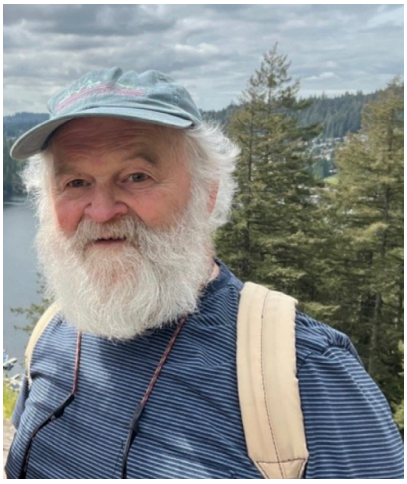
In Memoriam

Don Russell (1947–2026)



Most of us spend our careers below the radar of governing politicians. So, when three members of the Yukon Territory's Legislative Assembly stood in April 2026 to offer tributes to Don Russell in acknowledgement of his lifetime work as a caribou biologist, it was a memorable endorsement of his achievements. We like to think Don would have been touched by the recognition, but – as the person he was – he would probably have smiled modestly and turned his thoughts back to caribou. As a person, Don was empathetic and kind; as a field biologist, patient and observant. As a scientist, he was curious, analytical, keenly attuned to caribou behaviour and evolutionary fitness, and passionate about the herds' survival.

Don's lifetime achievements followed from the threads that he began to weave together with his Master's degree at the University of British Columbia in the mid-1970s and those threads took him all the way through his career. One consistent thread was he saw the utility of computer models as an essential framework to integrate and evaluate caribou data for management. His speciality was the relationship between forage intake and individual fitness. The model he developed and its subsequent iterations were how a cow's diet affected her capacity to successfully rear a calf and how climate and industrial development could influence her forage intake. A second thread was that he saw caribou as, in his words, 'remarkable' – he never lost sight of their adaptability to the seasonal pulse of forage growth and then their long migrations tracking forage availability varying as it does through the seasonal weather. The third thread was his intuitive collaboration. Early on he recognized the value of working together with Indigenous caribou people and co-management. And just as effectively, Don built collaborations across governments and universities and always took care of field technicians and staff when he was a manager. After a brief stint as habitat biologist for the Government of Yukon, Don settled into a long career as caribou biologist, then manager for the Canadian Wildlife Service in the Yukon. He was there during the early days of the Arctic Borderlands Ecological Knowledge Coop, the Porcupine Caribou Management Board and the Wildlife Management Advisory Council (North Slope), as well as he co-chaired the International Porcupine Caribou Board, where his input into management decisions for migratory tundra caribou was invaluable.

Don knew caribou – their daily rhythms of foraging, ruminating, and moving – and his knowledge was the result of meticulous fieldwork, work that drove his contributions to caribou conservation. Early on, during the 1979-1987 fieldwork across the seasonal ranges of the Porcupine herd, he saw firsthand how caribou respond to the ever-changing theatre of weather and climate and how they selected their habitats relative to the energetic costs of foraging. Early in his career he was already looking at what caribou ate, and in what context, whether they were surrounded

by hordes of mosquitos, say, or by the mayhem of an oilfield. For years Don and his team shared the seasonal landscapes of the Porcupine caribou herd, methodically counting every stroke they dug in the snow, every mouthful they ate. In the 1980s and 1990s, the Porcupine herd, especially the calving and post-calving ranges were the focus of collaborative studies between the US and Canada in the context of potential oil field development. The collaborations involved universities and graduate students as well as Indigenous organizations and government-managements agencies. Thus, he added depth to understanding about what a female caribou ate, predicted her protein and fat reserves, and these in turn predicted her milk production, calf's survival and her chances of conceiving another calf. The importance of a cow's fat and protein stores during the summer was in a trade-off between premature weaning, if reserves were low, and an increased probability of sufficient reserves to conceive in the fall. The caribou's finely tuned relationships between weather, forage intake and individual fitness became the basis of how Don and colleagues further developed his simulation model by incorporating protein dynamics and a variable weaning strategy. The model projects how caribou may respond to risks imposed by the cumulative impacts of roads and mines as climate varies. And one recent application brought Don back to the Porcupine Herd to reexamine how an oilfield on the calving and post-calving ranges could change the sustainability of the herd.

As Don's and his colleague's understanding of those interactions between weather, forage and productivity deepened so did Don's curiosity about how these relationships as applied to the circum-arctic Rangifer. His open and collaborative nature brought him into contact with researchers and revealed how caribou herds differed across the Arctic. Bringing people together through workshops and meetings led to a nutritional approach to understanding productivity across migratory tundra caribou herds. The outcomes included how the tight relationship between weather, body reserves and the probability of pregnancy differed between herds: herds vary whether they are productive or resilient, A striking aspect is how even neighbouring herds differed in climate and their relationships between weather and vital rates. It was not just compiling data, as, curious to see how the foraging behaviour on interior calving grounds might differ from that of coastal calving grounds, Don spent time on the Bathurst herd's calving grounds. As a result of all the collaboration, it was a natural step for Don to foster a network – CircumArctic *Rangifer* Monitoring and Assessment (CARMA) – to document impacts of climate change, industrial development, and social change on caribou and wild reindeer in Greenland, Iceland, Norway, Russia, Alaska, and northern Canada. The network's strength was not just its virtual connections but the fun and informative meetings that brought people together from around the Arctic.

Don's legacy is immense and ongoing. His contribution to the literature through refereed publications and reports to conferences and agencies is large and endures. But also, his practical legacy is the colleagues he inspired as well as the databases and the energy protein model. His insights into the basis of caribou adaptability yielded indispensable guidance on how to monitor and mitigate threats to both caribou and caribou people. And he left us with a powerful exemplar of the value of working together – one that the CARMA network continues to embody.

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The authors have been Don's friends and colleagues for a long time but not long enough. He is missed.