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A Literature Review of Mongolian Gazelle (*Procapra gutturosa*) Ecology from 1998 to Present

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Abstract

With respect to Mongolian gazelles a great deal of new knowledge has been gained over the past 10-12 years since the last species reviews were conducted. Advances in molecular techniques have helped to clarify the status of the genus *Procapra* and the relationship between the three extant species within and have highlighted the high genetic heterozygosity throughout the population. New morphological studies have focused on dimorphism between the sexes and the evolutionary development and role the enlarged larynx seen in males. Mongolian gazelles have long been the subject of intense debate with respect to their role as reservoirs for pathogens such as Foot and Mouth Disease virus, but with long term collection of serum from adults and calves it has been shown that gazelles are passive recipients of a virus harbored and spread by other means. Great strides have been made in the study of Mongolian gazelle forage ecology and their overlap in diet with domestic livestock as well as better understanding the physical adaptations needed for survival in a harsh environment with long periods of low quality forage availability by switching to browsing and grazing strategies. Using satellite tracking and remote sensing technology gazelle movement patterns are much better understood. Movements are more nomadic in nature and linked to tracking changes in quality habitat in time and space and less dictated by what was previously thought to be traditional migratory patterns. Mongolian gazelle have highly synchronized calving events which coincide with the start of the summer solstice and calf weights are correlated with the previous winter's harshness. Calves demonstrate behavior associated with 'hider' species for the first few weeks of life before they begin to aggregate in large herds and move to different grazing grounds. Advances in survey methodologies have led to a better assessment of the population status of Mongolian gazelles and the most recent published studies estimated there to be 1.126 million gazelles living within Mongolia's border. Density varies widely and is negatively correlated with the presence of households. Future studies should focus on research that helps us better evaluate population dynamics, forage preference, behavioral interactions, and the role gazelles play in ecosystem function.

Key words: landscape species, Mongolian gazelle, *Procapra*, species research review, temperate grassland

Introduction

Periodic assessments of the scientific understanding of a species ecology and status are important for assessing conservation strategies and to re-prioritize future research directions. Taxon specific research increases our capacity to develop targeted management and conservation planning and helps minimize conflict between human development interests and the focal species ecological needs. Advances in wildlife research capabilities such as new techniques to analyze genetic material to using satellites to monitor movements of individuals and advances in remote sensing technology have greatly improved our knowledge of Mongolian gazelle ecology and an updated literature review is due.

Since Heptner *et al.* (1961) published the first assessment of Mongolian gazelle (*Procapra gutturosa*) ecology and distribution, there have been three comprehensive reviews of the scientific literature and the species conservation status (i.e., Sokolov & Lushchekina, 1997; Lhagvasuren & Milner-Gulland, 1997; Jiang *et al*., 1998). However since these publications a great deal of effort was dedicated to improving