

Bark Beetle Technical Working Group
Coeur d'Alene, ID
October 24-26, 2000

Tues. October 24

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| 8:00 - 8:15 | Welcome, house keeping items, etc. |
| 8:15 - 10:00 | Status of bark beetles by Region |
| 10:00 - 10:30 | Break |
| 10:30 - 11:00 | Continue status of bark beetles by Region |
| 11:00 - 12:00 | Post fire season 2000, what to expect, what can we learn? (Ken Gibson, Carol Randall, group discussion) |
| 12:00 - 1:00 | Lunch |
| 1:00 - 3:00 | Bark beetle pheromone and other projects |
| o <i>Ips</i> species | DFB Fir Engraver |
| o MPB | JPB WPB |
| o WBBB | RHPB ESB |
| o SB | <i>Tomicus</i> |
| o Others | |
| 3:00 - 3:30 | Break |
| 3:30 - 5:00 | Continuation of Bark Beetle projects |
| 7:00 - 9:00 (evening session) | Pheromone Dispersion (Harold Thistle) <u>here</u> |

Wed. Oct. 25

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| 8:00 - 10:00 | Finish up bark beetle projects |
| 10:00 - 10:30 | Break |
| 10:30 - 11:00 | Ongoing mortality in subalpine fir stands. (Ken Gibson) |
| 11:00 - 12:00 | MPB in whitebark pine (Ralph Thier, Sandy Kegley, others) |
| 12:00 - 1:00 | Lunch |

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| 1:00 - 1:30 | International Forestry (Steve Munson, Jose Negrón) |
| 1:30 - 2:00 | Spruce Beetle - Thresholds for Ceasing Suppression Actions Developing criteria to determine when to "let it go" (Bill Schaupp, others) |
| 2:00 - 2:30 | Determination of FHTET funded project (25K) - <i>Dick Beardon</i> |
| 2:30 - 2:45 | Western FH Communication Team (Sheri Smith) |
| 2:45 - 3:15 | Break |
| 3:15 - 3:30 | Needs that involved FHP personnel (research, between regions) |
| 3:30 - 5:00 | Other items for discussion Last year's issues (Tom Eager) New Chairperson and location for 2001 meeting Field trip instructions |

Thur. Oct. 26

Field trip hosted by Coeur d'Alene FHP office

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Those in attendance:

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|--------------------|-----------------------------|---|
| Sheri Smith | FHM, Susanville, CA | ssmith@fs.fed.us |
| Terry Rogers | FHM, Albuquerque, NM | trogers@fs.fed.us |
| Ian Wilson | Vernon, BC | ianw@pherotech.com |
| Joel McMillin | Rapid City, SD | jmcmillin@fs.fed.us |
| Dave Bridgwater | FHP Portland, OR | dbridgwater@fs.fed.us |
| John Wenz | FHM, Sonora, CA | jwenz@fs.fed.us |
| Sandy Kegley | FHP, R-1, Cd'A | skegley@fs.fed.us |
| Ken Gibson | FHP, Missoula, MT | kgibson@fs.fed.us |
| Barb Bentz | RMRS, Logan, UT | bbentz@fs.fed.us |
| Harold Thistle | FHTET, Morgantown, WV | hthistle@fs.fed.us |
| Ralph Their | FHP, Boise, ID | rthier@fs.fed.us |
| Liz Hebertson | FHP, Ogden | Lghebertson@fs.fed.us |
| Kevin Dodds | Oregon State University | Kevin.Dodds@orst.edu |
| Daniella Schaffert | OSU | Danielle.Schaffert@orst.edu |
| Darrell Ross | OSU | darrell.ross@orst.edu |
| Roger Sandquist | FID, R-16, Portland, OR | rsandquist@fs.fed.us |
| Ladd Livingston | Idaho Dept. of Lands - Cd'A | rliving@cda.idl.state.us |
| Stephen Clarke | FHP, Lufkin, TX | sclarke@fs.fed.us |
| Tom Eager | FHM, Gunnison, CO | teager@fs.fed.us |
| Brytten Steed | FHP, R1, Northern AZ Univ. | benelsonol@fs.fed.us or Brytten.steen@nau.edu |
| Carol Randall | FHP, R1, Coeur d' Alene, ID | crandall@fs.fed.us |
| Jill Wilson | FHP, R1, Coeur d' Alene, ID | |
| Jim Byler | FHP, R1, Coeur d' Alene, ID | |
| Brian Lamb | WSU | blamb@wsu.edu |
| Gene Allwine | WSU | |
| Nancy Sturdevant | FHP, Missoula, MT | nsturdevant@fs.fed.us |

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Tuesday October 22

Sheri called the meeting to order at 0800.

Regional Reports:

R1: Sandy, Carol, Ken: DFB still substantial but declining in northern ID and western MT. May have opportunity to rebound in fire-weakened trees in western MT. MPB causing significant mortality in WBP in northern ID and in LPP in central ID and western MT. MPB is building in whitebark pine – possible drought initiation. DFB endemic levels. WBBB is significant in some areas – 50,000 – 60,000 acres. A lot of areas not flown.

R2: Joel noted MPB activity is increasing in the Black Hills (fifth straight year), 300 trees/acre dead; DFB and WBBB increasing on the Shoshone NF (WY). The latter has increased from buildups in blowdown – high levels of mortality adjacent to blowdown. Also seeing *Ips* and RTB in fire-affected areas in down material – 4 years of trapping. Tom discussed the MPB in LPP situation near Vail, CO, which is still active – LPP mortality > 99%. This outbreak has convinced the local populace that management needs to occur. After the fires in R1 this summer a real change in attitude was discernable.

Their major problem is ESB building in blowdown on the Routt NF (CO). Beetles have moved into standing green trees. San Isabel NF 60,000 trees dead over the past four years. Not much done to date. Lots of environmental hassles dealing with that outbreak – lynx and injunctions against small sales. All bark beetles increasing in general. Bill Schaupp has completed a BE on the spruce beetle, the Blowdown team has completed the EIS. Both of these documents will be available on the Web.

R3: Terry: Discussed general trends of bark beetles in AZ and NM—some SPB in NM, ESB scattered here and there. A little SPB combined with *Ips* in AZ. Not much RHPB at present in AZ. They now think some beetle-caused mortality may be WPB instead of RHPB. Quite a bit of WPB in NM.

R4: HANDOUT. Liz discussed the ongoing ESB outbreak in southern UT- 80-90% mortality, 3-4 inch spruce; also noted MPB in limber pine, DFB and MPB in PP around the Region. Ralph talked about MPB in limber pine in central ID.

R5: Sheri noted there is not significant bark beetle activity in CA. Most of their bark beetle problems are drought related and they have had good precip since mid-90s. John said this the lowest level of bark beetles in northern CA in several years. He did mention some MPB in fire-affected sugar pine.

R6: Dave stated they have their normal complement of pine and fir beetles, but DFB is still quite high in NE Oregon and Washington. They expect to see DFB further increase in NE Oregon where they have had DFTM defoliation. They do have one small spruce beetle outbreak in Washington resulting from a wind event two years ago. Noted they treated about 40,000 acres for DFTM control in 2000. Requested \$3.1 for 2001, intend to minimize defoliation – interrupt populations.

R8: Steve noted SPB activity in KY and TN in previously uninfested areas. Suppression was very slow in many instances due to a variety of factors such as court injunctions and poor timber markets. Verbenone still shows promise, but still not ready to be used operationally. A lot of public interest in verbenone, but they do not yet understand how and when it should be used. Training is imperative. Virtually no SPB in western part of Region—TX and AL, but in some areas *Ips* are killing trees – LA, Miss., TX.

R10: No report.

Post-Fire Discussions: 2000 one of most significant fire years this century throughout the West. In many areas attempting to assess tree survivability and bark beetle interactions. Expect some bark beetle outbreaks in some areas. Lots of information related to tree survivability and susceptibility to bark beetles still needed—both for wildfires and prescribed burns. Resource managers would like assistance in developing marking guides for salvage, sanitation, etc. Publication for public regarding what trees will be saved. It appears there will be significant amounts of money available in the next few years to look at these sorts of questions. What about wood quality/deterioration; wood borers? How can pheromones—both attractants and anti-aggregants be used most effectively? We identified the following questions that need answers, without determining the best way to get those answers:

- How to predict effects of prescribed burns?
- How to predict the likelihood of bark beetle outbreaks following wild or prescribed burns?
- How to best deal with slash in thinning (fuel reduction) areas?
- What are political ramifications of hazard reduction?
- What is best means of conducting environmental education and/or public involvement?
- How might bark beetle outbreaks affect fire behavior (and vice versa) in parks and wilderness areas?
- What is the best means of getting our message to public, land managers, Congress, fire team leaders, etc.?

Concluded we could at least start with a letter of our concerns to National Fire Plan Implementation Team. Sheri will draft and send out for comments...

Ken Gibson

The report titled "Survivability and the Deterioration of Fire Injured Trees in the Northern Rocky Mountains" was put together by FHP, Missoula field office, and is available on the R1, FHP web page. Bark beetle situation will be dependent on winter precip. Three years of drought in Montana – if precip continues may not be a problem. Spruce and Douglas fir – may expect problems. *Ips* is infesting trees burned early in the year. Grand fir in the SE responds to anything that stresses it – low intensity fire cooks cambium and kills trees. Douglas fir has thin bark at collar. Los Alamos – risk to bark beetles – crown scorch – bole scorch – outbreaks are developing in fire killed or suppressed trees.

Sheri discussed the \$25,000 available through FHTET for bark beetle projects in 2001. Listed some possible projects:

- SPB in Southwest—biology, etc.
- MPB in WBP—prevention, management, etc.
- Protecting pine stands susceptible to MPB by using non-host volatiles plus verbenone
- ESB—more work to determine 1-year/2-year life cycles
- Developing a better pheromone trap
- Developing technical guide for operational use of MCH
- More work with anti-aggregants for *Ips* spp.
- Creating beetle "sinks"—e.g. in mistletoe infested DF

Bark Beetle Pheromone Projects conducted in 2000:

Ips: Brytten discussed work she is doing with *Ips pini* in MT and AZ (PhD work at NAU). Comparative studies with pheromones and slash. Looking at pheromone blends for *Ips pini* – three diameters, 3 lengths spread out. Will be continuing for another couple of years. Finding some differences in MT and AZ populations, though not as many beetles in AZ. Looking at funnel trap placement and number of funnels per trap as well.

MPB: Tom: Using Astro (synthetic pyrethroid) as preventive treatment in CO. 1% solution worked pretty well. Trees sprayed in November retained their protection through the flight period the following summer. Not sure about it's registration status. Sprayed in November and evaluated in October. Talk of carbaryl going off market?

Joel: Also used Astro as preventive and lethal trap tree treatment. Not sure how many beetles they killed, but they didn't get trees attacked in the area. Appears to be as effective as carbaryl.

Also tried some verbenone in PP—placed in stands on grid at 25 and 64/acre. The latter reduced attacks by 40%. Next year plot size will be increased.

Ian: Reported on use of non-host volatiles plus verbenone. Preliminary results look good.

Ralph: Brochure out for public meeting – they will print more. Also talked about an “operational” use of verbenone to protect LPP from MPB around Redfish Lake (ID). Seemed to work—but not sure why! Questions about its use remain. What are other options? Also questioned applying carbaryl, as a preventive, in the fall. May try. Discussion on use of buffer zones with various chemicals and materials.

Tom: Discussed work with Steve Seybold looking at possible regional differences in MPB pheromones. Also looking at various attractant pheromone combinations—PP in CO and SD; LPP in ID. TDP field test to increase trap catch.

Carol: Discussed trapping results in WWP stands. Appears to be 2 flight periods per season—May and later in the summer. First peak in May and second in June/July. Need additional work.

WBBB: Joel described trap data and flight periodicity studies done in WY 1996 (at 8000' elevation). Data suggests major flight in mid-July (second - third weeks) with smaller peak in late August. Suggestion of 2-year life cycle. Some variation from year to year. Testing baits of 1 and 2 components.

ESB: Liz: Reported some of Steve Munson's work from southern Ut on spruce beetles. Outbreaks there ongoing. More than 80% of ES have been killed in some stands – down to 4 inch DBH. Establishing permanent plots in areas where various management strategies have been implemented. Looking at fuels management through underburning, e.g.

Dave: Had used some MCH to prevent ESB attacks in blowdown in riparian areas. Also used some baited funnel traps. Treatment effects were promising.

Barb: Investigating 1- versus 2-year life cycles. Matt Hansen is identifying what stand or environmental conditions may determine how long life cycle is. August temperatures seem to be a determining factor—time when latter part of larval development takes place. A model being developed will be able to show what percent will be 1-year life cycle based on average August temperatures. May vary some with site or individual trees.

DFB: Kevin: Comparing funnel traps and trap trees. More males caught in traps, more females in trees. Looking at effective trapping distance of funnel traps. Traps offer functions that trap trees do not. Mark and recapture studies. Placed infested bolts at varying distance from traps: 50, 100, 200, 300 meters. Most beetles caught from 100m bolts. Some data suggests 200m may be about maximum attractant distance. Cut infested DF, dyed bolts with day glow.

Darrell: Talked about an area where DF were dropped and left in place in western OR. Have compared trap catches over the past couple of years (trees were cut in '98). Catching lots of beetles; some standing trees also attacked. (Dave noted that the land managers are not too concerned about beetle-caused mortality in that area.) 4–24 green trees per acre – long term site productivity

Ken and Ladd: Talked about “operational” use of MCH in 2000. Described areas in MT and ID where MCH had very significantly reduced the number of DFB attacks in infested and susceptible stands.

Sandy: MCH “individual tree protection” test in ID and MT. In each area, 30 pairs of trees were baited with DFB attractants. One of each pair was then treated with 4 MCH bubble capsules. No attacks in either area prevented us from determining effectiveness of MCH as a preventive treatment on individual trees.

Joel: Questioning length of DFB outbreaks. Most recorded ones last 2-4 years. He noted ones in WY, which began after '88 fires in YNP, are still going.

Plume Model: Cooperators from WSU. Long history of project: Warren Webb. Goal is to determine gas concentrations of materials from release devices. 3 parts: pheromone elution, pheromone dispersion and insect reaction. Primary variables are meteorology and canopy structure. Use of SF6 as tracer gas. Samplers were 1/2 hour samplers as well as a real time sampler. “thin strands of material”. plumes are fairly scarce in space and over time. plumes show pooling and meander in low velocity conditions. plumes have discreet edges.

JPB: Steve Seybold looking at male/female pheromone components. Work is ongoing.

WPB: Ralph: After a fire in central ID in '99, used baited funnel traps to see if he could prevent green trees from being infested. Hung 27 traps in one area (size?) and caught many beetles. No green PP attacked—but not sure about treatment affect.

Brian : Looking at attractant traps of different colors. Results? Colored traps resulted in variable catch rates.

Carol: Used WPB tree baits to kill off-site PP in northern ID (St. Joe NF). Baited 460 trees on 40 acres. Didn't kill many trees...

Ambrosia beetles: Ladd described a project where he assisted in reducing ambrosia beetle populations around a mill at Elk City, ID. Used 120 traps at about 50m intervals around mill. Caught thousands of beetles in both '99 and '00—population has been reduced.

SPB: Steve noted several SPB-related activities from '00:

- Verbenone "pouch" registered. Now looking at "wafer."
- Developed informational CD
- Looking to see if *endo-brevicomin* will make verbenone more effective
- Looking at importance of SPB parasites
- Trying "Eliminate" (?) applications to enhance parasite populations
- Thinning high-hazard stands
- Trying Astro and Warrior (pyrethroids) as preventive treatments. Mixed results
- Web site developed for SPB information; contains growth model and personnel directory
- whizlab.isis.vt.edu/servlet/sf/spbicc
- Can dead tree "volatiles" be used to prevent SPB attacks?
- Other information available at: <http://whizlab.isis.vtech/servelet/sf/spbicc>

Sheri noted use of alpha-pinene and ethanol lures to trap suspected vectors of black stain root disease. Catching lots of *Hylastes* and *Hylurgops*, but not sure of their role as disease vectors. Bill Otrosina is plating beetles out at the Southern Station.

General WBBB Discussion: Ken and Sandy discussed increasing mortality in R1 (more than 80,000 acres in '99), and trapping results from northern ID and western MT—conducted in '93-'95. Two flight periods, and 2-year life cycles suggested. Ian noted both anti-aggregant (*endo-brevicomin*) and attractant (*exo-brevicomin*) being used operationally in B.C. Joel discussed impact studies conducted on Bighorn NF (WY)—infested stands had about 300 trees/acre killed and little root disease was found there. Tom noted, on the other hand, in stands in CO, *Armillaria* root disease, in conjunction with WBBB is prevalent. Thinking about using anti-aggregant. Other problems discussed were difficulty in finding beetles on lower part of bole, associations with diseases, other insects, the fungi they vector, etc. Identified work needing to be done: Life cycle (Jose Negron is working on that), flight periodicity, impacts, etc. Perhaps an FIDL developed on WBBB?

MPB in WBP: Sandy described surveys conducted in WBP stands in the Selkirk Mtns of northern ID approximately 7000 acres and 5000 trees – 15 to 24 inches and 200 to 300 years old. Beetle populations have been increasing there for about the past 10 years. Stands are also infected with WPBR. There is concern for survival of WBP in that area, in some stands more than 50% of the WBP has been killed in the last few years. Sandy has been attempting to determine if MPB has 2-year life cycle in that area. Ralph talked about an area in southern ID, also concerns for MPB-caused mortality in WBP stands west of Cascade. Area is accessible, but still no effective means of dealing with ongoing mortality. Preventive sprays, pheromones—some of each may be attempted. He used some funnel traps in '00, but not sure of affect. Adults found in gallery cohabitating similar to RTB. Barb described work done by a grad student she is working with—Dana Perkins—in the Sawtooth Mtns in ID. Long-term studies suggest warming temperatures may allow MPB to be more impactful in areas not previously affected. Varying management opportunities led to a general discussion of the desire to look at verbenone and non-host volatiles as a means of reducing mortality in these areas. Use baits to contain beetles within the area. Green leaf volatiles not registered – 5 non-host volatiles and verbenone – cocktail.

International Forestry: A contingent from Lithuania visited R4 in August—looking at ESB in UT. Steve Munson had more details, but not at meeting.

ESB: Bill Schaupp had intended to lead a discussion about "suppression thresholds" for ESB and other bark beetle outbreaks

Returned to the topic of the **FHTET money available in 2001**. What are, or should be, our priorities as a “working group?” Do they correspond to our 5-year plan? Does the plan need to be updated? John discussed the overall operation of the STDP process and how working groups fit into that process. We can have input into the “Insect Management Technical Committee” by helping to set priorities, evaluate new technologies, etc—but don’t have the same clout as when we were a “steering committee.” We can, and should, affect STDP project selection process in 2002 (too late for 2001). We decided the following broad categories should be our priorities in the short term:

- Prevention
- Education
- Fire/Bark Beetle Interactions
- Monitoring
- Suppression

We should find ways to prioritize future projects into these categories and influence the selection of STDP projects accordingly. We then “voted” to support a proposal for the FHTET money be used to at least test the effectiveness of verbenone and non-host volatiles in protecting LPP and WBP against MPB. Sandy, Barb, Tom and Ken will likely cooperate on the project. Sandy agreed to draft a proposal.

Follow-up discussion on the Group’s letter to the National Fire Plan Implementation team expressing our concerns relative to:

- Bark beetle outbreaks and fire interactions
- Non-harvest suppression activities
- Vegetation management as a prevention tool (hazard reductions)

Tom and Joel are drafting letter...

Western Forest Health Communication Team: Sheri had information—and a handout. The first most of us had heard about it. More information coming in the near future.

Discussed opportunities to cooperate more on inter-Regional projects and share personnel and expertise as occasion permits. We should do more of that than we do...

Tom brought up a few issues from the ’99 meeting and agreed to get notes distributed from that meeting. Sheri, Tom and Ken will “compare” notes for this meeting. Sheri will compile and distribute.

Next year’s meeting will be hosted by R3—Brytten and Terry? Carol will be committee chair in 2001; Terry will announce meeting location; likely to be held the week of October 22. Thanks to Sheri for chairing this meeting and to Carol for hosting.

FIELD TRIP: Thursday, October 26. Spent most of the day on the Fernan RD after an introductory session at IPNF SO and a discussion of how the Forest responded to the DFB outbreak in 1998. Met Dave Faulkner and Sherri Lionberger who discussed the outbreak, the response, the NEPA process, and the ongoing sales program. In the field we met Bob Rehnborg who led us to several sites on the District where sales are being implemented. Looked at and discussed a number of different “prescriptions”—salvage, regeneration, and partial cuts. In the afternoon, went to an area in the “urban/forest” interface where both DFB and WPB have caused noticeable mortality. DFB-killed trees removed as part of the overall “DFB Project.”

2000 meeting of Bark Beetle Working Group adjourned at 1400, 26 October.