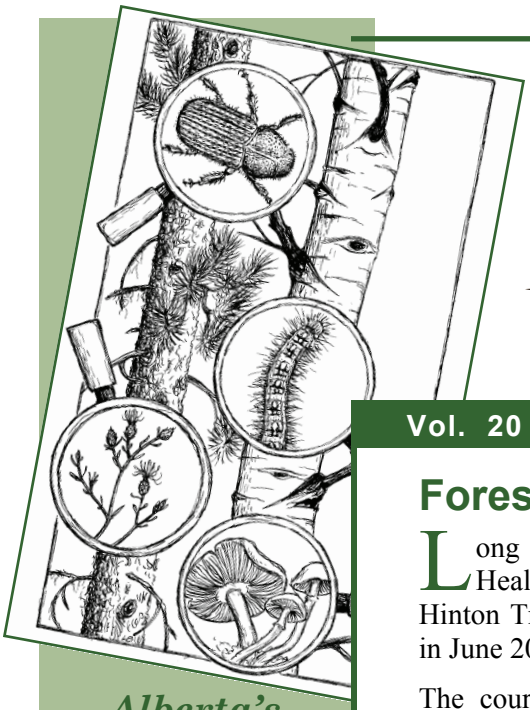

Bugs & Diseases

20th Anniversary Edition

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Alberta's eye on forest

Issue highlights:

Alberta Sustainable Resource Development

Forest Health 100 makes its debut

Long time in the making, the Forest Health 100 course was offered at the Hinton Training Centre for the first time in June 2009.

The course was formulated by a team composed of Sunil Ranasinghe, Tom Hutchison and Mike Undershultz in collaboration with Ken Snyder and Dean Yakimchuk at the Hinton Training Centre. A number of senior forest health staff served as course instructors.

FH 100 was designed to cover a multitude of forest health-related subjects. These include topics as diverse as departmental business plan and governance; provincial and federal rules and regulations governing forest health operations; identification, detection, surveying and management of forest health damaging agents; and the need to incorporate forest health knowledge in the provincial forest management planning process.

The course has a classroom and a field component. The classroom component has six sections:

1. Introduction

2. roles and responsibilities of forest health personnel, and forest health administrative jurisdictions

3. policies, guidelines and directives

4. forest health damaging agents, their signs, symptoms, diagnosis and population dynamics

5. biology and management of forest health agents, and

6. integrating forest health knowledge into forest management planning.

The field component provides a 'hands on' learning experience about forest-health-damaging agents.

Judging by the evaluation of this course carried out by the trainees, the course was well received with positive feedbacks on all aspects.

The Forest Health Section, in collaboration with the Hinton Training Centre, is planning to offer this course annually in late spring. The course will be open to any forestry worker with an interest in forest health.

Sunil Ranasinghe - Edmonton

Forest Health 100 course field trip near Jasper – 24th June 2009

Photo—Andrea Sharpe 2009

A tale of two caterpillars (a Reprise)

Defoliation-causing caterpillars have had it pretty good in the northeast part of the province over the last couple of years. Areas of conifer defoliation had been increasing and vast areas of aspen had been denuded of leaves, particularly in the Waterways Area.

Based on survey results from the 2008 season, the expectation was that things would change somewhat this year. Paraphrasing Dickens, it looked like it would be "the best of times" or "the worst of times" – depending on what species of defoliator one was referring to.

Just as we predicted in our last newsletter, Spruce Budworm (SBW) and Forest Tent Caterpillar (FTC) populations experienced very different fates in the Waterways and Lac La Biche Areas in 2009.

Preliminary indications (based solely on overview flights) are that SBW populations remained strong. The area of SBW-caused defoliation decreased somewhat, as did the severity of the defoliation. However, the current outbreak looks poised to continue into next year. We will know better what to expect in 2010, once we complete our other surveys this fall and winter.

"...looks like aspen stands in the northeast will get a reprieve in 2010 (at least from FTC), but many conifer stands will probably continue to be affected by SBW."

On the other hand, FTC populations crashed completely this year. Our 2008 egg mass surveys indicated they would be drastically reduced – but to go from a million or so hectares of defoliation to virtually nothing in one year is quite astonishing.

Some aspen defoliation was noted this year in the northeast; however, ground truthing indicated that most of this was caused by Large Aspen Tortrix or Bruce Spanworm. Just what caused this massive collapse is unknown. Part of the answer may lie with a graduate student from the University of Alberta, who reports that FTC larvae she collected from the field last year indicated very high rates of various parasitic insects. She also speculated that the caterpillars may have eaten themselves out of house and home. Whatever the cause, the outbreak appears to be over for now.

In summary, it looks like aspen stands in the northeast will get a reprieve in 2010 (at least from FTC), but many conifer stands will probably continue to be affected by SBW. Of course, the rest of our surveys may indicate something different. Stay tuned for our next newsletter. Maybe there will be another reprise to the "Tale of Two Caterpillars."

Spruce budworm and forest tent caterpillar larvae

Bugs du Jour in the Peace/Upper Hay

It has been a very interesting summer for various forest insect populations in the Peace and Upper Hay areas.

The aspen defoliator populations are at current lows as cold spring temperatures in May apparently had significant impacts on their population levels. No areas of defoliation were recorded during the aerial surveys — the first time this has occurred in the past 13 years.

In the Meander River and Steen River areas, however, infestations of the aspen serpentine leafminer (*Phylocnistis populiella*) were observed along Highway 35. Many trees have taken on a silvery appearance from the mining damage. As well, large areas of willow leaf damage have been observed and reported in the Rainbow Lake, High Level, Fort Vermilion, Keg River and Zama areas. Populations of the willow leafminer (*Micrurapteryx salicifoliella*) have exploded and are the cause of this damage.

Also doing well this year are spruce budworm populations. Spruce budworm defoliation is returning to many areas that were historically defoliated in western and central Upper Hay Area during the previous budworm outbreak that collapsed in 2003. Areas along the Chinchaga River, Negus Creek, East and West Sousa Creeks, Zama, Hay River and the Peace River east of Fort Vermilion have large areas of severe defoliation this past year. Defoliation has nearly doubled from the previous year and is now up to around 80,000 hectares.

Finally, the mountain pine beetle. The Peace Area has experienced another large migration of beetles this summer. A more definitive picture of this migration will be known after extensive surveys in August and September; meanwhile, it appears the largest populations moved through the central and southern parts of the area. Local offices are fielding many calls from concerned land owners who have mass-attacked pine trees on their properties. It appears the majority of mature pine in and around the Town of Peace River will be killed this year from the influx of beetles.

Mike Maximchuk – Peace River

Large areas of willow leaf damage have been observed and reported in the Rainbow Lake, High Level, Fort Vermilion, Keg River and Zama areas. Populations of the willow leafminer (*Micrurapteryx salicifoliella*) have exploded and are the cause of this damage. Photo—Mike Maximchuk and Maree Vervort

Mountain Pine Beetle Detected in Northeast

In our April 2007 newsletter, I stated that the possibility of mountain pine beetle (MPB) infested trees being found in the northeast was no longer remote. Unfortunately, it hasn't taken long for the possibility to become fact.

Late last month (July), SRD staff began noticing evidence of MPB at various pheromone traps and dispersal bait sites along the western edge of the Lac La Biche (LLB) Area. The sites were established in 2007 to aid with early detection of MPB (outside of areas with known infestations) after long range dispersal events (such as that occurred in 2006).

Prior to using bait sites, the earliest indication of possible MPB presence would be when the crown colour of dead pine trees changed the year after they were attacked. These sites then needed to be ground truthed to see if MPB (and not some other agent) was responsible.

The hope in using baits is that MPB presence (in a new area) can be confirmed the same year the beetles fly. SRD's protocol is to set up one dispersal monitoring site per selected township, with three baited trees per site. The baits have a limited effective range and are unlikely to draw beetles more than 200 meters away. Therefore, as the old adage says, "an absence of evidence is not necessarily evidence of absence." However, that being said, the presence of MPB at any of these sites is "proof positive" that they have made it at least that far.

To date, a number of dispersal bait sites along the western edge of the LLB Area have been checked – with MPB noted at many of them. We will have a better idea of the extent of their dispersal this season after all of our sites have been checked (by the end of September), and subsequent surveys have been conducted. Are they here to stay? Only time will tell.

Alberta's strategy for managing MPB infestations continues to focus on limiting the spread of beetle infestations along the eastern slopes of the Rockies, and to prevent beetles from spreading eastward in the boreal forest. To do this, we intend to aggressively control infestations occurring in the leading edge of the outbreak. As I noted in April 2007, "this beetle invasion poses a very serious threat to pine stands throughout northern Alberta, and perhaps across Canada." We will continue our efforts and hope for extended cold periods this winter.

Tom Hutchison - Athabasca

Boring dust at the base of a MPB attacked tree at a CFS pheromone site near the Hamlet of Smith

Dispersal bait near Spotted Horse Lake

Photo—Tom Hutchison 2009

War declared on Amadou Weeds

One of the priorities for Forest Health's Invasive Plant Program in 2009 is to establish and coordinate cooperative weed management areas. In SRD's Waterways/Lac La Biche Corporate Areas, this work is well underway. The objective is to prevent the spread of noxious weeds (primarily Scentless Chamomile) in the vicinity of Amadou Lake, located approximately 90 km northeast of Athabasca.

This is the second year of weed inventories being targeted in this area, but the first "formal" year where various groups have worked together on controlling the unwanted weed infestations.

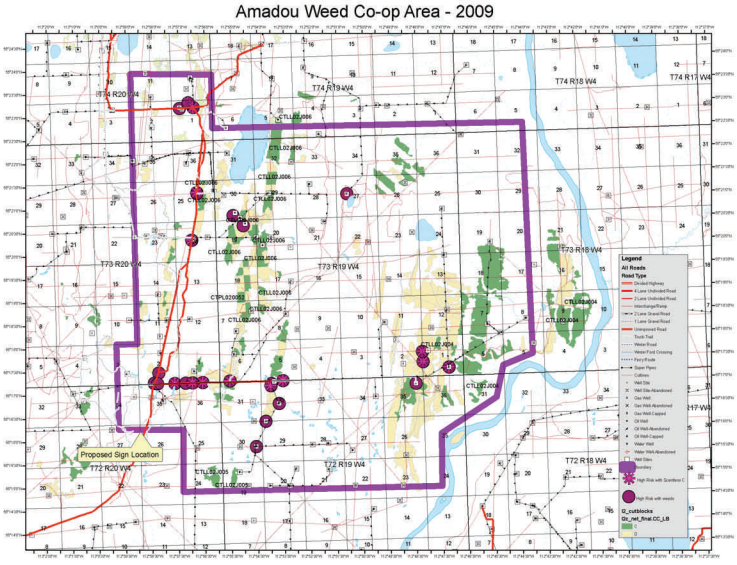
The following is a draft of what the entrance sign to this area will look like:

Entering the

Amadou Lake

Cooperative Weed Management

Control Area



The above area has been selected in an effort to control noxious weeds along various roads and trails, and throughout cutblocks. It is a cooperative effort involving Alberta Sustainable Resource Development, Husky Energy, Vanderwell Contractors, Spruceland Forest Products, Alberta Pacific (ALPAC), Canadian Natural Resources Limited (CNRL), and the MD of Opportunity.

If you are an off-highway vehicle user of this area, please respect these efforts by refraining from travel through marked areas or any other areas that have weed infestations. Your cooperation is appreciated!

If you either wish to know more about the Amadou Lake Cooperative Weed Management Program or require further information regarding noxious weeds, contact Marty Robillard - Forest Health Section - Alberta Sustainable Resource Development at (780) 675 8223.

The purple dots on the map indicate priority sites (chosen using last year's inventory data). Factors such as access, weed species, extent and level of infestation, proximity to water and random camping usage were used in determining these particular sites. Clean ups on these locations were assigned to the various disposition holders involved. The goal is to visit and take control measures on all of these sites in 2009.

Common survey sheets have been developed to standardize data collection. The group members have agreed to share inventory and control information amongst each other. One member has even pulled an old road access at the request of another so as not to spread weeds any further – an excellent example of cooperation.

The benefits of the cooperative are apparent. To date, different members have participated in this cooperative at different levels I believe that over time, participation in this and other similar programs will increase. The current economic downturn may have an effect on the amount of resources some of the members are willing to commit to this common cause at this time.

As in any other war effort, time will tell how effective we actually are and how easily the enemy will fall. The war we have launched is a big one, a difficult one, and likely a very long one – as most wars are. To quote Winston Churchill's famous 1940 speech on a different war: "we shall fight in the fields, and we shall fight in the hills, (and) we shall never surrender." Amadou weeds, you better watch out!

Yes, we will persevere, and yes, we will succeed. *Marty Robillard - Athabasca*

A new defoliator in Alberta's forest: Western Spruce Budworm

Western spruce budworm (*Choristoneura occidentalis*) is well known to cause large outbreaks in British Columbia and in our American neighbors to the south. In Alberta, its feeding damage was first spotted in the Porcupine Hills in 2005. Will it behave in the same manner here at the fringe of its range as it does in its core range? What risk does it pose to forest values in Alberta? These are the questions SRD's Forest Health Officers (FHOs) are trying to tackle.

In 2007, local Forest Health staff first mapped spruce budworm damage in the Porcupine Hills during aerial surveys. Ground checks revealed that western spruce budworm was the cause of the damage. SRD has been annually monitoring the extent of the infestation from the air annually and has established a pheromone monitoring program to identify the species and study its damage capacity. The defoliation was severe in large parts of the Porcupine Hills Forest Reserve in 2007, and it declined to a moderate level in 2008. Today, defoliation in this area is evident on most Douglas fir trees and on some white spruce. Top kill is widespread and there is some mortality of mature trees.

Despite the decline of defoliation severity in the Porcupine Hills, the outbreak has been spreading. In 2008 patches of moderate defoliation by western spruce budworm were detected west of highway 22, in Coleman and near Beaver Mines, south of the Crowsnest Pass. Recent aerial surveys revealed that most of the defoliation was moderate. The patches of defoliation west of highway 22 have expanded into the Whaleback area and in some pockets the defoliation was severe.

As part of the risk assessment on this invasive species, SRD is collaborating with Dr. Felix Sperling's lab at the University of Alberta to study these insects in greater detail. Bryan Brunet, one of Dr. Sperling's graduate students, spent this summer collecting larvae and moths at regular intervals to aid SRD in understanding the phenology of the budworms feeding on Douglas fir and white spruce trees. Lisa Lumley, a PhD student from Dr. Sperling's lab has identified that the species assemblage in south-western Alberta includes the eastern spruce budworm (*C. fumiferana*), the western spruce budworm (*C. occidentalis*) and the two-year life cycle budworm (*C. biennis*). Bryan Brunet will use the samples from this summer to extend Lisa Lumley's ground-breaking work and study the gene flow between the eastern and western species where their ranges overlap in Alberta. SRD will continue to monitor the current infestations and conduct further investigations into the interaction of invading species with the local insects in Alberta's forests.

Anina Hundsdoerfer - Edmonton

Interview with the newest member of the Forest Health Team

Interview with Andrea Sharpe, our newest Forest Health Team Member and Leader of the Invasive Species Program. This interview was conducted by Sunil Ranasinghe and Dan Lux at Zuppa Café in Edmonton, Alberta on July 30th, 2009.

Q: What kind of background are you coming from?

A: I was born and raised in the small town of Pasadena, Newfoundland. I come from a relatively large family. We grew up as a traditional family that loved outdoor activities.

I am an outdoor enthusiast. I love mountain biking, running, cross-country and downhill skiing. I also practice yoga!

Q: What is the lifecycle of the Obscure Sawyer Beetle?

A: (heavy gasp, oh gosh…)

I guess they lay eggs, larvae, pupae, adults, mate.

Q: What drew you to Forest Health?

A: Growing up in Pasadena, Newfoundland I watched several aerial spray programs – particularly on eastern hemlock looper. In high school, I started hanging out with various entomologists, which is weird because I am not a big fan of earwigs and cockroaches, but I always did like forest health.

Q: What is your favourite bug?

A: I like so many, but my favourite is the ladybird beetle, especially the metallic blue one from New Zealand.

Q: What is your most memorable forestry related event?

In the summer of 2005, I worked on the black-headed budworm management project in Cape Breton, Nova Scotia. It was a substantial aerial spray operation which lasted all summer long – we practically lived out of our suitcases for four months. My crew of summer students and I got along very well. We became known around the community, got to know the locals, and even attended the fire hall dances; it was great.

Q: Any advice for a budding entomologist?

A: There will always be insect problems, forever. That is what my dad told me.

Q: What has been your impression of the Forest Health team in your first two months?

A: It's a well organized shop with a young, energetic, and knowledgeable team.

(Interviewers note – the answers may have been skewed because we bought the tea).

Q: Where do you want to take the Invasive Species Program?

A: I want to see what all interested parties are doing and try connecting the various groups together. I want to see what is out there and to prepare for the impacts of climate change because there will likely be more insects surviving in the North. I will work closely with Mike (Undershultz).

Q: What challenges do you anticipate?

A: For me, personally, it will be public speaking and handling media. You are all such great speakers, especially Mike (Undershultz) – is he always that calm and cool?

Q: How is your poetry?

A: I have not written a poem since high school, maybe I could get my brother to write one.

Daniel Lux and Sunil Ranasinghe -

Edmonton

Checking Lindgren funnel traps for the invasive alien woodboring monitoring program (Bonnyville, AB)

Aug. 2009

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Reflections on Mountain Pine Beetle Spread

Sometimes I wonder, just what I know for sure.
Things I thought were always true,
I find out never were.

My karma's hit my dogma, and now all that remains,
Of my beliefs and my experience,
Are little "road kill" stains.

Things I thought impossible, happen more and more.
Now I'm left to wonder,
What else could be in store.

The world's gone topsy-turvy, helter skelter, and pell-mell.
I've even started doubting,
What I see and touch and smell.

Tom Hutchison — Athabasca

Photo—Dale Thomas