

## A Note on the Distribution and Geographical Variation of the Gray-sided Vole (*Clethrionomys rufocanus* Sund., 1846-1847) in Mongolia

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### Abstract

In this paper, we present a new distribution record for the Gray-sided vole found in an isolated birch forest in southern Mongolia, at Ih Bogd mountain. This represents a very remote and isolated population of this species from its main range of forested areas. Morphological characters were used to determine the morphological variation of Gray-sided vole in the investigated southern population in comparison with two other populations: one from Honin nuga (Hentii mountain range) and the other from Hangai mountains. We revealed five distinct morphotypes based on the fur coloration patterns. Two morphotypes were found in the isolated Ih Bogd population, while there were two morphotypes for the Hentii and one for the Hangai population. Moreover, based on the nine standard skull measurements, we found a marginally significant difference among the three populations, indicating that there are detectable differences. However, the discriminant function analysis was moderate in classifying the three populations. This small variation may be explained by our limited sample sizes (6-15 individuals per population) and possibly by the fact that the southern population of this species may have been isolated only for a short time.

**Key words:** Gray-sided vole, distribution, geographical variation, Mongolia

### Introduction

Mongolia ranges 2368 km from east to west and 1260 km from south to north, covering almost 1.6 million square kilometers. Although Mongolia comprises many different types of ecosystem, in general it contains the northern part of the Central Asian Gobi desert and the southern part of the Siberian taiga, with the steppe zone in between. Southern Mongolia is mostly Gobi desert, except for a few mountain ranges. Forested areas are found in Hövsgöl, Hentii and Hangai mountains, as well as in the northern parts of the Mongol Altai mountain range (Sokolov *et al.*, 1985).

A total of 136 species of mammals belonging to 70 genera, 22 families and 8 orders have been recorded for Mongolia. From these, the order Rodentia is the most diverse group, accounting for 65 species in 8 families (Dulamtsuren, 1989). A commonly distributed species of the genus *Clethrionomys* in the forest region are the Gray-sided vole, *Clethrionomys rufocanus* and the Northern red-backed vole, *Clethrionomys rutilus*.

They occur exclusively in forested areas, and the Gray-sided vole occurs more abundantly than the other. With its large distribution range, the Gray-sided vole exhibits a considerable geographic variation (Kaneko *et al.*, 1998).

Members of a joint expedition in 2001 by the Philipps-University of Marburg, Germany and the National University of Mongolia investigated the mammal communities in the Ih Bogd mountain, which is located in Bogd soum of Bayanhongor Aimag. As a result, the Gray-sided vole was found in the remnant forest island (N44°58.510'; E100°19.600') of the Ih Bogd mountain, which is a part of the Gobi Altai mountain range. This presents a new record for the distribution of the Gray-sided vole in southern Mongolia. We aimed to determine whether there is detectable geographic variation in the isolated population of the Gray-sided vole found in Ih Bogd, that is deeply penetrated into the Gobi zone, using materials our own and previous research work. Specifically, we attempt (a) to synthesize existing data on the distribution of the Gray-sided vole in Mongolia and (b) to describe