FOOTMAN-MOTHS OF THE GENUS SETINA SCHRANK, 1802 (LEPIDOPTERA, ARCTIIDAE: LITHOSIINAE) IN THE RUSSIAN FAR EAST

Yu. A. Tshistjakov

Institute of Biology and Soil Science, Far Eastern Branch of Russian Academy of Sciences, Vladivostok, 690022, Russia. E-mail: chistyakov@ibss.dvo.ru

Two species, Setina irrorela and S. roscida, are recorded from the Russian Far East, of them S. roscida is recorded for the first time from this region. A generic diagnosis and a key to discussed species based on external characters and genitalia structure are given. The data on general distribution, habitats and the host plants are summarized. Male and female genitalia are illustrated and the maps with known collecting sites are provided.

KEY WORDS: Arctiidae, Lithosiinae, Setina, faunistic, Russian Far East.

Для Дальнего Востока России указываются Setina irrorela и S. roscida, из них последний впервые указывается для фауны этого региона. Приводится диагноз рода и определительная таблица рассматриваемых видов, основанная на внешних признаках и строении гениталий. Обобщены данные о распространении, местах обитания и кормовых растениях. Приводятся иллюстрации гениталий самцов и самок и карты с указанием нахождок рассматриваемых видов на Дальном Востоке России.

Биолого-почвенный институт, Дальневосточное отделение Российской академии наук, Владивосток, 690022, Россия.
INTRODUCTION

The genus *Setina* Schrank includes six species, of them four are restricted in their distribution by West Palaearctic only (Freina & Witt, 1987) while two others are widely distributed in boreal zone of Eurasia: *S. irrorela* from Ireland and Great Britain up to Kamchatka (Freina & Witt, 1987; Dubatolov et al., 1993; Tshistjakov, 2000) and *S. roscida* was known so far to be spreading from Central Europe up to Transbaikalia and Central Yakutia (Dubatolov et al., 1993). In the course of our study the latter species was found in Primorskyi krai, about 2000 km southward from its known locality in Transbaikalia. Thus, *S. roscida* appears to be new for the Russian Far East and the genus *Setina* actually is represented by two species in discussed fauna.

The aim of this paper is to summarize all known up to date available material and literature data on this genus in the Russian Far East. The paper based mainly on the author's material and on the collection of the Institute of Biology and Soil Science, Russian Academy of Sciences, Vladivostok (both of those are presented in a survey without special indication). In addition some specimens of *Setina irrorela* and *S. roscida* from Europe and from neighboring with Russian Far East regions were examined by author. The literature cited for both species includes only the sources based on the local material. The information for each observed species includes the basic bibliography, habitats in the local conditions and general distribution as well.

**Genus Setina Schrank, 1802**


Philea Zetterstedt [1839], Insecta Lapponica: 931, type species: *Phalaena irrorela* Linnaeus, 1758, by subsequent designation by Hampson, 1900: 418.

**DIAGNOSIS.** Moths of moderate size with slender body and rather wide wings of yellow or yellowish color, with contrast pattern of black dots, arranged in transverse rows; externally and by genitalia structure very similar to Palaearctic species of the genus *Stigmatophora* Staudinger, 1881 (Tshistjakov & Dubatolov, 1990). Proboscis well developed. Palps short, straight, hardly produce before frons. Antenna filiform, with 2 setae on each segment, covered with cilia on inner surface. Eyes rounded, without hairs. Hind tibia with two pairs of spoors. Forewing with rather oblong R-Cu cell; common stem of veins R3+5 and M1 short, just from the angle of R-Cu cell; in hind wing common stem of veins Rs and M1 short, less then one third of free M1 length.

**Male genitalia.** Uncus short, somewhat swollen on dorsal side, with pointed top; tegumen arciform; valva lobar, bearing well sclerotized harpa in the middle below costa; sacculus swollen in basal half, more or less curved in proximal part; aedeagus of slightly oblique tube; vesica with 4-5 large thorn cornuti and with a group of numerous minute cornuti.
Female genitalia. Papillae anales trapeziform, moderately sclerotized; apophyses posteriores slender, reach to proximal margin of 8th segment; apophyses anteriores nearly of the same length as apophyses posteriores; ostium in membranous sinus; ductus bursae strongly sclerotized, funnelform near ostium, then chinked and falls into corpus bursae in proximal third of its dorsal wall; corpus bursae well sclerotized, swollen on ventral side, covered by numerous minute spines, with membranous bulla on bottom.

Figs. 1-8. Moths of *Setina*. 1–4) *S. irrorella insignata*: 1) male (Never River, Amurskaya oblast’); 2) male (Magadanka River, Magadanskaya oblast’); 3) male (Borovoe, Kamchatka Peninsula); 4) female (Krasnyi Yar, Khabarovskiy krai); 5-8) *S. roscida*: 5) male (Termei, Primorskiy krai); 6) male (Blagodatnoe Lake, Primorskiy krai); 7) male (Mt. Oblachnaya, Primorskiy krai); 8) female (Blagodatnoe Lake, Primorskiy krai).
Figs. 9-17. Male genitalia of *Setina*. 9-13) *S. irrorella insignata*: 9) caudal view without aedeagus (Zeiskyi Nature reserve, Amurskaya oblast'); 10) aedeagus (Zeiskyi Nature reserve, Amurskaya oblast'); 11) valva (Dukcha River, Magadanskaya oblast'); 12) valva (Borovoe, Kamchatskaya oblast'); 13) valva (Tanhoi, South Transbaikalia); 14-17) *S. roscida*: 14) caudal view without aedeagus (Taiga, Primorskyi krai); 15) aedeagus (Taiga, Primorskyi krai); 16) valva (Tverskaya oblast’, European part of Russia); 17) valva (Kaa-Net, Tuva).

**Key to the species**

1. Wingspan: 24–28 mm. Forewing relatively narrow, with 3 transverse rows of black dots: near base, in the middle and along outer margin. Hind wing with black spots along outer margin, disposed in irregular row (figs. 5-8). In male genitalia (figs. 14-17) valve with short, faintly visible harpa, abruptly on top. In female genitalia (fig. 19) corpus bursae flattened at bottom; bulla small, less than half of corpus bursae size .......................................................... *S. roscida*
Wingspan: 26–32 mm. Forewing relatively wide, with 2 transverse rows of black dots: near base and in the middle; a raw along outer margin lacking. Hind wing without black spots along outer margin (figs. 1–4). In male genitalia (figs. 9-13) valve with long harpa, pointed on top. In female genitalia (fig. 18) corpus bursae rounded at bottom; bulla nearly of the same size, as corpus bursae ………………… S. irrorela insignata

Figs. 18-19. Female genitalia of Setina. 18) S. irrorella insignata; 19) S. roscida.
Fig. 20. Distribution of *Setina* species within Russian Far East and neighboring areas.

*Setina irrorella insignata* (Staudinger, 1881)
Figs 1-4, 9-13, 18, 20


DISTRIBUTION. Mountains of Southern Siberia and Northern Mongolia, North-Eastern and Northern Siberia, Chukotka and Kamchatka (fig. 20).

HABITATS. Boggy places with sparsely spreading larch-woods on the plateaus and along river valleys so the high-mountainous landscapes, where it inhabits a sub-alpine zone with mountain tundra vegetation.

HOST PLANTS. Lichens.

REMARKS. Differs externally from the nominate subspecies Setina irrorella irrorella Linnaeus, 1758 by lacking of the black dots along outer margin of the forewings. The differences between both these subspecies in male genitalia are not so clear and first of all all touch to shape of valva (it is more wide in S. irrorella insignata). Other characters (such as shape of harpa and shape of sacculus) also vary even within one population. Moreover, shape of harpa in the specimens from South Transbaikalia (fig. 13) more similar to that of S. alpestris Zeller, 1865 from Alps (South Tirol), then to any form of S. irrorella. Thereby I suppose S. alpestris and close to it S. aurita (Esper, 1787) with their known subspecies so far treated as the endemics of Alps, actually could be treated as the forms of S. irrorella only.

Setina roscida ([Denis et Schiffermüller], 1775)
Figs. 5-8, 14-17, 19, 20

Noctua roscida [Denis et Schiffermüller], 1775, Ankündigung syst. Werkes Schmett. Wienergegend: 68.

DISTRIBUTION. Central and North Europe, mountains of Southern Siberia (Altai), Central Yakutia, Zabaikalskii krai, Primorskyi krai (fig. 20).

HABITATS. Boggy places on the plateaus and in the valleys as well as a sub-alpine zone with mountain tundra vegetation.

HOST PLANTS. Lichens.

REMARKS. Comparative study of the Setina roscida specimens from the different localities (East Europe, Caucasus, Altai, Krasnoyarskyi krai, Zabaikalskii krai and Primorskyi krai) has showed there are no essential differences as well as in appearance so in genitalia structure between populations within rather wide area of this species. A systematic position of S. roscida kuhlweini (Hübner, [1823-1824]) occurring in Europe together with typical S. roscida is not clear enough and quite probably it could be treated as a color form of the latter only.

REFERENCES


Tshistjakov, Yu.A. 2000. An annotated checklist of larger moths (Lepidoptera: Heterocera, except Geometridae and Noctuidae) of the Kamchatka peninsula, with notes on their zoogeography. Natural History Research, Special Issue, 7: 253–266.