

# Bugs & Diseases

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## Alberta's eye on forest health

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## Northeast Weed Coop Workshop—Athabasca, AB

The Northeast Alberta Weed Coop Workshop lives on, with this year's line up of expert presenters, generously donated door prizes and super yummy food drawing 72 weed lovin' groupies.

Despite some attendees having been called away to fires in Slave Lake or north of Fort McMurray and to the aid of displaced Slave Lakers, attendance numbers held strong, proving members of the weed community are as tenacious in their commitment to weed management as a sprawling meadow of oxeye daisies.

The highlight of the annual workshop is the collaboration and support shown by coop members, corporate sponsorship and the dedication of presenters, said organizer and Forest Health Officer Tom Hutchison.

Central to each year's success are the attendees, for without all those who schedule their other work around attending the workshop every year the day wouldn't be as much fun!

"I look forward to the weed workshop every year because I find it to be informative and entertaining," said Suncor's Lelaynia Cox.

"I really like the format of mixing presentations with the identification and legislation contests because it gets the participants moving around and interacting with each other. The presentations are of excellent quality and I always learn something new that I can apply to my projects. As a bonus, my weed ID skills have greatly improved! The weed workshop is just "cool."

"And the food was excellent this year, too!"

Attendees were treated to nine presentations representing Athabasca County, the Amadou Weed Co-op, the City of St. Albert, Dow AgroSciences, ACE Vegetation Control Services, McClay Ecoscience, Alberta Agriculture and Rural Development and Alberta Sustainable Resource Development.

Thank you everyone who attended, presented, donated and organized. It was fun. Let's do it again next year!

Charlotte Farrant—Lac La Biche

## New Lease of Life for Budworm - Infested Trees in Northeast AB

This spring, the Forest Health Section of Alberta Sustainable Resource Development (SRD) spearheaded a project to keep alive white spruce trees that have been repeatedly infested by the spruce budworm in northeast Alberta. The objective of this project was to lower the spruce budworm populations thus providing a new lease of life for white spruce severely infested by the pest. Spruce budworm egg mass and larval sampling carried out in 2011 winter helped to demarcate areas where severe budworm defoliation was expected to occur in 2011 summer. These areas included Hangingstone Provincial Park, Stoney Mountain and Gateway Hills where reclaimed oil-sand lands were replanted with white spruce.

Alberta Tourism, Parks and Recreation (TPR) and oil-sand companies (Suncor and Syncrude) participated in this project exemplifying intergovernmental and industry cooperation. SRD bore the cost of this spray program and provided technical expertise, monitoring of spruce budworm and spruce bud development to determine the best time to carry out the spray program, organizing a “turn-key” aerial spraying project and post-spray sampling to determine effectiveness of aerial spraying. TPR and oil-sand companies provided logistical

support and helped with public communications related to this project. In return, TPR was the beneficiary of getting white spruce in the Provincial Park and recreation area protected from budworm. Suncor and Syncrude benefited from technical expertise of SRD to organize their own aerial spray programs and used the same spray contractor to treat their budworm-infested lands.

On June 6-8, a water-based formulation of a naturally occurring bacterium (Btk) was aerially sprayed at the rate of 2.0 litres per hectare over 2,750 hectares of spruce budworm infested white spruce stands on Gateway Hill, Hangingstone and Stoney mountain. A Hiller UH12 helicopter equipped with spray nozzles that generated a fine mist of spray was used for this aerial spraying. Spraying was repeated on June 11-12 to ensure controlling any spruce budworm larval stragglers. The results of post-spray sampling showed 83 – 86% control of spruce budworm larvae in the sprayed areas. This lowering of spruce budworm population will help the infested trees to recover and stay alive thus meeting the prime objective of this spray program.



*Sunil Ranasinghe - Edmonton*

## Touring the Northwest

For one week each June and August, a few lucky individuals set off on an annual forest health pilgrimage reaching the far corners of the northwest boreal region of Alberta. The pilgrimage is a quest to gather forest pest information but above all energizes the soul and mind as each day provides glimpses of beautiful vistas, unique ecosystems, wildlife and northern community life and provides a respite from the daily grind of office computers, phones and emails.

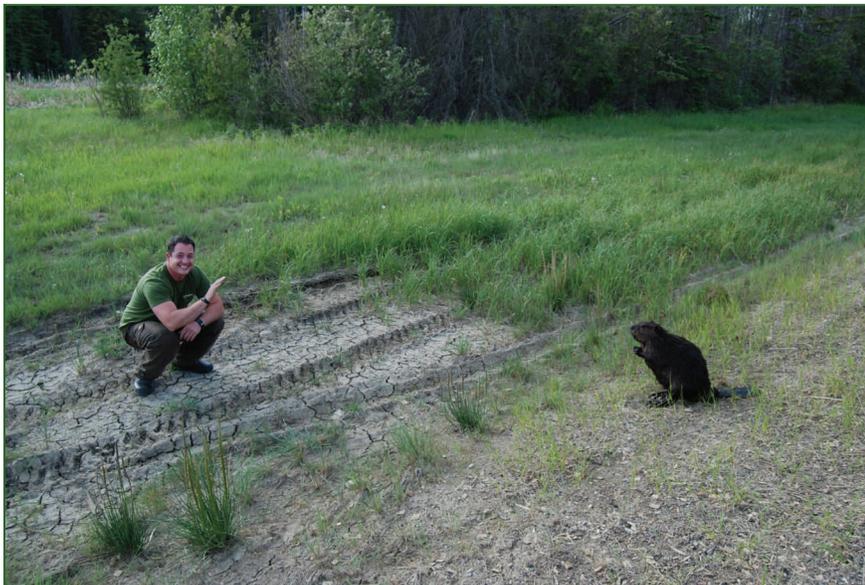
“The Tour” originates back to 2000 and involves the establishment and collection of a network of spruce budworm pheromone traps and the search for other forest disturbance agents. Over the years, it has taken on additional forest health activities to the workload including forest tent caterpillar traps, gypsy moth traps and within the past 3 years, establishing mountain pine beetle dispersal baits.

The first stage of this year’s tour took place during the week of June 13<sup>th</sup> and the lucky individuals were fellow Forest Health Officer’s Devin Letourneau and Mike Maximchuk.

### Day 1 – Peace River to High Level

Today’s drive takes us north through the town of Manning, past the 3 “Battles”, Naylor and Hawk Hills, and through the hamlet of Keg River and Paddle Prairie Metis Settlement. Our travels also take us down the secretive and secluded Lynn’s Trail along the Chinchaga River, west of Keg River Post. The trail starts at the edge of a large pasture along the river and to this day we still do not know the reason for the trail’s existence and the person for whom the trails seems to be named after. Either way it gets us to a good spruce stand to hang up our traps. At this site, we notice that most aspen leaves have been mined by the Aspen Serpentine Leaf-miner (*Phyllocnistis populiella*). The leaves take on a silvery appearance due to the feeding of the insect larvae but the damage has little harmful effect on the trees.

A highlight of this day is the ferry ride across the mighty Peace River at Tompkin’s Landing, which has been in existence since 1961. Another highlight was our wildlife encounter with two beavers that were lucky enough to cross highway #35 without meeting up with a semi-truck or other vehicle. They can be a bit testy!



**Hey buddy...can you tell us how to get to High Level?**

## Touring the Northwest ... continued

### Day 2 – Rainbow Lake and Zama City country

A very long day of driving with many kilometres down paved highways, gravel roads, muddy oil field roads and the sometimes dodgy, Adair fire lookout tower road. Our day starts out at the Chinchaga River once again, meeting up this time along highway #58. We are establishing budworm traps and also putting up mountain pine beetle dispersal baits. Pine beetles have been moving north each year into the Upper Hay Area and we are monitoring this progression. Then on to Rainbow Lake, heading south to put up more budworm traps and then north to take a look at some of the fading mountain pine beetle-killed trees. We find that the beetles have survived the winter quite well. The aspen serpentine leaf-miner is also in full outbreak stage in this area as the majority of leaves are infested with larvae. Then back east and north up to the Aboriginal community of Chateh, one of three communities of the Dene Tha First Nation. It was a very interesting place as we drove past the old church, above ground burial grounds (Spirit Houses) and the old cabins and houses. The community's previous name was Assumption but was recently changed to Chateh, the name of an early 20<sup>th</sup> century Chief.



*Aspen Serpentine Leafminer damage near Rainbow Lk*

*Mike Maximxhuk —Peace River*

We continue north to Zama City, stopping along the way to let a few wood bison cross the road and join up with the couple of hundred others in two nearby wellsites. The road north also takes us past the wildly unique ecosystem of Hay-Zama Lakes (Wildland Provincial Park), the Okavango Delta of Alberta. This is a birder's paradise as the park is a major stopping point for thousands of migratory birds. Black terns, red-winged blackbirds, yellow warblers and song sparrows were all heard and visible as we drove through. What a great place and we contemplate the potential for a future canoe trip through the park but wonder...where would you set up camp? Further north, we stumble upon some fading trees killed by pine beetles. Wow, are they far north! Above the 59<sup>th</sup> parallel and are now the record in Alberta for the most northern known location of pine beetles.

We finally reach Zama City, a hamlet of 250 people located about a 150km drive from High Level. There is lots of aspen serpentine leafminer here as well. The oil and gas community has been in existence for over 35 years and we have used its local camps during spruce budworm spray programs in the area back in the late 1990's. A quick, expensive fuel stop and we are on our way back towards High Level, passing a lot more aspen serpentine leafminer damage and putting up traps and baits along the way. The end of our day takes us across the Hay River and then up Watt Mountain road, finishing with a really nice view of the surrounding forests and muskeg to the east.



*Mountain pine beetle larvae near Rainbow Lake*

### Day 3 – Aboriginal communities of Meander River and John D’or

June 15<sup>th</sup>.... Game 7 of the Stanley Cup! No time to slow down today. Our drive today first gets us up past Meander River, another one of the Dene Tha aboriginal communities. We rip through our work and make our way back to High Level and then head east down highway #58 past Beaver Ranch creek, the Ponton and Lawrence Rivers. We keep an eye out for any whooping cranes amongst the small flocks of sandhill cranes. In 2009, we were lucky enough to come across one whooping crane just off the highway, but no luck this year. Highway #58 turns into a gravel road east from the Fort Vermilion turnoff and is the only access in and out of the aboriginal community of Garden River. Our drive east ends up at the Wentzel River to throw up some budworm traps and ends with few thrills. Years ago, we used to cringe driving down this poor narrow road, after a rainfall as there was a good chance to end up in the ditch. The gravel road has been upgraded substantially over the past few years and is quite good which makes our day a lot shorter than in the past.

We get back into High Level in time to watch the Bruins beat the Canucks, quite handily I might add (sorry Tom!).

### Day 4 – Fort Vermilion, Red Earth and back to Peace River

One last, long day of driving. We start the day out at the beautiful pine stands around Machesis Lake, southeast of High Level. Pine beetles have made their way up here and we find some naturally attacked trees with a few beetles that have made it through the winter. Not good. On to the oldest settlement (along with Fort Chipewyan) in Alberta, Fort Vermilion. On the banks of the Peace River, the tiny hamlet of 714 was established in 1788 and has quite a few neat, historical buildings to see but more importantly, a stop in for lunch at The Trapper Shack. This neat little restaurant is built inside an old house that was originally built around 1908 and later converted into a restaurant and boarding rooms in the 1940’s. It is decorated with lots of old memorabilia and local pictures from the 70’s and 80’s. It serves up some delicious food and is a local favourite.



**The Trapper Shack in Fort Vermilion**

All filled up, we start the long 200km drive down to Red Earth Creek. Still 150km of gravel road to deal with and it is starting to rain and rain hard. The road is a mess in some spots and we lock up the truck in 4X4 to get through. We pass a casualty on the road and offer some help. Poor guy lost his fan belt on his van after hitting a big pot hole. The driver and his van were covered in mud from a passing sump truck that wouldn’t stop (or slow down) for him. Unfortunately, we do not have tools to help him get the belt back on and leave when another person stops to offer help.

We make our way through the rain and mud to finish up a bunch of budworm trap sites and finally get back on to pavement when we reach the hamlet of Red Earth Creek. Then through the Woodland Cree aboriginal community, one more muddy oil field road and back in to Peace River, the end of another great tour!

This year, 74 budworm pheromone traps and 5 pine beetle dispersal bait sites were established. As well as the aspen serpentine leafminer, the search for other forest disturbance agents also revealed a massive infestation of the willow leafminer (*Micrurapteryx salicifoliella*). Large areas of damaged willow were found throughout the Peace River, Manning, High Level, Rainbow Lake and Red Earth Creek areas. The willow leaves take on a brownish-grey appearance due to the larval feeding. However, the damage has little harmful effect on the trees.

Any idea what the “3 Battles” are?? They are the Notikewin, the Hotchkiss and the Meikle rivers that are in the Manning area.

## Large Areas of Discoloured Deciduous Trees Found in NE, AB (Could Drought Stress be the Cause?)

Earlier this spring, personnel fighting the Richardson Backcountry fire began noticing large areas of browning aspen and poplars outside of the fire's western perimeter. In addition to this aspen and poplars with browning leaves were noted along the Stony Mountain Road. (about 30 km south of Fort McMurray) in June. While conducting aspen defoliation overview flights in early in July, SRD personnel noticed that patches (some quite large) of deciduous trees with similar symptoms could be found over quite an extensive area (primarily north of 56° latitude). Subsequent ground truthing conducted later that month confirmed the damage to foliage was indeed similar at every site checked.

The foliage of affected trees had browning, necrotic tissue along the margins of their leaves. In most cases leaves over the entire crown appeared to be damaged. At some sites other species of broadleaf trees were showing similar symptoms. The cause of this could not be attributed to particular insects or disease damaging agents, as no signs could be found for these. Except for the areas with the most extreme damage (areas further north, west of the Richardson Backcountry Fire) most of the affected trees are found on, or near, the tops of hummocks and ridges.

The lack of evidence for other damaging agents, coupled with the wide distribution and the fact that more than one species is affected, indicates an abiotic factor is at play. The pattern of damage to the foliage, and the association with elevated (water

giving, not water receiving) areas is consistent with symptoms of drought stress. According to John McLevin, the Forestry Program Manager for the Waterways Area, drought conditions did occur this spring, stating "We had an early spring runoff with no moisture recovery making ground conditions very dry." Given the conditions earlier this season, that made the Waterways Area so susceptible to wildfire, it is likely that vegetation would be exposed to a water deficit situation. According to Dr. Ted Hogg, a Vegetation and Climate Interaction specialist with the Canadian Forest Service, "I suspect that multiple factors are involved. However, the severity of recent droughts across northern Alberta makes me suspect that drought is a major cause of the symptoms being reported."

Whatever the cause, the phenomenon observed this year appears to be something fairly unique. Conversations and correspondence with various people regarding this revealed that the kind of (and extent of) damage to broadleaf trees in NE Alberta is not something they have seen before. Whether or not permanent damage (or mortality) in affected aspen and poplar stands will occur, as a result of this, remains to be seen. Rains over the last month may have alleviated this somewhat. Many of the trees were observed to have sprouted new growth. Stay tuned for future editions of this newsletter for updates.

*Tom Hutchison —Athabasca*



## Neodiprion Sawfly Larvae Infest Pine on Reclaimed Sites in NE, AB

In mid July contractors working for Canadian Natural Resources (CNRL) noted larvae of an unidentified species of *Neodiprion* sawfly infesting Jack Pine on many reclamation sites within the company's Wolf Lake and Primrose Project areas. This was reported to SRD along with a request for advice for management of the insect. A subsequent field assessment was conducted by Dave Scott, an SRD Forest Officer out of Bonnyville. Based on his assessment, it was decided that a control program was not warranted for this year. Although present at many sites, the population level of the sawfly did not appear to be great enough to adversely affect the regenerating pine trees.

Photos of the sawfly larvae were sent to Greg Pohl, at the Canadian Forest Service's Northern Forestry Centre, for identification. He identified the species as *Neodiprion maurus*. This species is known to infest Jack Pine in Manitoba and Saskatchewan, but has not been mentioned infesting trees in Alberta. However, it is likely that its range does extend into eastern parts of the province.

*Neodiprion* sawflies tend to consume older foliage, so infested trees are usually able to withstand several consecutive years of defoliation from these insects. Nevertheless, if the damage occurs in conjunction with agents that affect current foliage (e.g. the Jack Pine Budworm), they can help cause mortality for pine trees in relatively short order. Therefore, the sites known to have this sawfly will have to be monitored over the coming years.



Photo—Dave Scott

## Willow Leafminer—Minor Pest, or Major Pain in the Butt?

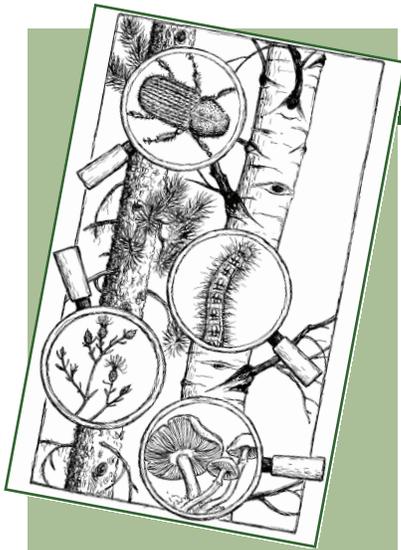
Willow Leafminer (*Micrurapteryx salicifoliella*) populations exploded in 2010, infesting willows over a vast expanse across northern Alberta. This summer, epidemic levels of this insect have again been seen in most areas where willows are present. This has had a lot of people concerned about the health of willows in north-eastern Alberta.

Many have observed that willow foliage, everywhere, has turned brown and withered. The browning foliage, resulting from damage caused by Willow Leafminer larvae, gives the appearance that infested willows (especially severely infested ones) are dead, or dying. In reality, this is normally not the case. Willows are pretty hardy and can handle quite a bit of damage from the larvae of this moth without being too adversely affected. However, this fact is not well known amongst the general public. That, coupled with the occurrence of more areas of

severe willow defoliation further south (in more populated areas), the level of concern amongst the public this summer has definitely been elevated. We have lost track of the number of calls we have had, from all over the Waterways and Lac La Biche Area, regarding this pest. Suffice to say, it has been many (often several a day) and some folks are quite agitated.

Who knew the health of willows could elicit such concern? I expect that the natural enemies of the moth will, sooner or later (for SRD staff, preferably sooner), cause this epidemic to subside. Until then, we should expect more inquiries and maybe pause to marvel at how many trillions of larvae it must have taken to accomplish the amazing extent of defoliation this insect has caused this season.

Tom Hutchison —Athabasca



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Articles are welcome.

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## Willow Leafminer “Enough’s Enough”

### Forest Health Officer's Lament

Willow Leafminer,  
You're causing quite a stir.  
You've infested almost everywhere  
A willow can occur.

You're filling up the countryside  
With browned-up shrubs and trees.  
And lots of folks are worried this  
Is pollution or disease.

You're causing a commotion,  
A ruckus, an uproar,  
I wonder how much more of this,  
For us you have in store.

You've been two years epidemic,  
Over quite an immense tract.  
How many little larvae,  
Did you need to do that act?

I know you're part of nature,  
And our willows are real tough.  
But my phone is ringing off the hook.  
So I say ENOUGH'S ENOUGH!!!

*Tom Hutchison—Athabasca*