
INFLUENCE OF BOULDER SIZE ON OCCUPANCY AND DETECTION OF HOARY MARMOTS (POSTER)

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Hoary marmots (*Marmota caligata*) can be found in boulder fields throughout alpine areas of western Montana, but we know little about their specific habitat requirements. We sought to determine the influence of boulder size on occupancy and detection probability of the hoary marmot during occupancy surveys. We conducted 532 visual occupancy surveys of 147 sites between June and September 2015. We estimated variation in occupancy and detection probability based on four size categories of boulders. We did not detect differences in occupancy of marmots as the size composition of boulders changed. Detection probability was most influenced by medium and large boulders. Probability of detecting a marmot was 38% (95% CI=0.24–0.53) when medium boulders were absent, but decreased to 3% as the proportion of medium boulders increased to 60% (95% CI=0–0.15). Probability of detecting a marmot was 16% when large boulders were absent (95% CI=0.1–0.24) but increased to 92% when just 5% of the site consisted of large boulders (95% CI=0.61–0.99). Accounting for this variation in detection probability with changes in boulder size will be important for designing a long-term monitoring protocol that can produce accurate estimates of occupancy for hoary marmots. A monitoring protocol incorporating key habitat requirements would be valuable for the future management and conservation of a species living in harsh alpine environments where climate change is predicted to occur rapidly.