



Evaluating the Dead Yellow-Cedar Resource



Figure 1—Declining yellow-cedar forest in southeast Alaska.

More than 1/2 million acres of yellow-cedar (Alaska cedar) trees in southeast Alaska have died or are in decline (Fig. 1). Because of their high resistance to decay, dead yellow-cedar snags may remain standing for 100 years or more, and so occupy an increasing portion of the forest (Fig. 2). Currently, the wood from dead snags is primarily used for firewood.

Approach

The objective of our study was to determine if the mechanical properties of dead yellow-cedar snags decline over time. Samples were taken from 46 live and 62 dead trees on Nemo Point on Wrangell Island. The dead trees were sampled using a classification system developed by Paul Hennon, a pathologist with the USDA Forest Service in Juneau.

What We Have Learned

Bending tests were conducted on small, clear samples cut from each dead tree. Of the properties tested, only the bending strength (modulus of rupture) of wood from trees that had been dead for 81 years was lower than that of wood from live trees, and this value was lower by only about 2% (Fig. 3). The bending stiffness (modulus of elasticity) of the dead wood was equal to or greater than that of the wood from live trees. Thus, utilization options for wood from dead snags can be broadened to higher value uses consistent with those for wood from live trees.

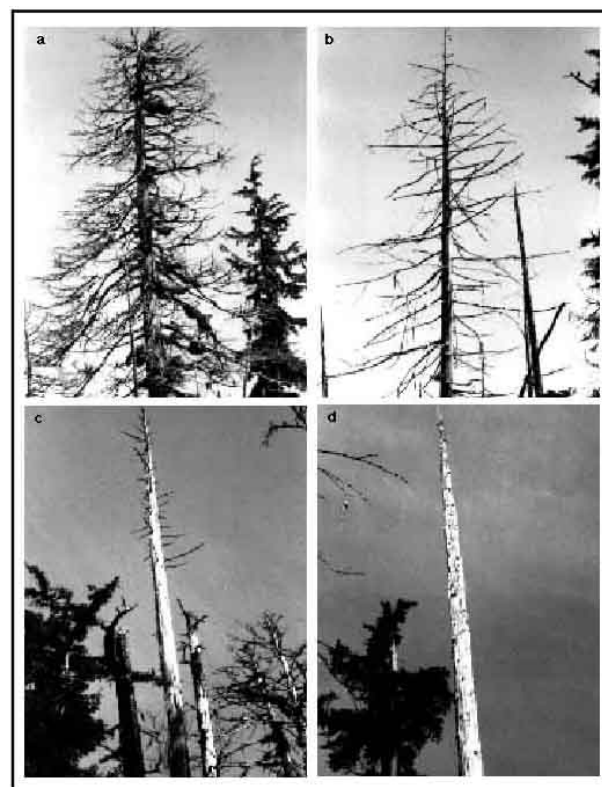


Figure 2—Dead yellow-cedar snags. Trees have been dead for (a) 14, (b) 26, (c) 51, and (d) 81 years.

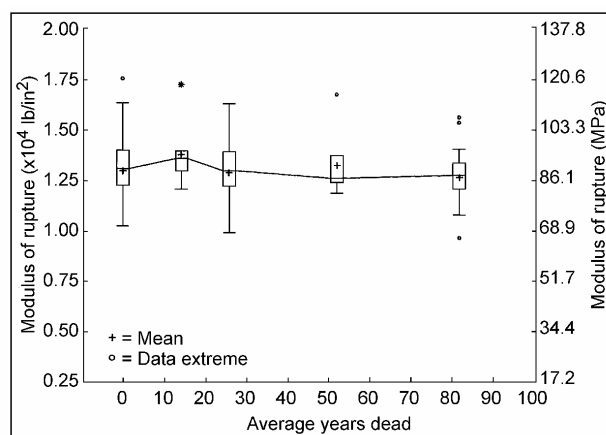


Figure 3—Bending properties of dead yellow-cedar wood.

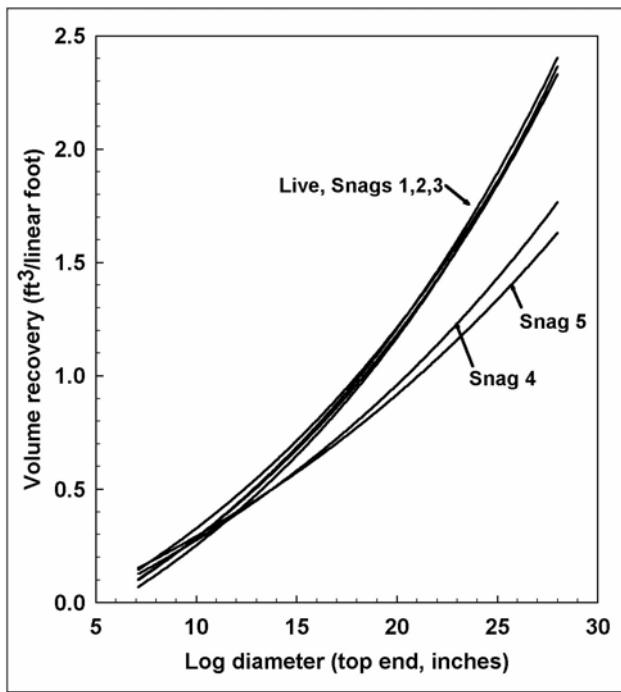


Figure 4—Recovery of lumber from dead snags compared with live wood.

The recovery of domestic grades of lumber from dead snags was good (Fig. 4). Recovery volume was similar for live trees and class 1 and 2 snags: about 15% “clear” wood and 70% No. 2 and better structural lumber. Class 4 and 5 snags yielded less domestic-grade lumber than did live wood, but the difference was less than 15%. Lumber recovery by the more restrictive export rules was lower and varied more by class. Older snags tended to have a higher volume of lumber recovery in the lower grades.

Yellow-cedar is one of the most beautiful of the durable species. The wood is medium textured, pale yellow, and generally straight-grained. It has a mild, distinctive odor. The wood is moderately hard and strong and may be used where workability, stability, and weather resistance are needed. It is suitable for both structural and nonstructural applications: park benches, exterior cabinet work, foundry patterns, and marine and landscape installations (Fig. 5). Information on the availability of yellow-cedar may be obtained from the Western Wood Products Association.

Learn More About It

Green, D.; McDonald, K.; Hennon, P.; Evans, J.; Stevens, J. 2002. Flexural properties of salvaged dead yellow-cedar from southeast Alaska. *Forest Products Journal*. 52(1):81–88.

Hennon, P.; Shaw, C. III. 1997. The enigma of yellow-cedar decline: What is killing these long-lived, defensive trees? *Journal of Forestry*. 95(12):4–10.



Figure 5—Yellow-cedar is durable and suitable for structural applications.

Hennon, P.; Wittwer, D.; Stevens, J.; Kilborn, K. 2000. Pattern of deterioration and recovery of wood from dead yellow-cedar in southeast Alaska. *Western Journal of Applied Forestry*. 15(2):49–58.