

****Glacier's Ghosts: Estimating Canada lynx occupancy and Density in Glacier National Park with a Passive Camera Array during Summer**

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Glacier National Park (GNP) is a large, protected area within the northern Rockies Canada lynx (*Lynx canadensis*) recovery unit, however knowledge of lynx distribution within the park is limited. Traditional means of monitoring lynx are not easily achieved in GNP due to difficulty in access during wintertime. Therefore, our intent was to complete the first park-wide occupancy survey of lynx using an array of passive camera traps during summer, a method recently found to be successful in other southern range edge populations. Within a smaller area of the park, we also tested the possibility of identifying individuals from subtle markings on the inside of the front leg to estimate density via spatially explicit capture-recapture. Finally, we linked park-wide predictions of occupancy with local density to estimate lynx population size across GNP. We found lynx distributed across much of the park and in the density study area we were able to successfully identify ~75% of lynx captures to individual based on coat markings. We estimated average park-wide lynx density at 1.2/100km² (95% CI: 0.7 – 2.2) resulting in an estimated population of 52.4 (95% CI: 29.9 - 91.8) lynx during summer. Our findings suggest that much of GNP is highly suitable habitat for lynx in the summer, with habitat mostly at or above the current elevational and climatic limits used by lynx. Based on our results, we propose that GNP should be considered as a potentially important area for lynx habitat refugia in a warming climate.