

**PINE BARK BEETLE**

**SURVEY REPORT**

**UBC OKANAGAN CAMPUS GROUNDS**

Eric Haupt  
Forestry Consulting

January 28, 2014

## **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 15 - 17, 2014. Pine trees including those around buildings were examined for new beetle attacks following the 2013 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. Older attacked trees with no obvious current beetle populations were marked by placing yellow flagging tape on the tree branches. 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 red flagging tape and placed on a tree along with yellow tape at each currently infested site. In many instances, the sites were flagged with red tape to a road, trail or forest edge and tie points established with red and yellow tape.

### **Pine Beetles Observed**

The survey indicated considerable WPB populations as well as some MPB. The beetle populations appear to be declining. Lindgren funnel trapping in 2013 using WPB lures collected less WPB than what was collected in each of the previous three years. Trapping for MPB has not been effective and was discontinued. Only a minor number of red turpentine beetle (RTB) attacks were observed during the inspection.

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 lightly attacked by beetles. The tree is located adjacent the pond with the rising water level being the primary factor in the death of the tree as well as another tree nearby.

### **Present Infestations**

A total of 39 currently attacked trees plus 28 older attacked trees at 12 sites were flagged and recorded. The attack numbers range from 1 to 14 per site including the old attack with an average of 5.7 per site. Diameters of attacked trees range from 10 to 33 cm with average of about 16 cm. The majority of the trees are infested with WPB and to a lesser extent with MPB. Some of the trees were attacked by both insects. The majority of the currently infested trees have red foliage but there are still insects (adults and larvae) in the cambium layer or within the bark. They were marked with yellow flagging around the tree boles. The 28 old attacked trees at the currently infested sites were marked with yellow flagging tape on branches.

In addition, there are also a total of another 28 old attack, red fading foliage trees at 14 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 marked by placing yellow flagging on branches and do not have red flagged markings. The locations with numbers including diameters in brackets are shown on the map and not 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 2014 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 trees including branches and foliage from the sites for fire hazard and aesthetic reasons. Removal of the old attacked trees in a similar manner would be beneficial as well.
- 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 2013 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.



Eric Haupt  
Forest Health Consultant

January 28, 2014

PINE BARK BEETLE SURVEY DATA TABLE  
 UBC OKANAGAN - JANUARY 2014

GENERAL LOCATION	SITE	ATTACKED TREES		TREE DIAMETERS (cm)		INSECTS		ATTACK LEVEL	COMMENTS
		G	R	RANGE	AVG.	WPB	MPB		
North West	A	4		10 - 33	21	x		M - H	Close to trail.
	B	1	9	10 - 28	15	xx	x	M	New attack 26cm. Close to trail.
North Central	C	2	2	13 - 15	14	x		M - H	Flagged 10m to cleared area.
	D	1			15	x		M	Flagged 18m to cleared area.
	E	1			29	xx	x	H	Green foliage. Flagged to road.
	F	2	2	12 - 16	14	x		M - H	Two old attack 15cm each. Flagged to road.
	G	3		12 - 19	16	x		M - H	Flagged south 33m to open area.
	H	4	4	22 - 27	16	xx	x	M - H	Old are 14 & 18cm. Flagged to opening.
	I	1	4		20	x		H	Old are 9 - 15cm, average 12cm. Near gas line.
North East	J	13	3	10 - 20	14	xx	x	M - H	Old are 10 - 14, average 12 cm.
(East of gas line)	K	1	2		15	x		M	Old are 10 & 11cm. Flagged east to open area.
South	L	6	2	10 - 23	15	x		M - H	Flagged 15m to road.
<b>TOTALS</b>		<b>39</b>	<b>28</b>						

<b>Legend</b>	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