

Climate change will endanger caribou habitat, study says

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Reindeer, from Northern Europe or Asia, are often thought of as a domesticated animal, one that may pull Santa's sled. Caribou, similar in appearance but living in the wilderness of North America, are thought of as conducting an untamed and adventurous life. However, new research published in the journal *Nature Climate Change* suggests that there are more similarities about these two animals than previously thought and change in climate played a role in their evolution.

A group of 21 researchers from two continents, including Marco Musiani of the University of Calgary, looked closely at the DNA of reindeer in Scandinavia and Asia as well as tundra and woodland caribou in North America to find out more about how their environments were affected in the past and will be influenced in the future by [climate change](#).

As one of the most northern species, caribou will feel the effects of [global warming](#), says Musiani, a professor in the faculties of Environmental Design and Veterinary Medicine and co-author of the study.

"The woodland caribou is already an endangered species in southern Canada and the United States. The warming of the planet means the disappearance of their critical habitat in these regions. Caribou need undisturbed lichen-rich environments and these types of habitats are disappearing," said Musiani, noting that the study projected how the environment will change by the year 2080.

Musiani said the research demonstrates that the animals are not as different from a genetic point of view as some might think given the geographic spread of reindeer and caribou. The two sister groups occur throughout Europe, Asia and North America, from Norway to Eastern Canada.

Researchers found that caribou living in North America, but just south of the continental ice became isolated and evolved their unique characteristics during the last glaciation. At that point, Europe, Asia and Alaska were connected by a land bridge; reindeer occurred there and also evolved separately.

"Then, at meltdown the two groups, reindeer from the North and caribou from the South, reunited and interbred in areas previously glaciated such as the southern Canadian Rockies," says Musiani.

The researchers looked at how the animals were distributed over 21,000 years as the climate changed and at present and found that caribou in Alaska and northern Canada are strikingly similar to reindeer. More typical North American [caribou](#) occur only in the lowland forested regions further south.

"Animals more closely related to [reindeer](#) occur in North America, throughout its northern and western regions, with some transitional zones, such as the one remarkably placed in the southern Canadian Rockies," said Musiani.

More information: Genetic diversity in caribou linked to past and future climate change, [DOI: 10.1038/nclimate2074](https://doi.org/10.1038/nclimate2074)

Provided by University of Calgary

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