

An evolutionary habitat selection by the plateau pika (*Ochotona curzoniae*) in relation to an irrelevant phylogeny agent of the livestock management on the Qinghai-Tibetan plateau

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Abstract

Misunderstanding of the function of the plateau pika (*Ochotona curzoniae*) results in diminishing the diversity of both fauna and flora species and collapse of the the food on the Qinghai-Tibetan plateau. We used data obtained during an 11-year period to observe evolutionary habitat selection by the plateau pika in relation to an irrelevant phylogeny agent of livestock management. We hypothesized that local nomads are the irrelevant phylogeny agent in the Kobresia ecosystem of the Qinghai-Tibetan plateau. In order to verify the above hypothesis, distance to nearest yak-bedding areas and dung management are the variables that most strongly explains variation in pika occupancy probability and probability of occupancy detection based on free-ranging livestock. Both occupancy and detection probability of pikas decrease sharply with increasing distance to nearest yak-bedding area, strongly suggesting that pika population densities are highest closest to yak-bedding areas. There is a strong correlation between dung cover and occupancy of the plateau pika—namely, the more dung drying on the ground; the more plateau pikas occupy the area. After the dung has damaged the grass, plateau pikas are apparently detected there. Thus, rangeland dominated by sedges of the genus *Kobresia* on the Qinghai-Tibetan Plateau is modified by livestock grazing and management, especially dung management. This is the first reported evidence that local nomads may cause expansion of the habitat of the plateau pika and its occupancy.

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