

**North American Defoliator Working Group Meeting Notes**  
**Rocky Mountain Research Station**  
**Fort Collins, Colorado, November 4, 2014**

*Compiled by Bill Schaupp and Bob Cain and finalized by Joel Egan*

Attendees: Joel Egan, Rob Progar, Bill Schaupp, Bob Cain, Tom Eager, Brytten Steed, Kurt Allen, Jim Blogett, Matt Hansen, Javier Mercado, Monica Gaylord, Connie Mehmel, Jason Moan, Robbie Flowers, Tom Eckberg, Liz Hebertsen, Daniel Ryerson, Deb Allen-Reid, Rich Hoffstetter, Sky Stephens, Rebecca Powell, Tom Zegler, Iral Ragenovoch, Cynthia Snyder, Beth Willhite, Bill Ciesla, Roy Mask (Video teleconference attendees) Mike Johnson, Joel McMillin, Dwight, Nancy Sturtevant, Chris Hayes

**Action items discussion from last year**

**WSBW plot remeasurements**

Connie Mehmel reported that 30 plots on the Ocanowa – Wenatchee are still being remeasured. No other Regions remeasured plots 2014. A lot of these plots originated in PTIPS. R3 suspended remeasurement and believes WSBW is in an unnatural condition, R2 plots have not been measured in over 10 years, R4 reports dramatic impacts to Doug-fir forests in the last 15 years. R1 is hoping to prioritize remeasurement of plots in 33 stands; 330 plots in 2015 and 2016.

Iral has submitted a manuscript on WSBW trapping guidelines to the research station. It presents a tool for predicting low, medium and high impacts and could be a useful tool for some customers. It should be finalized in 2015.

Darren and others compiled a WSBW and thinning projects literature review – Darren please send out to group.

Letter was sent to Directors regarding training needs (Iral).

DFTM – R6 is evaluating the relationship between the number of trap catches and larval sampling as there appears to be a gap where trap catches do not provide ‘where’ an outbreak will occur just ‘when’ one is likely. There is an early warning system dichotomy between trap catch and outbreaks. R3 is not seeing a predictive relationship. They currently trapping sites but question the value of continuing to do so. Cryptic shelters are seen off trees and occasionally in bat boxes.

Lee Peterson is working on DFTM revised FIDL. Robbie Flowers is the new FIDL coordinator.

Cynthia Snyder will send out Tom Coleman’s paper on DFTM in CA.

Beth Willhite – R-6 has a 4 year contract in place we can all use for scanning gray literature. R6 is cataloguing – there is a software package to help and we can input locally (details being worked out).

Beth will send out periodic messages keeping us updated.

### **Printed conditions reports were handed out by most regions.**

R1 WSBW continued to cause extensive damage in some areas (e.g. Flathead NF), but in many areas that experienced recent high WSB defoliation, WSB declined significantly and many trees have started to recover foliage even some of those that had substantial defoliation (e.g, Gallatin NF, etc.).

R2 Rebecca Powell showed slides DFTM in forests in Colorado and a huge urban population of caterpillars without defoliation in Boulder. Bill Ciesla gave a pine sawfly (*N. autumnalis*) presentation re. large epidemic on ponderosa forest along grasslands. Aspen defoliation by Western Tent Caterpillar and large aspen tortrix has been high for ten years in s Colorado. S Colorado WTC is bluer than Idaho population, may want to look at taxonomy. Concealer moth – a leafroller on NM locust was detected on ground causing minor damage.

R3 – Dan Ryerson reported WSBW is abundant in Northern NM and was detected on the Lincoln NF. Also provided handout with DFTM, WTC, LAT and sawfly updates. Deb Allen-Reid updated on follow up evaluation of TM biocontrol spray project. She reiterated the need for aerial application training.

Monica Gaylord gave AZ update (handout) Light traps caught 20,000 pandora moths. Pheromone lure has been developed for Southwestern Pandora moths.

R4, Darren presented info summarized on handout

R5 , Cynthia presented info on handout (drought impacts highlighted)

R6 – Rob flowers presented lots of info on handout on WSBW, black headed budworm, BWA on SAF. Also, Oak leafminer in Columbia River Gorge

R-10 Jason Moan reported that it was a wet year in AK . Willow and aspen leafminer defoliation increased, birch leafroller decreased, SBW and Black headed budworm decreased. Ground checks on birch found thin crowns with heavy seed crops.

### **DFTM discussion - Who's trapping and who's not**

MT State has stopped trapping

ID 146 traditional sites, 30 in CDA, 10-15 in southern ID

CO – Yes, trapping same sites since 1990's

WY – Only during the Bighorn rusty tussock moth outbreak

NM – 5 traps at 20 sites

AZ – Yes, still trapping

UT – 5 traps at about 12 sites

NV and W. WY – yes 5 per site

CA – yes, statewide

OR and WA – yes east of Cascades, 350 plots throughout eastern WA and OR. Cooperators assist with this effort.

AK – no DFTM to trap

Kathy S and Rob F maintain database for the early warning system .... Need to follow specific protocol and send in info to Rob. Question about trap area of influence..... very low dose pheromone but pulls from about one mile. Early warning system is for trend detection. Sometimes trap numbers go up w/o seeing visible defoliation. A 1-2 year gap before defoliation is common. Location of defoliation may be in a different area than trap locations. Currently using 1970's protocols, now can add GPS locations and polygons. There was discussion of remote change detection to date. Oregon is using drones in an attempt to detect Swiss needle cast (not there yet). Early warning system was designed to give us time to complete NEPA. The trap catches are difficult to tie to stand conditions and microclimates. Pulling the long term datasets together would be valuable Research station effort – Need to earmark funds.

**\*Action Item\*** Develop multi region priority list for funding analysis of long term datasets such as DFTM early warning system. Long term research was one of the objectives of the Research Stations before funding transitioned to soft money and & priorities followed funding source objectives. (Comment from Brytten that this may be able to be funded out of discretionary funds)

TM biocontrol – Iral reports the plan is to let existing supplies, shared by USFS and Canadian FS, run out. In 2000, there was a long term shelf life study done. It is currently housed in CT and there is enough for about 80000 acres of treatment

Common names WSBW species name change from *C. occidentalis* to *fremanii* is due to an African species that may actually be more appropriate in genus Archips. We are stuck with name change.

### **Misc. Projects**

There was discussion about EPA labeled rates of chemical per acres and if we may be in violation of this on some sites. This has become a complicated math issue. Nancy suggested that seed orchard/ tree improvement folks have figured out some of these application rate issues and can provide project details.

R6 has a defoliator website for posting various information such as long term budworm plot data and interaction of defoliators with Douglas-fir beetle. Climate variation may be an issue that these data can speak to. Payette has plots measured in the 80's and early 90's. It will take some effort to find them to remeasure. R-6 plans to remeasure – thought that mortality had already been captured. Rob reported that areas overlapping with pine butterflies collapsed simultaneously perhaps due to natural enemy buildup and/or weather

Pine sawflies on sandy soils on eastern forest boundary on private lands in Colorado. What role might fire play in killing pupae in the soil. Hmmm, comparison to Pandora moth but sawfly has a much shorter fire susceptible time in the soil.

Jeffrey pine needle miner on the Inyo. Foliage damage noted but mortality has not.

Discussion on pinyon needle scale classification. Ian Stokes Ento curator Florida State University would like samples – questions if *Matsucoccus acalyptus* should be *Pityococcus regulosus* He may be useful in identifying a scale/aphid??? on Sugar/western white pine that may be involved in decline noted by pathologists.

Oak pit scale girdling branches in Columbia Gorge and Willamette Valley. Ratty looking oaks caused but multiple damage agents.

BWA – No standardized surveys – some long term plots in eastern WA and LaGrande (Lia's protocol). Idaho (Tom Eckberg) has remeasured some five year plots in Idaho. Nancy reports that in MT it is still at low levels not causing notable impact.

Rob Progar presentation on BWA ( Kate Hrinkovich and Dave Shaw STDP work)

BWA all female population spread by wind and animals affecting all true firs especially subalpine fir. Currently in eastern OR, WA and ID moving into MT. Study to predict spread and identify drivers and management recommendations. On about 60 sites, developed sampling design and rating system of 1-5 where 5 is the most damage. Hope to get impact severity paper published. Question on where it will go and how severe it will get .... White fir is more resistant. Climate data and tree symptoms/ mortality are being recorded. Grand fir is not reproducing where BWA has been around the longest .... BWA is substantially impacting these ecosystem and causing changes.

Green alder sawfly is found no farther south than Eugene, OR. Present in ID with sawfly defoliating up to 30 – 40 %, but nobody measuring impact. Damage much greater in Alaska. Trapping GAS is continuing in ID and MT.

Tom Eager studies on Aspen (poplar) Scale, *Diaspidiotis gigas*, European species affecting landscape aspen and narrowleaf cottonwood in mountain towns (also reported on Salix and Tilia). Insects are 1.5-2 mm and cluster and cover bark. They are often associated with cottony aphid and oystershell scale (usually all three insects are present) It is not present in native stands of trees, only found on ornamentals. Emergence studies in Vail reveal several parasitoids. Question if mosquito spraying may be impacting natural enemies.

### **Climate Change topics**

Brytten spoke about Northern Rockies Adaptation Partnership. Work done by Barb Bentz on bark beetles and by Ann Lynch with western spruce budworm. What is FHP level of involvement? What about vulnerability assessment to DFTM and larch casebearer.

**\*Action item\*** let R1 know if you are doing any work along these lines

Rob P- Defoliator feeding guilds response to climate change. Past biocontrol effort of amber marked birch leafminer using pathogenic fungus and a nematode (urban environment) Leaf mining was a preferred feeding behavior in Alaska in early 2000's, linked to Pacific Decadal Oscillation cycles creating cool wet periods and warm dry periods. Large aspen tortrix likes the cool wet periods and the Aspen leafminer dominated during the warmer drier periods. There is a maritime effect. This is still being sorted out for predictive models.

## **Final business**

Priority/Action items identified

Pursue analyze long term DFTM early warning system data possibly w/ ADS geospatial connection. Post data so that it is accessible. West wide analysis was supported but needs funding, project lead, and collaborators.

Evaluate western spruce budworm long term impact plots by Region.

Thinning in western spruce budworm literature review – Darren has compiled and sent to Kathy S and will send to share with group. Plan to report out next year, perhaps in a white paper. Goal is to identify gaps in current knowledge base, reconcile conflicting results, and pursue research projects as needed.

WFIWC currently has its own website and has a nonprofit status. R6 maintains the websites for BBTWG and NADWG. What is the current membership/affiliation of the technical working groups? Should this be changed to non-profit like WFIWC site or all three groups linked together on with one site.

WFIWC.org site migrated by Joel Egan, which includes common names committee info where proposed name changes should be posted for comment for thirty days.

Action Item from last year: Maintain expertise for conducting aerial and ground-based spray projects to control defoliators. Technology is changing and we need to know where to find expertise with mountain flying applications. Gypsy moth spray projects in the east can provide needed expertise for now. Connie M has expertise with MCH flake formulation applications. May need to attend training session back east on updated technology. Steve M or Nancy could ask Dick Reardon to put on course. There are video courses. Joel M mentioned a training planned in Pennsylvania that could be worthwhile (Calibration, spray blocks released at correct biological window, weather factors may cancel operations) Tom E. said EPA changed rules in 2012 for aerial application to forest canopy. Permit required from EPA or state.

\*\*\*Action item – have a one hour presentation at this meeting next year by expert such as Dick Reardon or Amy Onken(?)

\*\*\*\*Action Item – compile the spray information that is already out there – possibly house on website?

\*\*\*\*Action item – get FHP Regional pesticide coordinators involved for EIS work to cover potential aerial applications.

Next meeting will be hosted in Utah.

Thanks to Joel Egan for moderating the session and providing notes! Great Job!