



Timber Talks



Department of Fisheries and Forestry

Prepared by V. H. Phelps, Forest Research Laboratory, 506 W. Burnside Road, Victoria, B.C.

CAN YOU PREDICT FIR CONE CROPS?

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Restocking areas where the forests have been wholly or partially removed with tree species of equal or greater value is important to sound forest management. This may be accomplished by varied and usually inter-related ways but in all cases an adequate seed supply is required. Thus an understanding of variations in seed crop abundance is important.

The true firs produce seed from the pollination of female or pistillate flowers by male or staminate flowers. Flower buds of the former, standing erect and occurring singly on the upper side of shoots in the upper crown, are first produced when the tree is about 20 years old; clusters of male flower buds, easily distinguishable from the small lateral or terminal vegetative buds, on the underside of shoots in the axils of needles in the mid or lower crown become evident when the tree is about 35 years of age. The oblong or cylindrical shaped cone matures and disintegrates in the fall.

The initiation and development of male and female buds were studied from 1963 to 1968 on 5 selected alpine fir trees near Prince George, B. C., felled trees in the same area and grand fir felled on Vancouver Island. Cones were produced annually, in greater abundance some years than in others, although the number of buds initiated each year was similar. Terminal and subterminal buds were always vegetative. Large pyramidal lateral buds in the upper crown either aborted or produced female flowers; if they were small and similar in size to those in lower parts of the crown they developed into shoots or aborted. Abortion of male buds was usually progressive over several months, and in poor seed years only a small number of flowers developed.

In addition to the very frequent abortion of female and male buds, other irregularities of the process of seed production occurred, such as male flowers developing from female buds, female cones having needle-like bracts at the base and without viable seed, female cones producing shoots, and the development of female and bisexual cones without seed from male buds. These irregularities occurred on individual trees rather than on groups of adjacent trees and not more than one abnormality was observed on a single tree.

The function of buds is not predetermined at the time of their initiation, and variations in cone production cannot be related to differences in the number initiated. Bud function is partly controlled by their position in the tree crown but physiological and environmental factors have equal or perhaps greater importance. This makes the prediction of cone crops from counting buds at the initiation stage of development, June and July, difficult and unreliable.