

CRAM Fieldwork 2015 to Support Tasks 2 & 3

Introduction

The California Rapid Assessment Methodology Statewide Study (Study) was developed to investigate several specific questions related to depressional wetlands and the California Rapid Assessment Method (CRAM). The Study relies on a robust set of CRAM assessment data to analyze and develop findings to address several technical questions about CRAM scores in relation to wetland size, landscape setting, and wetland age. In addition to using existing CRAM assessments, collected statewide between 2007 and 2015, SFEI collected additional data during 2015 to supplement the dataset. This memo details that data collection effort. The data are archived and available online through the eCRAM database (www.cramwetlands.org).

Field Site Selection

Initial review of existing depressional wetland assessments in the eCRAM database revealed that while nearly 400 depressional wetland assessments were in the database, assessments of wetlands with specific criteria were under represented, especially assessments of wetland *projects* of known age. The 2015 CRAM field effort focused on assessing sites that met the desired criteria to augment the existing eCRAM dataset. With the Study questions in mind, the team identified the following site selection criteria:

- Small (<<1 ha) depressional wetlands
- Sites within the Caltrans Right-of-Way (ROW)
- Sites in Caltrans funded mitigation banks
- Other restoration, mitigation, or wetland creation project sites
- Project sites that cover the spectrum of age classes

One of the Study questions relates to the size of depressional wetlands, in particular the relationship between wetland size and CRAM scores. Some of the wetlands within Caltrans' jurisdiction are small depressions within the ROW. These are depressions that might be impacted and potentially mitigated for during road construction or improvement. However, a core assumption of CRAM is that it favors large, structurally complex wetlands. Thus, there is a concern that a bias against small wetlands might exist in the method, such that small wetlands can never attain a high score. In addition to the question about potential bias, if no bias is found, then can CRAM be used to inform decisions about benefits of creating or restoring small depressions, as opposed to larger depressions?

To address these questions relating to the size of wetlands, the Study developed *Task 2: Relationship between wetland size and CRAM scores for small depressional wetlands*. The existing eCRAM dataset included a wide range of wetland sizes, dominated by very small wetlands (smaller than 1 ha). Prior to the 2015 field season, the team decided that the existing depressional CRAM dataset was adequate to address the wetland size question. However, if a very small wetland (< 0.25 ha) was encountered, the CRAM field team would include it.

Another Study question relates to the relationship between wetland age and condition. To address the issue of how the condition of a depressional wetland might change in relation to its age, Study task 3 was designed to develop Habitat Development Curves (HDC) for depressional wetlands. This task requires a clear understanding of the age of the assessment wetland in order to plot wetland condition against wetland age. The age of a wetland is determined as the time the wetland was created, or the last major management event that changed its topography, hydrology, or vegetation structure. The condition is measured by the CRAM Index score and by individual Attribute scores.

The existing eCRAM dataset showed that gaps existed in the age classes of wetlands, specifically for younger wetlands, which tend to be mitigation or restoration projects. Therefore, the team focused on including restoration, mitigation, or wetland creation project sites in mitigation banks, or other locations. However, not just young projects were targeted; other wetlands of different ages were also targeted, to augment the full age range.

And lastly, the eCRAM dataset did not include any assessments of depressional wetlands within the Caltrans ROW. To include the potential effect of proximity to roads or management practices (by Caltrans) these ROW wetlands were included in the targeted site selection criteria.

SFEI initially worked with Caltrans to identify as many Caltrans project sites as possible, to explore as candidate assessment sites. This included searching the Caltrans STEVE database (internal Caltrans project tracking database), as well as the USACE RIBBITS database to identify mitigation banks with depressional wetlands that had been used by Caltrans. SFEI also reviewed a GIS file supplied by Caltrans showing locations of projects that might have affected wetlands within the ROW. And lastly, SFEI reviewed Google Earth aerial imagery to identify any additional potential depressions within the Caltrans ROW. The team then worked on securing access permissions to as many sites on the list of candidate assessment sites as possible.

CRAM Field Assessment Results 2015

During the spring and summer of 2015, SFEI conducted 83 new CRAM assessments of depressional wetlands (Figure 1). Assessments were conducted across 6 ecoregions, including sites in central and northern California, as well as in the Sierra. The new assessments occurred in a variety of types of depressional wetlands, including stockponds, water management ponds (e.g. detention basins, reservoirs, pump station ponds), stormwater basins, and depressions created/managed for habitat (e.g. restoration or mitigation sites). The sites also covered a wide variety of landscape settings, including urban, sub-urban, industrial, parks, grazing lands, agricultural lands, and open space. Many of the sites were in mitigation banks, or other types of projects that are managed for diverse habitat functions.

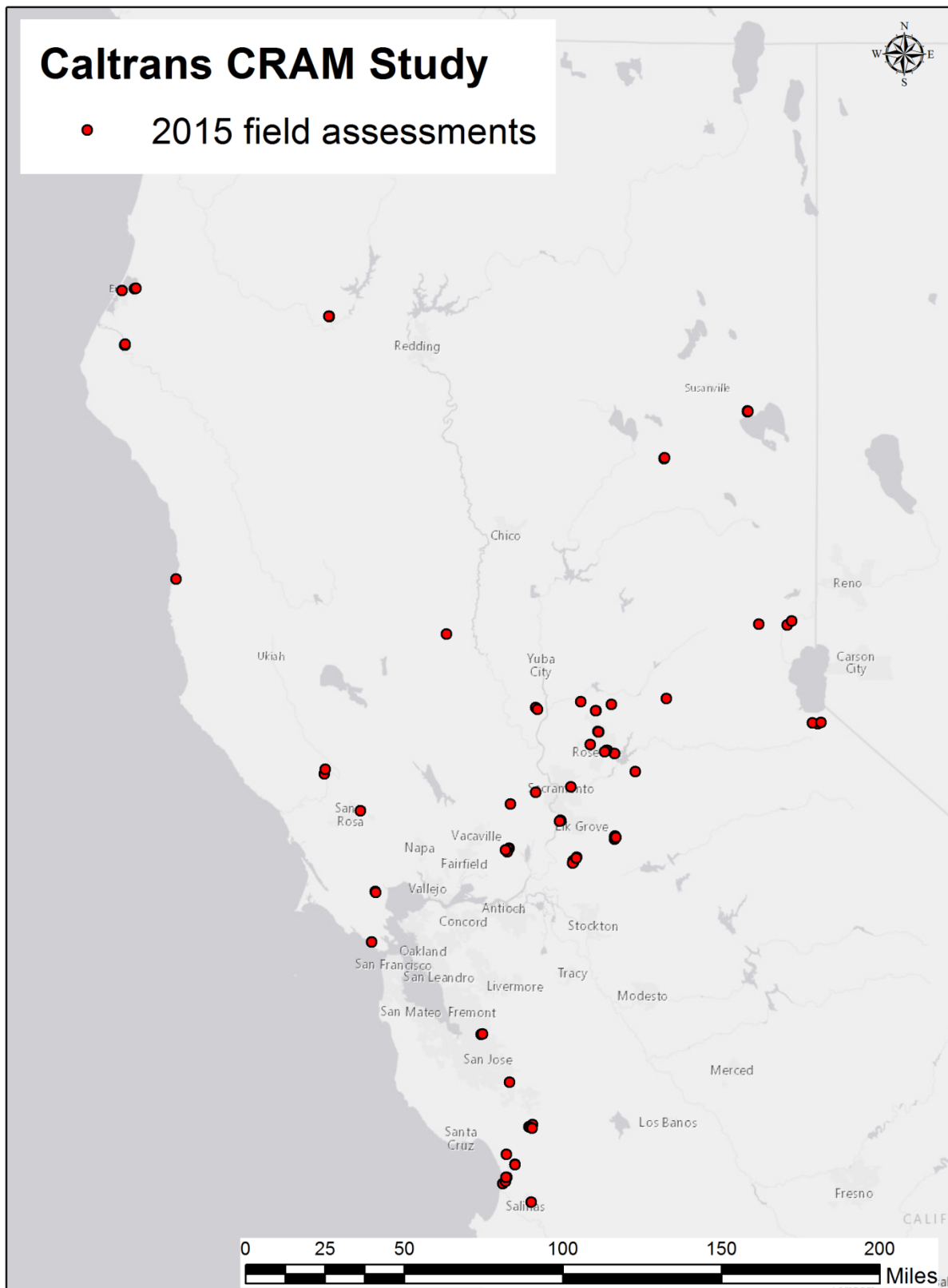


Figure 1. Map of 2015 CRAM depressional wetland assessments completed by SFEI (n=83) under the project name “Caltrans Depressional Performance Curves 2015”.

All assessments were included in the analysis dataset for this Study. All assessments were included in the analysis focusing on wetland size. And most assessments were included in the initial development of the HDC (only dropping sites where the wetland age was not well understood). Approximately one-third of the sites passed all of the HDC evaluation criteria, and were incorporated into the final HDC.

Table 1 lists all 83 CRAM assessments conducted for this Study. All the assessments were entered into the eCRAM database, and “public” sites (sites where the property owner has given permission for the assessment to be publically visible) can be viewed and downloaded on EcoAtlas (www.ecoatlas.org). The Study data can be accessed under the project name “Caltrans Depressional Performance Curves 2015”¹; See individual Task Memos for further explanation and analysis using these CRAM assessments.

¹ To download the Study dataset in EcoAtlas, www.ecoatlas.org, select the “Map” text next to “Statewide” in the center of the page and click on the blue “Tool” button on the top right of the screen above the map. Using the Wetland Condition (CRAM) tool, the data can be subset by project name. Filtered data can then be downloaded in several different formats including KML, ESRI Shapefile, and/or CSV/Excel spreadsheet.

Table 1. CRAM depressional wetland assessment results (n=83). Assessments were conducted by SFEI in 2015 under the Caltrans CRAM Statewide Study. All the assessments are listed in EcoAtlas under the project name “Caltrans Depressional Performance Curves 2015”.

| Visit date | AA name | eCRAM ID | Ecoregion | Caltrans mitigation bank or ROW site? | Index Score | Landscape and Buffer | Hydrology | Physical Structure | Biotic Structure |
|------------|---|----------|-------------------|---------------------------------------|-------------|----------------------|-----------|--------------------|------------------|
| 4/20/2015 | Muir Beach depression | 4795 | bay/delta | no | 80 | 65 | 92 | 75 | 89 |
| 4/20/2015 | Novato Rowland Blvd | 4803 | bay/delta | no | 59 | 53 | 58 | 50 | 75 |
| 5/1/2015 | Lower Natividad | 4657 | central coast | no | 64 | 55 | 67 | 50 | 83 |
| 5/1/2015 | Manabe | 4658 | bay/delta | no | 61 | 55 | 50 | 50 | 89 |
| 5/14/2015 | Lower Tembladero | 4800 | central coast | no | 64 | 43 | 67 | 50 | 94 |
| 5/14/2015 | Tottino Pond | 4802 | central coast | no | 66 | 48 | 67 | 50 | 97 |
| 5/14/2015 | Upper Tembladero | 4801 | central coast | no | 58 | 48 | 58 | 50 | 75 |
| 5/15/2015 | Alba North | 4797 | central coast | no | 62 | 49 | 67 | 63 | 69 |
| 5/15/2015 | Alba South | 4796 | central coast | no | 66 | 53 | 83 | 50 | 78 |
| 5/15/2015 | Granite North | 4798 | central coast | no | 71 | 58 | 83 | 50 | 92 |
| 5/15/2015 | Granite West | 4799 | central coast | no | 71 | 53 | 83 | 50 | 97 |
| 6/17/2015 | HP Pond | 4085 | sacramento valley | no | 69 | 48 | 83 | 75 | 69 |
| 6/17/2015 | Roseville Sierra College Stormwater 2 | 4086 | sacramento valley | no | 66 | 65 | 67 | 50 | 83 |
| 6/27/2015 | Roseville Parkway Storm | 4089 | sacramento valley | no | 58 | 45 | 67 | 50 | 69 |
| 6/27/2015 | Roseville Sierra College Stormwater 1 | 4087 | sacramento valley | no | 54 | 53 | 67 | 25 | 72 |
| 6/27/2015 | Serrano Pond | 4088 | sierra | no | 66 | 53 | 67 | 63 | 81 |
| 7/7/2015 | Consumnes Mitigation Middle | 4130 | bay/delta | yes | 59 | 100 | 67 | 25 | 44 |
| 7/7/2015 | Cosumnes Mitigation Amoeba | 4129 | bay/delta | yes | 66 | 100 | 83 | 38 | 44 |
| 7/7/2015 | Cosumnes Mitigation North | 4128 | bay/delta | yes | 72 | 93 | 67 | 50 | 78 |
| 7/8/2015 | Aravaipa Street Stormwater #5 | 4149 | sierra | no | 61 | 55 | 83 | 50 | 56 |
| 7/8/2015 | Sutter Basin Mitigation Bank B | 4134 | sacramento valley | yes | 74 | 93 | 42 | 88 | 72 |
| 7/8/2015 | Sutter Basin Mitigation Bank E | 4135 | sacramento valley | yes | 78 | 93 | 42 | 100 | 78 |
| 7/8/2015 | Sutter Basin Mitigation Bank F | 4133 | sacramento valley | yes | 70 | 90 | 42 | 75 | 75 |
| 7/9/2015 | Sawmill Pond | 4136 | sierra | no | 72 | 50 | 83 | 75 | 81 |
| 7/9/2015 | Upper Truckee River Reach 5 Restoration | 4137 | sierra | no | 66 | 53 | 75 | 63 | 72 |
| 7/10/2015 | Chandler Wetland | 4152 | sacramento valley | no | 62 | 49 | 67 | 50 | 83 |
| 7/10/2015 | Hidden Falls Pond | 4150 | sierra | no | 60 | 48 | 92 | 38 | 64 |

| Visit date | AA name | eCRAM ID | Ecoregion | Caltrans mitigation bank or ROW site? | Index Score | Landscape and Buffer | Hydrology | Physical Structure | Biotic Structure |
|------------|---|----------|-------------------|---------------------------------------|-------------|----------------------|-----------|--------------------|------------------|
| 7/10/2015 | Todd Valley Park Pond | 4151 | sierra | no | 67 | 56 | 58 | 63 | 92 |
| 8/5/2015 | Doty Ravine 1 | 4182 | sacramento valley | no | 74 | 93 | 92 | 38 | 72 |
| 8/5/2015 | Doty Ravine 2 | 4183 | sacramento valley | no | 73 | 68 | 83 | 50 | 89 |
| 8/6/2015 | Clay Station 1 - CSM79 | 4192 | sacramento valley | yes | 71 | 93 | 100 | 50 | 42 |
| 8/6/2015 | Clay Station 2 - CSW382 | 4193 | sacramento valley | yes | 69 | 93 | 92 | 50 | 42 |
| 8/6/2015 | Clay Station 3 - CSW375 | 4194 | sacramento valley | yes | 71 | 93 | 100 | 50 | 42 |
| 8/6/2015 | Clay Station 4 - CSM1 | 4195 | sacramento valley | yes | 71 | 93 | 100 | 50 | 42 |
| 8/7/2015 | I-80 & Chiles Rd | 4197 | sacramento valley | yes | 56 | 65 | 58 | 38 | 61 |
| 8/7/2015 | I-80 & Kidwell | 4196 | bay/delta | yes | 52 | 38 | 58 | 50 | 64 |
| 8/10/2015 | Beach Lake 1 | 4238 | bay/delta | yes | 61 | 93 | 42 | 50 | 58 |
| 8/10/2015 | Beach Lake 2 | 4239 | bay/delta | yes | 62 | 81 | 33 | 63 | 72 |
| 8/10/2015 | Beach Lake 3 | 4240 | bay/delta | yes | 66 | 93 | 50 | 50 | 69 |
| 8/11/2015 | Highway 65 & Riosa Road | 4241 | sacramento valley | yes | 50 | 58 | 83 | 25 | 33 |
| 8/12/2015 | Crescent Mills 3 | 4243 | sierra | yes | 73 | 73 | 83 | 63 | 75 |
| 8/12/2015 | Crescent Mills North 2 | 4245 | sierra | yes | 68 | 90 | 67 | 38 | 78 |
| 8/12/2015 | Crescent Mills SE | 4244 | sierra | yes | 68 | 93 | 83 | 25 | 72 |
| 8/13/2015 | Honey Lake North Pond NW | 4248 | modoc | yes | 70 | 100 | 33 | 50 | 97 |
| 8/13/2015 | Honey Lake Reference | 4246 | modoc | yes | 59 | 63 | 67 | 38 | 69 |
| 8/13/2015 | Honey Lake West Pond | 4249 | modoc | yes | 60 | 100 | 33 | 63 | 44 |
| 8/14/2015 | I80 & Donner Pass Rest Stop | 4252 | sierra | yes | 72 | 53 | 83 | 75 | 78 |
| 8/14/2015 | I80 & Donner Pass Road | 4251 | sierra | yes | 44 | 38 | 58 | 38 | 44 |
| 8/14/2015 | I80 & Overland Trail Stormwater Basin | 4250 | sierra | yes | 40 | 53 | 58 | 25 | 25 |
| 9/1/2015 | I5 & Maxwell Colusa Road | 4242 | sacramento valley | yes | 55 | 63 | 75 | 25 | 58 |
| 9/15/2015 | Lincoln 12 Bridges 1 | 4425 | sacramento valley | no | 65 | 78 | 83 | 50 | 50 |
| 9/15/2015 | Lincoln 12 Bridges 2 | 4426 | sacramento valley | no | 61 | 49 | 83 | 63 | 50 |
| 9/15/2015 | Lincoln 12 Bridges 3 | 4427 | sacramento valley | no | 62 | 53 | 83 | 63 | 50 |
| 9/15/2015 | Lincoln 12 Bridges 4 | 4428 | sacramento valley | no | 59 | 53 | 75 | 50 | 58 |
| 9/22/2015 | City of Healdsburg - Grove St. Skate Park | 4481 | bay/delta | no | 47 | 43 | 58 | 38 | 47 |
| 9/22/2015 | City of Healdsburg - Spur Court | 4482 | bay/delta | no | 53 | 42 | 67 | 50 | 53 |
| 9/22/2015 | Spring Lake Pond | 4483 | bay/delta | no | 69 | 68 | 83 | 63 | 61 |
| 9/24/2015 | Elsie Gridley #1- Borrow Ditch | 4429 | bay/delta | yes | 64 | 93 | 83 | 38 | 42 |
| 9/24/2015 | Elsie Gridley #2- Pasture 7B Pond | 4430 | bay/delta | yes | 68 | 85 | 83 | 38 | 64 |
| 9/24/2015 | Elsie Gridley #3- Pasture 7B Swale | 4431 | bay/delta | yes | 72 | 93 | 100 | 38 | 58 |

| Visit date | AA name | eCRAM ID | Ecoregion | Caltrans mitigation bank or ROW site? | Index Score | Landscape and Buffer | Hydrology | Physical Structure | Biotic Structure |
|------------|--------------------------------------|----------|---------------------|---------------------------------------|-------------|----------------------|-----------|--------------------|------------------|
| 9/24/2015 | Elsie Gridley #4- SE Corner | 4432 | bay/delta | yes | 72 | 93 | 100 | 38 | 58 |
| 9/28/2015 | Fay Slough #1 | 4436 | klamath/north coast | no | 73 | 93 | 100 | 50 | 50 |
| 9/28/2015 | Fay Slough #4 | 4437 | klamath/north coast | no | 68 | 93 | 100 | 38 | 42 |
| 9/28/2015 | Weaver Basin #2 | 4434 | klamath/north coast | no | 64 | 53 | 58 | 63 | 83 |
| 9/28/2015 | Weaver Basin #4 | 4433 | klamath/north coast | no | 63 | 53 | 75 | 63 | 61 |
| 9/28/2015 | Weaver Basin 1989 | 4435 | klamath/north coast | no | 68 | 65 | 75 | 50 | 83 |
| 9/29/2015 | Alton Highway 101 and 36 interchange | 4446 | klamath/north coast | yes | 47 | 38 | 58 | 38 | 53 |
| 9/29/2015 | Alton Regrade | 4445 | klamath/north coast | yes | 54 | 65 | 83 | 25 | 42 |
| 9/29/2015 | Alton Southwest 3 Parameter | 4444 | klamath/north coast | yes | 67 | 90 | 83 | 50 | 44 |
| 9/29/2015 | Cleone 6.25 New | 4447 | klamath/north coast | yes | 71 | 65 | 92 | 38 | 89 |
| 9/29/2015 | Cleone 6.25 Old | 4448 | klamath/north coast | yes | 70 | 78 | 92 | 38 | 75 |
| 9/30/2015 | Novato NW Cloverleaf | 4484 | bay/delta | yes | 57 | 50 | 83 | 38 | 58 |
| 10/5/2015 | Lucky Day Depression - N of Day Rd | 4489 | bay/delta | yes | 63 | 48 | 75 | 75 | 56 |
| 10/5/2015 | Lucky Day Reservoir | 4488 | bay/delta | yes | 59 | 56 | 83 | 63 | 33 |
| 10/5/2015 | Lucky Day Stock Pond #1 | 4485 | bay/delta | yes | 56 | 48 | 75 | 50 | 53 |
| 10/5/2015 | Lucky Day Stock Pond #2 | 4486 | bay/delta | yes | 55 | 60 | 75 | 50 | 33 |
| 10/7/2015 | Bird Pond | 4660 | bay/delta | no | 70 | 86 | 83 | 50 | 61 |
| 10/7/2015 | California Circle Pump Station | 4655 | bay/delta | no | 55 | 61 | 42 | 50 | 67 |
| 10/7/2015 | Coyote Parkway Middle | 4659 | bay/delta | no | 60 | 65 | 33 | 63 | 81 |
| 10/8/2015 | Cosumnes Accidental Forest | 4490 | bay/delta | no | 84 | 100 | 92 | 50 | 94 |
| 10/8/2015 | Cosumnes Intentional Forest | 4491 | bay/delta | no | 91 | 100 | 92 | 88 | 86 |
| 10/19/2015 | Bushy Lake NW | 4692 | sacramento valley | no | 61 | 58 | 50 | 63 | 75 |
| 10/19/2015 | Del Paso Pond | 4656 | sacramento valley | no | 67 | 65 | 58 | 75 | 69 |