

Reply to: 3400

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Subject: Western Bark Beetle Working Group - Seattle Meeting Notes

To: Distribution List

The Western Bark Beetle Working Group held a meeting in Seattle, February 1-3. The purpose of the meeting was to: 1) review the results of last year's verbenone tests for mountain pine beetle, 2) review the 1989 proposed workplans, and 3) determine locations and funding needs for the 1989 field projects.

Please review the enclosed meeting notes and make sure the commitments by each cooperator/Region are accurate. We have developed an ambitious plan of action for this field season and our success will depend on staying focused on tasks described in the notes. Any corrections, comments, or concerns should be forwarded to me. Good luck!

/s/ Dave

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Enclosure

BARK BEETLE PHEROMONE WORKING GROUP

Mayflower Park Hotel, Seattle, WA

February 2-3, 1989

Convened 8 a.m. February 2, chaired by Dave Holland

Attending: Dave Holland, Iral Ragenovich, Dayle Bennett, Ed Holsten, Gene Amman, Chris Niwa, Tom Hofacker, Lonnie Sower, Charlie Sartwell, Ken Lister, Jed Dewey, and Ken Gibson

NOTES: Ken Gibson

Dave opened the meeting (a half day late!) with a mostly feeble attempt at explaining that Seattle was chosen for the site because of the ease with which it is accessed in the winter! Once the derision subsided, he explained the intent of this meeting, as discussed in the October Las Vegas meeting, was to 1) review proposed work plans for the upcoming field season, 2) assign responsibilities and study locations, and 3) determine funding needs.

Tom provided an update on the status of MCH registration, which at last seems to be making notable progress. He explained that the closing date for RFP was February 1. Proposals were received from the private firms interested in providing necessary additional data required by EPA for the registration of MCH. Tom indicated the two proposals would be evaluated soon and an agreement entered into with one of the firms. Even so, we anticipate registration could take another year. The EUP we are using for MCH will be valid for another year. However, there is some question as to its status--should another manufacturer become involved? That may have to be resolved if the use of MCH is contemplated in 1989.

In addition to that process, FPM is considering contracting with a private consultant to assist in all phases of pheromone registration. Such a consultant, working on an "as needed" basis, could assist with EUP procurements, product registrations, etc.

Finally, Tom noted that FPM has initially earmarked \$90,000 primarily for the continued evaluation of verbenone for mountain pine beetle in 1989. Some of the Regions have also set aside some project funds from suppression funds.

## MOUNTAIN PINE BEETLE

1. Verbenone Projects 1988. Gene described the Verbenone Projects conducted in Regions 1, 2, 4, and 6. Each test consisted of five treatments (10, 20, 40, and 68 bubble caps/acre and check), replicated four times. Treatment area was 2-1/2 acre block (5 chains square) with two 1-chain buffer strips around each area. 1987 and 1988 attack data were collected. Buffers were used to assess potential concentration of beetles beyond the effective range of verbenone.

### Results by Region:

R-1: Four replications in LPP stands. MPB populations sufficiently low that results were inconclusive. Four replications in PP stands. A fairly typical treatment response. Fewer attacks in highest concentration of verbenone (68/ac), except in 10/ac blocks. Not sure how to explain that.

R-2: Eight replications in PP stands--four in areas of high beetle population, four in areas of low populations. Results so variable as to be inconclusive. Had mortality in 1988 as high as 81 percent in the 68/ac treatment block. Believe capsules may have either been put out too early, or verbenone eluted too quickly. They put out capsules in May, beetles still flying as late as August. Some capsules nearly dry before beetles flew.

R-4: Seven replications in LPP stands on Sawtooth NRA (SNRA). No statistically significant difference in treated blocks, though treatments were different from checks. 20/ac treatment actually looked best in reducing attacks.

R-6: Four replications in PP stands. No statistical difference between treatments and checks. Four replications in LPP stands. MPB populations high, but treatment effects undiscernable because populations dropped in checks as well as treatments.

They had questions about elusion rates and/or amount of verbenone in capsules. Some of their tests showed on warmer sites verbenone may have been gone within a month after being put out. Other tests indicated too much verbenone left at end of test period--indicating elusion rate may not have been sufficient to provide protection. Some questions concerning whether or not Phero Tech uses different membranes for warm and cool sites. Also questions about elusion rates. Apparently Phero Tech has developed a way to make capsules which should promote consistency. This winter, Tom, Gene, and Gary Daterman will meet with Phero Tech to try to work out some of the observed problems with capsules used in 1988.

2. Verbenone Projects in 1989. Gene indicated it is desirable to have additional replications to reduce the variability we had in 1988. Gene will work on a study plan calling for at least eight replications per host (LPP and PP). Charlie will assist in describing ways to evaluate bubble cap performance during the tests. Study plan due March 3. (Tom, Gene, and Gary will try to

meet with Phero Tech about capsule design and performance prior to that--perhaps week of February 14.) In developing the work plan, Gene will consider questions such as: can we use same blocks used in 1988, are buffer strips necessary, are periodic evaluations throughout flight period necessary, should different treatments be evaluated, should we collect weather data and monitor beetle flight, should we consider retreating some blocks? At present, we will consider the following:

- Eight replications of same five treatments used in 1988 in LPP stands in R-1, R-4, and R-6. This design will involved using a larger capsule containing additional verbenone, but capsula will elute at same rate as 1988. Larger capsule should ensure sufficient verbenone for entire flight period.
- Eight replications of same five treatments in PP stands in R-1, R-2, and R-6.
- Some blocks will be selected in which treatment (capsule placement) will be done twice. This will be a comparison to the larger capsule treatments.
- Collection of bubble caps for lab evaluation throughout the season.
- Lab evaluation of larger capsules: elusion rates and elusion period.
- Collect weather data and monitor beetle flight (PNW will do that).

The group expressed the opinion that we should try to do as much as is reasonably possible in 1989. Funding is available this year--we cannot be sure that will be the case next year. Some of us may consider contracting crews to complete as much as we can in 1989.

A couple of final notes on verbenone: Shea, Daterman, and Phero Tech are planning additional aerial testing in 1989. Shea has indicated an interest in "sprayable" formulations of verbenone for individual tree protection. Dave will contact Shea and Daterman about future plans.

3. Aerial application of verbenone. In 1988, Phero Tech, in cooperation with PSW and PNW, aerielly applied verbenone impregnated beads to stands of LPP and PP in northwestern Montana. Results are not yet available.

4. Bait and Cut. We agree that "bait and cut" strategies are operational in LPP stands. Region 2 will conduct bait and cut strategies in PP stands near Laramie Peak. They may vary baiting strategy depending on beetle population. Ken Lister will contact Russ Mitchell in an effort to identify test design and discuss past results from Russ' studies.

5. Comparison of Consep and Phero Tech Tree Baits. Region 1 did a small comparison in LPP stands. Report is being written. Data shows Consep baits equal in attractiveness to Phero Tech baits. They will do additional tests in 1989. Region 2 will compare the two baits in PP stands. Phero Tech has changed the format of their tree bait to a "baggie" style holder.

## DOUGLAS-FIR BEETLE

1. Bait and Cut. Study plan is being developed by Iral. Tentative plan may be modified somewhat for use in other Regions. Study design will be a "paired drainage" confined to a 5-mile section of a drainage, 4 to 10 "spots" per drainage and 5 to 20 infested trees per spot.

Testing procedures may vary depending on treatment "philosophy"--containment versus attraction. Region 1 will evaluate "containment" procedure, Regions 4 and 6 will evaluate "attraction" strategy. "Containment" strategy involves baiting infested stands to hold beetles until stand harvest. "Attraction" strategy involves baiting a green, uninfested stand, in close proximity to an infested spot to attract beetles into the baited area and harvest. For the attraction procedure, baited spots will not be further than one-half mile from the infested group. For both strategies, bait stratum will be two baits per acre. Maximum evaluation area will depend on size of test area and strategy used. Will try to evaluate on "paired drainage" design. Region 3 may be interested to a limited degree. Region 6 will finalize work plan by February 24 (Region 1 will assist).

### 2. MCH to Protect Standing Green Trees:

a. Aerial Application: Too many questions for use remain to consider in 1989. Test in FY 1990.

b. Bubble Cap/Area Protection: Gibson will check with Staffen Lindgren (Phero Tech) to determine the feasibility for such an application. May try an "observation" of that strategy, if feasible, in some fire-weakened DF in Region 1.

c. Bait and Spray/Preventive Sprays: Shea is considering several strategies for FY 1989. Regions 1, 2, 3, and 4 are interested.

## SPRUCE BEETLE

1. Bait and Cut. Region 6 (Iral) has developed work plan similar to the strategy in DF stands. There is a new bait this year--Consep quit making ESB baits because Al Weiser signed an agreement with Phero Tech. Phero Tech's ESB bait is in a new plastic bag, in addition to having a new formulation.

Region 10 used Consep baits last year (in traps) and were pleased with numbers of beetles caught--compared to Phero Tech lures. Region 2 has some of the old Consep baits and will try to do comparison studies between old Consep baits and new Phero Tech baits. Regions 2 and 10 will develop study plan and try to conduct a joint study.

Regions 2, 4, and possibly 3 will evaluate bait and cut strategy. Region 10 may have opportunities as well.

2. Lethal Trap Trees. Region 10 is pleased with results of their lethal trap tree program. They intend to do additional testing in 1989. They seem to be getting good 3-year protection with a single application of 2 percent

carbaryl. Will try different strategies--one baited and sprayed tree per acre, with all trees sprayed within 5-meter radius of baited tree. Ed will provide study plan. It may be used or adapted for use in Region 4. Strategy needs to be evaluated in areas of higher beetle population than previously used.

3. MCH. Protection of downed spruce with MCH still has not been conclusively proven. Questions remain about formulation for ESB and elusion rates. Region 10 has good opportunity to test MCH along power line rights-of-way. Region 4 has an area of blowdown that is susceptible to ESB. Ed will check on test opportunities but believes because of questions regarding future of MCH it may be too late to test in 1989. Best opportunity to test MCH may be in 1990.

We still have questions regarding use of MCH bubble caps for single tree or area protection from ESB. Region 3 has interest in this strategy. Also, there is interest in "push-pull" strategy of using baits in combination with MCH. May look into testing this strategy (also for DFB) in 1990.

#### WESTERN PINE BEETLE

1. Spray and Bait. Most opportunities and need for WPB work are in Region 4. The 1988 work had mixed results. In some cases, carbaryl treatments did not appear to provide desired protection. Thier and Shea have developed work plan for 1989 and will try to overcome problems encountered last year. A question was posed about Ips/WPB interactions that may compound variation in results.

2. Verbenone. Shea and Daterman are planning to evaluate bubble caps. They are proposing a field experiment using funnel traps with different "blends" of verbenone. Funds not yet provided for these studies--they need about \$10,000 to fund these studies.

3. Preventive Sprays. Shea will test several pyrethroids as preventive treatments against WPB in Region 4. A similar study against MPB will be done in Region 1.

4. Bait and Cut. This technique was evaluated in Region 4 in 1988. The Region found attacked trees blue-stained so rapidly, they were not merchantable. Multiple beetle flights and question of bait's attractiveness to beetles also presented problems in 1988. They have considered multiple-baiting throughout the season followed by winter logging, but that is considered fairly low priority.

#### Ips

Region 10 has prepared draft of management paper for using baited traps to control Ips perterbatus. They believe the strategy works quite well. Region 2 was considering doing that with Ips pini in 1989, but probably won't now.

PROJECT PRIORITY/ASSIGNMENTS/FUNDINGMPB

Verbenone:	R-1 - 8 reps LPP and PP	\$30,000
	R-2 - 8 reps in PP*	\$ 0
	R-4 - 8 reps in LPP	\$60,000
	R-6 - 8 reps LPP and PP	\$50,000
	R-10	\$10,000

\*Some blocks will receive double treatment

Verbenone caps will cost \$4,000 per treatment (8 reps)--Total for all Regions about \$29,000.

Additional costs for PSW/PNW to evaluate aerial application of verbenone beads.

Bait and Cut in PP: Region 2 - no additional funds needed.

Consep/Phero Tech Bait Comparisons: Region 1 (LPP) and Region 2 (PP) - no additional funds needed.

DFB

Bait and Cut: Region 1 - Containment - 4 reps  
 Region 4 - Attraction - 4 reps  
 Region 6 - Attraction - 4 reps  
 Region 3 - Attraction - possibility?

MCH Bubble Caps: Depends on what Gibson learns from Phero Tech. Regions 1, 4, and 6 may do small projects.

ESB

Bait and Cut: Region 6 will have work plan done February 24 but may not do work in 1989. Region 10 may have project area and will need \$10,000. Regions 4 and 6 will do a combined study.

Lab evaluation of baits by PNW, but no funds needed.

Spray and Bait: Pilot project in Region 10. No funds needed.  
 Region 3 may have a small project.

Regions 2 and 10 will compare old and new baits but need no additional funds.

MCH: Probably nothing in 1989.

WPB

Spray and Bait: Region 4 and PSW will do a cooperative project.

Verbenone: PSW and PNW project.

WRAP-UP

Need to let Tom know of funding needs as soon as possible. Regional estimates will be sent to Tom by February 13.

Dave Holland will serve as coordinator for all information and study plans. Plans should be sent to Dave and he will forward to all members.

Informal meeting will be planned for the Bend Work Conference this September. Next formal meeting, to discuss the results of the 1989 Field Season, will be mid-October. Suggested meeting place is Ketchum, Idaho, with a field visit to view Verbenone Study on the Sawtooth NRA.