



Fanniidae and Muscidae (Insecta, Diptera) associated with burrows of the Altai Mountains Marmot (*Marmota baibacina baibacina* Kastschenko, 1899) in Siberia, with the description of new species

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Abstract

One species of Fanniidae and eleven species of Muscidae including two new species have been found associated with the burrows of the Altai Marmot. New species are described (*Hydrotaea barkalovi* sp. nov. and *Xestomyia atrox* sp. nov.). Some taxonomic additions to the original male description of *Fannia altaica* Pont & Vihrev, 2009 and the description of the female of this species are given. The male hypopygium, 5th sternite and abdomen in ventral view of *Fannia altaica* are figured, as are the legs and habitus of the two new species together with the male hypopygium and 5th sternite of *Hydrotaea barkalovi* sp. nov. A list of all the Muscidae and Fanniidae recorded as associated with burrows of the three Marmot species (Alpine Marmot, Altai Marmot, Long-Tailed Marmot) is given.

Key words: Grey Marmot, burrows, high latitudes, Respublika Altai

Introduction

The Muscidae are abundantly represented at high altitudes and high latitudes, where they form a very high proportion of the fauna both in species and in individuals. In these harsh environments, Muscidae may occupy a variety of ecological niches. Species that are predators are associated with communities of biting blackflies that live in running water (*Spilogona* Schnabl, 1911, *Limnophora* Robineau-Desvoidy, 1830). Species that are pollenophages, nectarophages and phytophages are associated with vegetation and flowering plants (*Phaonia* Robineau-Desvoidy, 1830, *Helina* Robineau-Desvoidy, 1830, *Thricops* Rondani, 1856, *Drymeia* Meigen, 1826, *Mydaea* Robineau-Desvoidy, 1830). Species that are secretophagous and haematophagous are found in association with hoofed animals and their dung (*Stomoxys* Geoffroy, 1762, *Haematobosca* Bezzi, 1907, *Hydrotaea* Robineau-Desvoidy, 1830, *Neomyia* Walker, 1859). In addition, some species of Muscidae appear to be closely associated with rodent burrows, but there is almost no information about this topic.

However, rodent burrows are known to have a function in the formation of the insect fauna in habitats with limiting factors, such as deserts and high altitudes (Medvedev 1947; Sychevskaya 1966, 1970; Sychevskaya & Vtorov 1969; Krivokhatsky 1985; Gusarov *et al.* 1988). The burrowing activity of rodents provides an accumulation of organic matter in holes and chambers, which then attracts various arthropods by offering suitable environmental conditions and sufficient food.

The arthropod communities of rodent burrows have been studied in detail in deserts and steppes with arid conditions, where the burrows are used by arthropods as shelters from extreme temperatures in summer and during the winter months (Medvedev 1947; Krivokhatsky 1981, 1982, 1985, 1994). In these papers, Medvedev and Krivokhatsky have shown that the structure of the insect fauna in rodent burrows is not constant. It is directly connected with the environment and depends on the area occupied by the rodent and also on the season and even on the