

**PINE BARK BEETLE**

**SURVEY REPORT**

**UBC OKANAGAN CAMPUS GROUNDS**

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## 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 - 22, 2016. Pine trees including those around buildings were examined for new beetle attacks following the 2015 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 stems. Trees showing foliage color change as well as stems 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 15 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. Trees suspected of having beetles have yellow flagging placed around the bole and pink flagging tape tied to the yellow. 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 pink flagging tape and placed on a tree along with yellow tape at each currently infested site. In many instances, the sites were flagged with pink tape to a road, trail or forest edge and tie points established with pink and yellow tape.

### **Pine Beetles Observed**

The survey indicated that WPB are still attacking some trees but the population has declined significantly. The 2015 Lindgren funnel trapping for pine beetles also indicated a decline with numbers collected being the lowest since trapping started in 2006. There were no MPB or red turpentine beetles (RTB) attacks observed during this survey.

Many of pine trees appear very stressed. They have some thinning and browning foliage and appear like they may have been attacked by pine beetles but there was no evidence of beetle attack on the tree stems. The majority of the attacked pines had little or no evidence of attack on the stems. 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. Trees with significant browning due to needle disease may have secondary bark beetles such as Ips beetles attacking the weakened branches causing additional branch mortality.

### **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 beetles attacked one repellent

treated tree. The tree is located at the attack site near the western edge of the pond. The repellent use has been quite effective.

### **Present Infestations**

A total of 17 attacked trees and 17 possibly attacked trees at 12 sites were flagged and recorded. The 17 possibly attacked trees have extensive brown dead and dying foliage which may be the result of needle disease but there is a fair chance that pine beetles may have attacked the tree stems higher up even though beetle attack was not evident on the lower portion of the tree stems. Also, other secondary bark beetle insects such as Ips beetles may be in the branches causing additional branch mortality. The attack numbers range from 1 to 8 per site with an average of 2.4 per site. Attacked tree diameters range from 9 to 39cm with an average of about 24cm. The majority of the infested trees have brown foliage but there are still pine beetles (adults and larvae) in the cambium layer or within the bark. The infested trees were marked with yellow flagging tape placed around the tree stems.

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

### **Recommendations**

1. Control the spread of the pine beetles from currently infested trees prior to April 15, 2016 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. Jointly visit the sites that have trees suspected to have pine beetles to determine if those trees should be removed as well.
3. Remove the entire infested trees including branches and foliage from the sites for fire hazard and aesthetic reasons.
4. Endeavor to ensure neighboring property owners are aware of and are dealing with infestations on their properties prior to beetle flights in order to reduce the risk of insect spread onto UBCO property.
5. Carry out a bark beetle survey after 2016 pine beetle flights.

Survey data table and map for this survey is attached.



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PINE BARK BEETLE SURVEY DATA SUMMARY

UBC OKANAGAN - JANUARY 2016

GENERAL LOCATION	SITE	ATTACKED TREES		TREE DIAMETERS (CM)		INSECTS		ATTACK LEVEL	COMMENTS
		G	G(S)	Range	Avg.	WPB	MPB		
North	A	1			31	X		L	Near road. Between road trail
West	B	2		16-30	23	X		M	West of road. NW of Day Care
	C		7	15-30	20	?			Significant brown foliage. No evidence of pine beetles on lower stem. Possible needle disease. Vicinity of houses.
North	D		1		24	?			Within study area. No evidence of pine beetles on lower stem. Could be needle disease. Tree #220
Central	E	1			18	X		L	Foliage all brown. Near gas line.
	F	2	2	9-22	18	X		M	Suspect trees have significant browning foliage
	G	2		15-18	16	X		L	Trees are leaning.
South	H		1		29	?			Significant brown foliage. No evidence of beetle attack on lower stem.
West	I		1		34	X		L	Top of tree has brown foliage. Four pitched out beetle hits on lower stem.
	J		4	19-38	30	?			Mostly brown foliage. One stem has a few beetle hits.
South	K	8	1	10-39	22	X		L-M	Near pond. Suspect tree has significant brown foliage.
East	L	1			32	X		L	Older attack. Located north of Quonset.
TOTALS		17	17						

LEGEND

- G - Trees with current beetle populations
- G(S) - Suspect trees - may have beetles higher up.
- L - Light attack level
- M - Moderate attack level
- H - Heavy attack level