

Bugs & Diseases

Vol. 24 No. 2

August 2013

A New Kid on the Big Defoliator Block?

Has anyone out there, besides me, noticed that there are a lot of largish, tan coloured moths this year? I'm willing to bet that this is something that has not gone unnoticed, particularly in northeast Alberta. Lately I can't even open the door to my house without a bunch of these moths flying in. One might be forgiven for assuming that these moths are adult forest tent caterpillars, they are similar in size and colour, but this is not the case. The moths we're seeing so much of this year are members of the genus *Enargia* – commonly known as aspen two-leaf tiers.



Why *Enargia* spp. numbers are so high this season is something I can't explain. According to the literature I have read, the caterpillars of this moth genus can cause severe localized defoliation, but are generally considered to be a minor pest in this regard. It appears these moths have decided to step out from behind the shadow of more well known deciduous defoliators (such as large aspen tortrix and forest tent caterpillar), and cause a noticeable, landscape level disturbance event. Our overview flights this spring delineated aspen defoliation over hundreds of thousands of hectares. In almost every case, ground truthing has indicated aspen two-leaf tier was the primary causative agent.



We did have some indication that aspen two-leaf tier populations were increasing dramatically in the northeast. These moths were a common by-catch in our Spruce Budworm pheromone traps. From 2004 to 2009 the percentage of traps with at least one aspen two-leaf tier moth recorded never reached 60%. Additionally, the maximum number of these moths found in one trap was over 100 only once. Starting in 2010, the percentage of traps with *Enargia* was over 60% and the number of moths counted per trap



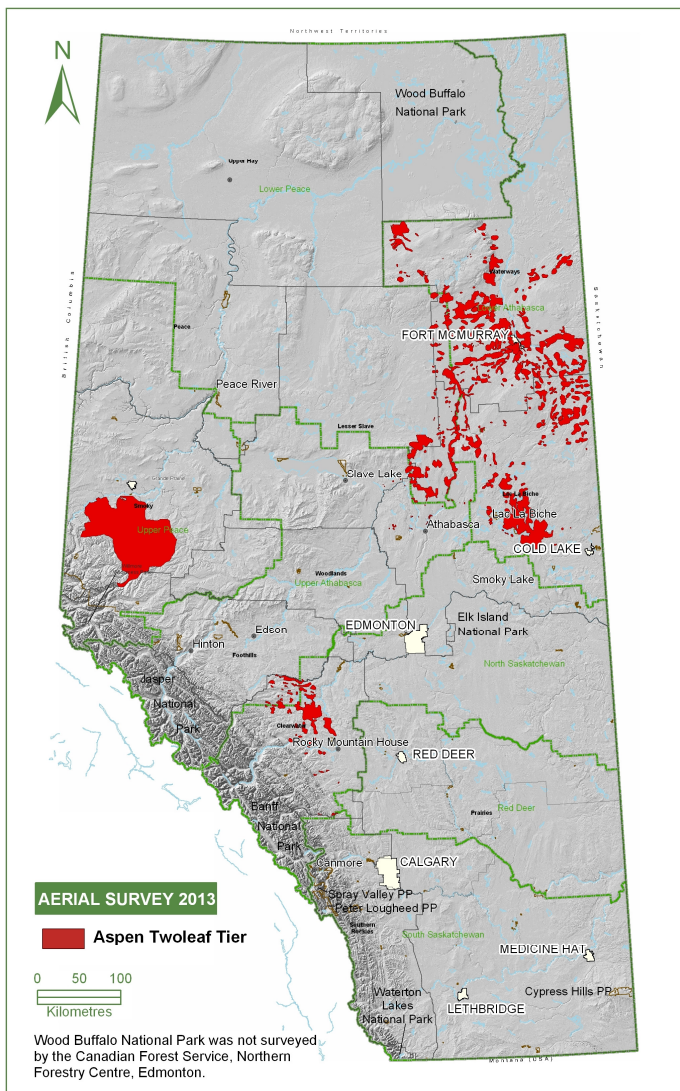
Alberta's eye on forest health

Issue highlights:

- A New Defoliator 1
- Are FTC Days Numbered? 3
- Get to Know a New FHO 4
- Red Band Needle 6
- Forest Health Stakeholder Survey 7
- A New Douglas Fir Fungal Pest 8
- Big Thanks to CFS 9
- Biocontrol Joins IP Program 9
- Why So Largaia, *Enargia*? 10

was greater than previous year's counts. In 2010: at least one aspen two-leaf tier moth was found in over 95% of the traps; 20% of the traps had over 100 aspen two-leaf tier moths; and, the maximum counted in any one trap was 427. We do not know why this species is attracted to the budworm traps.

Clearly, indications were that there would be a significant increase in aspen two-leaf tier populations, however, I never would have imagined that they would cause as much defoliation as they appear to have caused this year. Do we have a new kid on the block of major defoliators? I don't know, but if the number of moths in my house is any indication, I expect we'll be seeing a lot of them again next year.



Aspen defoliation near Calling Lake.



Engargia and spruce budworm trap catch.

Tom Hutchison —Athabasca

Are the Forest Tent Caterpillar Outbreak Days in the Peace Country Numbered?

Peace River valley is notorious for extensive and severe forest tent caterpillar outbreaks and the current outbreak there is no exception. These caterpillars were crawling everywhere, on fences, houses and all. They have been a nuisance as well as a road hazard. They have had a calamitous effect on aesthetics, sparing no green leaves and resulting in skeletal aspen.

The number of caterpillars this year was so high they even resorted to feeding on trees other than their favourable host, trembling aspen. It was apparent that the tent caterpillars got carried away and



produced more offspring than what their food sources could support (*Mike Maximchuk, personal communication*), a classic case of exceeding the 'carrying capacity' of the ecosystem! This would have resulted in many caterpillars starving to death, heralding the 'beginning of an end' to the outbreak. All indications were that the current outbreak is heading for a collapse. Caroline Whitehouse, the Area Forest Health Officer, has observed that even those caterpillars that managed to

survive failed to grow to their normal size, most likely due to inadequate nutrition and inclement cold, wet weather.

On top of that, there were reports of parasites, particularly an abundance of the "friendly flies" (*Sarcophaga aldrichi*), which are important pupal parasites of the forest tent caterpillar. These gray parasitic flies resemble house flies but are a bit larger (as large as 12 mm) and more hairy. Towards the end of the tent caterpillar outbreaks the number of friendly flies increases markedly, to the point that they could become a nuisance too. However, these friendly flies do not bite and simply may land on people. If this happens, it is important not to squish these beneficial insects. The



adult females of the friendly flies deposit live maggots on forest tent caterpillar cocoons. These maggots feed on developing tent caterpillar pupae, killing them.



Then, fly maggots emerge from tent caterpillar cocoons and drop to the ground where they pupate and overwinter. Caroline and her co-workers have observed many fly maggots and numerous unsuccessful tent caterpillar pupal cocoons, confirming that the demise of the forest tent caterpillar outbreak is forthcoming over the Peace Country.

Fly maggots. Photo Ian Manning.

Sunil Ranasinghe—Edmonton and Caroline Whitehouse—Peace

Get to know an FHO

by Mike Undershultz

I am happy to offer another installment of the very popular “Get to know an FHO” interview series. In this issue you will have the opportunity to get to know Caroline Whitehouse, the latest addition to the ranks of Forest Health Officer for the Peace and Upper Hay forest areas. I had the pleasure of chatting with Caroline this spring over coffee at the Aurora Hotel in the picturesque town of Manning, AB. The following is a transcript of our conversation.

Mike: Thanks Caroline for taking the time out to answer a few questions for the newsletter.

Caroline: *No worries Mike.*

Mike: Can I start by asking where you are from originally?

Caroline: *Edmonton. Born and raised.*

Mike: So I am assuming that you did some post-secondary education in Edmonton?

Caroline: *Yes. I started my BSc at Grant MacEwan, finished it at the University of Alberta and completed a MSc there as well.*

Mike: What about your work background?

Caroline: *Before my life-changing revelation that I love moths, I worked as a fast food clerk, corner store clerk, cleaner, mover, secretary, at a pool hall, at a music store, as an administrator for a property management company, the list goes on...*

Mike: Wow, pretty diverse list of jobs. I would love to get into more detail on your time at the pool hall, but the more appropriate question would be to ask what got you interested in insects?

Caroline: *Aside from the resplendent and charismatic beauty of moths, insects are amazing! They have some very cool life history traits. I mean who wouldn't want to learn about eating your mate after a little lovin'.*

Mike: I'm not sure what resplendent means, but I do agree that insects are pretty cool creatures. Can I ask when you started as FHO in peace?

Caroline: *December 2012*

Mike: How are you enjoying your new job, and what has been the most challenging thing you have faced so far?

Caroline: *I am enjoying the job; the work is great and my colleagues make it interesting. But the most challenging thing thus far would have to be the uniform pants.*

Mike: Yes, those pants are a big hit with the ladies aren't they. Have you thought about lending your fashion sense to the Department's uniform committee?

Caroline: *Maybe.*



Mike: Was your dream job always to be an FHO, or was there another career path you had in mind when you were young?

Caroline: *A pyro-technician.*

Mike: Well there just may be some pyro-technician related activities in your future if you have the opportunity to light up some piles of beetle-killed wood. And now the last question about insects... is there one that is your favorite?

Caroline: *It's hard to pick just one, but at least right now let's just say forest tent caterpillar. Who doesn't like writhing masses of furry caterpillars crawling across every single surface of your house and yard for several weeks at a time.*

Mike: Yes that can be quite the spectacle... and beauty is in the eye of the beholder. Now just for fun let's talk a bit about some less professional topics. Do you have any nicknames from past or present?

Caroline: *Hollywood*

Mike: Hmmm, I could ask why, but let's leave it at that to add some mystery to this whole thing. Any hobbies/pastimes/recreation activities you enjoy?

Caroline: *I spend a lot of time outside, gardening, walking my dogs, cooking and knitting. All these activities can be enjoyed while drinking my homemade wine.*

Mike: I have heard people refer to you as the chicken lady. Why is that?

Caroline: *Who told you that? They don't know what they're talking about... but I do raise chickens.*

Mike: What band has been rocking your world lately?

Caroline: *Can't go wrong with Motörhead.*

Mike: Favorite movie?

Caroline: *Tough question... I'll go with Lonesome Dove.*

Mike: If you were stranded on a desert island and could pick one person to be with you, *who would that be?*

Caroline: *Lemmy from Motörhead. No, wait I'll go with my boyfriend. No, I change my mind, I'd choose one of my dogs...they're better hunters.*

Mike: So, now back to reality... What are your first impressions of working for the government?

Caroline: *The uniform pants are terrible!*

Mike: Yes, you already mentioned the pants. Thanks again for the time and good luck with everything... the job, the chickens, and the pants.

Caroline: *You're welcome, Mike.*

Red Band Needle Blight Update

As mentioned in the previous Bugs and Disease Newsletter, Red Band Needle Blight *Dothistroma* was positively identified in the pine clone bank at the Alberta Tree and Seed Improvement Center (ATISC) in Smoky Lake. *Dothistroma* has also been positively identified in the Calling Lake progeny trial.

As the pine clone bank at ATISC is a high value plantation, it was decided to implement a control program using Bordeaux mixture. No control program was conducted at Calling Lake as the trees are of lower value to the Province.

Bordeaux is a mixture of hydrated lime, water and copper sulphate applied to trees, in solution, to kill fungal spores. Two treatments, one May 13 to 17 and another July 22 to 26 were applied. Both applications were successfully completed but some challenges had to be overcome. 500 trees were removed in two days to allow the tractor and sprayer to move between rows. Bordeaux is a wetted powder so you must always keep it agitated as it settles out, clogs nozzles, filters and pumps. It is also corrosive so it must be removed from equipment, however, it sticks to equipment and can only be removed with vinegar so for a few days the Town of Smoky Lake had no vinegar in stock as we bought \$300 worth. (I suspect there were some angry pickling Babas.) In the end Bordeaux was applied with good coverage and with a lot of volunteer help.



Cassotti sprayer

A survey was completed before the Bordeaux applications took place and a second survey will be done next spring. This data will help us determine the effectiveness of the control. This was the first ever application of this type in Canada.



Ashley mixing lime.



Devin L. & Tom H. working the Gator sprayer.



500 gallon agitator tank.

Ashley Romano—Edmonton

Forest Health Stakeholder Survey

In February, Forest Health Section released a feedback survey to forest industry, researcher, and municipal stakeholders. The survey purpose was to measure client satisfaction with various aspects of the forest health program from data and information transfer to interactions with forest health staff. The results were compared to a similar survey conducted in 2001.

The main theme arising from the surveys is that while forest health does reasonably well at communicating information to our stakeholders, more could be done. The main suggested improvements to communications were:

- more information on forest health pest agents and invasive species could be collected
- information should be reported on in a timelier manner
- could provide more training opportunities and awareness of current training opportunities

All respondents to the survey had interactions with regional and/or provincial forest health staff. All comments regarding personal service by forest health staff were positive and resulted in an overall high degree of satisfaction.

Forest Health is committed to keeping our stakeholders satisfied with our service and providing the needed information for planning, research and information purposes. An action plan to address suggestions in the survey is underway. We hope to have the changes made by the next B&D newsletter.

Erica Samis—Edmonton



F+REST HEALTH

Make sure to look for the next edition of the B&D newsletter for exciting news and changes!

Rhabdocline pseudotsugae

Rhabdocline pseudotsugae is a fungal pathogen that attacks the needles of Douglas-fir, *Pseudotsuga menziesii*. It causes attacked trees to have chlorotic foliage and open crowns which eventually results in death. While it widely occurs in the northwestern United States and British Columbia, during a routine forest health assessment of the Diamond Hills Genetic Experimental Site near Rocky Mountain House in 2011, Dr. Herb Cerezke noticed severe defoliation of the Douglas-fir and noted it as *R. pseudotsugae*.

On July 5, 2013, Dr. Tod Ramsfield and Colin Myrholm, Forest Pathologists with the Canadian Forest Service, joined Erica Samis, Pam Melnick, Marian Jones and me on a trip to confirm *Rhabdocline*'s presence at the Diamond Hills Genetic Site.

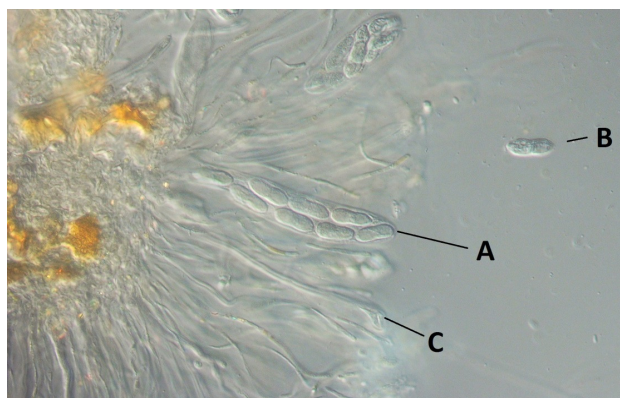
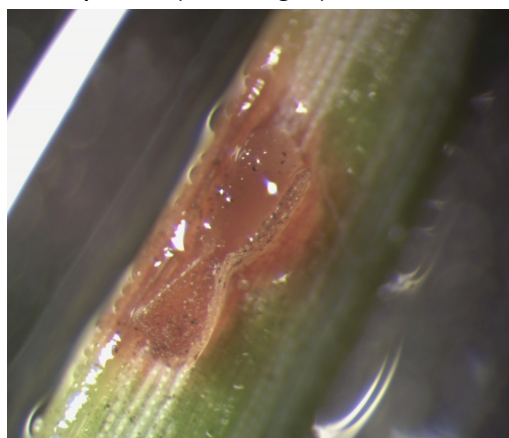


Current year foliage (healthy) and second year foliage infected by *R. pseudotsugae*. The needles show spots where the epidermis had lifted exposing orange brown



Healthy Douglas-fir flanked by Douglas-fir that are severely affected by *Rhabdocline pseudotsugae*.

In order to positively identify the fungus, Tod and Collin collected samples for microscopic examination. They positively identified the damage as *R. pseudotsugae* based on the broken epidermis exposing characteristic orange apothecia (left) and the ascus containing 8 ascospores (A on right).



So, welcome *Rhabdocline pseudotsugae* to the province of Alberta.

Ashley Romano—Edmonton

A Big Hand for Canadian Forest Service Staff

With the increased incidences of forest pathology damage agents being noted, forest health staff has been relying on the expertise at the Canadian Forest Service Northern Forestry Centre for identification and management advice. Dr. Tod Ramsfield, Forest Pathology Research Scientist, and Colin Myrholm, Forest Pathology Technician, have made field visits to plantations in Smoky Lake and Rocky Mountain House to inspect infected trees and collect samples for culturing. As well, they have accepted numerous needle collections for fungal culture and identification. So far, the main fungal pathogens found have been *Dothistroma* and *Rhabdocline*. Two other notable pathogens are *Lachnellula pini* on whitebark pine from the Willmore Wilderness Park and *Rhizosphaera spp* on white spruce in Edmonton.

As well, Tod and Colin put on a full day *Armillaria* workshop in Hinton that covered identification, impacts and management options. The day consisted of a half day classroom session and a half day field session.

Thanks for all the assistance, gentlemen. We hope that as time continues we can keep our working relationship going and provide benefits to both CFS and ESRD.

Erica Samis—Edmonton

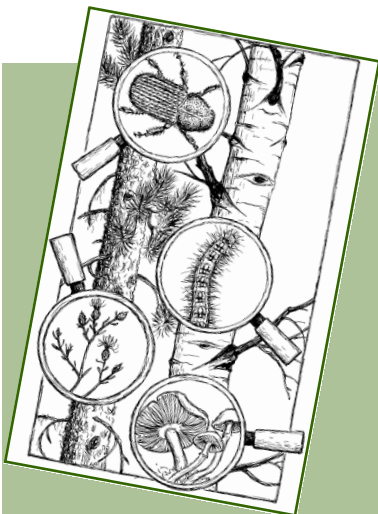
Biological Control Joins the Invasive Plant Program

Most of the serious introduced weeds in Alberta have arrived with no natural predators. Biological control involves reuniting these invasive plants with their natural enemies (insect or pathogens) from the target plant's country of origin. These natural enemies restore an ecological balance with the invasive plants and reduce the weed populations to levels similar to their native range.

Prior to any release of a biological control agent, the insect selected for release undergoes extensive host-range testing to ensure it is specific to the target weed. Biological control of invasive plants is often used when a target plant's population has exceeded traditional measures of invasive plant control (i.e. herbicides, mechanical control). It is particularly effective for large areas affected by some invasive plants because, once established, biocontrol agents are self-reproducing and self-dispersing. However, given that many invasive plants have a long head start on the biocontrol agents (e.g. 100 years), redistribution programs are common to assist the spread of the agents at a regional or provincial scale.

In most cases Agriculture and Agri-Food Canada (AAFC) conducts initial releases of weed biological control agents in Canada. However once the agents are initially established, the success of the program will be greatly accelerated with ESRD's Forest Health participating to manage redistribution of the agents, monitor for establishment, and develop protocols for collection and site preferences for future releases. Stay tuned!

Marian Jones—Clearwater



Forest Health Officers:
Brad Jones
Calgary
403.355.4854
Brad.Jones@gov.ab.ca

Andrea Sharpe
Hinton
780.865.6992
Andrea.Sharpe@gov.ab.ca

Dale Thomas
Slave Lake
780.849.7409
Dale.Thomas@gov.ab.ca

Devin Letourneau
Grande Prairie
780.538.5609
Devin.Letourneau@gov.ab.ca

Pam Melnick
Rocky Mountain House
403.845.8277
Pam.Melnick@gov.ab.ca

Caroline Whitehouse
Peace River
780.624.6456
Caroline.Whitehouse@gov.ab.ca

Seena Handel
Whitecourt
780.778.7267
Seena.Handel@gov.ab.ca

Tom Hutchison
Athabasca
780.675.8234
Tom.Hutchison@gov.ab.ca

ISSN No. 1499-5859 (print)
ISSN No. 1499-5867 (online)
Published Apr., Aug. & Dec.
Editor: M. Jones

Bugs & Diseases informs forestry
-related personnel about current
forest health issues. Articles are
welcome.

© 2012 Alberta Environment &
Sustainable Resource
Development

Why so Largia, Enargia?

Enargia, Enargia

How'd your numbers get so largia?

Growing with no margia

Population superchargia

Enargia, Enargia

Tom Hutchison—Athabasca



