Bugs & Diseases

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Alberta's eye on forest health

Issue highlights:

A silent killer

You are walking through the bush in early June, listening to the songs of ovenbirds, Tennessee warblers and other boreal song-birds when you notice that not everything is right with the trees.

The aspen trees have taken on a ragged appearance. The leaves seem to be deformed, curled or missing altogether. A species of aspen defoliator, right?

Upon closer inspection though, you don't find any silk strands, insect frass or even the insect itself. Now what?

You start inspecting the conifers and other deciduous species. The willow are showing symptoms similar to the aspen, and some of the branch tips, buds and new shoots on spruce are red and drooping. What is causing this multi-species damage?

The damage agent is late-spring frost. This is a very common climate-caused disorder in Alberta, although it is not often recognized due to lack of easily identifiable signs and symptoms.

Damage to various species can be quite widespread but often the trees recover by the end of the growing season by producing new shoots and leaves. However, the damage caused in the spring can often still be seen into the fall and the following growing season.

Mike Maximchuk

Frost damage on (A) white spruce and (B) aspen. Observed near Twin Lakes, June 2008.

Alberta Sustainable Resource Development

Sunil gazes into the forest health crystal ball

The Forest Health Section annually carries out surveys under the Alberta Forest Pest Outbreak Warning System to forecast potential pest problems in the upcoming year. In addition, trends of forest pest populations in the past are used to predict their future patterns of occurrence. These forecasts are valid barring unforeseen events such as unusual weather events or massive influx of pests from other jurisdictions.

Dr. Sunil Ranasinghe at work in the forest with his favorite orange coveralls.

"...pheromone-baited plots indicate higher potential for mountain pine beetle infestations in the Clearwater Area..."

Mountain pine beetle

The results of long distance dispersal monitoring using pheromone-baited plots indicated higher potential for mountain pine beetle infestations in the Clearwater Area where, until recently, beetle activity has been low.

On a positive note, results of this survey in the Lac La Biche and Waterways Area indicated no beetle activity. Aerial and ground surveys will continue in this area, although no new infestations are expected in 2009.

Spruce budworm

The spruce budworm infestations in northern Alberta are expected to increase in extent and intensity in 2009. This is especially true for the Lac La Biche and Waterways Area where male moth catches in pheromone traps were high in 2008. Severe spruce budworm defoliation is expected along most of the tributaries of the Athabasca, Slave and Clearwater river drainages.

In northwest Alberta, budworm infestations are expected to increase along Chinchaga, Hay and Amber rivers. The current infestations along the Peace River are bound to increase in intensity. Defoliation intensity of current infestations in the Lesser Slave Area is also expected in increase in 2009. No defoliation from the two-year cycle budworm is expected along the eastern slopes in 2009, but numbers of these budworms are expected to rise in 2010.

The intensity of the western spruce budworm infestation in the Porcupine Hills area is expected to decrease in 2009. This pest may spread further west and south from this infestation.

Deciduous defoliators

The extent of forest tent caterpillar infestations in the northeast is expected to decline in 2009. Egg mass surveys conducted by Tom Hutchison and crew to date indicate that this will be the case over much of the Lac La Biche and Waterways Area. Most of the infestations will be of light to moderate intensity. Egg mass surveys are yet to be completed from Janvier south to Lac La Biche, and east to Winefred Lake.

The current infestations of the Bruce spanworm and linden looper are also expected to decline in 2009.

Sunil Ranasinghe

Dear oh deer: what have we here?

One often-forgotten force working against the health of trees and shrubs is the spry ungulate that invades many yards in the winter months to browse.

Often deer browsing in winter cause no long-term damage to buds, leaves or stems which can re-grow quickly in spring. But if browsing causes injury to the tree, not only is the value of the tree lessened ornamentally, its growth and productivity will be reduced.

In an effort to alleviate the concerns of private land owners, farmers and woodlot managers, the North Peace Applied Research Association has established a study site in Manning, Alberta to look at possible ungulate deterrents.

Project Manager Nora Paulovich has implemented a research design to test what might work best to keep ungulates away from trees. She has installed the following 11 possible deterrents either on or adjacent to trees:

"...the North Peace Applied Research Association has established a study site... to look at possible ungulate deterrents."

Ungulate-browsed top of a young lodgepole pine tree.

1. Tubex Tree shelter (plastic sheath, green)
2. Bluex Tree shelter (plastic sheath, blue)
3. Rigid diamond mesh
4. Protex Pro (plastic tube)
5. Bamboo stake
6. Sinocast Treecone (corrugated cardboard)
7. Garlic Repellent sticks
8. Irish spring soap
9. Tree guard
10. Plantskydd (big game repellent)
11. Deer Away (big game repellent)

After heavy snowfall, researchers will visit the site to determine which trees were visited by ungulates and which were avoided. Stay turned for the results.

Natalie Butler

Maxi's top 10 list

Tonight's category ladies and gentlemen, top 10 reasons to work in Forest Health.

Here we go...

 # 10. Free barf bags.

 # 9. We like to do it out in the bush.

 # 8. The frequent application of bug spray will keep your skin as smooth as a 5 year old football.

#7. We love the smell of "B.t." in the morning.

#6. The ice breakers at parties are endless… "Actually, I could be considered a butt rot expert."

#5. A little weed now and then will make your summers a bit more groovy dude.

#4. Bug Light? I thought you said Bud Light?

#3. Aluminum poles aren't just for strippers.

#2. Where else can you spend a day counting thousands of smelly, rotting bugs.

And the **#1** reason to work in forest health… You get to write articles for *Bugs & Diseases*!

Mike Maximchuk

Acclimatisation - the roots of the invasive species crisis

Since the Stone Age, humans have moved other species around with them - intentionally or not. Today, the issue of impacts of alien species is fairly well known and some countries have highly developed frameworks that govern the movement of non-native species. But a little more than 50 years ago the import and export of non-native species was the sole purpose of organizations called Acclimatisation Societies.

Acclimatisation societies participated in import/export of utility insects such as honeybees and silkworms.

As early as the mid-1600s the *Jardin des Plantes du Roi* in France contained a collection of exotic, non-medicinal plants. French king Louis XIV (1635-1715) kept a menagerie of exotic animals intended for hunting, food and entertainment. Even a cow moose from Manitoba via the Hudson's Bay Company could have been found in Europe during this time.

In 1854, France's *La Societe Zoologique d'Acclimatation* became the first society whose intent was the introduction, acclimatisation, and domestication of animals (whether useful or ornamental) and the introduction and cultivation of desired vegetables.[1] Members were scientifically and agriculturally focused and likely their enduring accomplishment was the development of agricultural and horticultural crops in Algeria, their closest colony. Due to changing times, war and changing interests, the *Societe* was declared insolvent in 1901.

In June 1860, the Acclimatisation Society of the U.K. held

its inaugural meeting - membership was almost exclusively British aristocracy. Part of the focus was on improving agriculture, the other was emphasizing exotic collections for the purpose of spectacle rather than utility. Apparently having gazelles cavorting around your estate got you a rung up on the social ladder. Society dinners featured dishes like Japanese sea-slug, kangaroo ham and seaweed jelly. The society was defunct by 1868, but during its short life span the society moved many species to and from the British colonies. Much of upland India was planted with the tree and plant species of English estates.

Through the 1800s the cultivation of exotic conifers in English gardens was very popular and documented by botanist Edward J. Ravenscroft (1816-1890) in *Pinetum Britannicum*. Today, the organization *English Heritage* is responsible for the management of these trees.[2]

"Apparently having gazelles cavorting around your estate got you a rung up on the social ladder."

New Zealand has been the most transformed by alien species. The Polynesians made the first introduction, the pacific rat. By the early 1900s at least 30 acclimatisation societies existed. European colonization introduced hundreds of species for food, sport hunting and aesthetics. Acclimatisation societies persist to this day in New Zealand, overseen by the Department of Conservation to manage recreational angling and game bird shooting.

In the U.S., The Natural History Society of 1846 was the precursor to the American Acclimatisation Society of 1871, which seemed to focus on calming the nostalgia of immigrants and was not scientifically oriented. A founding member of the society was a great fan of Shakespeare and conceived the notion of importing all birds mentioned by the Bard, including the starling. Central Park was considered an ideal place for releasing imported birds.

Contrary to the urge to collect exotics was a tendency among explorers and colonizers to not utilize the native flora of a new locale. Instead, familiar crop seeds were brought or wish lists sent home. Even the prior knowledge that Native Americans were fully supported by the local flora and fauna did not assure colonists that they could fend for themselves.[3] Another common practice among mariners was stocking islands with rabbits on their travels. This was meant to aid ship wrecked sailors.

Some importations have a legacy that spans centuries - one is the prickly pear cactus (Genus *Opuntia*). In 1788, Captain Phillip of the British Navy introduced prickly pear cactus to Australia from Brazil. The cactus pads were food for insects that were also imported to produce a scarlet dye for soldiers' uniforms. The cactus overran 310,000 square kilometers of pasture. By 1864 the New South Wales Society tried to re-introduce the cochineal producing insects in an attempt to control the cactus. In the 1920s the cactus moth, *Cactoblastis cactorum*, was introduced as a biological control agent in Australia to control several species of introduced prickly pear cactus. The success of *C. cactorum* in Australia was renowned, influencing its use in other parts of the world. The insect now occurs throughout the Caribbean, and has entered the Florida Keys and Mexico where it unfortunately threatens local cactus species.[4]

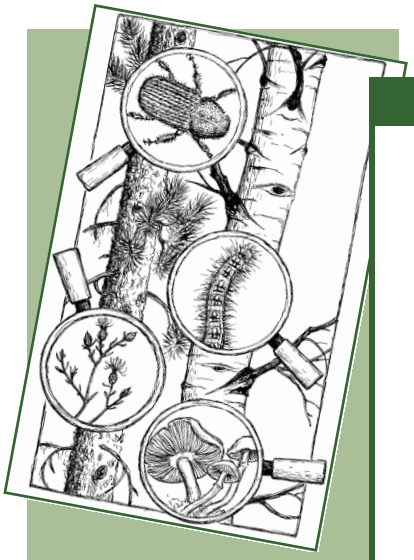
[1]Lever, Christopher (1992). *They Dined On Eland: The Story of the Acclimatisation Societies*. Quiller Press, London.

[2] http://www.english-heritage.org.uk/

[3] Mack, Richard (2001). *Motivations and consequences of the human dispersal of plants* in *The Great Reshuffling: Human Dimensions of Invasive Alien Species*. UICN Publications Services Unit, Cambridge.

[4] http://en.wikipedia.org/wiki/Cactoblastis_cactorum

Marian Jones



MPB roasting on a open fire

(Sung to the tune of Chestnuts Roasting on an Open Fire)

Beetles roasting in an open fire.
Chainsaws running in the snow.
Single tree treatments, going on all around,
A process often kinda slow.

Everybody knows that Cankers, Blights and Mistletoe,
Make our pine already sad.
Little bugs, with their allies of stains,
Are hardly going to make them glad.

And so I say again, this old refrain:
"Nature, help us out here – please."
I know it's been said many times, many days,
Make it winter, really winter, and Freeze!

Tom Hutchison

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