Bugs & Diseases

Vol. 17 No. 3 December 2006

Alberta's eye on forest health

Issue highlights:

Protecting the Willmore's whitebark pine

Whitebark Pine (*Pinus albicaulis*) is at its northernmost occurrence within the Willmore Wilderness Park in Alberta. Its presence in the park is highest in the Fetherstonhaugh, Muddywater, and DeVeber drainages, and in the side drainages of the upper Smoky.

"Whitebark pine is an important species ecologically..."

These trees are generally found at higher elevations where they exhibit a stunted krummholz form. In its lower elevation range, the whitebark is a medium sized tree with diameters up to 80 cm and heights up to 18 m.

Whitebark pine is an important species ecologically as its seeds are a main food source for the Clark's nutcracker. As well, the seeds are an important food source at certain times for the grizzly bear.

In the Willmore, the whitebark pine is currently under pressure from the increasing population of the mountain pine beetle (MPB). Due to its excellent suitability as a host, MPB is a very real and immediate danger to the whitebark pine. The bark of the whitebark pine is roughly 2 to 3 times thicker than the bark of lodgepole pines, which offers improved over-winter protection and nutrition to MPB.

Additional pressure on the whitebark pine is from an exotic pathogen, white pine blister rust, which has been devastating to the western white pine of BC. Recently blister rust has been detected at low levels in the park.

(*Continued on next page*)

Alberta Sustainable Resource Development

As the whitebark pine is in danger within the park, any possible protection from the MPB is desirable. One possible protection method is the use of an anti-aggregation pheromone called verbenone. When MPB mass attack a tree and their numbers approach the maximum that the tree can support, the beetles produce anti-aggregation chemicals (verbenone) to keep additional beetles away. Synthetically produced verbenone pouches can be attached to trees in an attempt to repel beetles.

In mid July 2006, prior to the MPB flight period, a 7.5 hectare stand was identified east of Mt. Sprague and west of the Fetherstonhaugh-Muddywater confluence, containing a number of large cone-bearing whitebark pines. In an attempt to protect the stand, one verbenone pouch was stapled to every whitebark pine contained within. A total of 277 verbenone pouches were deployed. This stand also contained unprotected lodgepole pine, as well as white spruce and sub-alpine fir.

The verbenone-treated stand was checked post-beetle flight in October 2006 to assess effectiveness of the treatment. A total of 18 whitebark pine trees treated with a verbenone pouch (6.5% of the total) were found to be attacked by MPB. Of the lodgepole pine found within the stand, an estimated 25-30% were attacked.

While not definitive, protection of whitebark pine with verbenone looks promising. This tactic will likely continue in the summer of 2007 as MPB pressure from BC is not likely to abate in the next few years.

Brooks Horne

Beetle coordinator tells all

There is no doubt that Dan Lux is one busy guy these days. He is Sustainable Resource Development's Provincial MPB Coordinator. Moving from his former position as the Forest Health Officer in the southwest, Dan has now been in his current role for about a year. Fortunately, Dan was able to take some time to give us an insider's perspective on Alberta's beetle battle.

Dan Lux addresses crowd near Canmore

Mike: So Dan, what would be the one word you would use to describe the current situation?

Dan: Optimistically realistic… oops that is two words. The next time I am asked in a job interview about dealing with change, I will have some story to tell.

Mike: What has changed over this last year?

Dan: What hasn't changed? We now have an action plan built, standard survey/control procedures developed and implemented, a comprehensive tracking database, a training program with over 300 graduates, a Ministers Advisory Committee, and a Municipality Grant Program in place. Within the next couple of months we will have approximately 16 more full-time positions dedicated to different aspects of the program, a communications plan, marketing strategy, as well as forest industry plans to harvest infested and susceptible pine. I guess that's it, unless you want to discuss the prescribed burning program and the cross border relationship with BC and Parks Canada?

Mike: Ah…I'm sure that is very exciting, but in the interest of time, lets get back to the topic of challenges. What types of interesting issues are we facing right now?

Dan: One major challenge would be the infestations in the northern parts of the province. We have historically never seen beetles this far north before, and with that comes a whole suite of issues and unknowns. For one, this year, the beetles are more difficult to detect since the trees have not changed color yet. Subsequently, it is difficult to predict what the beetle population growth rate will be, and whether we are going to get another large beetle flight. And how will an infestation impact caribou and other species of concern? Nothing is cut and dry. These are difficult times to be making predictions and management decisions.

"Stopping an infestation is only a verisimilitude of a healthy forest".

Mike: Sounds challenging indeed. So what would you say is keeping this train on the tracks?

Dan: The biggest help has probably been the dedication by our department, the forest industry, Parks Canada, and BC to take on this issue head on. There have been some very innovative programs developed to deal with our common enemy. For example, in 2005, we started an aggressive summer control program...the first of its kind, adopted the Incident Command System to structure operations, and worked with industry to implement a landscape-scale grid bait to track beetle dispersal. We are also fortunate to have such a young energetic forest health team. These folks have been pushed to the limit over the last couple of years, but they keep on going and trying new ideas to help manage this thing.

Mike: On a bit more of a personal note, how have you been liking your new role as MPB coordinator?

Dan: For one, the move to Edmonton has been great for my family. My wife and kids love Spruce Grove, and we are now very close to both sets of grandparents. As for the job, I really enjoy the diversity of issues and the fact that the situation changes constantly. I like being challenged. Once this thing settles down, I will probably find myself becoming bored. That is when I will start to look for new opportunities.

Mike: I'll end with one last question. In your opinion, can we stop a major infestation in Alberta?

Dan: Stopping an infestation is only a verisimilitude of a healthy forest. I have always wanted to use that word.

Mike: Thanks for your time Dan! Now I am off to go look up the word verisimilitude. It was a pleasure chatting with you.

Dan: The pleasure was all mine. Thank you.

Dan Lux & Mike Undershultz

New MPB directive completed

Harvesting and timely processing of MPB-infested pine is a highly effective control mechanism to limit the increase and spread of MPB populations.

The new MPB log management directive provides protocols to reduce the risk of initiating infestations along log transport routes and around milling sites following the harvest of MPB-infested pine.

Check out Forest Management Branch Directive 2006-05 online:

http://www.srd.gov.ab.ca/forests/fmd/directives/index.html#policy

Mike Undershultz

Forest health staff support watershed restoration project

Flat Lake, located southeast of Athabasca, is a wetland ecosystem covering approximately 35 km^2. Lake levels have historically fluctuated due to both climatic and man-made conditions. Additionally, this area has a number of conflicting uses including cattle grazing, haying, and quality wetland habitat for waterfowl. Currently, the Flat Lake Coordination Group (consisting of several governmental and non-governmental stakeholders) is seeking to resolve competing land-use issues for the lake, including invasive plants.

Quebec exchange student, Rudi Markgraf, performing weed survey at Flat Lake

In July 2006, the Coordination Group requested Sustainable Resource Development Forest Health staff assistance to assess incidence and degree of two weed species of particular interest (Canada thistle and foxtail barley) on exposed lakebed and shore adjoining private land. Also, any species designated as noxious by the Alberta *Weed Control Act* were to be recorded.

In total, eleven survey sites were randomly selected in the south-eastern, southern and western sides of the lake. At each site, five 3.99 m^2 fixed radius plots (50 m^2) were established. At each plot, the degree of infestation of all noxious weed species, foxtail barley and stinging nettle were recorded; along with other pertinent observations.

Observations:

- Wetter plots had, in general, fewer weeds in comparison to drier plots. In fact, Canada thistle was only found on dry or moist plots and was absent from all plots where standing water was present.
- Although foxtail barley was found in many moist sites, in plots containing permanent standing water native vegetation out-competed foxtail barley to a large degree.
- Weed species (including perennial sow-thistle and common tansy) tended to be more abundant in areas with either human- or cattle-related disturbances.
- Grazed areas had the highest concentrations of weed species, and the weeds on cultivated lands were concentrated more on field perimeters and slough bottoms.
- Large numbers of waterfowl were observed within the general vicinity of most sites.

Aside from being an interesting project, the work done by SRD staff at Flat Lake demonstrates cooperation within the department. Also, it could help to develop protocols for quantitatively assessing impacts caused by invasive plant species in riparian areas affected by various land-use activities. This will, no doubt, become increasingly important as the green area of the province continues to see more activities on its land base.

Marty Robillard &Tom Hutchison

Warren's big bag of tricks

Since joining the forest health team last April, I have spent many of my workdays in very remote areas of the province. And we all know that when the weather socks in and the helicopter can't bring you home, safety and wilderness survival become paramount. This is why I always carry my "helicopter is not coming back" bag.

"Think about assembling your own survival bag".

Do you remember the survival tip: freeze, freeze, shiver, shiver, freeze? It represents first aid, fire, shelter, signal, and food. All the articles in my survival bag related are to this.

In case you haven't noticed, I love zip-lock bags - great for waterproofing.

The obvious downside of my survival rucksack is that it's big; about 20 lbs. So when the drop-off helipad is the same as the pick-up, the survival bag stays at the helipad. If not, it doubles as my cruise vest to carry the equipment and supplies for the workday.

Think about assembling your own survival bag. Hopefully you will never have to use it.

And I almost forgot to wish you a Merry Christmas and a Happy New Year!

Warren Oates

Contents of my survival bag:

Top row (left to right):

- waterproof outerwear
- 2 pairs of socks (one gore-tex)
- spare t-shirt and underwear
- flashlight
- spare batteries
- kettle, cup, spoon, & hot drink mix

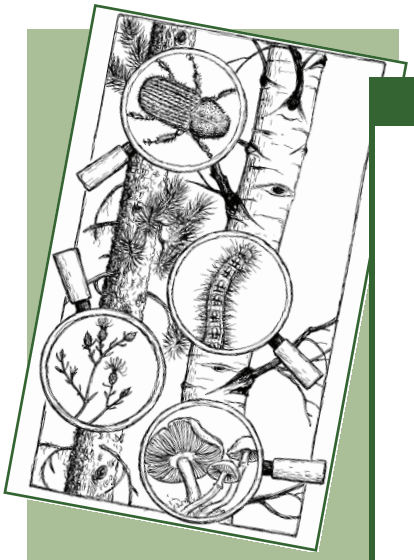
Second row (left to right):

- spare winter gloves
- toque and orange balaclava
- toothbrush/paste (great for morale)
- granola bars
- 11x17 poly (for shelter)
- 2 meal ready to eat kits

Bottom row (left to right):

- bow saw with spare blades
- 50 feet heavy twine
- sleeping bag shell
- first aid kit
- fire starter & matches
- axe

Warren's survival bag



Forest Health Officers:

Mike Maximchuk
Peace River
780.624.6221
Mike.Maximchuk@gov.ab.ca

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

Brooks Horne
Hinton
780.865.6969
Brooks.Horne@gov.ab.ca

Christie Ward
Rocky Mountain House
403.845.8307
Christie.Ward@gov.ab.ca

ISSN No. 1499-5859 (print)
ISSN No. 1499-5867 (online)
Published April, August & December by the Forest Health Section, Forest Management Branch, Forestry Division, Sustainable Resource Development (780.427.8474)

Editor: Mike Undershultz
Assistant Editor: Sunil Ranasinghe

Bugs & Diseases informs forestry-related personnel about current forest health issues. Articles are welcome. Submission deadline is the 15th of the month before publication.

Alberta
Sustainable Resource Development

I want a freeze

I want a freeze,
I want a freeze,
I want the mercury to dip,
I want the temperature to slip,
Bring a chatter to my knees,
I want a freeze.

I want it cold,
I want it cold,
Minus forty, maybe more,
Feel it right down to my core,
If I can be so bold,
I want it cold.

You might think I've lost my mind,
Don't care much for humankind,
Why would I want that kind of chill?
It could only do us ill.
But I think we will be fine,
And think of how it'll help the pine.
So…

I want a freeze,
I want a freeze,
I want it much too cold to snow,
For a week…10 days, or so,
Kill the beetles in the trees,
I want a freeze.

Tom Hutchison