

Balsam Woolly Adelgid in British Columbia

March, 2016

Recommendations for Prevention and Management of Balsam Woolly Adelgid (BWA) in B.C.

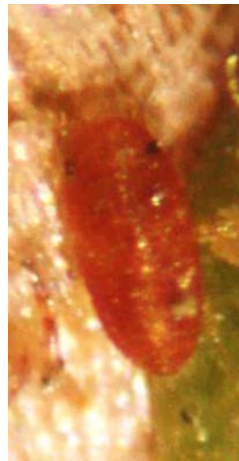
Some life stages and signs of BWA:



Cotton-like waxy threads produced by the female to protect her eggs on surface of bark (present all year, most evident in summer-fall, each cottony nest is 1-2 mm in size).



Dark round female (1 mm) and eggs (cotton threads removed) (April-Sept). It is useful to use a hand lens (10-20x), opti-visor, or microscope to confirm these life stages.



Orange crawlers (<1 mm), the mobile form, can be found on bark or at the base of needles (April-Sept).



Darkened nymphs (<1 mm) with white fringe settle and feed on branch tips, preparing for winter (September-March).

Freezing temperatures kill all life stages except the settled nymphs, which survive the winter.

Include these components in a management plan:

- Purchase pest-free seedlings from a nursery that is reputable and located in an area consistent with the current BWA regulation.
- Cut and destroy infested tree; chip or burn. Do not drag a newly cut tree through a field because crawlers can be spread this way. If possible, wait 1-2 weeks (at summer temperatures) before moving the tree to ensure insects are dead. Trees can safely be removed when crawlers are not present in winter.
- In general, plan to apply a full canopy spray at bud break when crawlers are active. Some systemic insecticides may need to be applied prior to bud break to ensure effectiveness. A

second spray and possibly a third may be needed depending on the insecticides used and level of infestation. See label for details on the number of applications and interval between sprays.

- Effective spraying for this pest is challenging. Full canopy coverage is important; sprays must reach crawlers deep in the canopy, as well as at the branch tips.
- Cut tree stumps flush with the ground if possible.
- Monitor: At least 1-2 times per year for symptoms (swelling, distortion, galls, gouting, poor needle flush) or presence of BWA life stages (fluff, females, crawlers, nymphs). It is easier to find infested trees after July, however, damage can be seen any time of year, and there is risk of spreading crawlers when handling trees in the summer. Monitor for dead/live BWA 1-2 weeks after spray application.
- Chemical Control: The insecticides in Table I are registered for aphids and other pests in conifers, and may also control BWA. Presently we do not have any B.C. efficacy data for these insecticides.

Table I. Insecticides for aphids and other pests in conifers

Product (active ingredient)	Chemical Class	Comments
Cygon (dimethoate) ☠	I	Systemic. Used successfully for aphids in many crops. **Applied on a tree farm in 2015, timing of applications were apparently good, but didn't seem to adequately control the pest, as we found more live BWA in the summer and continued damage after two sprays, 3 weeks apart (first spray in early May).
Thionex (endosulfan) ☠	2A	Will no longer be available after 2016. Has been used for BWA in the Fraser Valley, WA, and OR.
Admire (imidacloprid)	4	Registered for aphids in Canada on fir trees, foliar application. Used in eastern Canada for aphid control. Group 4 insecticides may lead to spider mite flare-ups.
Movento (spirotetramat)	23	Relatively soft on beneficial organisms. Foliar application at bud break. Systemic and needs to be applied with an adjuvant. Information from USA indicates it is effective for controlling BWA.
Endeavor (pymetozine)	9B	'Soft' on beneficial organisms. Foliar application. Anti-feedant; insects stop feeding. Takes some time to kill aphids (they starve); similar response with other sucking insects.

Additional insecticides registered for sucking insects on Abies include but may not be limited to: Actara (thiamethoxam), Assail/Tristar (acetamiprid), Sevin (carbaryl), Malathion, Insecticidal soap, and Landscape oil. We are unaware of any local efficacy on BWA for these products. Screening trials for BWA insecticides were initiated in spring 2016 in Chilliwack, B.C. Some products above are included in the trial.