

is low. *Chorthippus fallax* (Zub.), *Myrmeleotettix palpalis* (Zubovsky), and *Gomphocerus sibiricus* usually prefer the local overgrazed plots. In the steppes of Kazakhstan and West Siberia, slightly grazing habitats are settled by abundant and diverse communities, however, the structure of assemblages does not change significantly. Rangelands with moderate grazing are characterized by diverse and abundant assemblages of Orthoptera. In the natural and disturbed ecosystems of the semi-deserts of Kazakhstan, we have observed the orthopteran assemblages with high level of diversity and abundance. Almost all local species are widely distributed through all grasslands, including overgrazed. Such species spread through pastures without problems, and their abundance may be very high. In the semi-deserts of South Siberia and Mongolia, the dominance of the local endemics, especially from the tribe Bryodemini, is the characteristic of assemblage composition. This situation may be observed in both, natural and disturbed ecosystems, including overgrazed. In the temperate and subtropical deserts, grazing usually results in increasing abundance and decreasing diversity. Thus, peculiarities of orthopteran assemblages and their transformations in the rangelands of extra-tropical Eurasia are determined by both, the regional geographic and ecological conditions and grazing specificity.

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Key words: Orthoptera, rangeland, grassland, grazing, biodiversity, abundance, assemblage

Orthopteroidea of Tuva: Diversity and general distribution patterns

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Tuva is the mountain region in the central part of Asia, politically it corresponds the Tyva Republic of the Russian Federation. There is a highly diverse set of ecosystems. There are many plant and animal species of different geographic, ecological and phylogenetic relations, e.g., associated with the Boreal, Gobian, Turanian and Manchurian parts of the Palaeractic. Its fauna also includes several endemic or subendemic taxa. The terrestrial and amphibiotic orthopteroid insects are very abundant and diverse in this region. Consequently Orthopteroidea is the almost ideal model group to reveal general patterns of biological diversity transformations in the region. Some studies of Orthopteroidea in Tuva started in the beginning of the 20th century and have been continued until now. However, the main part of the original data has not been analyzed before now and some taxa should be revised. Besides that, more or less relatively comprehensive publications concerning the main groups of Tuvan Orthopteroidea are absent. Therefore, published and applicable unpublished data concerning diversity, geographic and ecological distribution of these insects, and their roles in the local natural and disturbed ecosystems should be analyzed. The general patterns of orthopteroid assemblage structures and transformations and possible range shifts should

be revealed relative to global, regional and local changes.

On the first stage of our project the list of all Tuvan Orthopteroidea has been composed for the first time. It includes the species known from the adjacent areas of South Siberia and Mongolia too. There are the members of several orders of the orthopteroid insects: Dictyoptera (only cockroaches — 2 known synanthropes, 2 possible species); Plecoptera, or stoneflies (73 species — 59 known taxa, 11 possible forms, 3 species should be checked); Notoptera (*Grylloblattella sayanensis* Storozhenko); Dermaptera, or earwigs (*Anechura bipunctata* (Fabricius) — known and *Labidura riparia* (Pallas) — possible); Orthoptera (119 species, including 90 known species, 26 possible forms, 4 species should be checked). There are no endemic of Tuva per se. The group of the endemics of the Altay-Sayn Mts. includes *Grylloblattella sayanensis* (Notoptera), *Zubovskya mongolica* Storozhenko, *Podismopsis altaica* Zubovsky, *Stenobothrus newskii* Zubovsky (Orthoptera). The species mainly associated with the boreal and subboreal parts of the Palaearctic populate the northern part of Tuva. Its arid territories are usually settled by the insects associated with the desert and semi-desert faunas of Mongolia and China. Several Turanian forms (e.g., *Eremippus simplex* (Eversmann)) penetrate into the arid intermountain basins of the region. Besides, the local fauna includes some species mainly associated with the Far East (*Prumna primnoa* Fischer de Waldheim, *Ognevia longipennis* (Shiraki), *Schmidtiaacris schmidti* (Ikonnikov) etc.)

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Key words: Orthopteroidea, Tuva, Altay-Sayn Mts., biodiversity, endemic