

Riparian Habitats Discussion Group
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The initial discussion revolved around how to educate regulatory agencies and the public regarding the safety of the herbicides used to control invasive species and the necessity to use them economically and without unnecessary regulatory restrictions.

A. Buffer Zones for Herbicide Use Adjacent to Waterways:

Comment: *A contractor reported she was required to follow a 2500 ft. setback on salmonid streams.*

Responses: Applicators should be careful about accepting guidelines that seem unreasonable without asking the regulatory agency how the buffer distance was established. Determine if the restriction applies to foliar use only or if it applies to low volume or low drift methods (i.e., cut stump). Applicators need to remember that they can't violate label restrictions that prevent use *in* water, but that the hazard posed by use *adjacent* to water depends on the herbicide, application method and weather. Applicators should also become familiar with the current scientific literature on the toxicology and environmental fate of the herbicides they intend to use. A good source of this information is the EXTTOXNET website <http://exttoxnet.orst.edu/> maintained by UC Davis and other universities.

Comment: *NOAA allows no herbicide of any concentration on the Russian River when the salmon are running.*

Response: It's important to verify *exactly* what restrictions the Agency is referring to. Does the restriction refer only to uses in water or adjacent uses as well? Does the restriction involve use or detectable concentrations in the water? This is an important distinction. Many application methods may not result in detectable residues in water even when used in close proximity (i.e., cut stump, basal bark, wick application). Sometimes the applicator needs to educate the regulators in the many different application methods that might be employed at any one site.

Comment: *The requirements for water quality testing and reporting are more expensive than the herbicide use itself.*

Responses: This is often the case. However, there may situations where existing environmental fate and toxicology information may be used to support the environmental appropriateness of your proposed herbicide use. Here again, don't just except regulatory requirements out of hand without asking questions.

B. The Necessity of Using Herbicides on Some Weed Species.

Comment: There is a dire need to use herbicides on some difficult to control species such as perennial pepperweed and spartina.

Response: Yes, some species have proven to be difficult to control with non-chemical methods. Some of these herbicides are legal for use on water (i.e., the recently approved imazapyr herbicide Habitat[®] and various glyphosate and triclopyr formulations). The question is, how can we re-educate the public that has concerns.

The CA Dept of Boating and Waterways water hyacinth control program has quite a bit of environmental monitoring data in published reports.

C. Surfactants. (R-11, Activator 90, Competitor, Cygnet, LI-77, Agridex, Silguard, No-Foam A, Liberate)

Comment: *Much of the recent concern has to do with surfactants used with herbicides and not the herbicides themselves. People often confuse this issue. Ventura County allows no use of R-11.*

Response: Some surfactants are more toxic in aquatic settings than the herbicides they are used with, but this is not always the case. Not all surfactants are the same. Even when the surfactant has higher toxicity, its concentration and/or its persistence in water may not be sufficient to cause any measurable impact to non-target aquatic organisms. For example a recent CA Dept of Fish and Game study showed that concentrations of both the glyphosate herbicide Rodeo® and the surfactant R-11® may be initially high but drop down significantly after the first 24 hours. The CA Dept of Fish and Game Pesticide Investigations Unit has no record of any fish or aquatic organism kills due to the use of Roundup.

D. Perennial Pepperweed

Comments: *When pepperweed is near water the new imazapyr herbicide Habitat® can be used in place of the chlorsulfuron herbicide Telar®. (Telar® can't be applied to water). On upper side of San Pablo Bay Caltrans wants to try Habitat®. They need advice from contractors as far as when they should switch from Telar® to Habitat®. What are some of the guidelines about when and where?*

Responses: Chlorsulfuron has very low toxicity to fish. However, the herbicide is very soluble and active at very low concentrations and can travel a long way in water. The worst situation would be to have chlorsulfuron residues in water that will be used to irrigate crops...especially broad leaf crops. Remember that Telar is used in water at a concentration of about 2oz in 100 gals of water. This is very little use of the product and is safe if water is not going to be used for irrigation. The Telar® label does have a prohibition on use in tidal basins and estuaries. This probably has more to do with data gaps in environmental fate data in these types of sites rather than any toxicological issue. Right now, Telar® is the only thing that works on pepperweed. Also remember that the best current info available suggests that the ecological risk the weed poses to the habitat is much greater than the toxicological risk presented by herbicide.

Comment: *In Sebastopol, Sonoma County, citizens decided to get rid of pepperweed without herbicide. This involved using machetes around little kids and trampling down the surrounding vegetations. 200 people came out. This should be a good test to see the effectiveness of non-chemical attempts at control for this species. Convincing people that herbicides use for these purposes in ecologically appropriate takes patience and good, credible information. Attempting hand removal of Pepperweed can be a very bitter experience.*

Responses: Get documentation on control measures whether they are chemical or non-chemical. Cal IPC is very interested in this type of information.

Experiments with *Pepperweed* showed that a small rhizome piece sprouts readily (and in the dark)! Pepperweed control requires something that will translocate to the rhizomes. Left unchecked, pepperweed produces a huge amount of biomass that is a significant resource drain and the quantity of biomass quickly outstrips resources. The goal is to reduce it to a manageable amount. However, herbicide is generally not thought of as a long-term solution. Other management activities need to be discovered to discourage future infestations and to maintain a stable native vegetation component

Goats were tried in a comprehensive study; but the pepperweed came back. Mugwort can't compete with pepperweed nor can most other native species.

Salting works and it's cheap, but is it environmentally appropriate?

E. Parrotfeather

Parrotfeather will out-compete water primrose. Renovate[®] is effective but must be used at a low tank mix concentration. If the concentration is too high it will produce only top-kill and no translocation. With this species it's very important to be vigilant and get an early start on control efforts.

F. Arundo or Giant Cane.

Comments: *There was a discussion re: the merits of cut stump and foliar applications.*

Responses: Glyphosate can be effective. Many believe that non-cutting methods work best. Leaving the foliage intact will allow more herbicide to be translocated to the rhizomes. One person commented that most failed sites are cut stump sites.

Bill Bradbury likes "cut stump." If you want his methods, send him e-mail and he will tell you by return mail. In Ventura the willows and *Arundo* were cut to the ground and the *Arundo* sprayed. The willows came back within 3 years. He said you can't kill willow with Roundup.

F. What About Soil Organisms?

Responses: There are several studies on glyphosate impacts on soil microbes. This has not proven to be a legitimate issue. (Busse, Matt and R. F. Powers. 2000. Progress Report on "Effects of repeated use of glyphosate on functional diversity and key processes of soil organisms". USDA Forest Service, Pacific Southwest Research Station.)

G. Anticipating Problems:

Comments: A highly experienced person may take a lax attitude about herbicide use. This can be transferred to less experienced workers and can result in bad practices. If workers see a careful supervisor, they'll be careful.

Good tools may have unexpected consequences, but this doesn't mean they should not be used. Some pesticides break down into toxic components. These should be matched against known toxicity values. Different chemicals in the same space may interact. These problems should be watched for, but they shouldn't prevent the use of a good tool.

Onionweed in San Diego area. A 10 acre stand on San Marcos UC preserve was treated with Aquamaster, which worked really well.

H. Preventing Drift.

Mechanical ways: trimming native, pushing and trimming, 10 trimmers to 1 sprayer, large garbage bags to create a shield, blow sprayer with the wind, basal treatments, wicking, can't come back and foliar treat seeded sites, hockey stick wick (use on mustard), CSS mustard – wicking when mustard is 6 in. tall, Pepperweed when bolting.

I. When Construction Spreads Weeds.

Try to build weed protection into specs. Make them sign off on it. Clean equipment and fill is cheap next to cleaning up spreading weeds. Have an inspections schedule – check! It's important to find infestations early.

Star Thistle comes in on equipment, rip rap. Put the onus on the construction company. The contractor's guilt may be obvious if they brought in contaminated fill or spread mulch on erosion sites. Don't let them move into the next phase of contract if specs not met.

Suggestions:

1. Cal-IPC should work at regulatory level to educate regulators about the necessity and environmental appropriateness of herbicide use to control invasive weed species.