

# Ancient DNA reveals caribou history linked to volcanic eruption

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British Columbia, Canada: DNA recovered from ancient caribou bones reveals a possible link between several small unique caribou herds and a massive volcanic eruption that blanketed much of the Alaskan Yukon territory in a thick layer of ash 1,000 years ago, reports research published today in *Molecular Ecology*.

It's just part of the story being read from ancient caribou remains by an international team of scientists from the U.S., U.K. and Canada who have been studying the history of this iconic and fragile Canadian species.

Tyler Kuhn, a Whitehorse native and Simon Fraser University graduate researcher, were able to coax short bits of ancient DNA from caribou bones found in 6,000-yr-old ice patches scattered across an area just north of the British Columbia border.

He and colleagues from Alberta, Alaska, Pennsylvania and Oxford compared this [ancient DNA](#) with DNA from caribou living nearby today. To their surprise, DNA from bones older than 1,000 years in the Whitehorse area did not match with the local caribou grazing nearby.

The modern caribou also turn out to not be related to caribou herds to the North, East or West. They represent new arrivals, possibly from farther south, though the caribou currently living just south are ecologically very different.

Critically, the 1,000-yr-old replacements coincide with the eruption of a huge volcano in nearby Southern Alaska that deposited a thick layer of ash called the White River Tephra.

The research is the first to identify a possible link between changes in local wildlife and the volcanic eruption.

The eruption has already been linked to major changes in the cultures of the First Nations, aboriginal peoples from the region, marking the transition between the atlatl (throwing dart) hunting technology and newer and more effective bow and arrow technology.

Kuhn and his colleagues believe this surprising decoding of the history of caribou herds in the Yukon is more than just a scientific curiosity. "Most woodland caribou herds in Canada are threatened, and their survival will likely depend on our ability to act in the best interest of these herds," says Kuhn.

"Understanding the relationships among herds is important, but understanding how herds react to environmental changes through time is equally necessary for us to manage [caribou](#) properly."

**More information:** Kuhn, T.S, McFarlane, K.A, Groves, P, Moores, A, Shapiro, B, "Modern and ancient DNA reveal recent partial replacement of caribou in the southwest Yukon." *Molecular Ecology*, Wiley-Blackwell, [DOI:10.1111/j.1365-294X.2010.04565.x](https://doi.org/10.1111/j.1365-294X.2010.04565.x)

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