



PARENT SESSION

Contributed Oral Session 82: Landscape and Population Genetics

Wednesday, August 10, 8:00 AM - 11:30 AM, Meeting Room 519 B, Level 5, Palais des congrès de Montréal


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Genetic connectivity between caribou herds from Eastern Canada: lessons from satellite tracking, genotyping, and demographic simulations.

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ABSTRACT- Understanding of various facets of ecological relationships between populations is required for effective management planning; this includes accurate delineation of populations and assessment of gene flow between populations. Here, we combine satellite-tracking data of migratory caribou during the rutting and calving seasons, microsatellite markers, and population simulations to evaluate potential and realised gene flow and to understand metapopulation dynamics between seven caribou (*Rangifer tarandus*) herds of northern Québec and Labrador representing three ecotypes (two migratory, four sedentary, and one montane herds). Satellite-telemetry data indicated that overlap of rutting ranges occurred frequently between the two migratory herds (Rivière-George and Rivière-aux-Feuilles) and averaged 10% of their combined rutting range. In addition, 9.4% of the satellite-tracked females from the migratory herds switched calving sites at least once in their life, re-enforcing the possibilities for high gene flow. Some migratory individuals also migrated south into the domain of the sedentary herds. These results were reflected in the weak but significant global genetic differentiation among herds ($\theta = 0.015$). The sedentary Mealy Mountain herd was the most differentiated. The differentiation between sedentary herds was significant and influenced by the geographic distance separating herds. However, high gene flow with the remote migratory herds removed the pattern of isolation-by-distance among sedentary herds. Indeed, historical estimates of gene flow suggested a large impact of the migratory herds on the sedentary herds via direct immigration or genetic exchanges during the rut. Population simulations showed that an effective migration rate of 0.0005 was sufficient to return to the observed F_{st} value of 0.015. More importantly, the differentiation remained stable through time, suggesting that caribou herds of northern Québec-Labrador have interacted as a metapopulation.

Key words: gene, flow, caribou, herds

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