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Hoverflies fauna (Diptera, Syrphidae) of the north-eastern Tajikistan with description of the new species from the genus *Cheilosia* Meigen, 1822

Фауна мух-журчалок (Diptera, Syrphidae) северо-восточного Таджикистана с описанием нового вида из рода *Cheilosia* Meigen, 1822

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Key words: Syrphidae, new data, new species, *Cheilosia*, Tajikistan.
Ключевые слова: сирфиды, новые сведения, новый вид, *Cheilosia*, Таджикистан.

Abstract. Newly recorded hoverflies, 43 species from 24 genera, are detailed for the territory of northeastern Tajikistan. A new species, *Cheilosia* (*Taeniochilosia*) *karimovi* Barkalov **sp.n.** is described. The new species is close to *Cheilosia longistyla* Barkalov et Peck, 1994, from which it differs in males by the brown base of the wings and the presence of a tuft of black bristly-like pilis on the postero-dorsal corner of the anepimeron (in *Ch. longistyla* Barkalov et Peck the base of wings is yellow and only a few weak black pilis are present on the postero-dorsal corner of anepimeron). Besides, these species differ by the length of pilis on surstylus and especially by the structure of upper lobes of hypandrium. Females of the new species are characterized by completely black basoflagellomere of antennae, completely golden-yellow pilis on scutum, and less developed shining spot on hind part of anepimeron (in *Ch. longistyla* Barkalov et Peck basoflagellomere of antennae with orange spot in basal part, scutum in posterior part with admixture of black pilis and posterior part of anepimeron completely shining).

Резюме. Впервые для территории северо-восточного Таджикистана указано 43 вида мух-журчалок из 24 родов. В роде *Cheilosia* Meigen, 1822 обнаружен новый вид *Cheilosia* (*Taeniochilosia*) *karimovi* Barkalov **sp.n.** Новый вид близок к *Cheilosia longistyla* Barkalov et Peck, 1994, от которого отличается по самцам коричневым основанием крыльев и наличием пучка чёрных щетинистых волосков на верхне-заднем углу анэпимерона (у *Ch. longistyla* Barkalov et Peck основания крыльев жёлтые и на верхне-заднем углу анэпимерона лишь несколько слабых чёрных волосков). Кроме того, эти виды различаются по длине волосков на сурстилях и особенно строением верхних лопастей гипандрия. Самки нового вида отличаются полностью чёрным базофлагелломером усиков, полностью золотисто-жёлтыми волосками на среднеспинке и менее развитым блестящим пятном на задней части анэпимерона (у *Ch. longistyla* Barkalov et Peck базофлагелломер усиков с оранжевым пятном в основной части, среднеспинка в задней части с примесью чёрных волосков и задняя часть анэпимерона полностью блестящая).

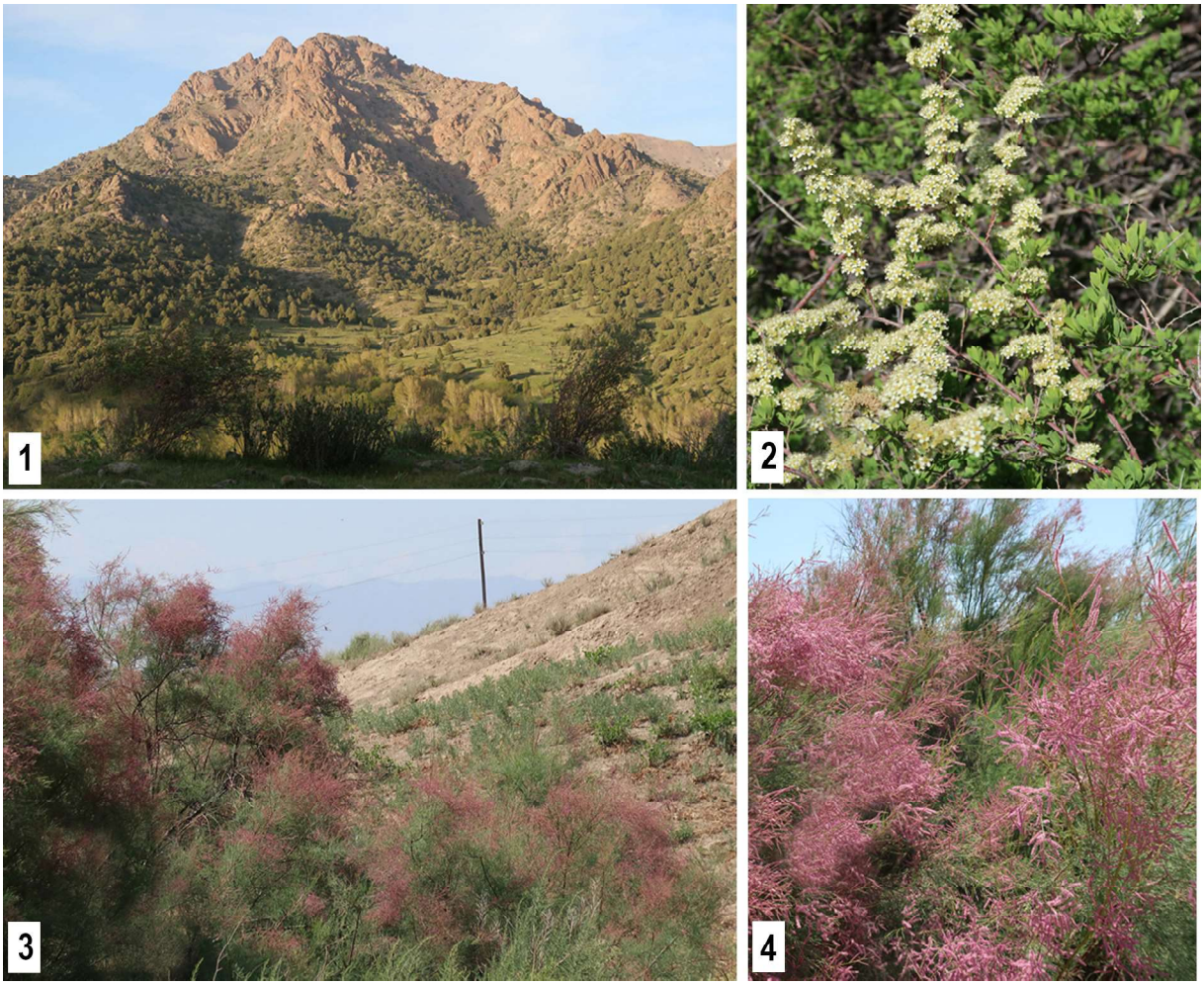
Introduction

Hoverflies or syrphid flies (Diptera, Syrphidae) is one of the large families of Brachycera Orthorrhapha dipteran insects, whose representatives play an important role in the existence of biocenoses in the Palearctic from the Arctic to semi-deserts and deserts. High generic and species diversity is achieved due to the extreme diversity of food substrates and ecological niches occupied by the larvae. There is a huge literature on the diversity of ecological niches in which syrphid larvae develop, a listing of which could take many dozens of pages. For species living in the European part of the Palaearctic, this literature is summarized in a work of M. Speight [Speight, 2020]. There you can also find all the comprehensive information on widespread species recorded in other parts of the world.

Material and research methods

This report is based on materials collected by the author during a joint expedition trip carried out in accordance with a Cooperation agreement between the Institute of Animal Systematics and Ecology of the Siberian Branch of the Russian Academy of Sciences (Novosibirsk) and the Institute of Zoology and Parasitology named after E.N. Pavlovsky of the Tajik National Academy of Sciences (Dushanbe).

The collections were carried out in the northeastern part of Tajikistan, which was taken to be the territory lying north of the Kayrakkum reservoir. This name has no biogeographical or administrative significance. It is accepted only to outline the boundaries of the studied region. This territory, despite being fairly easy to reach for scientists, has never been examined by syrphidologists before, so all the species discovered there are indicated there for the first time. Despite the relatively small size of the studied territory, it presents various landscapes from semi-deserts (Fig. 3), located



Figs 1–4. Biotopes and plants where the material in the north-eastern Tajikistan was collected. 1 — middle mountains of the Kuraminsky Ridge, 2 — flowering *Spirea* sp., 3 — ravine near the Kayrakkum reservoir, 4 — flowering *Tamarix* sp.

Рис. 1–4. Биотопы и растения, на которых был собран материал в северо-восточном Таджикистане. 1 — среднегорья Кураминского хребта, 2 — цветущая спирея, 3 — овраг в окрестностях Кайрокумского водохранилища, 4 — цветущий тамариск.

in the flat part, to juniper open forests located in the middle mountains of the Kuraminskij Ridge (Fig. 1). In the flat part, due to the widespread use of the territory for agricultural crops, collections were carried out in ravines, along streams and on the banks of the reservoir, where at that time *Tamarix* sp. was actively blooming (Fig. 4). In the middle mountains, flies gathered mainly on the inflorescences of *Spirea* sp. (Fig. 2), as well as in flight between the grass and on yellow plates. The determination of the obtained material was carried out using a binocular microscope «Stemi 2000-C» and the original identification key to hoverflies of Tajikistan. In case of difficulty in determination, materials stored in the Siberian Zoological Museum (Novosibirsk) were used as reference materials. All material used in the work is stored in this museum. Figures were made using an ocular grid and graph paper. The resulting drawings were processed on a computer using the Adobe Photoshop CS3 Extended program. The holotype and paratypes of the new species, and material cited in the paper are kept in the Siberian Zoological Museum (Novosibirsk).

Insects were mostly collected in the following localities: **1.** Mount Mogoltau — Sogdijskij region, Spitamenskij district, southern slope of Mount Mogoltau, 40°14' N, 69°14' E, h~344 m a.s.l.; **2.** Kayrakkum reservoir — the right bank of the Kayrakkum reservoir, 40°20' N, 70°05' E, h~349 m a.s.l.; **3.** Environs Khujand — the vicinity of Khujand, 40°19' N, 69°50' E, h~399 m a.s.l.; **4.** Mullomir — Ashtskij district, 3.85 km northwest of the village of Mullomir, 40°46' N, 70°07' E, 1760 m a.s.l.

The list of hoverfly species (Diptera, Syrphidae) collected in the north-eastern Tajikistan is given in Appendix (p. 1–3).

Nomenclatural acts introduced in the present work are registered in ZooBank (www.zoobank.org) under urn:lsid:zoobank.org:pub:B642EFEC-FC96-4B25-8458-25664066F02E.

Results

In the process of identifying the obtained materials, a new species for science was discovered, the description of which is given below.

Cheilosia (*Taeniochilosia*) *karimovi* Barkalov **sp.n.**

Figs 5–12.

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Material. **Tajikistan,** ***Ashtskij district:*** Holotype, ♂, 3.85 km northwest of the village of Mullomir, 40°46'N, 70°07'E, h~1760 m a.s.l., 11.V.2023, A.V. Barkalov leg. Paratypes: 10♂♂, 2♀♀ — same place, 6–11.V.2023, A.V. Barkalov leg.

Description. *Male*. Head. Face moderate in width, distinctly widened downward, except shiny central knob and under it covered with dense gray tomentum, without distinct pilis; central knob small, but distinct, eye-margins moderately width (Fig. 5), covered with dense gray tomentum and short white pilis. Genae low covered with gray tomentum and moderate in length white pilis. Frons flat, covered with dense gray tomentum and long, erect black pilis; frontal angle a little bit more than 90°. Lunula dark-brown, almost black, antennal pits distinctly connected. Antennae black, scapus and pedicel with gray tomentum, basoflagellomere almost rounded (Fig. 7), covered with brown tomentum; arista long, gradually tapering to top, covered with distinct pilis in basal half. Eyes without pilis, line of their connection distinctly longer than frons' length without lunula. Ocellar triangle distinctly swollen, isosceles, covered with long black pilis. Occiput narrow, in upper part with long black pilis. Thorax. Postpronotum black with dense gray tomentum and light pilis, sometimes with few black pilis. Scutum with fine granulation, black shiny, covered with erect pilis: short yellow and 2–3 times longer black; short pilis between wings bases can be black; postalar callus with long thin bristles. Scutellum black, shiny, covered with black pilis and some yellow pilis, on hind margin with some long black bristles. Pleura black, except shiny posterior part of anepisternum covered with gray tomentum; pilis white, on postero-dorsal corner of anepisternum a bunch of long black bristly-like pilis. Legs completely black, long pilis on posterior side of fore femur mixed black and white, on mid femur light-yellow, on hind femur yellow anteriorly and dorsally, ventrally short, bristly-like black. Metasternum with long white pilis. Calypters white with yellow rim and yellow cilia. Halter completely yellow or with darkened head. Wings hyaline, completely covered with microtrichia, finely brownish basally; veins black, inner angle between veins R_{4+5} и M_1 acute; common trunk of veins R_{2+3} and R_{4+5} with small black hairs. Abdomen narrow, almost parallel-sided, in the broadest part distinctly narrower scutum on level of wing base, black shiny, on middle parts of terga II–III with brown matte spots; covered with erect yellow pilis laterally and with short depressed black pilis medially. Sterna black matte, covered with yellow pilis: long erect on sterna I–II and on posterior part sternum III and oblique in the rest. Genitalia large, protruding from under tergite IV (Figs 9–12).

Size: body length 7.5–8.2 mm, wing length 8.5–7.5 mm.

Female. Head. Face and eye-margins as in male, central knob broader. Frons narrow, finely broadened anteriorly (Fig. 6), with dense gray tomentum anteriorly and shiny posteriorly, coarsely punctuated, covered with semierect golden pilis; longitudinal groove weakly expressed but the medial groove is developed from lunula to anterior ocellus. Ocellar triangle equilateral, covered with mixed black and yellow pilis. Scutum coarsely punctuated, covered with short depressed golden pilis, postalar callus with 2 not very strong black or yellow bristles. Scutellum hind margin with some not very strong black or yellow bristles. Pleura as in male, but bristly-like pilis on posterodorsal angle of anepisternum yellow. Legs black, pilis on posterior parts of fore and mid femora short, light-yellow, hind femur without strong black bristles ventrally. Abdomen oval, in the broadest part distinctly broader scutum on level of wing base; coarsely punctuated, covered with short depressed golden pilis, only sides of terga I–II with long erect pilis. Sterna with short, depressed yellow pilis, rare long erect pilis on hind margins and sides of sterna I–III.

Size: body length 7.3–9.0 mm, wing length 7.5–8.0 mm.

Habitat. Flies were collected on the leaves and inflorescences of *Spirea* sp. and on the leaves of hogweed (*Heracleum lehmannianum* Bunge).

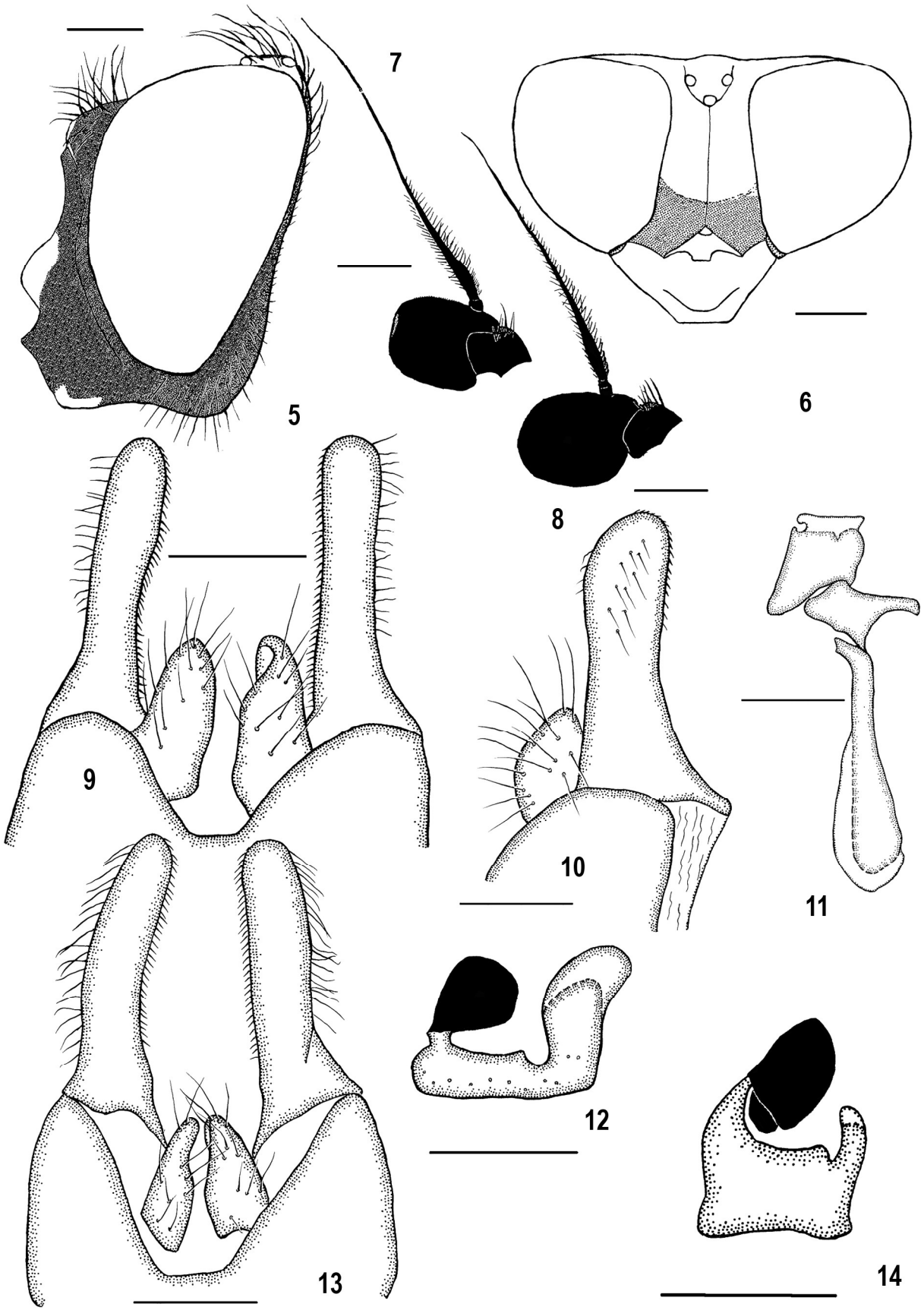
Distribution. North-eastern Tajikistan, middle mountains of the Kuraminskij Ridge.

Etymology. The species is named after the ichthyologist Gafur Nabievich Karimov, who made an invaluable contribution to the organization of the expedition in which the material presented in this article was collected.

Taxonomic position. Eyes without pilis, completely black legs, acute angle between veins R_{4+5} and M_1, and construction of male genitalia indicate that *Cheilosia karimovi* Barkalov sp.n. should be attributed to the subgenus *Cheilosia* (*Taeniochilosia*) Oldenberg, 1916. In this subgenus the new species is very close to *Cheilosia longistyla* Barkalov et Peck, 1994, from which differs in males by brownish wing base and by presence of tuft black bristly-like pilis on postero-dorsal corner of anepisternum (in *Ch. longistyla* Barkalov et Peck wing base yellow and on postero-dorsal corner of anepisternum only few weak black pilis). In addition, these species differ in length of pilis on the inner side of the surstylus and especially in the structure of the superior lobes of the hypandrium (Figs 9–14). Females of the new species are distinguished by a completely black basoflagellomere of antenna, completely golden-yellow hairs on the scutum and a less developed shiny spot on the posterior part of the anepisternum (in *Ch. longistyla* Barkalov et Peck basoflagellomere with golden spot in basal part, scutum with admixture black pilis on posterior part of scutum and posterior part of anepisternum completely shiny).

In the recently published key to species of the genus *Cheilosia* of Central Asia [Barkalov, 2022] the new species may be palced as follows:

3. Legs are completely black 4
— Legs, especially tibia and tarsi, more or less yellow; if legs are narrowly yellow only on knees, then basoflagellomere is bright orange with a darkened apex 9
4. Eye-margins with dense grey tomentum, sometimes only along face with narrow shiny stripe.....5
— Eye-margins shiny, without tomentum 8
5. Genitalia large, protruding from under tergite IV (Figs 9–12), surstylus broadened basally and sharply narrowed on tip (Figs 9–10, 13).....6
— Genitalia small, not protruding from under tergite IV, surstylus along the entire length approximately the same width 7
6. Superior lobe of hypandrium shortened, their right process is short and curved inward (Fig. 14) ....*Ch. longistyla* Bark. et Peck
— Superior lobe of hypandrium not shortened, their right process is elongated and directed outward (Fig. 12) .... *Ch. karimovi* sp.n.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Figs 5–14. Details of the two *Cheilosia* Meigen species morphology: *Ch. karimovi* Barkalov sp.n. (5–12) and *Cheilosia longistyla* Bark. et Peck, 1994 (13–14). 5 — male head; 6 — female head; 7 — 2–3 antennal segments of male; 8 — 2–3 antennal segments of female; 9, 10, 13 — surstylus; 11 — aedeagus with apodema; 12, 14 — superior lobes of hypandrium. 5, 7, 8, 10, 11, 12, 14 — lateral view, 6 — dorsal view, 9, 13 — posterior view. Scale bars: 5 — 0.45 mm, 9–14 — 0.25 mm, 6–8 — 0.23 mm.

Рис. 5–14. Детали строения двух видов *Cheilosia* Meigen: *Ch. karimovi* Barkalov sp.n. (5–12) и *Cheilosia longistyla* Bark. et Peck, 1994 (13–14). 5 — голова самца; 6 — голова самки; 7 — 2–3 членики усика самца; 8 — 2–3 членики усика самки; 9, 10, 13 — сурстили; 11 — эдеагус с аподемой; 12, 14 — верхняя лопасть гипандрия. 5, 7, 8, 10, 11, 12, 14 — сбоку, 6 — сверху, 9, 13 — сзади. Масштаб: 5 — 0,45 мм, 9–14 — 0,25 мм, 6–8 — 0,23 мм.

Discussion

The conducted study allows us to conclude that the syrphid fauna in the studied area is quite diverse and rich. There were found 43 species belonging to 24 genera of three subfamilies. No representatives of the subfamily Microdontinae were found. More than half of the fauna (54 %) belongs to subfamily Eristalinae, followed by subfamily Syrphinae (42 %) and Pipizinae (3 %). Such a ratio of taxa is characteristic of all southern faunas studied earlier. The first subfamily contains the most species in the genus *Cheilosia* Meigen, including *Cheilosia karimovi* Barkalov sp.n., which is new for science.

In the second subfamily, the most diverse was the genus *Paragus* with four species. Interestingly, species of *Macropelecocera paradoxa* Stackelberg and *Cheilosia urbana ampla* Barkalov et Peck were found in the mid-mountains, which we have not observed anywhere else in Tajikistan. The vast majority of species were found in the mid-mountains of the Kuraminskij range (30 together with widespread species), while 20 species were caught in the lowland part of the survey area. Apparently, the number of species in the mountains increases during the summer, as the climatic conditions are more favorable for the growth of plants whose nectar and pollen are consumed by syrphids. On the other hand, we should not expect a significant increase in the number of species during the summer on the plains. This is explained by the fact that almost all the plants there finish flowering in June, and even *Tamarix*, which grows in water-rich biotopes, blooms.

The discovery of an area with a high diversity of hoverflies, including a new species, in the central mountains of the Kuraminskij range in the Republic of Tajikistan, and the fact that the above-mentioned species have not been recorded anywhere else in the Republic of Tajikistan, indicates the need to restore the existing nature reserves, which are necessary for the preservation and reproduction of the remaining rich biota.

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Appendix to the article: A.V. Barkalov. Hoverflies fauna (Diptera, Syrphidae) of the north-eastern Tajikistan with description of the new species from the genus *Cheilosia* Meigen, 1822 (Euroasian Entomological Journal. 224. Vol.23. No.2. P.109–113)

Приложение к статье: А.В. Баркалов. Фауна мух-журчалок (Diptera, Syrphidae) северо-восточного Таджикистана с описанием нового вида из рода *Cheilosia* Meigen, 1822 (Евразиатский энтомологический журнал. 224. Т.23. Вып.2. С.109–113)

The list of hoverfly species (Diptera, Syrphidae) collected in the north-eastern Tajikistan

Список видов мух-журчалок (Diptera, Syrphidae), собранных в северо-восточном Таджикистане

Syrphinae

Syrphini

Episyrphus balteatus (De Geer, 1776)

Material. 1♂ — Dzhabbor Rasulovskij district, Madaniyat village, 19.V.223, Barkalov leg.; 3♀♀ — Mullomir, 9–11.V.223, Barkalov leg.

Remarks. Specimens of this species were collected on inflorescences of *Spirea* sp. and *Tamarix* sp.

Eupeodes asiaticus (Peck, 1972)

Material. 4♀♀ — Mullomir, 7–9.V.223, Barkalov leg.

Remarks. All specimens were collected on inflorescences of *Spirea* sp.

Eupeodes corollae (Fabricius, 1794)

Material. 2♂♂ — Mount Mogoltau,13–14.V.223, Barkalov leg.; 2♀♀ — Mullomir, 6–8.V.223, Barkalov leg.; 1♂ — Dzhabbor Rasulovskij district, Madaniyat village, 19.V.223, Barkalov leg.

Remarks. Specimens of this species were collected on inflorescences of *Spirea* sp. and *Taraxacum* sp.

Eupeodes luniger (Meigen, 1822)

Material. 4♂♂ — Mullomir, 6–11.V.223, Barkalov leg.

Remarks. Males of this species sat on inflorescences or flew between branches of *Spirea* sp.

Scaeva pyrastri (Linnaeus, 1758)

Material. 6♀♀ — Mullomir, 6–7.V.223, Barkalov leg.

Remarks. All specimens were collected on inflorescences or around bushes of *Spirea* sp.

Simosyrphus scutellaris (Fabricius, 185)

Material. 1♀ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. The only female of this species was caught on the inflorescences of *Tamarix* sp., which grew at the bottom of a small ravine along a drying up stream.

Sphaerophoria (*Sphaerophoria*) *rueppellii* (Wiedemann, 1830)

Material. 1♂, 1♀ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. All specimens were collected on inflorescences of *Tamarix* sp.

Sphaerophoria (*Sphaerophoria*) *scripta* (Linnaeus, 1758)

Material. 8♂♂, 2♀♀ — Mullomir, 7–11.V.223, Barkalov leg.; 15♂♂, 1♀ — Dzhabbor Rasulovskij district, Madaniyat village, 19.V.223, Barkalov leg.; 1♂♂ — environs Khujant town, 17–18.V.223, Barkalov leg.; 3♂♂, 1♀ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. One of the most widespread and frequently occurring species in the studied region. It was found on all flowering plants, except *Tamarix* sp. and *Spirea* sp.; it was noted on *Taraxacum* sp., *Barbarea vulgaris* W. T. Aiton etc.

Syrphus vitripennis Meigen, 1822

Material. 1♂, 6♀♀ — Mullomir, 8–11.V.223, Barkalov leg.

Remarks. Specimens of this species were caught in flight between branches and on inflorescences of *Spirea* sp.

Chrysotoxini

Chrysotoxum intermedium Meigen, 1822

Material. 1♂, 1♀ — Mullomir, 8.V.223, Barkalov leg.

Remarks. Two specimens of this species were found, one on the leaves of *Heracleum* sp. and the other on *Spirea* sp. inflorescences.

Chrysotoxum lydiae Violovitsh, 1964

Material. 2♂♂ — Mullomir, 6, 8.V.223, Barkalov leg.

Remarks. Specimens of this species were collected from *Spirea* sp. inflorescences.

Chrysotoxum vernale Loew, 1841

Material. 19♂♂, 18♀♀ — Mullomir, 6–11.V.223, Barkalov leg.; 3♂♂, 1♀ — environs of Khujant town, 17–18.V.223, Barkalov leg.; 3♂♂, 4♀♀ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. This species is commonly found in the middle mountains of the Kurama Range. The specimens were observed in large numbers resting and flying around *Spirea* sp., dandelion, and *Tamarix* sp. inflorescences.

Melanostomatini

Melanostoma mellinum (Linnaeus, 1758)

Material. 1♂, 1♀ — Dzhabbor Rasulovskij district, Madaniyat village, 19.V.223, Barkalov leg.

Remarks. Both specimens were caught on *Tamarix* sp. flowers.

Platycheirus (*Pachysphyria*) *goeldlini* Nielsen, 204

Material. 9♂♂, 2♀♀ — Mullomir, 11.V.223, Barkalov leg.

Remarks. Males of this species were caught in flight in the shade of trees at a height of 2–2.5 m, where they patrolled throughout the day. Females fed on *Spirea* sp. inflorescences.

Paragini

Paragus (*Pandasyophthalmus*) *abrogans* Goeldlin, 1971

Material. 1♂ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. The only specimen of this species was caught on *Tamarix* sp. flowers.

Paragus (*Paragus*) *bicolor* (Fabricius, 1794)

Material. 1♀ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.; 2♂♂ — Dzhabbor Rasulovskij District, 19.V.223, Barkalov leg.; 11♂♂ — Mullomir, 7–11.V.223, Barkalov leg.; 1♂ — environs Khujant town, 17–18.V.223, Barkalov leg.

Remarks. All specimens of this species are collected on *Tamarix* sp. inflorescences, on dandelion and in flight near flowering *Spirea* sp.

Paragus (*Paragus*) *finitimus*
Goeldlin de Tiefenau, 1971

Material. 1♂ — Mullomir, 11.V.223, Barkalov leg.

Remarks. A specimen of this species was caught on a *Spirea* sp. inflorescence.

Paragus (*Pansdasiophthalmus*) *tibialis*
(Fallén, 1871)

Material. 1♀ — Mount Mogoltau, 13–14.V.223, Barkalov leg.

Remarks. The only specimen of this species was caught on *Tamarix* sp. inflorescence.

Pipizinae
Pipizella mesasiatica Stackelberg, 1952

Material. 3♂♂, 1♀ — Mullomir, 8–11.V.223, Barkalov leg.

Remarks. Specimens of this species are caught in flight between grass stems.

Trichopsomyia ochrozona
(Stackelberg, 1952)

Material. 4♀♀ — Mullomir, 9–11.V.223, Barkalov leg.

Remarks. Females of this species were collected on inflorescences of *Spirea* sp., while no males were found. Probably, they hover somewhere nearby or fly out phenologically later.

Eristalinae
Cheilosiini
Cheilosia (*Cheilosia*) *aerea* Dufour,1848

Material. 9♂♂, 15♀♀ — Mullomir, 7–11.V.223, Barkalov leg.

Remarks. Most specimens of this species were collected on or in flight near *Spirea* sp. inflorescences, with a few specimens caught in yellow pan traps.

Cheilosia (*Montanocheila*) *heptapotamica*
Stackelberg, 1963

Material. 2♂♂, 1♀ — Mullomir, 7–9.V.223, Barkalov leg.

Remarks. Specimens of this species are collected on inflorescences of dandelion and *Spirea* sp.

Cheilosia (*Convocheila*) *lola* Zimina, 1970

Material. 4♀♀ — Mullomir, 9–11.V.223, Barkalov leg.

Remarks. Specimens of this species are collected on inflorescences of *Spirea* sp.

Cheilosia (*Cheilosia*) *urbana ampla*
Barkalov et Peck, 1997

Material. 7♂♂, 14♀♀ — Mullomir, 8–11.V.223, Barkalov leg.

Remarks. Specimens of this species were collected in flight near leaves of large grasses and on inflorescences of *Spirea* sp. The subspecies is reported for the territory of the Republic of Tajikistan for the first time. Earlier it was known from the territory of Kyrgyzstan.

Macropelecocera paradoxa
Stackelberg, 1952.

Material. 24♂♂, 1♀ — Mullomir, 8–11.V.223, Barkalov leg.

Remarks. The species was collected on inflorescences of *Spirea* sp. and in flight between stems of grasses and *Spirea* sp. One specimen was collected by the yellow pan trap. The species is reported for the territory of the Republic of Tajikistan for the second time. For the first time the only female was caught on the Alay Ridge [by Kuznetsov, 1990].

Chrysogasterini
Chrysogaster musatovi Stackelberg, 1952

Material. 1♂ — Mullomir, 11.V.213, Barkalov leg.

Remarks. The only male of this species was caught on *Spirea* sp. inflorescences.

Orthonevra nobilis (Fallén, 1817)

Material. 2♂♂, 1♀ — Mullomir, 8–11.V.223, Barkalov leg.

Remarks. Specimens of this species are collected on *Spirea* sp. inflorescences and in flight near the ground surface.

Eumerini
Eumerus amoenus Loew, 1848

Material. 1♂ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. The only male was caught on *Tamarix* sp. inflorescence.

Eumerus sogdianus Stackelberg, 1952

Material. 4♂♂, 1♀ — Mullomir, 6–8.V.223, Barkalov leg.

Remarks. Specimens of this species were caught on dandelion inflorescences, in flight near the ground and on *Spirea* sp. inflorescences.

Merodon (*Merodon*) *disjunctus* Vujić, Licov et
Radenković, 220.

Material. 12♂♂, 15♀♀ — Mullomir, 7–11.V.223, Barkalov leg.

Remarks. Specimens of this species are common on leaves and flowers of *Spirea* sp. A few specimens were caught in yellow pan traps placed on a mountain slope covered with shrubs and dense grass.

Merodon (*Merodon*) *smirnovi*
Paramonov, 1927

Material. 94♂♂, 34♀♀ — Mullomir, 9–11.V.223, Barkalov leg.

Remarks. Specimens of this species fly low above the ground, often landing on protruding objects — stones, tree stumps, in this regard they often fall into yellow pan traps, by which they were mostly collected.

Merodon (*Merodon*) *tarsatus* Sack, 1913

Material. 28♂♂, 12♀♀ — Mullomir, 8–11.V.223, Barkalov leg.

Remarks. As in the previous species, specimens of this species fly low above the ground or sit on protruding objects. Most of the specimens were collected by yellow pan trapes, while a smaller part was collected by net on inflorescences of *Spirea* sp.

Ceriana naja Violovitsh, 1974

Material. 1♂, 4♀♀ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. All specimens of this species are caught on *Tamarix* sp. inflorescences.

Eristalini
Eristalinus (*Eristalinus*) *sepulchralis*
(Linnaeus, 1758).

Material. 4♂♂, 3♀♀ — Mount Mogoltau, 13–14.V.223, Barkalov leg.; 1♂, 1♀ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. Specimens of this species were collected on inflorescences of *Tamarix* sp. growing along a shallow stream and on the bank of the reservoir.

Eristalinus (*Lathyrophthalmus*) *aeneus*
(Scopoli, 1763)

Material. 14♂♂, 10♀♀ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.; 1♂, 4♀♀ — environs Khujand, 17–18.V.223, Barkalov leg.; 1♂ — Mount Mogoltau, 13–14.V.223, Barkalov leg.; 2♂♂ — Dzhabbop Rasulovskij District, 19.V.223, Barkalov leg.

Remarks. As the larvae of this species are trophically associated with the dung of domestic animals, adult flies can be found in populated areas — kishlaks and on the outskirts of cities on flowering vegetation. All specimens were caught on flowering *Tamarix* sp., where they are quite common.

Eristalis (*Eoseristalis*) *arbustorum*
(Linnaeus, 1758)

Material. 1♂, 2♀♀ — environs Khujand, 17–18.V.223, Barkalov leg.; 7♂♂, 5♀♀ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.; 5♂♂, 1♀ — Mount Mogoltau, 13–14.V.223, Barkalov leg.; 6♂♂, 4♀♀ — Mullomir, 6–7.V.223, Barkalov leg.

Remarks. As in the previous species, larvae of this species develop in organic residues, therefore its adults are common along garbage dumps and livestock yards. During flowering of orchards it participates in pollination of many fruit crops. In the study area flies were caught on inflorescences of *Tamarix* sp., *Spirea* sp. and dandelion.

Eristalis (*Eristalis*) *tenax*
(Linnaeus,1758)

Material. 3♂♂ — 17–18.V.223, environs Khujand, Barkalov leg.; 2♂♂, 1♀ — Spitamenskij District, 13–14.V.223, Barkalov leg.; 6♂♂, 2♀♀ — Mullomir, 6–11.V.223, Barkalov leg.; 1♀ — Dzhabbop Rasulovskij District, 19.V.222, Barkalov leg.

Remarks. The most abundant species both in the plain and mountainous parts of the studied area. The abundance and ubiquity of this species is due to the fact that its larval development takes place in manure, which is always abundant in livestock areas of Tajikistan. Adult flies visit flowers of fruit crops, pollinating them. This is one of the most abundant species, the specimens of which almost have not been captured due to their commonness.

Helophilus (*Helophilus*) *continuus*
Loew, 1854

Material. 1♂, 1♀ — Kayrakkum reservoir, 15–16.4.223, Barkalov leg.

Remarks. Two specimens of this species were caught on *Tamarix* sp. inflorescences.

Helophilus (*Helophilus*) *trivittatus*
(Fabricius, 185)

Material. 1♂ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. The only specimen was caught on *Tamarix* sp. inflorescences growing on the bank of the reservoir.

Helophilus (*Helophilus*) *turanicus*
Smirnov, 1923

Material. 1♀ — Mullomir, 7.V.223, Barkalov leg.

Remarks. The only female was caught on a dandelion.

Myathropa semenovi
(Smirnov, 1925)

Material. 1♂ — Kayrakkum reservoir, 15–16.V.223, Barkalov leg.

Remarks. The only male was caught on *Tamarix* sp. inflorescence.

Milesiini
Syritta pipiens (Linnaeus, 1758)

Material. 2♂♂, 3♀♀ — bank of the Kayrakkum reservoir, 15–6.V.223, Barkalov leg.; 5♂♂ — Mullomir, 7–11.V.223, Barkalov leg.

Remarks. The larvae of this species develop in organic remains, so its adults are found everywhere and in large numbers. It is one of the most abundant species, the specimens of which have not been captured due to their commonness. It visits all types of plants.