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**CANADIAN FOREST PRODUCTS LTD.,
Lakeland Mills, Carrier Lumber,
The Pas, BC Timber Sales, and L&M Lumber
Mountain Pine Beetle Flight Monitoring Program
Visit #5, Report, July 15, 2004**

Introduction

The mountain pine beetle (MPB) flight monitoring program in the Prince George and Vanderhoof area was conducted on July 12th, and 13th, 2004, for the fifth weekly monitoring visit. Weekly reports will provide information regarding the development and the flight activity of the MPB population at each of the sites.

DISCUSSION

**Note: The percentages listed in this discussion represent only the life stages of the beetles observed in the bark patch samples, and do not refer to the actual number of beetles observed. The average numbers of beetles present at each life stage are listed in the data section on page 24.*

**Site 1, Mt. Mackenzie
N 53°33'10.4"
W 122°57'37.3"**

Site 1 had an average of 27.3 live brood per bark patch. This brood included mature brood adults and callow adults. 100% of the brood can be expected to commence flight within one week's time.

More than 96% of the brood are prepared to fly imminently (mature brood adults) and less than 4% of the brood have approximately one week's time until flight (callow adult stage).

**Site 2, 688 Rd.
N 53°26'49.5"
W 123°16'46.8"**

Site 2 had an average of 12.6 live brood per bark patch. This brood included mature brood adults and pupae. 99% of the brood are prepared to commence flight within one week's time. This estimate will be updated weekly as it is affected by weather conditions.

More than 99% of the brood are prepared to fly imminently (mature brood adults) while less than 1% of the brood have approximately three weeks development time until flight (pupal stage).



Site 3, Bobtail
N 53°36'50.0"
W 123°32'32.9"

Site 3 had an average of 41.7 live brood per bark patch. This brood included mature brood adults and callow adults. 100% of the brood are prepared to commence flight within one week's time.

More than 99% of the brood in the bark patches sampled are prepared to fly imminently (mature brood adults) while less than 1% of the brood have approximately one week's time until flight (callow adult stage).

Site 4, Chilako
N 53°29'14.2"
W 123°57'52.7"

Site 4 had an average of 30.3 live brood per bark patch. This brood included mature brood adults, callow adults, and pupae. More than 98% of the brood are prepared to commence flight within one week's time. This estimate will be updated weekly as it is affected by weather conditions.

More than 95% of the brood are prepared to fly imminently (mature brood adults) and more than 3% of the brood have approximately one week's time until flight (callow adult stage). Less than 2% of the brood have approximately three weeks until emergence (pupal stage).

Site 5, Gregg Creek
N 53°42'00.1"
W 123°13'18.0"

Site 5 had an average of 33.3 live brood per bark patch. This brood included mature brood adults, callow adults, and pupae. More than 99% of the brood are prepared to commence flight within one week's time. This estimate will be updated weekly as it is affected by weather conditions.

More than 99% of the brood are prepared to fly imminently (mature brood adults) and less than 1% of the brood have approximately one week's time until flight (callow adult stage). Less than 1% of the brood have approximately three weeks until emergence (pupal stage).

Site 6, Bednesti
N 53°49'54.6"
W 123°21'00.1"

Site 6 had an average of 23.4 live brood per bark patch. This brood included mature brood adults, callow adults, and larvae. More than 99% of the brood are prepared to commence flight within one week's time. This estimate will be updated weekly as it is affected by weather conditions.

More than 98% of the brood are prepared to fly imminently (mature brood adults) and less than 1% of the brood have approximately one week's time until flight (callow adults stage). Less than 1% of the brood have approximately five weeks until emergence (larval stage).



Site 7, Cobb Lake

N 54°05'20.2"

W 123°59'18.1"

Site 7 had an average of 22.4 live brood per bark patch. This brood included mature brood adults and callow adults. 100% of the brood observed in the bark patches are prepared to commence flight within one week's time.

More than 99% of the brood are prepared to fly imminently (mature brood adults) while less than 1% of the brood have approximately one week's time until flight (callow adult stage).

Site 8, Salmon

N 54°15'58.1"

W 122°47'41.0"

Site 8 had an average of 15.0 live brood per bark patch. This brood included mature brood adults, callow adults, and pupae. More than 97% of the brood are prepared to commence flight within one week's time. This estimate will be updated weekly as it is affected by weather conditions.

More than 87% of the brood are prepared to fly imminently (mature brood adults) and 10% of the brood have approximately one week's time until flight (callow adult stage). Less than 3% of the brood found in the bark patches have approximately three week's development time to flight (pupal stage).

Site 9, Muskeg

N 54°35'20.3"

W 123°09'43.0"

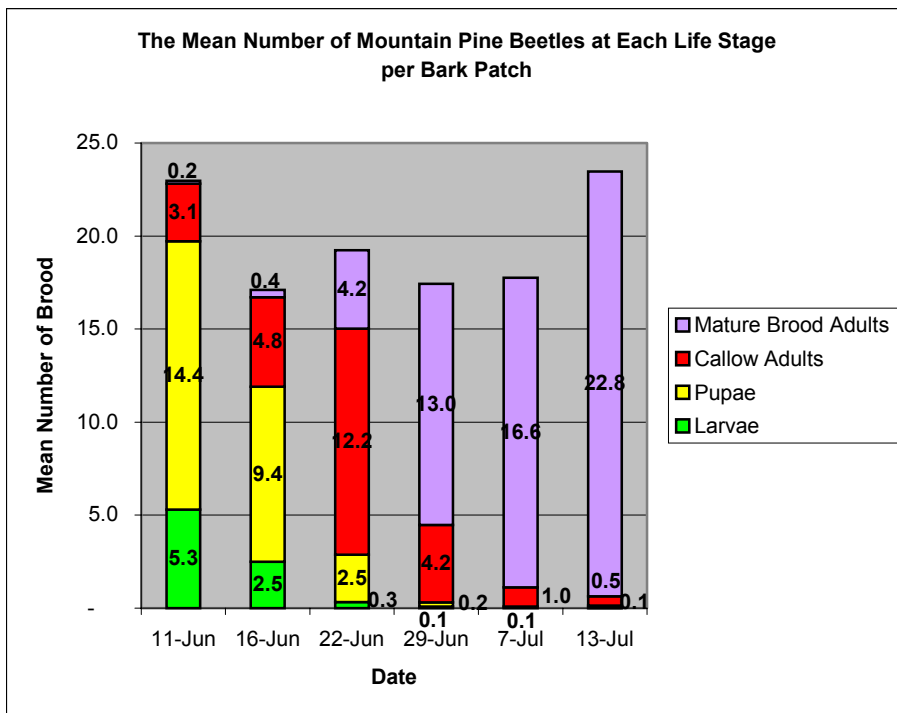
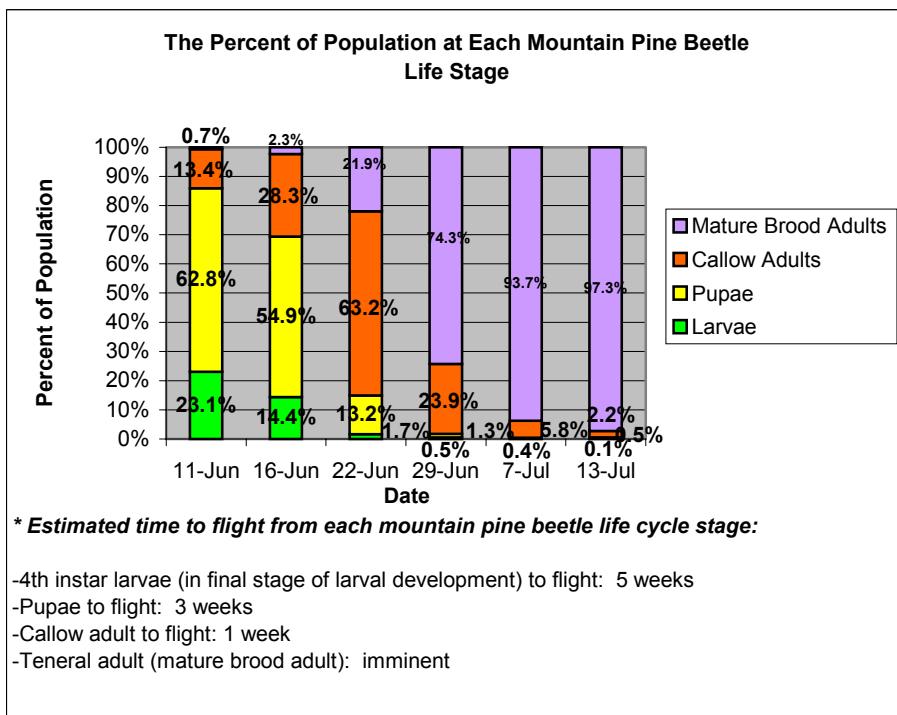
Site 9 had an average of 5.2 live brood per bark patch. This brood included mature brood adults and callow adults. 100% of the brood are prepared to commence flight within one week's time.

More than 92% of the brood are prepared to fly imminently (mature brood adults) and less than 8% of the brood present in the bark patches have approximately one week's time until flight (callow adult stage).



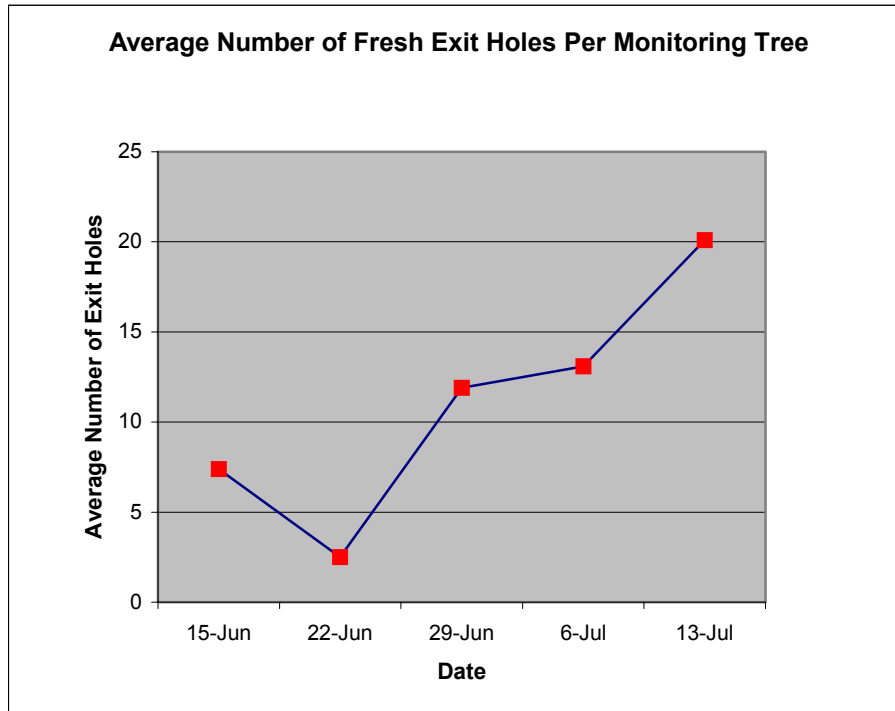
SUMMARY DATA

I. Bark Patch Analysis





II. Exit Hole Analysis



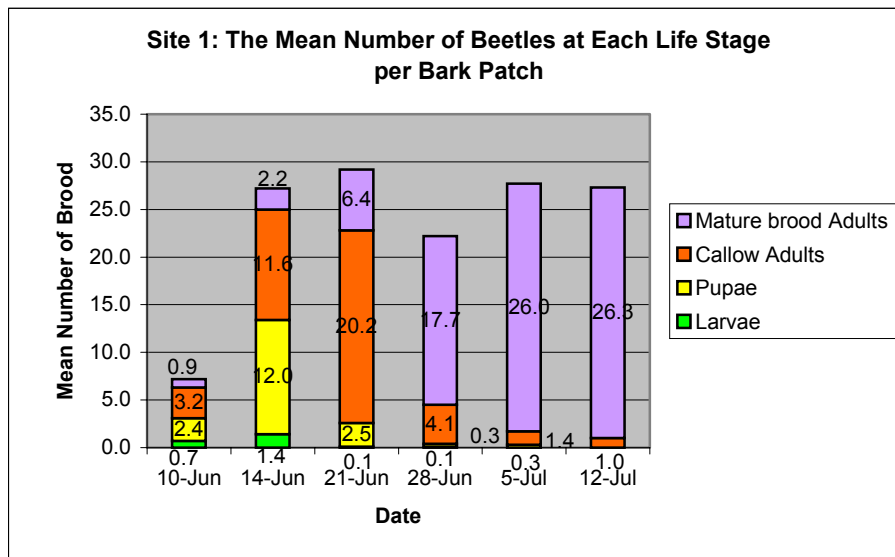
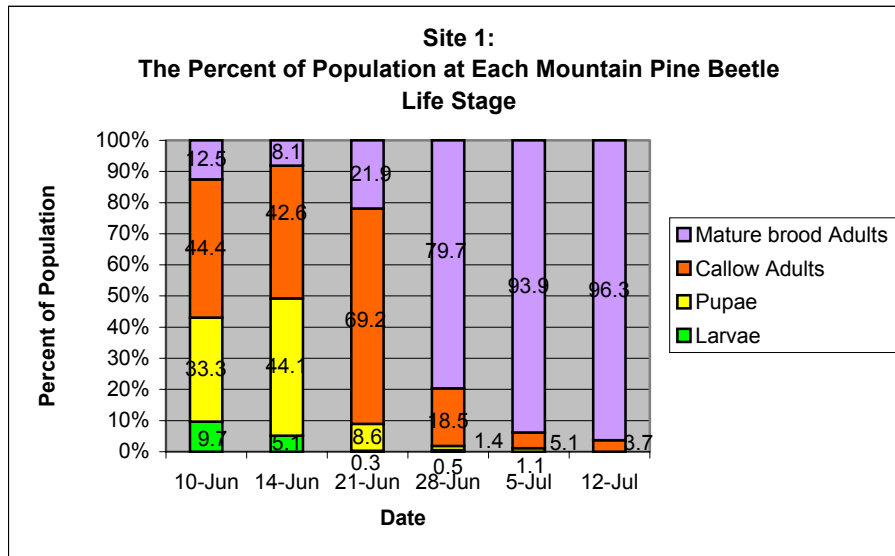


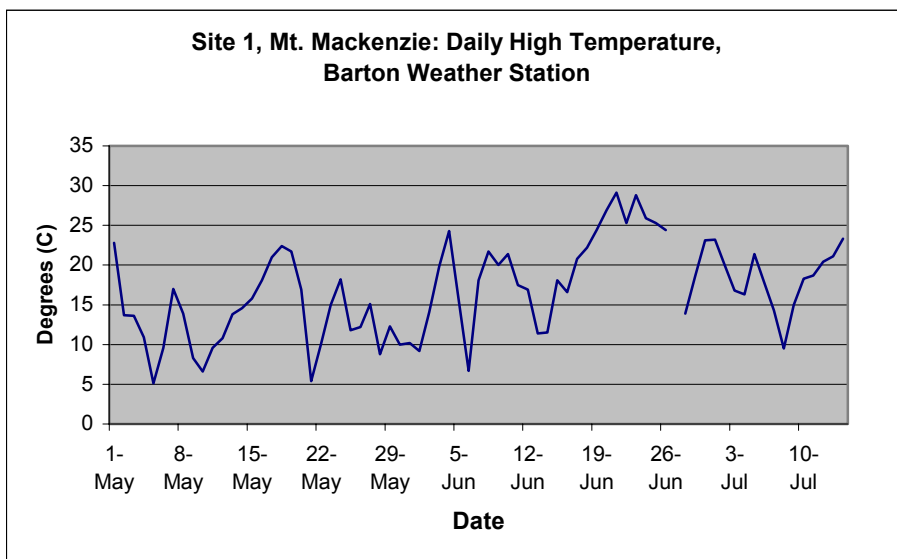
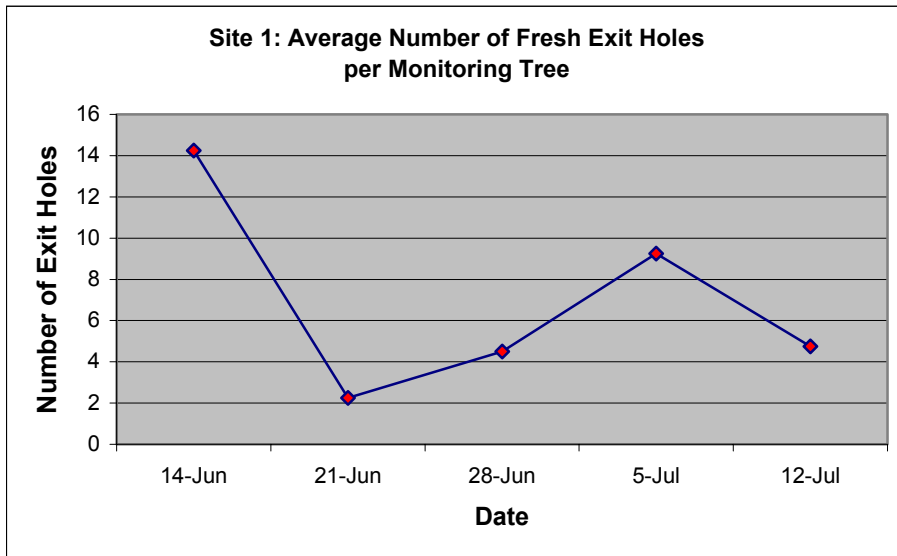
SUMMARY DATA BY SITE

Site 1, Mt. Mackenzie

During this visit, mature brood adults and callow adults were present in the bark patches. With the recent cooler weather, there has been a slight decrease in the flight activity in the exit hole trees. However, the beetle activity will be increasing this week and increased flight will be occurring this week.

The exit holes averaged 4.75 per 1m painted strip on the monitoring trees.



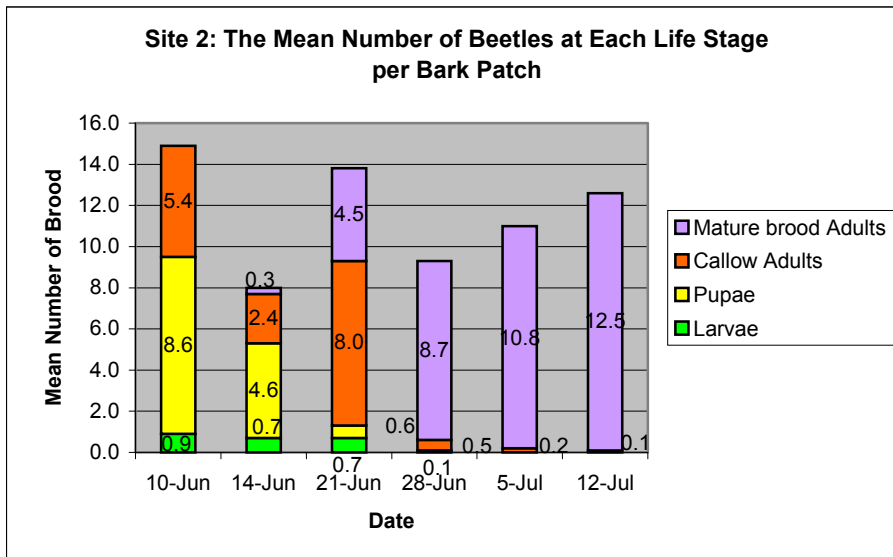
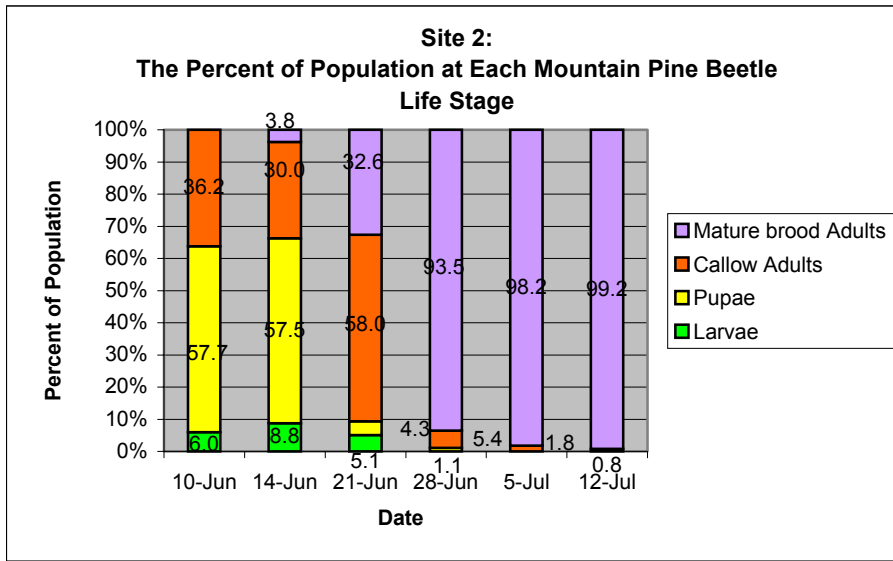


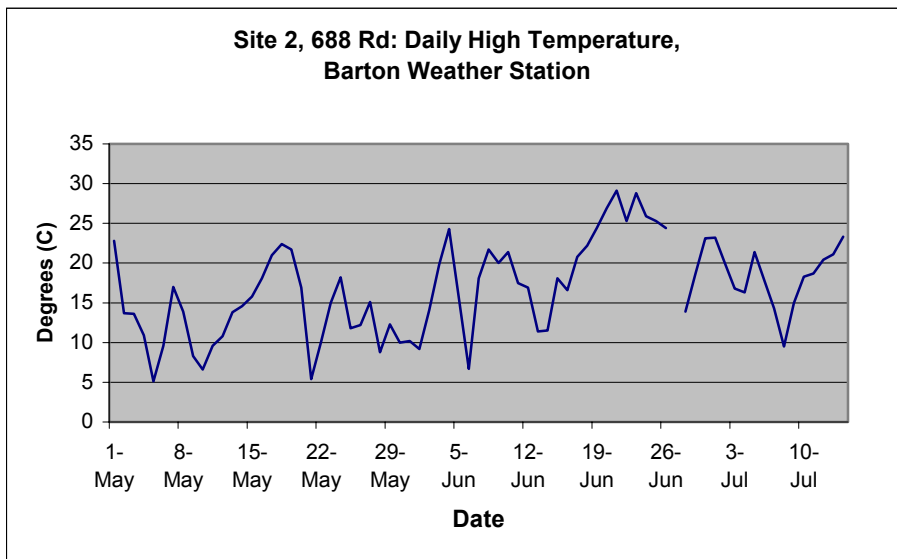
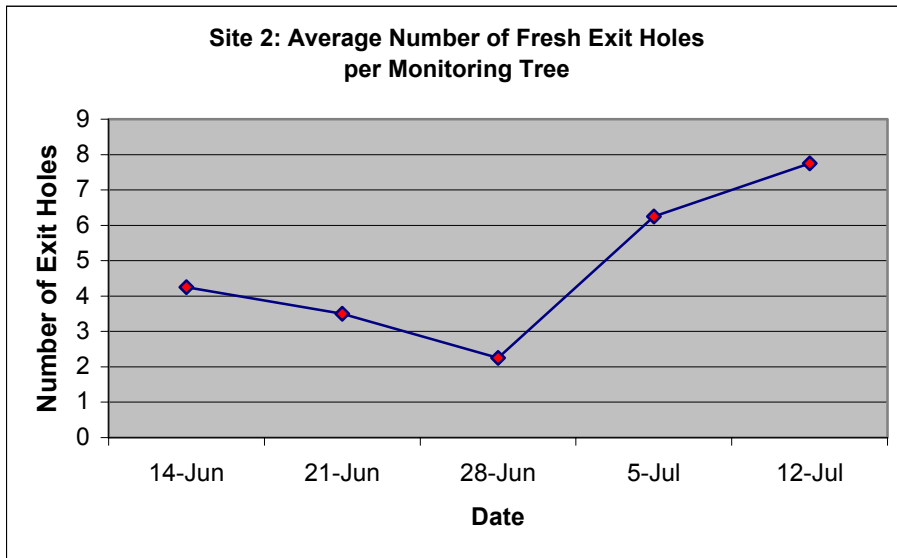


Site 2, 688 Rd.

During this visit, mature brood adults and pupae were observed in the bark patches. There has been an slight increase on the number of exit holes indicating that flight activity is increasing. This flight activity can be expected to continue and to increase.

The exit holes averaged 7.75 per 1m painted strip on the monitoring trees.



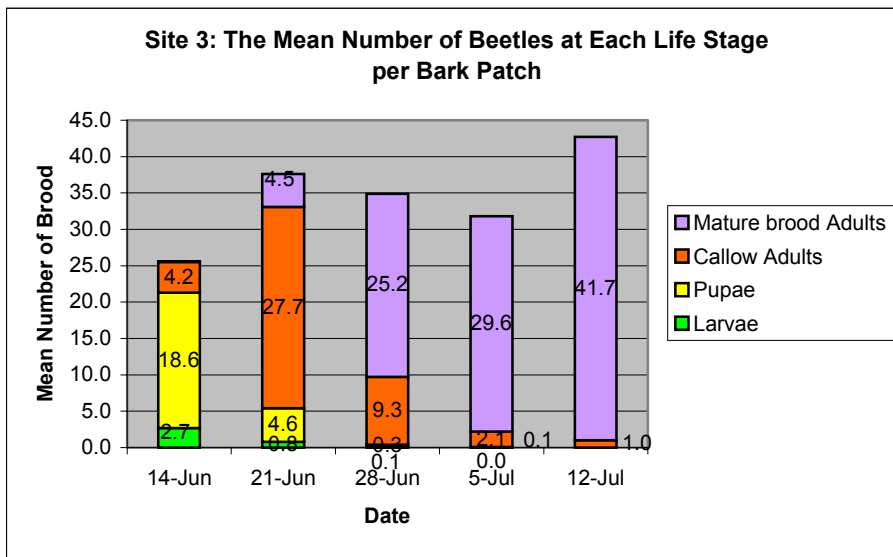
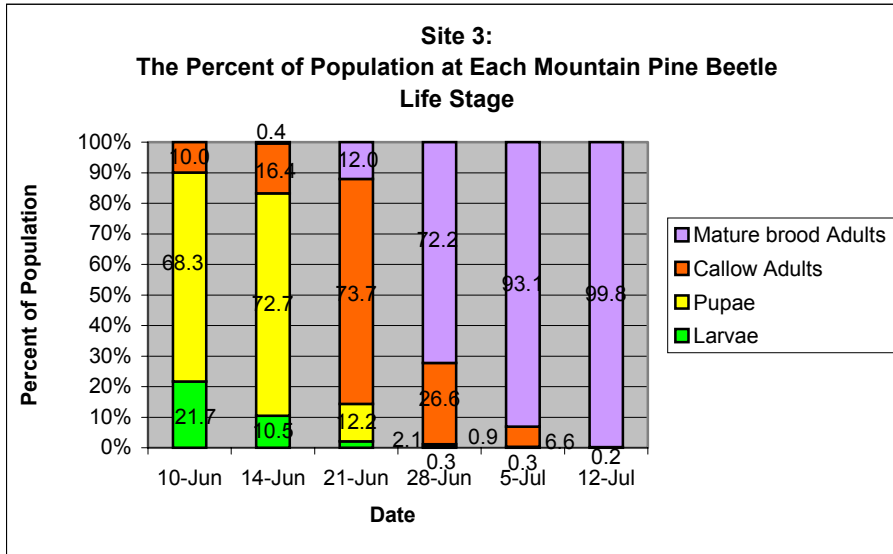


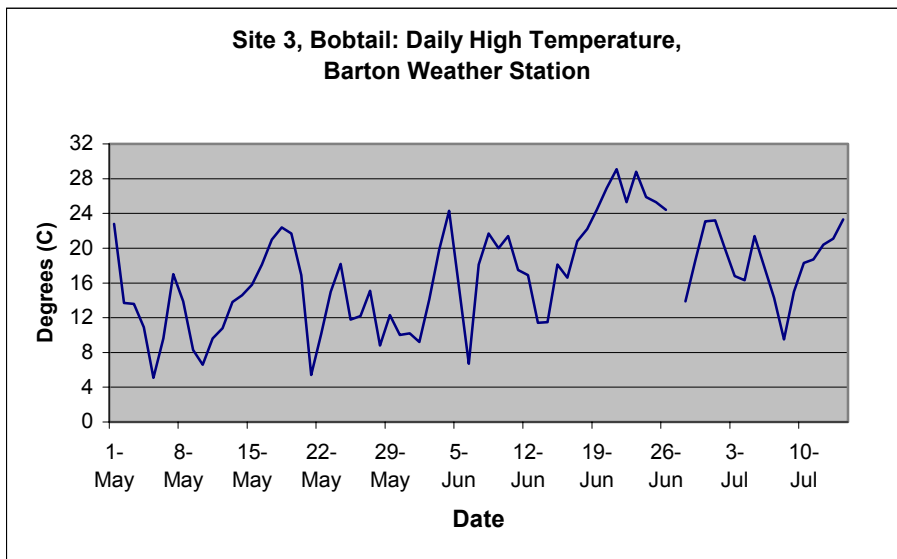
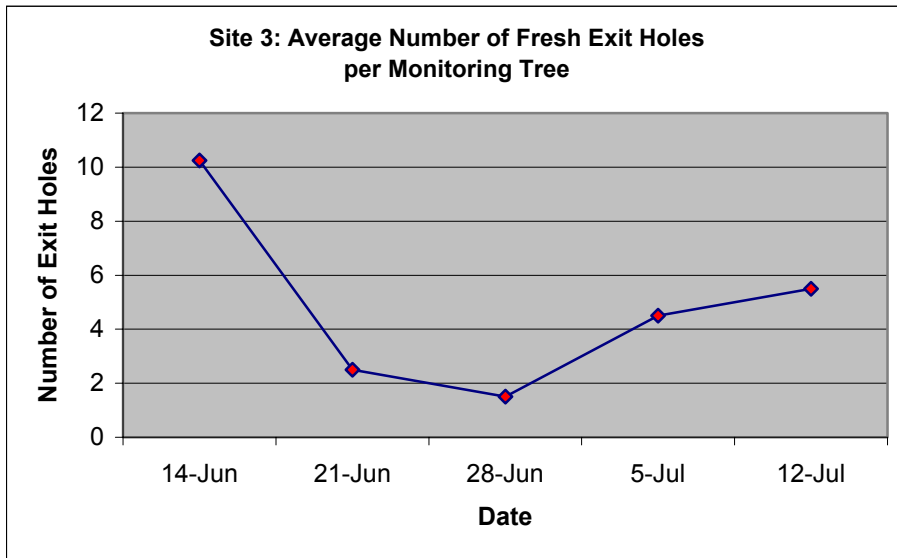


Site 3, Bobtail

Site 3 had mature brood adults and callow adults present in the bark patches. The exit holes have increased from last week and the flight activity can be expected to continue increasing.

The exit holes averaged 5.5 per 1m painted strip on the monitoring trees.



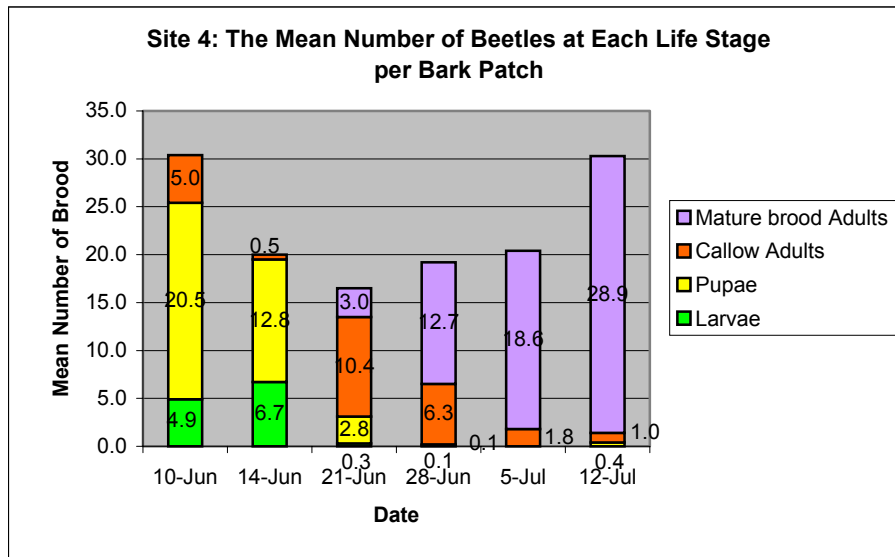
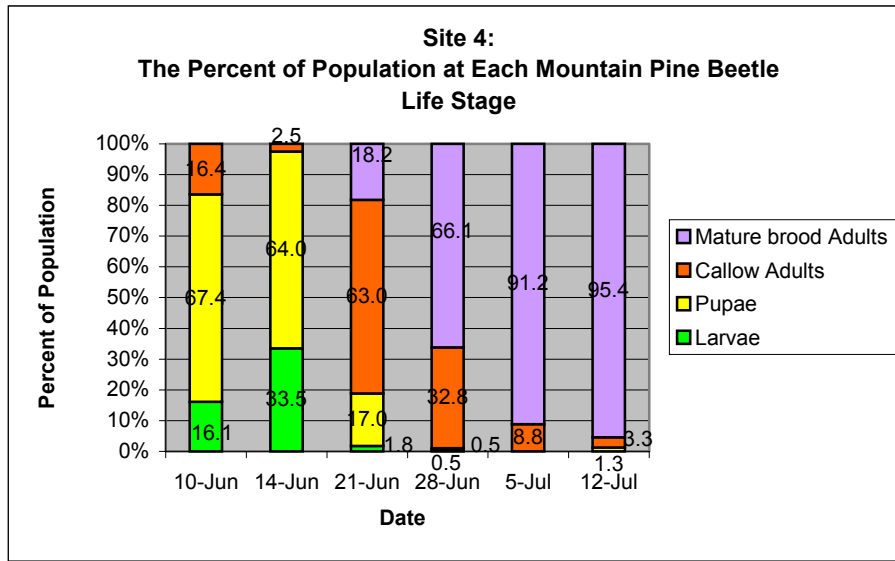


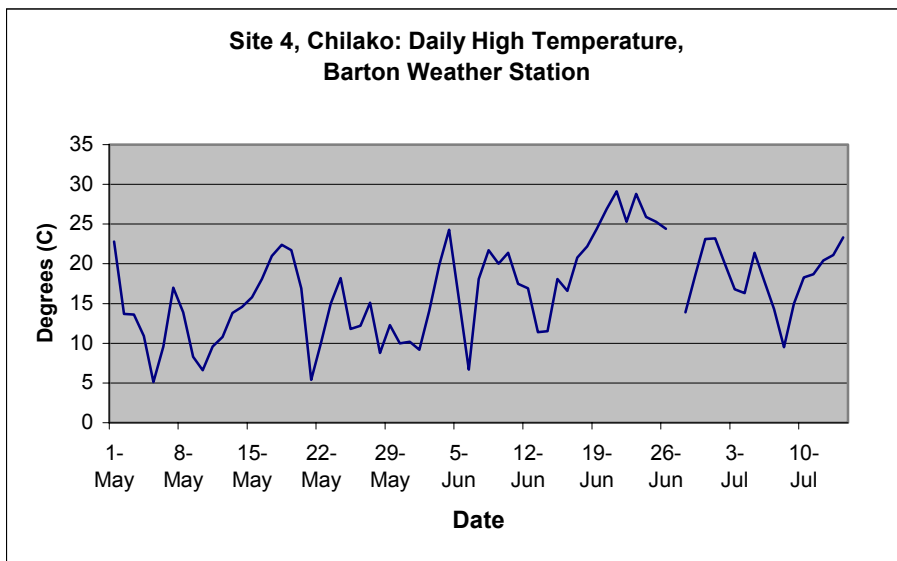
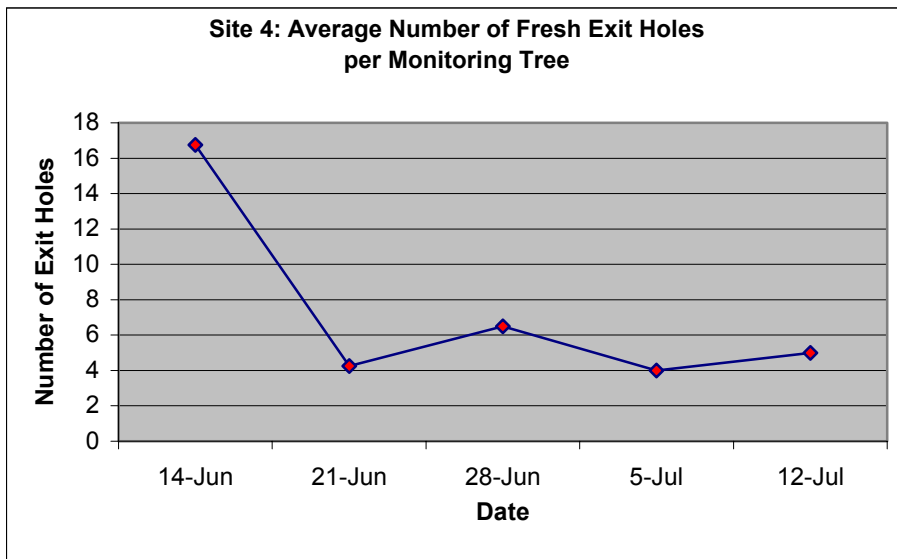


Site 4, Chilako

There were mature brood adults, callow adults, and pupae present in the bark patches during this visit. The exit holes increased slightly from last week. The flight levels can be expected to increase during the upcoming week.

The exit holes averaged 5.0 per 1m painted strip on the monitoring trees.



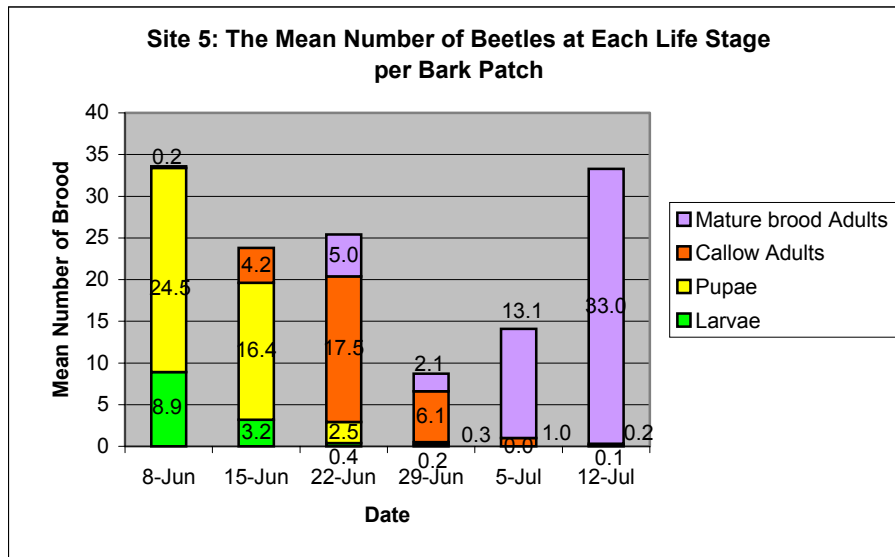
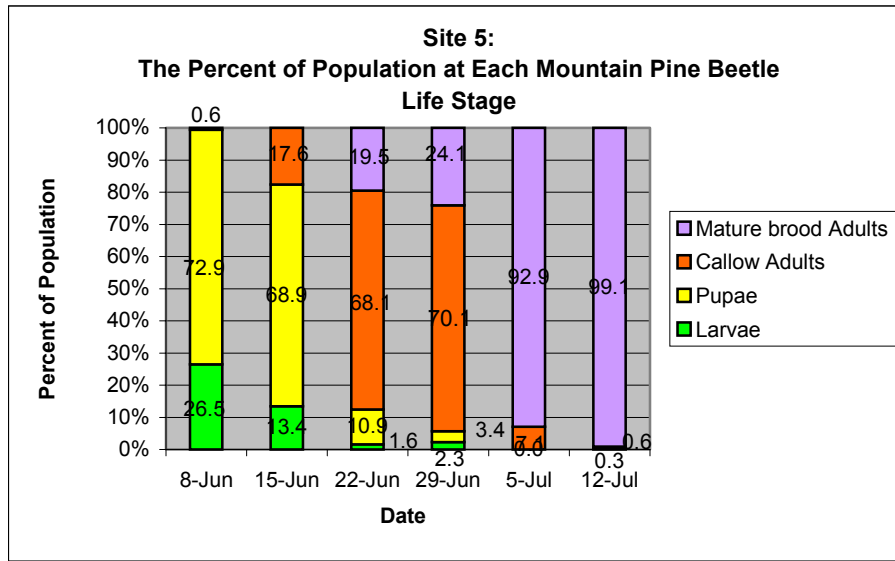


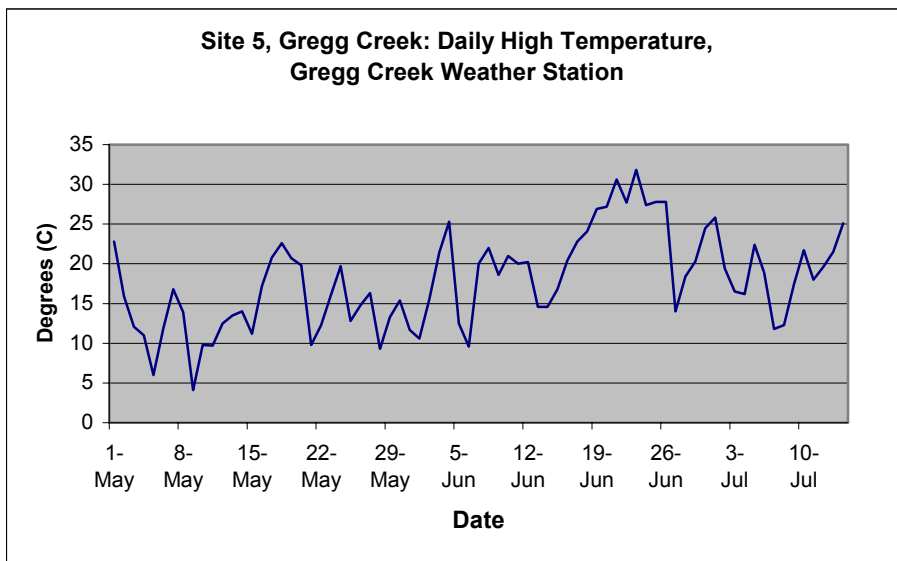
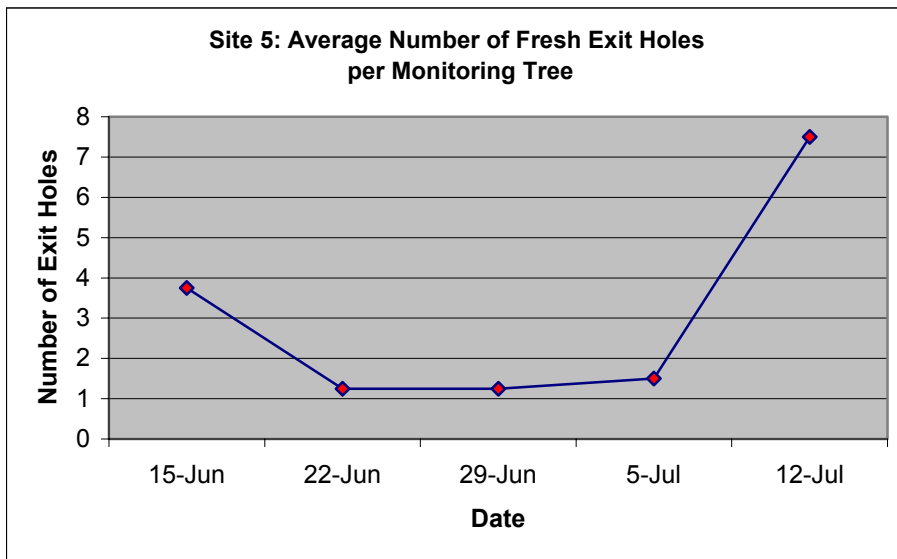


Site 5, Gregg Creek

There were mature brood adults, callow adults and pupae present in the bark patches. The exit holes increased since the previous visit. Flight is occurring and can be expected to increase in the upcoming week.

The exit holes averaged 7.5 per 1m painted strip on the monitoring trees.



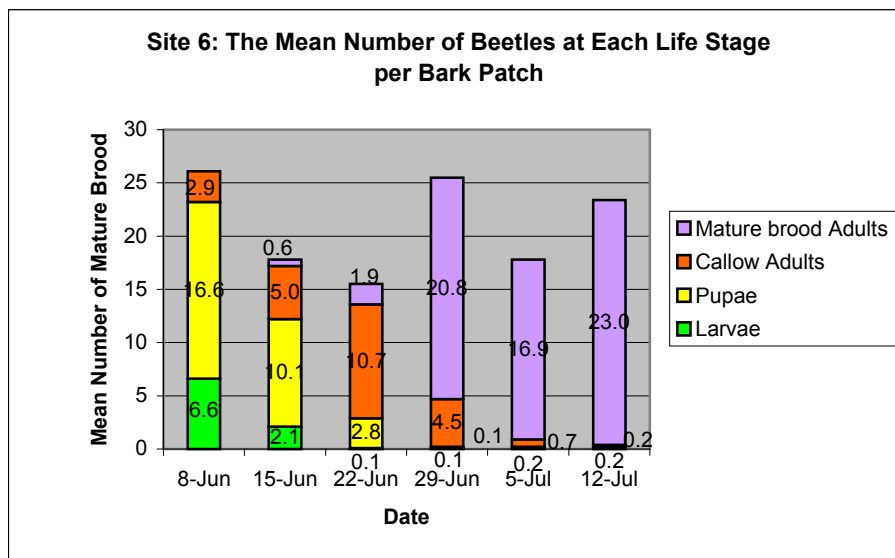
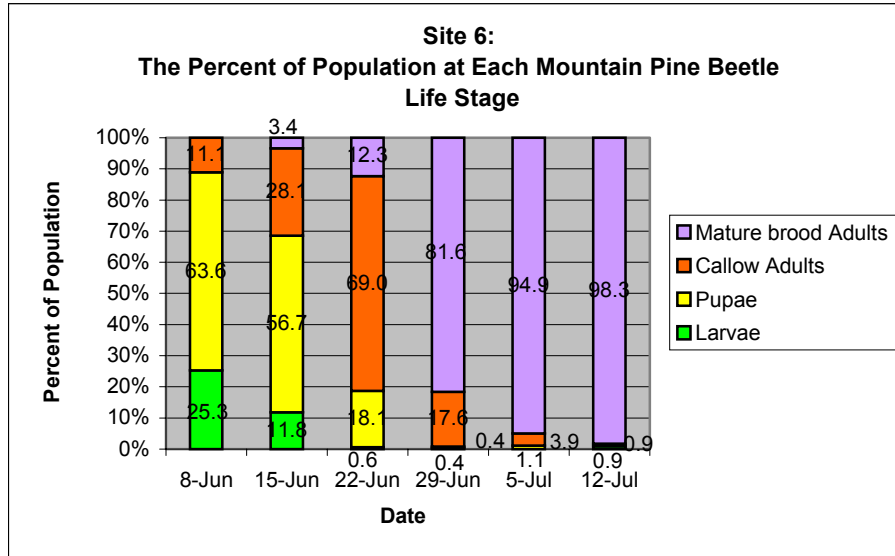


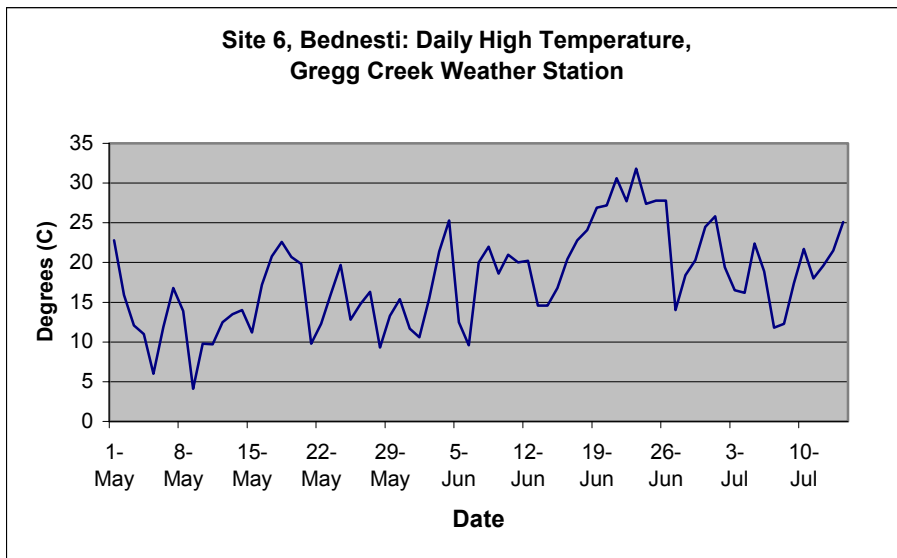
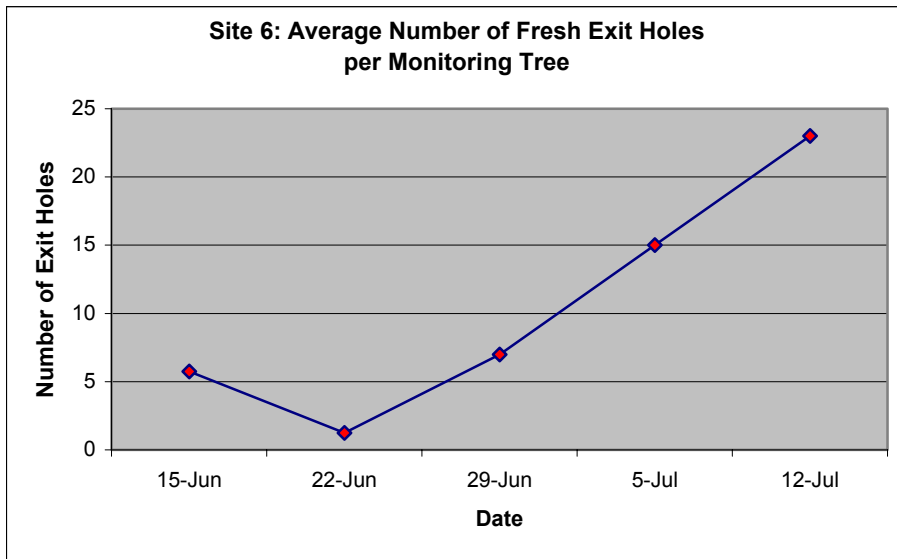


Site 6, Bednesti

There were mature brood adults, callow adults, and larvae present in the bark patches. The larvae were in the later stages of development (3rd and 4th instar). The exit holes have shown a steady increase since last week, despite the cooler weather. The flight can be expected to continue increasing and the warm weather will accelerate this trend.

The exit holes averaged 23.0 per 1m painted strip on the monitoring trees.



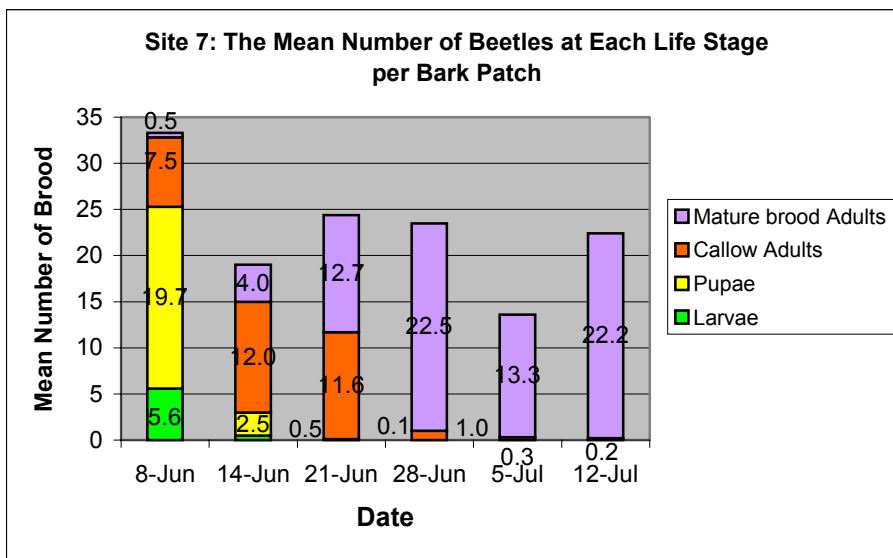
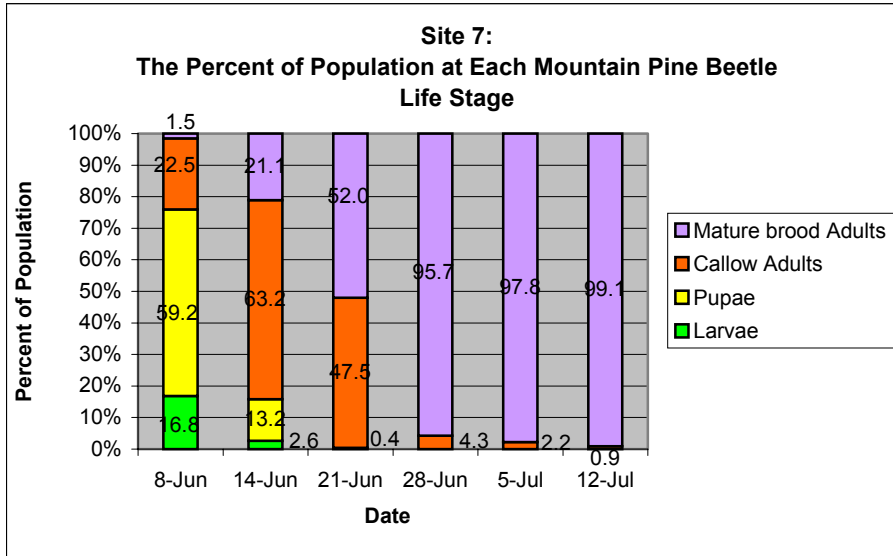


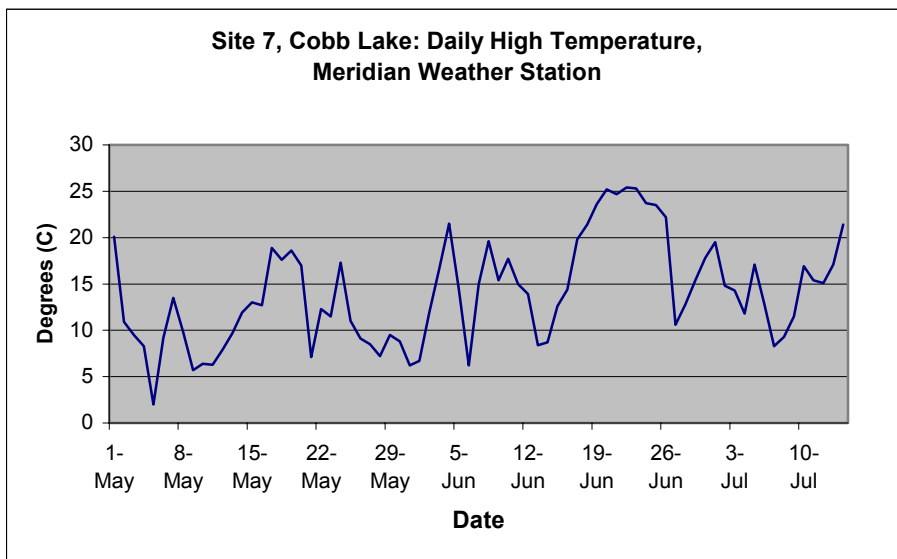
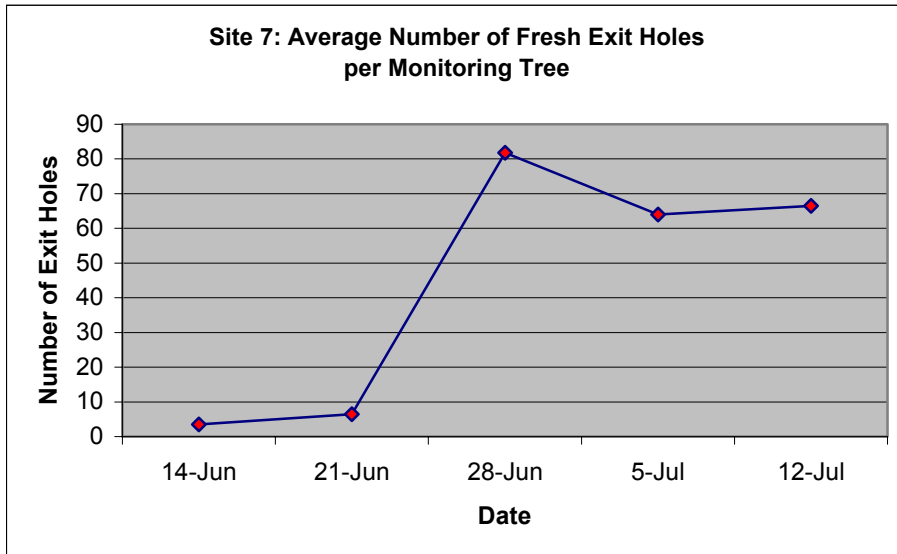


Site 7, Cobb Lake

There were mature brood adults and callow adults present in the bark patches. The number of exit holes has remained relatively constant, although this is likely a result of the cooler, rainy weather. The exit holes remain high, indicating significant flight is occurring. This can be expected to continue and will increase in the upcoming week.

The exit holes averaged 66.5 per 1m painted strip on the monitoring trees.



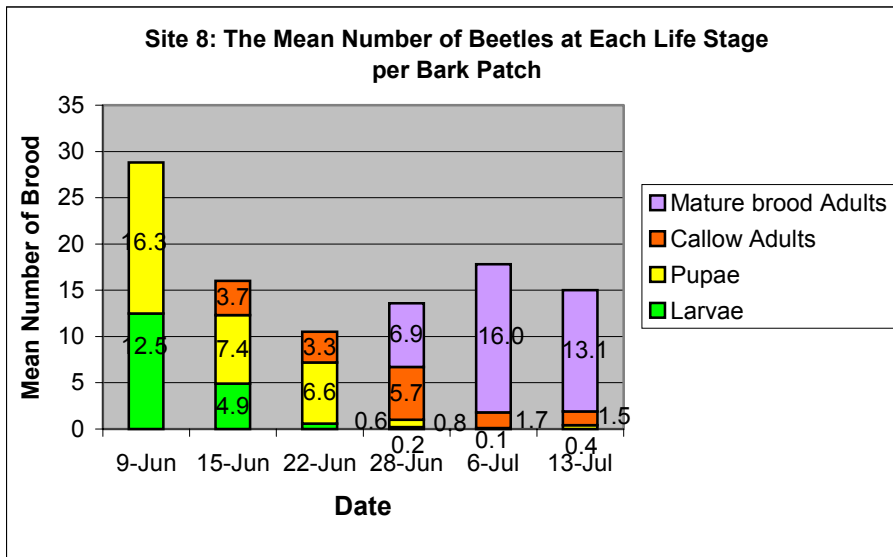
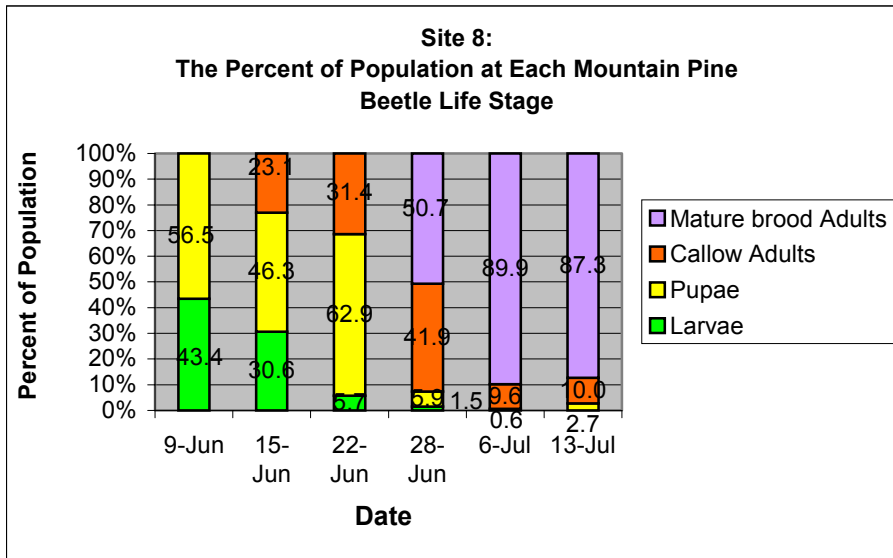


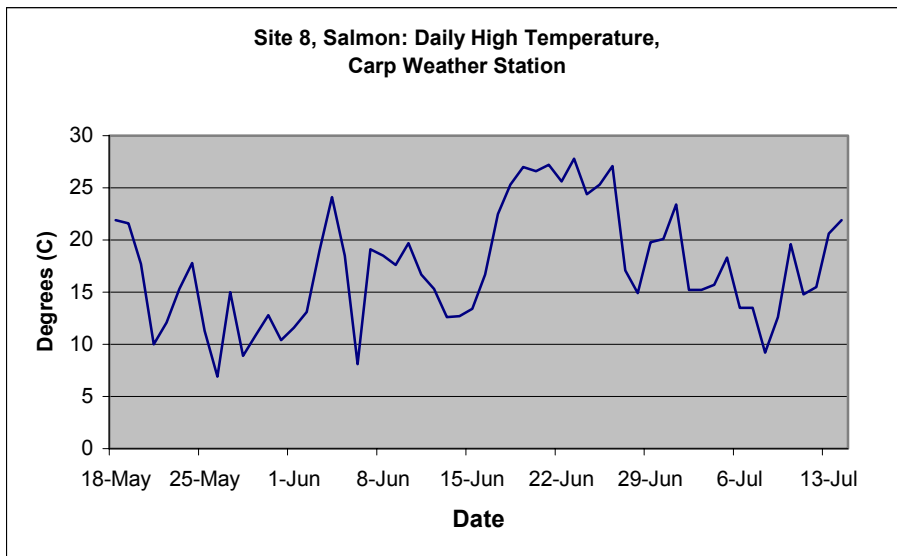
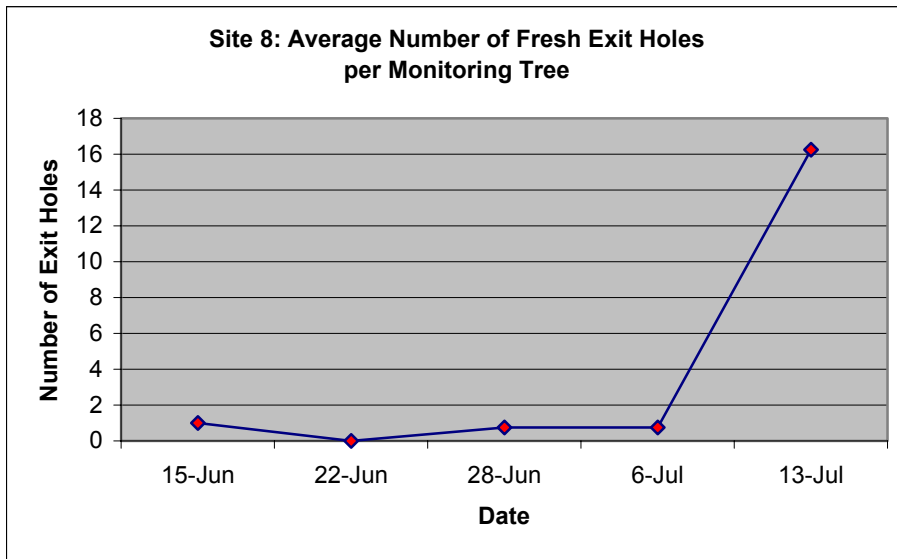


Site 8, Salmon

There were mature brood adults, callow adults, and pupae present in the bark patches. The flight has increased significantly since the previous visit. This trend of increasing flight and beetle activity can be expected to continue.

The exit holes averaged 16.25 per 1m painted strip on the monitoring trees.



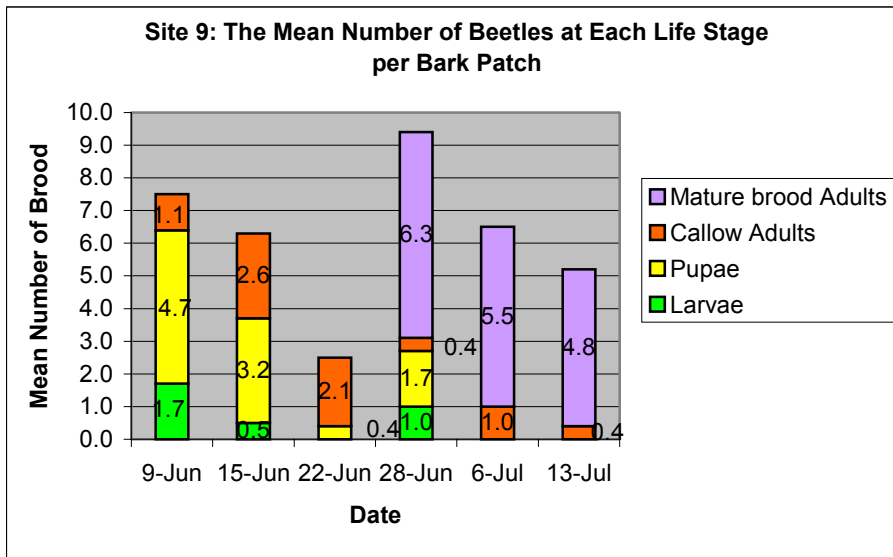
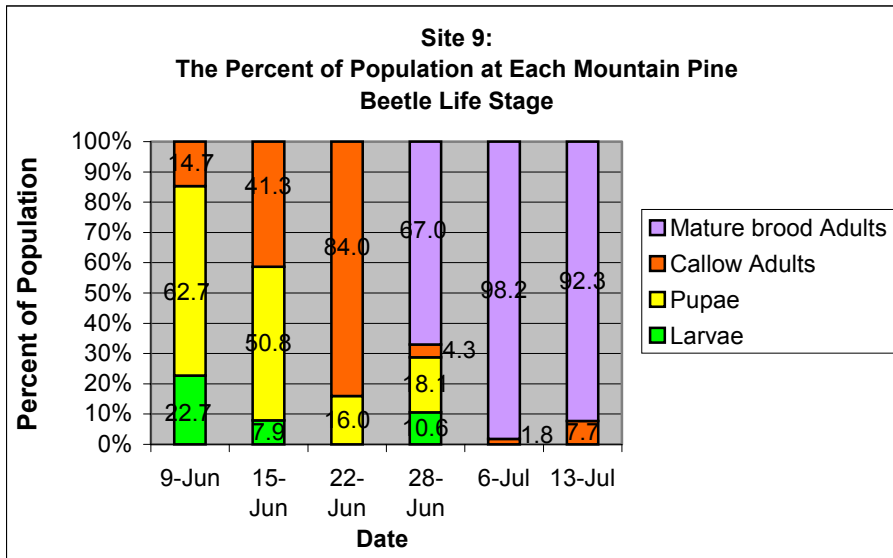


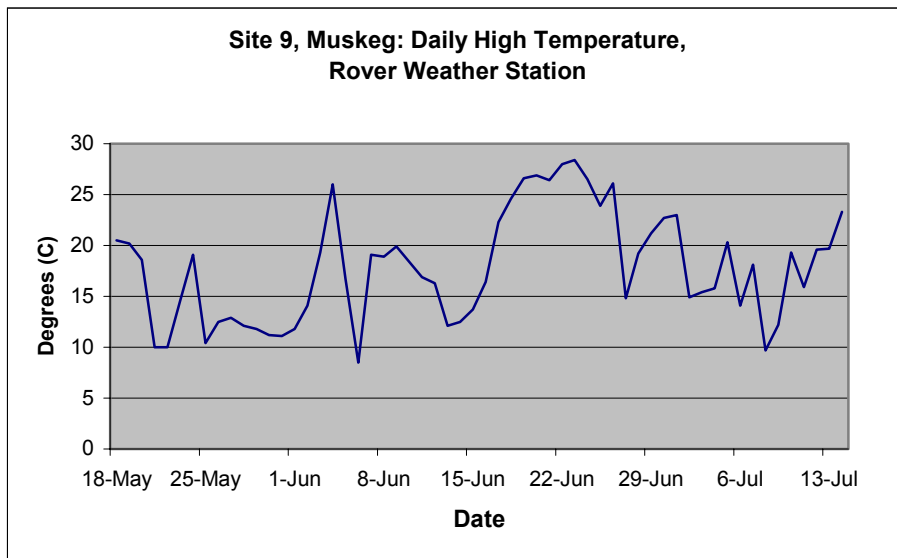
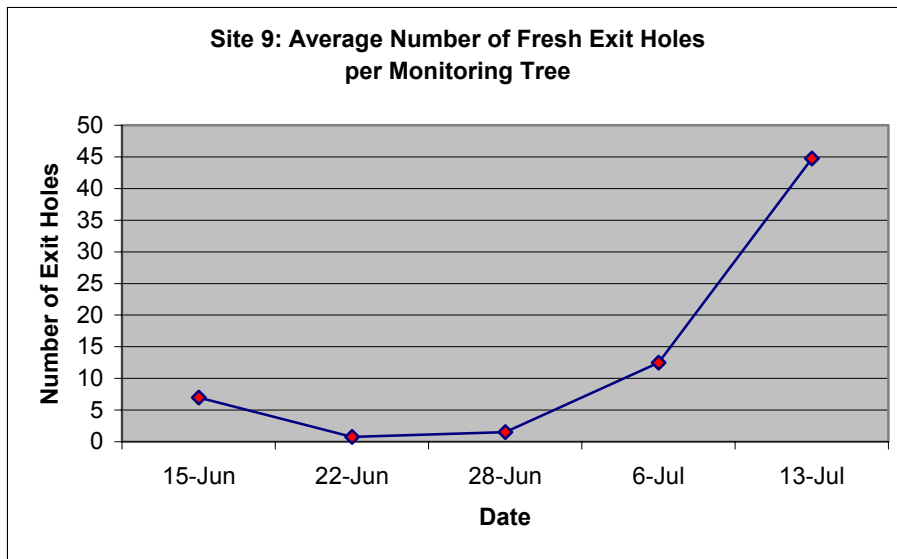


Site 9, Muskeg

There were mature brood adults and callow adults present in the bark patches. There has been a significant increase in the number of exit holes, indicating that flight activity is increasing at this site. This trend is likely to continue with the warm weather occurring this week.

The exit holes averaged 44.75 per 1m painted strip on the monitoring trees.







DATA FROM THIS VISIT

I. Bark Patch Analysis

Site	No. of bark patch samples	Crown color	AVERAGE NUMBER OF BEETLES IN EACH LIFE STAGE					
			Entrance holes	Parent adults	Larvae	Pupae	Callow adults	Mature brood adults
Site 1, Mt. Mackenzie	10	Red	2.5	0.0	0.0	0.0	1.0	26.3
Site 2, 688 Rd.	10	Red	2.0	0.0	0.0	0.1	0.0	12.5
Site 3, Bobtail	10	Red	1.6	0.0	0.0	0.0	0.1	41.6
Site 4, Chilako.	10	Red	1.9	0.0	0.0	0.4	1.0	28.9
Site 5, Gregg Creek	10	Red	1.7	0.0	0.0	0.1	0.2	33.0
Site 6, Bednesti	10	Red	1.7	0.0	0.2	0.0	0.2	23.0
Site 7, Cobb lake	10	Red	1.4	0.0	0.0	0.0	0.2	22.2
Site 8, Salmon	10	Red	1.7	0.0	0.0	0.4	1.5	13.1
Site 9, Muskeg	10	Red	2.4	0.0	0.0	0.0	0.4	4.8

METHODS

The following sections outline the methods that were used to obtain the preceding data.

I. Bark Patch Analysis

At each site, a maximum of five trees are sampled using bark patch sampling, with 1 bark patch taken from the north side and south side of the tree.

II. Exit Hole Analysis

At each site, an area of bark around trees containing live MPB brood was painted for monitoring MPB flight. During each visit, new exit holes are counted and crossed off.

If you require more information, please contact Mary Ann Berg or Jon Mullan, B.Sc., M.P.M, R.P.Bio, at 564-0383 or via e-mail at mberg@bugbusters.ca or jmullan@bugbusters.ca