Weed Control Techniques
Topic leaders: Joe DiTomaso, UC Davis, and Mike Kelly, Kelly and Associates
Facilitator: Mona Robison, California Botany Surveys and Tours
Note taker: Cindy Burrascano, California Native Plant Society

Introduction

The first section ("Discussion") of this discussion group was a roundtable style discussion of new developments in control techniques among Joe DiTomaso, Mike Kelly, and Mark Newhouser. In the second section ("Group Discussion and Q&A"), the discussion was opened to the audience for weed control questions and comments.

Discussion

Joe DiTomaso (JD) on **burning for Medusahead**: Literature says that sometimes burning works and sometimes it doesn't work. In four areas where JD has burned he has had some good results and some bad results. The correlation between successful burns is having thatch on the ground ($R^2 = 0.98$). Having a large amount of thatch gave good kill with fire and having little thatch results in poor kill of Medusahead after a fire. Areas with low thatch levels tend to correlate with snow so burning of Medusahead in high elevations is unlikely to be successful for providing control.

The **Saltcedar biocontrol** works well in Nevada but not Southern California. New taxa have been collected and a different variety or species (taxonomy not published yet) from Greece was tested in Cache Creek. The insect is defoliating *T. parviflora*, although it actually prefers *T. ramossisima*. There is no *T. ramossisima* in the Cache Creek drainage. There was a long lag but now a 16-20 mile band of river has been defoliated. They are not spraying anymore in Cache Creek.

Mark Newhouser (MN) explained his **hook for use with small to medium patches of *Arundo***. He used electrical pvc pieces to create and curve hook in combination with plumbing joints and an 8-foot wooden handle. The wooden handle is carved down at the connection with the pvc piping to allow a better fit and the pvc is screwed into the handle with a large bolt. Wood works better than aluminum. The hook allows one to reach up into the patch of *Arundo*, twist with a turn and catch up about 10 canes to pull towards you. You can spray the leaves as you walk and pull the canes down allowing you to spray the tips and leaves while minimizing overspray.

MN explained the **bend and spray technique for *Arundo*** used by Team Arundo. Bending the cane and snapping it to allow spraying on the ground had the same efficacy as foliar spraying on *Arundo*. The canes are bent but left intact. The technique works well with 3 people. Two people bend the *Arundo* creating a layer and move onto a different area while a third person sprays the just-bent layer. The benders then return to the area that have been sprayed and bend down another layer. The biomass is left in place but is likely to be a fire hazard and drift is reduced. The technique is very labor intensive.

JD described a **drizzle gun** that delivers 4-5 gal/acre **for use on woody vegetation** such as Scotch broom and tree tobacco. They tested on 5-foot plants and found this technique to be the least expensive. It takes about one second to spray a plant in a W spray pattern. Roundup cost 14-15 cents/plant to kill with foliar whereas it cost 5 cents/plant with the drizzle technique. You use a higher concentration of herbicide but less area of the plant is covered (10-20%). Garlon use gave a similar type of savings costing 8 cents/plant. The drizzle gun can be attached to a backpack sprayer. It is from Spring Systems Company and is called a drizzle tip. This technique has been tested on Himalayan blackberry and worked on it. 10% Roundup gave 85% control when applied in the fall and 100% control when applied in the spring. Roundup was 100% effective in spring or fall when applied at 20%. Garlon was 100% effective at 10% in both spring and fall. This technique does not work for pampas grass since you need to hit every tiller to kill a plant.

Mike Kelly (MK) described using **dethatching prior to restoration** to get better weed control afterwards. One is partially removing seed with dethatching. Some company actually vacuumed their sites but it is generally too labor intensive for most. Dethatching can be accomplished by hand or tractor. Dethatching rakes with long tines are available from Home Depot and can be used to pull material off site or to create brush piles. It was suggested to include dethatching as an experimental element to see if it helps on your work site. Grassland dethatching was reported to be very helpful for natives.

MK described **using a drill for killing eucalyptus and palm trees**. He uses a 16" long drill bit for palm trees to drill into the center of the palm. Herbicide is then added to the hole. The plant slumps down on itself after a year or more. He is running an experiment to test how many holes and how much herbicide is needed to kill the palms. Fan palms die with 1 hole and somewhere between 0.25 and 0.5 mL Roundup. *Phoenix canariensis* are harder to kill and he is still collecting data. He is also comparing results with Roundup and Garlon. Defining "dead" may be not when the tree is all brown but when the terminal bundle is dead. JD said that palms have segregated bundles throughout and trying different depths might result in a completely dead palm. The herbicide is introduced into the tree using a rigid plastic tube from Consolidated Plastics (http://www.consolidatedplastics.com/index.aspx) and a plastic syringe. The tube is pulled out slowly to allow the herbicide to exit the tube. Palm oil is very corrosive so chain saws should be broken down and the chain, bar, and housing cleaned after being used on a palm tree. Killing in place can maintain the tree as habitat at least for a while.

Drilling works on *Pittosporum, Ailanthus,* Brazilian pepper, and hybrid walnuts. You can get a pack from a veterinary supply house that comes with a syringe to deliver the herbicide according to information previously obtained from Jim Dempsey.

Carl Bell was reported to use something called a **Boominator** for hand held spraying of large areas. There is an easy adaptor for a hand hold. You get a good spray to wet in large swaths where a truck sprayer cannot be used. They are available from Target Specialty (http://www.target-specialty.com/).

MK suggested we consider **use of herbicides besides Roundup and Garlon.** Telar over the top of native marsh species was effective at killing *Lepidium latifolium* while not affecting the native species. Milestone (aminopyralid) and Transline (clopyralid) provide pre-emergent and post-emergence activity with Artichoke thistle. Habitat (imazapyr) in the aquatic formulation has been very effective with invasive *Spartina* control.

Group Discussion and Q&A

Robert Snyder (City Davis Open Space) described **injecting *Arundo* with glyphosate** (30%) for control. A K-Gun was mentioned. Mark Hanson uses an injection technique with Japanese knotweed. He needed to get every node and the technique is useful for small clumps. 5mL undiluted/stem.

Pre-emergents. Don't use Landmark (Oust/Telar) if you want to plant right away. They are good for bare ground, and they will mix up the amount needed to do your specific acreage. You can plant perennial grasses one year after treatment. Arizolin and Resalin must be watered in within 21 days. They don't do so well on mustard. Milestone is effective with Marestail.

Granular vs. dry flowable? Ken Moore is testing granular Snapasolva (Isothyocynate).

Mary Ann (Palo Alto) has a 13 acre site where they are **hand pulling curly dock, *Dittrichia,* radish, *Hirshfeldia***. She wanted to know how much of the root could be left. The annuals can have root left in the ground but curly dock would need substantial amount of the root in the ground removed for hand pulling to be effective.

Dittrichia is a heavy metal accumulator. It causes a skin reaction when hand pulled so wear gloves. Knock Knock joke: Knock Knock, who's there? *Dittrichia, Dittrichia* who? *Dittrichia* into thinking I'm *Hemizonia*. *Dittrichia* looks like *Hemizonia* from a distance.

James Pyor asked about **leaving dead palms**. It was pointed out that there are large debris piles from fronds with either fan palms or *Phoenix canariensis*. They do not degrade rapidly. The fibrous nature of the trees tends to have them slump in place with death by drilling. They don't seem to fall over in the time frames they have been watched after drilling (1 year). They are easier to cut down after they have desiccated than when they are alive. Cheryl (Carmel) described Senegalese date palms as becoming brittle after a couple of years if left standing.

John Chapman (Santa Clara) asked about **basal bark treatment.** 12-18" spray of Pathfinder II on *Ailanthus*. Technique doesn't work with species with older separated bark as the bark doesn't let the herbicide move into the tree. Jesse Vinje (CNLM) asked if basal bark would work on Chamal Ash. No one had tried it. Doesn't work on eucalyptus. Drilling might be better.

Hybrid grape treatment? ¼-3" stems on plants that go 200 feet into the canopy. Cut stems and treat, drill into base and add herbicide, and girdle cuts were recommended.

Rare species potential may require more monitoring or a change in methods.

Waipuna effective (hot foam)? Janet Klein has done a lot of work but wasn't present to discuss. It was felt that this was not very cost effective, can't be used in many places, and takes a lot of time. If you have the right circumstances this can be an effective herbicide free method. The TNC website has a review (http://tncweeds.ucdavis.edu/tools/hotfoam.html).

New Western Society of Weed Science journal is featuring a *Phragmites* control article. WSWS will be held in Anaheim in March. There will be an *Arundo*/*Phragmites* Biology, Ecology, and Control Symposium coming up. The problem of keys for native versus invasive phragmites was discussed. JD said if in high salt area you most likely have the invasive strain.