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Article

Neocrambus wolfschlaegeri (Schawerda, 1937) (Lepidoptera: Crambidae, Crambinae) new to Russia

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Abstract. Crambid moth *Neocrambus wolfschlaegeri* (Schawerda, 1937) is reported from the Volga-Ural Region (Orenburg and Saratov Provinces). This represents the first record of this species from Russia. The external morphology and genitalia are illustrated and some details of the morphology are discussed.

Keywords: Lepidoptera, Crambinae, moths, fauna, Volga-Ural Region, Russia

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Научная статья

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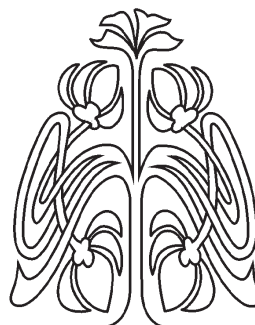
Neocrambus wolfschlaegeri (Schawerda, 1937) – новый вид огневки
(Lepidoptera: Crambidae, Crambinae) для фауны России

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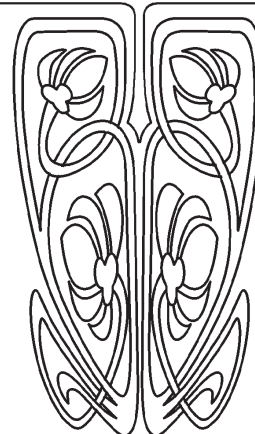
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НАУЧНЫЙ
ОТДЕЛ





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Аннотация. В ходе инвентаризационных фаунистических исследований огневка-травянка *Neocrambus wolfschlaegeri* (Schawerda, 1937) собрана на территориях Оренбургской области в предгорьях Южного Урала и в Саратовской области (Вольский р-н). Вид впервые регистрируется для фауны России. В статье обсуждаются особенности распространения *N. wolfschlaegeri* и особенности диагностических признаков. Изображения имаго экземпляров из России и генитальных структур обоих полов представлены в статье.

Ключевые слова: Lepidoptera, Crambinae, мотыльки, фауна, Волга-Уральский регион, Россия

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Introduction

The subfamily Crambinae Latreille, 1810 represents a group of uniform small moths distributed worldwide in wet meadows to dry open landscapes, feeding on Poales and Bryophyta. Currently, the Crambinae include 2066 valid species, of which about 490 species occur in Europe [1, 2]. Recently, the fauna of the Russian Crambinae was estimated at 28 genera and 156 species [3], of which 67 occur in the Volga-Ural region [4].

During a field study in the western foothills of the South Urals (Russia, Orenburg) in early to mid-June 2020, 8 specimens of crambid moths were collected with artificial lights and identified as a little-known species *Neocrambus wolfschlaegeri* (Schawerda, 1937) common in montane regions. We were also able to examine a male and a female of the same species collected from Saratov district. We have examined in detail the descriptions and pictures of the holotype published by Bleszynski [5, 6] and Slamka [7], as well as the genital structures of specimens from the type locality in Macedonia, which confirm this determination. The previous records of *N. wolfschlaegeri* were from the mountainous regions of the Balkan Peninsula (Macedonia, Greece) and the Armenian highlands (Kurdistan and Armenia) [8]. Therefore, it was surprising to find this species in the dry steppe from the Volga-Ural Region and, so far from the known range outside. The present record is the easternmost known and the new for Russia. Despite the careful study of the morphological characters of these specimens and our diagnosis as *N. wolfschlaegeri*, some peculiarities of genital morphology in both sexes should be noted, which were probably overlooked in the earlier publications [5–7] and are discussed below.

All specimens examined were identified as *N. wolfschlaegeri* by comparison with the specimens from the type locality preserved in the ZSM.

Photographs of adults and their genitalia from Orenburg district are provided. The genitalia of the specimens were examined after dissection using standard techniques [9] and then stained with eosin and mounted on glass slides with euparal. Adults were photographed using Canon EOS 5D camera with a macro lens. Genitalia were photographed with a Bresser MikroCam 10.0MP camera. Processing of genitalia images for publication was done using Adobe Photoshop Express (a free application for Android). The methods used to identify the genital structure and external features follow Falkovitsh & Stekolnikov [10]. The material is deposited in the collection of Samara National Research University (Russia).

***Neocrambus wolfschlaegeri* (Schawerda, 1937)** (Figure).

Crambus wolfschlaegeri Schawerda, 1937: 55. Type locality: Ochrida (Petrina 1600 m) Mazedonien, [Macedonia, Ohrid]

Material examined

Russia: Orenburg Province: 2 ♂♂, 2 ♀♀, Sol-Iletsk area, near Pervomayskoe vil., 50°54'N, 55°00'E, h = 120m, dry steppe, 2.vi.2020 (Shovkoon); 3 ♂ Akbulak area, Akoba vill., 50°54'N, 55°46'E, dry steppe, 4–5.vi.2020 (Shovkoon); 1 ♂, Perevolotsk area, near Chesnokovka vil., 51°41'N, 54°01'E h = 150m chalk steppe, 13–14.vi.2020, (Shovkoon); Saratov Province: 1 ♂, 1 ♀, Volsky area, 9km NE Vostochny Buerak, h = 60m, N 52°09' E 47°49', 9–10.06.2020 (Anikin) (all collection of Samara National Research University). **Macedonia:** 1 ♂, Mazedonien [Macedonia], Ochrida [Ohrid]Um, 15–26, Juli [19]34,

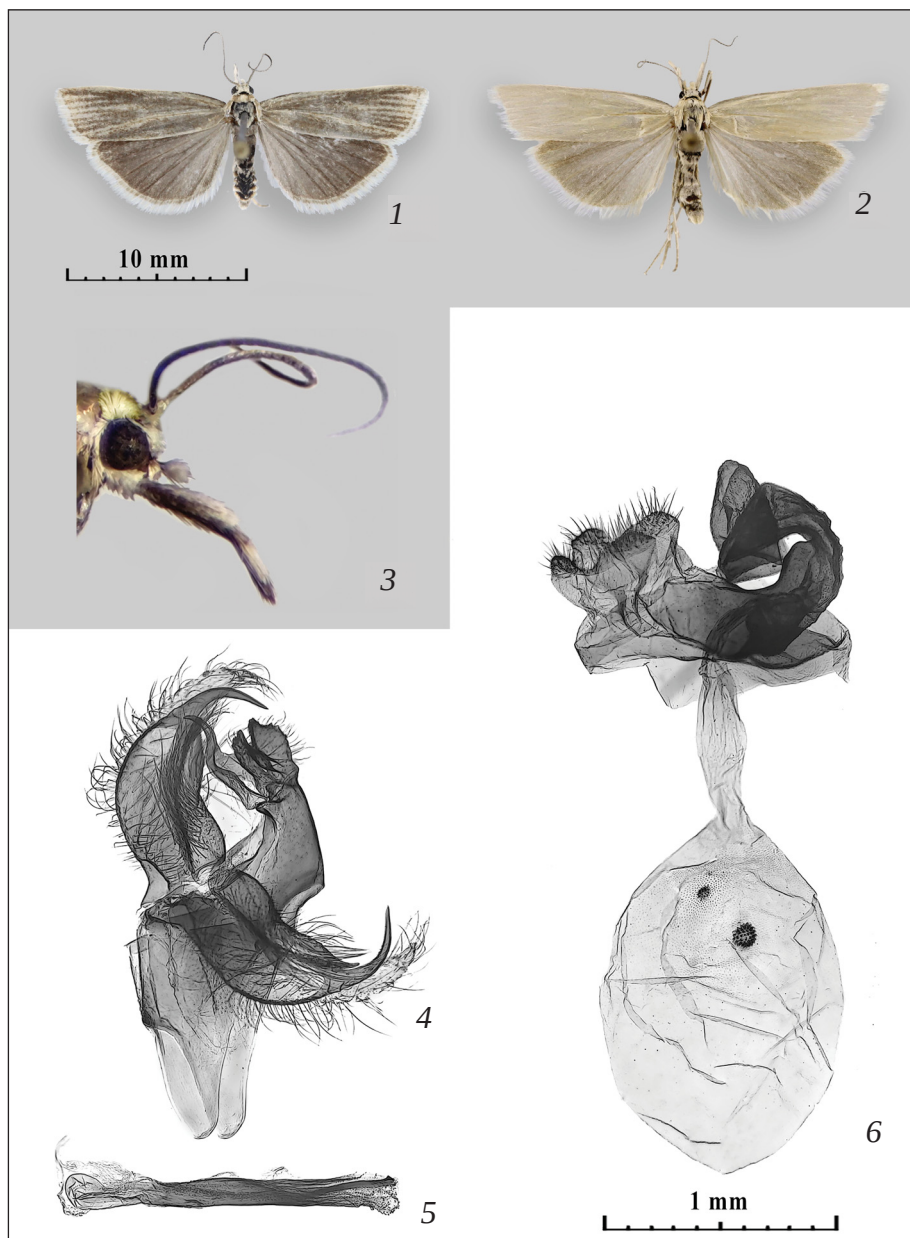


Figure. *Neocrambus wolfschlaegeri* (Schawerda, 1937): 1–2 – voucher specimens from Orenburg Region, Russia, D. Shovkoon leg.: 1 – male, 2 – female; 3 – head of adult and labial palp with maxilar palp; 4 – male, genitalia preparation T. Trofimova 4444; 5 – aedeagus, 6 – female, genitalia preparation T. Trofimova 4445

leg. Thurner; 2 ♂♂, 1 ♀, Macedonia, Asandzura, 20–23.6.1939 leg. Thurner; 1 ♂, Macedonia, Petrina plan, 1600m, 9.7.1954, leg. Thurner. **Graecia:** 1 ♂, Graecia, Olimp.geb. Litochoron [Litochoro] 300 m, 10–23.6.1957, leg. Thurner (all collection of Zoologische Staatssammlung München).

Discussion

N. wolfschlaegeri was originally described by Schawerda [11] in the genus *Crambus* Fabricius, 1798, based on a single male and two females col-

lected in late June in the mountains of northern Macedonia by R. Wolfschlaeger. Bleszynski [5] established a new monotypic genus *Neocrambus* to place a single species *C. wolfschlaegeri* based on the presence of the unique modified valvar complex in the male genital structure with ventral broad, strongly sclerotized lobe terminating in a hooked process that extends strongly beyond the uncus, and a second common costal lobe that is well sclerotized and gradually narrows to a sharp and relatively smaller process that is detached at the end (Figure, 4). The adults of



N. wolfschlaegeri and its male genitalia were illustrated by Bleszynski on plate 34 (Figure, 6) and plate 68 (Figure, 7) [5]. However, in this picture as well as in the picture in the monograph “Crambinae” of “Microlepidoptera Palaearctica” series by Bleszynski on plate 66 fig. 239 [6] the distal membranous and triangular lobe of the valva was not shown, which is clearly visible in the male genitalia of *N. wolfschlaegeri* specimens from the southern Urals (Figure, 4). In the illustration of the female genitalia of *N. wolfschlaegeri* in place cited above [6] on plate 117 fig. 239 the second smaller thorned plate in the upper third of the corpus bursae is not shown (Figure, 6). Externally, specimens of *N. wolfschlaegeri* from the Volga-Ural Region (Figure, 1–3) show distinct geographic differences in forewing colour of adult. Specimens from Macedonia with orange-yellow ground colour without any markings on forewings of males and females [7]. In specimens of females from Volga-Ural Region (Figure, 1, 2), the pale yellow forewings compared to a greyish ground colour with longitudinal pale yellow streaks on the veins of the male forewings. The latter are hardly distinguishable from sympatric dark small specimens of *Crambus perlellus* (Scopoli, 1763) with similar forewing pattern and a study of genital structure should be necessary for a clear separation. Thus, the examined specimens of *N. wolfschlaegeri* from the Volga-Ural Region appear to form an isolated population and differ externally in the pattern of the forewings, but have detailed similarity in the diagnostic peculiarities of the male genitalia in the structures of the valve, uncus, aedeagus, and the unique shape of the antrum in the female genitalia (Figure, 5, 6) are characteristic of *N. wolfschlaegeri*. The intraspecific differences among local populations of *N. wolfschlaegeri* should be further resolved by analysis of genetic markers.

References

1. Léger T., Mally R., Neinhuis C., Nuss M. Refining the phylogeny of Crambidae with complete sampling of subfamilies (Lepidoptera, Pyraloidea). *Zool. Scr.*, 2020, vol. 50, pp. 84–99. <https://doi.org/10.1111/zsc.12452>
2. Garre M. J., Girdley J., Guerrero J. J., Rubio R. M., Ortiz A. S. An annotated checklist of the Crambidae of the region of Murcia (Spain) with new records, distribution and biological data (Lepidoptera: Pyraloidea, Crambidae). *Biodivers. Data J.*, 2021, Aug 3. <https://doi.org/10.3897/BDJ.9.e69388>.
3. Sinev S. Yu., Streltsov A. N. Crambidae. In: S. Yu. Sinev, ed. *Catalogue of the Lepidoptera of Russia*. 2 ed. St. Petersburg, Zoological Institute RAS Publ., 2019, pp. 178–196 (in Russian).
4. Anikin V. V., Sachkov S. A., Zolotuhin V. V. “Fauna lepidopterologica Volgo-Uralensis”: From P. Pallas to present day. 2017. Munich, Vilnius, Museum Witt, Nature Research Center, 2017. 694 p. (in Russian).
5. Bleszynski S. Studies on the Crambidae (Lepidoptera). Part XIV. Revision of the European species of the generic group *Crambus* F. s. l. *Acta Zoologica Cracoviensia*, 1957, vol. 1, pp. 161–622, pls 27–92.
6. Bleszynski S. Crambinae. In: H. G. Amsel, F. Gregor & H. Reisser, eds. *Microlepidoptera Palaearctica*, 1 (1), 1 + 553 p., (2): 133 pls. Georg Fromme & Co., Wien, 1965 (in German).
7. Slamka F. *Pyraloidea (Lepidoptera) of Europe 2. Crambinae & Schoenobiinae*. Bratislava, Slamka press, 2008. 223 p.
8. Marjanyan M., Harutyunova L., Hovhannisyan V., Mirumyan L., Harutyunyan R., Magomedova M. Z., Yolchyan A. S. Ecocomplexes of the fauna of invertebrate animals of floodplain of Marmaric river (Armenia). *Proceedings of the International conference “Biological diversity and conservation problem of the fauna-3”*. September, 27–29, 2017. Yerevan, Armenia, 2017, pp. 170–173 (in Russian).
9. Robinson G. S. The preparation of slides of Lepidoptera genitalia with special reference to the Microlepidoptera. *Entomologist’s Gazette*, 1976, no. 27, pp. 127–132.
10. Falkovitsh M. I., Stekolnikov A. A. Introduction. In: Medvedev G. S., ed. *Keys to the Insect Fauna of the European Part of USSR. 4 (1)*. Leningrad, Nauka, Leningradskoje otdelenie Publ., 1978, pp. 5–39 (in Russian).
11. Schawerda K. Zwei neue Microheteroceren aus Mazedonien. *Zeitschrift des Österreichischen Entomologen-Vereines*. Vienna, 1937, no. 22, pp. 55–56 (in German).

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