Peter Ustjuzhanin,1,6* Vasily Kovtunovich,2 Igor Pljushtch,3 Jurij Skrylnik4, Oleg Pak5

PLUME MOTHS OF AFGHANISTAN (LEPIDOPTERA, PTEROPHORIDAE)

1Altai State University, Lenina 61. RF-656049. Barnaul, Russia.
2Moscow Society of Nature Explorers. Home address: Russia, Moscow, 121433, Malaya Filevskaya str., 24/1, app. 20.
3Schmalhausen Institute of Zoology, National Academy of Science of Ukraine, Bogdan Khmelnitski str., 15, 01601, Kiev, Ukraine.
4Ukrainian Research Institute of Forestry & Forest Melioration, 61024, Pushkinska str. 86, Kharkov, Ukraine.
5Donetsk National University, Faculty of Biology, Shchors str., 46, 83050, Donetsk, Ukraine.
6Corresponding author. E-mail: petrust@mail.ru

New data on Pterophoridae from Afghanistan are considered. A checklist of Pterophoridae species of the fauna of Afghanistan is presented, as including 32 species of 14 genera. Merrifieldia tridactyla is for the first time recorded for the fauna of Afghanistan. The basic literature on the Afghanistan Pterophoridae were used in the study.

Key words: Pterophoridae, plume moths, Afghanistan, fauna, new data.

INTRODUCTION

Many Pterophoridae as Cossidae are good zoogeographical barriers preventing from mixing the faunas of different zoogeographical regions (Yakovlev & Dubatolov 2013; Yakovlev, 2015; Yakovlev et al., 2015). Until now there were no special publications on Pterophoridae from Afghanistan. The first description of a new species of Pterophoridae, Stenoptilia nurolhaki, from Afghanistan was in the work by Amsel (1967), In a series of works by Ernst Arenberger (1981, 1987, 1995), six new species were described from Afghanistan. In the world catalog of Pterophoridae by Gielis (2003), 29 species were indicated for the fauna of Afghanistan. Later Arenberger (2005) in the series ‘Microlepidoptera Palaearctica’, reported for Afghanistan one more species, Stenoptilia arida (Zeller, 1847). Until present, the known fauna of Pterophoridae of Afghanistan included 30 species. In this paper, more species are reported basing on collections by I. Pljushtch and his colleagues. Merrifieldia tridactyla is for the first time revealed in Afghanistan.

MATERIALS AND METHODS

This paper is based on specimens of Pterophoridae most of which were collected in Bamyan Province of Afghanistan, mainly in the territory of Band-e-Amir National Park. Collections were made in 2010-2013 by the expedition of Ukrainian
entomologists: I. Pljushtch, Ju. Skrylnik, O. Pak. Most of them were captured by light-trap with UV lamp DRV-160, a small portion of specimens was collected in the daytime and twilight with a standard insect net. To identify the species of plume moths we used current literature with the images of genital structures. The diagnostically complicated species were compared with the type specimens stored in the British Museum (BMNH, UK, London).

The preparation of genitalia is a necessary condition for the identification of Pterophoridae. Normally, the abdomen is boiled in 10–15% solution of potassium hydroxide until it becomes semitransparent. After this, it is rinsed thoroughly for permanent preparation and further identification. On the mount, a small drop of Euparal is put, followed by genitalia, rinsed in water and soaked in 100% ethanol. The mount then is covered with a cover glass. In case the genitalia structures are not well sclerotized, they are painted in various dyes, like Chlorozol Black, to reach greater contrast. A permanent preparation desiccates for at least two weeks.

**List of species**

**Platyptilia sp.**

**Material.** Bamyan prov., Band-e-Amir, h - 2950 m (Foto 2), 12.07.2013 – 1 male, h - 2950 m, I. Pljushtch, Ju. Skrylnik, O. Pak.

**Note.** This specimen, unidentified to species level, well differs by its appearance from other members of the genus. Because of absence of additional material we cannot make exact identification.

**Stenoptilia arida** (Zeller, 1847)

_Pterophorus aridus_ Zeller, 1847: 904. (Type locality: Sicily, Messina, Italy).


**Distribution.** South Europe, North Africa; Armenia.

**Stenoptilia nurolhaki** Amsel, 1967


**Material.** Bamyan prov., Rokul Valley, h – 3200 m, 05.08.2011 – 1 male, I. Pljushtch.

**Distribution.** Afghanistan, Iran.
Fig. 1. C AFGHANISTAN, prov. Bamyan, Bamyan distr., Qarachaghar Mts., Aq Robat Pass, 4 km N Aq Robat (Akrabat) vill., h=3350m, 34°57’N 67°39’E (photo by Ju. Skrylnik).

*Procapperia kuldschaensis* (Rebel, 1914)

*Oxyptilus kuldschaensis* Rebel, 1914: 272. (Type locality: China, Xinjian).

*Procapperia asiatica* Zagulajev, 1986: 87. (Type locality: Przhevalsk, Kyrgyzstan).

**Material.** Bamyan prov., Band-e-Amir, h - 2950 m, 12.07.2013 – 1 male, 1 female, I. Pljushtch, Ju. Skrylnik, O. Pak.

**Distribution.** Turkey, Georgia, Kyrgyzstan, Kazakhstan, Uzbekistan, Tajikistan, Mongolia, Southern Siberia (Altai Republic, Kemerovo Province, Tuva Republic), China (Xinjiang), Afghanistan, Pakistan.
Fig. 2. C AFGHANISTAN, prov. Bamiyan, Yakawlang distr., 5 km NE Jarukashan vill., Band-e-Amir National Park, Steam, h=3084 m, 34°51’N 67°12’E (photo by Ju. Skrylnik).

*Crombrugghia distans* (Zeller, 1847)

*Pterophorus distans* Zeller, 1847: 902. (Type locality: Sicily, Italy).

*Oxyptilus supplementum* Gibeaux, 1997: 432. (Type locality: Parkent, Uzbekistan).

**Material.** Nangarhar prov., 10 km SE Jalalabad, Kabul river bank, h – 600 m, 09.05.2010 – 1 male, I. Pljushtch.

**Distribution.** N. Africa, the Canare islands, Europe, Armenia, Georgia, Azerbaijan, Turkey, Iran, Afghanistan, India, Nepal, Uzbekistan, Turkmenistan, Kazakhstan, China (Xinjiang), Southern Siberia.

*Hellinsia chrysocomae* (Ragonot, 1875)

*Leioptilus chrysocomae* Ragonot, 1875: 113. (Type locality: Essonne, France).

**Material.** Bamyan prov., Band-e-Amir, h - 2950 m, 12.07.2013 – 4 males, 1 female; h - 3130 m, 13.07.2013 – 1 male; h - 3200 m, 14.07.2013 – 1 male; h - 2900 m, 20.07.2013 – 1 female; I. Pljushtch, Ju. Skrylnik, O. Pak.

**Distribution.** Europe, Armenia, Georgia, Kazakhstan, Kyrgyzstan, Southern Siberia, the Far East of Russia, Mongolia, China.

**Wheeleria kabuli** (Arenberger, 1981)


**Material.** Kabul prov., Qargha, h-2000 m, 7.05.2010 – 1 male, 15-16.05.2010 – 4 males, 2 females,

I. Pljushtch, O. Pak, E. Ivanova.

**Distribution.** Afghanistan, Azerbaijan, Iran.

**Merrifieldia tridactyla** (Linnaeus, 1758)

*Phalaena Alucita tridactyla* Linnaeus, 1758: 542. (Type locality: Europe).

**Material.** Bamyan prov., Band -e- Amir, h - 2950 m, 12.07.2013 – 1 male, I. Pljushtch, Ju. Skrylnik, O. Pak.

**Distribution.** N. Africa, Europe, Turkey, Iran, Afghanistan, Kyrgyzstan, Kazakhstan, Southern Siberia, Central Yakutia.

The species is for the first time reported for Afghanistan.

**Merrifieldia alaica** (Caradja, 1920)

*Alucita alaica* Caradja, 1920: 81. (Type locality: Alai Gebirge, Kyrgyzstan).

**Material.** Kabul prov., Paghman-Dara, 2800 m (Foto 3), 02.07.2013 – 1 male, I. Pljushtch.

**Distribution.** Kyrgyzstan, Afghanistan.

**Tabulaephorus thomasi** Arenberger, 1993


**Material.** Bamyan prov., Band -e - Amir, h - 2950 m, 12.07.2013 – 1 male, I. Pljushtch, Ju. Skrylnik, O. Pak.

**Distribution.** Afghanistan.
Fig. 3. C AFGHANISTAN, prov. Kabul, Paghman distr., 5 km NW Paghman, Kokh-e-Paghman Mts., h=2650 m, 34°36'N 68°54'E (photo by Ju. Skrylnik).

**Checklist of Pteroporidae of Afghanistan**

- *Agdistis adactyla* (Hübner, [1823])
- *Agdistis ingens* Christoph, 1885
- *Agdistis tamaricis* (Zeller, 1847)
- *Platyptilia* sp.?
- *Stenoptilia arida* (Zeller, 1847)
- *Stenoptilia nurolhaki* Amsel, 1967
- *Marasmarcha cinnamomeus* (Staudinger, 1870)
- *Marasmarcha colossa* Caradja, 1920
- *Marasmarcha pulcher* (Christoph, 1885)
- *Procapperia amira* Arenberger, 1988
- *Procapperia kuldschaensis* (Rebel, 1914)
- *Capperia hellenica* Adamczewski, 1951
- *Capperia salanga* Arenberger, 1995
RESULTS AND DISCUSSION

Thus, 32 species of Pterophoridae are known for Afghanistan to date. The most widely represented genus is *Tabulaephorus* (5 species) and the genera: *Agdistis, Marasmarcha, Capperia, Hellinsia, Merrifieldia, Wheeleria* (three species in each of them). Most of the species are inhabitants of arid areas. Regarding the area, the plume moths of Afghanistan are more widely represented in the Central Asian region: there are 11 species of them. The South West Palaearctic species are 8. The transpalaearctic species are 7. Two species, *Hellinsia pectodactylus* and *Emmelina monodactyla* are more widespread, they partially inhabit Africa North and America. Three species, *Tabulaephorus afghanus, Tabulaephorus thomasi* and *Wheeleria parviflorellus* are endemic in Afghanistan (Fig. 4).

The proposed list of Pterophoridae species is far from being complete. It is more than obvious that in the Afghanistan fauna 10-15 more species will be found. The increase in the number of species is possible due to finding the representatives of genera: *Agdistis, Stenoptilia, Hellinsia, Merrifieldia* and others. The complexity of research in this area nowadays lies in the inaccessibility of this mountainous country, and in the political and economic situation.
Fig. 4. C AFGHANISTAN, prov. Bamyan, Yakawlang distr., Band-e Amir National Park, 3 km E Sabzel vill., h=2910m, 34°47’N 67°10’E, (foto by Ju. Skrylnik).

ACKNOWLEDGEMENTS
The authors are grateful to Mr. Mohammad Tahir Atayee (Director of Agriculture, irrigation & livestock, Bamyan Province, Afghanistan) and to officers of Band-e-Amir National Park for their assistance in the organization of scientific research in the province of Bamyan and permission to collect scientific material. We are also grateful to Mr. Kevin Tuck, curator of the lepidopterological collection of BMNH, London, for the possibility to work with the collection of Pterophoridae.

REFERENCES
Amsel, H.G. (1967). Eine neue afghanische Stenoptilia-Art (Lepidoptera: Pterophoridae). Beiträge zur naturkundlichen Forschung in Südwestdeutschland,


Поступила в редакцию 22.01.2016

Как цитировать:


© Ustjuzhanin, Kovtunovich, Pljushtch, Skrylnik, Pak, 2016

Users are permitted to copy, use, distribute, transmit, and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship.

This work is licensed under a Creative Commons Attribution 3.0 License