

DNA analysis of grizzly bears aligns with Indigenous languages

September 3 2021, by Lauren H. Henson, Jennifer Walkus



Research reveals a connection between Indigenous languages, bears and their terrain. Credit: Michelle Valberg, Author provided

Along the central coast of what is now known as British Columbia, Gitga'at, Haíłzaqv (Heiltsuk), Wuikinuxv, Nuxalk, and Kitasoo/Xai'xais First Nations are monitoring and managing wildlife populations, continuing a legacy of stewardship of this landscape since time immemorial. Stewardship often represents an extension of [long-term relationships](#) with ecosystems and animals, including iconic species like

mountain goats, salmon and grizzly bears.

A long-term bear monitoring collaboration between five central coast First Nations, the [Raincoast Conservation Foundation](#) and the University of Victoria has described a new connection in the long-known relationship between [people, bears and the land](#).

On the central coast, [genetic analyses](#) have identified three genetic groups of grizzly bears—bears are more likely to be related to other bears within their own group than to bears in another group.

Link to language

Often, the presence of distinct genetic groups can mean that a landscape barrier is preventing animals from moving and mating. This research partnership tested traditional landscape features that had been found to prevent bears from freely moving in other areas, including landscape ruggedness, large waterways, snow and ice, and the presence of human settlements and infrastructure.

Knowing that the central coast looked very different prior to the disease and violence-mediated genocide that came with colonization, and that genetic methods can sometimes reflect longer timescales, we also incorporated archeological indicators of where people lived in the past.

Despite dense settlement and use of the coast by people in the past, the rugged landscape and large waterways, none of these features explained the pattern of grizzly genetic groups. However, the geographies of these three genetic groups strikingly align with those of three Indigenous language families: [Tsimshian, Northern Wakashan and Salishan Nuxalk](#).

This finding was not a complete surprise to Indigenous collaborators, co-authors, and communities. Bears and people have shared resources and

watersheds for millennia, emphasizing the potential for both to respond to and be shaped by the landscape in similar ways. This overlap additionally suggests that the pattern of genetic grouping may be more linked to what the [landscape](#) can provide in resources than what it can limit in resistance.

Knowledge sharing between bears and people

Elders pass on stories about people watching and learning from bears as they eat many of the same things and are also omnivores. Bears and people both learn from their ancestors what to eat and where. In some places, bears stay close to the home range and territory of their mothers just as Indigenous families traditionally have rights to manage a specific part of a river or watershed. These familial links to territories and sharing of knowledge suggest not only a parallel in resource use, but also a cultural equivalency between bears and people.

These findings also have management implications. The geographies of the three grizzly genetic groups do not spatially align with [how grizzlies are currently managed by the provincial government](#). One genetic group is split in half by a current management boundary, meaning that that two halves of the same group could be managed differently.

Incorporating genetic evidence into management plans can provide important information about [population health and the ability of groups of animals to adapt to changes or stressors in their environment](#).

The findings of genetic grouping despite traditional barriers to mating, and the striking overlap between groups and Indigenous language families highlights the close relationship between bears and people. This overlap also emphasizes the need for local and Indigenous-led monitoring and management of grizzlies.

Traditional knowledge and conservation

Central coast First Nations are effectively [pairing local and traditional ecological knowledge with western science to change policy](#).

While this study focused primarily on [grizzly bears](#), Indigenous-led stewardship considers the whole ecosystem, with the collaborative bear monitoring group also focusing on salmon as a species inextricably linked to people and bears.

One of the primary goals of this long-term monitoring collaboration is to ensure that salmon populations are healthy and there is always [enough fish for bears and people](#). The work described here represents a small piece of a long history and future of Indigenous stewardship of important species and places, and the relationships among them.

This article is republished from [The Conversation](#) under a Creative Commons license. Read the [original article](#).

Provided by The Conversation

Citation: DNA analysis of grizzly bears aligns with Indigenous languages (2021, September 3) retrieved 20 June 2024 from <https://phys.org/news/2021-09-dna-analysis-grizzly-aligns-indigenous.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.