

*Indigenous peoples' habitation history drives present-day forest biodiversity*

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Humans have transformed the earth's surface through a range of activities, shaping the landscape we see today. Hakai Lúxvbáíís Conservancy on the Central Coast of British Columbia is no different. The Conservancy has a complex land use history marked by humans who have lived there for millennia. In coastal communities like Hakai Lúxvbáíís, human activities lead to the accumulation of things like shells, bones, and cultural remnants in landscape features now known as shell middens. These shell middens act as sources of marine nutrients that can feed nearby plant communities. The goal of this project was to examine legacies from past land use, including from shell midden sites, within the present-day plant communities in British Columbia.

To do this we selected ten historic village sites, each with histories of intensive human use and existing shell middens. We paired them with ten control sites with similar site conditions but no history of human villages or shell middens. We collected data on plant communities at both large and small scales, as well as soil samples from each site. Though the village sites had been largely abandoned for more than 100 years due to cultural changes wrought by colonization, we found that site ecology is still impacted by a history of human villages. Historical village sites had more plants that were culturally important and that need higher levels of nutrients, and analysis of the soil samples showed that habitation sites, with their middens, were consistently more nutrient-rich. Our results emphasize that human land use has deeply altered these plant communities on very long-time scales.

This research highlights the fundamental long-term role of humans in ecosystems of this region. It improves our understanding of the factors influencing vegetation patterns based on the complex intersection of historical practices and environmental changes.



*The British Columbia central coast has one of the longest continuous habitation histories in North America. Despite more than a century of abandonment, the cultural practices of local Peoples have left an imprint on the plant communities of today.*

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