

# Central Disposal Site Wetlands Mitigation Project Final Annual Plant Community Monitoring Report

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Integrated Waste Division

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## Introduction

This report summarizes the monitoring activities that have occurred in the past year at the Landfill Wetlands Mitigation Site, located off of Hammel Road southwesterly of the town of Cotati. The objective of this effort was to monitor the success of the seven created wetlands at the site by assessing the types of vegetation communities and hydrological conditions that currently exist at the wetland sites.

Field investigations were held on July 7, 2006 and September 9, 2006 for the fifth year of monitoring for this project. The mitigation included the development of three spring-fed pools, to serve as California red-legged habitat, and seven shallow depressions to serve as seasonal wetlands. This data set is a representation of the plants found in each of the created pools at the site, where the pools are to serve as mitigation for the loss of wetlands as a result of projects in the nearby vicinity.

## Background and Methods

The sampling of plant species involves identifying and recording individual plants along a 1ft interval on one or two transects in each pool. The transects all run parallel to the main axis of each pool and several have two transects (depending upon the size and shape of the pool). The interval points for each pool were combined and divided by the total transect distance and multiplied by 100 to reach a percentage mean for each plant species/pool (Fig. 1). These data were then divided into the various status levels (i.e., OBL for obligate wetland plants) to demonstrate the success of that individual pools meeting the target criteria (as described in the Wetland Mitigation and Monitoring Plan (WMMP, March 2000).

## Results

### *Hydrology*

The rainfall data for the 2005-2006 rainy season in the Santa Rosa area indicates that precipitation was about 47 inches or about 124 % of normal for the year in most of Sonoma county. The winter and spring of 2005/2006 gave large rain quantities in December with about twenty inches of rain in December. The pools filled to capacity early in the winter and held water until late spring and early summer due to a relatively wet spring. From March through May of 2006, it rained about 16 inches in the general vicinity of the wetlands. All of the wetlands had standing water for greater than 130 days, which is about seven times greater than what is needed to meet the minimum hydrological requirements in the 1987 Wetland Delineation Manual, which is continuous inundation for at least 5% of the growing season (18 days in this region).

### *Vegetation*

The overall results show that the native obligate hydrophytic plant, *Glyceria occidentalis*, was found to be the most abundant species within each of the seven pools, with a maximum dominance value of 75% in Pool 2 and a minimum dominance of 14% in Pool 4. The minimum number of native wetland species was found in Pool 2, where the species richness of native wetland plants (FACW or OBL) was equal to five. The average species richness of native wetland plants was 6.3 and 11 was the highest which was found for Pool 7.

## Conclusions

Monitoring in 2006 shows that the created wetlands fill well during the winter and stay wet during the spring. The maximum depth of 10-20 inches is nearly optimal, and the hydroperiod of 3-5 months is typical of the region. Inundation and ponding appears to have occurred relatively early in the year (mid November this year) and will typically not dry completely until mid June. In addition, all pools have at least five native hydrophytic plants which meets the minimum number required for success after five years.

In final summary, all of the wetland features meet their objectives in both hydrology and vegetation in all of the required criteria described in the WMMP.

**Figure 1 Data Summary for Year Five Landfill Wetland Project Data**

Physical Habitat Parameters	Pool 1	Pool 2	Pool 3	Pool 4	Pool 5	Pool 6	Pool 7
Percent OBL Cover	88	92	60	44	60	75	66
Percent FACW Cover	10	14	49	36	9	0	5
Percent FAC Cover	2	1	0	4	0	3	0
Percent FACU Cover	0	3	1	0	3	0	2
Native Wetland Species	7	5	6	6	6	6	10
Consecutive Days of Ponded H2O	150+	150+	150+	150+	150+	150+	150+
Total Percentage of Plant Cover	88	63	100	100	100	98	100
<b>Latin Binomial</b>							
<i>Bromus mollis</i> (FACU-) *	1				3	PR	2
<i>Eyngium aristulatum</i> (OBL)			1	7		1	
<i>Lolium perenne</i> (FAC) *	1	1		2		3	10
<i>Glyceria occidentalis</i> (OBL)	61	75	22	14	71	73	54
<i>Lythrum hyssopifolium</i> (FACW) *	5	5	19	9	3		11
<i>Mentha pulegium</i> (OBL) *	5	2	2	4			
<i>Trifolium subterraneum</i> (UPL)	6						
<i>Cyperus eragrostis</i> (FACW)	1	9	22	13	3		1
<i>Lolium multifolium</i> (NI) *			2	2	3	3	10
<i>Trifolium variegatum</i> (FACW-)	5						
<i>Crypsis schoenoides</i> (OBL)	PR	PR					1
<i>Paspalum distichum</i> (OBL)	PR	PR					
<i>Dechampsia elongata</i> (FACW)			4	2			
<i>Polypogon monspeliensis</i> (FACW+) *		PR	1				1
<i>Juncus phaeocephalus</i> (FACW)			3	11	1	PR	PR
<i>Vicia villosa</i> (NI) *		1					
<i>Anthemis cotula</i> (FACU) *		PR					
<i>Plagiobothrys bracteatus</i> (OBL)		PR			PR	PR	PR
<i>Briza minor</i> (FACW-) *		PR					
<i>Lilaea Scilloides</i> (OBL)				1	1		PR
<i>Typha californica</i> (OBL)			PR			PR	
<i>Rumex crispus</i> (FACW)					2	PR	2
<i>Juncus bufonius</i> (FACW)				1			1
<i>Polygonum hydropiperoides</i> (OBL)							PR
<i>Eleocharis macrostachya</i> (OBL)				PR			
<i>Salix sp.</i> (OBL)							PR
<i>Xanthium strumarium</i> (FAC+) *		PR					
Algal mat	6	1	10		11	14	6
Bare Ground	20	49	0	0	0	5	0

PR=Present within wetland but not encountered in transect

\* Non-native species