

Insectary Notes

MARCH/APRIL 2007



INSECTARY

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Editor's Overview

So, what's new with IPM? We held our annual Pest Detection Officer and Survey Cooperator Meeting in April. Trapping and surveys have already begun for Pine Shoot Beetle and Brown Spruce Longhorn Beetle. The gypsy moth egg masses should be hatching now with the whitemarked tussock moth eggs later in June. White pine weevil damage is showing up and giant water bugs have hit the air. It's already shaping up to be a very busy year.

We thought it was time for an update on the white pine weevil, so Gina has written an article describing the life cycle, damage, and control options. Find it on page 2. Scott MacEwan (Christmas Tree Specialist, McLellans Brook) put together information for Christmas Tree Growers on whitemarked tussock moth. Check it out on page 4. And just so we can appreciate the warm weather, Keith and Mike have updated cold temperatures for winter 2007 on page 6.

'Til next time,

Jacqui

Veni. Vidi. Visa: I Came. I Saw. I Shopped.

Insectary Notes - Electronic Copies

Just a reminder that the newsletter is available by email. Not only will you get your copy a few days earlier, you'll also be able to see the colour on our maps and images.

Email Jacqui Gordon at
gordonjm@gov.ns.ca
if you'd like to receive the newsletter by
email.

Say What and Quotes . . .

If you want to know how many friends you have, buy a cottage on a lake. -Unk.

The only fool bigger than the person who knows it all is the person who argues with him. -Unk.

In spite of the cost of living it's still popular. -Kathleen Norris

Some people are like a callus; they only show up when the work is finished. -Unk.

You can always tell a real friend; when you've made a fool of yourself he doesn't feel you've done a permanent job. -Lawrence J. Peter

Always borrow from a pessimist - he never expects it back. -Unk.

There's no traffic jam on the extra mile. -Unk.

Diplomacy: Thinking twice before saying nothing. -Unk.

All you need to grow fine, vigorous grass is a crack in your sidewalk. -Will Rogers

Always forgive your enemies - nothing annoys them so much. -Oscar Wilde

Insect Focus

Gina Penny

White Pine Weevil

Pissodes strobi (Peck) (Coleoptera: Curculionidae)

The white pine weevil, *Pissodes strobi*, also known as the Engelmann spruce weevil and the Sitka spruce weevil, is the most damaging and economically important native insect pest of spruces and pines in North America. Its range spans the continent, following the natural distribution of white pine, Sitka and Engelmann spruce. In eastern Canada, the weevil attacks white, red, jack, Scots and Mugho pines as well as white, red, black, Norway and Colorado blue spruces.

Symptoms and Damage

In the spring, the first sign of weevil attack is the presence of resin droplets, oozing from adult feeding punctures and egg-laying sites along the tree's leader. Larval feeding results in the majority of damage, causing the leader to take on a drooping, wilted appearance resembling a "shepherd's crook" (Figure 1). Eventually the leader will die.



Figure 1. Leader with shepherd's crook.

Life History

Adults spend the winter in debris underneath host trees. Emerging in the spring, males and females walk or fly toward the leaders of host trees to feed and mate. Adult feeding typically occurs within 25 cm of the leader buds. After mating, females lay up to five eggs in feeding wounds. Hundreds of eggs may be laid in a single leader. Eggs hatch in 10 - 14 days, depending on the weather.

Upon hatching white, C-shaped, legless larvae burrow into and feed just below the bark. This feeding cuts off the tree's water flow, resulting in the deformity and death of the leader (Figure 1.) At the end of their feeding period, these larvae construct pupal cells, known as chip cocoons, within the infested leader. There, they remain inactive for five to six weeks.

Adult weevils emerge by chewing small, round holes through the bark (Figure 2). They are six to seven mm long with light brown bodies, white and yellow patches on their wing covers and a long snout-like beak. These adults remain on the host for a short time to feed on upper branches. As temperatures fall, they seek shelter in the debris under host trees to overwinter. The white pine weevil has one generation per year.



Figure 2. Adult exit holes in stem.

Management

Mechanical: Pruning can be effective at reducing weevil populations. Prune infested leaders and branches while the larvae are still active under the bark and before new adults emerge. Cut back infected leaders at the level of the uppermost whorl of unaffected branches. Infested leaders should be destroyed or removed from the site.

Cultural: Adult weevils prefer open-growing trees, 1.5 - 8 m tall, in sunny locations. Grow evergreen trees under a canopy of 50% shade, making the leader less attractive to the weevil. Close spacing, of pine trees in a plantation encourages competition, forcing rapid height growth and natural pruning of weevil-attacked trees.

Chemical: Spring insecticide sprays are most commonly used. Watch for resin flow coming from leaders in the early spring indicating that adults are feeding and apply sprays immediately. Systemic insecticides are often more effective because they kill any larvae which may be inside the leader.

CAUTION: *Read and follow the instructions on the label when using any control agent. Proper application and use of recommended personal protective equipment are essential for the safe use and effectiveness of any pesticide.*

DISCLAIMER: *Control options are suggestions only. Actions taken for pest control are the sole responsibility of the applicator in full compliance with any Federal, Provincial or Municipal Acts, Regulations or Bylaws.*

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And remember when we had the "Weevil Contest" way back in January 2004? Here's some of the highlights . . .

Who knows what weevils lurk in the hearts of men?

Midnight in the Garden of Good and Weevil.

AND . . .

**A bug, let's call him Perceevil,
Jumped, with instinct primeval,
From a tree with delight,
As he sailed into flight,
Said, "Call me Weevil Knieval."**

Whitemarked Tussock Moth in Christmas Tree Lots

Scott MacEwan, Christmas Tree Specialist

Biology

The whitemarked tussock moth overwinters in the egg stage (egg masses present on underside of branches) with hatching period beginning in late June and early July depending on the geographic location and the weather/ temperature conditions of the year (egg hatch based on heat units).

A staggered hatch of up to two weeks can occur within a population on your tree lot but the majority hatch during the first week.

The newly hatched larvae feed on the egg mass (froth) for approximately five days before moving to feed on the soft bark (which can cause twig curling and deformation) and the foliage. The population spreads or is dispersed during the first two weeks when the larvae are tiny balls of fluff by what is called the blow in period.

Sampling

Two techniques are generally used for sampling WMTM populations in your Christmas Tree lot:

1. Beating

- involves beating the twigs with a stick using a collector such as a fish tray
- this technique is very useful early in the life cycle as an indicator of larvae presence when they are tiny and difficult to see.

2. Visual

- mark tree with flagging and sample the upper 1/3 crown for numbers of larvae present (10 min/tree)
- this technique is best used after the blow in period is complete and when larvae are larger and more easily seen.

Damage Thresholds

For most insect pests we deal with on Christmas trees the damage threshold is the level at which physical damage becomes unacceptable for the grower/consumer.

However, for WMTM it needs to be expanded as follows:

1. Physical

- any numbers above eight larvae per tree, control measures should be considered as damage including defoliation and deformation due to bark damage could occur
- physical damage can lower the grade quality or render a tree unsaleable

- physical damage will also increase shearing for market costs

2. Cocoon Presence

- the presence of cocoons is not only unsightly for the consumer but can also create major problems for shipments due to CFIA standards.

3. Allergic Reactions

- An allergic reaction mainly in the form of skin irritation as well as eye, nose and airway caused by the hairs from the caterpillar. These hairs can stick to the trees long after the caterpillars are gone and cause reaction to the workers who are exposed to the trees.

Growers should weigh all three factors when considering control measures.

Treatments

The timing of treatment usually depends on the WMTM population levels and the damage being experienced:

- When population levels are light to moderate, it is usually recommended to wait until the blow in period is near completion, i.e., mid July - end July, when the larvae have reached a size range of 1/4 - 3/8" av. 1/4" and have developed their "horns/tufts."
- However, if the population levels are high and, such as next to hardwood stands, earlier control measures prior to the end of the blow in period may be necessary in order to avoid unacceptable damage. In this case a second treatment may be necessary.

A strategy for some growers that possess their own equipment is to treat twice, 1) one week after first hatch and 2) two weeks after the first hatch (blow in period complete).

Control Products

For current control products, contact the Christmas Tree Specialist in your region.

Provincial Entomologist's Overview

..... What's the Buzz?

Opportunity knocks - Something bugging you?

As many of you may have heard, our Department, in a recent press release, announced a three-year process to develop a new natural resources strategy. Now, I may be a bit biased, but this sounds like a fabulous opportunity to get people talking about insects!

Over the last decade insect and disease activity has been on the rise. We have native insects causing damage where they haven't in the past, invasive alien species are a concern nationwide, spruce budworm is expected to rear its ugly head in the near future and climate change is on everyone's mind. These issues are not simply an afterthought, but something deserving of our attention for practical, preventative, and mitigative opportunities.

I for one certainly don't have all the answers but I am looking forward to including insect issues in the development of our new natural resources strategy and I hope you are too. So, please take some time to participate in the upcoming public consultation process. It's a chance to be heard and talk about what's bugging you.

'Til Next Time,

Gina

Provincial Entomologist

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Bits and Pieces

"Let Me IN!" . . . "Let Me OUT!"

Jacqui Gordon

There are two beetles that you'll notice on your windows at this time of year. The larder beetles on the outside trying to get in . . . and the ladybird beetles on the inside trying to get out.

Why the confusion? Ladybird beetles (also known as ladybugs) overwinter as adult beetles. In the fall, they seek shelter for the winter and sometimes wind up tucked away in a corner of our homes. As it gets warm in the spring, they become active and want to head outside (like many Nova Scotians). You'll find them crawling across your windows looking to get out so they can munch on aphids and create more ladybirds.

The larder beetles aren't so well-intentioned. They want to come in to find food. They are the small (about 1/4 inch or 6 mm long), oval-shaped, dark coloured with a light strip across their back. They usually head straight for the kitchen (hence, the name larder beetle). They will feed on most stored, high protein food such as cheese, dried meat and fish, and pet food. They can also feed on dead cluster flies that have made their way into an attic or crawlspace. The best way to prevent a larder beetle infestation is to keep stored food in sealed containers and spring-clean cupboards to remove any crumbs hiding in back corners.

And remember . . . there's good news . . . these are signs of spring and one, an infestation, does not make!

Congrats!

Congratulations to Terry White (PDO, Lawrencetown) and his wife Candace on the birth of their son, Cole. Cole arrived on May the second. Not sure if he's been fishing with Dad yet, but we're sure it will be soon . . . has camo been ordered for Fall?



Project Update

Temperature Update

Keith Moore

In the last newsletter, I included a table with the winter's coldest temperatures, up to 14 February. And then came March . . . We now have an update of the coldest temperatures up to 1 May 2007. Hopefully we won't have to worry about -20's until next winter.

Changes occurred in the readings from Canso Causeway, Trafalgar, Marshy Hope, Yarmouth, Trunk 12, and Mt. Uniacke.

Table 1. NS DEPT. OF TRANSPORTATION AND PUBLIC WORKS WEATHER STATION DATA. COLDEST RECORDED TEMPERATURES (°C) FOR WINTER 2003/04 TO WINTER 2006/07.

Location	Winter* 2003/04	Winter* 2004/05	Winter* 2005/06	Winter* 2006/07***
North Sydney	-19.3	-17.6	-17.7	-19.2
Canso Causeway	n/a**	-17.2	-16.8	-20.6
Trafalgar	n/a**	n/a**	-14.8	-30.5
Upper Mt. Thom	-28.2	-23.3	-21.1	-24
Marshy Hope	-25.7	-25.0	-23.6	-29.3
Springhill	-38.8	-34.6	-24.7	-30.5
Yarmouth	-20.1	-18.0	-14.3	-15.7
Granite Village	n/a**	n/a**	n/a**	-19.8
Trunk 12	-25.3	-25.4	-20.3	-24.2
Kingston	-23.9	-23.7	-19.6	-20.5
Mt. Uniacke	-27.2	-25.1	-19.6	-25.5
Blackville (N.B.)	n/a**	n/a**	n/a**	-31.1

* Winter = mid-December to mid-March.

** n/a indicates that data was not available from this tower because it was a newly established tower.

*** The readings for Winter 2006/07 are up to and including 1 May 2007.