

Ectoparasites on Meso-carnivores in the Desert-steppe of Mongolia

Tserendorj Munkhzul¹, James D. Murdoch² and Richard P. Reading³

¹Mammalian Ecology Laboratory, Institute of General and Experimental Biology, Mongolian Academy of Sciences, Ulaanbaatar, Mongolia

²Rubenstein School of Environment and Natural Resources, University of Vermont, George Aiken Center, Burlington, Vermont 05405 USA

³International Conservation Coalition, Denver, Colorado 80220 USA, Butterfly Pavilion, Westminster, Colorado 80020 USA & Mongolian Conservation Coalition, Ulaanbaatar, Mongolia

Abstract

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Correspondence:

tsmunkhzul@yahoo.com

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Studying flea community structure on wild carnivores is important for identifying flea vectors for potential infectious diseases and providing information needed to design programs for human and wildlife health. We collected ectoparasites from 4 species of meso-carnivores in an arid Desert-steppe ecosystem of Mongolia. We captured four meso-carnivore species, including corsac fox (*V. corsac*, n = 7), red fox (*Vulpes vulpes*, n = 4), Asian badger (*Meles leucurus*, n = 4), and Pallas's cat (*Otocolobus manul*, n = 4), and recorded 207 fleas representing 14 species from 7 genera of 4 families, and 2 ticks from 1 species. We collected 86 fleas (6 species) from corsac foxes, 89 fleas (6 species) from red foxes, 14 fleas (5 species) from badgers, and 18 fleas (8 species) from Pallas's cats. The flea community was dominated by two species (*Pulex irritans*, *Chaetopsylla homoeus*), which accounted for 72% of all ectoparasites collected. *Pulex irritans* was the most common species on corsac and red foxes, and *Paraceras melis* was the most common species on badgers. Three species were most commonly collected on Pallas's cats, including *Pulex irritans*, *Paraceras melis*, and *Chaetopsylla appropihquans*. Among fleas, 8 species occurred only on a single meso-carnivore species, 1 species occurred on two meso-carnivore species, and 5 species occurred on 3 meso-carnivore species. The tick, *Dermacentor nuttalli* only occurred on corsac fox and badger. Our results provide baseline information on the associations of fleas and ticks with wild carnivores that represent potential vectors of disease, which can inform disease management strategies in Mongolia.

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Introduction

In Mongolia, after more than a century of flea research, scientists have recorded 6 families, 37 genera, 101 species and 12 subspecies obtained from 53 species of host-mammals (Puntsagdulam & Altanchimeg, 2005). Bavaasan (1974) catalogued 130 flea species, and just 7 years later Kieffer *et al.* (1984) expanded the number of flea species and subspecies known from Mongolia to

159, based on their own collections. More recently, Kieffer *et al.* (2012) reported 162 species of fleas known to exist in Mongolia and the adjacent Tuva Republic of Russia.

Fleas are highly specialized ectoparasites with a wide range of hosts, including birds and mammals. Fleas alternate between periods of direct occurrence upon the host's body and in the