

Effects of Food Availability on Time Budget and Home Range of Siberian Marmots in Mongolia

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Abstract

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The Siberian marmot (*Marmota sibirica*) is a common rodent species that ranges widely throughout northern Asia. However, due to overharvesting for fur and meats its population in Mongolia declined steeply and they are now categorized as an endangered. They are considered a keystone species because they can have a great impact on the landscape heterogeneity and its burrows serve as a refuge for a variety of taxa. Despite the important roles in the ecosystem and endangered status of the Siberian marmots, there is no study quantified behavioral ecology of this species in Mongolia. We studied effects of food availability on home range and time budget of the Siberian marmot in Hustai National Park, Mongolian, during 16-29 June, 2007. We conducted direct observations and vegetation surveys at one livestock grazed and one ungrazed site. Vegetation biomass, percent cover, plant height, and number of plant species were lower in the grazed site than in the ungrazed site. Marmots in the grazed site used larger home ranges, spent more time foraging, and spent less time vigilant compared to marmots in the ungrazed site.

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Introduction

A central question in ecology is how observed patterns in the spatial distribution of individuals within populations are determined by the interactions between individuals and their environment (Turchin, 1998; Matthiopoulos, 2003). A useful approach to address this question is to understand the dynamics of animal movements in relation to state-dependent social and ecological factors (Whitehead & Rendell, 2004). Most animals use the same areas

repeatedly over time (Darwin, 1861); hence animal movements are often defined using the home range concept (Crook, 2004; Jetz *et al.*, 2004). The use of home ranges and territoriality is an essential characteristic of many birds and mammals (Ostfeld, 1990; Adams, 2001). The main purpose of maintaining a home range or territory is the acquisition of resources, basically food, but also shelter or mates (Brown & Orians, 1970).