

## PINE BEETLE SURVEY REPORT - UBC OKANAGAN

A pine bark beetle survey was carried out on UBC Okanagan Campus forest areas including the forested eastern portion of Endowment Land during January 11 - 15, 2013. Pine trees including those around buildings were examined for new beetle attacks following the 2012 bark beetle flights. This report provides survey methodology, survey results and recommendations for control.

### **Survey Method**

A walk through survey was done looking for any signs of foliage color change and evidence of new attack on the pine tree boles. Trees showing foliage color change as well as boles of trees with insect evidence such as pitch tubes, boring frass or woodpecker activity were checked for beetles by removing some bark and looking for insect evidence such as galleries, adult beetles and larvae. Galleries and insects were observed to determine if they were Western pine beetle (WPB) or Mountain pine beetle (MPB) and recorded. All pine trees around infested trees for a minimum distance of 20 meters were closely examined for signs of beetle attack to ensure all infested trees were identified and marked for removal. All pine trees around buildings including trees with verbenone repellent pouches were closely examined as well.

Yellow flagging tape was placed around the boles of currently infested trees. The numbers of attacked trees as well as diameter range and average diameters were recorded. Attack sites were plotted on a map. The number of attacked trees were noted on orange flagging tape and placed on a tree along with yellow tape at each currently infested site. In many instances, the sites were flagged with orange tape to a road, trail or forest edge and tie points established with orange and yellow tape.

### **Pine Beetles Observed**

The survey indicated considerable WPB populations as well as some MPB. The MPB populations appear to be declining somewhat. Lindgren funnel trapping using WPB lures in 2012 collected the largest number of WPB since trapping was initiated. Trapping for MPB has not been effective and was discontinued four years ago. A trial trapping using improved MPB lures was done in 2012 but was still not very effective. Snow level hindered observation of red turpentine beetle (RTB) attacks because they attack at the base of the pine trees and as a result none were observed. In the past, very minor RTB attacks were observed.

A lot of pine trees appear very stressed. Many have thinning and browning foliage on the top and appear like they may have been attacked by pine beetles but there was no evidence of beetle attack on the boles of the trees. Also, the majority of the attacked pines had little or no evidence of attack on the tree boles. The trees had to be examined very closely and in a lot of cases bark had to be removed to confirm that the trees were infested. It is very possible that more trees are infested higher up.

### **Verbenone Repellent Usage**

There were 200 verbenone repellent pouches placed on high value aesthetic trees around campus buildings and other important areas last summer. The trees with pouches and surrounding trees were closely examined during this survey. The repellents were quite effective. Only one verbenone treated tree was attacked by beetles. Because the tree is located in the swamp, the water was the contributing factor in the attack and death of the tree.

### **Present Infestations**

A total of 146 currently attacked trees plus 10 red trees at 24 sites were recorded. One of the sites (1 tree) is on the Endowment Land. The attack numbers range from 1 to 25 per site with an average of 6 per site. Diameters of attacked trees range from 8 to 35 cm with average of about 19 cm. The majority of the trees are infested with WPB and to a lesser extent with MPB. Many of the trees were attacked by both insects. The majority of the trees marked have red foliage but there are still insects (adults and larvae) in the cambium layer or within the bark. In addition, there are also a total of 22 red fading foliage trees at 16 other sites. The

red foliage trees are older attacked tree with no obvious current beetle populations. The foliage on the trees has faded and is shedding. The trees were not marked and are shown on the map but not shown on the survey data table.

Refer to the attached data table and map for infestation details and locations.

### **Recommendations**

- 1 Control the spread of the pine beetle from currently infested trees prior to April 30 2013 by removing the trees from UBCO property and disposing of the infested portions of the trees in a manner that would destroy the insects prior to beetle flight.
- 2 Remove the entire infested trees including branches and foliage from the sites for fire hazard and aesthetic reasons.
- 3 Reduce the risk of further attack and mop up resident populations by continuing with the following:
  - A) Continue to place Lindgren funnel traps with Western pine beetle lures in open areas away from pine stands similar to the 2012 program.
  - B) Continue to place verbenone pine beetle repellent pouches on trees at maximum 15 x 15 m spacing within highly valued areas such as forested areas, around buildings, along walkways and roadway corridors.
- 4 Endeavor to ensure neighboring property owners are aware of and are dealing with infestations on their properties prior to beetle flight in order to reduce risk of insect spread onto UBCO property.
- 5 Carry out follow up bark beetle surveys checking for and marking attacked trees for removal after beetle flights. I strongly recommend that inspections be made during the summer as well as the winter. There are many WPB flights during the summer and less trees would be lost if the newly attacked trees are identified and promptly removed before another generation of beetles develop and spread.

Survey data table and map for this years survey is attached. Also attached is a copy of last years survey data sheet and map with comments.



Eric Haupt  
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PINE BARK BEETLE SURVEY DATA TABLE  
UBC OKANAGAN - JANUARY 2013

GENERAL LOCATION	SITE	ATTACKED TREES		TREE DIAMETERS (cm)		INSECTS		ATTACK LEVEL	COMMENTS
		G	R	RANGE	AVG.	WPB	MPB		
North West	A	1			34	X		M	Between road and trail.
	B	5	4	15-29	23	X		M-H	No beetles left in old attack.
	C	25		10-24	16	XX	X	L-H	Attack on both sides of trail.
	D	1			15	X		M	On Endowment Land (south east).
North Central	E	3		22-24	23	X		M-H	Near trail.
	F	10		11-32	20	XX	X	M-H	Near golf course and road.
	G	4		13-24	17	XX	X	M-H	Within student study area.
	H	8		12-20	16	X		M-H	Tie point adjacent to gas line.
	I	11		8-33	18	XX	X	L-H	23 m from road
	J	2	1	12-19	16	X		M	Good access.
	K	1	1		12	X		M	No beetles left in old attack.
	L	14		8-30	20	XX	X	M-H	Good access.
	M	2		17-20	18	X		M	Below residence. Near gas line.
	North East (East of gas line)	N	17		10-35	22	XX	X	L-H
O		6		10-20	15	X		M	One tree outside of fence.
P		16		10-29	20	XX	X	M-H	Between fence and steep slope.
Q		4	1	16-20	18	XX	X	M-H	West of lower parking lot.
R		2	3	19-23	21	XX	X	M-H	No beetles left in old attack.
South West	S	2		16-17	17	X		M	Some wood borer evidence.
South East	T	1			31	X		M	Tree in swamp area.
	U	1			31	X		M	Tree in wet area near swamp.
	V	2		18-18	18	X		M	North of Quonset area.
	W	7		10-35	20	X	X	M-H	North of Quonset area.
	X	1			23	XX	X	M-H	South of Quonset building.
<b>TOTALS</b>		<b>146</b>	<b>10</b>						

**Legend**

G - Trees with current beetle populations

R - Red foliage trees - No current beetles

L - Light attack level

M - Moderate attack level

H - Heavy attack level

**PINE BEETLE SURVEY MAP - UBC OKANAGAN**  
**JANUARY 2013 SURVEY**

**LEGEND**

- Ⓟ Infested site identification.
- ✕ ○ Denotes infested site location: ✕ single tree, ○ 2 or more trees.
- 3 G Denotes 3 green (current) infested trees (many have red foliage).
- 2 R Denotes 2 red foliated trees with no current beetles evident.
- 1 G(S) Denotes 1 green suspect tree (may have some current beetles).
- TP ▲ Denotes tiepoint - start of flagged line to infested trees.
- Denotes flagged tie line to infested trees.

Map scale: 1: 7,500 1 cm - 75 m

