© 2013 Journal compilation http://biology.num.edu.mn http://mjbs.100zero.org/ Volume 11(1-2), 2013

Mongolian Journal of Biological Sciences ISSN 1684-3908 (print edition)

ISSN 2225-4994 (online edition)

Original Article

Identifying Potential Conservation Corridors Along the Mongolia-Russia Border Using Resource Selection Functions: A Case Study on Argali Sheep

Buyanaa Chimeddorj¹, Bayarbaatar Buuveibaatar², Yondon Onon³, Ochirjav Munkhtogtokh¹, and Richard P. Reading⁴

¹Mongolia Program Office, World Wide Fund for Nature, Amar Str. 3, Ulaanbaatar, Mongolia, email: chimeddorj@wwf.mn

²Mongolia Program, Wildlife Conservation Society, San Business Center 201, Amar Str. 29, Ulaanbaatar, Mongolia, email: buuveibaatar@wcs.org

³Department of Environment and Natural Resources, Ministry of Environment and Green Development, Ulaanbaatar 15160, Mongolia, email: onon@mne.gov.mn

⁴Denver Zoological Foundation, Department of Conservation Biology, 2300 Steele Street, Denver, Colorado 80205, USA, email: rreading@denverzoo.org

Abstract

Key words: argali,	The disruption of animal movements is known to affect wildlife populations,
Ovis ammon, habitat	particularly large bodied, free-ranging mammals that require large geographic ranges
selection, Resource	to survive. Corridors commonly connect fragmented wildlife populations and their
Selection Function,	habitats, yet identifying corridors rarely uses data on habitat selection and movements
fence, transboundary	of target species. New technologies and analytical tools make it possible to better
conservation	integrate landscape patterns with spatial behavioral data. We show how resource
	selection functions can describe habitat suitability using continuous and multivariate
	metrics to determine potential wildlife movement corridors. During 2005-2010, we
Article information:	studied movements of argali sheep (Ovis ammon) near the Mongolia-Russia border
Received: 17 Oct. 2013	using radio-telemetry and modeled their spatial distribution in relation to landscape
Accepted: 18 Apr. 2014	features to create a spatially explicit habitat suitability surface to identify potential
Published: 20 Apr. 2014	transboundary conservation corridors. Argali sheep habitat selection in western
	Mongolia positively correlated with elevation, ruggedness index, and distance to
	border. In other words, argali were tended use areas with higher elevation, rugged
Correspondence:	topography, and distances farther from the international border. We suggest that these
buuveibaatar@wcs.org	spatial modeling approaches offer ways to design and identify wildlife corridors more
	objectively and holistically, and can be applied to many other target species.
Cite this paper as:	Chimeddorj, B., Buuveibaatar, B., Onon, Y., Munkhtogtokh, O., & Reading, R. P.
	2013. Identifying potential conservation corridors along the mongolia-russia border
	using resource selection functions: a case study on argali sheep. Mong. J. Biol. Sci.,
	11(1-2): 45-53.

Introduction

Anthropogenic barriers in a landscape can seriously disrupt ungulate migrations (Bolger *et al.*, 2008), and the impacts of such barriers on freeranging wild ungulate populations is increasingly well documented (Berger, 2004; Ito et *al.*, 2008; Harris *et al.*, 2009). Human generated barriers such as fences, pipelines, and other linear structures influence habitat selection of large ungulates as they prevent access to large tracts of continuous habitat (Bolger *et al.*, 2008). Fragmentation of habitat into small patches decreases carrying capacity by preventing temporary escape from