Editor’s Overview

As this busy field season heats up, I’d like to take a minute to welcome some newcomers to IPM. Matthew McFetridge and Terry White have joined IPM for the remainder of the year. They will be working mostly on the brown spruce longhorn beetle surveys and the blackheaded budworm overwintering survey, although I’m sure there’s an “other related duties” clause somewhere in their job descriptions! Both Matt and Terry are graduates of Sir Sandford Flemming. Matt has worked at the DNR offices in Musquodoboit Harbour and Middle Musquodoboit and at the Wildlife Park and Dollar Lake. Terry has worked with DNR at the East Hants and Bible Hill offices. Also joining IPM for the summer is Robert Brown (Forest Protection/ Fire Control). Robert will be putting his Forest Technician training to good use as he too, works on the BSLB surveys.

Back for another year on the lawnmowers are the sister and brother team of Sarah and Andrew Chapman. They will be keeping the grounds around Shubie in top condition and spending rainy days helping out with IPM work.

We’re in for a busy season and I thank everyone who was able to contribute to this issue.

Watch the signs ... some of them are funny!

In a Non-smoking area: "If we see you smoking we will assume you are on fire and take appropriate action."

On a Taxidermist’s window: "We really know our stuff."

In a Podiatrist’s window: "Time wounds all heels."

Outside a Muffler Shop: "No appointment necessary. We’ll hear you coming."

At an Auto Body Shop: "May we have the next dents?"

In a Dry Cleaner’s Emporium: "Drop your pants here."

Actual stories provided by travel agents ...

I had someone ask for an aisle seat so that his or her hair wouldn’t get messed up by being near the window.

A client called in inquiring about a package to Hawaii. After going over all the cost info, she asked, "Would it be cheaper to fly to California and then take the train to Hawaii?"

I got a call from a man who asked, "Is it possible to see England from Canada?" I said, "No." He said, "But they look so close on the map."
Tree Disease Focus
Bob Guscott and Kim George

Sirococcus Shoot Blight
(Red Pine Shoot Blight)

Introduction
Sirococcus shoot blight is caused by the fungus *Sirococcus conigenus* (DC.) P. Cannon & Minter. This disease was first described in Nova Scotia in 1974, but it was not until the early 1980’s that extensive damage was noticed. The fungus infects the new shoots of conifers.

In Nova Scotia red pine growing in foggy coastal areas are most affected. An aerial survey (NSDNR) conducted in 1994 found that 139 of 849 red pine plantations (16%) had symptoms of Sirococcus shoot blight. Ninety percent of immature-mature plantations found along the Fundy and Atlantic coasts were affected. Since 1994, many red pine plantations along the Fundy Shore have been completely killed.

Life History
Young needles are infected; and then the fungus grows into the elongating shoots, where cankers form. The fungus spreads within the succulent shoot tissue, but rarely into older wood. Growth is restricted in the cankered areas, causing the shoot tip to curl over and form a crook.

Small, black, erupting fruiting bodies, or pycnidia, form under the dead needle sheaths. These fruiting bodies produce large numbers of slender, transparent spores, or conidia. The conidia are spread to nearby hosts by water drops, which splash from rain or heavy fog. When the humidity is high, the temperatures are mild, and the light is low, the conidia germinate and infect host trees. In some conifer species, the fungus may occur on cone scales and be seed borne.

Damage Symptoms
On red pine, young, elongating shoots will curl; fully elongated needles tend to droop. The first symptoms appear after the middle of July with yellowing and crooked immature shoots. These, later turn orange or red and mostly fall off the tree. Fully mature shoots begin to die and turn orange by late August. These symptoms persist through fall and winter and sometimes into the following spring when they take on a rusty and washed-out appearance.

Control Options
Prune and destroy affected shoots before spore release period (late May - June) to minimize local spread of the disease.

Remove small pockets of infection in an otherwise healthy plantation by cutting infected overstory and understory trees. This procedure will minimize Sirococcus damage to the remaining healthy stand.

Avoid microclimatic conditions favourable for infection in Sirococcus hazard areas. Humid, shady planting sites, such as small forest openings (diameter less than height of surrounding trees); shaded sites north and west of a stand of tall trees; and steep north or west slopes are potential hazard areas and should not be planted with red pine.

Do not plant red pine seedlings under or adjacent to infected trees. A minimum buffer zone should be twice the height of the infected trees. This buffer zone can be left unplanted or it can be managed for deciduous species or immune or resistant conifers, such as white spruce, black spruce, balsam fir, or larch. As a precaution, newly established red pine plantations should be checked five years after planting to make sure the fungus has not spread into the plantations. If the fungus is present, carry out appropriate control measures to ensure that major inoculum sources are eliminated.

References


Fig. 1. A. Crooked, immature red pine shoot. B. Mature red pine shoot with drooping red needles. Illustrations: Bob Guscott, 1994.
**The Provincial Entomologist’s Notes and News**

There are many calls coming into the department these days regarding insects and other creepy crawlies. Ticks are still bad in the western region. Crews working to replace roadside railings reported having a nightmare time with the dog tick. Several reports have also crossed my desk regarding our largest spider in the province, the nursery web spider (also known as the river or wharf spider.)

Some homeowners are worried about the large numbers of large eastern tent caterpillar crawling around looking for pupation sites. There should be another rash of calls in a few weeks about all the brown moths showing up at outside lights.

From the world of science, I came across a couple of items I thought were interesting.

Leslie Vosshall and colleagues at Rockefeller University have discovered a gene, dubbed Or83b, that is central to the sense of smell in fruit flies—and very likely many other insects. When the researchers created mutant fruit flies missing Or83b gene, the flies’ odour receptors picked up odour molecules from the air, but that information was never transferred to the flies’ nervous systems—so they ignored rotting fruit. This is really good news as now we can protect our rotting fruit!

Dr. Vett Lloyd of Dalhousie University is the leader of a team in Halifax that is the first in the world to clone insects. Needless to say the insects they were working with were fruit flies. The first question on everyone’s mind was why would anyone want to clone fruit flies? Dr. Lloyd said, “Fruit flies are actually very good at making more flies all by themselves.”

This is also one of the worst years I’ve seen for an abundance of ants. Oddly enough, the ant classification is not well worked out for Nova Scotia. This is a good example of how an insect group that is so common, can be so overlooked. The ants to worry about are the carpenter ants that will nest in buildings. If anyone has what they think are carpenter ants please send a sample to the Insectary.

‘Til next time,

Eric

Eric Georgeson, Provincial Entomologist

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**Bits and Pieces**

**An Interesting Way to Kill a Pine**

Eric Georgeson

A European wood wasp called the Sirex Wasp has been recently discovered in New York State. It can attack conifers such as spruce, fir, and larch but the big worry at this time is that it has taken a liking to North American pines.

Like many introduced species, it has remained undetected for an unknown time period resulting in its establishment in some of the pine forests of New York. The bad news for Nova Scotia is that its discovery is close to us. Based on its native range in Europe and Asia, it could establish in any climate zone in North America; wherever pine is found.

It normally attacks stressed trees first, but when the population of the wasp becomes dense, then healthy trees are overwhelmed as well. The female wasp will insert her ovipositor (tube for laying eggs) into the wood and deposit a single egg. She then drills up to four more holes around where the egg is laid. She injects a toxic mucus into each drilled hole except the last one which she packs with the spores of a symbiotic fungus. The toxic mucus affects the tree by causing the foliage to weaken and die which in turn creates the conditions needed by the fungus to spread. The fungus in turn causes the wood to dry out which is ideal for the success of egg hatching and feeding by the larvae. The eggs themselves have a built-in safety device. If conditions aren’t good, they can remain dormant for several months before hatching.

When the female wasp emerges from her pupa, she gathers up fungus spores from the tree she emerged from and stores them in a special organ in her abdomen. Each female can lay from 50 to 500 eggs. They are strong fliers and can disperse over a wide area.

I, for one, hope they never find their way to Nova Scotia.
**Project Updates**

**Pale Winged Grey (PWG) Update**
Mike LeBlanc

Damaging population levels of this pest have been found 13 km from the known outbreak located in Kejimkujik Park in Annapolis and Queens Counties. Heavy defoliation occurring on the eastern hemlock understory was first observed by the landowner in South Brookfield, Queens County, prompting him to contact DNR staff. Bark samples that we collected in March indicated the presence of eggs from this pest. With this information, it has been decided that protection is warranted. However, there is no registered product available at this time to achieve that goal.

Therefore, NSDNR, The Canadian Forestry Service, and a private landowner in Queens County are working together to determine the effectiveness of B.t.k. (Bacillus thuringiensis kurstaki) to reduce damaging population levels of this new forest pest that is attacking eastern hemlock. Presently, there are no products registered in Canada that can be used for this purpose. To have a product registered, the process begins with a User Requested Minor Use Label Expansion (URMULE) application to the Pest Management Regulatory Agency (PMRA) in Ottawa (Health Canada)


With their approval, a product can be used on a trial basis to measure its effectiveness in reducing the population. If results are satisfactory, the PWG will be added to the list of pests it can be used on.

I did some beatings last week (June 23) using a beating sheet, and PWG larvae were plentiful on the property (I hope he doesn't read this). With the help of DNR staff and industry, I will also be conducting ground surveys over the next several weeks to locate other areas containing PWG populations.

Anyone observing "looper" larva, defoliated hemlock, red foliage, etc. are asked to contact their Pest Detection Officer in the local DNR office, or IPM staff here in Shubie.

An information leaflet is available at

http://www.gov.ns.ca/natr/protection/ipm/

or your district DNR office.

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**Brown Spruce Longhorn Beetle Quilts**
Keith Moore

Hmm!!! Warm weather has finally come and Integrated Pest Management is very busy working with quilt batting. Huh? Say what?! Dr. Jon Sweeney (CFS) and company through a series of trapping programs on McNabs Island, has figured out that cotton batting when wrapped around a tree will snare the beetle. They can be caught and identified to see if it is the BSLB. Some of our satellite sites are being tested with the batting, and I am told that Fabricville, Walmart and the like are running short on quilt supplies. We have put a lot of batts out!!! An investment tip, the shares in quilt backing have gone up significantly and it's a good place to invest.

So in your travels through NS woodlands this summer, particularly in the HRM area, you may see white cotton batting tied with string around the trunks of trees. Don't be alarmed it is just us, the bug people from Shubie.

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**Spruce Budworm Pheromone Traps**
Kim George

The spruce budworm pheromone trapping survey is now underway. Pheromones and killing strips were sent out to all PDO's for trap placement in early June. IPM and the Pest Detection Officers have 150 traps placed throughout the province.

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**Gypsy Moth Pheromone Traps**
Kim George

This survey will begin mid-July. Pheromones and killing strips will be sent out shortly. A total of 215 delta traps will be placed in 20 towns/villages outside of the regulated zone. Twenty-one permanent traps will be placed by PDO's province-wide and are daily monitored.

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**Pine Shoot Beetle Trap Update**
Kim George

The pine shoot beetle trapping survey is now complete. All traps and catch material can be sent back for processing. Thanks to all of those who were involved.

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**Whitemarked Tussock Moth Traps**
Jacqui Gordon

The traps are due to go out the last week of July. The lures will be in the mail by 20 July.
Project Update (contd.)

Balsam Twig Aphid, What A Summer!
Keith Moore

This is the summer of the balsam twig aphid. Our overwintering twig aphid egg counts pointed to high numbers of stem mothers (first generation) hatching out. In most cases we weren’t disappointed ... the damage on unprotected trees is now starting to show. After the aphids hatched out, we had a real cold snap which actually caused some damage in the northern end of the province. (First time I can remember the rhubarb leaves being frozen stiff beyond recovery!) I thought, oh boy, this should lower the aphid populations. But after talking to our Christmas tree specialists, Scott MacEwan (McLellans Brook, Pictou Co.) and Ross Pentz (Bridgewater, Lunenburg Co.), I found that there were no appreciable population changes on the beating boards after the cold snap. Oh well, one could always wish!

While we were doing beating board counts to see what the numbers of hatched out aphids would be, I was surprised at how small the newly hatched aphids are just before budbreak and during bud flush. They are really hard to see ... just specks on the board at this time (just at bud break and before). On May 7th, most lots were just starting to see twig aphid counts on the boards. If you squish them you can tell they are live bugs ... a speck of dirt won’t squish. After they molt a few times (I think it’s four), they start to look like regular aphids to the naked eye and they are much bigger and easier to see. We start sampling when they are in the tiny newly hatched-out stage. (Don’t do what I did the first time I used the board. I saw these green bugs that sort of resembled an aphid but moved really fast and sprang off the board when I touched them. Those are harmless “springtails” - Not Aphids! Anything to fool me and it doesn’t take much!!) I was speaking with Scott MacEwan, the Christmas Tree Specialist in the eastern end, inquiring what kind of populations they were seeing and his best estimates with boards, growers, etc. was 95% in the moderate to high category, and rest (5%) were in light category. Similarly in the western end, Christmas Tree Specialist Ross Pentz reports quite a few growers treating for aphid while others didn’t have to!

There is a neat Balsam Twig Aphid Action Strategy that Scott MacEwan produced, which shows the window of opportunity for treating twig aphid which I think is excellent (see next page). The timing of treatment has been refined from information gleaned from this year’s outbreaks. I know we are getting beyond the twig aphid time of treatment for this year but a good 3-hole-punch and binder is really good for saving information such as the Action Strategy for Twig Aphid.

Other things happening that are worthy of noting!!! Balsam Woolly Adelgid increases in the coastal areas based on temperature recordings - definitely something to keep an eye on.

Red Flag as the growers know it. Getting a few samples of balsam fir being chewed by wood borers, last year’s feeding is showing up as red flags now! Just to confuse the issue, lots of damaged shoots are showing up red from last fall’s heavy snowfall and hurricane winds.

Shoot Boring Sawfly - Population has collapsed!! Three cheers for Mother Nature!! Ross Pentz reports that there appears to be little evidence of this pest at this time ... a positive note since some stands had 30-60% trees infected last year.

Have a great summer everyone!
Balsam Twig Aphid
Action Strategy 2005
by Scott MacEwan

Based on what we have experienced and learned from 2004, the following is recommended for spring 2005:

➢ Begin sampling with a 12" x 12" sample board when buds first become active (early May) and increase the intensity of sampling when first generation aphids appear.

➢ When numbers level out (e.g., all eggs have hatched) the first window for treatment opens.

➢ When making management decisions refer to the Canadian Forestry Service twig aphid damage hazard rating for damage level to be expected:

◆ 1 - 8 light damage
◆ 9 - 15 medium damage
◆ 16+ heavy damage

WINDOWS

PHASE 1 First and Best Window for treatment ...
 Begins when approx. 20% of your Christmas Trees have buds showing green (caps are off) until approx. 1" of new growth is present with needles still tightly bound. At this point all the eggs have hatched to first generation aphids that cause no damage, feeding only on the old growth, and are open & vulnerable to control treatments.

PHASE 2 From approx. 1" until flaring of early flushers. Avoid this period, as first & second generation aphids crawl in among the loosening needles and are protected from treatment (each 1st generation produces approximately 50 live 2nd generation individuals that feed on the new growth causing most of the damage.)

PHASE 3 Second Window ...
occurs after flaring has taken place and the aphids may once again be susceptible to treatment. However, damage will be sustained, especially on heavily infested trees. Most other trees will benefit from treatment.

Some true stories from computer tech support ...

Compaq is considering changing the command "Press Any Key" to "Press Return Key" because of the flood of calls asking where the "Any" key is.

A Dell technician received a call from a customer who was enraged because his computer had told him he was "bad and an invalid." The tech explained that the computer’s "bad command" and "invalid" responses shouldn’t be taken personally.

Another Dell customer called to say he couldn’t get his computer to fax anything. After 40 minutes of troubleshooting, the technician discovered the man was trying to fax a piece of paper by holding it in front of the monitor screen and hitting the "send" key.