



Seasonal Use Patterns and Movement of Mountain Goats in the Mount Evans Wilderness, Colorado

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ABSTRACT: Mountain goats (*Oreamnos americanus*) were introduced into the Mount Evans area in 1961. From 1961 until the mid-1970s the mountain goat population stayed mainly below tree line and were occasionally observed in the alpine. By the mid-1980s, use shifted to the alpine near Lincoln Lake year-round. Based on summer ground surveys, established in 1978, the population used more of the available alpine habitat than was observed in the mid-1980s and mountain goat numbers have fluctuated over time from a low of 44 (1978) to a high of 167 (2001) (minimum count). In 2013, there was an unknown disease outbreak affecting kids and yearlings resulting in loss of almost an entire age class in this herd. Satellite collars were placed on mountain goats (n=20) between 2015 and 2016 to determine if habitat use had changed since the 1980s, evaluate the overall and seasonal habitat use, and monitor condition of kids associated with collared females for potential reoccurrence of the 2013 disease outbreak. Results suggest habitat use by mountain goats has changed dramatically since the 1980s. Mountain goats used more available alpine habitat compared to the 1980s, but no collared animals were observed in the Lincoln Lake area. Collared animals used 18.4% (16.13 km²) of the overall available habitat (87.3 km²). Seasonal habitat use is markedly different between summer and winter use. Based on MaxEnt (for maximum entropy) modeling, elevation had the highest relative importance to the summer model (>0.60); whereas for winter it was the terrain ruggedness index (>0.80).

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KEY WORDS Mountain goat, *Oreamnos americanus*, seasonal habitat use; disease; Mount Evans; Colorado.