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Caddisfly Records from an Expedition to Tajikistan

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Abstract. The caddisfly material collected during a lepidopterological expedition in the Pamir Mountains in Tajikistan in 2013 is reported. The material comprises 22 species, about half of the known Pamir's fauna (IVANOV 1991), including some of the Pamir's endemic rarities.

Introduction

The caddisfly fauna of the Pamir Mountains in Central Asia is relatively well-known, based on the comprehensive publication of IVANOV (1991). Ivanov lists 45 species from the area, thus, the fauna of this dry mountain area shows no particularly high diversity. However, about twenty species have been described from the area (MORSE 2020) and many of them seem to be endemic to Pamir.

Material and Methods

All the material was collected in Tajikistan, Gorno-Badakhshan province, in West and East Pamir mountain ranges during an expedition between 16th and 30th July in 2013. The site information is given in the following order: site number, site name, WGS84 N coordinate, WGS84 E coordinate, altitude (meters a.s.l.), collection date. The material was collected by the two authors, Markus P. Rantala and Kari Nupponen.

- 1) Devlokh Valley, near Khaburabot Pass, N38.6252, E70.7580, 3000 m a.s.l., 16.7.-17.7.2013
- 2) Bartang River Valley, Vomar – Shujand, N37.9550, E71.6175, 2100 m a.s.l., 18.7.2013
- 3) Murghab River Valley by Barchadev village, N38.3072, E72.4772, 2760 m a.s.l., 19.7.2013
- 4) Murghab River Valley, Barchadev village, N38.3094, E72.4766, 2647 m a.s.l., 20.7.2013
- 5) Chukury/Urtabuz, N38.8447, E73.4580, 4000 m a.s.l., 21.7.2013
- 6) Mynkhadzhyr, N38.1111, E74.2636, 3986 m a.s.l., 22.7.2013
- 7) Pianj River, by Avdj village, N36.9227, E71.5005, 2570 m a.s.l., 26.7.2013
- 8) Khorog town, botanical garden, N37.477, E71.598, 2280 m a.s.l., 27.7.2013
- 9) Pianj river, Zigar village, N38.1163, E70.4444, 1180 m a.s.l., 30.7.2013

The material was collected using light traps meant for nocturnal moths (Lepidoptera). Collections from sites 2, 3, 8 and 9 were unselected, containing all the specimens of some traps, while only selected specimens were stored from the other sites.

Most samples were stored in a freezer after the field expedition and later either pinned or stored in alcohol. All the species were identified based on males, using MALICKY'S (2004) atlas, and the species descriptions of Pamir fauna. The total number of specimens in the material, including the females, was about 1500.

Tissue samples (legs) of some tens of specimens were shipped to the Canadian Centre for DNA Barcoding in Guelph for DNA sequence (COI) analysis. The barcodes are preserved in the Barcode of Life Data Systems (BOLD; see <http://v4.boldsystems.org>); each sampleID contains code "JSLK-TAJI-T" concatenated with a specimen number.

Results

The list of the identified species is presented here appended with the site numbers as in the site list.

Rhyacophilidae

Himalopsyche todma SCHMID, 1963; 1, 7

Rhyacophila obscura MARTYNOV, 1927; 7

Glossosomatidae

Agapetus bidens MCLACHLAN, 1875; 2

Agapetus cocandicus MCLACHLAN, 1875; 2, 8

Agapetus tridens MCLACHLAN, 1875; 2

Glossosoma shugnanicum IVANOV, 1992; 1

Hydroptilidae

Hydroptila sanghala SCHMID, 1960; 2, 9

Philopotamidae

Dolophilodes ornata MOSELY, 1936, 1, 9

Psychomyiidae

Psychomyia usitata MCLACHLAN, 1875; 2, 8, 9

Hydropsychidae

Hydronema persica MARTYNOV, 1914; 2, 3, 8

Hydropsyche carbonaria MCLACHLAN, 1875; 9

Hydropsyche kaznakovi MARTYNOV, 1915; 9

Hydropsyche nuristanica SCHMID, 1963; 2, 8, 9

Potamyia straminea (MCLACHLAN, 1875); 9

Lepidostomatidae

Lepidostoma (Maniconeura) penicillatum MCLACHLAN, 1875; 7, 8

Lepidostoma (Dinarthrurum) reductum (MARTYNOV, 1975); 9

Lepidostoma (Dinarthrurum) tadshikistanicum (MEY, 1981); 9

Lepidostoma (Dinarthrurum) inerme MCLACHLAN 1878; 2, 8

Lepidostoma (Dinarthrurum) sp.; 1, 2, 8

Apataniidae

Apataniana pamirensis MEY & LEVANIDOVA, 1989; 6

Limnephilidae

Astratodina mihirakula SCHMID, 1961; 4 (Hans Malicky det.)

Limnephilus alaicus (MARTYNOV, 1915); 5, 6

Discussion

We have noticed no recent reports of the caddisflies of Tajikistan since the early 1990's, which increased the motivation to publish these records. Also, even if the collections were limited, about half of the known local fauna, compared with IVANOV (1991) was recorded, including some endemic rarities like *Glossosoma shugnanicum*, *Lepidostoma (Dinarthrurum) tadshikistanicum* and *Apataniana pamirensis*.

The “*Dinarthrum* sp.” was not yet identified on species level, but two specimens were included in the DNA barcoding with identifier numbers JSLK-TAJI-T046 and JSLK-TAJI-T047.

The results suggest some differences of the studied altitudes. The only collection below 2000 m a.s.l. contains most hydropsychids (4 species) and most species not recorded from other sites. *Potamyia straminea* occurred there in high numbers (~750 exx), covering alone half of the specimens stored during the whole expedition. The collection sites 5 and 6 at the altitude of about 4000 m were situated far from larger aquatic habitats, which explains the very low number of recorded caddisflies (altogether 4 exx). *Apatania pamirensis* (2 males) and *Limnephilus alaicus* (2 males) were recorded only from these sites. *A. pamirensis* was recorded on a site with only a small temporal creek, already dry at late July.

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Arid mountain view at Mynkhadzhir (site 6), where *A. pamirensis* was recorded. The only aquatic habitat nearby is in the middle, a small creek, which was dry in late July. River Murghab is 2.5 km away behind the mountain. Photo: Markus P. Rantala.

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