

Reply to: 3400

Date: December 29, 1992

Subject: Bark Beetle Steering Committee - October 21-22, 1992 Meeting Notes

To: Bark Beetle Work Group and Participants

The Bark Beetle Working Group held a meeting in Portland on October 21-22, 1992. The enclosed notes are a summary of the items discussed at the meeting. Please review the enclosed meeting notes and make sure the comments are accurate. Also, make sure the names listed by the projects are appropriate. Please send me any comments, corrections, or concerns regarding them.

The next meeting for the Bark Beetle Steering Committee is scheduled for February 9-10, 1993 in Salt Lake City. This is a change from Albuquerque.

The meeting will be held at the Howard Johnson's, Salt Lake City - Temple Square. Their phone number is (801) 521-0130. They are holding a block of rooms for us for the nights of February 8-10. When making reservations, tell them you are with the "US Bark Beetle Meeting". We need to fill a minimum of 15 rooms. Room rates are \$70, which is within per diem for Salt Lake City. This price includes all taxes and a Continental Breakfast. The meeting will be held in the Eagle Gate West meeting room. The hotel has shuttle service to and from the Airport.

It is my intent to have the meeting run from 8:00 a.m. February 9 until 4:30 p.m. on February 10; please plan your schedules so you will be there the entire time. The primary objective for this meeting is to develop a 5-Year Strategic Plan for Bark Beetle Technology Research and Development. I have copies of some of the individual bark beetle 5-year plans, as mention in the minutes. Those who had the responsibility of developing those plans, please provide me with copies of those not listed, or with an updated version of the existing plans by January 29.

Additional items that I wouldlike to complete during this meeting are: 1) develop some operating guidelines or terms of reference for the Steering Committee and, 2) Discuss the status of the Canada/US LLP Mountain Pine Beetle Agreement and Committee, and how we envision the future and role of that cooperative effort, especially in relation to the Bark Beetle Steering Committee. We are also coordinating a "proper farewell" for Gene.

Happy New Year and see you in Salt Lake City.

/s/ Iral Ragenovich

IRAL RAGENOVICH  
Acting Chair, Bark Beetle Steering Committee

REPORT OF THE 1992 MEETING OF THE  
BARK BEETLE STEERING COMMITTEE

Portland, OR

October 21-22, 1992

SUMMARY

The 1992 Bark Beetle Steering Committee meeting was held in Portland, OR on October 21-22. Topics addressed during the meeting were:

- 1) Review the status and results of the projects conducted in 1992,
- 2) Registration of semiochemicals,
- 3) Prioritize and recommend projects for the 1993 Technology Development Process, and,
- 4) Discuss the 5-year strategic plan.

Reports were presented on the status and preliminary results of all bark beetle projects.

Six of the previously funded projects will be continued in 1993; three of those will request some additional funding. An additional 10 projects were identified and prioritized for consideration in the Technology Development process.

An update on the status of semiochemical registration was presented. Two recommendations from the Bark Beetle Steering Committee resulted.

**1. We recommend that the Forest Service aggressively pursue the registration of MCH. In the meantime, the MCH EUP, which is up in May 1993, should be extended for one more year; 3 more states, and a higher dosage be added to the EUP.**

**2. We recommend the Forest Service obtain basic toxicology (Tier 1) information for all semiochemicals showing promise for bark beetle management.**

Five year plans have been developed for many of the individual bark beetles. These need to be reviewed and updated and combined into an overall bark beetle plan. Another meeting was scheduled for the week of February 8, 1993 for the purpose of completing the Bark Beetle Five Year Plan.

Additional issues that were identified and discussed during the meeting were:

1. When developing computer models, expert systems, and other technology development projects, we need to make sure users and their needs are clearly and completely identified;
2. We need to improve and obtain information on the impact of bark beetles on resources other than timber.
3. We are still having some problems with the Pherotech products.

## I. Summary of Projects conducted in 1992

### Spruce Beetle

1. MCH Aerial and Ground Application - Skeeter/Holsten/Shea
  - continued from 1991
  - application of beads along powerlines & bubble caps in campground - had a number of problems:
    - originally had planned to do aerial but did not have study site.
    - campground - there was so much beetle pressure it did not work; also had a problem with the elution rates from the bubble caps.
    - there was a sampling problem with downed trees
    - did not get baits in time from PheroTech.
  - quality of bubble caps in R-5 was better.
  - MCH is not an adequate material by itself - about 70%
  - seems to work in combination with competitive species - i.e. Dryocetes
  - will submit to do continuation next year for aerial and bubble caps
2. Standing Trap Trees - Munson
  - lethal standing trap trees.
  - use one application of carbaryl; also was going to test pyrethroids - Esfenvalerate, Tempo, etc.
  - idea was that beetles in lower 48 were more responsive.
  - not undertaken because of environmental groups; will carryover into next year and do if suitable site becomes available.
3. MCH - Bubble Caps - Werner
  - bubble caps in standing trees - 40/acre
  - baited in 1991 just prior to flight.
  - assessed attacks afterwards.
4. M-COL - Werner
  - funded through research RD&A
  - purpose was to pull beetles out and reduce attacks.
  - didn't get that much spillover
  - beetles are more directed with a lot of bait in clusters
5. Flight Periodicity/Dispersal - Werner
  - plan to continue study but extend
6. Combinations of Host Turpines With Spruce Beetle Pheromones - Werner
  - study complete
  - combination that works:
    - alphapinene
    - exobrevicomin
    - frontalin
  - others not particular
7. Competitive Species - Werner
  - Dryocetes
  - pheromone came late
  - this year was in down trees instead of funnel traps
  - want to repeat next year
8. Expert System - Holsten
  - includes:
    - spruce beetle text
    - expansive literature review
    - development of a hazard/risk model (stand susceptibility, risk-probability of outbreak)

- hazard based on info from south central alaska; to make globally applicable to spruce beetle need to develop own hazard model (BA, % in spruce, % spruce over 25 cm)
- relies on computer generated images
- project completed

9. Data Visualization - Munson

- done on the Dixie NF
- visual simulations developed for 4 sites for actual project areas
- seem to be losing control of direction of research - moving out of pest management.

10. Wildlife Impact - Holsten/Werner

- should be done

**Douglas-fir Beetle**

1. MCH - Aerial Application in Standing Green Trees - Bridgwater

- have purchased MCH and beads
- still trying to find an area
- 3 problems:
  - inherently difficult to find sites
  - no clear designation of responsibility
  - study plan restrictive
- may want to consider baiting to create artificial spots
- should we pull back \$ and use somewhere else, or can we pull off
- still feel it is high priority - resource managers would like tool
- possibly expand to Westside

2. High Value Stand Protection (Push/Pull) - Ross

- seems like there is a spill over effect
- need to be careful of ascribing mortality from 100 m. away to traps
- plans to do again with MCH alone with no traps around outside

3. Trap Out Areawide - Ross

- done in a one square mile area
- rather than trapping out, may have accomplished concentrating in specific areas.

**Mountain Pine Beetle**

1. Aerial Application of Verbenone - Gibson/Shea

- modified project to test response of mpb to verbenone & lures
- was an array of antimers of verbenone in combination with 50/50 ips dienol
- in lodgepole- does not matter
- appears that mpb is really sensitive to any antimer
- verified that 8614 is inhibitory by itself

2. Bubble Caps in SNRA - Amman

- did not do this year
- bubble caps - 20-40/acre still needs to be tested
- need more widespread population

3. Push-Pull - Rassmussen

- did not do "push"; just tested "pull"
- like to repeat and concentrate in areas for fuel wood

4. Bait and Dissipate - Amman

- won't know results until next year

## Western Pine Beetle

1. Antiaggregation Strategy - Shea
  - hoped to protect single trees with verbenone
  - used a verbenone rope formulated by pherotech, with various combinations of pheromones
  - also tested rope versus bubble caps
  - ropes and bubble caps do not appear to protect trees so do not see developing further
  - entire surface area has to be contaminated with signal
  - will continue in 1993 with other strategies such as a spray.
2. Verbenone and Flight Periodicity - Bennett
  - still have traps out
  - similar to Ca in response to various combinations and dosages of verbenone
  - wpb not responding as expected - not sure why
    - attractant may not be right one for that population
    - will repeat next year if have population
  - geographical response to baits may be a problem we have to deal with
  - roundheaded pine beetle is responding to verbenone
  - mexican pine beetle responding to frontallin

## Ips

1. Antiaggregation Strategy of Ips - Shea/Wenz
  - objective to keep paraconfuses out of slash
  - pini moves in if paraconfuses is kept out
  - piled 5-6 whole ponderosa pine with 5/10/15 bubble caps per pile
  - also trying to get a feel of what is happening in surrounding stands
2. Verbenone Plus Ipsdienol - Livingston/Gibson
  - tested to keep ips out of slash
  - added linerone
  - when look at all 3 repellents individually or together - all are the same
  - beads last year on slash did not work as well as funnel traps; but can't compare the results of the two.
  - Pherotech has more work to do on ipsenol and dional in beads
  - beads are more efficient releasers but need more calculation
3. Ips pini -Flight and Slash Disposal - Schultz
  - why are we doing anything about ips where they are not affecting anything
  - if know when are active will know when to avoid certain times
  - will look at ponderosa pine also, but if still not getting any attacks will recommend not using "C" clause to prevent
  - Jeffrey pine beetle is of more concern
4. Antiaggregation in Spruce Slash - Werner
  - used funnel traps with a number various semiochemicals
  - Ipsinol and methylbutanol - effective in prevention
  - exobrevicomin and MCH - no effect
  - would like to continue next year using bubble caps, etc.

## Southern Pine Beetle

1. Cut and Leave Modified - Berisford and Billings
  - cut fresh attacks, instead of cutting unattacked buffer
  - put verbenone in buffer
  - large diameter trees are still attractive, does not work in large diameter stands.
  - used 2 bags per tree - are releasing verbenone at 64x what is used in the West.
  - some problems when manufacturer changed the material the bags were made of.
  - study supposed to go one more year
2. Bait and Verbenone -
  - push-pull
  - spot management program
  - use semiochemicals to change direction of natural spot growth
3. Annosus/SPB Association - Hess
  - Annosus not necessarily a precursor to SPB attack
4. Arkansas Spot Growth Model - Clark/Stephen
  - monitor and predict SPB infestation development during the winter and spring periods
  - revise the SPB model to allow year-round use.
  - winter data needs to be added in
5. Demonstration Area Project - Nettleton/Hayes etc.
  - forest management and control strategies to minimize impacts from SPB and other pests.
  - 5 year demonstration project initiated in FY88 with TM and FPM funding
  - will not continue
6. Spot Occurance and Spread in Young Pine Plantations - Negrón
  - evaluate SPB spot characteristics in 5 to 20 yr old plantations
  - data being collected on stand, site, and tree characteristics
  - data will be collected on infestation growth in active SPB spots.
7. SPB Research at the Southern Station
  - Preliminary coordination with universities to look at B.t. for bark beetles.
  - Influence of inhibitor based suppression tactics on natural enemies.
  - How parasitoids actually find beetles under the bark.
  - Switching by T. dubius from Ips to SPB under different concentration levels in terms of field numbers.
  - Simulated beetle attack by using a hammer to shut down tree in terms of resin flow; measure lesion length and response.

## II. Semiochemical Registration

### MCH

- We have had an experimental use permit for MCH for 6 years. Dennis Hamel was a key person in getting a Section 3 registration for MCH.
- EPA required additional information; those studies have since been done and the information will be submitted.
- The EPA has been very close to cancelling the request for registration because of lack of activity.

- Recommend going for a Section 3 registration so can move in interstate commerce.
- Need a split registration - one for beads, and one for bubble caps;
  - Beads - still need a study for avian toxicity.
  - Bubble Caps - need to know if MCH is diluted with a product that could be toxic in itself, and if so, we need information on that product. There is an issue on hypersensitivity in humans.
- Forest Service will register; Jesus Cota has MCH registration package.

### Verbenone

- West uses pure verbenone in studies; South uses a mixture or "soup mix".
- If we get a registration on the "soup mix" (South), the n what the West uses will be registered by default.
- If registered in South at the concentrations they use, that will include the rates used in the West.
- West does not yet have a strategy that they want to register verbenone for.
- PheroTech is interested in pursuing registration if we can demonstrate use.
  - They want us to help pay for some of the studies.
  - They want information from us on the anticipated need and market.
  - EPA would prefer to have a Forest Service liason to work with PheroTech.

### All Semiochemicals

- American Semiochemical Association is an active group lobbying Congress to get pheromones and semiochemicals registered.
- We need basic toxicity studies on all semiochemicals and pheromones. These have to be done according to Good Laboratory Practices; some can be grandfathered.
- Having acute toxicity studies is defensive research. We should develop a 5 year plan for getting studies done.

#### List of Semiochemicals for Basic Toxicology Studies

verbenone	a-pinene
MCH	myrcene
Ipsdienol	M-col
Ipsenol	laninone
tran-verbenol	B-pinene
CIS-verbenol	suedenol
exo-brevicommin	methyl butenol
frontalin	limonene

### Recommendations

1. Have basic toxicology studies done for all pheromones and semiochemicals that we are using.
2. MCH EUP is up in May 1993. Recommend getting an extension on the EUP for one year - add 3 more States, and a higher dosage.

### III. Bark Beetle 5-Year Plan

One responsibility of the Bark Beetle Steering Committee is to develop a 5-Year Action Plan for the coordination, direction, and technology development for bark beetles. During the meeting in October 1991, assignments were given to develop 5-year plans for individual bark beetles. We had plans for Douglas-fir beetle, mountain pine beetle, Jeffrey pine beetle, and western pine beetle. We need plans for spruce beetle, scolytus, ips, and southern pine beetle. Most of these probably exist and it is just a matter of getting them to me. We were unable to discuss the 5-year plan in detail during this meeting. Another meeting was scheduled for the week of February 8, 1993, in Albuquerque, NM.

RECOMMENDED NEW PROJECTS FOR 1993 TECHNOLOGY DEVELOPMENT

<u>PRIORITY</u>	<u>PROJECT</u>
1	Combinations of antiaggregation pheromones (verbenone and ipsdienol) to prevent infestations of ponderosa pine slash <u>Ips paraconfusus</u> and <u>I. pini</u> in California. R5/PSW
2	Developing a Hazard-rating system for Douglas-fir Beetle ( <u>Dendroctonus pseudotsugae</u> ). R1
3	Dispersal and flight periodicity of spruce beetles ( <u>Dendroctonus rufipennis</u> ) in Alaska. R10/PNW
4	Evaluating efficacy of verbenone plus ipsenol in preventing attacks by pine engraver ( <u>Ips pini</u> ) in ponderosa pine slash. R1/Idaho
5	Effects of spruce beetle infestations and associated management prescriptions on moose and wildlife habitat in southcentral Alaska. R10
6	Use of pheromones to protect fire-injured lodgepole pine from mountain pine beetle ( <u>Dendroctonus ponderosae</u> ) infestations. R4/INT
7	Flight periodicity of roundheaded pine beetle ( <u>Dendroctonus adjunctus</u> ) and the inhibition of roundheaded beetle attractant by various blends of verbenone in the Sacramento Mountains in southern New Mexico. R3
8	Determine effectiveness of 20 and 40 verbenone capsules per acre in reducing mountain pine beetle ( <u>Dendroctonus ponderosae</u> ) infestations in lodgepole pine. R4/INT
9	Use of pheromones in push/pull strategy to manage mountain pine beetle ( <u>Dendroctonus ponderosae</u> ) populations in lodgepole pine forests. R4/INT
10	Field test ipsenol and methyl butenol as antiaggregants of <u>Ips perturbatus</u> in spruce slash. R10/PNW

BARK BEETLE WORK GROUP

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