A Test of Removal/Control Techniques for French Broom

CalEPPC Broom Control Working Group:

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French broom (*Genista monspessulana*) is an invasive leguminous shrub that displaces native vegetation and colonizes forestry lands after harvest, preventing regrowth of economically valuable tree species in northern California. Research done on related species and the little information known about the ecological characteristics of French broom indicate in order to remove mature shrubs and prevent reinfestation some combination of techniques is necessary.

The Broom Working Group of CalEPPC developed a field experiment, sited at Jackson Demonstration State Forest near Fort Bragg, CA, in which the efficacy of a variety of different treatment combinations were examined with the following two goals:

(1) to rigorously assess a variety of treatment combinations regarding effects on the seed bank, seedling germination, mature broom mortality, and re-establishment of non-broom vegetation, and

(2) to determine the person-hours required for each treatment combination. The treatment combinations were as follows:

(a) Broom pulled using weed wrenches, removed it from the site, any emerging seedlings weed whipped in late June of 1994, and 1995 (pull/remove).

(b) Broom pulled using weed wrenches, left on the block, dried, then burned September 1993. Any seedlings flushed to germinate weed whipped in late June of 1994, 1995 (pull/burn).

(c) Pull broom using weed wrenches, leave the broom on the block as a mulch (pull/leave).

(d) 30% triclopyr in 70% penevator oil applied on each French broom stem of .5cm or more in the block using low volume basal bark method (squirt 1ml of the herbicide on the stem at 5cm above ground level using a hand applicator), broom allowed to stand for four weeks so herbicide had maximum impact. When dead, broom was cut and removed from the block. Glyphosate applied on seedlings which germinated by late June 1994, 1995 (herbicide/cut/remove).

(e) Triclopyr applied to broom and broom cut as in #4 above. Broom burned September, 1993. Glyphosate applied on seedlings flushed to germinate by late June 1994, reapplied 1995 (herbicide/cut/burn).

(f) Triclopyr applied to broom and broom cut as in #4 above. Cut broom left on the blocks as a mulch (herbicide/cut/leave).

(g) No changes made to blocks (controls).

Each of the seven treatments was applied to five replicate, 7m by 7m blocks. Measurements of number of seedlings and mature broom plants, seed bank size, resprouting and percent cover were made in three, randomly located, 1m by 1m permanent plots within each block.

After two years the results are as follows. The herbicide/cut/burn treatment plots have no mature broom, significantly fewer seedlings, and a significantly smaller seedbank than any other treatment or control plots. Mulching with dead broom does not significantly reduce numbers of seedlings germinating, and makes it almost impossible to treat seedlings effectively with weed whipping or glyphosate, resulting in much resprouting of treated seedlings. The pull/burn plots have significantly larger seed banks than herbicide/cut/burn plots and pull/burn seedbanks extend 3cm deeper than they did before treatment. The pull/removed and herbicide/cut/remove plots have significantly larger seed banks than the burned plots but significantly smaller seedbank than the controls. More detailed information on results and time required for each treatment application during the symposium presentation.