

Mongolian Marmot Crisis: Status of the Siberian Marmot in the Eastern Steppe

Susan E. Townsend¹, Peter Zahler²,

¹Wildlife Ecology and Consulting, 709 56th St, Oakland, California, USA,
E-mail: suetownsend@earthlink.net

²Wildlife Conservation Society, 2300 Southern Blvd, Bronx, NY 10460 USA,
E-mail: pzahler@wcs.org

Abstract

Siberian marmots (*Marmota sibirica*) are important members of the Mongolian steppe ecosystem and local human economy. Recent declines in marmot numbers have forced the Mongolian government to ban marmot hunting for at least two years. The main objectives for this study were to develop a baseline understanding of current marmot distribution and density in the Eastern Steppe of Mongolia (Dornod, Sukhbaatar, and Khentii aimags). We conducted line transects across the Eastern Steppe during pup emergence from June through July 2005. These distance sampling surveys detected active and inactive marmot colonies (“burrow clusters”), marmots, and other wildlife (primarily carnivores, ungulates and raptors) along our transects; we used the program DISTANCE to estimate densities. Our density estimates, and particularly our population estimates, indicate a much more severe decline than noted in other published studies. We discuss our findings on raptors, wild ungulates and mammalian carnivores in the context of other published and anecdotal information.

Key words: distance sampling, keystone, marmot, *Marmota sibirica*, Mongolia, steppe

Introduction

Marmots are an important member of the Mongolian steppe ecosystem and are likely a ‘keystone species’ (Kotliar et al., 1999; Smith & Foggin, 1999; Lai & Smith, 2003) — a species whose impact on its community is disproportionately large relative to abundance (Paine, 1969; Power et al., 1996). Marmots perform a variety of functions, and, in this sense, are considered ‘ecosystem engineers’ (Wright & Jones, 2006): i) marmot burrowing brings soil to the surface, recycling nutrients and aerating soil; ii) burrows provide shelter for many native species, such as hedgehogs, rodents, foxes, Pallas cats, and even birds (Adiya, 2000; Zahler et al., 2004); iii) marmot selective feeding habits affect diversity and composition of vegetation; and (iv) marmots are an important food source for raptors and carnivorous mammals (Schaller, 1998). Marmots are also important to the Mongolian culture as a traditional source of protein, medicine, skin and fur (Wingard & Zahler, 2006). Economically, marmots play an important role with the annual

fur trade exceeding 1.2 million skins on average since the late 1800s. However, due to a recent potentially dramatic decline in marmot abundance (for example, see Reading et al., 1998; Wingard & Zahler, 2006), a 2-year hunting ban was placed on marmots throughout Mongolia (2005 and 2006). Marmots have been experiencing significant declines across Mongolia, according to Adiya (2000), roughly a 75% decline in the last 60 years.

In an attempt to assist the Mongolian Government in managing this critically important resource and member of the steppe ecosystem, we conducted a survey in the Eastern Steppe in summer 2005 to establish a baseline estimate of the marmot population. In addition, because marmots are considered a keystone species, we noted other wildlife such as raptors, wild ungulates and mammalian carnivores. Taxa were chosen due to the high relative probability of detection and expected association between marmots and raptors/carnivores. We used distance sampling to estimate wildlife density and examined the relationship of marmot detections to wildlife presence.