

Nagy, J. A., Johnson, D. L., Larter, N. C., Campbell, M. W., Derocher, A. E., Kelly, A., Dumond, M., Allaire, D. and Croft, B. (2011), Subpopulation structure of caribou (*Rangifer tarandus* L.) in arctic and subarctic Canada. *Ecological Applications*, 21: 2334–2348.

Abstract: Effective management and conservation of species, subspecies, or ecotypes require an understanding of how populations are structured in space. We used satellite-tracking locations and hierarchical and fuzzy clustering to quantify subpopulations within the behaviorally different barren-ground caribou (*Rangifer tarandus groenlandicus*), Dolphin and Union island caribou (*R. t. groenlandicus* × *pearyi*), and boreal (*R. t. caribou*) caribou ecotypes in the Northwest Territories and Nunavut, Canada. Using a novel approach, we verified that the previously recognized Cape Bathurst, Bluenose-West, Bluenose-East, Bathurst, Beverly, Qamanirjuaq, and Lorillard barren-ground subpopulations were robust and that the Queen Maude Gulf and Wager Bay barren-ground subpopulations were organized as individuals. Dolphin and Union island and boreal caribou formed one and two distinct subpopulation, respectively, and were organized as individuals. Robust subpopulations were structured by strong annual spatial affiliation among females; subpopulations organized as individuals were structured by migratory connectivity, barriers to movement, and/or habitat discontinuity. One barren-ground subpopulation used two calving grounds, and one calving ground was used by two barren-ground subpopulations, indicating that these caribou cannot be reliably assigned to subpopulations solely by calving-ground use. They should be classified by annual spatial affiliation among females. Annual-range size and path lengths varied significantly among ecotypes, including mountain woodland caribou (*R. t. caribou*), and reflected behavioral differences. An east–west cline in annual-range sizes and path lengths among migratory barren-ground subpopulations likely reflected differences in subpopulation size and habitat conditions and further supported the subpopulation structure identified.