



M&T/LLANO SECO PUMPING PLANT RIPARIAN VEGETATION MITIGATION MONITORING REPORT

Introduction

Monitoring was conducted on September 26th, 27th and 28th, 2011 by Northern California Regional Land Trust (NCRLT) Land Projects Coordinator Zach Mendes at the Capay Unit of the U.S. Fish and Wildlife Service (USFWS) Sacramento National Wildlife Refuge Complex (SNWRC) and at Doe Island on the Llano Seco Rancho (**Figures 1 and 2**). Monitoring was performed to determine the status of riparian plantings completed as mitigation for the *M&T Chico Ranch/Llano Seco Rancho Pumping Plant Maintenance of Channel Alignment Sacramento River Mile 192.5 Project* (Project).

The M&T Chico Ranch, Llano Seco Rancho, California Department of Fish and Game (CDFG), and the USFWS SNWRC are responsible for overseeing implementation of planting and monitoring of riparian vegetation on the SNWRC and Llano Seco Rancho. As part of the monitoring requirements, the M&T Chico Ranch and Llano Seco Rancho are required to hire an environmental consultant to monitor and report their findings to CDFG and the USFWS SNWRC each year regarding the success of the plantings and any need for remedial actions. USFWS SNWRC and CDFG, as the federal and state lead agencies for the channel maintenance project, are responsible for ensuring that the monitoring reports are provided to the National Marine Fisheries Service and the USFWS Sacramento Field Office to satisfy the terms and conditions of the incidental take permit and Section 7 consultation for the project.

Project Background

The primary objective of the Project is to protect the M&T Chico Ranch/Llano Seco Rancho pumping facility and the outfall for the City of Chico's Wastewater Treatment Plant through the placement of a longitudinal stone toe with tree revetment to stabilize the site. The Project has placed approximately 1,520 feet of rock and tree revetment on the west side of the Sacramento River and removed gravel on the east side of the river. Approximately 9,120 tons of rock has been placed to approximately half of the bank height to an elevation of approximately 120 feet above mean sea level and the base of the revetment is approximately 30 feet in width. Backfilling behind the stone toe will thicken the toe and provide a medium for revegetation. The top of the bench has been an average of approximately ten feet. Woody brush material has been incorporated into the revetment by anchoring the material with cables and partially sunken large boulders to prevent loss during overtopping flows. The brush portion of the revetment consists of multiple, alternative clusters of trees spaced approximately ten to 15 feet apart at two elevations to provide instream and object cover at a range of flows.



The Project removed approximately 1.73 acres of valley foothill riparian habitat. To mitigate these impacts, 3.46 acres of valley-foothill riparian habitat is being restored or enhanced for a restoration ratio of 2:1.

Restoration is being conducted at two separate locations (**Figures 1 and 2**):

1. 0.35 acre of Shaded Riparian Aquatic (SRA) habitat on the Capay Unit of the SRNWRC along the river bank where construction disturbance occurred between the bank and the revetment itself.
2. 3.46 acres of valley foothill riparian habitat at Doe Island on the Llano Seco Rancho easement property held in trust by NCRLT.

Monitoring Methods

The following metrics and methods were used to monitor the planted riparian habitat:

- **Percent survival:** Percent survival was calculated by dividing the number of established shrubs and trees by the total number planted.
- **Plant vigor:** A minimum of 25% of the plantings at each site were randomly selected and measured to determine canopy cover and stem diameter at stem midpoint (diameter at breast height [dbh] for trees 4 feet and taller), and height. Plant vigor was rated as excellent, good, fair, or poor.
- **Photographic Documentation:** Photographic documentation sampling points were established utilizing a Garmin hand-held global positioning system (GPS) unit.
- **Percent Linear Closure:** This performance standard for the Shaded Riparian Aquatic (SRA) habitat on the Capay Unit of the SRNWRC will be monitored in year 5 of the monitoring period.

Results

Site Conditions and Photographic Documentation

Tree, shrub, and grass/sedge plantings were completed at both units in the spring of 2009. Planting stakes and cardboard milk container grow tubes were used at both sites. Irrigation lines have been installed at each site and were in good condition. Some browsing of plants has occurred at both sites. A majority of the Capay Unit site was replanted in early fall of 2009 due to lack of adequate moisture. Some replanting occurred at the Doe Island site, as well. Field observation forms are included in **Appendix A**.



At the Capay Unit site, plantings include one row of trees, one row of mixed trees and shrubs, and one row of shrubs positioned perpendicular to the river bank, in addition to a Santa Barbara sedge plant at every tree location. Plantings include 98 shrubs consisting of arroyo willow, sandbar willow, and California rose, along with 85 trees comprised of Fremont cottonwood, western sycamore, and white alder.

The Doe Island site was planted in order to connect a mature riparian corridor resulting from a historical river oxbow. Plantings were completed in 14 rows, alternating overstory species (trees/large shrubs) and understory species (small shrubs/grasses) in each row. Overstory species include valley oak, western sycamore, mule fat, box elder, elderberry, coyote brush, California rose, and California blackberry. Understory species include deer grass, creeping ryegrass, mugwort, California goldenrod, hoary nettle, evening primrose, California pipevine, and clematis. The site includes a total of 2058 plantings.

Photo points were established at each site using a Garmin hand-held GPS unit, with compass bearings taken to record direction of photo observation (**Figures 1 and 2**). Photos are included in **Appendix B**.

Percent Survival

All plants were evaluated to establish percent survival of plantings at each site.

This fall (2011) at the Capay Unit, 77 out of 183 tree/shrub plantings were determined to be alive, for a 42% survival rate. Out of 191 sedge plantings, 116 were found to be alive, resulting in a 61% survival rate. The survival rate of the entire community of plantings at the Capay Unit is 52%.

At the Doe Island site there were 2,038 original plantings made up of 1,028 overstory plantings and 1,010 understory plantings. This fall (2011) a total of 749 overstory plantings were determined to be alive, resulting in a 73% survival rate; and a total of 926 understory were determined to be alive, resulting in a 92% survival rate. The survival rate of the entire community of plantings at the Doe Island site is 82%.

Plant Vigor

Of 81 plants monitored at the Capay Unit, the following plant vigor ratings were determined: poor – 0, fair – 17, good – 23, excellent – 4, missing/dead – 37. Of 472 plants evaluated at the Doe Island site, the following plant vigor ratings were determined: poor – 43, fair – 95, good – 77, excellent – 80, missing/dead – 177. Plant vigor rating data sheets are provided in **Appendix A**.



Conclusion

Plantings at the Capay Unit were of much smaller stature than those at the Doe Island site. This is partially due to planting dates; however, growing conditions at the Capay Unit are less conducive due to sandy soils. This may continue to impact plant vigor and survival until plantings are fully established. It is recommended that both sites be monitored throughout the late spring and summer to assure that irrigation lines are functioning and plants are receiving adequate water. This is more critical at the Capay Unit due to sandy soils as mentioned above.

Furthermore, per Appendix F (Riparian Vegetation and Native Grassland Mitigation Plan) of the M&T Chico Ranch/Llano Seco Rancho Riparian Vegetation and Native Grassland Mitigation Plan, “during years subsequent to the first year of planting (i.e., 2009 through 2012), replanting of trees, shrubs, and herbaceous understory species will occur as needed to reach a survival goal of 60 percent after 5 years for the shoreline community and 80 percent for the riparian floodplain community. Specifically, if individual plants do not survive, larger individuals, which are more likely to persist, will be planted in place of those individuals. Consequently, if adequate survival and recruitment is occurring, little subsequent planting would be conducted.” From the data collected, it appears that the riparian floodplain community at the Doe Island site is currently meeting its survival goal of 80% with a current survival rate of 82%, however, the shoreline community at the Capay Unit is short of its survival goal of 60% with a current survival rate of 52% and may require additional plantings.

Attachments

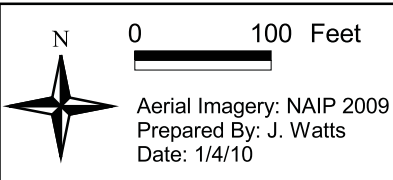
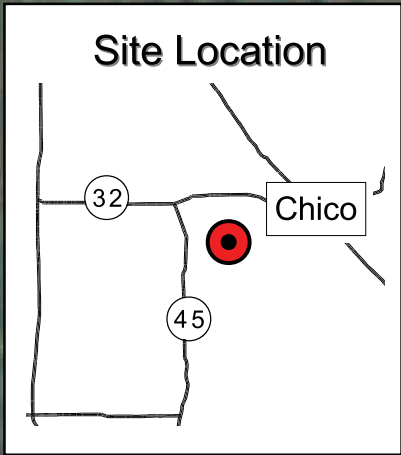
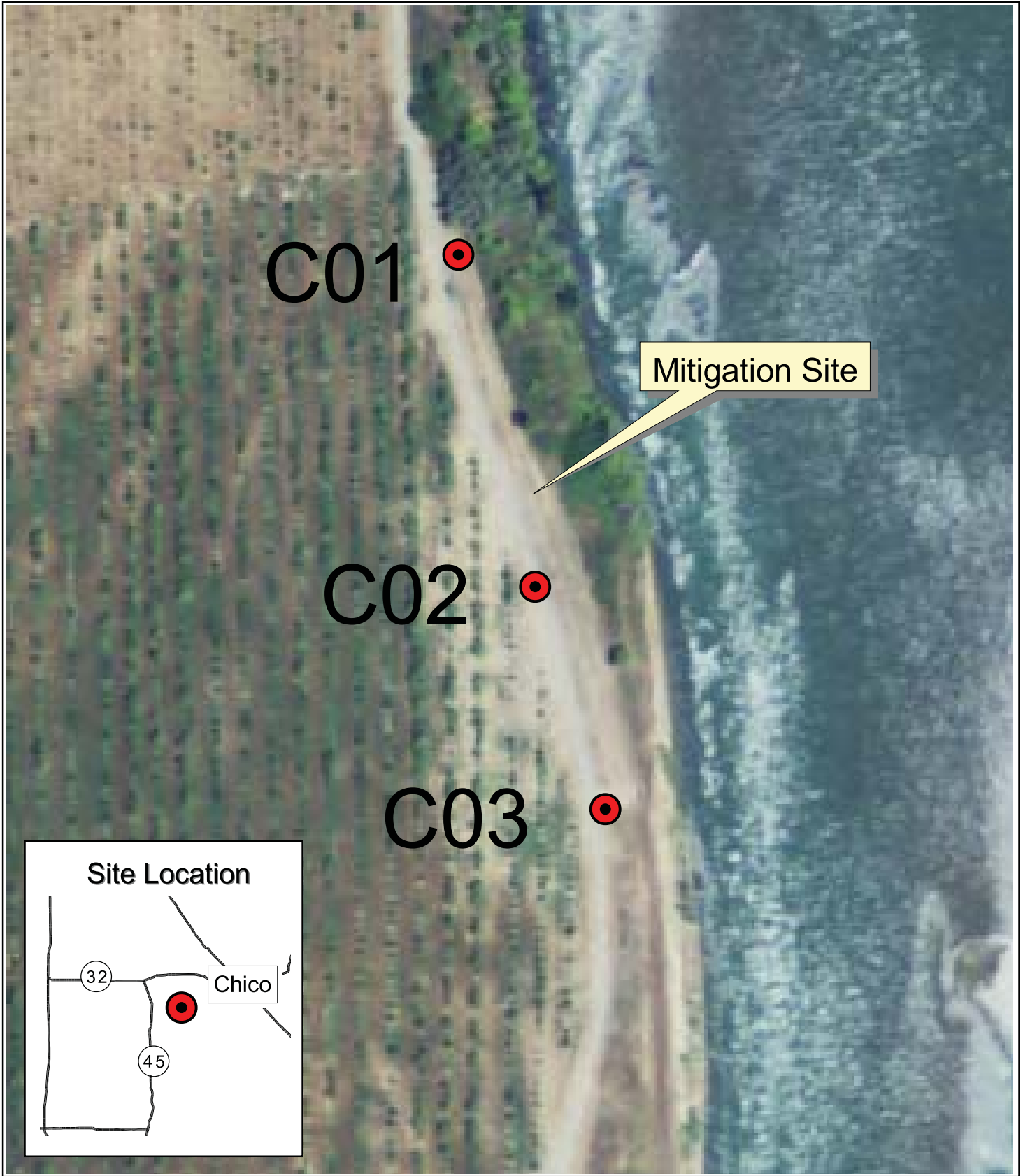
Figure 1. Capay Unit

Figure 2. Doe Island

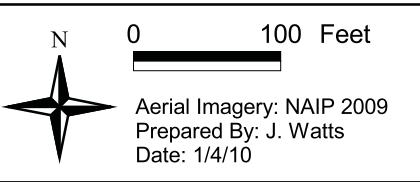
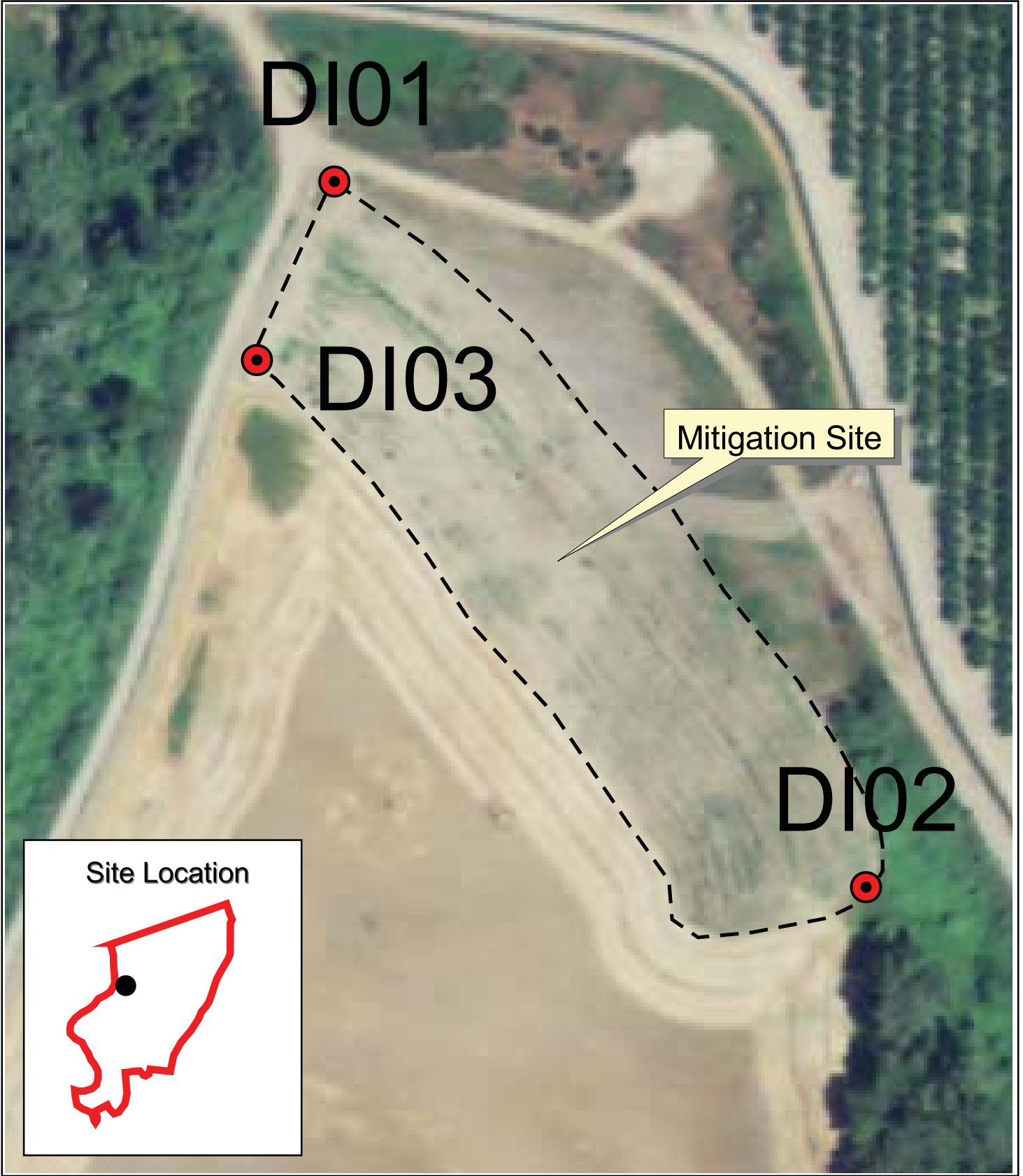
Appendices

A. NCRLT Vegetation Monitoring and Photo-documentation Dataforms

B. Photos



"Capay" Mitigation Site



"Doe Island" Mitigation Site



Appendix A:
Monitoring Data Forms

Field Observations Form
Photodocumentation Data Form
Vegetation Monitoring Data Form

NCRLT Field Observations Form

Site: Capay Unit

County: Glenn

Date: 9-26-2011

Monitor(s): Zach Mendes

Notes: general observable conditions (weather, growing conditions, irrigation system, fencing/exclosures, vandalism, etc.)

weather: clear and warm
 growing conditions: poor growth likely due to soil makeup
 irrigation system: in good condition
 fencing: none present
 note: some western sycamores snapped at trunk

Soil moisture: 1-dry (crumbly and dusty, near wilting point), 2-damp (crumbly but not dusty, some moisture), 3-moist (soft and friable, available water), 4-wet (leaves hand damp, near or above field capacity).

Sample	moisture at depth (cm)			Comments
	0	10		

Understory Vegetation: height (cm), cover of all veg (%), seed (1-ripe, 2-immature, 3-none)

Sample	Height	Cover	Seed	Dominate Plant Species

Recommendations or follow-up required:

NCRLT Vegetation Monitoring Data Form

Percent survival: The number of established trees and shrubs that were planted during the initial planting are determined during each of the five years in the monitoring timeline.

Plant Vigor: During each of the 5 monitoring years, 25 percent of the plantings in each mitigation area are randomly selected and measured to determine canopy size, stem diameter at stem midpoint (diameter at breast height [dbh] for trees 4 feet and taller), and height. Plant vigor* is rated as excellent, good, fair, or poor.

Site: Capay

County: Glenn

Date: 9/26/2011

Monitor's Name: Z. Mendes

*Vigor: poor (discolored, growth stunted, plant stressed), fair (mostly green, average to below average growth, plant not remarkable), good (leaves green, average to above average growth), excellent (rapid growth, plant thriving).
#A/D/M: alive, dead, missing or not planted

Plant ID	A/D/M#	Canopy Size (cm)	Stem Diameter (cm)	Height (cm)	Vigor Rating	Comments
3-1a	M					
3-1b	M					
3-4a	A	122	NA	114	F	
3-4b	A	12.5	NA	25	G	
3-7a	A	152	2.5	244	E	
3-7b	A	25	NA	24	G	
3-11a	A	117	0.6	135	G	
3-11b	A	20	NA	30	G	
3-14a	A	188	1.3	244	E	
3-14b	A	18	NA	25	F	
3-20a	M					
3-20b	M					
3-25a	D					
3-25b	M					
3-30a	M					
3-30b	A	20	NA	30	G	
3-35a	A	274	5	457	E	
3-35b	A	30	NA	50	F	
3-40a	M					
3-40b	A	91	NA	61	F	
3-44a	A	244	7.6	580	G	
3-44b	M					
3-49a	A	305	5	213	G	
3-49b	A	25	NA	60	G	
3-52a	D					
3-52b	M					
3-56a	D					
3-56b	A	25	NA	25	F	
2-1a	A	91	1.2	210	F	
2-1b	A	99	NA	112	F	
2-5a	M					
2-5b	A	45	NA	61	G	

NCRLT Vegetation Monitoring Data Form

2-9a	M					
2-9b	M					
2-13a	M					
2-13b	A	100	NA	112	G	
2-17a	M					
2-17b	A	75	NA	100	G	
2-22a	M					
2-22b	A	155	NA	130	G	
2-26a	M					
2-26b	M					
2-30a	A	91	0.6	198	F	
2-30b	D					
2-33a	M					
2-33b	A	100	NA	129	E	
2-38a	A	122	1.3	213	G	
2-38b	A	99	NA	75	G	
2-43a	M					
2-43b	A	74	NA	100	G	
2-46a	M					
2-46b	A	100	NA	70	G	
2-49a	A	90	1.25	259	G	
2-49b	A	75	NA	60	G	
2-55a	M					
2-55b	A	36	NA	50	G	
2-59a	A	75	0.5	180	F	
2-59b	A	80	NA	90	G	
2-65a	M					
2-65b	A	20	NA	40	F	
2-69a	M					
2-69b	A	25	NA	60	F	
2-74a	M					
2-74b	M					
2-78a	M					
2-78b	A	25	NA	25	F	
2-82a	M					
2-82b	M					
1-3a	A	61	0.6	152	F	
1-3b	M					
1-10a	A	244	1.3	183	F	
1-10b	A	30	NA	80	F	
1-15a	A	122	1.25	122	G	
1-15b	M					
1-45a	A	122	0.6	152	G	
1-45b	A	75	NA	30	E	
1-41a	M					
1-41b	A	100	NA	100	G	
1-38a	A	122	NA	91	F	
1-38b	M					

NCRLT Field Observations Form

Site: Doe Island

County: Butte

Date: 9-27-11 & 9-28-11

Monitor(s): Z. Mendes

Notes: general observable conditions (weather, growing conditions, irrigation system, fencing/exclosures, vandalism, etc.)

weather: clear and warm
 growing conditions: site has demonstrated good growth
 irrigation system: in good condition
 fencing: none present
 note: some browsing of planted trees has occurred

Soil moisture: 1-dry (crumbly and dusty, near wilting point), 2-damp (crumbly but not dusty, some moisture), 3-moist (soft and friable, available water), 4-wet (leaves hand damp, near or above field capacity).

Sample	moisture at depth (cm)			Comments
	0	10		

Understory Vegetation: height (cm), cover of all veg (%), seed (1-ripe, 2-immature, 3-none)

Sample	Height	Cover	Seed	Dominate Plant Species

Recommendations or follow-up required:

NCRLT Vegetation Monitoring Data Form

Percent survival: The number of established trees and shrubs that were planted during the initial planting are determined during each of the five years in the monitoring timeline.

Plant Vigor: During each of the 5 monitoring years, 25 percent of the plantings in each mitigation area are randomly selected and measured to determine canopy size, stem diameter at stem midpoint (diameter at breast height [dbh] for trees 4 feet and taller), and height. Plant vigor* is rated as excellent, good, fair, or poor.

*Please note that due to the high number of plantings on this site, only data collected for the "plant vigor" sub-sample are included on this datasheet. Survivorship data were documented in a different format following the planting map provided by Llano Seco Rancho and are available upon request.

Site: Doe Island

County: Butte

Date: 9/27/2011 & 9/28/2011

Monitor's Name: Z. Mendes

*Vigor: poor (discolored, growth stunted, plant stressed), fair (mostly green, average to below average growth, plant not remarkable), good (leaves green, average to above average growth), excellent (rapid growth, plant thriving). #A/D/M: alive, dead, missing or not planted

Plant ID	A/D/M#	Canopy Size (cm)	Stem Diameter (cm)	Height (cm)	Vigor Rating	Comments
1-1a	A	275	3	275	G	
1-1b	A	91	NA	122	E	
1-3a	A	90	1.25	152	F	
1-3b	A	150	0.3	150	F	
1-8a	M					
1-8b	A	91	NA	90	G	
1-11a	A	61	0.6	213	P	
1-11b	A	183	NA	30	E	
1-16a	A	305	3	300	G	
1-16b	A	NA	NA	NA	G	
1-20a	M					
1-20b	A	122	NA	91	E	
1-26a	A	366	4	455	G	
1-26b	A	NA	NA	NA	G	
1-34a	A	244	2.5	457	G	
1-34b	A	NA	NA	NA	G	
1-38a	A	183	NA	91	E	
1-38b	M					
1-41a	A	61	5	305	E	
1-41b	A	60	NA	90	G	
1-44a	A	91	1.25	210	F	
1-44b	A	305	0.6	152	E	
1-50a	M					
1-50b	A	61	NA	107	F	
1-54a	M					
1-54b	M					
1-59a	A	244	1.25	168	F	
1-59b	M					

NCRLT Vegetation Monitoring Data Form

1-63a	M					
1-63b	M					
1-68a	A	183	2.5	275	F	
1-68b	A	122	NA	107	E	
1-71a	A	30	NA	105	F	
1-71b	A	30	NA	105	G	
1-74a	M					
1-74b	M					
2-1a	A	210	2.5	270	F	
2-1b	A	180	NA	150	E	
2-3a	M					
2-3b	M					
2-8a	M					
2-8b	A	60	NA	90	F	
2-16a	A	30	NA	105	F	
2-16b	A	60	NA	122	G	
2-20a	M					
2-20b	A	122	NA	107	E	
2-26a	A	305	5	366	E	
2-26b	M					
2-28a	A	305	5	457	G	
2-28b	M					
2-34a	A	455	2.5	365	E	
2-34b	A	NA	NA	NA	F	
2-38a	A	300	6.25	396	G	
2-38b	A	122	0.6	213	E	
2-41a	A	305	5	518	F	
2-41b	M					
2-44a	A	183	1.25	212	F	
2-44b	M					
2-50a	M					
2-50b	M					
2-54a	M					
2-54b	A	122	NA	107	E	
2-59a	A	244	6.25	240	G	
2-59b	A	183	NA	106	E	
2-63a	A	61	NA	91	F	
2-63b	A	60	NA	90	F	
2-68a	A	76	1.25	198	P	
2-68b	A	61	1.25	107	G	
2-71a	M					
2-71b	M					
2-74a	A	152	1.25	305	F	
2-74b	M					
3-1a	M					
3-1b	A	183	0.6	198	G	
3-3a	A	366	5	548	E	
3-3b	M					

NCRLT Vegetation Monitoring Data Form

3-8a	A	213	NA	107	G	
3-8b	A	91	NA	76	P	
3-11a	A	76	0.6	198	P	
3-11b	M					
3-16a	A	91	1.25	274	P	
3-16b	A	30	NA	61	F	
3-20a	A	15	0.3	137	F	
3-20b	A	152	NA	122	E	
3-26a	A	183	5	518	E	
3-26b	D					
3-28a	M					
3-28b	M					
3-34a	A	305	NA	91	E	
3-34b	A	213	0.6	183	F	
3-38a	M					
3-38b	M					
3-41a	A	610	13	760	E	
3-41b	A	NA	NA	NA	F	
3-44a	M					
3-44b	D					
3-50a	M					
3-50b	M					
3-54a	A	305	6.25	305	P	
3-54b	M					
3-59a	M					
3-59b	A	183	0.6	290	F	
3-63a	M					
3-63b	A	183	NA	46	E	
3-68a	M					
3-68b	A	152	0.6	183	G	
3-71a	A	46	NA	107	F	
3-71b	A	91	NA	105	G	
3-74a	D					
3-74b	A	138	0.3	137	G	
4-1a	A	244	5	240	F	
4-1b	A	305	0.6	274	E	
4-3a	A	122	3.8	366	F	
4-3b	D					
4-8a	A	91	1.25	305	F	
4-8b	A	457	0.6	275	E	
4-11a	M					
4-11b	A	305	NA	91	E	
4-16a	A	305	7.5	457	G	
4-16b	A	180	0.6	180	E	
4-20a	A	305	7.5	300	G	
4-20b	D					
4-26a	A	305	0.6	244	G	
4-26b	A	244	0.5	366	F	

NCRLT Vegetation Monitoring Data Form

4-30a	A	183	3.8	274	F	
4-30b	M					
4-34a	A	152	3.8	259	F	
4-34b	A	91	0.3	137	E	
4-38a	A	61	2	290	P	
4-38b	D					
4-41a	A	305	4.4	366	G	
4-41b	A	152	1.25	275	F	
4-44a	A	180	3.8	365	F	
4-44b	D					
4-50a	A	152	2.5	274	F	
4-50b	A	61	NA	45	G	
4-54a	A	207	0.6	213	F	
4-54b	A	15	0.3	122	F	
4-59a	M					
4-59b	M					
4-63a	A	305	1.25	366	E	
4-63b	A	244	1.25	366	G	
4-68a	A	213	2.5	275	F	
4-68b	A	152	0.3	152	E	
4-71a	A	548	12.5	610	E	
4-71b	A				F	
4-74a	A				P	
4-74b	A				F	
5-1a	M					
5-1b	A	91	0.3	152	E	
5-3a	A	122	3.2	305	P	
5-3b	M					
5-8a	A	91	NA	46	F	
5-8b	M					
5-11a	A	15	NA	107	F	
5-11b	A	305	0.15	183	E	
5-16a	A	122	30	244	F	
5-16b	A	91	NA	90	E	
5-20a	A	90	0.3	152	G	
5-20b	M					
5-26a	A	122	1.25	305	G	
5-26b	A	214	0.6	274	E	
5-34a	A	305	5	396	E	
5-34b	M					
5-38a	M					
5-38b	M					
5-41a	M					
5-41b	M					
5-44a	M					
5-44b	M					
5-50a	A	304	0.6	305	G	
5-50b	A	244	0.15	198	G	

NCRLT Vegetation Monitoring Data Form

5-54a	A	90	0.6	198	P	
5-54b	A	90	NA	91	F	
5-59a	D					
5-59b	A	305	1.25	300	E	
5-63a	A	92	2.5	274	F	
5-63b	A	183	NA	61	F	
5-68a	M					
5-68b	A	91	0.2	137	E	
5-71a	A	243	2	396	G	
5-71b	M					
5-74a	M					
5-74b	M					
6-1a	A	244	2.5	213	F	
6-1b	A	91	0.5	183	F	
6-3a	M					
6-3b	D					
6-8a	M					
6-8b	A	NA	NA	NA	E	
6-11a	M					
6-11b	A	NA	NA	NA	G	
6-16a	A	75	NA	107	F	
6-16b	A	304	NA	75	E	
6-20a	M					
6-20b	D					
6-26a	A	450	6.3	450	G	
6-26b	A	107	NA	75	G	
6-34a	A	305	5	366	F	
6-34b	A	244	0.2	183	E	
6-38a	A	244	2.5	214	P	
6-38b	D					
6-41a	A	60	1.25	180	P	
6-41b	M					
6-44a	A	244	3.8	300	G	
6-44b	A	61	NA	60	E	
6-50a	M					
6-50b	M					
6-54a	A	305	1.25	335	G	
6-54b	A	212	1.25	275	G	
6-59a	A	244	5	305	F	
6-59b	M					
6-63a	A	NA	NA	NA	G	
6-63b	M					
6-68a	A	61	1.25	215	P	
6-68b	A	183	1	183	E	
6-71a	A	183	2.5	244	E	
6-71b	A	213	0.5	210	G	
6-74a	M					
6-74b	M					

NCRLT Vegetation Monitoring Data Form

7-1a	A	183	3.8	366	F	
7-1b	A	457	1.25	244	G	
7-3a	A	305	4.4	305	F	
7-3b	A	61	0.6	213	E	
7-8a	M					
7-8b	A	61	0.6	183	G	
7-11a	A	152	3.2	335	F	
7-11b	A	30	NA	30	P	
7-16a	A	305	9	610	E	
7-16b	A	122	NA	61	G	
7-20a	A	91	0.3	130	G	
7-20b	M					
7-26a	A	244	5	366	F	
7-26b	M					
7-34a	A	244	NA	107	E	
7-34b	M					
7-38a	A	274	2.5	305	P	
7-38b	A	610	0.6	213	E	
7-41a	A	305	2.5	270	E	
7-41b	A	91	NA	90	G	
7-44a	M					
7-44b	M					
7-50a	M					
7-50b	A	183	0.3	180	E	
7-54a	M					
7-54b	A	305	NA	107	G	
7-59a	A	180	NA	90	G	
7-59b	M					
7-63a	A	75	NA	84	E	
7-63b	A	182	NA	61	E	
7-68a	A	213	2	198	F	
7-68b	A	213	1.25	305	E	
7-71a	A	46	0.3	153	P	
7-71b	M					
7-74a	A	90	3.2	396	F	
7-74b	A	457	0.5	180	E	
8-1a	A	213	1.25	210	P	
8-1b	A	183	1.25	275	E	
8-3a	A	210	5	457	F	
8-3b	M					
8-11a	A	91	2	304	P	
8-11b	M					
8-16a	A	152	0.3	198	E	
8-16b	A	91	NA	114	E	
8-20a	A	61	0.6	183	G	
8-20b	M					
8-26a	M					
8-26b	M					

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8-34a	A	183	0.3	175	G	
8-34b	M					
8-38a	A	76	7	396	G	
8-38b	A	75	0.3	191	G	
8-41a	M					
8-41b	A	518	2	290	E	
8-44a	A	122	6	396	F	
8-44b	A	120	0.4	175	G	
8-50a	M					
8-50b	M					
8-54a	A	61	NA	75	P	
8-54b	A	15	0.6	183	P	
8-59a	A	30	NA	107	P	
8-59b	M					
8-63a	A	275	2.5	305	G	
8-63b	A	61	NA	107	G	
8-68a	M					
8-68b	A	305	NA	46	E	
8-71a	M					
8-71b	A	30	0.4	175	F	
8-74a	D					
8-74b	M					
9-1a	A	244	2	274	F	
9-1b	A	122	NA	114	G	
9-3a	A	270	2.5	366	F	
9-3b	M					
9-11a	M					
9-11b	A	365	0.75	198	E	
9-16a	A	215	4	366	G	
9-16b	A	245	NA	45	E	
9-20a	A	45	NA	115	G	
9-20b	A	90	NA	115	F	
9-26a	A	366	7	395	P	
9-26b	M					
9-34a	M					
9-34b	M					
9-38a	M					
9-38b	M					
9-41a	A	244	6	360	P	
9-41b	A	305	0.5	183	E	
9-44a	A	244	5	396	E	
9-44b	M					
9-50a	A	275	NA	45	F	
9-50b	M					
9-54a	A	245	5	274	F	
9-54b	M					
9-59a	A	180	2.5	198	F	
9-59b	M					

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9-63a	M					
9-63b	M					
9-68a	D					
9-68b	M					
9-71a	M					
9-71b	M					
9-74a	M					
9-74b	NP					
10-1a	A	180	2.5	206	P	
10-1b	A	180	NA	30	P	
10-3a	A	122	0.4	16	E	
10-3b	M					
10-11a	A	275	4	396	P	
10-11b	M					
10-16a	A	304	5	395	F	
10-16b	A	122	0.5	152	P	
10-20a	A	183	0.6	305	F	
10-20b	M					
10-26a	M					
10-26b	A	76	0.6	213	F	
10-34a	A	274	5	335	E	
10-34b	A	61	NA	114	G	
10-38a	A	305	5	365	F	
10-38b	M					
10-41a	A	244	5	244	F	
10-41b	M					
10-44a	A	274	3	274	F	
10-44b	M					
10-50a	M					
10-50b	A	183	NA	61	E	
10-54a	A	183	NA	114	F	
10-54b	A	45	0.4	264	F	
10-59a	A	122	0.6	183	F	
10-59b	A	61	NA	114	F	
10-63a	M					
10-63b	M					
10-68a	A	76	2	175	P	
10-68b	A	61	NA	175	G	
10-71a	M					
10-71b	M					
10-74a	NP					
10-74b	NP					
11-1a	A	215	3	370	G	
11-1b	A	305	0.6	305	E	
11-3a	A	305	4	396	G	
11-3b	M					
11-11a	M					
11-11b	A	91	0.3	152	G	

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11-16a	A	90	4	320	F	
11-16b	A	90	0.4	213	E	
11-20a	A	213	3	335	F	
11-20b	A	91	0.3	152	P	
11-26a	A	305	5	305	F	
11-26b	M					
11-34a	M					
11-34b	A	76	NA	107	G	
11-38a	A	244	5	457	F	
11-38b	M					
11-41a	A	46	0.6	164	G	
11-41b	M					
11-44a	A	152	0.6	183	G	
11-44b	A	91	0.4	145	F	
11-50a	A	183	4	375	F	
11-50b	A	30	NA	30	P	
11-54a	A	305	2.5	244	F	
11-54b	A	30	0.3	183	F	
11-59a	M					
11-59b	M					
11-63a	A	274	NA	91	F	
11-63b	A	30	NA	30	P	
11-68a	A	23	NA	107	P	
11-68b	A	76	NA	105	E	
11-71a	M					
11-71b	A	90	NA	90	E	
11-74a	NP					
11-74b	NP					
12-1a	A	244	4.5	305	G	
12-1b	M					
12-3a	M					
12-3b	M					
12-8a	A	76	2.5	274	P	
12-8b	A	304	0.6	244	E	
12-11a	M					
12-11b	A	305	0.5	245	E	
12-16a	A	61	1.25	152	P	
12-16b	A	60	NA	60	F	
12-20a	A	46	1.25	23	E	
12-20b	A	91	NA	91	P	
12-26a	A	23	1.25	305	F	
12-26b	A	183	0.6	198	E	
12-34a	M					
12-34b	A	15	0.6	195	F	
12-38a	A	305	5	300	G	
12-38b	A	61	NA	60	P	
12-41a	M					
12-41b	A	30	0.3	152	F	

NCRLT Vegetation Monitoring Data Form

12-44a	M					
12-44b	A	30	0.5	275	G	
12-50a	A	366	6.25	457	E	
12-50b	D					
12-54a	A	122	0.3	152	F	
12-54b	M					
12-59a	A	275	3		P	
12-59b	M					
12-63a	D					
12-63b	M					
12-68a	A	30	NA	61	P	
12-68b	A	60		115	F	
12-71a	M					
12-71b	A	60	0.5	120	E	
12-74a	NP					
12-74b	NP					
13-1a	A	183	4	366	G	
13-1b	M					
13-3a	A	275	7	457	F	
13-3b	A	60	0.5	152	F	
13-8a	A	122	NA	23	G	
13-8b	A	122	0.5	150	E	
13-11a	A	180	2.5	315	F	
13-11b	M					
13-16a	A	366	4.5	274	F	
13-16b	M					
13-20a	M					
13-20b	NP					
13-26a	A	244	2.5	270	G	
13-26b	A	182			E	
13-34a	A	183	NA	60	P	
13-34b	A	244	0.3	21	E	
13-38a	A	762	15	549	E	
13-38b	M					
13-41a	M					
13-41b	M					
13-44a	A	152	NA	76	G	
13-44b	M					
13-50a	A	244	3	335	F	
13-50b	M					
13-54a	M					
13-54b	M					
13-59a	NP					
13-59b	NP					
13-63a	NP					
13-63b	NP					
13-68a	NP					
13-68b	NP					



Appendix B:
Photos

Appendix B: M&T Riparian Restoration – Capay Unit



Photo Point C01, Direction of View – 354 degrees
UTM's – 590373 east, 4395319 north
Surveyor – Z. Mendes, Date – 9/26/11



Photo Point C02, Direction of View – 44 degrees
UTM's - 590399 east, 4395210 north
Surveyor – Z. Mendes, Date – 9/26/11



Photo Point C02, Direction of View – 20 degrees
UTM's – 590399 east, 4395210 north
Surveyor – Z. Mendes, Date – 9/26/11



Photo Point C03, Direction of View – 214 degrees
UTM's - 590421 east, 4395139 north
Surveyor – Z. Mendes, Date – 9/26/11



Appendix B: M&T Riparian Restoration – Doe Island Unit



Photo Point DI-01, Direction of View – 210 degrees
UTM's – 588140 east, 4384748 north
Surveyor – Z. Mendes, Date 9-27-11



Photo Point DI-01, Direction of View – 210 degrees
UTM's - 588140 east, 4384748 north
Surveyor – Z. Mendes, Date 9-27-11



Photo Point DI-02, Direction of View – 340 degrees
UTM's - 588298 east, 4384748 north
Surveyor – Z. Mendes, Date 9-27-11



Photo Point DI-02, Direction of View – 260 degrees
UTM's – 588298 east, 4384748 north
Surveyor – Z. Mendes, Date 9-27-11



Photo Point DI-03, Direction of View – 60 degrees
UTM's – 588117 east, 4384692 north
Surveyor – Z. Mendes, Date 9-27-11



Photo Point DI-03, Direction of View – 100 degrees
UTM's – 588117 east, 4384692 north
Surveyor – Z. Mendes, Date 9-27-11