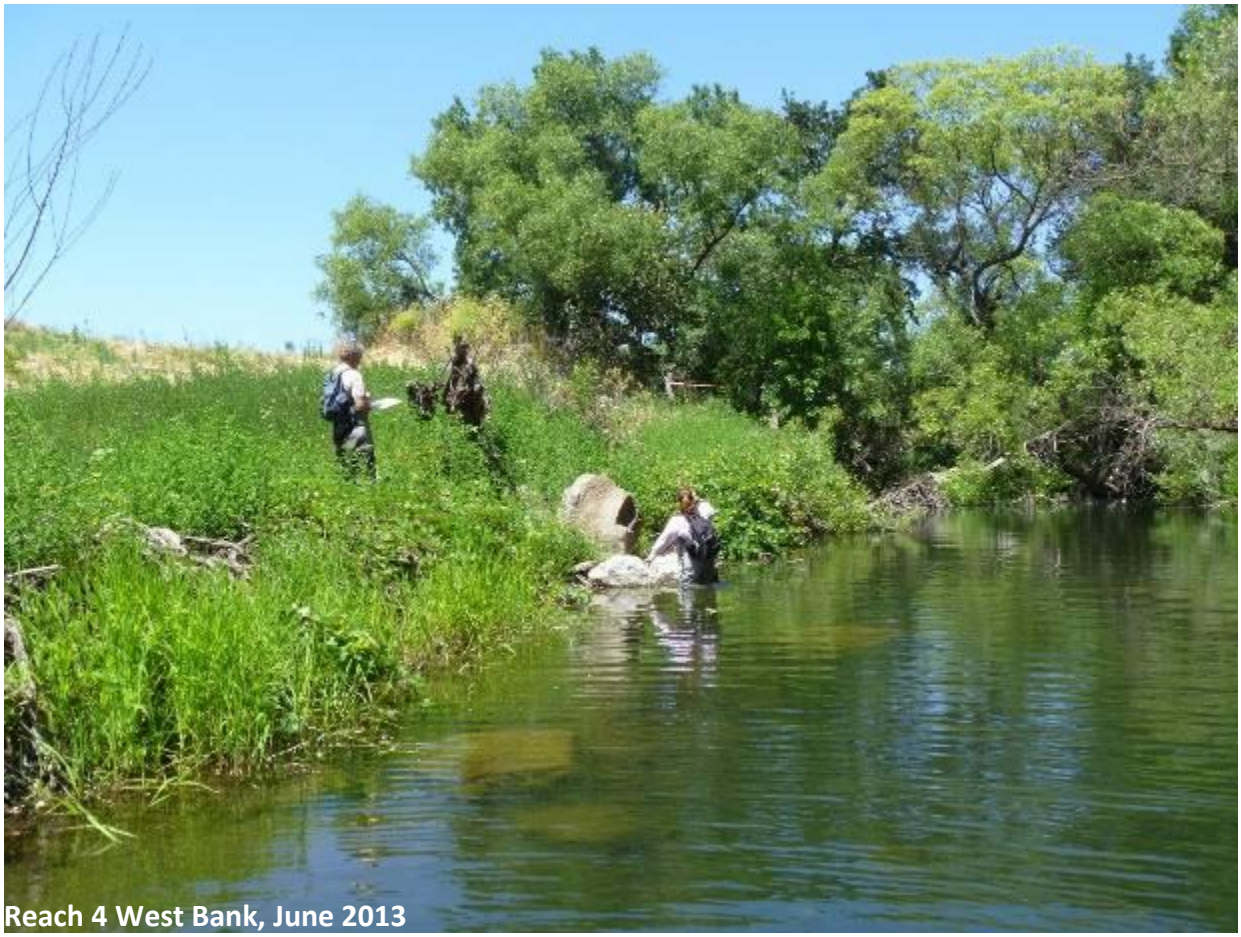
Napa River Rutherford Reach Restoration Project

Final Memorandum Report for Annual Maintenance Activities

2013 Field Season



Reach 4 West Bank, June 2013

Prepared by: Napa County Flood Control and Water Conservation District

Napa County, California

March 2014

This memorandum provides a brief final summary report of maintenance work conducted pursuant to the recommendations in the July 2013 Napa River Rutherford Reach Restoration Project (Project) Annual Maintenance Survey Report (Report). The Report, which was prepared by Napa County Flood Control and Water Conservation District (District), contained prioritized recommendations for maintenance issues identified during the summer 2013 survey along the 4.5 mile Project reach, such as removal of trash and debris, treatment of invasive plants, preservation and management of large woody debris (LWD) and replanting and general maintenance of treated areas. The Napa County Flood Control and Water Conservation District (District) completed the recommended maintenance activities outlined below between September 1st, 2013 and April 1st, 2014 including repair and maintenance at significant erosion areas, maintenance of installed plants, and debris removal and management. The July 2013 Report, and the final recommendations contained therein, can be accessed electronically from the Watershed Information Center & Conservancy of Napa County (WICC) website at http://www.napawatersheds.org/app_folders/view/3577or via a hard copy obtained upon request from the District.

Trash and Debris

A total of 25 occurrences of trash and debris were initially documented in the Report, but 28 large items were ultimately removed from the river channel. A total of 13 tires and 15 other items (irrigations lines, other agricultural equipment, etc) were removed. Table 1 below lists a tally of the types and number of occurrences of trash ultimately removed since the surveys began in 2009. Data suggests that this work is contributing to a general decrease in the amount of accumulated trash and debris that is found in the Project reach.

Table 1: Trash and debris removed from 2009-2013 maintenance seasons

Maintenance Year	Trash/Debris Type Removed		
	Tires	Large Appliances/Drip Lines/etc.	Total Items Removed
2009	19	28	47
2010	33	27	60
2011	28	26	54
2012	25	6	31
2013	13	15	28

Invasive Plants

A total of 73,244 square feet of giant reed, periwinkle, grape, Himalayan blackberry and red sesbania were ultimately treated, or will be treated (*Vinca sp*.), by District staff and contractors during late the summer and fall of 2013 as well as spring 2014 (Figure 1). Species such as fennel, poison hemlock, etc. were observed during the June survey but not treated as a result of land owners requests in previous meetings to prioritize fund use for only treatment of invasive plants that are considered Pierce host's species as well giant reed which is not a Pierce host. Table 2 shows the total area of invasive and Pierce host plants treated by species since the inception of the maintenance surveys in 2009. Select populations of invasive plants that were treated during the 2013 field season and have the potential to cause streambank erosion have been, or will be, replanted with willow and/or cotton wood stakes and broad cast seeded with appropriate native species as needed throughout the winter and spring of 2013 and 2014 respectively.

Irrigation

Approximately 10.5 acres of graded, replanted restoration sites are maintained with MAD funds currently. When the Project is completed approximately 31.2 acres of these sites will be maintained with MAD funds in addition to the roughly 116 acres of "wild lands" that are monitored and maintained for non-native and Pierce host plants. Due to

the 2013 drought year conditions, the District had to schedule and pay for several watering events of these restored sites during the late fall with MAD funds that would typically not be incurred in a normal water year. Typical costs to truck in water to maintain these sites, depending on water source (re-cycled vs. potable water), ranged from $1200-$1600 per/ watering event. Additional costs were also incurred on measures to reduce water use and maintain vegetation including mulching around installed plants.

Table 2: Invasive/Pierce host plant species treated over 2009-2013 maintenance seasons

Invasive/Pierce host plant species treated (Square Feet)							
Maintenance Year	Giant Reed	Himalayan Blackberry	Periwinkle (*Vinca sp.*)	Poison Hemlock	CA Grape	Red Sesbania	Total Area Treated (Sqft)
2009	73,180	0	0	0	0	0	73,180
2010	23,599	952	17,389	17,424	0	86	68,923
2011	30,749	35,809	9,163	2,461	7,447	49,138	134,771
2012	14,502	2,668	6,951	6,423	N/A	17,636	48,180
2013	5,662	42,688	1,901	0	5,070	17,903	73,224

Large Woody Debris (LWD) and Beaver Activity

A total of 2 large woody debris (LWD) accumulations were documented during the 2013 survey that ranked as potential maintenances issues in the river channel. The July 2013 Report recommended thinning out and/or realigning both of these LWD occurrences. The District ultimately managed 4 LWD accumulations including 2 additional management requested by landowners flowing high flow events from February and March 2014 (Figure 1). Table 3 represents the number of LWD accumulations treated over the life of the Project to date. Two of the managed areas were in locations where LWD tends to accumulate (one related to Project construction) after high flow events while the other two debris areas were in the vicinity of a large beaver dam and pump intake. Managed LWD is either repositioned in the channel such that it will not create hydraulic constrictions or bank erosion or the wood is removed from the channel and chipped on site to be later used as mulch for the Project.

Additionally, an increasing amount of beaver activity (dam building, downing of large significant native trees) necessitated management measures to protect several large cottonwoods. The District wrapped tree trunks with wire mesh to protect them from beavers in order to maintain sufficient riparian canopy and bank stability; Photo 1 and 2 below. It should be noted that District staff has documented several beaver dams in the Project reach but does not view these as an issue that could cause bank erosion or localized flooding. The beaver dams are small and have completely washed away during high winter flows in every instance. During low flow, the dams impound slow water, providing cool pool habitat.

Table 3: LWD occurrences documented and treated over 2009-2013 maintenance seasons

Maintenance Year	LWD Identified for Potential Maintenance or High Flow Monitoring in Survey Report	Total LWD Ultimately Maintained
2009	9	2
2010	16	4
2011	7	2
2012	5	4*
2013	2	4*

*Includes 2 LWD jam managed at landowners request

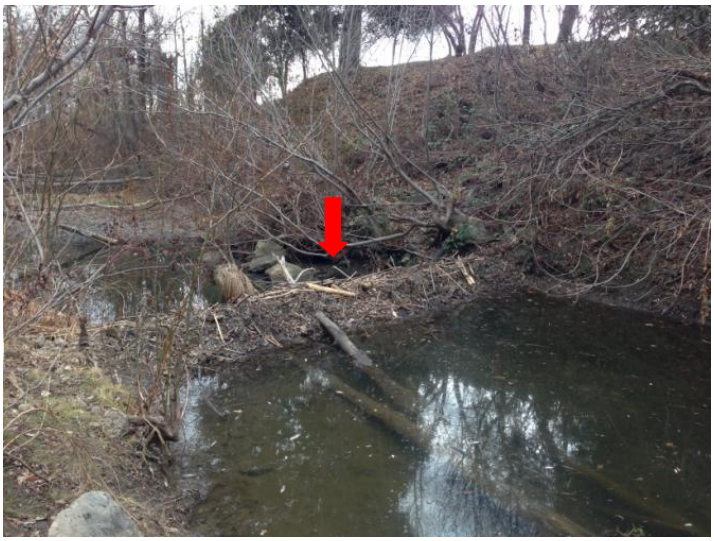


Photo 1: Beaver dam Reach 9

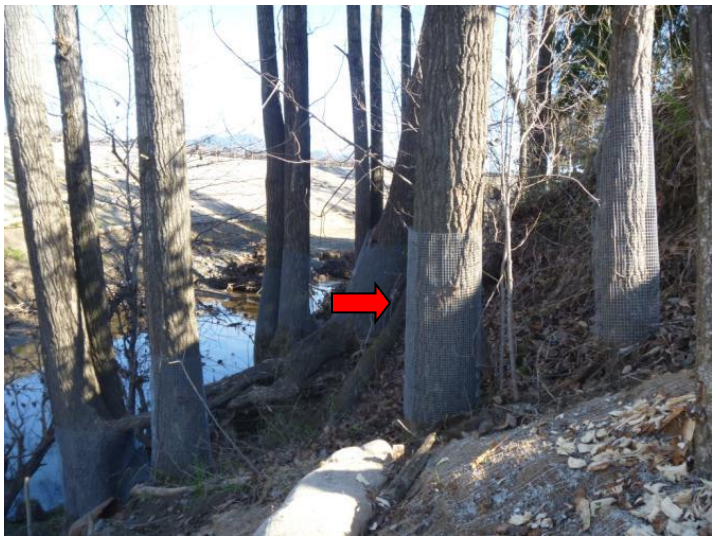


Photo 2: Cottonwoods protected from beavers with wire mesh Reach 8

Installed LWD Structures, Constructed Benches and Erosion Areas

As indicated in the July 2013 Report, none of the LWD or boulder cluster structures that were surveyed required maintenance in 2013. However, the Report did recommend repair of localized bank erosion at four sites primarily related to previously treated giant reed (*Arundo*) areas. Three of these sites were repaired during the summer either as part of Construction work for Reach 8, or they were repair by District staff using assessment funds. The remaining site will be repaired in the summer of 2014. Work included one or all of the following: re-grading slopes (3:1) to a stable profile, broad cast seeding, installation of erosion control fabric, planting with willow stakes and physical removal of dead Arundo canes.

Landowner Requests for Maintenance

A total of 4 landowner requests were initially received by the District for maintenance activities during the 2013 field season; several additional requests were also made via email and telephone through the fall and winter. Landowner requests including all of the following: removal of Pierce host plants, realignment/ removal of large woody debris accumulations, removal of defunct irrigation drip lines, installation of significant additional native understory vegetation and mowing a ”fire break” at the top of the river bank adjacent to restored areas. All landowner maintenance requests were addressed during the 2013 maintenance season (Figure 1).

Budget

The Maintenance Assessment District (MAD) has been in place since June 1, 2008. With annual revenues of $98,160, the total estimated fund balance including encumbrances to date is $325,053 as of April 2014, Table 4. Funds pay for the annual river maintenance survey, report production, maintenance and repair or restored areas, and periodic monitoring surveys to gather data against which to track changes in channel and habitat conditions. Remaining funds accumulate for future annual maintenance and monitoring work.

As the District assumes greater responsibility of restored areas (i.e. when three year vegetation maintenance contracts expire) additional costs will be assumed by the Maintenance Assessment District fund. The District now has fully responsibility of Reaches 1-3 respectively. Tasks once paid for under the three year maintenance contracts (Invasive/Pierce host plant management, watering, etc) are now paid for under the MAD. Significant additional costs were accrued in the habitat maintenance category for this reason in 2013. In particular, because of 2013 drought

year conditions, costs for habitat/general maintenance (including watering, mulching, etc) of restored areas increased and is reflected in Table 4.

Table 4: Budget and expenditures for fiscal year 2014 and past fund balance by fiscal year

	Annual Expenditures by Fiscal Year (FY)						
Task	2008	2009	2010	2011	2012	2013	2014
Annual surveys & development of work plans, report and monitoring	0	20,954	37,495	27,440	28,008	16,201	32,155
Trash removal & disposal fees	0	0	2,144	2,144	3,013	120	258
Invasive plant management	0	1,320	8,027	8,479	10,519	12,722	7,495
LWD Thinning and/or removal	0	0	1,760	1,496	2,867	17,913	923
Habitat structure maintenance, re-vegetation, watering, erosion repair	0	0	0	1,320	3,995	2,642	20,327
Field equipment, supplies, administration, misc.	0	314	826	392	875	175	1,220
Engineers report, public notice, legal	0	23,933	1,655	1,655	1,655	1,655	352
Total expenditures	11,250	46,521	51,907	42,926	50,932	51,428	*62,731
Remaining balance	0	90,389	47,728	56,484	48,291	46,732	**35,429
Cumulative fund balance (with interest) to date	$325,053						

* Estimated expenditures through FY 2014 including encumbrances and longitudinal survey ($18,500) required every 5 years to monitor channel incision. ** Assumes full assessment of $98,160 collected for FY 2014.

References:

Napa County Flood Control and Water Conservation District. July 2010. Napa River Rutherford Reach Restoration Project Annual Maintenance Survey.

Contact:

Jeremy Sarrow, Watershed & Flood Control Resources Specialist, NCFCWCD, jeremy.sarrow@countyofnapa.org

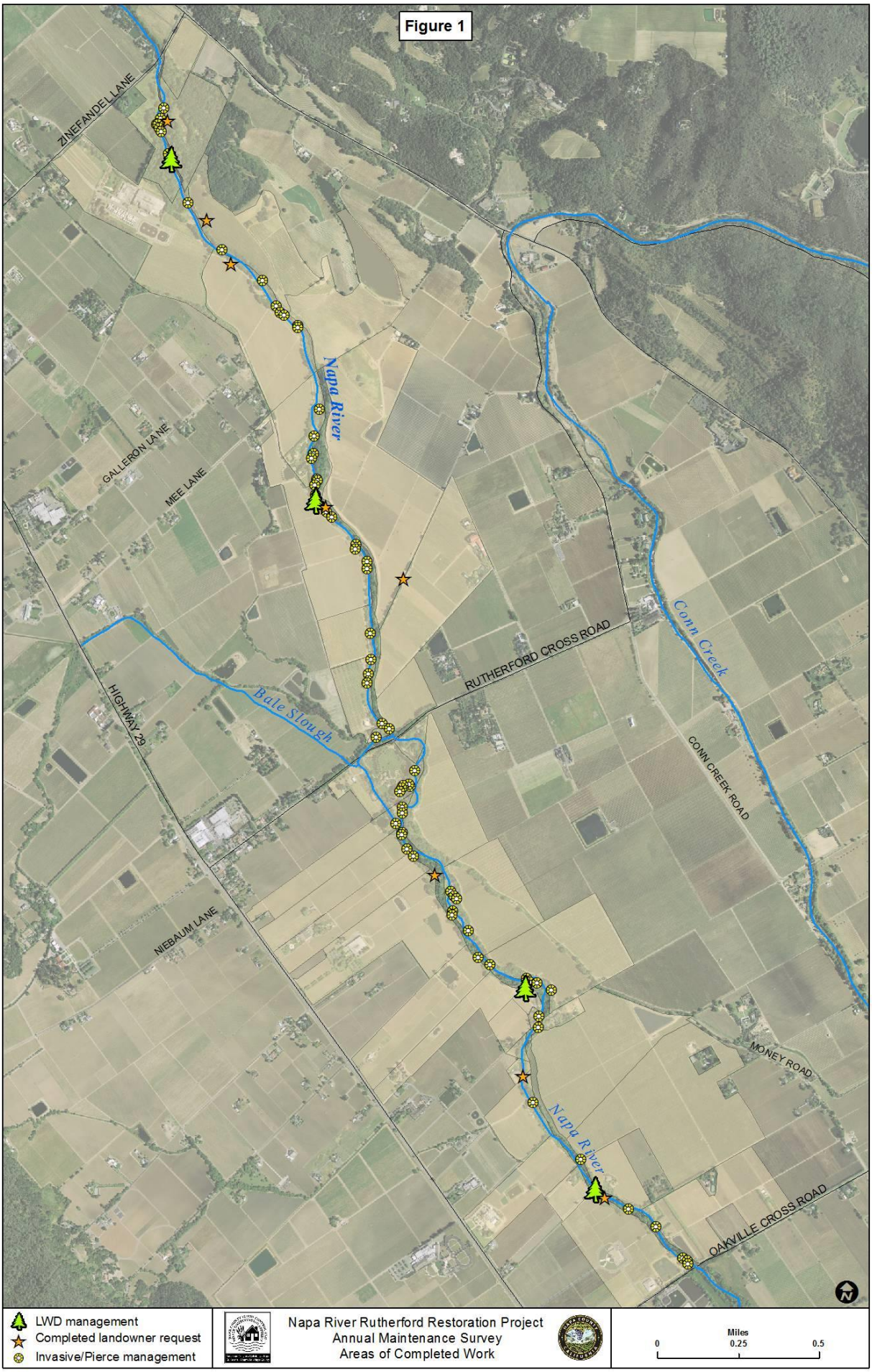


Figure 1
ZINFANDEL LANE
GALLERON LANE
MEE LANE
Napa River
RUTHERFORD CROSS ROAD
Bale Slough
HIGHWAY 29
Conn Creek
CONN CREEK ROAD
NIEBAUM LANE
MONEY ROAD
Napa River
OAKVILLE CROSS ROAD
LWD management
Completed landowner request
Invasive/Pierce management
Napa River Rutherford Restoration Project
Annual Maintenance Survey
Areas of Completed Work
Miles
0
0.25
0.5