



Fact Sheet

Detection of Balsam Woolly Aphid



Fig. 1. Gouted twigs

The balsam woolly aphid (BWA), *Adelges piceae*, an introduced insect, is known to be distributed over more than 10 000 square kilometers in the Vancouver Forest Region (see Map). It infests the twigs and stems of all *Abies* species; alpine fir is the most susceptible to damage although amabilis and grand firs are most frequently infested in coastal British Columbia. During the summer, it appears as white specks of wool, about 2 mm in diameter. Under the wool covering is a dark purple aphid which sucks sap from the bark. During the winter, it is invisible to the naked eye.

Characteristically, a BWA infestation starts when newly hatched aphids (crawlers) are dispersed by wind into a

stand. Crawlers land in the upper crown and settle at the twig nodes to feed. With time, this population may increase and disperse to the lower portions of the crown. In mature and immature stands and in understory trees, gouting of the twig nodes usually occurs (Fig. 1). Repeated gouting of the main terminal may produce a stunted top (Fig. 2). As the aphid is so difficult to see, these two symptoms are often used to establish whether or not a tree is infested. In young stands (under 18 m), gouting may be absent; thus, samples would have to be checked for aphids. On some, but not all, attacked trees a crown infestation may develop into a stem attack, with masses of wool specks on the stem (Fig. 3).

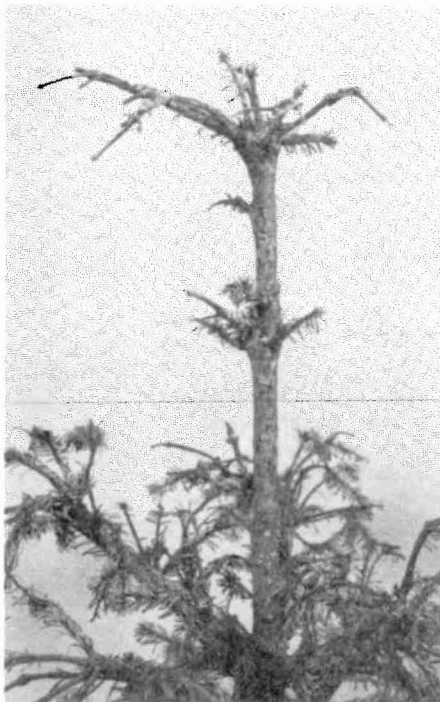
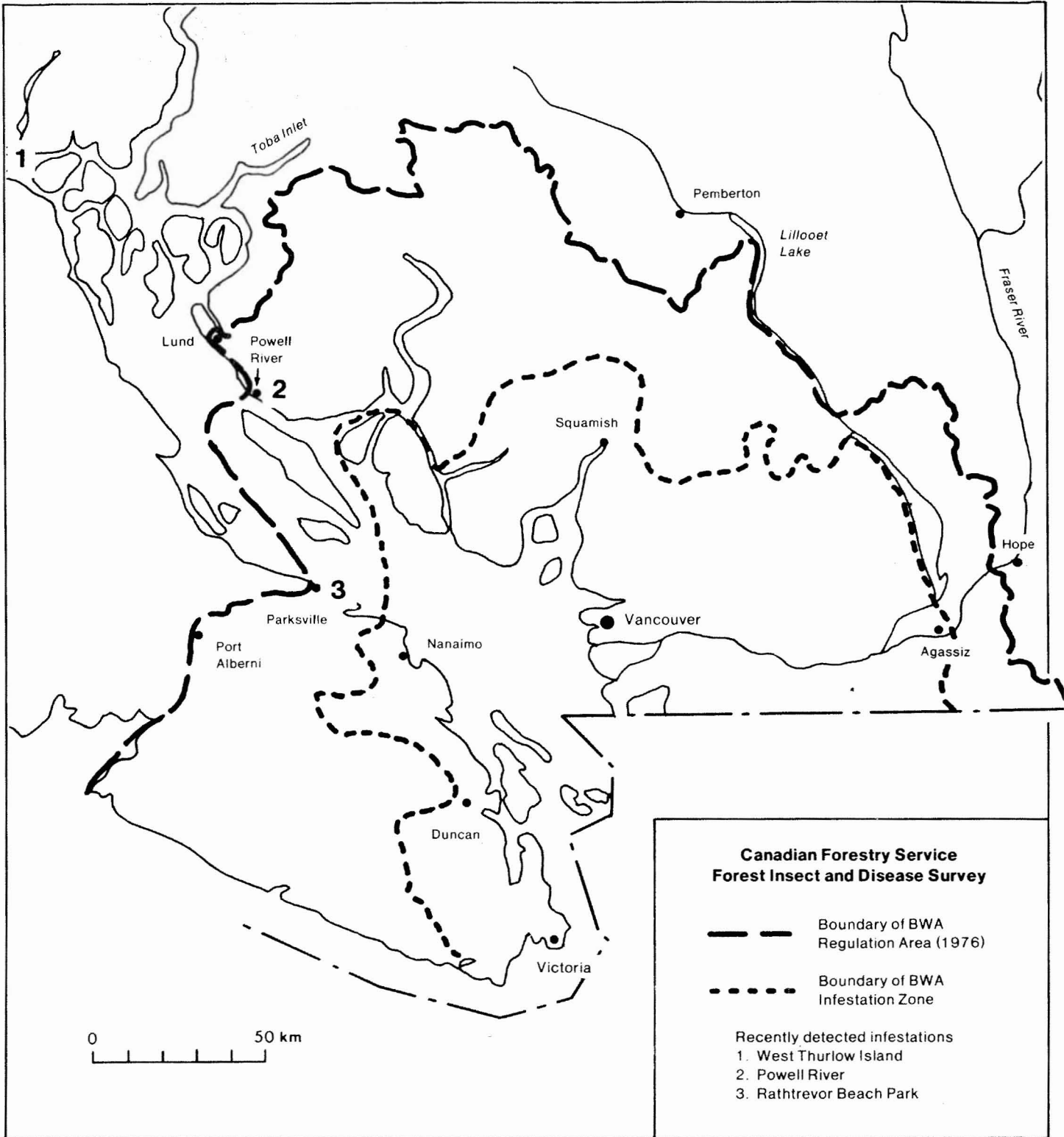


Fig. 2. Stunted leader



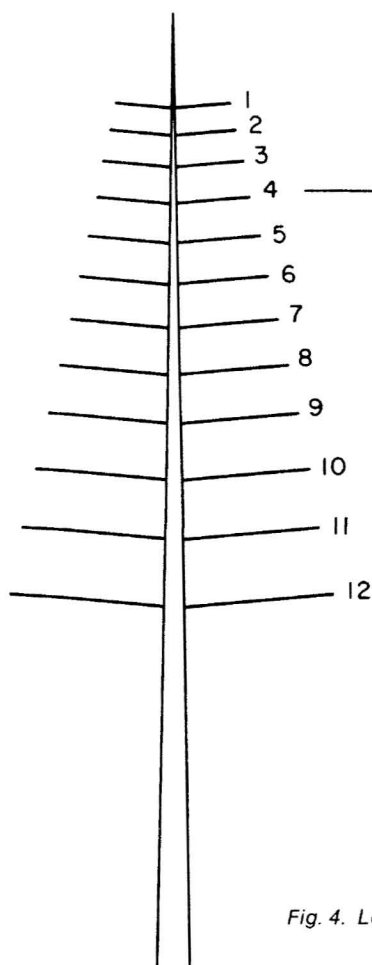
Fig. 3. BWA on stem bark



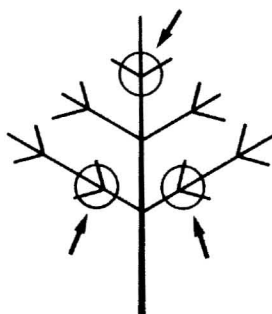
Sampling for BWA

To determine the spread of BWA, sampling should be done in areas outside the known infestation zone. Within the known infestation, sampling can be used to estimate the level of infestation and the risk to the trees so that logging priorities can be appropriately established.

TIMING: Trees can be examined at any time of year as aphids and gouting are present throughout the year (although aphids are more difficult to see in the winter).



STEP 1
Sample any of these branches



Step 2
Collect and examine any of these nodes

Fig. 4. Location of twig nodes for sampling

Mature Stands, Immature Stands and Advanced Regeneration

1. Concentrate on the upper third of the crown and look for symptoms of attack, twig gouting, stunted height growth and a dead leader (use binoculars); or examine recently blown off branches.
2. If logging is in progress, the slash should be examined for evidence of gout.
3. Examine stems, using binoculars where necessary, for presence of white wool associated with BWA. Wool can usually be detected at heights up to 10 meters provided one allows time for the eyes to adjust to the bark.

Young Stands

Symptoms of BWA infestation may be absent, so twig nodes or branches should be collected as follows:

1. At each location, select 10 Abies trees at about 20 m intervals.
2. For each tree, collect 2 nodes from the 4- to 11-year-old branches; select only the nodes shown in Figure 4. About 2 cm of twig on each side of the node is sufficient.
3. The nodes can then be examined for BWA by picking away the old bud scales at the node under 10-15X magnification. If this is impractical, or if BWA is found or suspected beyond the present distribution

limits, please send the nodes or branches to:

Canadian Forestry Service
Pacific Forestry Centre
506 West Burnside Road
Victoria, B.C. V8Z 1M5

Attention: Insectary

Please include the following information:

name and address of collector
date of collection
location of collection
tree species
elevation (approx.)

Canada

**Canadian Forestry Service
Pacific Forestry Centre**

Forest Insect and Disease Survey