Bark Beetle Technical Working Group
Marriot City Center; Portland, OR
November 14-15, 2007

Wednesday, Nov 14

1. **Welcome, "house keeping," local information, etc.** Ken Gibson (2007 Program Chair) and Darrell Ross (Local Arrangements) discussed registration fee for room, drinks, etc.; and agenda for next couple of days.

2. **Follow-up discussion of "priorities" established in Fairmont—update needed?** Ken led discussion:
    a. Sheri discussed that this list was developed to be used as a tool for funding projects.
    b. Discussed leaving or dropping the "western" on the priorities list—based on how funding is allocated, or if focus should be more national focus (i.e. SAF or other nation-wide audiences).
    c. Liz asked questions about the inclusion of exotic invasive BBs in this priority list. We recalled it was decided last year to not separate them out but leave it inclusive.
    d. John Borden asked about how the priorities affect the "no action" consequences in relation to BB. Discussion continued at length about putting something (symposium and publication) together for the 08 SAF meeting on the "cost of doing nothing"
    e. **Action Item**: John Lundquist and Andy Eglitis will work on this with help from all. Discussed developing a synoptic review article of what has been done on this topic. Iral suggested we could work on this at WFIWC in 2008. Liz and Sheri emphasized we need to look at broader audiences such as the public/managers/legislature to get the word out. This could help with appeals to FS projects, legislative funding for projects, etc. Iral also pointed out that "climate change" and its effects are one of the Chief's priorities. How is it affecting BB in the future? Can we use long-term plots such those on Kenai Peninsula's (looking at effects of SB outbreaks 20 to 25 years ago) to address the issue?
    f. Discussion ensued about need for basic semiochemical research on specific bark beetles, efficacy for aggregation/anti aggregation, and biological response. Much information is scattered in the literature and basic research is lacking due to lack of a viable funding mechanism. Similar problems are being faced by OR Dept. of Ag when deploying exotic species traps—not knowing efficacy of pheromones in traps needed to adequately set up trapping study, etc. Similar problems encountered by others when employing funnel traps. Some fairly basic semiochemical research is still needed.

3. **Status of Bark Beetles by Region (Conditions Reports):**
    a. **R-1—Brytten Steed:** In 2006 only about 70% of forested area surveyed; decreases in areas infested by BB partially due to decreased acreage surveyed. In 2007 only about 70% of the survey areas were flown. Overall, BB activity decreased with the exception of MPB. MPB remains primary BB issue—close to one million acres still infested in both '06 and '07. DFB has declined markedly—about 1/3 of 2005 infested area; and nearly endemic in many areas in 2007. Increases in WSBW activity and fire-damaged stands in '07 could lead to a resurgence in DFB populations. FE activity decreased again in '06 and '07. WBBB activity was recorded on fewer acres, but probably due to decreased acreage surveyed. WPB down quite a bit—especially in northern ID. SB populations mostly endemic. Some *Ips* activity in eastern MT; mostly endemic and related to slash disposal issues. 2007 was abnormally dry, but '05 and '06 were near normal.
    b. **R-2—Sheryl Costello:** In SD (Black Hills), MPB activity in PP still high. In past have had *Ips* problems, and still some activity. In Bighorns and on Shoshone NF, MPB active in both LPP and LP stands. In NB, fire-induced mortality noted in PP and JP. High DFB activity in Shoshone NF; but SB is lower this year. In CO, BB Cooperative is active, noted in "Colorado Beetle Bites" handout. MPB outbreaks in LPP are major concern—virtually all northern CO LPP stands are affected, even ski areas and other locations east of Cont Divide. MPB not being host specific in outbreak areas—even finding it in spruce now, especially when mixed with LPP. Some beetles completing their life cycle in spruce, but not usually. John Borden noted he has seen this in Canada as well. In the Gunnison area (southern CO), severe SB-caused mortality, but MPB in PP is minimal. MPB activity in LPP more important near Vail, and that part of CO. DFB activity low, Pinyon *Ips* has subsided, FE found in white fir in San Juan Mountains. WBBB-caused mortality scatted in SAF. **Ingrid** noted urban BB traps only picked up BEBB and EBBB; also mentioned black walnut decline caused by black walnut twig beetle and associated fungi.
    c. **R-3—Joel McMillan (AZ):** 2007 low numbers; overall 16,000 acres infested by bark beetles. Some resurgence of *Ips leconti* in PP in some areas, especially near Prescott. Similar climatic conditions in 2007 as in 2002 and 2003. North of Flagstaff, scattered PP mortality caused by RHPB at higher elevations. SB has infested some blow down in same area as 1999. Finding unknown defoliator on spruce, sometimes in conjunction with SB. **Terry Rogers (NM):** In 2007 small amounts of BB activity noted. FE activity most widespread, but also found *Ips* in PP and WBBB in true firs in Sandia Mtns. Have experienced drought since 1996 with only a few wet years; this year dry as well. DFB and SB have declined significantly in '07. *Pinyon Ips* down dramatically—only 40 acres infested. Windthrow on Sangre de Cristio Mountains; increase in SB activity expected.

d. **R-4—Darren Blackford/Carl Jorgensen:** MPB in 2006 found to have killed over 1.6 million trees on 20,680 acres. DFB peaked in '04 and has been declining since. Smoke kept surveyors grounded much of the time in '07. Will expect increases in BB activity following fires. In southern ID, MPB still very active in LPP and WBP stands. In western WY and UT, MPB epidemic in LPP, WBP and LP. In UT, MPB moving down from LP stands to LPP. Some increases of Pinyon *Ips* on Dixie NF. A few locally heavy groups DFB-killed trees. In NV, JPB in JP stands in the West, MPB in LPP, WBP and LP in central and eastern part of state.

e. **R-5—Sheri Smith:** Drought influence in 2007 was bad; however, in southern CA not as bad as '02 to '04. With continued drought, bark beetle activity will probably go up. ADS info for '07 is available: FE relatively non significant, JPB increased in JP, and *Ips emarginatus* increased in PP/JP mixed stands. Pinyon *Ips* around the Inyo still lightly active; MPB increased significantly in SP**,** LPP, WBP, WWP. JPB activity is directly related to drought conditions, and tends to stay in same areas. In southern CA fire-hazard reduction treatments are being correlated with and BB-caused mortality.

f. **R-6—Iral:** In OR and WA, still doing ground checks; 2007 final data not yet available. MPB activity up thousands of acres; over 2.8 million trees killed in E. cascades. WBP especially heavily impacted; seed collections for restoration efforts occurring now. *Ips* activity way down, DFB activity up, and is scattered throughout Cascades—often correlated with fires and WSBW outbreaks. Blowdown that occurred in 2006 and 2007 will probably cause BB increases in 08. SB occurrence down; WBBB-killed SAF way up. More BWA showing up as well. Silver fir beetle activity is up. FE showed slight increase.

g. **R-8—John Nowak:** Not much SPB activity since last southern Appalachians outbreak, but starting to see increase of activity at low levels, and potential for significant increase in 2008. In southern GA, SC, and AL, SPB outbreaks localized, with about 1,000 total spot infestations. Major drought now, so future beetle activity may be very significant. Beetle activity in FL and MS increasing now as well. No activity west of Mississippi River yet. **Bob Rabaglia** noted discovery of Red bay ambrosia beetle—non-native discovered in 2002. Asian species that attacks Lauraceae spp, including avocado. Beetles vectoring a very aggressive fungus that kills trees: Red bay, sassafras, and avocado in FL. First found in September 2007. High mortality to Red bay, but as yet no quarantine.

h. **R-10—John Lundquist/Roger Burnside:** SB still the major mortality factor in AK with over 153,000 acres infested. Mostly gone on Kenai Peninsula; but now high in south-central AK. A lot of activity in SB's northern range. *Ips perturbatus* is other major beetle concern, about at same level as last year. Outbreak periodicity has shortened in last 60 years—due to climate change? Have noted increase of 2-4 degrees F in

last 20 years and increased drought periods. Also observing increases in defoliators such as SBW, and aspen decline over last 20 years.

i. Note: Need to include **BC/BC Forest Service** in next year's meeting. Invite Peter Hall, and/or others from BC.

4. Updates on specific areas of interest:

a. **Western Bark Beetle Research Group—Chris Fettig**: Power point presentation on WBBRG development: Decreased staffing in R&D led to need to consolidate work and reduce duplication of efforts. Group will serve as means of better communication and cooperation within FSR and between partners, such as FHP. Group developed a list of priorities to guide research and promote importance. Priorities are similar one developed by BBTWG. So far, have had positive impact on R&D leadership and enhanced communication at all levels, have removed artificial barriers, and helped to promote relevance. Steve Seybold in charge of posters and other forms of communication. Recent SAF Symposium highlighted cooperation with FHP. Hope to have presentations published as GTR. Need to explore other venues, such as Journal of Forestry, etc. Assessing "Rapid Threat" program, climate change and bark beetle interactions, etc. Need to promote better coordination with WBBRG and BBTWG—promote future joint meetings. (Poster on this presentation was displayed at this meeting and is available if anyone is interested.)

b. **Status of verbenone "whitepaper"—Ken:** Not sure of status of Tom Eager's "white paper." The group discussed how extensively verbenone is being used, and the need for guidelines for its use with which most can agree. Discussed the desirability/feasibility of a verbenone workshop at WFIWC in Boulder in '08. We further discussed the use of verbenone as an area protectant and an individual-tree protectant—and how it is similar to and different from MCH. Also discussed the need for criteria for its use: <15% of treated area infested; remove infested trees before treatment, etc. All those could be discussed at proposed WFIWC workshop. **(Ken will contact Tom about workshop.)**

c. **Updated Western Bark Beetle Report:** It is out—released in late winter, 2007.

d. **FIDL updates—Iral:** Iral presented spreadsheet of FIDLs with reviewer dates, etc. If you write a new FIDL, contact Kathy Anderson (R-6) to get assigned number, she keeps track of the FIDLs. (R-6 PAO has agreed to coordinate, layout and arrange for printing any new or revised FIDL. All they need is text, photos, and sponsoring Region's management code.) FIDL-49 (SPB) has been revised by Steve Clark; Ken and others are doing FIDL-2 (MPB).

e. **Update of "Western Forest Insects"—Iral:** FHTET scanned the text for WFI (without pictures); and Kathy Sheehan put it on R-6 website so it is downloadable for revision, by section. Website has guidelines for authors—such as the need to track all changes. If you add new references,

send those to Iral so she can add to Reference list. Several sections have already been done. Darrell questioned the approach taken in revising this document. Need assigned tasks, not volunteers? Beth brought up the historical attempt to get authors to write sections without success so this method is being tried. Steve suggested each reviser send revision to appropriate reviewers before sending to Iral. James Labonte offered to do some taxa outside BB groups or find contacts for others. Iral pointed out that much of the insect taxonomy has changed, and that will change the structure of the book in many areas. Deadline: Before Iral retires! Other approaches: Contracting it out; determine revision needs and revising those portions; leave it a web-based document, etc. Iral noted there is a lot left to do on this topic…

f. **Common Names—Brytten:** Not much to report other than what she has previously sent out, or discussed (would like to see new submissions done in conjunction with WFI revision).

g. **FHTET funding for special projects: Update (what was done in 2007; possibility for funds in 2008)—Sheri/Harold:** 2007 projects ranked by representative group of FHP people, 6 of 10 were funded, totaling about $30,000. Funded projects presented posters at this meeting. List will be sent to Kathy Sheehan to post on the website. Harold discussed 2008 projects. Process worked well in 2007, so will maintain review process again in 2008. With continuing resolution, not sure about budget for '08; but are hopeful. Sheri will send out guidelines about the first of the year, with proposal due date by end of January '08.

h. **Budgets, other news from WO FHP—Bob Rabagalia:** Continuing Resolutions, next one may go through Dec or March? Maybe through the whole year? Maybe 06 level funding? Lots of unknowns at this point. House markup = '06 funding, which could represent a significant drop in Gypsy Moth suppression. WBB programs may be about $6.2 million, not sure about SPB. Early Detection Rapid Response Pilot Project implemented in 17-18 states in 2007. Ambrosia and bark Beetles included in EDRR with 7-9 sites per state—evaluated by pre-screeners and taxonomist. EDRR teams decide which states to evaluate along with state interest. $750,000 available. Part of this is tied to S&PF "redesign" projects in the various states. Sheri noted that Bob funded project to look at elution rates of various chemicals and devices, work conducted by Brian Strom and Sheri. Sheri handed out summary sheets on work completed. They will be on SRS website as well.

Poster display of 6 projects funded by FHTET (Thistle):

Hansen and others: Assessment of silvicultural treatments to reduce spruce beetle-related mortality in the Rocky Mountains.

Allen and others: Long-term effect of partial cutting to reduce mountain pine beetle infestations in lodgepole pine.

Willhite and others: California Gulch long-term mountain pine beetle thinning study.

Kegley and Gibson: Evaluating the effectiveness of reducing mountain pine beetle-caused mortality using combinations of verbenone and hexanol.

Garcia and others: Effects of fire seasonality and severity on the susceptibility and resistance of ponderosa pine to bark beetles.

Jenkins and Hebertson: Fuel modeling and photo guides for bark beetle-affected conifers.

Thursday, Nov. 15

1. **Bark Beetle Projects—completed and/or planned:**
   a. **Mountain Pine Beetle:**

1) Bruce Hostetler. Reported on LPP thinning on Mt. Hood NF, in mountain hemlock/LPP forest, now experiencing a severe MPB infestation. Thinned about 6 years ago, and as recently as a couple of years ago thinned stand was uninfested. In 2007 installed plots in thinned and unthinned stands. Thinned stand infested this year and indications are green stand will be down to 18 sq. ft. BA by 2008 due to very high MPB-caused mortality.

2) John Borden. Verbenone pouch deployment on 63 acres in Jackson, WY (Ladd Livingston's project). Results showed 9.9% of stand attacked on untreated and 4.3% on treated (verbenone pouches). Studies suggest verbenone may reduce infestation level by 3-4%. Also reported on Don Fowler's southern BC verbenone trial. Used new 7-gram pouch to treat LPP stands in Panorama, BC. Some infested trees were removed. Significant difference in attacks between treated (verb plus tree removal) and untreated stands. Also discussed a project on Ski Hi Ranch, in southern BC, conducted in July 07. Discussed Pherotec's management recommendations for MPB in LPP: monitor, continue to use verbenone, use Sevin on high-value strategic trees, or let MBP run it course.

3) Rich Hofstetter. Described work being done with mites and fungal associates of MPB. Work being done by one of his grad students at NAU.

4) Carl Jorgensen. Discussed use of verbenone to protect WBP, work Dana Perkins, BLM ecologist, evaluating different amounts (provided handout). Also described Fiporonil injection evaluation—different amounts injected in LPP to protect from MPB attack. Results showed injections were not successful in protecting trees. (Cam asked about residue analyses—noting that Ivermectin injections in deciduous trees showed 80+% of the material remained near injection site. Carl indicated they didn't look at that.)

5) Steve Munson. Similar study to one described by Carl—using Fipronil in northern Utah (Uinta Mtns) LPP stands. Evaluation will be completed in 2008.

6) Darren Blackford. Verbenone treatments in MPB-infested LPP stands in Heber, UT and Stanley Basin, ID. Significantly less beetle-caused mortality in treated areas.

7) Ken Gibson. Mentioned operational use of verbenone to protect WPB "plus" trees for 3 years, on L&C NF in central MT. To date, only 1 of 53 trees have been attacked. Also discussed verbenone tests in WBP and PP in 2007. Good results—87% of WBP and 90% PP protected from attack (poster).

8) Sheri Smith. Discussed MPB lure evaluations; looking at myrcene and terpinolene mixes, and each alone. M:T mix seemed to be best lure. Looked at different proportions—not much difference; so recommending a 50/50 blend. Also using verbenone to protect rust-resistant sugar pine from MPB attack. Noted a very significant decrease of attacks on verb-treated trees (tho' trees were of generally smaller diameters).

9) Jim Vandygriff. MPB genetics studies being conducted at RMRS in Logan. Looking at genetic diversity across range of MPB: southern CA, OR, ID, and AZ. Infested bolts from AZ produced no brood in lab. Looking at MPB population dynamics in mixed LPP/WBP stands on Shoshone NF (WY); assessing attacks and preference for trees. More analysis forthcoming.

b. **Douglas Fir Beetle:**

1) John Borden. Described new MCH bubble cap, modified for newly registered sponge. Are confident it will be registered by 2008 (except CA).

2) Darren Blackford. MCH "Push/Pull" project in Sundance, UT in avalanche-affected DF stand. Used 30 bubble caps/acre, on a grid (about 40'x40'), on 100 acres; and single-tree treatments on isolated high-value DF in residential area (BA =115; 120 yr old stand). Installed 3 baited funnel traps in adjacent stands. Trapped over 60,000 beetles outside MCH-treated area and found no new DFB attacks in treated area. Found 5 trees attacked outside treated area.

3) Darrell Ross. Described MCH release-rate study. Follow-up to one done in MT a few years ago. Testing the effect of fewer "release points"—tho' still 30 bubble caps/acre. If successful, could reduce time and labor needed to install. In previous study, 3 capsules per site (10 release points) worked as well as 30 release points. In 2007, in central ID, evaluated standard treatment (30 release points), 3X (10 release points) and control. Treatments were similar and different from controls: 0% infested in standard and 3X treatments; 12.6% attacked in control plots. Predators not affected by MCH treatments.

4) Joel McMillin. Looking at stand hazard ratings for DFB-caused mortality in association with DF dwarf mistletoe, in AZ. Infected DF stands with "broom volume rating" of 5-6 had >40% DFB-caused mortality, with larger diameter trees being attacked, than less severely impacted stands. Higher basal areas also have higher mortality rates, as did southern aspects at lower elevations.

c. **Spruce Beetle:**

1) Steve Munson. Described Injection Study installed in 2005 in central. Materials injected into ES threatened by ESB were Emamectin Benzoate and Fipronil. Evaluated in February and August 2007 UT. Found 94% mortality in EB-treated trees and 100% mortality in both Fiporonil-treated trees and controls. Blue stain was introduced and only areas of trunk not affected were around the injection sites. Also discussed high-elevation lake-sediment coring. Looking at both short and long cores in 3 Lakes in UT during 2007. Looking for ESB elytra, and evidence of historic infestations. Limestone degrades elytra, so harder to find remnants in limestone bedrock lakes. Jesse Morris, PhD student and Andrea Brunnelle, Universitiy of Utah, will analyze data this winter.

2) Dave Wakarchuk (with Tom Eager). Described test using MVH and GLV to protect ES from ESB attack. Not enough ESB population to evaluate treatment.

d. **Jeffrey Pine Beetle:**

1) Sheri Smith JPB Lure Evaluation at Luther Pass (LTBMU/Toiyabe NF) in conjunction with Synergy Semiochemicals. Trapping trial with various lures – Heptanol and heptane combinations, plus various releasers: bottles, bubble caps, vials, etc. Aptive had the highest catch; HRHH and HRHHE had significantly higher catches as well. Seems the more heptane you release the more beetles you catch. Needed weekly refill because of rapid elution. Verbenone evaluated against JPB heptane lures (250 ml bottle lasted 6 weeks). JPB lure, plus verb and GLV had significant reduction in beetle catches compared to lure alone. Finding 2nd generation of JPB this year, near Luther Pass, in October. Started catching beetles in early June; ended Nov. 1st.

e. **Western Pine Beetle** –

1) Steve McKelvey. Testing efficacy of verbenone for protecting PP from WPB attack. Used 5-gram verb pouches on 9 m x 9 m spacing in plots, with WPB bait at center of each plot. Overall, treatments were not effective in reducing attacks; there was no difference between control and treatments. There were very high beetle populations in the area. Tried different spacing: 5-gram pouches at 2m x 2m spacing and found much better results. Also evaluated verbenone plus GLV plus bark volatiles. Low volume verb capsules, with GLV and BV made a significant difference. Looking at GCEA detection of WPB host volatiles and found exo-brevicomin best GCEA response. Discussed eastside pine prescribed burning seasonality relative to WPB activity in CA. Spring burns had higher mortality by WPB than fall burns.

2) Rich Hofstetter. Described WPB/PP research: alpha-pinene more effective as attractant than myrcene. Also looked at predator catch between the two lures. Evaluating WPB movement through PP stands that have been thinned to 60-150 BA. Monica Gaylord will present at WFWIC in 2008. Described resin evaluations being down by SCEP student, Amanda Garcia, specifically quality of resin in burn trees compared to unburned trees. Resin from burned trees no more attractive to WPB than from unburned ones. Resin quality may be more relevant to WPB attack rate and performance.

3) Chris Dabney. Discussed Chris Fettig's Systemic Injection Project from 2005, looking at protecting PP from WPB attack. This is 3rd year (2007) of study. Results suggest EB best performer yet.

f. **Ips spp:**

1) **Joel McMillin**. Looking at contribution of landscape level BB outbreaks to fuel loading and fire behavior in pine forests of the Southwest. In AZ, they are in 1st year of 2 yr study. In PP stands, comparing outbreaks of *Ips lecontii* to *I. pini.* Infestation levels seem to be based on elevation and stocking. Higher stocking of smaller diameter trees was associated with high mortality levels. Crown base height is being raised with outbreak mortality, but increase of litter, duff and heavy fuels are being experienced as well. There appears to be potential for greater fire severity after beetle outbreaks.

g. **Southern Pine Beetle:**

1) Sheri Smith. Looked at log/gallery study from EB injected treated trees, after 120 days. Astro worked best; carbaryl does about what EB does to reduce length of galleries. Conducted similar studies on sugar pine, both spring and fall, and WWP, fall only in CA. Trees were baited. Evaluation will be carried out next year. Have found SPB in Grand Canyon, AZ.
2) John Nowak. Described SPB Prevention and Restoration Program (FHP) in R-8: Prevention/Restoration funds have been to treat (thin) 550,000 acres. States have increased efforts in 2007 with education programs, program enhancements, economic analysis, and seeking tax-exempt status for cost-share payments for all FH treatments. Thinning to below 80 BA is one of the main treatments conducted with P/R funding. SPB Hazard Maps available from FHTET.
3) Rich Hostetter. Conducted SPB trapping studies in southern AZ. Trapped SPB using WPB lure. Exo-brevicomin very attractive to SPB in AZ and MS, while alpha-pinene most attractive monoterpene in AZ. Is SPB moving north?

h. **Western Balsam Bark Beetle:**

1) Darci Carlson. SAF mortality not always caused by WBBB. Found *Pityokteines minutus* killing many trees in SAF stands in central WA. Galleries of the two beetles are very different.

i. **Mexican pine beetle (XPB, *D*. mexicanus):**

1) Rich Hofstetter. Described XPB and SPB competition studies—competitive interaction between associated fungi, potential threats, and movement northward of XPB from Mexico and Chricahua, AZ. Population models being developed. They have also found SPB in Grand Canyon.

j. **Miscellaneous beetles and studies:**

1) Steve McKelvey. Spray deposition evaluations from ground-based applications of carbaryl to protect individual trees from bark beetle attack. Maximum deposition is within first 25 feet from spray source. How does that affect aquatic environment? Spray efficiency 80-87% based on orifice size and how much of the spray stays on the tree. FS typically observes 50 foot buffer zone, altho' that varies from area to area. Label notes spray should "not be over water."
2) Liz Hebertson. Described current research being done with BB/Fuels/Fire. Photo appraisal guides are being developed to help determine endemic, epidemic and post outbreak conditions. Once a type has been identified, can apply fire-spread model: LPP, ES, and DF fire prediction modeling are in varying stages of completion. Very complex systems, especially for some forest types (provided handouts). These are great tools to help determine fuel treatment placements.
3) Joel McMillin. Studying temperature and BB flight relatioships. Have found lowest temperature that flight initiation occurs varies for the several species of beetles. RHB flights start well below most other beetles. Lower elevation species have slightly higher initiation temperatures. These observations based on 4 years of data. They also looked at predators and abundance based on elevation. Tom DeGomez is continuing this study and looking at elevation as a characterization of

bark beetle communities in PP forests of northern AZ. Using funnel traps, has evaluated 4 *Dendroctonus* species, and species of *Ips*. Also evaluating various trap lures. Is finding more beetles at lower elevations and higher BAs.
4) Roger Burnside. They are evaluating management of white spruce slash to minimize infestation by northern spruce engraver beetle (*Ips pertubatus*) in interior Alaska. Looking at 6 slash treatments in 3 different types of silvicultural treatments: Logs with and without scoring, dispersed logs with and without scoring, and firewood decking with or without scoring. Still need to evaluate *Ips* production in slash.

2. Discussions of general interest:

k. **Jim LaBonte**, Taxonomic Regulatory Entomologist. Discussed the "Taxonomic Bottleneck" caused by a serious decline of entomological taxonomists and increased need for identifications in these days of rapidly increasing global trade. Has worked on screening aids for the 10 most abundant PNW (and other parts of the UD) Scolytinae as determined by OR Dept of Ag. Will assist in decreasing volume of samples experts have to sift through. Will send CD of the program upon request.

l. **Darrell Ross**. Discussed Western Forest Insect Collection at OSU. Jim LaBonte noted that it had been sent to OSU from Research stations due to space limitations. Documentation and references are available. Chris Marshall, OSU, is collection curator.

m. **Eric Smith**. Forest Insect and Disease Hazard Rating System Database Demo. CD available upon request.

3. Meeting wrap-up:

a. Meeting location and chair for 2008: **Sheri** agreed to be Chair for the next meeting (with assistance from Steve M.). **Gail** agreed to do local arrangements. The meeting will be held in western NV, probably in the vicinity of Lake Tahoe. Date and additional information will be forthcoming.

Thanks to all for a successful and informative meeting!