

# Description of a New Species of the Genus *Drymeia* Meigen, 1826 (Diptera: Muscidae) from Tajikistan

Eberhard Zielke

Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, 1 Tsar Osvoboditel Blvd, 1000 Sofia, Bulgaria; E-mail: eo.zielke@abv.bg

**Abstract:** *Drymeia tadschika* sp. n. from Tajikistan is described. This species is characterised by a combination of distinctly haired eyes and a long slender proboscis, which is, including the elongated narrow labella, about as long as the fore tibia. The prementum alone is about eight times as long as its diameter and the length of the narrow elongated labella is half the length of the prementum. After *Drymeia hamata* (Fallén), this is the second species of *Drymeia* with a conspicuously long proboscis and significantly elongated labella. A comparison of the four *Drymeia* spp. known from Tajikistan is presented and an identification key to them is proposed.

**Key Words:** new species, *Drymeia*, Muscidae, Tajikistan, key

## Introduction

When working on the non-identified material of the Muscidae collection of the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences, Sofia, a male specimen collected in 1964 in Tajikistan and labelled as *Pogonomyia* sp. was detected. As the genus *Pogonomyia* Rondani, 1871, together with several related genera, has been recognised as synonymous of the genus *Drymeia* Meigen, 1826 (Diptera: Muscidae: Azeliinae) by PONT (1986), this specimen has to be considered now as a member of *Drymeia*. The male is rather fragile, one antenna and the second arista are missing as well as the hind tarsomeres 2-5 and 3-5, both wings show multiple ribs and the abdomen has a crack at tergite 1+2. The male genitalia have already been extracted and glued on an additional plastic label by the earlier investigator who assigned the specimen to *Pogonomyia*. The label has been fixed to the staging pin below the fly. However, there are only very few fragments left on the label and they are of no use for identification purposes. Irrespective of these shortcomings, the specimen has the typical morphological characters of *Drymeia* as recently summarised by SOROKINA, PONT (2015) and, due to its significant specific char-

acters, it is distinctly differentiated from the known *Drymeia* spp. listed in identification keys for this genus (e.g. PONT 1981, FAN 2008, XUE 2008, SOROKINA, PONT 2015).

## Material and Methods

Morphological terminology follows MCALPINE (1981), but postpedicel (STUCKENBERG 1999) is used instead of “first flagellomere” proposed by MCALPINE.

External morphological features were examined using a Zeiss Stemi 2000-C stereomicroscope. For illustrations, AxioCam ERc5s camera was used and for further processing Helicon Focus 6 and Adobe Photoshop CS2 have been applied. Body length was measured in millimetres (mm).

## Results

*Drymeia tadschika* sp. n.

### Description:

*Male:* Body length about 7 mm. Eyes conspicuously covered with whitish hairs, almost all about

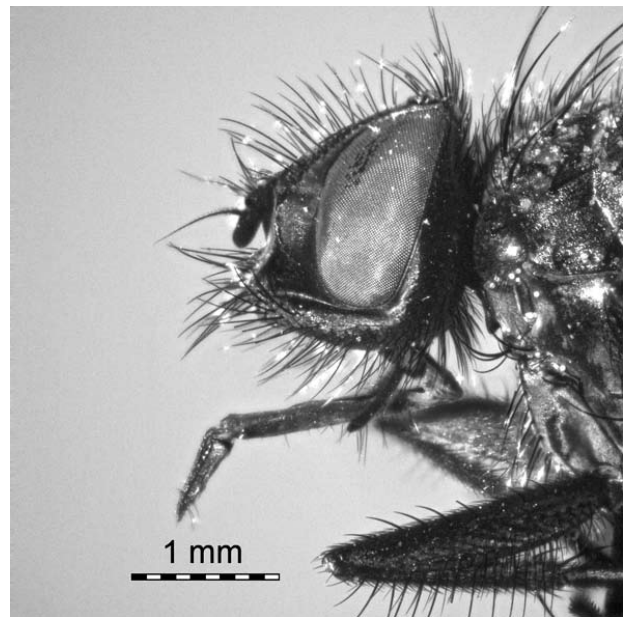
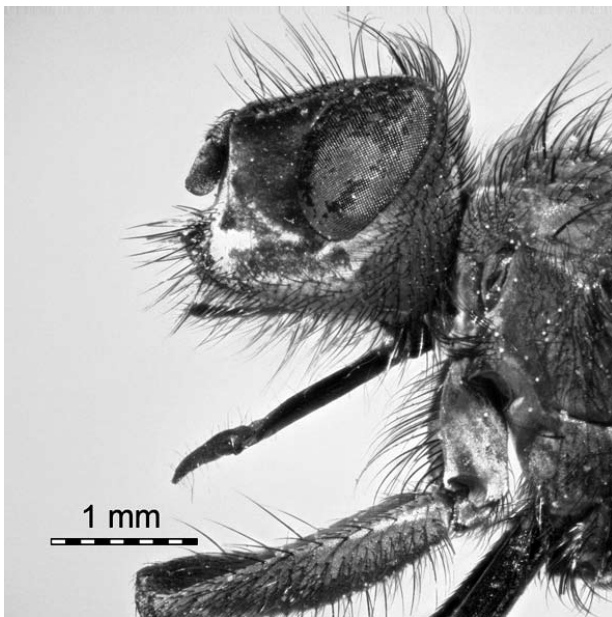
twice as long as diameter of anterior ocellus and apically down-curved. Frontal vitta at narrowest part almost twice as wide as distance between external margins of posterior ocelli. Ocellar tubercle and frontal vitta black and, depending on point of view, more or less grey pruinose. Fronto-orbital plates, parafacials and surface above haired lower margin of genae dark brown to black or shining silvery white depending on the point of view; face densely light grey pruinose. Parafacials more than twice as broad as postpedicel. Genal height about length of pedicel and postpedicel together. In profile, facial edge projecting forward beyond level of profrons (Fig. 1). Antenna black, postpedicel about 1.8 times as long as wide and almost twice as long as pedicel. Arista lost. About 15 pairs of frontal setae, including interstitials, reach almost level of anterior ocellus: lower setae long, strong and curved inwards; setae of the upper half somewhat shorter and more hair-like. Peristomal setae long and dense, vibrissae only marginally stronger than the strongest ones of the surrounding setae. Lower surface of gena with some unstructured rows of long, up-curved hair-like setae, surface above the rows almost bare. Proboscis brown, thin, about as long as fore tibia, prementum eight times as long as its diameter and length of narrow elongated labella half of length of prementum, both with some fine hairs, very scattered and distinctly shorter on somewhat shining prementum. Palpi slender and about as long as prementum, brown to dark brown with numerous long hair-like setae.

Thorax ground-colour all over black with grey dust, latter one most intense on humeri and notopleuri when viewed from behind. A pair of short narrow paramedian black vittae from neck to 1st presutural dorsocentral seta. Spiracles dark brown to black. Ground-setulae dense, long and hair-like; longer setae as long as pedicel and postpedicel together. 2-3+4 dorsocentrals, the two anterior post-sutural dorsocentrals weaker than the two posterior ones; two presutural acrostichals hair-like but distinctly longer than the surrounding setae and one long but weak postsutural acrostichal. Notopleuron with two setae, otherwise bare; prealar seta absent or at least not distinguishable from surrounding hairs; two intra-alar setae, posterior one hair-like and hardly distinguishable from surrounding long setae. Prosternum, proepimeral area, anepimeron, meron and katepimeron bare. Scutellum ventrally bare, laterally with hairs mainly on anterior surface. Katepisternum with 1+1 setae and covered with long hair-like setae. Anepisternum with row of long setae at posterior margin and densely haired in general. Wing hyaline to weakly brownish, with exception of

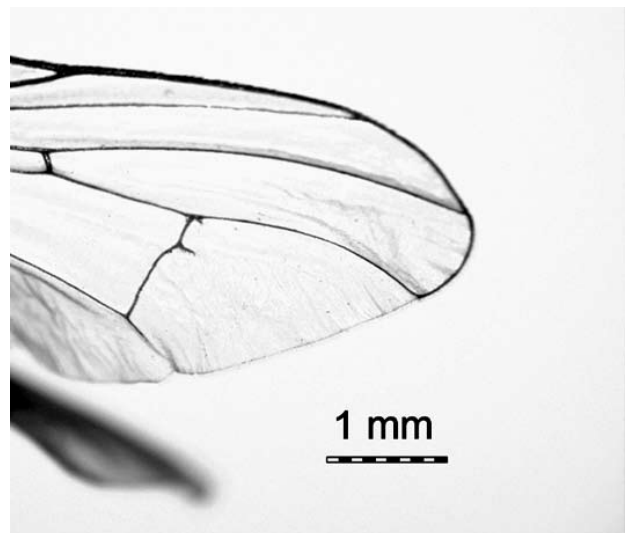
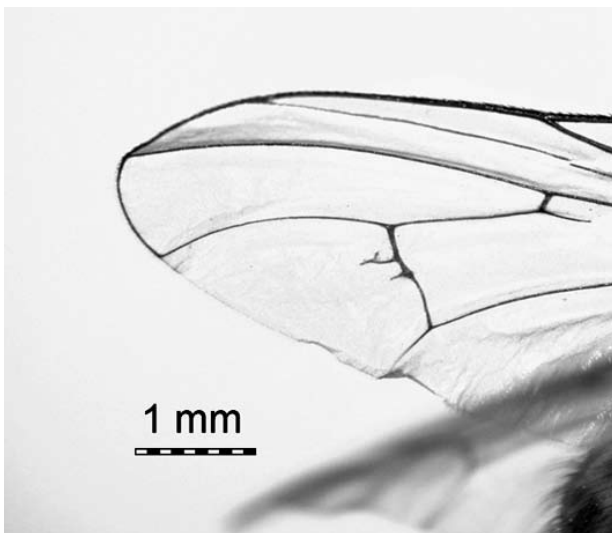
darker brown wing base. Veins all brown, costa dark brown, veins bare except costa, costal spine indistinct. Radius vein R4+5 and media vein M distinctly diverging distally, distal cross-vein dm-cu almost straight, forming a right-angle with vein M, each dm-cu with one respectively two short, apically directed spine-like vein-processes (Figs. 3, 4). Length of wing about 6.5 mm. Calypters white, lower one tongue-shaped and projecting beyond upper one; haltere brown.

Legs all black and without conspicuous modifications. Claws about as long as pulvilli. All coxae with rather long hairs on anterior surface, posterior surface of front and hind coxae bare, of mid coxa with some setae. Fore femur with complete rows of long posterodorsal and posteroventral setae, posterior surface between the two rows densely covered with long hair-like black setae, anterior surface of femur without any long setae but equally covered with short bristle-like hairs. Fore tibia only with two long posterior setae at its middle third, anterior setae absent as well as posteroventral, dorsal or ventral setae. Fore tarsomere 1 about twice as long as tarsomere 2 and ventrally at basis with a seta more than twice as long as diameter of tarsomere 1; seta surrounded by small cluster of shorter hairs. Fore tarsomere 5 apically about twice as wide as slender tarsomeres 3 and 4 and also broader than tarsomeres 1 and 2. Mid femur with complete rows of setae not longer than femur width on anteroventral and posteroventral surfaces with two or three curved strong setae at posterior and two very small curved setae at anterior apex. Mid tibia with two anterodorsals, one posteroventral and three - five posteriors, all setae strongly developed. Mid tarsomere 1 about twice the length of tarsomere 2, without enlarged seta at base, mid tarsomere 5 apically twice as wide as tarsomeres 3 and 4, and broader than 1 and 2. Hind femur with a complete row of anterodorsal setae, those in basal half almost anteriorly situated, the longest ones at basal half almost twice femoral width. Additional row of anteroventrals on distal half; setae similar to anterodorsal ones, a row of hair-like posterior setae at basal half, length of these distinctly greater than femur width. Hind tibia slightly curved with three anteroventrals, two or three anterodorsals and all over length of tibia with four - five posterodorsals; all setae of hind tibia about equal in length to two-three times width of hind tibia. Hind tarsomere 1 ventrally at base with one curved seta.

Abdomen dark, with intense grey dusting. When viewed from behind tergite 1+2 appears somewhat darker grey than tergites 3-5; the latter ones with narrow brown median vitta. Additionally, on each



**Fig. 1, 2:** 1. *Drymeia tadschika* sp. n., male (holotype), head, lateral view; 2. *Drymeia hamata* (Fallén), male, head, lateral view



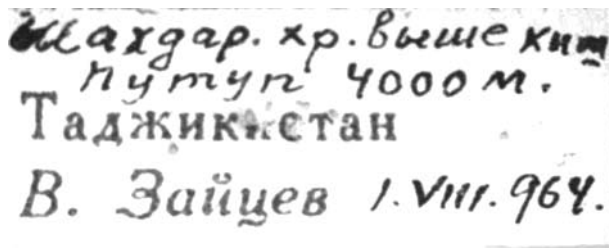
**Fig. 3, 4:** 3. *Drymeia tadschika* sp. n., (holotype), left wing; 4. *Drymeia tadschika* sp. n. (holotype), right wing

side of the median vitta tergites 3 and 4 with a brown spot having about the shape of a rectangular triangle with the rectangular angle between median vitta and posterior margin. Spots on tergite 4 smaller than on tergite 3. All tergites covered with setae, marginal and lateral ones longer than distal ones. Sternites all grey dusted, sternite 1 bare, sternites 2-5 setulose with longer setae at posterior surface of tergites.

**Locality:** This new species is described from a single male (holotype) from Tajikistan: Shakhdar Mt. Range, above Putup village, 4000 m, 1.8.1964, leg. V. Zaitzev [transcribed and translated from handwritten Cyrillic letters from the original label

(Fig. 5)]. The holotype is deposited in the Institute of Biodiversity and Ecosystem Research, the Bulgarian Academy of Sciences.

**Diagnosis:** It seems that identification keys to the Muscidae of Central Asian countries are not available and only the identification keys by HENNIG (1955-1964) cover all Muscidae known at that time from the Palearctic Region. Using these keys either the mouth parts of *D. tadschika* or the four - five long posterodorsal setae of the hind tibia lead to the genus *Drymeia*. Due to the long prementum and the elongated slender labella, the proboscis of *D. tadschika* resembles that of *Drymeia hamata*



**Fig. 5.** Photograph of the locality label of the holotype of *Drymeia tadschika* sp.n.

(FALLÉN) (Fig. 2), although prementum and labella are connected straight forward and do not appear “hook-like” as described for *D. hamata* by HENNIG (1955-1964). Whether this is the natural form of the proboscis of *D. tadschika* or whether the labella got into that position due to conservation process is not known. The proboscis of the *D. hamata* male is somewhat straightened and one would hardly associate this shape with a hook (Fig. 2). Among others, conspicuous differences between these two species are the haired eyes of *D. tadschika*, while the eyes of *D. hamata* are bare; the parafacials of *D. tadschika* are distinctly broader than those of *D. hamata*, thus giving the head a different profile (Figs. 1, 2) and the palpi of *D. tadschika* are about as long as the prementum, while those of *D. hamata* are at most half as long. *Drymeia hamata* is known from most of the countries of the European part of the Palaearctic Region but there are no records reported from any Asian country (PONT 1986, SOROKINA, PONT 2015).

Using the identification keys to *Drymeia*, which focus on areas somehow similar to the locality from the Asian Mountains of Tajikistan, such as for example the Himalayan region (PONT 1981), the characters of *D. tadschika* lead to *Drymeia lamellitarsis* (Pont). However, *D. tadschika* has two anterodorsals on the mid tibia, whereas *D. lamellitarsis* has none on the mid tibia and its proboscis is, unlike that of *D. tadschika*, rather short. Furthermore, the markings of *D. tadschika* do not match any of the describing couplets of the key to *Drymeia* spp. from the Tibetan Plateau and surrounding regions of China (XUE *et al.* 2008). Very recently, a comprehensive review of *Drymeia* spp. from Russia has been published by SOROKINA, PONT (2015) and a key to the species known from Russia is provided. Using also this key, the morphological characters of *D. tadschika* lead to *Drymeia vicana* (Harris), a species with short proboscis, large labella and not dilated parafacials widely distributed in the Asian as well as in the European parts of the Palaearctic Region.

*Drymeia tadschika* is now the second species of *Drymeia* being described from Tajikistan. The other

one is *Drymeia gymnophthalma* (Hennig), which originally has been assigned by HENNIG (1963) to the genus *Trichopticoides* Ringdahl, 1931 but this genus has been synonymised with the genus *Drymeia* by PONT (1986). A third *Drymeia* species, which had been described from Tajikistan as *Pogonomyia stackelbergi* by LAVCHIEV (1971), has been assigned by FAN (2008) to the genus *Hydrophoria* Robineau-Desvoidy, 1830 of the family Anthomyiidae. According to PONT (1986) also *Drymeia caucasica* (Schnabl) and *D. vicana* are known from Tajikistan. Males (and very likely also females) of these four *Drymeia* spp. from Tajikistan can be distinguished as follows:

1. Anepimeron haired, proboscis short and stout with well - developed labella of normal shape, eyes bare ..... *D. caucasica* (Schnabl)
- Anepimeron bare ..... 2
2. Mouth margin strongly protruding with vibrissal angle in profile situated in front of profrons, proboscis long and slender with narrow and elongated labella. .... *D. tadschika* sp. n.
- Mouth margin with vibrissal angle in profile situated behind the level of profrons, proboscis short and stout with large labella ..... 3
3. Arista at the basal third with a fusiform thickening, eyes distinctly haired in males, less conspicuously in females, scutum with 4 dark longitudinal vittae ..... *D. vicana* (Harris)
- Arista without distinct thickening of the basal third, eyes bare, female scutum without distinct dark longitudinal vittae ..... *D. gymnophthalma* (Hennig)

## Discussion

PONT (1986) listed, among other Muscidae species, the species of the genus *Drymeia* of the Palaearctic Region. Since then the majority of the newly described *Drymeia* spp. of the Palaearctic Region originates from the Asian Mountains (e.g. XUE *et al.* 2007, 2008, 2009) and Russia (SOROKINA, PONT 2015). Most species of this genus are boreo-montane in their distribution and XUE *et al.* (2008) reported that in China most *Drymeia* spp. are found at altitudes between 1,600 m and 5,800 m. *Drymeia tadschika* as well has been collected from the Asian part of the Palaearctic Region in Tajikistan at an altitude of 4,000 m.

Some of the morphological characters of *D. tadschika*, in particular the head shape with the relatively small eyes, are also observed at few species of the genus *Spilogona* Schnabl, 1911, e.g. *Spilogona eximia* (Stein) and *Spilogona spiniterebra* (Stein),

two species from the mountain regions of the Qinghai Province, China, or *Spilogona marginifera* Hennig known from Nordic European countries such as Denmark and neighbouring countries. Additionally, absent prealar seta, only one posteroventral seta on the mid tibia and paired spots on abdominal tergites, as described for *D. tadschika*, are characters also reported from some *Spilogona* spp., whereas these markings usually are not or only rarely observed in high altitude *Drymeia* males. Moreover, *Spilogona* spp. have occasionally also posterodorsals on the hind tibia. Although in most of these cases the posterodorsals are limited to the basal half of the tibia and (or) they are shorter than most of the other setae of the tibia, the similarity of morphological characters might lead to wrong assignments of species to the genera. XUE *et al.* (1992) for example described five species originally as *Drymeia* because of distinct posterodorsals of the hind tibiae but then transferred the species into the genus *Spilogona* after checking the male genitalia (XUE *et al.* 2009). As a consequence, the authors (XUE *et al.* 2009) defined for *Drymeia* spp., among other morphological characters, that the middle of the hind tibia has always two - three posterodorsals with a length of at least 1.5 times the diameter of the tibia. Considering the similarities between *Drymeia* and *Spilogona* regarding some of the morphological characters, which are also observed in *D. tadschika*, it could be questioned whether this new species should be assigned to the genus *Spilogona*. A key to the *Spilogona* spp. from China with 61 species has very recently been published by YU, XUE (2015). An attempt to identify *Spilogona* spp. from this key, to which *D. tadschika* could be somehow related, failed due to the fact that the morphological features of *D. tadschika* are too diverse from the combinations of the morphological characters of the *Spilogona* spp. SOROKINA, PONT (2015) summarised the typical morphological characters of *Drymeia*, starting with the key criterion of three or more posterodorsal setae on the hind tibia.

Other diagnostic characters of *Drymeia* are usually the relatively broad gena, the genal dilation often extending anteriorly and the gena with a patch of numerous fine up-curved setae. Additionally, bare posterodorsal surface of hind coxa, hind tarsomere often with a ventral seta near base, black haltere and fore and mid tibia with at least one or more setae on the ventral surface are mentioned. *Drymeia tadschika* has at least four posterodorsals on the hind tibia. These are distributed all over the length of the tibia and, in contrast to the setae of *Spilogona* spp., described originally as *Drymeia* (XUE *et al.* 1992), they are as long as the anterodorsals and anteroventrals, up to three times the diameter of the tibia. With the only exception of a ventral seta on the fore tibia, all the additional characters listed by SOROKINA, PONT (2015) are present in *D. tadschika*, including the ventral seta at the base of hind tarsomere 1. These morphological characters, together with the striking long and thin proboscis including the significantly elongated labella, which until now was only known from *D. hamata*, the type species of the genus *Drymeia*, have been the reason for assigning this hitherto undescribed male specimen to *Drymeia*. The male genitalia extracted and prepared by the earlier investigator years ago are not available anymore; however it is most unlikely that the investigator at that time did not consider the extracted genitalia when he assigned the male to the genus *Pogonomyia*, which is now a synonym to *Drymeia*.

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