

**TAdN Meeting**  
**Oct 9, 2002**

**TAdN Roundtable Discussion**

Present:

Todd Adams, Napa County Flood Control  
Roger Buttermore, USFWS, Stockton, Bay-Delta Coordinator  
Kristin Carter, CSU, Chico, Research Foundation  
Deanne DiPietro, ICE, UC Davis  
Karen Gaffney, Circuit Rider Productions, Windsor  
Bob Hass, Arundo Erad. Prog., Sonoma Ecology Center  
Mark Horney, UC Cooperative Extension  
Jim Johnson, San Francisquito Watershed Council  
Mike Krebsbach, Monsanto  
Dawn Lindstrom, Coordinator, Putah Creek Council  
Rich Marovich, Lower Putah Creek Coordinating Committee  
Robyn Myers, Watershed Planning Services, USDA  
Pam Romo, Friends of the Creeks, Walnut Creek  
David Spencer, Agricultural Research Service, USDA, Davis  
Frank Wallace, CNPS, Sacramento Weed Warriors  
John Watson, Cache Creek Conservancy  
Mark Winkel, Pestmaster Services

**Rich Marovich/Putah Creek**

40% coverage 10-acre site, stream alteration permit on 30 miles Putah Creek using new excavator equipment on sandy terrain; 6 acres cut already showing landowners Arundo infestations using aerial photos still probably underestimating the infestation by at least 25% once begin work, note the infestations are more extensive, e.g. cottonwoods hide some of the Arundo.  
ortho imagery (B&W): piggybacked on survey being done in Sacramento county; since Putah Ck drains into Sac River, were willing to extend survey up Putah Creek. Cost: \$5,000; ordinarily would have been \$25,000  
normal color photog: got good deal on that, also: Cost: \$13,000 (custom flight), half cost of next lowest estimate; since then, company went out of business

**Bob Hass/Sonoma Creek**

Sonoma Creek Eradication Project: Mark Newhouser has been doing a lot of work with Lilly Verdone, project coordinator, on local Arundo eradication effort, securing landowner permission for property access, talking with fire departments, securing permission for hauling or burning biomass.  
CCC was contracted to work on areas of the largest infestations, between Maxwell Park and the Riverside Road bridge.  
most of sites in Maxwell Park area have been cleared by staff and volunteers.  
planning to spray sites that were not treated by the cut-stump method.

**Kristin Carter/Chico:**

Deer Creek Proj., 12 acres, 2.5 river miles, finalizing data, large patches of Arundo  
mouth Sacramento River, 95% contained  
Riparian vegetation is coming back at several sites; will share report w/photos soon  
Brickyard Creek, 2nd stream cleanup, 30 bags hauled out; 90% contained after 1st year  
Reeds and Redbank Creeks: just starting  
participating in WMA (2 counties)  
changed eradication strategy, were using local farmer; now working with ag commis.  
office--contracting to do herbicide applications, much lower cost, already know the  
areas and often have agreements w/agencies to access property  
are working on so many streams, that are running into labor problems.  
purchased mule to pack in all herbicide materials; maybe good pr, too (got mule from  
Yellowstone National Park)  
mulch piles: had Arundo regrowth on one creek from one pile, not sure exactly why;  
always kept mulch piles separated; it was dead for 1.5 years, and not near any water  
possibly turning mulch piles might avoid regrowth?

### **John Watson/Cache Creek:**

2nd yr. of 4-yr grant, used excavator in congested areas, otherwise, just spraying the  
Arundo and tamarisk; last yr. sprayed resprouted growth in May, with 80% control;  
just sprayed again, using Roundup Pro  
Oct: covered 9 of 14 miles; should finish all next year, then will treat seedlings  
currently using mixture of 3% Roundup Pro; started out with 5%; finding that getting  
better coverage with a lower % of herbicide is more effective than using a slightly  
higher % with less coverage

### **Todd Adams/Napa River:**

Eradication is occurring in the Calistoga area, from city limit to top of watershed; have  
secured access to all creeks/rivers; agreements on 80% of Arundo north of the city  
funding includes a CCC grant of \$12,000, and CALFED grant for \$35,000  
had problems with county in getting a F&G permit  
CDF prison crew working on public land  
flood control district willing to take care of retreatments  
1st spray on regrowth occurred recently  
need to start stabilizing banks--willow revetments on steep banks; can be problem  
finding enough willow material to build all that are needed  
(San Francisquito Creek is taking out willow, so maybe can give to Napa folks--might  
be pretty far to transport, but might be worth it)

### **Mark Horney/UC Cooperative Ext.**

has been mapping Arundo on Stony Creek for the last few years using remote sensing  
techniques; writing paper about this work that is almost done  
digital camera instrument on aircraft, may underestimate Arundo a bit, but is good at  
discriminating Arundo from other ground vegetation  
new software, Media Mapper, handles photos w/GPS points (\$900)  
suggestion for TAdN (or several TAdN project members) to buy it and use  
cooperatively; removes large part of data mgt responsibility; can attach Word or  
Excel docs, video, and voice files to it  
Created Trimble GPS data dictionary with the data model from the Arundo monitoring  
protocol.

### **Jim Johnson/San Francisquito Creek**

2nd year of eradication work; some clumps away from creek

1 big clump that a homeowner wouldn't let them remove—turns out that another

homeowner actually owns most of the property, so will be able to remove it after all by next spring hope all *Arundo* will be gone, but running out of money

### **Frank Wallace/Sacramento River**

American River Parkway, utilizing a multi-invasives approach

volunteers are matched with professional crews

about 400 acres, including 56 acres of *Arundo*

began mapping isolated urban clumps, not sure why population is up, some on

improved lands, improved fields, in vegetable beds

need more money

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### **Presentation by Karen Gaffney , Restoration Ecologist at Circuit Rider Productions**

**Topic:** “Tarping as a control method for *Arundo donax*, and *Arundo* eradication in the Russian River Watershed.”

*(The notes on this presentation are incomplete. For full details, go to the TAdN website, [www.teamarundo.org](http://www.teamarundo.org). Her PowerPoint presentation will soon be available under the heading, “Control and Management.”*

### **Russian River Watershed**

biological invasions are worldwide phenomenon

unprecedented rates and spatial scales

Community Level effects of plant invasions (species richness...

Plant invasions (context-dependent outcomes dep. attributes of invader and invaded system; may be more successful based on resource availability and disturbance

Plant invaders and riparian systems (changes in plant community, modification of aquatic plant and insect assemblages, etc.)

Clonal reprod. and invasion (assoc. w/succes. invasion,...)

A lot of *Arundo*'s affects on biotic communities are not well documented.

Restoration of invaded habitats (large public res. investmt, often untested, how effective is it?; potential for control of riparian invaders, such as Himalayan blackberry)

How combine eradication with ongoing research? At minimu, need duplication of results to confirm.

Need broaders coverage of papers and projects.

### **Research Objectives**

extent of invasion along main stem Russian River (stand location/size, type of infestation)

- monoculture or part of understory?
- tributary mapping (point locations only)
- all data incorporated into GIS

Riparian Vegetation Loss-Russian River  
lost about 50% since 1942, continue to lose it

Giant Reed in the Alexander Valley  
in some places, more than 50% of riparian habitat  
many landowners have preserved a large riparian corridor, but is being lost to Arundo  
removing Arundo from understory will be much more costly

have also looked at Arundo distribution across an elevation grading  
riparian forest heavily invaded by Arundo and vinca  
whole RR watershed is listed

98% private ownership along RR  
Where is Arundo most dominant, and when it invades, what are its effects on plant community?

Choteau Vineyards  
30 40 X 40 plots among three elevational zones  
low elevat zones have high intensity disturbance but fewest Arundo stems  
mid-elevation have most stems

Very little effect of Arundo in low channel environments, probably because it doesn't do well there  
mid-elev zones, Arundo having large effect, as in high elevations

Research objectives  
effects of Arundo and vinca on plant communities, including effects on seedling (species richness, exotic and native abundance)  
Vinca: second most invasive weed in RR area, pepperweed beginning to invade also  
Vinca does produce viable seed, despite old research

Clos du Bois: 80 2 X 2 meter plots, ten blocks  
Found: uninvaded plots have 10 species per plot  
In general, any plot with Arundo resulted in low numbers of natives and exotics  
Where Arundo is present, won't get much regeneration of almost *any* natives or exotics.

Effective Control Methods  
(Joel Trumbo has done good work on this too)

Hidden Springs Vineyard, upper Alexander Valley  
24 2x2 meter plots  
cut Arundo to ground, let it regrow, then did repeated cutting and applied herbicide,

tarping, OR repeated cutting (mowing to ground)

### **Tarping Experiment:**

used two layers of material for one-year period, 9 mm black visquine, yardbirds tarp for second layer w/mesh interwoven, secured to a frame, severed rhizome connections as much as could about three and a half feet  
herbicide, full strength roundup

### **Assessing Effects Over Time**

tarp removed after one year, fall 1999

data was in "the proportion of change" (as opposed to the change in number of stems)  
tarp treatment was most effective of the three (vs. herbicide or cut only) in terms of biomass or stem number

50% of plots had complete mortality w/tarping  
all plots were level, on the floodplain

### **Natural Regeneration following Arundo control**

--some past research shows when remove one exotic, it is replaced with another exotic  
--what we found was different: affect of treatments on exotics not signif, but on natives, cut and herbicide method produced greater abundance of natives, tarping was second, cut only was somewhat less  
--since tarps only left on for one year, their effects may be greater if left on longer

In tarp plots and cut and herbicide plots, was significant and very large difference in number of seedlings after Arundo removal. If you remove Arundo, will get lot of regeneration with native seedlings, but not necessarily of exotic regeneration, at least in Russian River Watershed. This is because are not lots of other exotics waiting to invade areas where Arundo has been removed.

### **What Next?**

wkg w/RCDs, landowner groups, grapegrowers (tributaries and Mendocino county) starting to use tarping in fields  
hand removal in channels and sand bars--can be successful, since roots are not as deep  
composting on site or nearby facility (working with grapegrowers like Clos du Bois, which is using it as mulch)

with tarping, trying different methods to hold tarps down, techniques that people can do easily, such as weighing down with rocks, stakes, dirt

want to try tarping on a large scale, especially in areas where is listing of salmonids, fresh water shrimp, red legged frog, since community often doesn't want any herbicides used to eliminate weeds

also trying tarping in summer when driest, to see if can get total kill in one summer; organic growers particularly like it, and nonorganic ones often do, too

experimental plots were under a vegetative canopy, not in full sun

use of tarping may allow use of only small amounts of herbicide later (one advantage to combining the two eradication approaches, rather than simply using herbicides)

now three years since removed tarps, and Arundo has not regenerated  
Clos du Bois has seven acres in Arundo composting

in restoration, sometimes using grape seedling containers (cones) so if spray area a bit, won't necessarily affect native seedlings hidden within containers

other research: Morgan and Cushman, Arundo's effects on terrestrial insects is coming out soon

Karen may write up stem node viability research

Karen doing revegetation trials--what propagation method will be most effective, direct seeding, container planting, etc.

tarping is quite expensive to do, but not so for small clumps

tarping is much more difficult to do on steep banks

## **Eradication Program Steering Committee Meeting**

**10/9/02**

Present: Frank Wallace, Jim Johnson, Deanne DiPietro, Todd Adams, Bob Hass, Dawn Lindstrom (Putah Creek rep), Robyn Myers

### **Program Update**

#### Discussion About Funding Strategies

Workshop for invasive species projects required before can revise proposal and receive funding. Want greater interagency cooperation and more of a research component as part of revised proposal. Following the workshop, Arundo Eradication Program would probably ask partners to identify potential sites in their area where could conduct eradication experiments.

NFWF grant proposals due Nov. 1. Requires lots of matching funds. Sounds very complex to apply. "Pulling Together" Grant initiative. (9 agencies involved in funding) Maybe consider for next funding cycle. Might fit well into TAdN structure. [www.nfwf.org/programs/pti.htm#pti](http://www.nfwf.org/programs/pti.htm#pti)

Fish and Game grant. Easy. Chris Sauer of the Napa CCC had someone write a grant. If can say that such and such an area has been mapped, and have rights to enter property, may be in good position to apply.

Dept. of Forestry

State agencies might be easier to get grants from. e.g. Prop. 13 funds.

Prop. 40, new Clean Water Act?

Homework for Steering com: looking into possibilities for funding.

NRCS? EQIP Program, Dave Dyer, Environmental Quality Incentives Program

Once Karen Gaffney completes mapping of Arundo in Napa, she feels it will be easier to get funding.

Mapping in S. Santa Clara County (Jim Johnson)--Audubon Society organized this effort.

**Agreed on need to establish TAdN fundraising strategy.**

Use maps as ammunition to get funding. Map the prevalent weeds (and if driving around area, mapping the most problematic weeds, even if not that prevalent)--not just Arundo.

Maybe apply for funding just to map Arundo, and then could take those maps to get additional funding (We know where Arundo is located in this county).

Get a government agency to do the mapping under their budget. For example, the flood district might map the Arundo in Napa County.

- 1) Identify agencies with capacity and self-interest to map Arundo in their area.
- 2) Identify funding sources to map Arundo.
- 3) With assistance from the Sonoma Ecology Center's GIS lab, partners might be able to do a little more mapping with GPS for some quick results.

Can get custom maps thru USGS--mainly older 1970s maps of watersheds.

CalWater 2.2--current statewide water set. Robyn is chair of committee with jurisdiction over these maps.

Flood Control Agencies: don't need landowner permission to enter private property, so is an advantage to work with them. But still makes sense to get permission ahead of time, especially if will be seen by property owners--is more of a public relations issue.

In most areas, WMA is staffed by Ag Commis or RCD.

State funding for WMAs has dried up, so they will be applying for their own funding.

At present, not a practical source for funds.

Partners should be encouraged to go to WMA, Ag Commissioners, and RCDs to apply together for funding. (RCDs are typically locally elected boards comprised of landowners--special districts funded by the state/Dept. of Conservation, and funding from NRCS. State legal entity.) Often backbone of local watershed groups; if not yet involved with them, should be. Generally have own staffs funded through RCDs, and not bound by federal funding restrictions.

EPA Watershed Initiative. If had enough watershed groups to make it Bay-Delta area, we might qualify. Deadline: Letter submitted by governor or tribal leader by Nov.

15. Proposal letter. [www.epa.gov/owow/watershed/initiative](http://www.epa.gov/owow/watershed/initiative)

Deanne passed out copy of poster she's preparing for the Cal-EPPC conference. Also passed out TAdN Online Surveying & Monitoring Database diagram. The database is complete and accepts all the kinds of data that we are collecting: initial survey, treatment, and follow-up monitoring data. You can also view your data, add data to existing sites, and get your GPS points and put them on your GPS unit for navigating back to the sites.

## **Future Topics/Speakers/Agenda Items**

- restoration and preventing other invasives from coming in (fennel, etc.)
- Phil Blake, NRCS in Napa (recom. Todd Adams), stabiliz. streambanks & restoring them (also how to eradicate large patches and begin active restoration)
- Circuit Rider folks (someone other than Karen G.) might offer a field trip in am/e.g., to Putah Creek, and first show pics before eradication.
- Dave Spencer, Tom Dudley, Joe DiTomasso--what constitutes a legitimate research topic--what questions do we want to answer; how tap into technical resources such as universities to conduct the research, provide input, get grad students to help. (One example of a possible research question: How do you know Arundo is really dead?)
- Partners could present their projects with pictures.
- Panel on impacts of herbicides on other species and humans, how it biodegrades, etc. (Stalker esp-imazypyr, glyphosate). **Need to be able to explain to homeowners why it is safe, or how safe it is, and consequences if it is not used.** Possible end product: a fact sheet that could be handed out or a brochure/pamphlet.
- cost analysis of eradication efforts: longevity in soil, effects on other species, etc.

**Mark your calendars: Next TAdN Meeting: Wednesday, January 15, 2003**