

False Brome Working Group Meeting Notes

April 25, 2007

Eugene District BLM

**Deb Clark**- had a teaching conflict. Cindy reported that the grant she had been working on with several folks in the group did not get funded. See agenda for information about false brome photosynthetic rates being higher than other weeds competing in forest lands.

**Bitty Roy**: University of Oregon, Professor of Biology ([bit@uoregon.edu](mailto:bit@uoregon.edu))

How do enemies and competition affect the demography of False brome in native and invasive ranges?

Bitty showed us a presentation she gave at the ODA Weed Symposium in Corvallis last December. She noted that PNW false brome's origin is Italian but it's close to the Swiss populations where she has her study sites. Most of the Swiss sites are found in valleys not alpine but she thinks this is an artifact of its introduction into valley areas. Study sites in the PNW include Bald Hill, Mt. Pisgah and Sweet Home.

All false brome is infected by an endophytic fungus, *Epichloe sylvaticum*. It produces a strong alkaloid that represses herbivory (mutualistic relationship). In Sweet Home populations there is also a rust fungus that affects the longevity of plants and seed viability. *Epichloe* can also act as a parasite and stop seed production in *Brachypodium* when it is in its reproductive phase. The reproductive phase looks like a white ring on the stem. Look for it when false brome is flowering. This reproductive phase has not been found in Oregon, only in Switzerland. Look for it. **Bitty will send out photos of what to look for.**

Bitty has conducted several experiments to determine if insects or fungi are controlling population growth. She used insecticide and herbicide treatments on plots in PNW and Switzerland. Growth rates of BRSY were much higher in Oregon (up to 150 new seedlings/culms/microplot in May) than Switzerland. Neither insecticide nor herbicide treatments proved enemy release theory.

Bitty also conducted some competition experiments with native (*Festuca roemerii*, *Elymus glaucus*) and nonnative (*Festuca arundinacea*=*Schedonorus arundinaceus*) grasses. The natives were poor competitors but *Schedonorus* was a better competitor than BRSY. False brome grows less well with competition.

Bitty thinks the major difference between population growth is that Swiss populations grow through tillering and PNW populations grow through seeds. Seed set in Switzerland is controlled by the reproductive phase of *Epichloe*.

New studies will focus on soil nutrients, mycorrhizal relationships, seed and soil pathogens, experiments with other nonnative grasses including *Holcus lanatus*, *Dactylis glomerata*, and spillover and apparent competition.

**Tom Kaye:** Institute for Applied Ecology Update ([kayet@peak.org](mailto:kayet@peak.org))

There is a new BRSY map on their website, especially new Portland sites

Tom has a grad student who is using *Brachypodium* as a model of community invasibility. They will ask the questions:

- Where is it going? Start on edge, move into forest or meadow
- What's regulating its movement? Light, pathogens, etc.

Andrea Thorpe is working on soil interactions with BRSY, They found in previous experiments that BRSY grows better on BRSY soil than sterilized soil. David Rosenthal from PSU has 1000 plants from different sources and they want to look at the pathogen loads within them.

**Brad Knotts:** Oregon Department of Forestry ([bknotts@odf.state.or.us](mailto:bknotts@odf.state.or.us))

Brad updated us on the ODF programs with relation to invasives:

1. Private Forest Program- enforces Forest Practices Act, assists private landowners in management
2. State Forest Program- manages land in Tillamook and Coos counties
3. Fire Protection Program- focuses on economical and aggressive fire-fighting

The Oregon Board of Forestry approved a proposal that lists invasive species as being one of the top 8 items on the Work Plan for the State of Oregon. Their priorities are:

- Legislation to make ODF seat on Invasive Species Council (H2068, passed in House)
- Invasive species coordinator position for ODF- unfunded, would require additional general fund \$\$
- Department-wide Invasive Plant Strategy- current focus is on identification/awareness for field offices- garlic mustard and false brome are target species. Brad was main author of Strategy which is being refined.

**Bitty Roy:** Discussion on Toxicity to herbivores

Bitty notes that endophytes produce alkaloids that are responsible for causing seizures and gangrene to animals. There is only one paper on the alkaloids in *Epichloe* but the 4 classes the author looked at are not those in BRSY.

**Note- Need to check with Ryan to see if any of the symptoms have manifested in sheep experiments.**

Still unknown effects on wildlife.

**Ellen Deehan:** Oregon State University ([ellen.deehan@oregonstate.edu](mailto:ellen.deehan@oregonstate.edu))

Briefly discussed white paper on false brome control. It includes information on chemical and non-chemical control methods and their effectiveness. Ellen is seeking edits to the draft (**this will be sent around via email with a due date**).

**Eve Montalvo-** Mid-Fork Willamette Watershed Council ([mfwwc@efn.org](mailto:mfwwc@efn.org))

Eve reported that there is a new working group: Mid Fork Willamette False Brome Working Group which is a compendium of federal, state, private, watershed council folks wanting to work on BRSY around the Jasper/Fall Creek area. All are invited to join. The group is working under the umbrella of the watershed council so as to facilitate private landowners in the watershed with education on false brome.

Eve recently submitted an OWEB grant to fund survey and control on private land within the lower watershed, which comprises only 27% of the 120,000 acre area. She has requested funding to hire a coordinator for this outreach effort.

**Will update on progress in the fall.**

**Tom Kaye-** IAE Project: Mowing Experiments. They are working on a project with Eugene BLM on a set of replicated mowing experiments with a variety of mulch techniques including native straw, wood mulch and seeding with natives. The purpose is to develop a non-chemical alternative to reducing and/or containing false brome along roadsides. They will start in May in Mid Fork Willamette watershed. Looking at timing of mowing to inhibit reproduction.

**Debbie Johnson-** OSU ([deborajohnson@oregonstate.edu](mailto:deborajohnson@oregonstate.edu))

Debbie has an Honors College student who is looking for a project. If you have an idea, contact her.

Weedmapper is up to date with false brome sites.

**Jason Blazar-** Stewardship, Friends of Buford Park and Mt. Pisgah

Jason is working on treating false brome in Howard Buford Recreation Area (HBRA). He is using an integrated approach, using herbicides where it is dense and away from trails, manual where it is patchy and close to where humans might come into contact with herbicides.

They got funding from ODA and BPA for control. Their mapping shows that 1-200 acres within the 2300 acre park is infested. They used volunteers from the university for mapping and found that they underestimated density in some areas. Their current program is eradication of 40 acres in a 620 acre area. They have an adopt-a-trail program where volunteers treat 5-10 feet from trails. They treated 120 total acres in fall 2006. Of the 20 acres where they used a chemical (glyphosate) treatment, they report a 90-95% reduction, Seedling germination

varies. The repressed natives are responding beautifully, Plan to spot sprat next 3 years, Will broadcast native seed following completion of chemical treatments.

**Field Trip:** Tobias Policha (Bitty Roy's student) and Jason Blazar took some of the folks out to see Bitty's experiments and Jason;s treatment sites.