yellow stripe posteriorly, not connected with dorsal part of stripe, sternite 5: broad yellow posterior margin ventrally and laterally, sternite 6: with broad yellow to yellow-golden posterior margin; anal tuft: black, richly spotted medially and with yellow scales dorso-laterally, yellow ventrally mixed with many black scales.



3. *Paranthrene insolita polonica* SCHNAIDER, 1939, holotype (FRI), female genitalia with the seventh segment of abdomen, scale bar 10 mm

Forewing: light brown, dusted with brown, orange and ochreous scales, basally posterior margin of forewing covered with black scales, medio-distally part of forewing in most is covered with orange scales. The apical area entirely light brown. Two transparent cells, one short in longitudinal transparent area and elongated cell in external transparent area, between M3-Cu1. Cilia brown.

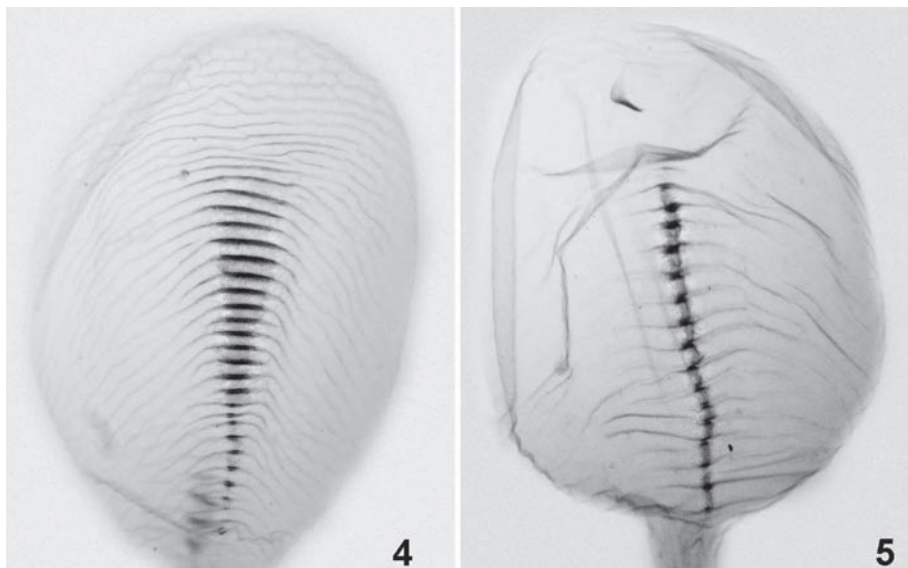
Hindwing: transparent; discal spot broad, pale yellow, somewhat broader frontally. Outer margin of hindwing narrow, about as broad as half of cilia. Outer margin covered by ochreous and yellowish scales with gold sheen. Cilia brown.

Female genitalia (holotype gen. prep. MB-97-46) (Fig. 3, 4).

Papilla analis rather broad, sclerotized basally and medially, with short and long setae; posterior apophysis slightly longer than anterior apophysis; 8th tergite short, rather broad, with conspicuous ventral bands; with long setae; lamellae antevaginalis and postvaginalis membranous; antrum short with sclerotized ring opened dorsally. Ductus bursae about twice as long as copus bursae. Ductus bursae membranous, ventrally at base of ductus seminalis with minute, coarsely granular field. Ductus bursae wider in lower half; corpus bursae pyriform, with ring-shaped membranous lamellae, forming ventrally pointed, broadened basally signum, granular field in the opposite, dorso-apical area of the corpus bursae.

DIFFERENTIAL DIAGNOSIS

The female of *P. diaphana* examined by TOŠEVSKI (1987) had a partially damaged abdomen, and thus certain elements of the female genitalic structures could not be documented (ductus and corpus bursae). Thus, the comparative diagnosis can only refer to the female genitalic structures of *P. tabaniformis*. *P. insolita* differs from this species



4, 5. Female genitalia corpus bursae: 4 – *Paranthrene insolita polonica* SCHNAIDER, 1939, holotype (FRI), 5 – *Paranthrene tabaniformis* (ROTTEMBURG, 1775), Poznań, Poland

in the shape of the corpus bursae and signum. In *P. tabaniformis* the corpus bursae is oval, barrel-shaped, with ring-shaped, not sclerotized lamellae, each of which bears a punctate signum ventrally (Fig. 5), whereas in *P. insolita* it is pyriform, and the signum is triangular, widened at its base (Fig. 4). The latter species has a small, granular field in the opposite, dorso-apical area of the corpus bursae, and a minute, coarsely granular field at the basal, ventral part of the ductus seminalis. These are absent in *P. tabaniformis*. The genitalic structures in these two species differ also in the ratios of posterior to anterior apophyses. In *P. diaphana* the ration is 1.5, whereas in *P. insolita* the posterior apophyses are only slightly longer than the anterior ones.

In *P. insolita*, like in *P. diaphana*, the sclerotized band formed by the 8 th abdominal segment extends from the junction of the apophysis anterior to the level of the proximal and interior edges of the hemisternites of the 8 th segment. In *P. tabaniformis* sclerotized bands of the 8 th segment end on the level of the distal third of the internal margin of the hemisternite.



6. Two old feeding traces of *Paranthrene insolita polonica* SCHNAIDER, 1939, collected from oak tree in Brzuchowice near Lvov, Ukraine. leg. J. Schnaider, (FRI)

TYPE MATERIAL

Holotype, Female, 19.VI 1935, ex. pupa collected in April 1935, Ukraine, Brzuchowice near Lvov. leg. J. Schnaider, genitalia examined by M. Bąkowski, gen. prep. MB-97-46. Holotype, gen. prep. and two old feeding traces deposited in Forest Research Institute (FRI), Warsaw, Poland.

BIOLOGY

The biology of this species is poorly known. The larva is biennial and lives in the branches of oak *Quercus* spp. (Fagaceae). SCHNAIDER (1939) found two swellings with two pupae on a thin oak tree branch of 15 mm in diameter. In the place of larvae's feeding they caused the branch to develop small swellings of 20 mm in diameter (Fig. 16). A female emerged on 19 June 1935, the other pupa was dead. The caterpillars made brown parchment cocoons of loose texture out of rather coarse sawdust. Pupation took place in a short tunnel, 25 mm long and 7 mm wide. The tunnel runs in a slant direction towards the exit hole of 5 mm in diameter. BLÄSIUS (1993) collected a larva of *P. insolita polonica* in the branch of oak *Q. robur* tree at a height of about 14 metres.

DISTRIBUTION

Paranthrene insolita polonica is known from: southern France: north, central and southern Italy; Sicily; northeastern Spain; Switzerland; Luxembourg; Austria; Hungary; Bulgaria; Croatia; Bosnia and Herzegovina; Macedonia; Greece; Slovenia; Germany; Czech Republic; Slovakia; Ukraine; northwestern Anatolia (LAŠTŮVKA and LAŠTŮVKA 2001). In Poland it is known from scattered localities in southeastern, southern and western parts of country (BAKOWSKI 2000).

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