

## Factors Affecting Home Ranges of Red Foxes in Ikh Nart Nature Reserve, Mongolia

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### Abstract

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Changes in red fox home range size in relation to environmental and intrinsic factors were studied using radio-telemetry during 2006–2008 in Ikh Nart Nature Reserve, southeastern Mongolia. We captured a total of 12 red foxes (8 females and 4 males) and fitted them with VHF radio-collars. Marked animals were tracked up to five times a week to estimate home ranges. We also trapped small mammal and insects in different biotopes for 3 years to estimate relative abundance of prey. Our results showed that mean individual home range sizes varied widely and differed among years. There was variation in home ranges between adults versus juveniles, but no significant difference was found between males versus females. In addition, mean home range size did not differ seasonally for pooled years. Variation in home ranges was best explained by a model that included covariates of year and age. We suggest that spatiotemporal changes in resource availability across years influenced home range dynamics of red foxes in our study.

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### Introduction

The red fox (*Vulpes vulpes*) is a common meso-carnivore that ranges widely across the grassland, semi-desert, and desert steppe environments of northern and central Asia (Ognev, 1935; Heptner *et al.*, 1967; Clark *et al.*, 2009). In Mongolia, the species occurs in

nearly every major ecosystem in the country, including desert, grassland, and forest (Heptner *et al.*, 1967; Clark *et al.*, 2006; Clark *et al.*, 2009, Murdoch *et al.*, 2009). The red fox historically occurred in relatively high densities throughout species range in Mongolia and has been prized