

Minutes of the FGC Pest Management Technical Advisory Committee
Tuesday, 14 November 2006: 2:00 – ~4:00 PM
Teleconference

<p>Present: Robb Bennett (Chair), BC MoFR Jack Woods, SelectSeed Tim Crowder, Timberwest Forest Company Dan Gaudet, Vernon Seed Orchard Company Staffan Lindgren, UNBC Peter de Groot, CFS Sault Ste Marie Dave Reid, BC MoFR Ward Strong, BC MoFR Jim Corrigan, BC MoFR Roger Painter, BC MoFR Keith Thomas, BC MoFR</p> <p>Regrets: Dave Kolotelo, BC MoFR</p>	Coast pest management Forest Genetics Council Coast industry orchards Interior industry orchards University pest management research CFS pest management research Ministry orchards MoFR pest management research Interior pest management FGC (guest) Guest Nursery and seed pest management
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ACTIONS:

Bennett <i>et al.</i>	Organize ConeSys workshop, transfer funds to FGO
de Groot	Circulate <i>Synanthedon</i> extension note
Strong	Develop <i>Synanthedon</i> proposal
Bennett	Pursue <i>Contarinia</i> proposal with SFU lab
Strong	Develop <i>Dioryctria</i> proposal
Strong <i>et al.</i>	Develop <i>Leptoglossus</i> M/R/R proposal
Strong	Develop adelgids proposal with UBC lab
Corrigan	Circulate Kalamalka adelgids data to PM TAC
Strong	Discuss adelgids work with Kolotelo
Strong	Develop <i>Leptoglossus</i> host finding proposal with SFU lab
Strong	Discuss <i>Leptoglossus</i> antibody work with Kolotelo
Sub-Committee	Develop pesticides proposal
Strong	Fast-track 2006 pesticides trials seed extractions
Bennett <i>et al.</i>	Develop 2007/08 field guide work plan

NEXT MEETINGS: Pesticides trials subcommittee 27 November, 2:00 PM PST
 PM TAC 11 December, 2:00 PM PST

CALL TO ORDER at 2:00 PM followed by brief outline of the meeting agenda. Minutes and action items from previous meeting were not reviewed.

Ontario Cone Crop Monitoring System

- **Outline (de Groot).** De Groot provided a brief description of Ontario’s cone crop monitoring system (see p. 103-105 in Turgeon, JJ, P de Groot, & JD Sweeney. 2005. Insects of seed cones in eastern Canada: field guide. CFS & OMNR. 127 p.) and the history of its development. Collection and analysis of crop monitoring data are assisted through “ConeSys”, currently a DOS based computer program with three components: Cone Crop Monitoring System, Information Management System, and Decision Support System. Forest Genetics Ontario is upgrading and revising ConeSys to operate on a Windows platform. The PM TAC has expressed interest in participating in the revision and adapting the system for use in British Columbia. Quantification of losses and other seed-related data is very important. ConeSys is an attempt to formalize and standardize monitoring, analysis, predictions, extraction/germination efficiencies and other such quantification work. **Bennett will**

organize transferral of PM TAC “incremental” funds (\$5k) in support of this work to Forest Genetics Ontario.

- **BC workshop (Bennett).** A full day workshop for orchard managers and others involved in seed production is being planned for either Jan 31 or Feb 1, 2007 at the Cowichan Lake Research Station. **Bennett, de Groot, Corrigan, Strong, and Kolotelo are involved in organization.** De Groot (and probably Frank Schnekenburger) will present overview of ConeSys to attendees. Attendees will be asked to provide prospective user perspective on usefulness of system components and how best to tailor development of them to suit BC needs. PM TAC incremental funds (up to \$5k) will be used to defray meeting expenses including all CLRS *per diem* expenses and travel expenses of de Groot and Schnekenburger.

Research Proposals – initial draft (Strong). Strong’s first draft of proposals plus initial TAC members’ commentary circulated earlier by e-mail (see attached). Proposals were reviewed in reverse order to their presentation in draft.

- ***Synanthedon.*** Orchardists perceive a growing problem with *Synanthedon*, particularly in lodgepole pine orchards. Although there is no obvious relationship between attacks and tree vigour, stem breakage can and does occur and much time and effort is expended in the detection and removal of pitch masses. Although not a very high priority for PM TAC work, funds are available currently and there is considerable interest in pursuing this work. **A relevant (USA) extension note exists and will be circulated to PM TAC members. Strong will continue to develop proposal, incorporating themes of range and analysis of problem and literature review.**
- ***Contarinia.*** *Contarinia* remains the single largest problem for coastal Douglas-fir seed production and is starting to become a problem in the interior. **Bennett will continue to pursue possibility of relevant work being done in G. Gries (SFU) lab.**
- ***Dioryctria.*** Interest remains strong in this high priority work although some doubt was expressed in probability of success of attracticide or mating disruption aspects. **Strong will develop proposal and will seek input or other levels of participation from Dezene Huber (UNBC), Felix Sperling (UoA), and/or Richard Trudel (CFS).**
- ***Leptoglossus – mark/release/recapture.*** *Leptoglossus* continues to expand its sphere of influence. Project objectives need to be better defined and methodology needs to concentrate on usage of protocols developed in 2006 field season. **Strong will develop proposal with input from Lindgren and others as necessary.**
- **Adelgids.** General satisfaction with UBC proponent’s performance with this work. **Strong will develop proposal with proponent (John McLean) and discuss issues with Kolotelo. Corrigan will provide report to PM TAC on relevant 2006 Kalamalka surveys.**
- ***Leptoglossus – host finding.*** Gries lab has released interim report on *Leptoglossus* host finding work, including information on previously hush-hush research results. PM TAC members are expected to treat the following information as confidential until such time as a manuscript has been submitted for peer-review: conelets emit infra-red radiation, *Leptoglossus* perceive infra-red wavelengths in absence of any associated heat differential. This discovery has major implications for insect behaviour and pest management research. Acoustic work has been pursued for 3 years now and operational spin-off is unlikely. **Acoustic work should be eliminated from the proposal. Strong will develop proposal with proponent (Gerhard Gries),**

concentrating on infra-red work (plus kairomone/pheromone aspects). Strong will discuss (operational uselessness of) antibody work with Kolotelo.

- **Pesticides trials.** Trials have proceeded for 2 years now with no positive results. Results could be due to inefficacy of pesticides and/or various environmental variables. There is a need to test both foliar and injectable systemic insecticides. Interest is high in testing emamectin benzoate but we need to see what we can learn from apparent failure of current trial treatments. 2007/08 trials should be done in research plantations in order to avoid interference with operational activities and needs in production seed orchards. Work plans need to be finalized no later than end of January 2007 in order to be ready for field season (February start on coast). **Strong will circulate data and analysis of 2005 and 2006 trials and will “fast-track” seed extraction from 2006 trials cones. Pesticides trials subcommittee (Strong, Bennett, Corrigan, de Groot, Crowder) will meet 27 November to begin development of work plans.**

Other work.

- **Field Guide.** Work commenced in 2006/07 will continue in 2007/08. **Bennett will develop work plan for 2007/08.**
- **Research operational needs.** Operational aspects of the research program, including running Strong’s lab were not discussed at this meeting. Mentioned here under the Chair’s assumption that budget request presentation to Forest Genetics Council in March 2007 will include a research operations figure comparable to 2006/07 amount.

ADJOURN. Teleconference session was adjourned shortly after 4:00 PM PST.

Minutes compiled by R. Bennett, 15 November 2006.

Research proposals for 2007

I. ONGOING COMMITMENTS: We have commitments to continue the following projects; funding should automatically flow to them.

- **Pesticide trials.** Our trials in 2006 have been less than promising, so we are contemplating dropping all the active ingredients used previously. The most promising alternative on the horizon is emamectin benzoate. This systemic compound is registered in the US, and an injectible formulation is under development. There is a strong initiative already underway among MoFR foresters, landscape pest management folks, seed orchard personnel, and PMRA people, to bring this product to Canada, test it, and register it under URMUR.

Tim Crowder recently expressed some concerns about the pesticide trials to me:

"There are some issues around this that need some discussion and I was under the impression that all those involved were going to get together in a review/planning session this fall. Is this still going to happen?"

"As we are expecting a large crop in the Fdc orchards in 2007 and we are desperate for Fdc seed, I am very reluctant to have any trials carried out in the orchards as the trials interfere with the operation pest controls we need to use, so we need to come up with some alternative sites."

COMMENTS:

Kolotelo: The **pesticide trials** was a high priority from the operational end of the committee and it has 'appeared' less organized than other trials. This is due to a variety of issues - including the proponent being quite separate from PMTAC, a contractor to facilitate (that didn't seem optimal), variety of sites, poor reporting and poor results. I thought that this was one of the items that would move to the TIB position once a replacement for Ward was in place?? We haven't had that conversation in a while - or did I make that up?? In response to Tim's concerns - maybe there are some retired orchards that would be good candidates for these trials? (at least in the large 2007 Fd crop - or so it looks so far). I think others would have the same concerns as Tim given the 'general' shortage of Fd orchard seed.

De Groot (& Lindgren): Just a heads up that on the basis of what was said in Vernon and the report submitted by Ward, I am not at all comfortable with bailing out of the current pesticide trials without looking at what was done, when, where, why and the results. I am not questioning the integrity or competence of those involved but as an independent reviewer, I need to see and examine the evidence for myself. I am supportive of the initiative to examine emamectin benzoate but the way it is cast in the report by Ward it seems that it is an either/or situation. Perhaps to avoid bogging down on this issue as the first agenda item, it should be left to the last.

Woods: I would like to know that the concerns expressed by Tim and Patti regarding these trials has been discussed and resolved. Perhaps a conference call would be in order. I'll leave it to the people directly involved in the project.

Are there sufficient data to abandon the chemicals tried this last year? I don't know the answer, but let's make sure we don't bail too quickly.

Are we sufficiently plugged into the loop on getting emamectin benzoate registered? Do we need resources to help move this forward.

- **Leptoglossus host-finding.** Gries lab, Simon Fraser University. Exploring visual and kairomonal host-finding techniques. This is a continuation of 2006 work. There's an excellent chance of developing a trap for monitoring, and potential alternative control methods will come to light as a result of this research. Right now the sound attraction aspect is looking less promising, but Gerhard wants to try to demonstrate that substrate-borne sounds are tailored to the inherent resonant frequency of the natural substrate for different species (comparing mullein bug with *Leptoglossus*).

COMMENTS:

Kolotelo: Leptoglossus, are we funding the less promising "substrate-borne sounds tailored to the natural substrate for different species" work? That wasn't clear?

A side question to Leptoglossus is at ITAC there was some discussion concerning the determination of whether Leptoglossus was the culprit in empty seed 'production' as yields were quite low this year at some orchards. My recollection was the assay developed by Cameron Lait at SFU could determine if Leptoglossus was the culprit, but it could not be used to determine proportion of seeds attacked. We've swept this assay under the carpet, but can it still be useful for certain questions??

Lindgren: Leptoglossus: Agree with continued support of work with potential for leading to applications. The sound transmission stuff sounds like NSERC. He may be able to piggy-back that study onto what we will be supporting, but I would not support explicitly funding for the basic parts of this unless it is done with the intent of developing applications.

- **Adelgid species composition.** McLean lab, UBC Vancouver. Examine life history, interorchard dispersal, density/damage relationship of adelgids important to seed orchards, with particular emphasis on *Adelges cooleyi* and *Adelges lariciatus*. Babita Bains has already been trained as an undergrad on this project, and started a Master's degree under expectation of continued funding.

COMMENTS:

Kolotelo: hopefully the practical aspects (density/damage relationships) won't be the last priority of the project. Otherwise the taxonomic aspects don't seem to be that significant (no surprises) based on initial results presented.

Woods: Seems okay. Proper orchard placement to avoid having alternate hosts together can't be left out as a solution.

II. OTHER PROJECTS TO CONSIDER

- **Leptoglossus MRR:** This project made good progress last year, and we have a loose agreement to continue it but no obligation. However, we have developed a working MRR technique, have preliminary data and ideas on how to improve the technique. Questions to answer are rate and direction of movement, under what circumstances do bugs move, whether they return, after overwintering, to the field of origin, and to examine absolute population densities as a means of approaching an economic threshold for monitored densities. We will likely have a novel means of monitoring shortly (see SFU project above), so developing a sense of what monitored densities mean will take on particular relevance.
Staffan recently suggested thinking about the harmonic radar technique, in which a small "badge" is attached to the insect, which enables it to be detected from a distance with a harmonic radar "gun". This is worth considering, but to determine its utility we need to define the goals of MRR and what population dynamics questions we are hoping to answer.

COMMENTS:

Kolotelo: - it sounds like there needs to be greater definition of the goals of this work. Hopefully you will thrash that out today. Otherwise it looks like good progress was made and good collaborators assembled.

Lindgren: If the MRR technique used works, I think you should stick with that. Particularly if a new trapping system is on the horizon. That will allow good data collection for many of the population parameters, as well as estimates of trapping efficacy. The harmonic radar stuff would be time-consuming and potentially costly to develop for Leptoglossus, so I think we should keep that in reserve for now.

I may want to bring up the possibility of hiring a post-doc for the Leptoglossus project if Ward feels that this would be valuable. I'll be perfectly honest and state that this is to some extent self-serving, since I have a post-doc whose funding runs out. He has developed some expertise with this type of work on Warren root collar weevil, so he would be up to speed fairly quickly.

- **Dioryctria:** life history, population dynamics, alternative control methods (pheromones). With my ½ time student last summer, some progress was made with Dioryctria. However, we still do not know basic life history parameters such as overwintering stage, where eggs are laid, whether any larval stage feeds externally, or other aspects which might offer windows for control. Developing an alternative control method using attracticides or mating disruption needs to be explored. Right now there are no collaborative prospects on the horizon; I'm hoping to find a cooperator with this project.

COMMENTS:

Kolotelo: Hopefully some collaborative work will develop.

How about us receiving Dioryctria 'infested' cones. Our current line of thinking is keep them cool and process as soon as possible. Is there anything else we should or could be doing, especially in the case of having a lot of seedlots with a lot of Dioryctria. Is there a specific plan to fill in the gaps for those mysterious life history traits - important questions that need to be answered.

Lindgren: Expand this to make sure that it gets done right.

- **Contarinia:** This pest is a major problem on the coast, and an incipient one in the Interior. A density/damage relationship (using pheromone trap catches) needs to be defined so trap catches can be used as a predictive tool. The potential for alternative control methods needs to be explored, using the pheromone in attracticides or mating disruption. The Gries lab is interested in this project, but I'm concerned about the capacity of their lab to take on another project.
- **Synanthedon:** Orchardists have ongoing concerns about the impact of Synanthedon on their orchards. Though I've seen little relation between tree vigour and attack rates, orchardists remain concerned. They use the only control method known, digging them out with a screwdriver, which is expensive. I'm still getting pressure for a solution, by which the orchardists mean an alternative control technique. I would enlarge "solution" to mean determining a) whether they are a problem so we have better science to back up our recommendation to ignore them, and b) whether reducing larval populations within an orchard reduces subsequent population pressures in that orchard.

COMMENTS:

Kolotelo: I don't understand "I've seen little relation between tree vigour and attack rates, orchardists remain concerned" Is it a serious problem? The same type of enlarged 'solution' could also be applied to Adelges?

Lindgren: A pet of mine - I would include this insect in any trials involving the systemic emamectin benzoate rather than developing a separate project to begin with. I think Ward has identified the issues with this insect very well.