

Insectary Notes

JULY/AUGUST 2006



Editor's Overview



Summer's gone and it's time for another issue of the newsletter. It's also hard to believe that we're now starting our 14th year of publication of the *Insectary Notes*.

Keith has been looking into a fungal disease on Christmas trees. He's done some research and written a *Focus* on the Balsam Fir Cytospora Canker.

It's good to see that Eric is putting his retirement time to good use. He sent me an article on the Harvestmen (no connection to the FBI on page 5). Although we think of these little guys as spiders, Eric lets us in on their true identity.

Fruit flies are back on the Radar Screen along with a newly discovered "habitat" and the directions for the trap.

Jeff has been out on the hunt for blacklegged tick life stages and reports on the findings in the Lunenburg area.

And finally our yearly index of *Focus* articles rounds out the issue.

Hope you all enjoy our wonderful Nova Scotia Fall season.

'Til next issue

Jacqui

Jacqui Gordon
Editor

INSECTARY

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Say What and Quotes . . .

I used to be Snow White -- but I drifted. -Mae West

My second favourite household chore is ironing. My first being hitting my head on the top bunk bed until I faint. -Erma Bombeck

Lead your life so you wouldn't be ashamed to sell the family parrot to the town gossip. -Will Rogers

Never play cat and mouse games if you're a mouse. - Don Addis

The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka!' (I found it!) but, "That's funny ..." -Isaac Asimov

True, a little learning is a dangerous thing, but it still beats total ignorance. -Abigail Van Buren

On cable TV they have a weather channel - 24 hours of weather. We had something like that where I grew up. We called it a window. -Dan Spencer

Quotes from Bill Cosby . . .

A word to the wise ain't necessary. It's the stupid ones who need the advice.

I am not the boss of my house. I don't know when I lost it. I don't know if I ever had it. But I have seen the boss's job and I do not want it.

Like everyone else who makes the mistake of getting older, I begin each day with coffee and obituaries.

Tree Disease Focus

Balsam Fir Cytospora Canker

Keith Moore

Introduction

The occurrence of diseases caused by fungi seems to be more and more frequent in Christmas trees. Over the past few summers, some growers have been witnessing new needles and growth turning orange and dropping off their trees. This summer and last fall we received samples of trees with the top third dead or a branch or two dead or showing orange. This is not a new phenomenon as experienced growers have told me that they can remember trees from 30 years ago showing the same symptoms. It seems that the damp weather and high temperatures have provided exceptional environmental conditions for the release and growth of some fungal spores.

The Disease Agent

Balsam Fir Canker (also known as *Leucostoma* Canker, Cytospora Canker, or Pitch Girdle) is caused by a needle fungus, *Leucostoma kunzei* syn. *Cytospora kunzei*. This fungus thrives under warm, moist conditions, ideally branches that stay wet accompanied by warm, humid air for an extended period of time. Coastal areas can be particularly hard hit when there are lots of fog and dampness.

Hosts

Along with balsam fir, this fungus can infect spruce (Norway, Colorado blue, black, and white), larch (eastern, European, and Japanese), Douglas fir, eastern hemlock, and pine (red and white).

These cankers are usually more virulent or have a greater effect on trees that are environmentally stressed. (Does this sound like that climate warming thing to you?) Christmas tree growers have told me they notice more infected trees near their roadsides. (Roadsides are generally hot, exposed places). Among these stressed trees, apparently healthy trees can be seen showing the red flag of infection.

Infection and Symptoms

This fungus infects the main trunk and branches of a balsam fir by causing diamond or elliptical shaped scars or lesions on the trunk with excessive sap flow from the site. It kills the sap wood and the bark stays on, stuck firmly by the exuding sap.

The severity of symptoms of this disease varies

within a tree lot. When you first walk through you may notice the yellow-lime colour of trees. It's one of those "Hmmm, something's not right here" feelings. Sometimes on a perfect 9-foot Christmas tree, all you will see is a lone branch in the upper crown turning orange. Sometimes, when you examine the lower trunk you will find the canker or scar oozing sap. This fungus doesn't usually kill trees outright, but disfigures them by killing individual branches or possibly the top 1/3 of a tree, if the canker is big enough on the stem. Often the canker is not readily seen, all you will see is a round, light-brown spot on the trunk where the bark and sap wood is dead. After you look at 50 trees or so in a plantation you see the pattern of this fungus. It can be on the branches, a canker on the stem, can discolour the whole tree or cause the needles to shed while the tree is on the stump. On one particular site the grower figures that 25% of his trees were showing some signs or symptoms of this fungus.

Some notes on the Disease Cycle taken from Diseases of Trees and Shrubs. Sinclair, W.A, Lyon, H.H., and Johnson, W.T. 1987.

Infection begins in recent wounds, such as those made by tools or insects, or in cracks resulting from the burden of snow or ice. Most infections are believed to start in early spring, although the possibility of spring renewal of latent infections initiated in previous seasons deserves study. *L. kunzei* can be found in the outer bark of apparently healthy branches, so latent infection may occur long before lesions develop. There are two types of spores: both are infectious. One type is released during wet weather, and can withstand freezing. These spores germinate at 20-33C. The optimum temperature for germination and initial growth of the fungus is near 27C. The second type of spore is released in spring and early summer. Dispersal of both types of spores by running and splashing water accounts for the year to year intensification and upward progression of symptoms. Both spore types can also be trapped from air in the vicinity of diseased trees. Just how the spores become airborne is uncertain; perhaps they are initially carried on tiny rain-splash droplets and become free in air as droplets evaporate. Airborne spores and insects account for spread from tree to tree.

After a branch or stem has been girdled, the

pathogen rapidly colonizes large areas of bark beyond the girdle. The duration of the disease cycle is probably one year.

Of the factors that predispose conifers to damage by *L. kunzei*, drought is most commonly named. In experiments with blue spruce, the incidence and rate of development of cankers were greater in drought-stressed than in nonstressed inoculated trees. Damage by *Cytospora* canker to white spruce in Ontario was preceded by years of low rainfall. Frost injury and drought have both been linked to damage by *L. kunzei* in plantations of Douglas fir. Other reported predisposing factors include hail damage and injury to roots by plant-parasitic nematodes.

Recommendations

Since environmentally weakened trees are more susceptible to this fungus attack, planting site is a big factor. If a tree is planted in a bit of a depression in the ground when we have a wet year, this may suffocate the tree and predispose it to the fungus.

I received this information from Ken Harrison (CFS, Disease Identification Officer):

For the canker in balsam fir. Timing of shearing would be best during dry weather (not much of that lately!) since the invisible spores could be dislodged from existing cankers and transferred to other wounds by moisture, fog or rain. I'd wait until the foliage is completely dried out before working in the stand. I'd be tempted to clean my shearing tool with either diluted bleach (one part bleach to nine parts water) or some rubbing alcohol between trees especially where the balsam canker is present. At minimum, I'd clean the blades between locations.

I also think it is not a good idea to remove trees when the spores are being released in early summer or spring. As Ken says, when they are wet is when the spores are released.

Long Range Planning

Site selection for small seedlings is very important. Depressions can hold water and weaken trees in a wet season. In dry seasons, those trees planted on wet sites or in a depression will have poor root development and the next droughty year will really hit those shallow rooted trees hard. Once you provide a home for cankers in weakened trees they will spread to adjacent healthy trees. If a tree is planted below the root collar it will do okay during normal growing seasons but in a wet year the trunk will become

girdled just by the weight of wet soil against it. One of the things about *Phytophthora* root rot, a nasty fungus found in the US, is that it affects plantations more than natural stands. So far this *Cytospora* canker is worse in Christmas tree stands that have been fill planted.

Hmm!! It's easy for me to say watch your planting micro sites but not so easy to do! I may be right I may be crazy but I am not fun-gi !! Let's investigate further!

References

Sinclair, W.A, Lyon, H.H., and Johnson, W.T. 1987. Diseases of Trees and Shrubs. Cornell University Press, Ithaca, New York.

Bits and Pieces

Crane Flies

Jacqui Gordon

Coming soon to a porch light near you, the crane fly. This poor flier bumbles in the door and then bounces off the wall and ceiling near a light. Although they appear to be large mosquitoes, they do not bite. The main concern with this insect is not in the fall but in the spring when the larvae chew grass roots.

An interesting thing about this insect is the number of common names: mosquito eaters, lollygaggers, gollywhoppers, chicken flies, mosquito hawks, leather jackets, or skeeter eaters. Crane flies are also popularly called Daddy Long-Legs along with two other species (see page 4 for more on real Daddy Long-Legs).

I was recently asked why there are so many crane flies around this year. I did some digging and found that the Pacific Forestry Centre (CFS) website had the answer. "Mild winters, cool summers, and rainfall averaging about 600 mm favour the pest." Pretty much sums it up, don't you think?

Bits and Pieces (contd.)

Eric has been putting his retirement time to good use. He sent me this article on the Harvestmen, a curiosity of the late summer and early fall.

Harvestmen

Eric Georgeson

Provincial Entomologist (Retired)

The Harvestmen or Daddy-longlegs is a bit of a mystery. It looks like a spider because it has eight legs but it is no more a spider than a honey bee is a beetle. The most outstanding feature is the small body (often less than a quarter of an inch) and its long legs which in some species can be more than two inches long. During the late summer they are often seen in the mornings, quickly striding over walkways and gardens, looking for a cool place to spend the day.

Although they have eight legs like spiders that is where the similarity ends. Spiders have two body segments, the cephalothorax (the head and thorax fused together) and the abdomen. Spiders also have silk glands that produce the material for webs and poison glands to kill prey. The Harvestmen has head, thorax and abdomen all fused together with one compact body segment. They have no silk glands and no poison glands. The only time they're found in a web is when they are being eaten by a spider. Taxonomically, they are arthropods in the same class as spiders, mites, and ticks but are in a separate Order called Opiliones. Common names for this order are Daddy Long-Legs, Harvestmen and Opilid. It is interesting how names are chosen; for example the name *Opileo* means "shepherd" in Latin and may refer to the fact that in some countries shepherds walk about on stilts so they can count their sheep better. The correct common name, Harvestmen, most likely came about because they were most often seen in late summer and fall during harvest time. The Germans, in their most practical way of naming things, called them "Afterspinners" which means "near spiders."

What draws attention to the Harvestmen are their legs. Savery (1938) wrote "the study of harvestmen is a study of legs." Gerry Rising (2002) wrote that if our legs were proportionally as long as theirs, our legs would be forty or fifty feet long. It would mean we could stride across a road without touching the pavement. Of course tap dancing would then become a rather dangerous past time.

The second pair of legs are the key to their survival. They are loaded with nerves connected to

thousands of tiny sense organs which lie inside microscopic slits in the legs. With these legs the harvestmen can taste, touch, and hear. It is thought that there are supplementary eyes on the legs as well.

The legs also help the harvestmen to escape danger. If seized by an enemy, the leg is designed to break off cleanly at the body. There is no bleeding as the body will immediately seal the wound. Meanwhile the detached leg puts on a show of twitching and quivering to confuse the would-be predator and allowing the rest of the legs along with the harvestman to escape.

They are primarily carnivores feeding on other arthropods: insects, spiders, sowbugs, etc., but will also eat bread, fat, gills of mushrooms, bird droppings, worms, and the list goes on. Moisture is important for their survival. They cannot go more than two days without water. Some species here in Nova Scotia are found during the night because of the dew. However, after the rains both day time and night time species are found out and about during the day. But during a drought all will avoid direct light and will only forage at twilight or early in the morning in any numbers.

Little is known about the habits of the Harvestmen here in Nova Scotia let alone even how many species we have in the province. It is thought that they over winter as eggs in the ground and no adults survive until spring. It can be safely assumed that the province agrees well with the Harvestmen as a group judging by the numbers that can be found in the fall. Where to put it when looking at the Eric's Classification of Living Things: Good, Bad, or Neutral? Harvestmen definitely fall into the good category because of the number of pests they consume.

I can think of only one time when Harvestmen were a problem. Ten years ago a call came into my office about a home that was overrun by harvestmen. They were so numerous both inside and out that the family was compelled to move out for overnight. Just as suddenly as they appeared, they disappeared. Life is full of mystery but especially so when dealing with insects, spiders, and Harvestmen.

Fruit Flies

Jacqui Gordon

The annual plague of fruit flies has struck. It seems that every year I learn of a new place for fruit flies to live. Last year, one of our readers called me about a fruit fly problem. We went over the usual suspects guilty of harbouring fruit flies . . .

- food sources: over ripe fruit or vegetables (don't forget about the lonely potatoes in the back of the pantry), spilled juice from sweet pickles, a stray dirty dish tucked under a teenager's bed
- a composter too close to the doorway
- holes in window or door screens
- leftover food scraps caught in the kitchen sink drain

But she had done all the right stuff. Any suspicious fruit or vegetables were refrigerated or disposed properly. The composter was moved away from the house. She lived in an area with a healthy population of black flies so the screens were in good working order. She had even put a bit of bleach down the kitchen sink to take care of any thing in the drain. I was stumped. I advised the use of the fruit fly trap and hoped for the best. I stressed the fact that control of a fruit fly population depends on removing the food source.

A couple of weeks later I received a call. She had found the source of the fruit flies. Pop bottles and cans, stored in the basement in a clear bag for recycling. The small amount of pop left in the cans and bottles was enough to keep the fruit flies going. Mystery solved! Conveniently the previous night had been cold so the bag of offending cans and bottles spent the night in the shed and that ended the fruit fly problem.

Just in case you still need it, here are the directions for making the trap.

CAUTION: IF THE TRAP IS NOT EMPTIED ON A DAILY BASIS, IT WILL BECOME A BREEDING GROUND FOR EVEN MORE FRUIT FLIES . . .

Fruit Fly Trap

What you'll need . . .

- an empty plastic yogurt or ice cream container (500 ml or 1 litre size)
- bait (over ripe fruit)
- an elastic band
- plastic food wrap
- a sharp knife

To make the trap . . .

Place the bait in the bottom of the plastic container. Cut a piece of plastic wrap large enough to cover the top. Place the wrap over the top and secure with the elastic. (The plastic wrap should be tight and smooth across the top.) Using the knife, cut a small slit (about 1/4 of an inch) in the centre of the plastic wrap. Set the trap where you are finding the fruit flies.

To empty the trap (should be done daily!): Place the covered container in the freezer overnight. Throw the contents into the compost.

An old man lived alone in Idaho. He wanted to spade his potato garden, but it was very hard work. His only son, who used to help him, was in prison. The old man wrote a letter to his son and described his predicament.

"Dear son, I am feeling pretty bad because it looks like I won't be able to plant my potato garden this year. I'm just getting too old to be digging up a garden plot. If you were here, all my troubles would be over. I know you would dig the plot for me. Love Dad."

A few days later he received a letter from his son. *"Dear Dad, for heaven's sake, Dad, don't dig up that garden, that's where I buried the BODIES. Love son."*

At 4am the next morning, F.B.I. agents and local police showed up and dug up the entire garden area. But when they didn't find any bodies, they apologized to the old man and left. Later that same day, the old man received another letter from his son.

"Dear Dad, Go ahead and plant the potatoes now. That's the best I could do under the circumstances. Love, Son."

Medical terminology

Artery -- Study of paintings
Bacteria -- Back door of cafeteria
Barium -- What doctors do when treatment fails
Caesarean section -- District in Rome
Cat scan -- Searching for kitty
Cauterize -- Made eye contact with her
Dilate -- To live long
Enema -- Not a friend
Fester -- Quicker
G.I. Series -- Soldiers' ball game
Impotent -- Distinguished, well known
Morbid -- Higher offer
Nitrate -- Cheaper than day rate
Post operative -- Letter carrier
Protein -- Favouring young people
Rectum -- It almost killed him
Recovery room -- Place to do upholstery
Seizure -- Roman emperor

On the Radar Screen . . .

- Crane Flies
- Millipedes
- Fruit Flies
- Crickets
- Flying: Hemlock Looper Moths, Whitemarked Tussock Moths
- Ladybugs
- Alder Woolly Aphid
- Blacklegged Tick (end of September)
- Horse Chestnut Blight

Project Updates

Tick Surveys

Jeff Ogden

Tick surveillance continued this week examining the population of blacklegged ticks in Lunenburg County. This is an ongoing survey which started in 2003 following the discovery of several hundred Lyme disease positive ticks from the Blue Rocks/Brown Hill communities east of the town of Lunenburg. This research is a joint effort between NS DNR and the Public Health Agency of Canada. During the week long survey, approximately 135 small mammals were trapped, blood samples collected, ticks removed, and the animals then released. Drag sampling was also conducted in trapping locations. Both larvae and nymphs of the blacklegged tick were collected in abundance. Adult ticks were not collected, but do not become active until the end of September through to late next spring. Tests on the tick nymphs and mammal blood samples are currently being undertaken in the labs in Winnipeg, results to follow.

Further work is to be completed this fall to determine the extent of this population as well as the populations in Bedford and Liverpool.

Traps, Traps, Traps!

Brown Spruce Longhorn Beetle

The traps can come in now if you haven't brought them in already. Rinse and dry the collection containers, ship any collected material. Contact Bob Guscott if you have any questions: 758-7215.

Spruce Budworm/Hemlock Looper

You should have received your hemlock looper lures for the trap changeover. Empty the catch from the spruce budworm trap into a petri dish and label it with "SBW", the date collected, location, and PDO. Change the lure and reset the trap. Ship the spruce budworm catch to Jim Rudderham: 758-7070.

Gypsy Moth

Gypsy moth traps can be brought in now. If you are familiar with the moth, you can count them and send the location and trap counts. If not, send the catches and delta traps to Jacqui Gordon: 758-7014.

Focus Index July 1993-July 2006

Another year gone by and it's time for the annual index of *Focus* articles. If you are missing any articles of interest, just give me a call at (902) 758-7014 and I'll send out the copies.

Ages of Trees	April 2000	Eastern Blackheaded Budworm	
Alder Flea Beetle	July/Aug 2004	Oct 1997, Sept/Oct 2004
American Dog Tick	April 1999, May/Apr 2002	Eastern Dwarf Mistletoe	Sept 1994
Ants in Lawns	July 1998	Eastern Spruce Beetle	July 1993
Asian Longhorn Beetle	Aug 1998, July 1999	Eastern Tent Caterpillar	May 1994
Asian Gypsy Moth	Nov 1993	Emerald Ash Borer	Jan/Feb 2003
<i>Bacillus thuringiensis</i>	May 1996	European Marsh Crane Fly	
Bagworm Moths	July 1994	June 1996, May/June 2002
Balsam Fir Cytospora Canker . .	July/August 2006	European Pine Shoot Moth	Sept 1996
Balsam Fir Sawfly	Sept 1998	European Spruce Bark Beetle	Sept 1996
Balsam Gall Midge	May 1999	Fall Cankerworm	Oct 1993
Balsam Shootboring Sawfly	July/August 2006	False Powderpost Beetles	Jan 1994
Balsam Twig Aphid	June 1999	Fleas	Feb 1994, May 1998
Balsam Woolly Adelgid		Forest Insect & Disease Survey	May 1999
.	Apr 1998, Jan/Feb 2001	Forest Tent Caterpillar	May 1994
Balsam Fir Decline	Nov 1999	Fruit Flies	
Bed Bug	May 1998	Oct/Nov 98, Aug 99, Sept/Oct 05, July/Aug 06
Beech Bark Disease	Dec 1999	Fungus Midge	Dec 2000
Biocontrol of Purple Loosetrife		Giant Garden Slug	Oct 1996
.	Feb 1997, Mar 1997	Giant Water Bug	June 1998
Biting Insects	June 1995, May/June 2000	Gouty Oak Gall	May/June 2001
Black-legged Tick	July/Aug 2002	Great Grey Slug	Oct 1996
Blackheaded Budworm		Greenstriped Mapleworm	July 1995
.	Oct 1997, Sept/Oct 2004	Ground Beetles	May/June 2001
Blackheaded Budworm in NS	May/June 2005	Gypsy Moth	June 1994
Black Vine Weevil	Jan/Feb 2001	Gypsy Moth Biocontrol	Jan 1997
Blow Flies	Aug 1999	Gypsy Moth in NS	Mar 1995
Brown Spruce Longhorn Beetle	July 2000	Hairy Chinch Bug	July 1999
Browntail Moth	Jan 1999	Hardwood Discolouration	Aug 1999
Bruce Spanworm	Oct 1993	Harvestmen	July /August 2006
Bug Zappers Exposed	July 96, June 98	Hemlock Borer	May/June 2004
Carpenter Ants	Oct 1994	Hemlock Looper	
Carpet Beetle	May/June 2003	Aug 1993, Nov 1994, Sept/Oct 2002
Chinch Bugs	July 1999	Hylobius weevil	April 1997
Cluster Flies	Dec 1993	Hypoxylon Canker of Poplar	Mar/Apr 2003
Cytospora Canker	July/August 2006	Ice Damage	March 1998
Deathwatch Beetles	Jan 1994	Indian Meal Moth	Mar/Apr 2004
Deer Tick	July/Aug 2002	Insects as Food	Jan 1996
Drugstore Beetles	Feb 1999	Jack-O-Lantern Fungi	May 1995
Due Diligence	Feb 1996	Jack Pine Budworm	March/April 2006
Earwigs	April 1995	Ladybird Beetles	Sept/Oct 2001

Ladybugs Sept/Oct 2001
 Larder Beetle Jan 1995
 Leatherjackets June 1996, May/June 2002
 Leucostoma Canker July/August 2006
 Lice Oct 1994, July/Aug 2001
 Longhorned Beetles Jan 1994, Aug 2000
 Maggots Nurse Wounds Feb 1996
 Millipedes Oct 1999
 Mimic Dec 1994
 Moisture Stress May 1998
 Mosquito Magnetism July 1997
 Mosquitoes May/June 2000
 Moth Flies Dec 2000
 No-see-ums July/August 2002
 Pale Winged Grey Jan/Feb 2004
 Pavement Ants July/Aug 2005
 People Pressure Diseases Aug 96, Nov 96
 Pheromones and Allomones Sept/Oct 2005
 Pine Shoot Beetle March 1999
 Pine Spittlebug July 1996
 Pitcher Plant June 1994
 Plantwatch March 2000
 Pseudoscorpians April 1996
 Rosy Maple Moth July 1995
 Salt Damage Mar/Apr 2001
 Satin Moth June 1997
 Sawflies on Conifers July 1996
 Seedling Debarking Weevil April 1997
 Silverfish April 1999
 Snow Fleas
 March 1994, Feb 1998, Jan/Feb 2002
 Sowbugs Nov 1995, Dec 1999
 Spiders Sept/Oct 1995
 Springtails March 1994, Jan/Feb 2002
 Springtime & Wildfire March 1996
 Spruce Budworm Sept 1993
 Spruce Beetle (Eastern) ... July 1993, March 1995
 Spruce Cone Maggot June 1994
 Strawberry Root Weevil Dec 2000
 Sugar Maple Borer Mar/Apr 2001
 Swiss Needlecast May 1996
 Toxic House Plants Feb 1999
 Tree Banding June 1995, Nov 1999
 Tree Injury Aug 1996, Nov 1996
 True Powderpost Beetles Jan 1994
 Western Conifer Seed Bug May/June 2001

White Grubs Sept 1999
 White Pine Weevil Aug 1994
 Whitemarked Tussock Moth
 Jan 1998, Jan/Feb 2005
 Whitespotted Sawyer July 2000
 Winter Caterpillars Feb 1998
 Winter Insects Feb 1995, Feb 1999
 Winter Moth Oct 1993
 Woolly Alder Aphid Sept 1997
 Yellow-bellied Sapsucker July 1996
 Yellowheaded Spruce Sawfly Aug 2000
 Yellowjackets & Paper Wasps Sept 2000

MORE DEFINITIONS

Shindig - the dent one leaves when one walks into a piece of furniture

Arachnoleptic fit (n.): The frantic dance performed just after you've accidentally walked through a spider web.

Decafalon (n.): The grueling event of getting through the day consuming only things that are good for you.

Reintarnation: Coming back to life as a hillbilly.

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