

**Title:**<sup>0</sup> Identification of Seed Chalcids Infesting Seeds of British Columbia Conifers

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## **Progress report**

### **Objective 1:**

- The first shipment of BC seed arrived in late November 2003. The seedlots were collected from both natural stands and seed orchards in the fall of 2003.. The consignment consisted of 17 seedlots representing the following four conifer species native to British Columbia: *Pinus monticola*, *Pseudotsuga menziesii*, *Abies amabilis* and *Picea* sp .
- In conjunction with the BC project cones were also collected from several natural stands in Northern Ontario. There was a paucity of cones in much of the survey area in Northern Ontario. Bumper crops of *P. glauca* were noted in the southern part of the survey region but nil or light elsewhere. The same situation was encountered with *L. laricina*. Few cones of *A. balsamea* were found anywhere. A survey of hundreds of trees might reveal only two or three with cones. Cone production for *P. strobus* was more consistent. Only one stand of *P. rubens* was checked and cone production was light and sporadic. Moderate numbers of *T. canadensis* cones were found at only one location. Ten seedlots, representing the following six tree species were collected: *Larix laricina*, *Abies balsamea*, *Pinus strobus*, *Picea rubens*, *Picea glauca* and *Picea mariana*
- Both the Ontario and BC seed were prepared for irradiation in late November and early December by taking representative samples of seed and distributing them evenly on the adhesive side of 8 x 10 inch address labels. The labels were x-rayed on Kodak Industrex Rapid 620 paper in a Faxitron MX 20 cabinet radiographic system. The paper was processed in a Kodak Instant Processor, Model P-1, put in a fixative solution then washed and dried in an Arkay ST-22 drum dryer.
- BC seedlots of *Picea* sp., *A. amabilis* and *P. menziesii* hosted large numbers of *Megastigmus* spp.. X-rays of the Ontario seed from *A. balsamea*, *T. canadensis* and *P. strobus* also revealed large numbers of seed chalcids. *Megastigmus* reared from *P. strobus* seed will be of special interest because they will finally provide an opportunity to end the controversy as to the identity of the chalcid infesting this host.
- Currently, a proportion of infested seed from Ontario and BC seedlots are being numbered on the radiographs, labelled with corresponding number, location etc., and put in 2.0 ml microcentrifuge tubes. They will be stored at 2EC until spring then put outside in an open sided insectary and checked daily for adult Mega/parasite emergence.
- Another large shipment of British Columbia seed (5 Styrofoam coolers) provided by Robb arrived 14 January 2004. The seed from this latest shipment has not been processed as yet.
- At least half of the seeds from infested seedlots were sent to Europe for genetic analysis of emerging specimens.

### **Objective 2:**

- A list of sites (11) in BC with known high numbers of *Megastigmus* and associated parasites was compiled in the fall of 2003. This list was forwarded to BC. As of 31 Nov 2003 *P.*

*menzesii* cones were being picked from two seed orchards (Saanich seed orchard and Micro seed orchard). The seed had to be extracted and cleaned – status unknown (although received 5 boxes of seed Jan, 14/04 and may be inside).

- Cones were also sampled at several areas in Northern Ontario. Small numbers were collected due to a paucity of cones in many areas. After processing and x-ray it looks like there are four locations hosting significant numbers of infested seed; a *T. canadaensis*, two *A. balsamea* and one *L. laricina*. Three collections of cones were made at each of these locations, approximately one month apart.
- As mentioned previously, a proportion of infested seed from Ontario and BC seedlots are being numbered on the radiographs, labelled with corresponding number, location etc., and put in 2.0 ml microcentrifuge tubes. They will be stored at 2EC until spring then put outside in an open sided insectary and checked daily for adult Mega/parasite emergence.
- In the past seed had to be extracted, de-winged and cleaned by hand, so seedlots were predictably small. However, in the fall of 2003 we received a tumbling drum for seed extraction and seed blower for cleaning the seed. This will allow us to process larger local collections next year.
- At least half of the seeds from infested seedlots were sent to Europe for genetic analysis of emerging specimens.