

# A Snow-tracking Protocol Used to Delineate Local Lynx, *Lynx canadensis*, Distributions

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Determining Canada Lynx (*Lynx canadensis*) distribution is an important management need, especially at the southern extent of the species range where it is listed as *threatened* under the U. S. Endangered Species Act. We describe a systematic snow-track based sampling framework that provides reliable distribution data for Canada Lynx. We used computer simulations to evaluate protocol efficacy. Based on these simulations, the probability of detecting lynx tracks during a single visit (8 km transect) to a survey unit ranged from approximately 0.23 for surveys conducted only one day after snowfall, to 0.78 for surveys conducted 7 days after a snowfall. If the survey effort was increased to three visits, then detection probabilities increased substantially from 0.58 for one day after snowfall to about 0.95 for surveys conducted 7 days after a snowfall. We tested the protocol in the Garnet Range, Montana, where most lynx were radio-collared. We documented a total of 189 lynx tracks during two winters (2001-2003). Lynx distribution based on snow-track surveys was coincident with the area defined through radio telemetry. Additionally, we conducted snow-track surveys in areas of western Wyoming where lynx were believed present but scarce. We detected a total of six lynx tracks during three winters (1999-2002). In Wyoming, where lynx presence was inferred from a few tracks, we verified species identification by securing genetic samples (hairs from daybeds) along track-lines.

Key Words: distribution, forest carnivore, Canada Lynx, *Lynx canadensis*, snow-track, Montana, Wyoming, surveys.