THE **HEAT** IS **ON**

Species feeling the effects of climate change

Yellow-Cedar

Callitropsis nootkatensis

Region:
Pacific Northwest, Alaska

Area affected:
British Columbia, Southeast Alaska

Climatic change:
Changing snow patterns

Impact:
Die-offs

ABOUT THIS SPECIES

A medium-size tree that can grow to nearly 80 feet tall and 35 inches in diameter, the yellow-cedar is found along the Pacific Coast from northernmost California to Prince William Sound in Alaska. The unique properties of its wood make it one the most culturally and economically valuable trees in the Pacific Northwest. Its wood is unusually strong and even-grained and has a pleasant aroma and yellow color. It is also virtually rot-proof, and living trees and even downed logs are highly resistant to both insect attack and fungal decay. This combination of qualities makes yellow-cedar ideal for carving durable wooden products, particularly ones that will be used outdoors. Native peoples of the Pacific Northwest have long used it to make everything from canoe paddles to totem poles, and it is sought after for boat hulls, bridge supports decks and other construction. Yellow-cedars live an average of 500 to 750 years and, given their resistance to rot, can persist as standing snags of fallen logs for hundreds of years more, providing habitat with structure and cover for generations of seeds to germinate.

DESCRIPTION OF IMPACT

In contrast to the usual pattern of decline in the southern portion of the ranges of climate-affected species, yellow-cedar trees are dying across large areas of the northern part of their range. This loss was traced back to the freezing of the tiny roots that supply the tree with water and nutrients. It turns out that while yellow-cedar, like all trees growing in northern climates, is tolerant of cold temperatures, it is less so than other species in the region. Its fragile roots are especially susceptible to freezing in early spring and highly dependent on snow cover to insulate the soil and protect them from freezing injury. Climatic changes at the northern part of the yellow-cedar's range have reduced early-spring insulating snow cover at a time that the area is still cold enough to experience damaging freezing in the upper soils. **Since the 1980s, over 1 million acres of yellow-cedar forests have faced decline due to climatic changes in southeastern Alaska and through British Columbia.**

Reference

Comeau, V. et al. 2021. Climate induced yellow-cedar decline on the island archipelago of Haida Gwaii. 12(3). Ecosphere. 1-19. https://esajournals.onlinelibrary.wiley.com/doi/epdf/10.1002/ecs2.3427

Hennon, P.E. et al. 2016. A climate adaptation strategy for conservation and management of yellow-cedar in Alaska. Gen. Tech. Rep. PNW-GTR-917. U.S. Forest Service, Pacific Northwest Research Station. Portland, OR. http://www.treesearch.fs.fed.us/pubs/50115

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