

Becker, E.F., M. A. Spindler, and T. O. Osborne. 1998. A population estimator based on network sampling of tracks in the snow. *Journal of Wildlife Management* 62(3): 968-977.

ABSTRACT We developed a technique to use stratified network sampling to sample animal tracks in the snow and to obtain to population estimates. This method requires sufficient snow conditions to allow animals to leave continuous tracks and a recent snowstorm or windstorm for delineation of fresh (poststorm) tracks. Additional requirements are that no fresh tracks in aerially surveyed sample units are completely missed, that these tracks can be followed to identify all sample units containing them, and size of the group that made these tracks can be correctly enumerated. Using this technique, we estimated gray wolf (*Canis lupus*) population density to be 8.16 ± 0.91 wolves/1,000 km² in a 31,373-km² game management unit in Interior Alaska. This sample design also allowed us to obtain population estimates and confidence intervals for those portions of the Koyukuk and northern Innoko national wildlife refuges (NWR) within the study area. Using concurrently collected radiotelemetry on 9 wolf packs, we did not detect any violations of assumptions.

Key words: aerial survey, *Canis lupus*, furbearer, gray wolf, large scale, network sampling, population estimation, probability sampling, snow, tracks.

<https://www.jstor.org/stable/3802549?seq=1>