

Communities of Carabid Beetles and Small Mammals in the Fragmented Cryoarid Forest-Steppe of Vitim Upland (Northern Transbaikalia)

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Abstract

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Communities of carabid beetles and small mammals in the cryoarid forest-steppes of Vitim upland (Northern Transbaikalia) are considered in this article. Analysis of communities of carabid beetles and small mammals in the forest steppes of Vitim upland revealed differences in species composition and community structure among the different biotopes, namely open habitats, fragmented and continuous forests. Carabid beetle and small mammal communities in this region can be identified both as “stable” (open habitats and continuous forests), with high species diversity and evenness, and “unstable” (birch and larch fragmented forests), with lower diversity indices and evenness, and high indices of dominance. Despite having the appearance of a forest habitat, communities inhabiting fragmented forests of Vitim upland more closely resembled those found in forest-steppe and steppes.

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Introduction

In Transbaikalia, the continuous permafrost alternates with the seasonal freezing and is treated as a single transition area. Under these conditions, the cryoarid forest-steppe, located on the south of Vitim upland (Northern Transbaikalia), has been formed. Ecosystems in the permafrost zone are most vulnerable, so the study of these communities as indicators of natural and disturbed habitats is highly relevant.

Carabid beetles and small mammals are useful model organisms for environmental research (for example, Halme & Niemela, 1993; Lovei & Sunderland, 1996; Davies & Margules, 1998; Litvinov, 2001; Vinogradov *et al.*, 2011). Both groups can be characterized by high abundances and reproductive rates,

settled lifestyles and small habitat ranges, high sensitivity to external agents, and the fact that they are easily captured.

The main objectives of this study were to investigate the abundance and distribution of carabid beetles and small mammals in the fragmented forest-steppes of Northern Transbaikalia, as well as to compare the diversity of their communities in fragmented forests with communities of open habitats (steppes and meadows) and continuous forests.

Materials and Methods

Study area. I studied communities of carabid beetles and small mammals in the south of Vitim