2007 Annual Report

Forest Health in Alberta

Alberta

Forest Health Vision

A healthy forest environment that provides sustainable fibre resources and a diverse forest ecosystem that supports biodiversity and critical wildlife habitats.

2007 Annual Report

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Aspen Pests

Forest Tent Caterpillar

Malacosoma disstria (Hübner)

Annual aerial overview surveys were carried out to estimate the extent and severity of insect pest-caused aspen defoliation. The surveyors used fixed-wing aircraft. They recorded survey data either digitally by using a tablet personal computer linked to a global positioning system or manually on hard copies of 1:250,000 scale maps. The defoliation was categorized as light (less than 35%), moderate (35-70%) or severe (over 70%).

Aspen defoliation in forested Crown land of the province in 2007 was solely attributed to the predominant defoliator, the forest tent caterpillar. However, the linden looper (*Erannis tillaria* (Harris), Bruce spanworm (*Operophtera bruceata* (Hulst) and fall cankerworm (*Alsophila pometaria* (Harris) also defoliated aspen. Aspen defoliation was scattered over an estimated gross area of 3,255,338 hectares. This is a significant (44.4%) decline compared to the 5,851,155 hectares with defoliation in 2006 (Figures 10 and 11). Aspen defoliation was severe over 1,562,582 hectares (48%), moderate over 1,049,878 hectares (32%) and light over 642,878 hectares (20%) (Table 4). The pattern of aspen defoliation in Alberta from 2004-2007 is illustrated in Figure 12. It shows that increasing trend of aspen defoliation observed in the province from 2004 to 2006 ended in 2007.

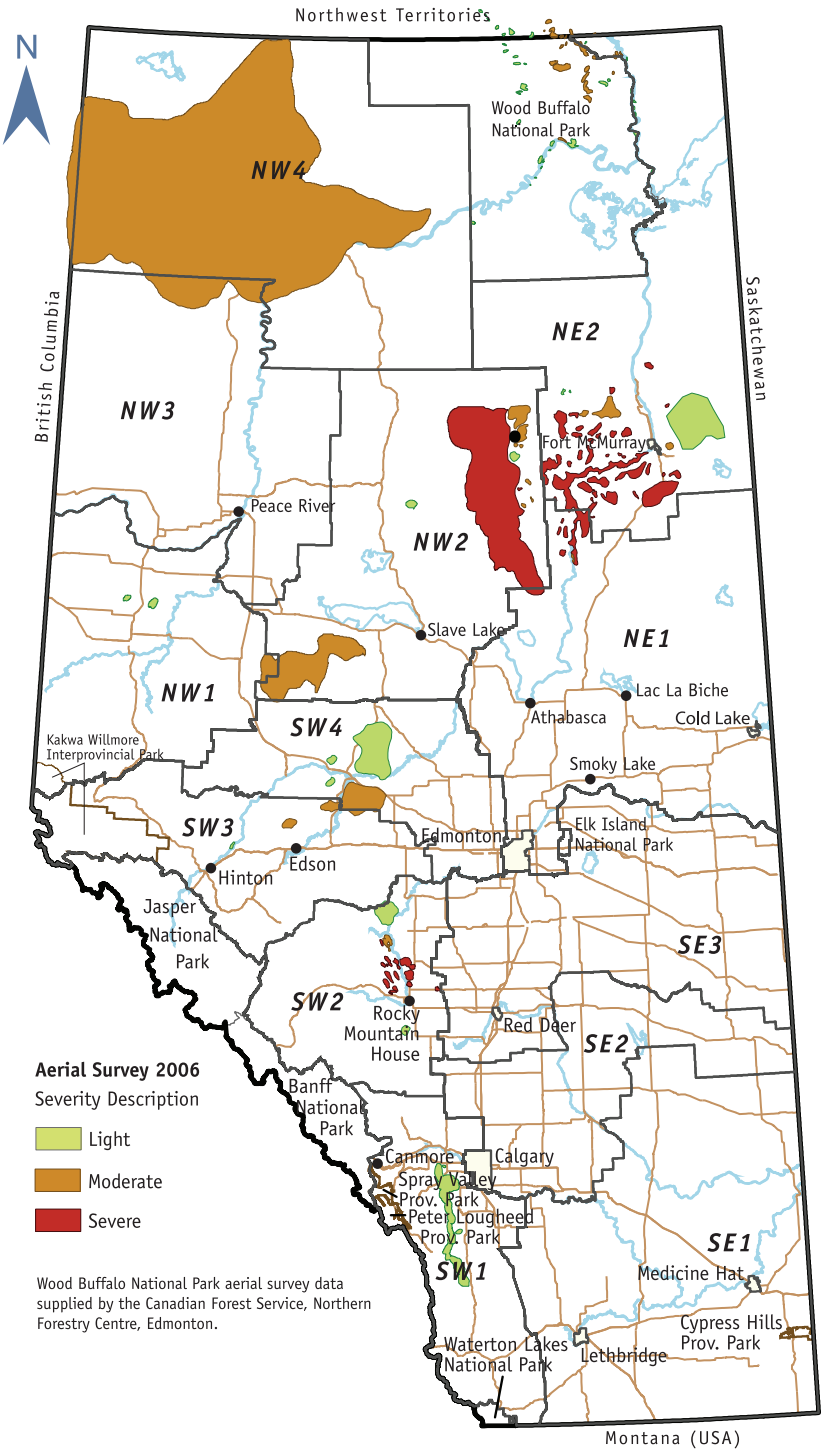


Figure 10
Spatial distribution of aerially visible insect-caused aspen defoliation on forested areas surveyed in Alberta, 2006.

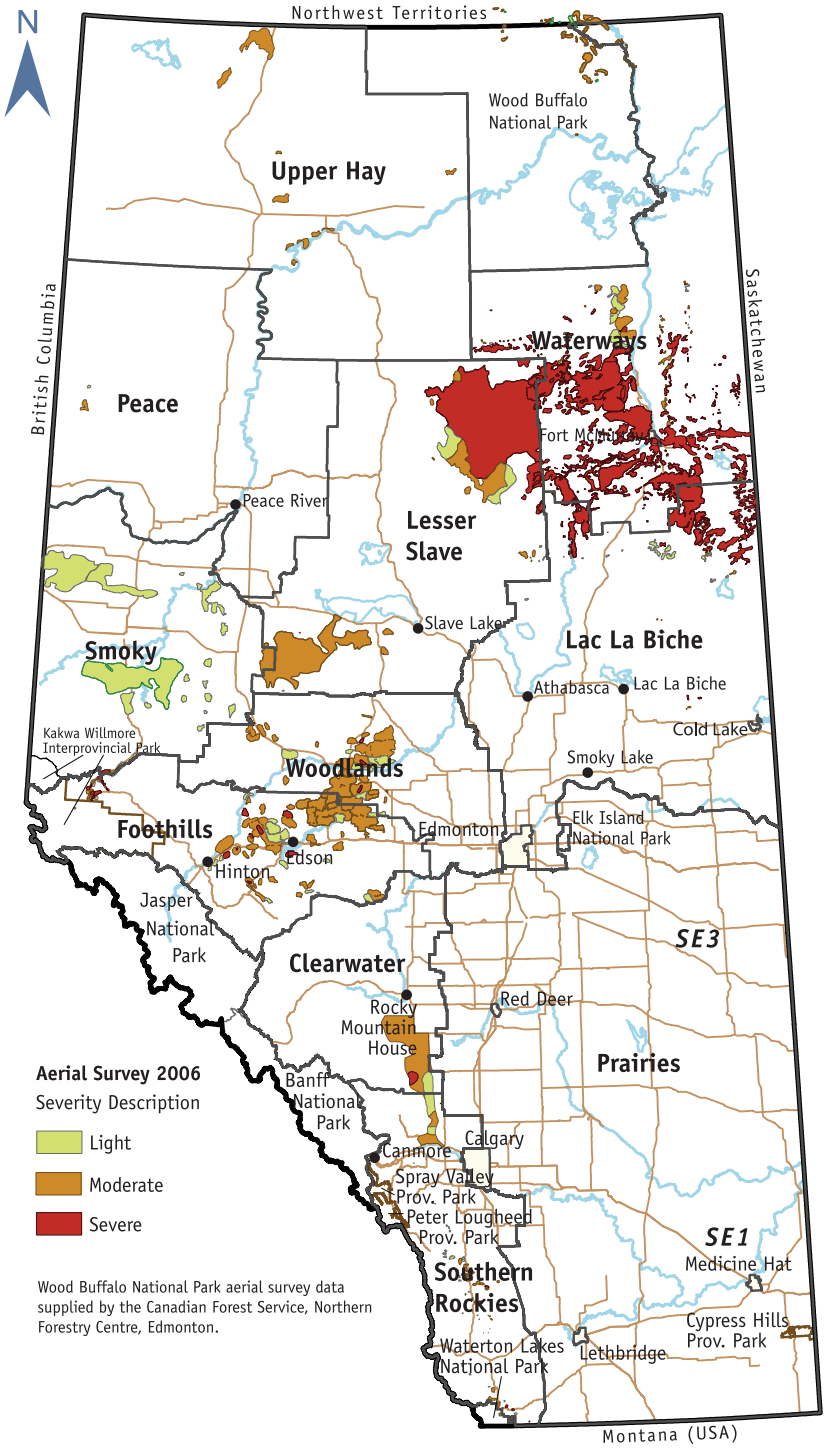


Figure 11
Spatial distribution of aerially visible insect-caused aspen defoliation on forested areas surveyed in Alberta, 2007.

Table 4
The extent of forest insect caused aspen defoliation by severity categories in Alberta, 2006 vs. 2007.

Location	Gross area of defoliation (ha)					
	2006			2007		
	Light	Moderate	Severe	Light	Moderate	Severe
Northeast	161,508	28,859	279,555	46,164	49,620	895,236
Northwest	18,027	4,329,260	631,992	457,610	408,379	628,741
Southwest	258,924	108,943	34,088	98,296	411,823	35,185
Subtotal	438,459	4,467,062	945,635	642,878	1,049,878	1,562,582
Grand Total		**5,851,155**			**3,255,338**	

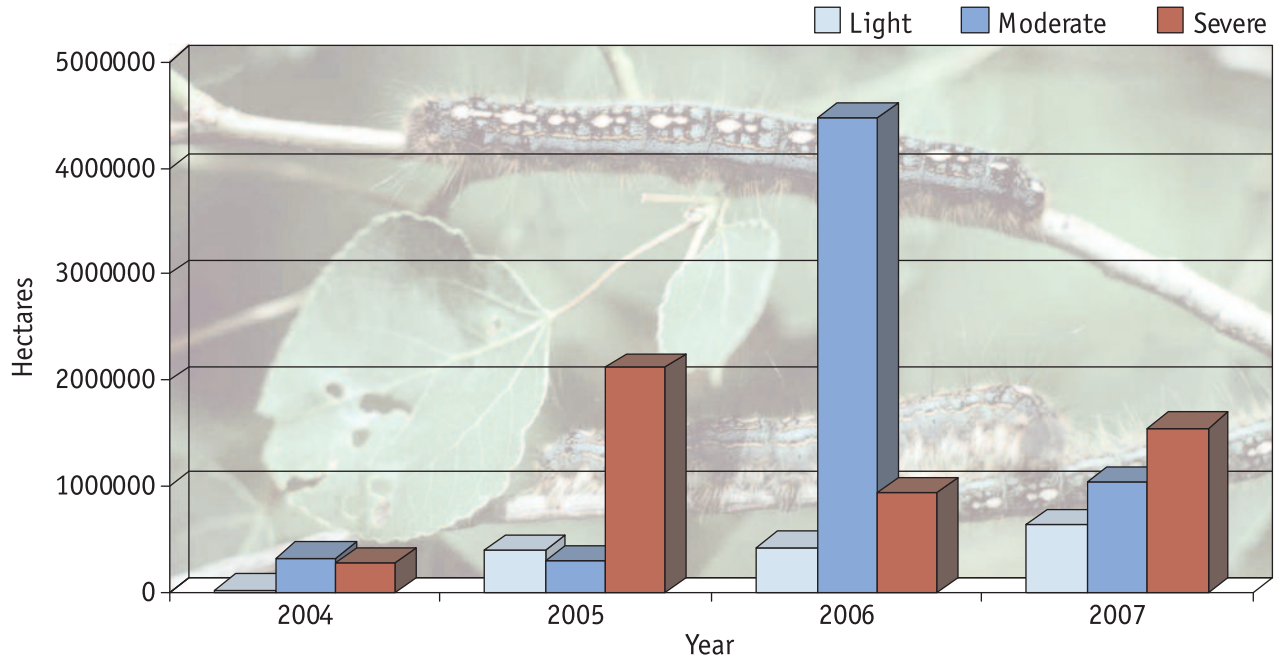


Figure 12
The gross number of hectares with aspen defoliation by severity categories in Alberta, 2004 – 2007.

Northeast Alberta (Lac La Biche and Waterways Areas)

Tom Hutchison (Forest Health Officer), Martin Robillard (Forest Health Technician) and a contractor carried out aerial surveys to record aspen defoliation over northeast Alberta. They flew in a fixed-wing aircraft (Cessna 206) under overcast conditions on July 9th and under sunny conditions with scattered clouds on July 10 and 13. The aspen defoliation was recorded either digitally by using a tablet personal computer (HP tc4200) linked to a global positioning system (Bluetooth GlobalSat) or manually on hard copies of 1:250,000 maps (National Topographic Series). They flew at an altitude of 500 to 800 metres for a combined total of 20 hours. During these flights the entire Green Zone and part of the White Zone within these areas were covered in a grid pattern at 15-20 km intervals. The results of these surveys are shown in Figure 11.

(*Choristoneura conflictana* (Walker) was found near Cold Lake, Wolf Lake and Borque Lake. Linden looper defoliation was visible near Margaerite Lake and Wolf Lake. The Bruce spanworm and aspen leafroller (*Pseudexentera oregonana* (Walker) defoliated aspen around Long Lake Provincial Park.

In the Waterways Area aspen defoliation was scattered over a gross area of 774,244 hectares. This was a 68% increase compared to 469,922 hectares defoliated in 2006. Defoliation was severe over 695,234 hectares (89.8%), moderate over

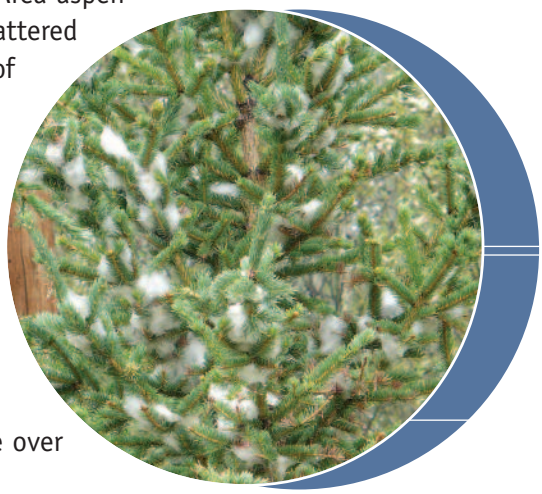


Table 5

The extent of insect pest caused aspen defoliation by severity categories in northeast Alberta, 2006 vs. 2007.

Corporate Area	Gross area of defoliation (ha)					
	2006			2007		
	Light	Moderate	Severe	Light	Moderate	Severe
Lac La Biche	0	913	46,549	14,925	1849	200,002
Waterways	161,508	27,946	233,066	31,239	47,771	695,234
Subtotal	161,508	28,859	279,615	46,164	49,620	895,236
Grand Total		**469,922**			**991,020**	

In the Lac La Biche Area the forest tent caterpillar defoliation was scattered over a gross area of 216,776 hectares. This was a 356% increase compared to the 47,462 hectares defoliated in 2006. Defoliation was severe over 200,002 hectares (92.3%), moderate over 1849 hectares (less than 1%) and light over 14,925 hectares (6.9%) (Table 5). Light defoliation attributed to the large aspen tortrix 47,771 hectares (6.2%) and light over 31,239 hectares (4.0%) (Table 5). Moderate defoliation was found east of the Athabasca River as far north as Township 103. Severe defoliation was found in most of the areas including Township 79 along the Athabasca River in the south 79; Township 77 north of Winefred Lake; and from the Saskatchewan border to west edge of the Area between Townships 78 and 97.

Northwest Alberta (Smoky, Lesser Slave, Peace and Upper Hay Areas)

The insect-caused aspen defoliation in 2007 in the Northwest was attributed to the forest tent caterpillar. This defoliation was scattered over an estimated 1,494,730 hectares. As predicted in 2006, aspen defoliation in northwest Alberta declined in 2007. There was a 70% reduction of the area with defoliation compared to that in 2006. The severity of defoliation also decreased (Table 6, Figures 10 and 11). The current cycle of insect-caused aspen defoliation in northwest Alberta appears to be declining after reaching a peak in 2006. Table 6 shows aspen defoliation in different Areas in northwest Alberta in 2006 vs. 2007.

Smoky Area

The results of the aerial overview survey on insect pest-caused aspen defoliation are shown in Figure 11. This defoliation, caused by the forest tent caterpillar, was scattered over a gross area of 427,240 hectares. This was almost an 11-fold increase in the defoliated area compared to 36,480 hectares defoliated in 2006. Defoliation was light over 401,003 hectares (93.9%), moderate over 23,934 hectares (5.6%) and severe over 2303 hectares (0.5%) (Table 6). The aspen leaf roller that defoliated aspen stands in the Smoky Area in 2006 did not recur in 2007.

Lesser Slave Area

Dale Thomas (Forest Health Officer) carried out an aerial overview survey of aspen defoliation in early June. Although he detected both forest tent caterpillar and Bruce spanworm in the surveyed area (Figure 11), the observed defoliation was attributed to the forest tent caterpillar, the predominant defoliator. Aspen defoliation was scattered over an estimated gross area of 996,373 hectares. This was a 10% increase compared to the 903,297 hectares defoliated in 2006. This may indicate slowing down of the spread of this infestation. Defoliation was severe over 626,439 hectares (62.9%), moderate over 313,882 hectares (31.5%) and light over 56,052 hectares (5.6%). The forest tent caterpillar defoliation was mainly found in the northeast corner of the Area in Townships 83-96 in Range 20 west of the 4th Meridian to Range 4 west of Fifth Meridian. The Bruce spanworm defoliation was observed in the southwest corner of the Area in Townships 68-73 in Range 8-9 west of the 5th Meridian.

Table 6

The extent of insect pest caused aspen defoliation by severity categories in northwest Alberta, 2006 vs. 2007.

Corporate Area	Gross area of defoliation (ha)					
	2006			2007		
	Light	Moderate	Severe	Light	Moderate	Severe
Smoky	7757	28,723	0	401,003	23,934	2303
Lesser Slave	10,271	261,034	631,992	56,052	313,882	626,439
Peace	0	189,950	0	555	3773	0
Upper Hay	0	3,849,553	0	0	66,790	0
Subtotal	18,027	4,329,260	631,992	457,610	408,379	628,741
Grand Total		**4,979,279**			**1,494,730**	

Peace and Upper Hay Areas

Mike Maximchuk (Forest Health Officer) and Natalie Henneberry (Forest Health Technician) carried out aerial overview surveys of aspen defoliation on July 5, 13 and 23. They used a fixed-wing aircraft and digitally recorded their observations by using a tablet personal computer linked to a global positioning system. Figure 11 shows the results of these surveys. Aspen defoliation in these areas was attributed to the forest tent caterpillar; due to access issues no ground truthing was carried out to verify the causative agents of defoliation.

Overall, as predicted in 2006, the extent and intensity of insect pest-caused aspen defoliation decreased in 2007 compared to the corresponding figures in 2006 (Figures 10 and 11). In the Peace Area defoliation was found over a gross area of 4328 hectares, almost a 98% drop compared to the area defoliated in 2006. Most (87.2%) of this defoliation was moderate and the remainder (12.8%) was light. Neither aspen decline nor kill was observed in the Area. In the Peace Area defoliation was light north of Doig Fire Lookout and moderate south of this Lookout. In the Upper Hay Area defoliation was found over a gross area of 66,790 hectares, a 98% drop compared to the area defoliated in 2006. All of this defoliation was moderate indicating possible further decline in this infestation. The aerial surveyors recorded defoliation west of Hay River, south of Indian Cabins, south of Wentzel Lake and east of Footner Lake. Defoliation was also recorded on the north side of the Peace River in the Township 105 Range 16 and Township 107 Ranges 15-17 West of 5th Meridian.

Southwest Alberta (Woodlands, Foothills, Clearwater and Southern Rockies Areas)

Insect pest-caused defoliation was observed over a gross area of 767,866 hectares in southwest Alberta (Figure 11). This was almost a 92% increase compared to 401,010 hectares defoliated in 2006. Defoliation was light over 139,103 hectares (18%), moderate over 590,159 hectares (77%) and severe over 38,604 hectares (5%). Table 7 shows the distribution of this defoliation by severity categories among the Areas in southwest Alberta.

Table 7
The extent of insect pest caused aspen defoliation by severity categories in southwest Alberta, 2006 vs. 2007.

Corporate Area	Gross area of defoliation (ha)					
	2006			2007		
	Light	Moderate	Severe	Light	Moderate	Severe
Southern Rockies	0	90,043	0	23,297	36,100	3123
Clearwater	32,950	6191	34,088	15,063	131,963	7029
Foothills	3006	25,615	0	59,935	242,041	25,033
Woodlands	132,923	76,194	0	40,808	180,055	3419
Subtotal	168,879	198,043	34,088	139,103	590,159	38,604
Grand Total		**401,010**			**767,866**	

Southern Rockies and Clearwater Areas

The Forest Health Technicians, Rupert Hewison, Bart McAnally and Trisha Stubbings surveyed aspen defoliation on June 27 and 28. The surveyors flew in a fixed-wing aircraft (Cessna) under clear skies for 12 hours in a zig-zag pattern over the eastern parts of these Areas. They recorded results of these surveys by using a digital tablet personal computer linked to a global positioning system. The results of the aerial overview surveys are shown in Figure 11 and Table 7. These results were not verified by ground truthing.

The forest tent caterpillar defoliation was found over a gross area of 62,520 hectares over the Southern Rockies Area. This is a 31% decline compared to 90,043 hectares defoliated in 2006. Defoliation was light over 23,297 hectares (37.3%), moderate over 36,100 hectares (57.7%) and severe over 3123 hectares (5.0%) (Table 7). Aspen defoliation was found north of Sundre along Highway 22, east of Drayton Valley and west of Porcupine Hills (Figure 11).

In the Clearwater Area, forest tent caterpillar defoliation was scattered over an estimated 154,056 hectares, an increase of 110% compared to 73,229 hectares defoliated in 2006 (Figures 10 and 11). Defoliation was light over 15,063 hectares (10%), moderate over 131,963 hectares (86%) and severe over 7029 hectares (4%).(Table 7)

Foothills Area

The Forest Health Officer, Brooks Horne, surveyed the Area to record aspen defoliation. Although aspen defoliation was attributed to the forest tent caterpillar, the Bruce spanworm (BSW) occurred in early June and it was almost as widespread. This defoliation occurred over a gross area of 327,009 hectares (Figure 11). Defoliation was light over 59,935 hectares (18.3%), moderate over 242,041 hectares (74.0%) and severe over 25,033 hectares (7.7%) (Table 7). The BSW that preceded the forest tent caterpillar was found almost throughout the Area; most of the defoliation by this pest was patchy and occurred west of Edson and Hinton. The forest tent caterpillar occurred in mid-June and it was as widespread as the BSW. The forest tent caterpillar defoliation was more visible east of Hinton.

Woodlands Area

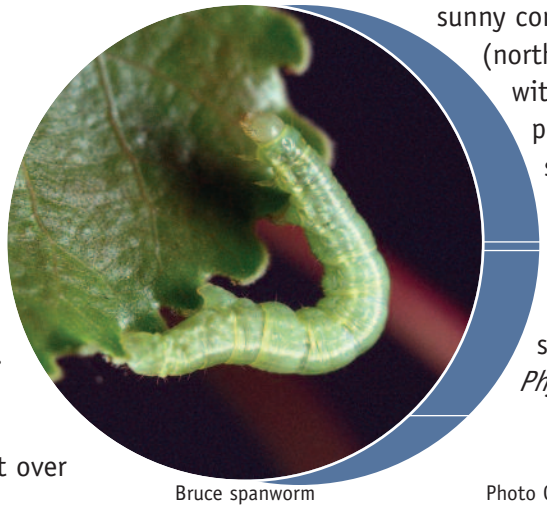
Forest tent caterpillar (FTC) defoliated 224,282 hectares in this Area (Figure 11). The FTC replaced the large aspen tortrix (LAT), which was the main aspen defoliator in 2006. The extent of aspen defoliation increased slightly (7%) compared to 209,117 hectares defoliated in 2006. Severity of defoliation increased in 2007 with light defoliation over 40,808 hectares, moderate defoliation over 180,055 hectares and severe defoliation over 3419 hectares (Table 7).

National Parks

Wood Buffalo National Park

On July 19th, Roger Brett, the Supervising Forest Health Technician at the Northern Forestry Centre, Canadian Forest Service, Natural Resources Canada carried out an aerial survey over Wood Buffalo National Park (WBNP). He flew under a mix of sunny conditions with clear visibility (north) and wildfire-generated smoke with scattered showers that provided limited visibility in the south of this park. The results of this survey are shown in Figure 11.

A large infestation of the aspen serpentine leafminer (ASL), *Phyllocnistis populiella* (Chamb.) has



Bruce spanworm

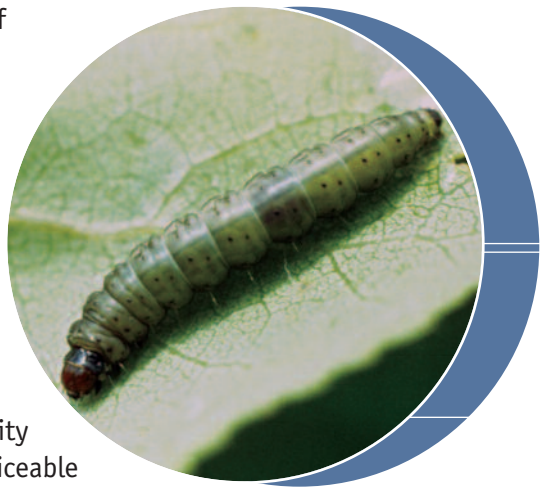
Photo Credit: E. Bradford Walker, Vermont Department of Forests, Parks and Recreation, Bugwood.org

been ongoing in the park for a number of years. This was part of a much larger outbreak that spanned to the Northwest Territories from east of Fort Resolution to the Mackenzie Mountains. It was unclear how far north up the Mackenzie River the infestation covers. The damage was more severe in the west (Fort Simpson/Fort Liard area) than in the east (Fort Smith/Fort Resolution) of WBNP.

The ASL affected approximately 52 420 hectares of aspen forests in the park and the Fort Smith/Fort Resolution area. Although trace amounts of leaf mining was observed from the ground from Pine Lake to Peace Point, the vast majority of the outbreak resided north in the Pine Lake, Fort Smith, Fort Resolution, Hay Camp, and Salt River areas. Most of the outbreak was classed as light-to-moderate, although there were several patches of moderate damage.

The damage caused by ASL, although appeared to be severe, was not killing trees. The mining of aspen leaves may result in a slight reduction in radial growth and premature dropping of leaves but the long-term health of trees was unaffected, even after repeated annual attacks.

The large aspen tortrix (LAT), *Choristoneura conflictana* (Walker) population observed over the last few years in Wood Buffalo National Park collapsed in 2007. Although trace amounts of defoliation could be observed from the ground along the Hay Camp and Peace Point roads, the vast majority was unnoticeable from the air. Only one small pocket (ca.147 hectares) of LAT defoliation was mapped in the Wood Buffalo National Park.



Large aspen tortrix larvae

Diseases and Disorders

Foothills Forest Area

White pine blister rust, *Cronartium ribicola* J.C. Fischer, affected whitebark pine in Willmore Wilderness Park. The disease occurrence was highest in western transects located closest to low mountain passes in BC. The trees in Deveber and Fetherstonhaugh drainages were hardest hit.

Brooks Horne, the Forest Health Officer, carried out a transect survey on incidence of this disease in the park. Out of the nine transects, one had 13% of the trees with WPBR stem cankers, six transects had up to 6% of the trees affected and two transects had no diseased trees. Five of the nine transects had trees with up to 16% branch cankers and four transects had branch canker free trees. The current occurrence of the disease was localized but it is bound to spread further in the provincial park.

Southern Rockies Area

The Forest Health Officer, Christie Ward, received several field reports of Armillaria root disease killing mature pines in areas east of Bragg Creek.

Forest Pests in Urban Forests

Insect Pests

In the City of Edmonton, the 2007 growing season started out with fairly high moisture but this was followed by a summer of hot, dry weather. This allowed trees stressed by dry conditions in recent years to recover some vigour early in the season but also provided favourable conditions for many tree pests in the Edmonton area. Many trees that were hard hit in previous years were able to recover. Trees that had little or no problems in previous years had some increase in pest occurrences.

Outbreaks of mountain pine beetle in the province prompted setting-up of a series of pheromone-baited traps to monitor presence of the beetle in Edmonton. No mountain pine beetles were collected from these traps, and no signs or symptoms of mountain pine beetle were found on city trees. As a preventative measure, several hectares of pine forest in the North Saskatchewan River valley were outfitted with Verbenone anti-aggregating pheromone sachets.

During increased monitoring for mountain pine beetle, symptoms tentatively identified as those of pine bark adelgid (*Pineus strobi*) were found on several trees in the Edmonton region.

Spruce trees continued to be hard hit by pests in 2007. Yellowheaded spruce sawfly (*Pikonema alaskensis*) remained ubiquitous and 3525 trees were sprayed to control this pest (compared to 4500 trees sprayed in 2006).

Spruce budworm damage

Spruce budworm (*Choristoneura fumiferana*) population in Edmonton increased in 2007. Just over 1000 spruce trees were injected with Orthene® (acephate) to control the spruce budworm. Monitoring of these trees showed excellent control of yellowheaded spruce sawfly on the treated trees.

Spruce beetles (*Dendroctonus rufipennis*) were found in a small number of trees in the vicinity of McKinnon Ravine. These beetles may have contributed to the mortality of several spruce trees.

Spruce spider mite (*Oligonychus ununguis*) infested many spruce trees throughout Edmonton. Combined with yellowheaded spruce sawfly and remaining stress from drought conditions, some of these trees were showing definite signs of declining health.

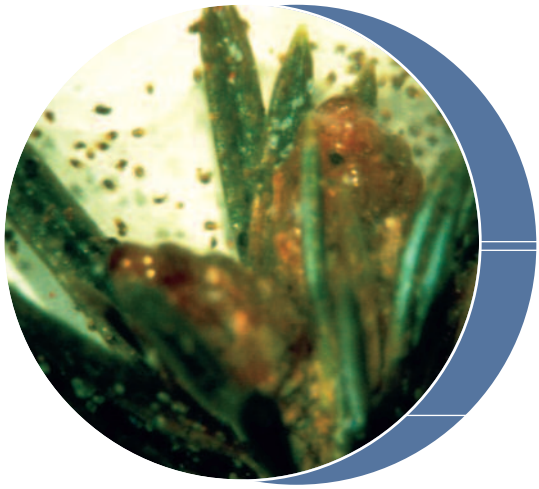


Photo Credit: USDA Forest Service - Ogden Archive, Bugwood.org
Spruce spider mite

Several spruce trees were infested with the spruce zebra beetle (*Xyletrechus undulatus*). This species also showed up in some of the mountain pine beetle traps.

On tamarack, the larch sawfly (*Pristiphora erichsonii*) numbers increased with several trees in the river valley showing heavy defoliation. The spruce gall adelgid (*Adelges lariciatus*) was also noted on several tamaracks in the Edmonton region.

Ash trees in Edmonton were particularly hard hit in recent years. Drought conditions and a wide variety of pests, with new species seemingly arriving every year, have killed a large number of ash, especially black ash. In 2007, following a campaign of injecting Orthene (acephate) into many trees as well as increased pruning of boulevard trees, ash trees were doing much better.

The difference in vigour between black ash treated with Orthene to control the cottony psyllid (*Psyllopsis discrepans*) and untreated trees was dramatic. This lends credence to the idea that the cottony psyllid is

a more serious pest than originally thought. Initial data seem to indicate that Orthene is more effective than Confidor (imidachloprid) against the cottony psyllid.

The ash leaf cone roller (*Caloptilia fraxinella*) remained widespread throughout the city, but numbers per tree appeared to be decreasing. Parasitism of the leaf roller larvae by a braconid wasp (*Apanteles* sp.) was levelling off to become more uniform across the city. In previous years these parasites were clumped in some neighbourhoods with high parasitism rates, while other neighbourhoods had little or no signs of the parasitoid wasp. In 2007, several neighbourhoods that were previously heavily parasitized showed lower proportions of parasitism, while neighbourhoods where the wasp occurrence was rare showed increased numbers. Overall, numbers of the parasite seem to be increasing city-wide.

Ash leaf cone roller

Ash plant bug (*Tropidosteptes* spp.) numbers dropped throughout Edmonton. Injection of trees with Orthene seemed to be fairly effective against ash plant bug, and even trees treated in 2006 summer had decreased ash plant bug populations through 2007.

Number of trees infested with western ash bark beetle (*Hylesinus californicus*) remained high, but did not increase as much as in previous years. Healthier trees and more active pruning of dead wood from infested trees seemed to alleviate the damage caused by this insect. The related Criddle's bark beetle (Hylesinus criddlei) was also identified from several sites in Edmonton.

Spiny ash sawfly (*Eupareophora parka*) was found in low numbers throughout the city. In some areas, almost every tree had at least some visible damage due to these sawfly larvae.

The ash leafcurl aphid (*Prociphilus fraxinifolii*) noted on several trees in 2006 seemed to have almost completely disappeared in 2007. Perhaps a dearth of fir trees (*Abies*) in Edmonton, which serve as the alternate host for this ash aphid, prevented them from completing their life cycle.

The forest tent caterpillar (*Malacosoma disstria*) was found scattered throughout Edmonton in medium numbers. Although not very noticeable at this time, this is probably most forest tent caterpillars seen in the city in the past 20 years.

Satin moth (*Leucoma salicis*) numbers and distribution also increased in Edmonton. Although this pest was earlier confined to a few small areas in the south side of the city, in 2007 individual trees throughout the city and in the outskirts started showing medium to high defoliation. The braconid wasp *Cotesia* found in fairly high numbers on many of these trees may help to keep the satin moth populations from exploding into outbreak conditions. This generalist parasitoid may also help to limit numbers of other pests, such as the forest tent caterpillar.

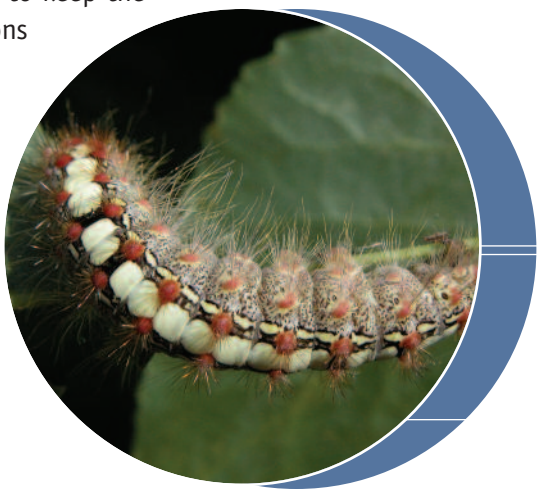


Photo Credit: Ferenc Lakatos, University of West-Hungary, Bugwood.org
Satin moth larvae

Bruce spanworm (*Operophtera bruceata*) is also becoming much more common, and defoliated a number of aspen poplars south and east of the city.

Other poplar defoliators, including the large aspen tortrix (*Choristoneura conflictana*), linden looper (*Erannis tiliaria*), aspen leafroller (*Pseudoexentera oregonana*), aspen twoleaf tier (*Enargia decolor*), and oblique banded leaf roller (*Choristoneura rosaceana*) were found in increasing numbers. In some areas, these pests were occurring simultaneously.

Urban poplar plantings are favoured by the poplar borer (*Saperda calcarata*). Columnar aspen seemed to be especially attractive to the beetle. Some initial results with acephate injections in infested trees were promising, with little or no production of sawdust following injection.

In addition, a number of trees with symptoms consistent with bronze leaf disease of poplar (*Apioplagiostoma populi*) were identified mostly in Swedish columnar aspen. No diagnoses have been confirmed to date.

Amber-marked birch leaf miner (*Profenusa thompsoni*) was less common in 2007, possibly due to decreased number of birch within Edmonton's urban forest. Birch that remained were generally in poor shape, and many showed signs of secondary infestation by bronze birch borer (*Agrilus anxius*).

The larger boxelder leaf roller (*Archips negundana*) caused almost complete defoliation of a number of Manitoba maples in the river valley of Edmonton. The trees recovered quickly and signs of defoliation were difficult to find three weeks after the peak of activity. Linden looper (*Erannis tiliaria*) was also found on many of these trees. Fall cankerworm (*Alsophila pometaria*) numbers, which had been increasing around the same area, dropped drastically possibly due to competition with the leaf roller.

Oak galls, such as those caused by the oak rough bulletgall wasp (*Disholcaspis quercusmamma*) and Cynipid gall wasps were common. Most oak trees in Edmonton showed at least a few galls, but numbers did not seem to be increasing.

Viburnum leaf beetle (*Pyrrhalta viburni*) was found in the Edmonton area in 2007. This pest is a serious defoliator of Viburnums, particularly high-bush cranberry (*Viburnum opulus*).

Diseases and Disorders

Dothiorella wilt (*Dothiorella ulmi*) continued to cause decline of hundreds of Edmonton area elm trees. Another 52 cases of this disease were confirmed in 2007. Preliminary work with the registered fungicide Eertavas was promising. It is hoped this product might be used to combat decline of trees from Dothiorella wilt.

Exotic Pests

A series of pheromone-baited Delta traps installed in conjunction with the Canadian Food Inspection Agency (CFIA) did not catch any gypsy moths (*Lymantria dispar*) in the city. There have been no gypsy moth captures since adults of this moth were caught at two sites in 2003.

In monitoring for the Dutch elm disease vector, the smaller European elm bark beetle (*Scolytus multistriatus*), one beetle was caught in one of the pheromone-baited traps in May 2007. This is the earliest this beetle has ever been found in the Edmonton area, but it was the only beetle caught during the entire season. This catch is down from five beetles caught in pheromone-baited traps in 2006.

In cooperation with the CFIA three sets of chemical lure-baited Lindgren funnel traps were set up in the Edmonton area to detect the presence of exotic forest insect pests. In 2007, these traps did not catch any insects of significance, but did capture a wide variety

of beetles that included Scolytids, Elaterids, Buprestids and Cerambycids. These specimens are still being identified.

There were no signs of any major, exotic invasive species, such as the emerald ash borer (*Agrilus planipennis*), Asian long-horned beetle, (*Anoplophora glabripennis*), wood wasp (*Sirex noctillio*), sudden oak death (*Phytophthora ramorum*, or banded elm bark beetle (*Scolytus schevyrewi*), occurring in the city in 2007.

Forest Invasive Alien Plants

Provincial

In 2007, SRD conducted a number of Regional/Area projects, as well as projects to support the Alberta Government's inter-departmental and inter-provincial cooperation on invasive species.

The Interdepartmental Invasive Alien Species Working Group (Working Group) further advanced the development of an Invasive Alien Species Management Framework and supporting Risk Assessment Tool (RAT). The draft Framework was distributed to partners for feedback on the proposed process. Generally, there was support for this conceptual system that incorporates the stages of identification, risk assessment, appropriate response, and communication to effectively manage invasive species in Alberta. The next step is for the Working Group, together with its Alberta partners, to determine the roles and responsibilities of agencies and groups within the Framework.

The Working Group is in the final stages of preparing the invasive alien species RAT for use in 2008. Based on feedback received at an expert panel review of the tool held in 2007, the Working Group expanded the socio-economic portion of the assessment and will be improving the tool's calculation function to appropriately score risk. Following the completion of these improvements, the RAT will be converted into a web-based application accessible on-line.

In addition to developing the Framework and the RAT, the Working Group:

- provided an Alberta perspective on the development of federal government and inter-provincial initiatives;
- participated on initial discussions for the development of a provincial pest surveillance system;
- developed the first draft of contents for a Government of Alberta invasive species website;
- collaborated with the Alberta Invasive Plants Council (AIPC) on the development of a number of invasive plant fact sheets (available at www.InvasivePlants.ab.ca); and,
- provided Government of Alberta representation to the AIPC through membership on the board of directors.

Initiatives specific to SRD in 2007 included the initiation of a project to standardize and consolidate invasive plant survey, control and compliance information collected and stored by all program areas with the department. The Geographic Land Information Management & Planning System (GLIMPS) will be expanded to store and report invasive plant data. Although some of the invasive plant functionality within GLIMPS will be rolled out in stages in 2008, it is anticipated that the project will not be completed until the start of the 2009 field season.

In spring 2007, promotional items were produced by the Forest Health Section and provided to the Areas for distribution to public and industry partners. These items included mechanical pencils, sticky notes and magnetic clips. The message on the pencils and pads read "HELP STOP the Spread of Invasive Plants."

In 2007, Forest Health staff in Edmonton consolidated all of the invasive plant survey information collected by the Forest Health program for the years 1998-2007. From this data set, provincial distribution maps of the most common