

## **PRFR 1999 Forest Health Conditions**

### **Regional Summary**

Mountain pine beetle, spruce beetle and western balsam bark beetle affected the most area in the Prince Rupert Forest Region. Mountain pine beetle populations increased in 1999 resulting in a total area under attack of 66,446 ha. Spruce beetle populations rose dramatically as well causing damage in 618 ha of spruce-leading stands. Western balsam bark beetle is the most significant pest in the region by area by affecting 378,472 ha. It is difficult to estimate if this represents an increase or decrease in affected area due to the persistence of red needles on dead sub-alpine fir for more than one year.

Defoliator activity was limited to 1,890 ha of two-year cycle budworm defoliation in the Lakes Forest District and 3,049 ha of green spruce aphid defoliation near the city of Prince Rupert.

Red band needle blight (*Dothistroma*) was reported in lodgepole pine stands in both the Kispiox and Kalum Forest Districts but was not mapped.

Animal damage (porcupine, voles, hares, deer) were also reported by the districts but damage was not mapped during the aerial survey.

### **District Summary**

#### **Lakes Forest District**

Area infested by Mountain pine beetle rose by about 100% in 1999 over the previous year as estimated by district staff. The district had 62,933 ha of mountain pine beetle concentrated in the working forest around the major Tweedsmuir Park outbreak that has been active since 1994. Spot infestations are spread throughout the district in roughly the same areas as they have been recorded in over the last decade but the numbers of spots have increased. Spruce beetle populations have remained stable at 146 ha although populations are increasing in the neighbouring Morice District. Western balsam bark beetle populations have also remained about the same as in 1998.

Defoliator activity was limited to 1,890 ha of two-year cycle budworm defoliation recorded on the northern border of the district adjacent to the Ft. St. James District.

Lodgepole pine stem rusts continue to be a significant problem in second growth pine stands. Training to improve detection of these diseases and impact studies have been continued to improve management practices.

#### **Morice Forest District**

A sudden rise in spruce beetle populations resulted in a doubling of the infested area from about 250 ha in 1998 to 519 ha in 1999. The situation is expected to get worse in 2000 with entire valleys turning colour.

Mountain pine beetle infested 1,451 ha all mapped as spot infestations of severe intensity. Since the mid-80's, this district has reported all mountain pine beetle records as spot infestations collected from operational surveys. If they had been surveyed using the overview methodology, some of these spots would have been lumped into polygons and the area infested would likely have been higher but at a lower severity class (i.e., usually light).

Western balsam bark beetle continues to be the most widespread damage agent in the district. Damage to mature sub-alpine fir occurred in nearly all stands throughout the district, primarily in the subzones of the ESSF biogeoclimatic zone. Approximately 206,067 ha of light and 1690 ha of moderately infested sub-alpine fir were recorded in 1999. It is difficult to determine if the infested area is increasing or decreasing over previous year's estimates due to the retention of red needles by dead sub-alpine fir for more than one year. Ground-based estimates have determined that about 1-4% of the volume is killed per year in susceptible stands.

### **Bulkley-Cassiar**

Aerial surveys estimated the area under attack by mountain pine beetle to be 255 ha of severe spot infestations scattered throughout the Bulkley TSA. Infestations continue to be found in pine leading stands located in the same drainages as in previous years but the populations appear to be growing. The district has had a history of conducting aggressive treatment that has managed to keep previous spot infestations from expanding by about 10% from 1998. Spruce bark beetle populations are on the rise but the 1999 survey only indicated about 3 ha indicating a possible error in detection (i.e., grey trees not noted, or survey conducted too early before needles faded). The 2000 survey results are expected to show a large expansion of the affected area.

Western balsam bark beetle is the most significant (in terms of area and volume affected) damaging agent in the district. The aerial survey estimated 68,295 ha of mature sub-alpine fir stands were under attack. Of this total area, 25,818 ha were rated as being severely attacked indicating that a significant portion of volume has been killed over a short time period. Normally, chronic beetle-kill is identified as light intensity as the attack is generally dispersed throughout the stand. Based on local knowledge, the beetle infestations were estimated to have increased by about 20% since 1998.

### **Kispiox Forest District**

Mountain pine beetle infested 1,339 ha of lodgepole pine stands located along the north side of the Skeena R., west of Kitwanga. These pine stands have undergone repeated outbreaks since the mid-80's and in some cases have little mature pine remaining.

Mountain pine beetle is not considered to be a major pest in the district since there are no extensive stands of lodgepole pine.

Spruce beetle was not detected during the 1999 aerial survey but has been reported by ground surveys. Significant increases in spruce beetle attacked area are expected in 2000. Spruce-leading stands are not common in the district but where they are (e.g., Gail Creek), severe infestations are being detected.

Western balsam bark beetle affected the largest area (86,526 ha) in the district but most of it (78,457 ha) was classified as light intensity attack. From 1998 and 1999 overview flights, western balsam bark beetle infestations were observed to be dramatically increasing in the district. In an attempt to more accurately quantify the infestation, limited funding was secured and a contract awarded in 1999. Purpose was to quantify mortality due to IBB using a select number of sub-alpine fir leading stands and link results to changes in inventory. Due to the small sample size, further investigation may be warranted

Second growth pests, such as spruce weevil and Warren's collar weevil, appear endemic in stands with some heavy infestations noted in isolated cases. Since 1996, a significant number of pine leading stands in the district, especially at lower elevations in the Interior Cedar-Hemlock biogeoclimatic zone (ICH), have exhibited heavy levels of infection by needle cast. The disease infecting these stands was originally identified as Pine needle cast *Lophodermella concolor* (DFL) but recent evidence suggests a different agent may be responsible - *Mycosphaerella pini* (*Dothistroma*) red band needle blight. This agent can cause severe mortality in young lodgepole pine stands with repeated infestations. Further investigation is planned for 2000.

### **Kalum Forest District**

The majority of mountain pine beetle infestations recorded during the 1999 aerial survey (466 ha of severely infested pine) were concentrated in and around the village of Aiyansh in the Nass River Valley. The management of these infestations are now the responsibility of the Nisga First Nation based on the conditions of the Nisga treaty. The district is pursuing a fall and burn program around the perimeter of the Nisga core lands to manage this pest on TSA lands. Mountain pine beetle has appeared to increase since 1998 and is expecting to increase further in 2000. The 12,050 ha of sub-alpine fir stands under attack by western balsam bark beetle are located in the headwaters of the Nass River and is in an undeveloped portion of the district. This area appears to be similar to 1998's estimate.

Second growth pests are an ongoing problem. Increasing levels of damage caused by porcupines were observed in the Hirsch, Kemano and Wedeene drainages with minor amounts in the rest of the district. Spruce weevil has not moved any farther north than has been reported in earlier summaries. Some of the older spruce stands are showing signs of growing out of the weevil if they do not get hit annually. Voles and rabbits are still a concern in young plantations. A recently discovered problem is with coastal black-

tailed deer populations in the Kitimat Valley. Deer browsing makes cedar a risky proposition for backlog reforestation in that localized area. Annosus root rot has been identified in forest health surveys and a small stumping program has been initiated. Some pine plantations in the Bell-Irving drainage in the northern part of the district have been heavily infected by comandra blister rust and by *Mycosphaerella pini* (*Dothistroma*) red band needle blight. Regional staff held a training session for silviculture contractors and licensees working in the north Kalum to identify and manage stem rusts now that the disease has been recognized as a significant factor in the area. Northern pitch moth (*Petrova albicapitana*) has been noted to be the cause of top breakage in plantations in the Van Dyke drainage. This area has both high incidence levels of pitch moth and heavy wet snow falls that combine to exacerbate the impact of the pitch moth girdling.

### **North Coast Forest District**

The most notable damage agent was defoliation by the green spruce aphid attack (*Elatobium abietinum*). The 1999 survey mapped 3,049 ha of defoliation (1700 ha light, 948 ha moderate, 400 ha severe), however, most of the defoliation is known to have occurred in 1998 with little new attack noted in 1999. While there are some pockets of mortality resulting from the 1998 attack, it appears that most of the trees recovered. Populations in 2000 are expected to have decline further.

Porcupines are still considered to be a major damaging agent in second growth stands. Damage continues to be observed in pockets throughout the district in pole sized stems where western hemlock, Sitka spruce and amabilis fir suffer top kill or mortality caused by porcupines feeding on bark during the winter. Ongoing studies are documenting the frequency of decay infections caused by porcupine feeding scars that would greatly reduce the stand's quality and volume yield.

- Compiled by Tim Ebata, FPB from information from the district forest health contacts.
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