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Paranthrene insolita LE CERF 1914 (Lepidoptera: Sesiidae) - a new clearwing moth to the fauna of Poland

MAREK BĄKOWSKI*, MAREK HOŁOWIŃSKI**, NILS RYRHOLM***

* Department of Systematic Zoology, Institute of Environmental Biology, A. Mickiewicz University, Umultowska 89, Poznań 61-614, Poland, e-mail: bakowski@amu.edu.pl
** Macoszyn Mały 46, 22-235 Hańsk, Poland
*** Department of Natural Sciences, University of Gävle, S-801 76 Gävle, Sweden, e-mail: Nils.Ryrholm@hig.se

ABSTRACT. The clearwing moth *Paranthrene insolita* was recorded for the first time in Poland in 1998 from the vicinity of Włodawa and Pińczów in SE Poland. Data on the biology and the presently known distribution in Poland are given. All moths collected so far in Poland have been attracted by synthetic pheromones.

KEY WORDS: Lepidoptera, Sesiidae, *Paranthrene insolita polonica*, Poland, faunistics, distribution, sexual attractants.

INTRODUCTION

Paranthrene insolita has up to now been recorded from scattered localities in western, central and southern Europe, as well as from Anatolia and Syria. *P. insolita* is a clearwing species with a considerable morphological variation across its geographic range (ŠPATENKA et al. 1999). The nominal subspecies *P. insolita insolita* LE CERF, 1914 is known from southern Turkey and Syria. Two subspecies have been described at the south-western and south-eastern range limits. *P. insolita hispanica* from Spain and *P. insolita mardina* from SE Turkey (ŠPATENKA & LAŠTŮVKA 1997, BĄKOWSKI 2007).

The central European subspecies *P. insolita polonica* described by SCHNAIDER 1939 has a considerably much wider distribution, and it is recorded from most parts of central and southern Europe (LAŠTŮVKA & LAŠTŮVKA 2001).

The type specimen, a female, was reared from a gall on an oak twig collected near Lvov (Ukraine) and it was originally described as a new species: *P. polonica* (SCHNAIDER 1939). Another new *Paranthrene* species, *P. novaki* was described by TOŠEVSKI 1987 based on males collected in Dalmatia (Yugoslavia), however, it is now considered a junior synonym of *P. insolita polonica* (ŠPATENKA et al. 1993). *P. insolita polonica* is slightly less dark and has on average more clear areas on the forewings than the other subspecies. Other typical morphological characters of this subspecies is that the metathorax has a long yellow transverse V - shaped mark and that the tegula has a well-developed yellow lining. Abdominal tergites 2 and 4-7 have narrow yellow margins, and tergite 3 have an indistinct ring (Fig. 1). More detailed descriptions of the male have been made in a number of papers, the most important are TOŠEVSKI (1987), ŠPATENKA & LAŠTŮVKA (1997) and LAŠTŮVKA & LAŠTŮVKA 2001. In central Europe this species can only be confused with the closely related species *P. tabaniformis* (ROTTEMBURG, 1775), which is a more common clearwing species than *P. insolita* and occurs throughout most of Europe.

The female reared by SCHNAIDER is one of few known females of *P. insolita.* The description of the female of *P. insolita polonica* can be found in SCHNAIDER (1939), SCHNAIDER et al. (1961) and BĄKOWSKI (2009). The males have been more frequently found, after the development of synthetic sex attractant for this species. In recent years the species thus have sometimes been attracted in great number into pheromone traps.

The first *P. insolita* recorded in Poland were found in 1998 in the vicinity of Włodawa. However, until now it was given only as general record from Lublin Province, without any detailed information (BĄKOWSKI 2000). All males until now recorded in Poland have been collected by help of synthetic sex pheromones, produced by Plant Research International - Wageningen, The Netherlands (PRI) or by Pheromone Group - Lund University, Sweden (PHG) based on data from Nils Ryrholm.

Also the following abbreviations have been used below: M. B - M. BĄKOWSKI, G. C - G. CHOWANIEC, M. H. - M. HOŁOWIŃSKI, A. K - A. KOKOT, A. L. - A. LARYSZ, A. M - A. MALKIEWICZ, N. R - N. RYRHOLM.

The codes in parentheses after the name of locality refer to the UTM grid codes.

Distribution of *P. insolita polonica*

P. insolita polonica is known from: southern France; north, central and southern Italy; Sicily; northeastern Spain; Switzerland; Luxembourg; Austria; Hungary; Bulgaria; Croatia; Bosnia and Herzogovina; Macedonia; Greece; Slovenia; Germany; Czech Republic; Slovakia; Ukraine; northwestern Anatolia (LAŠTŮVKA & LAŠTŮVKA 2001). In Poland this clearwing moth species is know from southern part of country (Fig. 2). It is very likely that it will be found in more areas, particularly in western part of Poland since it has been recorded from the eastern part of Germany (SOBCZYK 1995).

Fig. 1. Male of *Paranthrene insolita polonica*.

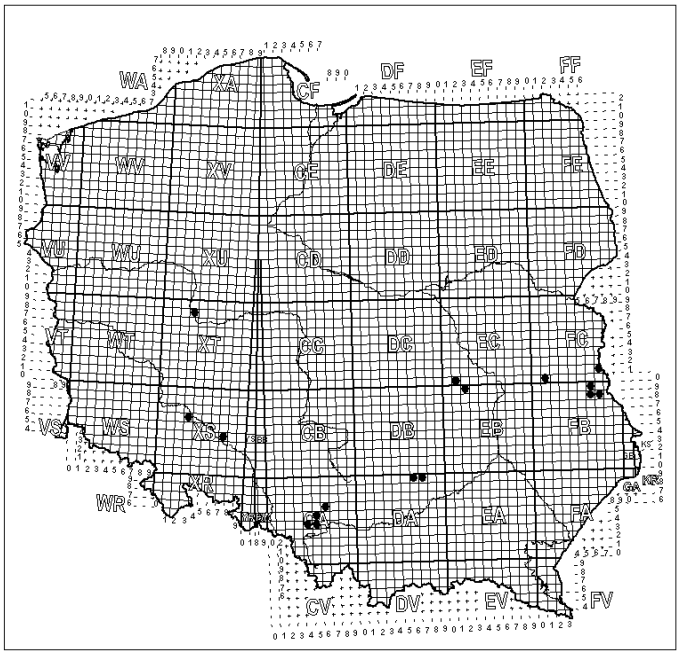

Fig. 2. Distribution of *Paranthrene insolita* in Poland.

Presently known records from Poland:

Lublin Province: Adamki near Włodawa (UTM – FC71), male in glue trap with pheromone flaviventris 7 (together with 11 males of *Synanthedon mesiaeformis* H. – S.), 10 VI – 11 VI 1998 leg. M.B. & N.R., male in glue trap with pheromone mes 13, male flying near pheromones of insolita group, late afternoon around 4 pm, 12 VI 1998 leg. M. B. & N. R. The traps were placed on the edge of a wooded area with old oak and alder; Malinówka near Sawin (FB68), 30 males, 16 VI 1999, leg. M. B. & M. H.; 1 male 25 V 2000, 1 male 27 V 2000, 4 males 15 VI 2001, 1 male 9 VI 06, 2002; 1 male 8 VI 2003, 1 male 11 VI 2004, leg. M. H. All males were attracted by help of pheromones of insolita group (PHG), mainly number 1 and 4; Dubeczno (FC70), 1 male near pheromone insolita group (PHG), 17 VI 1999, leg. M. B. & M. H.; Serniawy FB69, 3 males 15 VI 1999 leg. M. B.& M. H.; Adampol (FC71) 1male 25 VI 2006 leg. M. H.; Sawin (FB78) 5 males 26 VI 2006 leg. M. H.

Greater Poland Province: Rogalin (XT38), 3 males in glue trap with pheromone insolita 3 (PHG), exposed between 24 VI -1 VII 2004, leg. M. B. The trap was situated on the edge of an oak woodland with a number of old oak trees.

Silesian Province: Zgoń Mitręgówka near Orzesz (CA44), 10 males near pheromone myopaeformis (PRI) 24 VI 2004, single males were also collected in VI 2004 in UTM squares CA55, CA54 leg. G. C.; Mysłowice Ćmok (CA66), 1 male 13 VI 2007, leg. A. L.; Mysłowice Słupna (CA66), 1 male 24 VI 2008 leg. A. L. (LARYSZ 2009).

Lower Silesian Province: Wrocław - Leśnica (XS36), 3 males near pheromone intended for *Synanthedon myopaeformis* Borkh., around 3 pm, 24 VI 2005 (PRI) leg. A. K. (KOKOT 2007); Res. "Grodzisko Ryczynskie" near Bystrzyca Oławska (XS74), 4 males near pheromone (PRI), 25 VI 2008 leg. A. M.

Świętokrzyskie Province: Bogucice - Grochowiska (DA79), male in glue trap with pheromone insolita 4. (PHG) 19 VI – 22 VI 1998, leg. M. B. & N. R; Res. "Polana Polichno" near Młodzawy (DA69), male in glue trap with pheromone insolita 1, male in glue trap with pheromone insolita 3, male in glue trap with pheromone flaviventris 7 (PHG). 16 VI – 17 VI 1998, leg. M. B. & N. R. (BĄKOWSKI 2001).

Masovia Province: Res. „Jedlnia" (EB29), 1 male 16 VII 1999; Lesiów (EC 10), 1 male 9 VI 2000 (BĄKOWSKI et al. 2003)

Biology of *P. insolita polonica*

The biology of *P. insolita* is less well known. The larva is presumably biennial and lives in the branches of oak *Quercus robur* L., *Q. petrea* (MATT.) Liebl (Fagaceae). The sparse field data recorded indicates that caterpillars of *P. insolita* mainly bores in 20 – 30 mm thick branches in the of tree canopy. Sometimes the feeding larvae cause small swelling on the branch. The caterpillar makes a brown parchment-like cocoon of loose texture covered with fairly coarse sawdust. Pupation takes place in a short tunnel which is some 20-30 mm long (SCHNAIDER 1939, BLÄSIUS 1993, BĄKOWSKI 2009, PREDOVNIK, pers. comm.).

Due to the extremely few records and the poorly known biology *P.insolita* has been included in the Red list of Polish Lepidoptera. The species has been placed in DD category (Data Deficient) by BUSZKO & NOWACKI (2002). The category DD is assigned to species which are rare in most of Europe and potentially endangered with extinction due to scattered distribution and the specific habitat requirements.

As it is so extremely hard and laborious to find the preimaginal stages, attracting males by the aid of pheromones appears to be by far the most effective method to find this species. In the scattered literature data one can find that males of *P. insolita* are attracted by different synthetic pheromones, especially the pheromone lure for *S. myopaeformis* from PRI, Wageningen. However, as the pheromone of *P. insolita* mainly consists of the two substances E2Z13-18:Ac and Z3Z13-18:Ac in a blend close to 1:1 it is better to use two PRI tipuliformis and one PRI myopaeformis pheromone. This blend provides a very good attractant for *P. insolita* males. Our data shows that the males are most attracted to pheromones between 2 and 6 pm central European time, with the peak between 2.30 and 4 pm. But this may vary due to weather and local conditions.

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