

A new species of *Fannia* Robineau-Desvoidy (Diptera: Fanniidae) from the Altai Mountains, Western Siberia, Russia

Новый вид *Fannia* Robineau-Desvoidy (Diptera: Fanniidae) из гор Алтая, Россия

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КЛЮЧЕВЫЕ СЛОВА: Diptera, Fanniidae, *Fannia altaica*, новый вид, высокогорная тундра, Алтай, Россия.

ABSTRACT: A new species, *Fannia altaica*, is described from the area of Lake Zerlyukol'-Nur in the Altai Mountains of Western Siberia, at 2300–2400 m. It is compared with the closely similar *Fannia brinae* Albuquerque, from the European Alps.

РЕЗЮМЕ: Новый вид *Fannia altaica* описан из окрестностей озера Зерлюколь-Нур в горах Алтая, с высоты 2300–2400 м. Новый вид сравнивается с близкородственным ему видом *Fannia brinae* Albuquerque, известным из нескольких точек в европейских Альпах.

Introduction

Among Fanniidae received for study from Dr. Anatoliy Barkalov of the Zoological Museum, Institute of Systematics and Ecology of Animals, Russian Academy of Sciences, Novosibirsk (ISEA), N.E. Vikhrev found a single male of what was clearly a striking new species of *Fannia* Robineau-Desvoidy, 1830 closely related to *Fannia brinae* Albuquerque, 1951 from the European Alps. The specimen was sent to A.C. Pont who compared with the holotype of *Fannia brinae*, on loan from the Muséum National d'Histoire Naturelle, Paris, and confirmed that it is a similar but very distinct species. Whilst it is not always advisable to describe new Fanniidae from single specimens, we feel that it is justified in this case because of the unusual morphological features of the new species and also the remarkable environment in which it was collected.

The type-locality of the new species is the environs of Lake Zerlyukol'-Nur (Fig. 1), at 2300–2400 m in the Altai Mountains of Western Siberia. This is an area of alpine tundra and completely without trees, and as such is a most unusual habitat for Fanniidae. However, a

few species are known to occur above the tree-line in Europe, for example *Fannia monticola* Pont, 1996 (1940–2400 m) and *Fannia brinae* (2444 m), and such species are believed to be closely associated with the burrows of the Alpine Marmot (*Marmota marmota* (Linnaeus, 1758)) [Pont & Ackland, 1995]. For this reason, we believe that the description of this new species is justified, and we suggest that targeted collecting around marmot burrows in the Altai Mountains will lead to the discovery of further specimens of this species and indeed of many cryptic Muscidae and Anthomyiidae that will be found to be associated with *Marmota* species.

Fannia altaica Pont & Vikhrev, sp.n.

MATERIAL. Holotype ♂, "Алтай, Кош-Агачский р-н оз. Зерлюколь-Нур, 2300-2400 м 49°6 с.ш. 88°2 в.д. 23.06.2005 сб. А. Баркалов" [RUSSIA, Western Siberia: Altai Mountains, Kosh-Agach district, lake Zerlyukol'-Nur, 2300–2400 m, 49.56°N 88.20°E, 23–06–2005, leg. A. Barkalov] (in ISEA).

DIAGNOSIS. A rather large (length 7 mm), grey species of the *Fannia canicularis*-subgroup of Chillcott [1961] with a few short setulae on parafacial, a single setula adjacent to the proepimeral seta, and a yellow hind tibia with only 1 anterodorsal seta.

DESCRIPTION. MALE. *Head*. Ground-colour black. Distance between eye margins at upper part of frons about twice the width of antennal flagellomere. Frontal vitta almost twice as wide as a fronto-orbital plate. In anterior view both frontal vitta and fronto-orbital plate dull grey dusted, in posterior view frontal vitta blackish but fronto-orbital plate silvery-white pruinose. Parafacial silvery-white pruinose; wide, at upper part wider than antennal flagellomere, at middle as wide as antennal flagellomere. Face, gena and occiput grey. Eye bare. Postocular setulae relatively long, in a single row in upper half of head. 4 pairs of strong inclinate frontal setae, with 4–5 pairs of weak setae interspersed among them. One pair of strong reclinate orbitals. 2–3 hairs present on upper half of parafacial. Antennae black, flagellomere at least 2 times as long as broad. Arista black, basally thickened, micro-



Fig. 1. Lake Zerlyukol'-Nur, Altai Mountains, Western Siberia. (Photo: T. Novgorodova).

Рис. 1. Озеро Зерлюколь-Нур, Алтай (Фото Т. Новгородовой).

scopically pubescent. Proboscis short, theca of proboscis thinly dusted. Palpi black, narrow, somewhat longer than proboscis.

Thorax. Ground-colour black. Scutum and scutellum evenly and densely light grey dusted, pleura more thinly so. Presutural acrostichals in 2 rows anteriorly, in 3 rows at suture, postsutural setulae in 3–4 rows. One relatively strong prealar seta, less than half as long as posterior notopleural, on right side with an additional distinct setula behind it. Proepisternal depression bare. Proepimeral seta with only 1 adjacent setula. Wings with yellow veins, wing-base yellowish. Calypters white, well-developed, rounded, lower one projecting beyond upper one. Haltere yellow.

Legs. Legs mostly black, but all trochanters brown, all knees broadly yellow, fore and mid tibiae yellow in basal third, otherwise brownish-yellow in colour, hind tibia completely yellow. Coxae without spines. Fore femur with 3 rows of posteroventral, posterior and posterodorsal setae. Fore tibia without setae except at apex. Mid femur rather constricted in apical quarter; with a row of strong anteroventrals, these becoming much shorter in apical quarter; posteroventral setae in 2–3 dense and regular rows, as long as femoral depth. Mid tibia slightly narrowed in basal half, the ventral mat of soft uniform pubescence about half as long as tibial depth and brownish rather than black; 1 anterodorsal and 1 posterodorsal setae. Mid basal tarsomere without a basal ventral crest. Hind coxa with several short setae on posterior inner margin. Hind femur with a complete row of anteroventrals (0.75 of femur depth), the apical 3 strong and longer than femoral depth; with a complete row of long posteroventrals, almost twice as long as femoral depth; and in basal half with long hair-like setae between posterior and posteroventral surfaces. Hind tibia slightly curved; with 1 anterodorsal and 1 true dorsal inserted at the same level, both conspicuously long; 3 anteroventrals.

Abdomen. Ground-colour black. Densely light grey dusted; in dorsal view virtually unmarked, with only faint indications of a darker, narrow, parallel-sided median vitta on each visible tergite; in posterior view with a not very conspicuous broad median stripe consisting of less dusted and darker matt trapezoid spots on each visible tergite, and superimposed on these spots with the darker median vitta mentioned above. Ventral margins of tergites 4 and 5 with long setae which cross under abdomen, their tips appearing paler; sternites 3–5 also with longer and denser hairs than usual.

Terminalia. Not studied. As the holotype is unique, and the male terminalia are not always species-specific in the *Fannia canicularis*-subgroup, we decided not to dissect this male.

Measurements. Length of wing, 6 mm. Length of body, 7 mm.

ETYMOLOGY. The species name is based on the type-locality, the Altai Mountains.

RELATIONSHIPS. *Fannia altaica* is most closely related to the European *Fannia brinae* Albuquerque, known from a handful of localities in the French and Swiss Alps. Both species belong to the *canicularis*-subgroup of *Fannia* [Chillcott, 1961; Wang *et al.*, 2007] because of the following characters: male with a well-developed reclinate orbital seta; upper post-ocular setulae in a single row; presutural acrostichal setulae in 3 rows at suture; mid tibia with 1 anterodorsal and 1 posterodorsal, and in male with a mat of short soft hairs along whole length of ventral surface; hind coxa with setulae on inner posterior margin; hind tibia with 2–3 anteroventral setae; lower calypter well-developed and projecting beyond upper one.

Hennig [1964: 1069] wrote that the hind coxa in the holotype of *brinae* was bare, but this was queried by Gregor & Rozkošný [1993: 228] when they synonymised *Fannia hylemyiaeformis* Ringdahl, 1952 with *Fannia brinae* Albu-

querque, 1951. In fact, the hind coxa in the holotype of *brinae* does have setulae on the inner posterior margin but they are largely concealed because the coxae are pressed close together.

Probable apomorphic characters within the *canicularis*-subgroup that are shared by *F. altaica* and *F. brinae* are as follows: 1–2 distinct setulae on the parafacial; proepimeron with only 1 setula adjacent to the seta; fore tibia without an erect anterodorsal setula; hind tibia rather curved, with a single seta on anterodorsal surface; ventral margins of abdominal tergites 4 and 5 with long setae that cross under the abdomen.

The parafacial setulae are present on both sides of the head in the holotype of *F. altaica* but only on one side of the head in the holotype of *F. brinae*. This character was not mentioned by Gregor & Rozkošný [1993: 228] in their redescription of this species, which was based on the two male syntypes of *F. hylemyiaeformis* Ringdahl, which is a junior synonym of *F. brinae*. It is possible that this character is not constant and that the setulae are sometimes absent.

The holotype of *F. brinae* is very similar to *F. altaica*, in size, habitus and many morphological characters, but the two are distinct species and probably sister-species, both living at high altitudes above the tree-line in widely separated mountain ranges. The following key couplet will separate males of the two species:

- Hind tibia yellow. Scutum light grey, without brown vittae. Tergites 3–5 each with a broad trapezoid dark median marking *altaica* Pont & Vikhrev, sp.n.
- Hind tibia black except at base. Scutum dull grey, with three weak brown vittae running through the acrostichal and dorsocentral lines (best viewed from in front). Tergites 3–5 each with a very narrow dark parallel-sided median vitta *brinae* Albuquerque

There are further, more subtle differences that are best appreciated when the two species can be compared with each other: Frontal proportions a little different, largely because *brinae* is slightly immature with the face+antennae not fully extruded out to the level of the lunula. 5–6 strong frontal setae and 4–5 very short fine interstitials in *brinae* that are shorter than in *altaica*. Prealar setae of the same size, even with 1 on the left side and 2 on the right side in both holotypes. In *brinae* the knees also yellow, but all tibiae dark brown except for the yellow basal sixth. Mid femur in *brinae* with the anteroventrals fewer in number and more sparse; posteroventrals not so densely and abundantly multiseriate. Mid tibia in *brinae* with the ventral mat shorter, only one-third width of tibia. Hind femur in *brinae* with the anteroventrals and posteroventrals shorter and sparser, only 2–3 anteroventrals before apex as long as femoral depth; the fine posterior to posteroventral setae in basal half also shorter and sparser. Tergites 4 and 5 similar in the two species, but in *brinae* the ventral setae shorter, and only sternites 4 and 5 with long dense setae.

ECOLOGY. *Fannia altaica* was collected at 2300–2400 m which, in the Altai Mountains, is an area of alpine tundra and well above the tree line (Fig. 1; V. Sorokina pers. comm.). Albuquerque [1951: 2] gave “Monticre” as the type-locality of his *Fannia brinae*, but this is a misreading of the label which clearly states in Séguy’s handwriting “Moutière”, as pointed out by Hennig [1964: 1069]. This is

certainly the Col de la Moutière in the French Maritime Alps, altitude 2444 m and also above the tree-line. *Fannia hylemyiaeformis*, a junior synonym of *Fannia brinae* [Gregor & Rozkošný, 1993: 228], was collected by Ringdahl near the village of La Grave in the French Alps, at about 1600 m. Ringdahl [1957: 116] characterised this locality as “regio subalpina”, which is the upper forest zone between his “regio alpina” and “regio montana”. Since that time the only record of new material of *Fannia brinae* is by Merz *et al.* [2006: 152] who recorded it from two localities in Switzerland: 1980 m in Ticino canton, and 2250 m in Valais canton where it was collected at the entrance to a marmot burrow. The species was included in the key to European Fanniidae by Rozkošný *et al.* [1997: 24, 37].

Almost all Fanniidae are forest species, and males generally form hovering aggregations in shafts of sunlight beneath trees. The open environment of the alpine tundra is a most unusual habitat, and a detailed investigation of the association between Fanniidae and marmot burrows would clearly be a most rewarding one.

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