

Appendix D - Management Notes by Watershed Unit

This Appendix compiles our notes from communicating with partners in watershed units across the Central Valley. This will inform future efforts to support project formation in each area. Watershed units are listed north to south.

*Sacramento River Headwaters: Castle-Stillwater Creeks (24 acres of *Arundo*)*

The most likely lead agency is the Western Shasta RCD. The RCD has been involved in *Arundo* removal projects in the past, but these projects were hampered by short grant timelines which were insufficient to ensure full eradication. Extensive and effective work was done on Stillwater Creek by volunteers led by Randall Smith. They have also tracked down and treated many isolated populations over time as well.

In 2018 Cal-IPC worked with Western Shasta RCD staff to complete a CEQA Mitigated Negative Declaration (MND) for *Arundo* work in the upper Sacramento River watershed, down to and including Cottonwood Creek. The RCD submitted a grant proposal to WCB's Prop. 1 Streamflow Enhancement Program to fund *Arundo* removal in this watershed, but the project was not selected for funding. Seeing reviewer comments and scoring for the proposal, we see ways that the proposal could be strengthened for resubmission.

The RCD experienced significant staff turnover at the RCD in 2019. Both the District Manager (Chester Anderson) and the Project Manager (Harmony Gugino) working on the *Arundo* program effort left the organization. New staff are now in place (Maureen Teubert and Ross Perry, respectively) and hopefully the project will be pursued anew.

Scores: Program lead experience/capacity: 2 (out of 5).

Permitting capacity: 3 (out of 5).

Overall capacity: 5 (out of 10)

*Cottonwood Creek (5 acres of *Arundo*)*

Infestations in this watershed straddle between Shasta and Tehama counties, and the Western Shasta RCD and Tehama RCD would ideally collaborate on an *Arundo* eradication effort in this watershed. This area was included in the Western RCD MND and its proposal to WCB, described above.

The 2007 Cottonwood Creek Watershed Management Plan recognizes the need to develop an approach to address *Arundo* and tamarisk. However, the Tehama RCD has found gaining landowner permission difficult, and though the amount of *Arundo* is relatively small, it is spread over many smaller properties which compounds the effort to secure landowner permission.

Scores: Program lead experience/capacity: 3 (out of 5).

Permitting capacity: 3 (out of 5).

Overall capacity: 6 (out of 10)

Elder Creek (85 acres of *Arundo*)

Sac. River Upper: Cottonwood to Thomes Creeks (154 acres of *Arundo*)

Antelope-Mill Creek (14 acres of *Arundo*)

Thomes Creek (75 acres of *Arundo*)

These four watersheds are all within the jurisdiction of the Tehama RCD and together account for 328 acres, some 15% of the *Arundo* in the entire Central Valley, second only to Glenn County just to the south. Tehama RCD has capacity to secure permitting, but to date has not done it at the landscape scale. They are very aware of the *Arundo* problem and would like to address it, but they face significant challenges. District Manager (Vicki Dawley) and Project Manager (Tom McCubbins) are clear that past experiences with *Arundo* control have left everyone, landowners and RCD alike, cautious about embarking on an effort if it cannot be completed.

Discussion held over an *Arundo* map of their watershed with the RCD concluded that the potential for success in *Arundo* removal in these watersheds could be improved by working higher up in the watersheds (which is of course the favored approach anyway) where parcels are larger so there are fewer landowners from whom access permission is needed. These areas are more likely to be managed for ranching and wildlife habitat than properties farther downstream so landowners may be more predisposed to participation. Such an approach could address the upper reaches of Elder Creek, down to the Rancho Tehama community, and from the uppermost *Arundo* infestations on Red Bank Creek downstream about 10 miles downstream towards Red Bluff along Red Bank Road.

Scores: Program lead experience/capacity: 3 (out of 5).

Permitting capacity: 2 (out of 5).

Overall capacity: 5 (out of 10)

Stony Creek (562 acres of *Arundo*)

Stony Creek is the most infested watershed in the Central Valley, with 25% of all *Arundo* in the entire Central Valley. The Glenn RCD is the likely lead for removal efforts. District Manager Kandi Manhart has been active in bringing the issue to her board. Cal-IPC was able to help the RCD procure parcel data from the Assessor's Office, and Cal-IPC, on the RCD's behalf, was then able to match up *Arundo* populations with parcels. *Arundo* is found on 187 parcels along Stony Creek in Glenn County. Given the scale of the infestation, successful implementation will require a phased approach lasting many years (likely five to ten grants over a 20 to 30-year program).

The RCD has looked at the problem in the past. They worked with Chico State to map infestations in the watershed through an aerial LIDAR survey from sometime between 2005 and 2010. They

worked with River Partners to produce a landowners' manual on what it takes to remove it effectively. The City of Orland always wants to know what's going to be done with the *Arundo* since it's a major fire risk.

For initial steps, two potential projects were identified in conversations with RCD staff. The first is in the upper watershed, around Black Butte Lake reservoir, working with Army Corps of Engineers (USACE) as the landowner as well as private landowners upstream. This would take advantage of a small number of landowners in an area where *Arundo* could expand further. (Though it also reflects a top-down watershed approach, it is not thought that *Arundo* propagules move downstream past the dam.) Success would demonstrate the value of commitment to other landowners. The RCD went to a training to learn about pursuing fire grants for this effort.

The second potential project would be lower in the watershed. A private firm, North State Huling, a nut processing plant, is willing to help lead recruitment of nearby landowners (farms and an aggregate distributor) to participate in a localized project. This would serve as a demonstration project in an area with high visibility. A project there would require regular retreatment since it is near the bottom of a heavily infested watershed.

Glenn RCD and NRCS had a programmatic permit program covering a range of resource management practices. This suite of permits has expired and was under-utilized. It did contain a CEQA MND for working in lower Stony Creek but would have been difficult to use for *Arundo* control at large scale. A new CEQA MND is needed covering the entire program area, which can be based on updated methods and analysis used by Western Shasta and Yolo RCD. Unfortunately, there is some local resistance to spending funds on permits following the lack of use of the past programmatic permit program. Fortunately, there are many examples of *Arundo* watershed-based permits being used immediately to implement work on the ground.

Scores: Program lead experience/capacity: 3 (out of 5).

Permitting capacity: 2 (out of 5).

Overall capacity: 5 (out of 10)

Feather River-Chico-Butte Creeks (70 acres of *Arundo*)

This large watershed falls into the jurisdictions of three RCDs: Butte, Sutter and Yuba. However, the Sutter and Yuba RCDs are inactive. Local partners like DWR, City of Chico and Friends of Bidwell Park have undertaken successful removal efforts in the upper parts of the Big Chico Creek watershed, and particularly in Lindo Channel. These partnerships have been effective. The Butte County RCD has recently rebuilt itself after several low funding years and would likely need to take the lead for the entire region. It currently works in partnership with the City of Chico and the nonprofit Butte Environmental Council. The city is currently working on a Vegetation Fuels Management Plan which is expected to include CEQA coverage for *Arundo* removal in local Chico

area waterways. In Oroville the Feather River Recreation & Park District is also considering preparation of a vegetation management plan.

Scores: Program lead experience/capacity: 3 (out of 5).

Permitting capacity: 2 (out of 5).

Overall capacity: 5 (out of 10)

Sacramento River Middle: Stony to Cache Creek (153 acres of *Arundo*)

This reach of the main stem of the Sacramento River abuts Glenn, Colusa and Yolo counties on the west side and Butte and Sutter counties on the east. Most of the *Arundo*, however, is concentrated in the northern portion of the reach that falls between Glenn and Butte counties. The Glenn and Butte RCDs are logical leads for this portion of the reach. From 2016-18, CDFW mapped *Sesbania punicea* (red sesbania, or rattlebox) along the Sacramento River to support management; potential synergy between *Arundo* removal and *Sesbania* removal should be explored.

Scores: Program lead experience/capacity: 2 (out of 5).

Permitting capacity: 2 (out of 5).

Overall capacity: 4 (out of 10)

Colusa Trough-Stone Corral-Freshwater Creeks (115 acres of *Arundo*)

The Colusa RCD is the logical lead for this watershed unit. There have been attempts made at *Arundo* removal in the past, but the history that has been handed down to the current staff of three is that those attempts had poor execution. Problems included lack of landowner participation, poor control due to short grant timelines, and prison crew labor performing poorly (failure to complete tasks and issues with supervision). The RCD should reach out to experienced program managers to better plan and execute *Arundo* control work.

Scores: Program lead experience/capacity: 2 (out of 5).

Permitting capacity: 1 (out of 5).

Overall capacity: 3 (out of 10)

Bear-Yuba River (44 acres of *Arundo*)

This watershed unit is within the jurisdiction of the Yuba RCD, but they are inactive. Nonprofit organizations like the South Yuba River Citizen's League work far upstream in the vicinity of Nevada City. It is unclear who if anyone could take the lead in this area.

Scores: Program lead experience/capacity: 0 (out of 5).

Permitting capacity: 1 (out of 5).

Overall capacity: 1 (out of 10)

Cache-Putah Creeks (254 acres of *Arundo*)

Sacramento River Lower: Cache to Putah Creeks (1 acre of *Arundo*)

The Cache-Putah Creek Watershed unit is the second most invaded unit in the Central Valley with 254 acres of *Arundo*. Implementation will require the formation of a program that can secure multiple large grants and carryout re-treatments for many years, a process that will take at least 20 years. The Yolo County RCD has taken an active lead in these watershed units. WCB Prop 1 SFEP funded program setup including obtaining all permits and ROEs. To date they have secured a CEQA MND and a CDFW SAA 1600 permit is being prepared. Discussions with USFWS have started and a NPDES SWCB permit will be obtained. Many ROEs have been signed, and more are being secured. A second implementation application to WCB SFEP was submitted in 2019 for treating about 100 acres of *Arundo*. This application was funded in March 2020. The program is working with many active partners including Solano RCD, flood control districts, and local conservancies and creek groups (local tribes, Cache Creek Conservancy, and Putah Creek Council). Many of these groups have completed effective *Arundo* control over creek areas that they manage, they strongly support expanding *Arundo* control, especially work that is upstream of their managed areas. The Yolo County RCD program will be an important Central Valley watershed-based program to model off of for other RCDs.

Scores: Program lead experience/capacity: 5 (out of 5).

Permitting capacity: 5 (out of 5).

Overall capacity: 10 (out of 10)

American-Mokelumne Rivers-Deer Creek (29 acres of *Arundo*)

Placer RCD is the logical lead entity for this watershed unit. They have done some small-scale invasive species work on catalpa and red sesbania with support from the flood control district. They have good relationships with landowners, Bureau of Reclamation, State Parks, Calfire, City of Auburn and others along the American River all the way down to Folsom Lake. They are interested and motivated to apply for a WCB grant in the future.

The infestation along the Cosumnes River farther south is technically within the jurisdiction of the Sloughhouse RCD which is a new entity focusing on groundwater recharge in the Cosumnes Sub-basin. Though there is a natural linkage in terms of mission, this RCD does not currently have capacity to oversee an *Arundo* removal project. The El Dorado RCD upstream has more capacity but tends to focus on forestry. The Sacramento County Agricultural Commissioner's office would have jurisdiction but with their wide range of responsibilities they are unlikely to be able to dedicate staff to running an *Arundo* removal project. The American River Parkway Foundation does a significant amount of work closer in to Sacramento proper—they may be a resource for accomplishing work in

this area, together with the Sacramento Conservation Corps. The challenge is having an entity that can obtain and hold permits and ROEs.

Scores: Program lead experience/capacity: 3 (out of 5).

Permitting capacity: 2 (out of 5).

Overall capacity: 5 (out of 10)

Ulatis Creek (80 acres of *Arundo*)

This watershed unit is in the jurisdiction of the Solano RCD. District Manager Chris Rose has extensive experience with *Arundo* from his time with the Yolo RCD. He has a healthy appreciation for the difficulty of securing ROEs and permits but believes in the importance of removing *Arundo*. They have capacity to prepare an application for funding and secure permits and ROEs. They would likely hire a contractor for the initial removal then follow up with in-house labor. They express having a full plate so this may not be a top priority for a few years.

Scores: Program lead experience/capacity: 4 (out of 5).

Permitting capacity: 2 (out of 5).

Overall capacity: 6 (out of 10)

Los Banos-Panoche-Salado Creeks-San Joaquin River (65 acres of *Arundo*)

This watershed unit spans a long section west of the San Joaquin River and intersects jurisdictions of multiple RCDs, all of which are inactive. The CACs in this region focus on serving row crop agriculture and do not have capacity to take on extensive watershed-scale invasive plant removal projects.

Scores: Program lead experience/capacity: 0 (out of 5).

Permitting capacity: 0 (out of 5).

Overall capacity: 0 (out of 10)

Calaveras River (28 acres of *Arundo*)

This watershed unit falls within the jurisdiction of the San Joaquin RCD which is inactive. The San Joaquin County Agricultural Commissioner's office is very focused on agricultural crops and, like other CACs in the region, has never taken on extensive watershed-scale invasive plant removal projects.

Scores: Program lead experience/capacity: 1 (out of 5).

Permitting capacity: 0 (out of 5).

Overall capacity: 1 (out of 10)

Stanislaus-Tuolumne Rivers (36 acres of *Arundo*)

This watershed unit falls within the jurisdiction of the East Stanislaus RCD. The RCD is small but active. A watershed-wide *Arundo* removal project is likely beyond their capacity but they often work in partnership with River Partners. They may also be interested in partnering with the next RCD south, the East Merced RCD, on *Arundo* work, which could expand overall capacity.

Scores: Program lead experience/capacity: 2 (out of 5).

Permitting capacity: 2 (out of 5).

Overall capacity: 4 (out of 10)

Bear Creek-Merced River (39 acres of *Arundo*)

This watershed unit falls within the jurisdiction of the East Merced RCD. They are small and have very little funding for staff, but they are interested in addressing *Arundo* and have formed a local partnership to do so. In the past they mapped *Arundo* along the Merced River for 55 miles by kayak from Merced Falls to the San Joaquin River using DWR funding and have been trying to get funding to control it. It has become a nuisance in the city of Merced itself where homeless people have formed encampments in it.

The RCD has partnered with the Merced Irrigation District and DWR on an application through the Integrated Regional Water Management district to remove 15 acres of *Arundo*. They also submitted a proposal to the California Dept. of Food & Agriculture through CDFA's request for proposals in spring of 2019 but were not funded. They have a 1600 SAA and a CEQA NOE in place.

Scores: Program lead experience/capacity: 1 (out of 5).

Permitting capacity: 5 (out of 5).

Overall capacity: 6 (out of 10)

Chowchilla-Fresno Rivers (230 acres of *Arundo*)

San Joaquin River (57 acres of *Arundo*)

These watershed units fall within the jurisdiction of the Madera/Chowchilla RCD, which is small. However, the *Arundo* populations in this watershed unit have been targeted extensively by River Partners since 2010 with funding and permitting (including joint NEPA/CEQA) from the U.S. Bureau of Reclamation and California Dept. of Fish and Wildlife. It is, in fact, the most heavily controlled area of *Arundo* in the Central Valley. (*Arundo* and red sesbania are the main targets, but River Partners also removes perennial pepperweed and tree-of-heaven.) They do not have access to all properties but feel that they have grown good relationships with private landowners over time. Assuming that River Partners is able to continue this work and address all populations at the watershed scale, this may be a promising model across the San Joaquin Valley where capacity is otherwise low.

Scores: Program lead experience/capacity: 4 (out of 5).
Permitting capacity: 3 (out of 5).
Overall capacity: 7 (out of 10)

Tulare Lake-Los Gatos Creek (8 acres of *Arundo*)

This watershed unit falls within the jurisdiction of the Westside RCD which is not active.

Scores: Program lead experience/capacity: 0 (out of 5).
Permitting capacity: 0 (out of 5).
Overall capacity: 0 (out of 10)

Kings River (91 acres of *Arundo*)

This watershed unit falls within the jurisdiction of the Sierra RCD in eastern Fresno County. In addition, the Kings River Conservancy is enthusiastic about working to remove weeds and finding funding to do so. They work from Hwy 99 near Reedley north to the Pine Flat Dam to remove *Arundo*, tree-of-heaven, yellow starthistle and water hyacinth. They have a CEQA NOE. Cal-IPC provided information about where to see all of the mapped *Arundo* (in Calflora), how to design an *Arundo* removal program, how to contact the Sierra RCD and potential funding ideas.

Scores: Program lead experience/capacity: 2 (out of 5).
Permitting capacity: 2 (out of 5).
Overall capacity: 4 (out of 10)

Kaweah-Tule River (34 acres of *Arundo*)

This watershed unit falls within the jurisdiction of the Tulare RCD, which does have a small staff.

Scores: Program lead experience/capacity: 0 (out of 5).
Permitting capacity: 0 (out of 5).
Overall capacity: 0 (out of 10)

Kern River (4 acres of *Arundo*)

This watershed unit falls within the jurisdiction of the North West Kern RCD which does not seem to be active.

Scores: Program lead experience/capacity: 0 (out of 5).
Permitting capacity: 0 (out of 5).
Overall capacity: 0 (out of 10)