

False brome working group 10/17/2006 notes

Next meeting: **April 25, 2007, 9:00, Eugene BLM-Willamette Conference Room**

I. Research updates

A. Deborah Clark (Oregon State University) reported on the unsuccessful USDA grant proposal addressing false brome/Douglas fir interactions. USDA feedback noted lack of preliminary data as a problem. Deborah said they may resubmit or revise before submission. She noted that an undergraduate study will focus on soil collected with and without false brome to look at soil effects of invasives.

B. David Rosenthal (Portland State University) gave an updated on the genetics work out of Mitch Cruzan's lab at PSU. The sources for the American populations appear to be from Western Europe. Markers appear most closely related to populations in Spain, France/Italy and the UK. The US populations are depauperate genetically, compared to the full potential expressed over the range of the grass in its native habitats. The Oregon false brome at this point appear to be from two separate introductions, the "Corvallis" group (roughly Sweet Home north), and the "Eugene" group (from Sweet Home, south). There is some evidence of gene flow between the two groups.

David's group has a pot study of US and European populations looking at heritability of growth rates, tillering abilities, and flowering; all traits related to invasive potential. We submitted the proposal to NSF this summer and we should hear about it within the next month or so.

(David noted that false brome was a skin irritant based on experience of the researchers in Portland. Later, he wrote, "I should clarify that it is the dried material itself that is an irritant NOT the burning of it. We have been weighing and processing dried *Brachypodium* that we harvested from our study. Several of the folks working with the dried *Brachypodium* noted that they were getting itchy when they worked with it (me included) and two folks noted that they had some small reddish bumps that were itchy after working for a while with the dried biomass. These individuals also suggested that they might be "spreading" the so called irritation with their hands. Ultimately, this goes away fairly quickly and washing hands and forearms will mitigate the problem.")

David also suggested that it is possible that the false brome has not yet reached its maximum expansion phase in Oregon. (Most present did not appear to find this a welcome notion...)

C. Tom Kaye (Institute for Applied Ecology) covered a pot study examining biofeedback in soils. Soil was collected from adjacent patches of prairie, with and without false brome. False brome, Roemer's fescue (*Festuca idahoensis* ssp. *roemeri*), and Willamette daisy (*Erigeron decumbens* ssp. *decumbens*) were grown in "live" soils from the prairie soils with false brome and without false brome, and in sterilized soils from the same sources. The false brome did better on its own live soil than live prairie soil, but did poorly on its own sterilized soil. It did better on sterilized prairie soil. The fescue response was also best on its own live soil, but worse on the false brome soil, and poor on

sterilized prairie soil. The daisy grew better on live false brome soil than on live prairie soil; it grew somewhat better on the sterilized prairie soil than on sterilized false brome soil. Differences between response on live versus sterilized soil indicate that it is a biological effect on mutualists and/or pathogens in the soil biota that are affecting the vascular plants. Note that the daisy may grow better in soil from false brome dominated sites, but it was growing in a pot without actual competition from the grass. The fact that the daisy is a rare species was highlighted, since rare species are typically subject to negative feedbacks, according to specialists present. Andrea Thorpe (also IAE) said that her experience with studying allelopathy suggested that this experiment cannot provide any information about allelopathic root exudates in false brome since soil sterilization generally does not affect exudates. Again, she interpreted the species' response to show that the effects were mediated through the biota.

II. Control/Treatment

A. Glenn Miller (Oregon Dept. of Agriculture) reported on field control this field season. He mentioned that most of his herbicide applications are glyphosate, largely due to limitations on federal agencies and/or public acceptability in sensitive publics as in Lane County.

Glenn stressed that coverage seems more important than concentration. Also, April treatments with 2% Roundup were not effective. Treatments in early spring are tempting because it would be an advantage to treat while natives are still dormant. He speculated that early spring treatments with other herbicides could show different effects.

A July treatment on Army Corps of Engineers land by Quartz Creek (northeast of Sweet Home) was extremely successful. He suggested that there may be soils characteristics there that could contribute to what seemed to be a persistent effect.

He recommends two consecutive heavy herbicide treatment years, followed by a third year with spot treatment plus seeding. In solid stands, treating for the first three years is to exhaust the seedbank, but there will remain a long-term commitment to spot treat individual plants.

False brome treatments in Buford Park were approved by the Lane County commissioners. Glenn and Beth Myers-Shenai (ODA) worked with volunteers to treat 7 infested acres out of 72 gross acres.

Glenn speculated that rodents may act as vectors. Several audience members agreed that deer were outstanding vectors as well.

B. Tom Kaye (IAE) reported that they have to restart their seed bank study this fall with new techniques. At this point, it appears that seeds last between 2 and 4 years in the soil.

C. Matt Blakeley-Smith (IAE, OSU, EPA) reported on a Eugene BLM study on mowing and mulching treatments aimed at minimizing false brome dispersal along roads. They used two mowing regimes plus mulching or not mulching. The regimes were single mowing versus mowing 3 times in the season. The mulch was native blue wildrye (*Elymus glaucus*) straw with added *Elymus* seed. They found that false brome cover was reduced by both mowing treatments, but there was not much difference between mowing once versus three times. The biggest reduction was from mulching, in combination with either mowing regime. The mulching plus mowing reduced false brome cover by about

85%. The blue wildrye establishment from seeding was poor, possibly due to mulch and compacted soils along the roads. Matt stressed mowing and mulching before seed drop. Their mowings were in late April, mid-June, and late July. Their sites were shady, so late seeding is to be expected. More exposed sites might seed earlier, so treatments need to be adjusted to expected maturity dates.

Butterfly Meadow update-site of ODA grant to treat false brome in Kincaid's lupine/Fender's blue butterfly prairie on OSU McDonald Research Forest and Starker Industry land. Initial herbicide trials (described in more detail in previous notes) were expanded to quarter acre treatments. Pre-emergent herbicide (Surflan) was mixed with other herbicide (Accord/glyphosate) in an October treatment to protect natives that would be dormant by then. Bare soil post-treatment should be addressed. After the 2nd follow-up treatment, seeding and/or plugs could be used. Plugs may have advantages if used in combination with pre-emergent herbicides.

False brome mostly germinates in early winter through spring.

Matt and Fred Pfund (Starker) observed native *Elymus glaucus* recovering at the site after false brome removal.

D. Bradley Knotts (Oregon Dept. of Forestry) reported on false brome on the Santiam State Forest (up the North Santiam River). A single site was spotted by foresters on a field trip for big leaf maple establishment. The site was found and treated in June with 1.5% glyphosate. It appeared successful except where there was high cover of bracken fern. He suggested that it didn't appear to be a cover issue, and speculated that the bracken may have some other unknown effect. More sites were discovered during an Oregon Invasive Species Council fieldtrip where ODA weed specialists kept finding more false brome (as it always seems to go).

ODF will be presenting a preliminary report to the Oregon Board of Forestry. The Board may consider recommendations to develop a strategy to address invasives, including false brome. At this point, no strategy is in place, and surveys of invasives have not been conducted. Bradley expects to outline for the Board the need for strategy and inventory, outreach and education, working across ownerships, identifying sources of invasion, and coordinating with others.

E. Ellen Deehan had prepared a draft outline for the white paper on treatment alternatives (follows notes). Please email comments to Ellen. (Ellen.Deehan@oregonstate.edu) Also, please let her know if you want to draft one of the sections identified in the outline.

III. Debbie Johnson (OSU Research Forests) reported on the current invasives survey on McDonald-Dunn Forest. The field crew revisited inventory plots that were used to map false brome-dominated communities in 1993. Though the mapping hasn't been completed, the area mapped with invasives appears to have increased 30% over the 1993 mapping in the McDonald Forest. The Dunn forest had much less false brome in 1993 (and still has less), but current mapping won't be complete there until later this fall. Himalayan blackberry and Robert's geranium also have increased dramatically since 1993.

Debbie will be presenting further recommendations on invasives control to the College of Forestry next month.

IV. Thinning and false brome:

A. Debbie Johnson covered the afternoon's field trip to a thinning study on McDonald Forest. She mentioned that the Douglas fir stands had different densities of trees, and that the false brome appeared to respond to the tree spacings.

B. Cindy McCain showed a short powerpoint on a thinning project on McKenzie River Ranger District (Willamette National Forest). A transect was established in each of two thinning units prior to logging to document the false brome present in the stands. False brome was most abundant near the main road, but was scattered through the forest. In the first year after thinning, abundance and distribution didn't appear to have changed. In the second unit, the transect was buried by logging slash, which at least had an immediate mulching effect. Cindy speculated that the false brome may show a lag time before increasing in response to the open canopy and disturbed soils.

V. Education/Outreach

Vern Holm outlined the Weed Management Partnership progress over the last year. (We had a confusion on dates, so the Mt.Pisgah/Buford Park agenda item will be covered next time—oh, well.)

VI. Topics for spring meeting

The group would like to meet in Eugene, inviting Bitty Roy and colleagues to discuss their work on competition, herbivory, and pathogens. Glenn also suggested that a field trip to Buford Park could be an interested addition. Stay tuned for developments, dates, time, and location.

Other items for the spring agenda:

Deborah Clark-proposal update

Restoration/revegetation at Butterfly Meadows

Board of Forestry/ODF update

Treatment white paper

Efficacy of False-brome Control Methods

1. Chemical Controls

- a. Vegetation herbicides
- b. Seed-emergent herbicides
- c. Hot-Foam

2. Mechanical Controls

- a. Mowing
- b. Soil cultivation
- c. Hand-pulling
- d. Mulching

3. Other Controls

- a. Fire
- b. Grazing
- c. watering

4. Reseeding

- a. seeding with natives
- b. seeding with non-natives

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