

Weed control Q&A: Brooms and Other Woody Invasives

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In February of this year, 45 broom managers from around the state gathered for a raucous discussion of the good, the bad, and the ugly in broom control. Join us as we move the conversation beyond tools to the more complex issue of achieving sustainable control on a landscape scale. Summary information from the February meeting will be distributed and discussed.

Introduction:

Janet –

- This is a follow-up from the February meeting about broom species. Several experts attended the last meeting. The meeting was written up for treatment and specific advice from and for land managers. This is being put together currently, but is not done yet.
- Help is needed with tables, comments, and especially costs. Currently listed costs are estimates and are likely not correct. This needs to be refined before it goes up on the website.
- Today's workshop is not for nitty-gritty of each technique, but about choosing techniques for different situations. WHEN to use management tools.

Break-out Groups: 3 Scenarios

1. Fuel Breaks
2. Restoration
3. Seedlings

Results from Break-out Group Discussions (whole-group discussion):

1. Fuel Break Scenario: Ridge-top fuel break on the roadside, a 200' wide swath that has type-converted. In the 90's this was just mowed.

- Break-out group notes:
 - This is similar to roadside and logging sites.
 - Hand removal is possible at small scales.
 - Herbicides work great and minimize soil disturbance.
 - Mowing can reduce fuel loads, but not long-term costs.
 - Timed mowing can reduce seed set.
- Mowing the area- it won't kill it but will be a permanent annual task. There is still seed production here.
- There might be a window to spray. Mow in late spring, then 2 months later, 2% glyphosate foliar application, 3 years in a row. First and second year the effort is high but the third year costs are much lower. By the third year, you can keep it from setting seed.

- Question: Do you need to get it out in this case?
 - Cost projection of annual mowing is very high. Landscape management is preferable, will drive down permanent maintenance costs.
- Question: Mow then tarp?
 - No, not 40 acres. This is too large. 1/3 acre was difficult. Less than 1 acre hand removal or tarping may be viable tools.
- If you can't get herbicides there, then hand-pull. This is more expensive though.
- Question: Mulching?
 - Issue of scale again- this is too big an area. A 1980's experiment showed that 8" of mulch failed and it is still coming back.
- Many site-dependent aspects to managing this scenario.

2. Restoration Scenario: 100 acres with valuable plants, and part of the area is a watershed area that feeds a municipal drinking water source.

- Notes from break-out group:
 - Survey for special status natives.
 - Seedbank test (and viability).
 - 10-year strategy:
 - Herbicide: 50 acres NOT draining to reservoir.
 - Hand-pull: Sites of exceptional value
 - Goat grazing: On NON-herbicide, NON-special status sites
 - Torch: Seedlings and re-sprouts where appropriate.
- Survey the area for special status natives. A seedbank viability study wouldn't take long.
- Look at a 10-year strategy, and work with the part without the watershed first.
- Question: What about burning?
 - No, this would impact the oak woodlands. Around the plants of exceptional value, hand-pull.
- 10 year strategy could involve goats. The first year they would chew it back and then you could hand-pull your way in. Flame the seedlings to prevent reestablishment.
- Janet - Likes the partitioned method. Unfortunately, goats like madrone; the trees would have to be protected. You could hand-pull post-goat, but the result of herbivory would be that the root mass would be expanded and harder to hand-pull.
- After using a "holding-pattern" of mowing, you have 100 acres of 20-year old stumps too.
- Janet – Cut-stump herbicide treatments good of land management agency policy allows for it in water-supply watersheds. Toxicology studies show risks to drinking water can be mitigated with timing, buffer-zones, selection of least toxic herbicides.
- All-in-all the goals of the first two scenarios are different. With the fuel break scenario, you can mow, and the goal isn't restoration. With the restoration scenario, you can't live with the broom and it must go. In the restoration scenario as well, you are concerned with ecosystem-level changes due to invasion, such as nitrogen fixation by broom.

- Question: Goats for broom control?
 - Janet – They will eat broom when there's nothing else, but they will wander to other plants, so you'd need to manage them intensively. They won't kill the broom.
- Goats may bring in weeds, so it's important to request weed-free goats- that have been cleaned, and fed weed-free food.
- Sometimes the place and site are too difficult to get to, and you can't justify the use of time-intensive methods, such as hand-pulling.
- Question: If there are endangered plants here, you have to restore this area. How about using a highly-competitive native?
 - Yes, but not many species can out-compete broom and if it does, do you really want it there?
 - There is too little data on this topic, and you may get a new problem.
- Big areas, you can mow in perpetuity. Also you could have 1 final burn to kill off the stumps; a very intense fire and then use other resources to follow-up. ____
- Also you could change the way you burn- pretreat, or burn in a different season
- Janet – Sometimes in these areas, you're lucky to pull off a burn at all due to winds, fuel loads, proximity to urban areas, etc.

3. Managing Seedlings: 100 acre site where the adult stand has been removed by pulling or burning. Site now supports 1,000,000 new seedlings.

- Suggestions from the break-out group: 1) Flame the seedlings if possible, although this can be iffy if there is not enough moisture. 2) Spray them. 3) Pull them.
- Carla – We're conducting a pilot study on using a chemical from *Synopsis alba* seed pressings. It's a chemical compound that is effective on things in that family- broom. We're using 3 levels of dosage, and may need to up the dosage. Don't have conclusive results yet, but so far, we have a drop of 80-90% in the worst sites. We're going for 100%.
- Question: Do you need a license for this?
 - Carla – No it's experimental, and we're working with University of Montana. They've looked at the effect on the soil profile and biota, and they've shown no negative effects with respect to soil community.
- Suggestion: Using Ascetic acid, 15-20%. This works on seedlings, just above the cotyledon (once plants have first true leaves), but chemical burns to applicator a problem.
- Suggestion: Matran, which is concentrated eugenol, or clove oil. The carcinogen is removed. Achieves 99% kill when applied at high rates, but it is very costly.
- Suggestion: 5% strength Scythe, or Peloric acid. It has a very short half-life. This could be used, for example, when you've planned to flame, and missed the window of opportunity to use a flaming method. There have been some limited trials on this in 2 sites, and results will be presented next year at the conference. Maybe someone else could do trials too? This won't work on Scotch or Spanish broom, only on French broom, when young. This species is more like an herbaceous species at early stages than the other two species, which tend to become woody more quickly. Using this on re-sprouting stumps is not effective.

- Question: In general, with broom, can we pull in August and September? Using a weed wrench?
 - Janet – Timing is relevant. If you do it in winter, it's more effective. If you can pull in summer, it's slower, and there is no change in germination next year (seeds have dropped). One idea is to pull in August, then flame in December. That way you get two cohorts.
- Also, the firmness of the soil may affect your success, and will vary with the time-of-year.
- If you just cut the broom, you aren't disturbing the soil, and then the reserves won't be there in the spring.
- The broom has to be near senescence for that to work.
- Treatments therefore will be site-dependent.
- Question: There was a poster at the meeting about using a high pressure water treatment to get rid of seedlings. How would that affect the soil?
 - Janet – It works with these seedlings. It's a high-pressure wash at about 1400 psi. It does disturb the soil. This method could be used, for example, for tall fescue or pampas grass. It's pretty incredible for getting out root balls. This method is not suggested for mature broom, however. You'd basically make a bunch of muddy ground and then have to hand-pull out the root mass anyway.
 - A lot of water would be used. On 1/3 acre in 2 days, 600 gallons of water was used. This method remains promising, though.
 - Keep in mind that this is a technology that a vendor is selling. This is probably most effective on seedlings.
- Question: Are you just going to churn up lots of mud and spray it everywhere?
 - No, you can shave these off at the soil line. This method has become much more precise. It's worth watching in the future.
- Carla – Are you going to lose soil? Is it possible not to?
 - Janet – This often depends on the operator. It's very precise in this case and is much improved.
- Question: What about on unstable slopes?
 - Janet – Spray if you can. On a cliff-face, try to cut it down, then use herbicide.
 - Ken – Leave broom and kill them on steep slopes. Removing them entirely can lead to serious erosion, so leave the roots.
- Question: And then use revegetation to speed the recovery?
 - Janet – Watch the seedbank, and see what comes up, to see what you have there. Don't re-vegetate too soon.