



# Timber Talks



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## PREDICTING INSECT POPULATIONS

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Damage and loss in the forests from insects are related to insect populations. To predict the economic hazard to our resources and to plan suitable measures of control, the size of the population must be known. Due to the life history of the species, weather conditions and other circumstances, rapid determination of the populations is frequently required to prepare an immediate program of control. Manual counting of the insects' eggs on infested samples of foliage and bark has been used to assess populations, but this is time consuming and often inaccurate.

A technique was developed to dislodge eggs laid on foliage and bark and concentrate them within a small area, on a contrasting background. This facilitates counting, ensures greater accuracy and is less time consuming. Foliage on which eggs were present was soaked in a caustic solution. Within a few hours the eggs were dislodged and when the liquid was filtered through a Buckner vacuum funnel, were retained on the filter paper. The solvent and concentration most suitable for dislodging the eggs was not the same for all insects. Weak potassium or sodium hydroxide was efficacious for budworm species, xylene and turpentine dislodged pine butterfly eggs, and all stages of balsam woolly aphid and mites could be removed by agitating with tap water.

The time required to process the samples manually was ten times greater than by the extraction method. Eggs of the black-headed budworm on several samples of infested foliage were counted manually and compared to the number when the eggs were first dislodged with a caustic solution. The numbers counted by the extraction method exceeded those counted manually, on over 90 per cent of the samples. Known quantities of the eggs were introduced into receptacles containing western hemlock foliage and ninety-six per cent of them were recovered by the extraction process.

Sampling insect eggs and small organisms can be accomplished quickly and accurately by using a solvent for dislodging the eggs or organisms from the host, prior to counting. The solvent that is most suitable and the accuracy of recovery must be determined for each insect species.