

Wilson, T.L., F.P. Howe, and T.C. Edwards, Jr. 2010. Effects of Sagebrush Treatments on Multi-Scale Resource Selection by Pygmy Rabbits. *J. Wildlife Management* 75(2):393-398.

ABSTRACT: The effects of widespread sagebrush removal treatments on pygmy rabbits (*Brachylagus idahoensis*) are not well understood. Due to reliance on sagebrush, pygmy rabbits are among the species for which these treatments may be detrimental. Our objectives were to evaluate the effects of experimental sagebrush treatment on 8 radio-collared pygmy rabbits between and within home range habitat selection using Monte Carlo simulation from null models. Pygmy rabbits were not extirpated from plots containing habitat treatments, and we found no evidence that treatments affected home range placement. The mean treatment distance of observed home range centers did not differ from repeated trials of random points. However, we found evidence of within home range selection against treatments from 2 of 8 rabbits located close to the treatments. The mean treatment distance of all observed locations for these 2 rabbits was greater than expected based on a null model. We also used snow tracking to show that pygmy rabbits entered treatments in 4 out of 21 trials, which was less often than expected by chance ($G^2 = 8.662$, $P = 0.003$). Conservatively, sagebrush removal treatments should not be conducted on active or recently active pygmy rabbit burrows. Elsewhere near known pygmy rabbit sites, treated patches should be small and connected by untreated corridors to prevent potentially limiting movement of rabbits among the untreated habitat.

KEY WORDS: *Brachylagus idahoensis*, central-place forager, habitat selection, home range, pygmy rabbit, sagebrush management, sagebrush restoration, shrubsteppe, simulation, Utah.