Evaluating Citizen Science Mountain Goat Ground Counts using Gps-Collared Goats in Southwest Montana

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Accurate wildlife population counts ensure sustainable harvest rates. This is particularly important for mountain goats as they are challenging to count and susceptible to over-harvest. We evaluated a citizen-science ground counting method to obtain minimum counts and population estimates for mountain goats in the Bridger Mountains, southwest Montana. From 2017 through 2023, the Rocky Mountain Goat Alliance and Montana Fish, Wildlife and Parks (FWP) partnered to perform 5 ground-based surveys. Surveys occurred by strategically posting volunteers at the same day and time throughout goat habitat within the mountain range. We hosted mandatory training sessions before each survey, where volunteers were taught how to identify mountain goats by age and sex and how to accurately record required data. After the survey, FWP evaluated sightings using an algorithm considering time, location, and group size/composition to eliminate duplicates. Detection rates were evaluated during two surveys (2022 and 2023) using information gained from 14 GPS-collared mountain goats. The presence of collared animals during the surveys allowed FWP to evaluate whether observers detected the marked animals and estimate the total population. We then employed mark-resight population estimates and estimated the percentage of the total population observed. Observers saw 77% of collared goats in 2022 and 83% of collared goats in 2023. Mark-resight estimates of the total population were 121 in 2022 and 124 in 2023. Results suggest that ground counts can be a replicable and informative means to survey mountain goats.