

FOREST DEFOLIATOR SURVEY ANARCHIST MOUNTAIN AREA

An aerial and ground survey of conifer trees was carried out on August 16 and 17, 2011 to observe the presence and document the location and foliage damage caused by Western Spruce Budworm (*Choristoneura occidentalis*) and Douglas-fir tussock Moth (*Orgyia pseudotsugata*) on Anarchist Mountain including Long Joe Road, Regal Ridge properties, Sidley Mountain Road area, Kelly and Timberwolf property areas. This report details the survey results and provides recommendations for control.

Survey Method

Visually obvious defoliation areas were plotted on an aerial photo during an overview helicopter flight. A ground survey was done by driving roads and walking into sites to check trees for insect evidence and defoliation levels. Joe Simoes gave a tour of his property by vehicle and walking. We also checked some properties where landowners reported concerns. The ground survey was more detailed but time only allowed for quick reconnaissance and as a result the mapping of the extent of different defoliation levels may not be completely accurate.

The extent and level of foliage damage was recorded and rated in severity levels as follows:

- Level 0: None or trace. May be occasional minor feeding on branch tips.
- Level 1: Very light. Minor feeding on branch tips which is difficult to see from a distance.
- Level 2: Light. Obvious feeding on branch ends.
- Level 3: Light plus. Heavier feeding on branch ends and light feeding on tops.
- Level 4: Moderate. Significant feeding on branches and tops, very obvious defoliation.
- Level 5: Heavy. Heavy defoliation on both large and small trees.
- Level 6: Severe. Almost complete defoliation on small and large trees.

Insects Observed

The defoliation of Douglas-fir trees appears to have been caused primarily by budworm. During the inspection, only budworm pupal cases and a few budworm moths were observed on trees with foliage damage that were inspected. Property owners reported seeing lots of budworm moths earlier.

There was no tussock moth evidence seen on the examined trees. A couple of residents reported seeing only a few tussock moth larvae around dwellings and they were smaller than normal. The virus that was very evident last year appears to have collapsed the tussock moth population.

The defoliation information shown on this report is believed to be caused by budworm based on evidence observed.

Survey Results

The survey findings are shown on the attached maps and described by areas as follows:

Long Joe Road Area

Level 1 defoliation in lower area which progresses to levels 2, 3 (5 hectares) and 4 (15 hectares) in the upper area on Joe Simoes property which was inspected with him. New growth and some tops were affected. Small trees were impacted the most.

Regal Ridge Properties

1. *Grizzly Road*: Mostly level 1 with very minor level 2 evident.
2. *Whitetail Place*: Some level 3 on both sides of the road with level 1 beyond. Met with Ed and Penny Gray on their property. About 4 hectares of level 3 defoliation.
3. *Blacktail and Bighorn Roads*: Level 1 throughout.
4. *Bobtail Court*: Level 1.
5. *Mule Deer Drive*: Level 1 including Mule Deer Court. Mule Deer Point Road is mostly pine with level 0.
6. *Bullmoose Road*: Generally level 1 except for some level 2 in Bullmoose Way area and a small patch of level 3 (about 3 hectares) in Bullmoose Court area.
7. *Upper Haynes Creek/North End of Bullmoose Road*: Ranges from level 1 to level 4. Significant defoliation in the area north of area sprayed last year adjacent to Joe Simoes property. Area sprayed last year (Jason Erickson area) shows level 1. About 12 hectares of level 3 and 29 hectares level 4.
8. *Cougar Court*: Level 1. Mostly pine in the area.
9. *Perigrine Road Area*: Level 1. Lot 6 Perigrine Court (Bradshaw) had level 1 defoliation. *Peregrine Place* and *Peregrine Way* also level 1. *Falcon Place* has level 1 except for level 2 on lots 5 and 12. *Eagle Place* has mostly level 1 with some level 2 beyond the road end.
10. *Eagle Point*: Level 1.
11. *Sasquatch Trail*: Level 2 at the south end up to lot 13. Level 3 on lots 13 to 16 and then level 4 from lot 16 to lot 23. Level 1 from lot 23 to end of road. There is a large area of level 4 east of upper portion of the road. This information is based on ground and aerial observations. About 10 hectares level 3 and 29 hectares level 4 defoliation.
12. *Wapiti Way*: Mostly level 1 with level 2 at the north end.

13. *Kehoe*: Area west of open area is level 1 and 2 except for a small area of level 4. Level 4 area is outside the area sprayed last year. Other areas around Kehoe are suspected to be level 1 except for small level 3 area north of proposed airstrip. About 4 hectares of level 3 and 13 hectares level 4 in total.
14. *McGibbon*: Area of level 4 on west side of fields. Suspected to be level 2 in other areas west of the fields and level 1 east of the field. This information is only based on aerial observations. Time did not permit ground evaluation on this area and most of the Kehoe area. About 8 hectares of level 4 defoliation.
15. *Caribou*: Mostly level 1 with a patch of level 2 near south west corner close to Eagle Point Road. Last year spray treatment was effective in reducing population levels.
16. *Nine Mile Place*: Level 1 and 2 in the north west area with level 4 in south and east areas. Last years spray treatment in the north west area was very effective. About 2 hectares of level 4 on Regal Ridge and 43 hectares off for total of 45 hectares.
17. *Ravenhill Road*: Mostly level 1 with minor level 2 in a few spots. Noted a few trees with level 2 on lot 9 (Gloria Richardson). Noted level 1 on lot 6 (Hilda and Rudy Reimer). Could not travel beyond the end of the road because of a locked gate. Suspect defoliation would be level 1 and possibly fading to level 0 north of the gate.

Sidley Mountain Road Area

Large areas of level 4 defoliation. Areas with larger and denser Douglas-fir trees are showing the most defoliation. There was a major expansion of budworm populations in this area this year. The defoliation mapping for this area is mainly based on aerial observations. Time did not permit ground examination of all properties. Only a few spots along the western portion of Sidley road were checked on the ground. One area was classed as level 3. Irvin Kelly property has level 4 defoliation with expansion to the north in the more open forested area. The budworm has been active on his property for a few years now making some of this years defoliation look worse. There probably are more infestations between western portion of Sidley Mountain road and Timberwolf. There are about 16 hectares of level 3 and 149 hectares of level 4 defoliation.

Kelly

The Regal Ridge Kelly property has level 1 defoliation. The adjacent crown land is showing less defoliation this year at about level 2 and some level 3. The adjacent property on the east and south have level 4 defoliation.

Timberwolf

The westerly two thirds is mostly level 1 while the eastern portion close to the crown land appears to be level 2 and 4. Time did not permit a close examination of the eastern portion. The crown land appears to be level 4 as well. The spray treatment last year was effective resulting in minimal defoliation to area treated this year compared with the east area that was not treated. About 7 hectares of level 4 defoliation.

Summary

Western spruce budworm defoliation expanded into a number of new areas particularly to the north and east this year. Budworm populations seem to be throughout the Anarchist mountain community in varying degrees.

Because of time constraints, many areas were not examined and defoliation assumptions were made based on aerial observations and what was observed from traveling roads. Much of the Sidley Mountain road area was not checked so there could be more infested areas than what is shown on the maps.

The areas spray treated last year showed significant population reduction with very little defoliation in those areas this year.

The areas with most defoliation (level 4) are Upper Haynes Creek (Joe Simoes and Regal Ridge), Sasquatch Trail (northerly area), small areas on Kehoe and McGibbon, Nine Mile Place, large areas on western portion of Sidley Mountain road area and small area on Timberwolf property. There are about 266 hectares of level 4 defoliation.

Level 3 defoliation was observed on Whitetail Road, Upper Haynes Creek, Bullmoose Court, Sasquatch Trail, a small area north of Kehoe, and Sidley Mountain road for a total of about 42 hectares.

Property owners reported observing lots of moths this year that could indicate budworm populations are still increasing.

Douglas-fir tussock moth does not appear to be a concern. There was no evidence of tussock moth on any of the trees checked. A few residents reported seeing a few larvae but some were smaller than normal. It appears the virus effects seen last year showed that the population collapsed due to the virus spread. Once the population collapses it usually takes a number of years for the population to build again.

Recommendations

1. Consider having western spruce budworm eggmass surveys done this fall to aid in predicting defoliation levels that could be expected next year. Target areas within and near level 3 and 4 defoliation as well as some level 2 sites.
2. Consider aerial pesticide spray treatment program targeting areas within and near current areas with level 3 and 4 defoliation in particular as well as areas where eggmass survey results predict level 4 or greater defoliation next year.
3. Monitor all Douglas-fir areas annually with aerial and ground surveys.

Refer to the attached maps showing location and levels of defoliation.

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