APPENDIX C

Vegetation Mapping

Salinas River Vegetation Mapping

Salinas River Stream Maintenance Program EIR

30206011

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Shaping the Future

Document Information

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Project Name	Salinas River Stream Maintenance Program EIR
Project Number	30206011
Project Manager	Lisa Mash
Task Lead	Katie Ross-Smith
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Prepared for:

Monterey County Water Resources Agency
893 Blanco Circle, Salinas, CA 93901

Prepared by: Katie Ross-Smith

Cardno ENTRIX
2300 Clayton Rd., Suite 200, Concord, CA 94520

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Acronyms

Cal-IPC	California Invasive Plant Council
EIR	Environmental Impact Report
GIS	Geographic Information System
MCWRA	Monterey County Water Resources Agency
RM	river mile
SMP	stream maintenance program

1 Introduction

Arundo donax (Arundo or giant reed) is a non-native aggressive perennial grass often present in large monocultures along the Salinas River mainstem within the proposed stream maintenance program (SMP or Program) Area from river mile (RM) 2 to RM 94[1] [92 miles total] and along the following three tributaries: Gonzales Slough, Bryant Canyon Channel, and San Lorenzo Creek. The distribution and abundance of Arundo has been mapped twice within the Program Area since 2005. First, approximately 70% of the Program Area was mapped in 2005-2006 by the Monterey County Agriculture Commissioner's Office for areas where its coverage was at least 30% (RM 2- RM 68.6). Most recently, the California Invasive Plant Council (Cal-IPC) mapped Arundo for areas with approximately 70 to 90+% coverage. This mapping was done primarily from 2007 aerial imagery (with one-foot resolution), and included the Program Area along the Salinas River and near the tributary confluences.[2] Both sets of data are available as Geographic Information System (GIS) coverages. Subsequent to the most recent mapping of Arundo, channel maintenance activities were conducted by landowners along a total of approximately 23 miles of river in 2008 in specified reaches as part of the Stream Maintenance Program (SMP [refer to Program Description, Chapter 3.0 of the EIR]). An estimated total of 514.75 acres of native vegetation and 58.35 acres of non-native vegetation (primarily Arundo) were removed during these activities (Lee & Pierce, Inc. 2008).

1.1 Purpose of the Study

The purpose of this study was to: (1) update the 2007 Arundo GIS data to reflect vegetation removed as part of the SMP in 2008 and any change in Arundo coverage that may have occurred since 2007; and (2) map the distribution and abundance of native and other non-native vegetation along the Salinas River and the three tributaries included in the proposed SMP: Gonzales Slough (approximate RM 31.6), Bryant Canyon Channel (RM 47.1), and San Lorenzo Creek (RM 69.0).

[1] For consistency, all river miles referred to in this document are based on a data layer acquired from Lee & Pierce, Inc., which are based on 1997 channel surveys.

[2] Arundo mapped from the aerial imagery was verified in the field by Cal-IPC along approximately 4.5 miles of the Salinas River.

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2 Study Approach

This section describes the approach for updating the 2007 Cal-IPC Arundo data within the Program Area and determining the distributions and acreages of native riparian vegetation, including the evaluation of existing information, mapping and field-verification methods, and analytical methods.

2.1 Evaluation of Existing Information/Data

Existing information regarding the distribution and abundance of Arundo, other non-native vegetation species, and native vegetation within the Program Area and 2008 SMP activities were obtained, reviewed, and evaluated. The relevant information included the following:

- **2007 aerial photography of the Program Area at 1-foot resolution (pre-2008 SMP activities) (provided by Monterey County Water Resources Agency [MCWRA])**. These aerial photographs are at the best scale currently available and were used as the base for the Arundo and native vegetation mapping in this study.
- **Cal-IPC non-native vegetation species GIS data for the Salinas River (provided by MCWRA)**. Information from this dataset, which included GIS coverage data for Arundo and other non-native vegetation species along the Salinas River and near the three tributary confluences, were primarily mapped from 2007 ortho-imagery (with one-foot resolution) and used to identify distribution and abundance of Arundo and other non-native vegetation species in 2007.[3]
- **2008 Annual Report, Salinas River 2003-2008 Channel Maintenance Program (Lee & Pierce, Inc. 2008) and 2008 SMP work permits/after-action reports with ground photographs (provided by MCWRA)**. These documents provided information on the Salinas River reaches where channel maintenance work was performed in 2008, the amount of native and non-native vegetation removed, and specific type of work that was conducted in each reach.
- **2008 and 2009 oblique helicopter photographs (provided by MCWRA)**. These low-level photographs taken of each of the SMP areas after stream maintenance was conducted in 2008 were used to update the 2007 Cal-IPC Arundo coverage data.
- **Aerial photograph maps of the 2008 SMP reaches (provided by MCWRA)**. These maps, which outlined the specific areas where vegetation was removed and/or grading occurred as part of the SMP in 2008, were used to update the 2007 Cal-IPC Arundo coverage data.
- **2009 Google Earth aerial imagery from the Highway 1 bridge to approximately RM 52.2**[4] **(publicly available, Google Earth Pro [2009])**. This imagery, at a resolution sufficient to identify Arundo and dominant native vegetation species, was used to update the 2007 Cal-IPC Arundo coverage data after 2008 SMP vegetation removal activities and map the distribution and abundance of native vegetation along the Salinas River.

[3] Arundo has been mapped along the Salinas River for other projects (e.g., TNC 2008); however, these data were based on older aerial photographs and/or were not as detailed or complete as the Cal-IPC dataset.

[4] Google Earth aerial imagery upstream of RM 52.2 was taken in 2007.

2.2 Distribution and Abundance of Arundo

2.2.1 Mapping and Field Verification Methods

The 2007 Cal-IPC Arundo coverage data were updated along the Salinas River in 2010 using the 2009 Google Earth aerial imagery (up to approximately RM 52.2), 2008 and 2009 oblique helicopter photographs, and maps showing the extent of vegetation removed in 2008 as part of the prior SMP. The reaches where SMP activities and vegetation removal were conducted and the acreages removed are summarized in Table 2-1. The 2007 Arundo polygons were updated, as appropriate.

Table 2-1 Reaches where Vegetation Removal Activities were Completed and Total Acreage Removed in 2008

Application ID	River Mile Start	River Mile Finish	Total Vegetation Removed (acres)[1]	Total Non-Native Vegetation Removed (acres)
RM 2-20.6				
08-Jefferson-2.5	2.5	3.25	5	0.25
08-Jefferson-3.25	3.25	4.0	2.5	0.25
08-Jefferson-5.0	5.0	6.0	4	0.5
08-Nissen-6.0	6.0	6.75	3.75	0.25
08-Tanimura-6.75	6.75	7.5	3.25	0.5
08-GenFrmlnv-11.0	11.0	11.75	3.5	0
08-GenFrmlnv-12.5	12.5	13.25	5.25	0
08-Tanimura-13.5	13.5	15.5	9.5	0
08-D'Arrigo-15.5	15.5	16.5	14.25	0.25
08-Scattini-16.5	16.5	17.5	39.75	1.25
08-Secondo-17.5	17.5	19.0	17.5	0.5
RM 20.6-94				
08-Laguna-23.50	23.5	25.0	47.25	3
08-Triangle-25.25	25.25	26.25	26.5	6.5
08-Pedrazzi-26.75	26.75	27.25	7	0.5
08-Rincon-27.25	27.25	27.75	5.5	0.25
08-Silacci-27.75	27.75	29.5	39.5	3.75
08-D'Arrigo-31.25	31.25	32.25	15.25	2
08-D'Arrigo-35.50	35.5	36	9.25	0.75
08-Nissen-36.00	36.0	37	2.5	0.1
08-RCFarms-36.60	36.6	38	19.5	2
08-D'Arrigo-42.25	42.25	43.25	22.5	3.5
08-Costa-43.25	43.25	44	1.75	0.25
08-Massa-54.50	54.5	55	25.75	0.25
08-Greenfield-55.00	55.0	56.5	60.25	11.5
08-Pura-56.50	56.5	57.75	30	0.75
08-Greenfield-57.75	57.75	58.75	30	7.25
08-SanBernardo-87.50	87.5	89.5	64	12.25

Source: Based on Tables 1.2 and 1.3 in Lee & Pierce, Inc. (2008). Only locations where 2008 CMP work was completed are included in this table.

1 Amounts of total vegetation and non-native vegetation removed were estimated by the individual applicant (Lee & Pierce, Inc. 2008).

Ground surveys were then conducted along the Salinas River in 2010 to verify the 2010 Arundo mapping from the aerial imagery and photographs. The field verification was focused on specific areas, including: (1) where channel maintenance occurred that were not clearly visible in the oblique helicopter photographs or the 2009 Google Earth aerial imagery; (2) where post-2008 vegetation growth was visible in the 2009 aerial photography at locations where SMP vegetation removal occurred; (3) the reach upstream of the 2009 Google Earth imagery; and (4) areas easily visible from bridges or roads adjacent to the river. Maps with the aerial photographs and draft updated Arundo polygons were taken in the field and updated as appropriate. In total, Arundo was field-verified along approximately 9 miles of the river.

In 2012, ground surveys were also performed along the three tributary reaches where stream maintenance activities would also occur under the proposed SMP; Gonzales Slough, Bryant Canyon Channel, and San Lorenzo Creek. The 2007 Cal-IPC Arundo data were updated, as appropriate.

The Cal-IPC GIS dataset also included the distribution of other non-native vegetation species. This dataset was reviewed to identify any species that may occur within the Program Area. Two other non-native species were identified and mapped along the river, including Canary Island date palm (*Phoenix canariensis*) and jubata grass (*Cortaderia jubata*).

2.2.2 Analytical Methods

The updated Arundo polygons were digitized and maps showing both the Cal-IPC and 2010 and 2012 updated Arundo polygons were produced. The maps also showed the distribution and abundance of native vegetation (discussed below). Cal-IPC data for other non-native vegetation species were also included on the map. The total acreages of Arundo present from RM 2 to RM 20.6 (narrower channel) and from RM 20.6 to RM 94 (wider channel) of the Salinas River and along each of the three tributaries were then calculated.

2.3 Distribution and Abundance of Native Vegetation

2.3.1 Mapping and Field Verification Methods

Native vegetation was mapped along the mainstem Salinas River and Gonzales Slough, Bryant Canyon Channel, and San Lorenzo Creek from the 2007 aerial photographs and 2009 Google Earth aerial imagery, supplemented with ground surveys (approximately 9 miles along the Salinas River) in 2010 and 2012. Species composition was verified in the field at a number of locations along the Salinas River within the Program Area in 2010 from road crossings and adjacent roads. The entire reach lengths of each of the tributaries were ground surveyed in 2012. Based on the dominant species present and physical environment along the river, the native vegetation was categorized into the following seven community associations and mapped in GIS:

- **Spikerushes and Cattails (Eleocharis/Typha):** This community association included emergent vegetation with submerged or partially submerged roots. The dominant species included juncus (*Juncus sp.*), spikerush (*Eleocharis sp.*), and cattails (*Typha latifola*), which occurred in a mosaic of small, single-species patches. This community typically was observed in narrow bands along the edge of the channel, on mid-channel islands, or in depressions and other frequently inundated areas adjacent to the river.
- **Mixed Willows:** This community association was dominated by various species of native willows (*Salix sp.*), primarily sandbar willow (*Salix exigua*) and arroyo willow (*Salix lasiolepsis*). Scattered deciduous trees, such as Fremont cottonwood (*Populus fremontii*), white alder (*Alnus rhombifolia*), box elder (*Acer negundo*), and oaks (*Quercus sp.*), may also have been present, but were not co-dominant. The mixed willows were commonly observed along sandbars, mid-channel islands, and upland areas with sandy soils that receive some seasonal flooding. Species of *Juncus* and *Eleocharis* were interspersed among willow clumps in some low-lying areas. Poison oak (*Toxicodendron diversilobum*) and California sagebrush (*Artemisia californica*) formed a dense understory in upland

areas where this community was present. Bush lupines, especially *Lupinus chamissonis*, were observed in some sandy areas in the downstream reaches of the Program Area. Invasion by Arundo was common.

> **Mixed Deciduous Trees:** This community association was dominated by Fremont cottonwood (*Populus fremontii*), white alder (*Alnus rhombifolia*), and box elder (*Acer negundo*). Western Sycamore (*Plantanus racemosa*) and California walnut (*Juglans hindsii*) were also present, but generally were not dominant. This forest community was typically observed along levees and other relatively deep-soil areas immediately adjacent to the channel. A sub-canopy of Arundo or various willows was common, and Himalayan blackberry (*Rubus discolor*), poison oak, and wild grape (*Vitis californica*) formed a dense understory in most areas.

> **Oaks:** This community was dominated by coast live oak (*Quercus agrifolia*), black oak (*Quercus kelloggii*), and valley oak (*Quercus lobata*). Coast live oak was dominant at the downstream end of the Program Area, to approximately King City. Black oak was also present at the upland edge of "Mixed Deciduous Tree" areas and in other high-moisture, deep-soil upland areas within this community association. Valley oak was present in the driest areas of the three *Quercus* species observed, often lining seasonal drainages on north- and west-facing slopes in inland areas. In all oak-dominated areas, an understory of blackberry, poison oak, and invasive annual grasses was common.

> **Pines:** This forested community included areas with a dense canopy dominated by species of *Pinus*. Monterey Pine (*Pinus radiate*) was the only species observed in the field, in a single stand near the City of Salinas. Understory was sparse to absent, represented by poison oak and blackberry where present.

> **Coyote Brush Scrub:** This community association included areas dominated by chaparral shrubs, including coyote brush (*Baccharis pilularis*), manzanita (*Arctostaphylos sp.*), and California sagebrush. Coyote brush scrub was observed in dry areas with poor, sandy soils, often transitioning into areas of mixed willows closer to the channel. Growth was often low-density, with scattered shrubs interspersed with invasive annual grasses, mustard (*Brassica rapa*), and poison oak.

> **Salt-tolerant Species (Alkali Species):** This community association included a wide grouping of salt-tolerant species found in the tidal zone near the mouth of the river. Saltbush (*Atriplex sp.*), salt grass (*Distichlis spicata*), and salt rush (*Juncus leseurii*) were all common species in this community association. Growth was generally less than one meter high, with low shrubs and rushes growing along a network of small tidal channels.

2.3.2 Analytical Methods

The native vegetation polygons were digitized in GIS and maps of the native vegetation community associations (with Arundo) were produced. The total acreages of each vegetation community association from RM 2 to RM 20.6 and from RM 20.6 to RM 94 reaches of the Salinas River, and along each of the tributaries, were calculated.

3 Results

3.1 Distribution and Abundance of Arundo

3.1.1 Salinas River

Arundo was present along the Salinas River (Appendix A, Maps 1-44), was dense, and frequently occurred in large monocultures in the lower 70 miles of river. Upstream of approximately RM 70, Arundo was generally sparsely distributed in small patches. Approximately 1,835 acres of Arundo in total were mapped in 2010 and 2012 along the mainstem Salinas River[5] (Table 3-1). Approximately 111 acres were present from RM 2 to RM 20.6 and 1,724 acres were mapped from RM 20.6 to RM 94. Less than 0.1 acre of Canary Island date palm and jubata grass were identified from RM 2 to RM 94.

Table 3-1 Total Acreage of Vegetation Communities along the Mainstem Salinas River

Vegetation Community Association[1]	Total Acreage RM 2-20.6	Total Acreage RM 20.6-94
Non-Native Vegetation		
Arundo	111	1,724
Canary Island Date Palm	<0.1	None mapped
Jubata Grass	None mapped	<0.1
Native Vegetation		
Spikerushes and Cattails	70	9
Mixed Willows	280	7,010
Mixed Deciduous Trees	563	1,535
Oaks	87	974
Pines	1	None mapped
Coyote Brush Scrub	79	1,802

1 See text for description of each of the native vegetation community associations. Areas mapped along Gonzales Slough, Bryant Canyon Channel, and San Lorenzo Creek are included in Table 3-2 below.

3.1.2 Tributaries

3.1.2.1 Gonzales Slough

Two relatively small patches of Arundo were mapped in the vicinity of Gonzales Slough, with a total of approximately 1 acre (Table 3-2 and Figure 1). Based on field observations, it appears that the slough is disconnected from the mainstem Salinas River during low flow periods, and is only connected during high flows. Water was ponded at the time of the survey.

3.1.2.2 Bryant Canyon Channel

Approximately 16 acres of Arundo were mapped along the Bryant Canyon reach near the Salinas River confluence, intermixed with willows (Table 3-2 and Figure 2). The Bryant Canyon reach is an engineered

5 Acreage does not include areas mapped along the tributaries. Areas along the tributaries are summarized in Section 3.1.2.

drainage that flows into the Salinas River floodplain, near River Mile 47.1. The upstream section of the reach was channelized and appears to be dry most of the year. The site has been disturbed by trash dumping activities and off-highway vehicles.

Table 3-2 Total Acreage of Vegetation Communities along the Three Tributaries

Vegetation Community Association[1]	Total Acreage		
	Gonzales Slough	Bryant Canyon Channel	San Lorenzo Creek
Non-Native Vegetation			
Arundo	1	16	0.2
Native Vegetation			
Spikerushes and Cattails	None mapped	5	None mapped
Mixed Willows	5	15	12
Mixed Deciduous Trees	None mapped	2	9
Oaks	None mapped	None mapped	None mapped
Pines	None mapped	None mapped	None mapped
Coyote Brush Scrub	132	19	2

1 See text for description of each of the native vegetation community associations.

3.1.2.3 San Lorenzo Creek

Several small patches of Arundo were mapped along the approximately 1.5-mile reach of the San Lorenzo Creek, between First Street and the confluence with the Salinas River (0.2 acre in total) (Table 3-2 and Figure 3). The creek carries seasonal flow, but is dry most of the year.

3.2 Distribution and Abundance of Native Vegetation

3.2.1 Salinas River

Approximately 12,410 acres of native vegetation were mapped along the mainstem Salinas River, with approximately 1,080 acres from RM 2 to 20.6 and 11,330 acres from RM 20.6 to RM 94.[6] The distribution of vegetation within the Program Area is shown on a series of maps included as Appendix A and the abundance by community association is summarized in Table 3-1. From RM 2 to RM 20.6, the native vegetation along the river was primarily comprised of mixed deciduous trees (e.g., Fremont cottonwood, white alder, and box alder) (approximately 52%) and mixed willows (26%). Other communities, such as coyote brush scrub, spikerushes and cattails, and oaks, were also present (<20%). From RM 20.6 to RM 94, the channel bottom width varied from very wide to comparatively narrow. Vegetation within reaches with a wide channel bottom and bars was dominated by mixed willows (62%), with mixed deciduous trees (14%) established on higher surfaces. Coyote brush scrub (16%) was present in drier areas. Upstream of RM 80, vegetation along the much of the channel was sparse. Deciduous tree and mixed willow cover near the low flow channel was minimal, except along narrow short stretches. The landscape appears to be drier and tree and shrub vegetation was less dense overall than downstream.

6 Acreage does not include areas mapped along the tributaries. Areas along the tributaries are summarized in Section 1.3.2.2.

3.2.2 Tributaries

3.2.2.1 Gonzales Slough

Approximately 137 acres of native vegetation were mapped in the vicinity of Gonzales Slough (Table 3-2 and Figure 1). The area surrounding the slough was almost entirely comprised of Coyote Brush Scrub Community (132 acres in total; 97% of the surveyed area). One patch of the Mixed Willow Community was also observed near the ponded water, supported by outfall from facilities located in the agricultural fields to the northeast.

3.2.2.2 Bryant Canyon Channel

A total of approximately 41 acres of native vegetation was mapped along the Bryant Canyon reach (Table 3-2 and Figure 2). The upper section of the ditch was dry at the time of the survey and supported minimal vegetation. Near the Salinas River floodplain, a mixed willow corridor bordered the ditch. A stand of mixed deciduous trees, including cottonwood occurred at the transition between the drainage ditch and the Salinas River floodplain. The large sandbar at the confluence was sparsely vegetated with the Mixed Willow Community interspersed with Arundo patches. A narrow strip of emergent vegetation (Spikerush and Cattail Community) was observed along both sides of the Salinas River. The Coyote Brush Scrub occurred in the transition area between the agricultural field and the willows along the drainage ditch.

3.2.2.3 San Lorenzo Creek

Approximately 23 acres of native riparian vegetation was mapped along the 1.5-mile San Lorenzo Creek (Table 3-2 and Figure 3). The riparian corridor along the upstream 0.7 mile of the creek within the proposed work area was comprised of alternating, relatively sparse Mixed Willow and Coyote Brush Scrub communities. Sparse mixed deciduous trees (with cottonwood dominant, and willow and coyote brush understory) were mapped near RM 0.9-1, near Highway 101. The riparian corridor along the lower 0.9 mile of the creek was comprised of fairly dense Mixed Willow and Mixed Deciduous Tree (including cottonwoods and oaks) communities.

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Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Coyote Brush Scrub
- Mixed Willows
- Mixed Deciduous Trees
- Oaks

- Area of Tributary Mapping
- River Mile (1/10)

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Figure 1

Distribution of Native and Non-native Vegetation Along Gonzales Slough

0 1,000 2,000 Feet

12/3/10 Projection: CASP, Zone 4 Datum: NAD 83

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Non-native Vegetation

- Arundo: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Coyote Brush Scrub
- Oaks
- Area of Tributary Mapping

- River Mile (1/10)

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Figure 2

Distribution of Native and Non-native Vegetation Along the Bryant Canyon Reach

0 375 750 Feet

12/3/10 Projection: CASP, Zone 4 Datum: NAD 83

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Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Coyote Brush Scrub
- Mixed Willows
- Mixed Deciduous Trees
- Area of Tributary Mapping

- River Mile (1/10)

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Figure 3

Distribution of Native and Non-native Vegetation Along San Lorenzo Creek

0 375 750 Feet

12/3/10

Projection: CASP, Zone 4 Datum: NAD 83

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4 References

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Salinas River Stream Maintenance Program EIR

APPENDIX A

DISTRIBUTION OF NATIVE AND NON-NATIVE VEGETATION ALONG THE SALINAS RIVER (MAPS 1-23)

Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

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Map 1 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12

Projection: CASP, Zone 4 Datum: NAD 83

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Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

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Map 2 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

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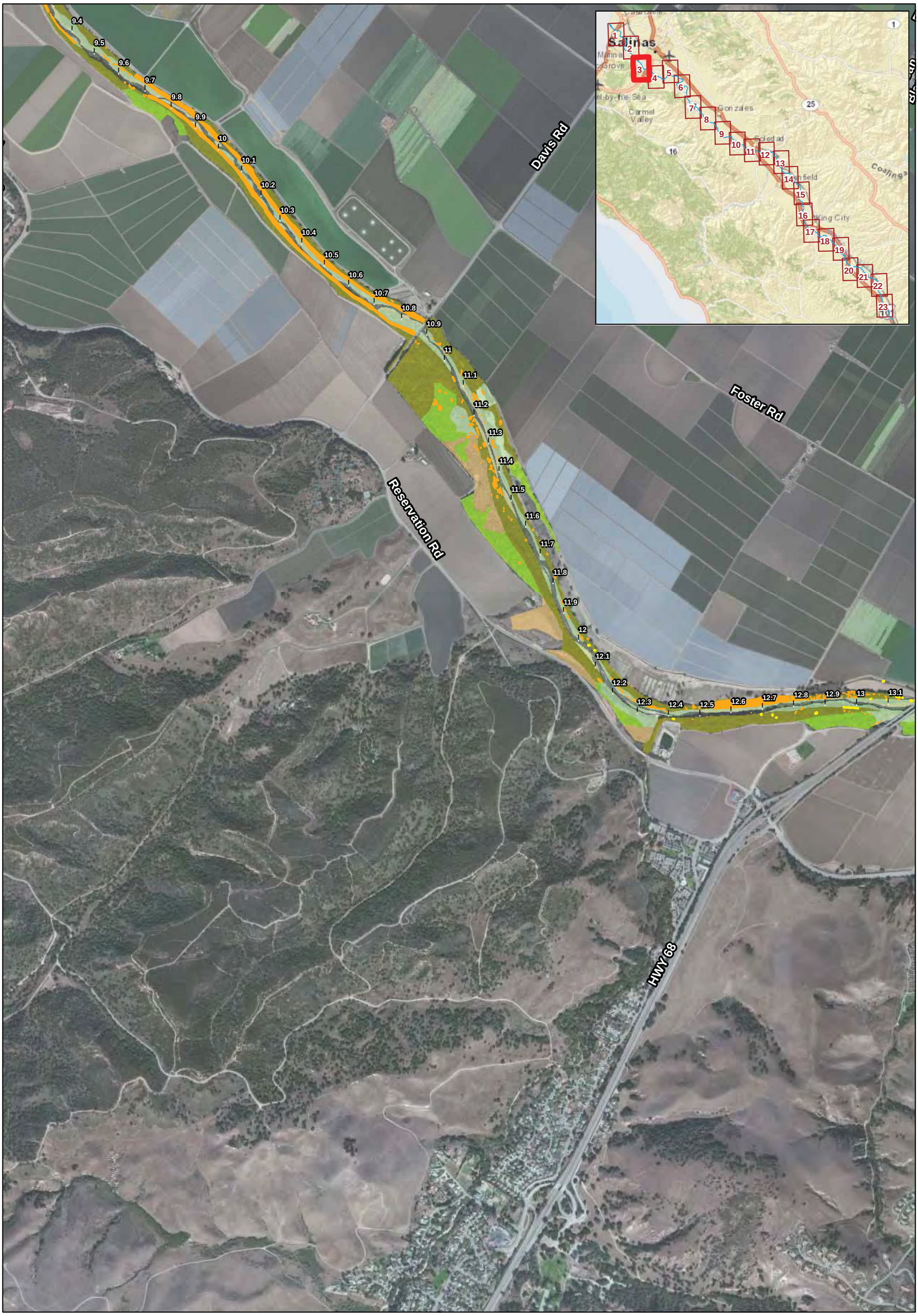

Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

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Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

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Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

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Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

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Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

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Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

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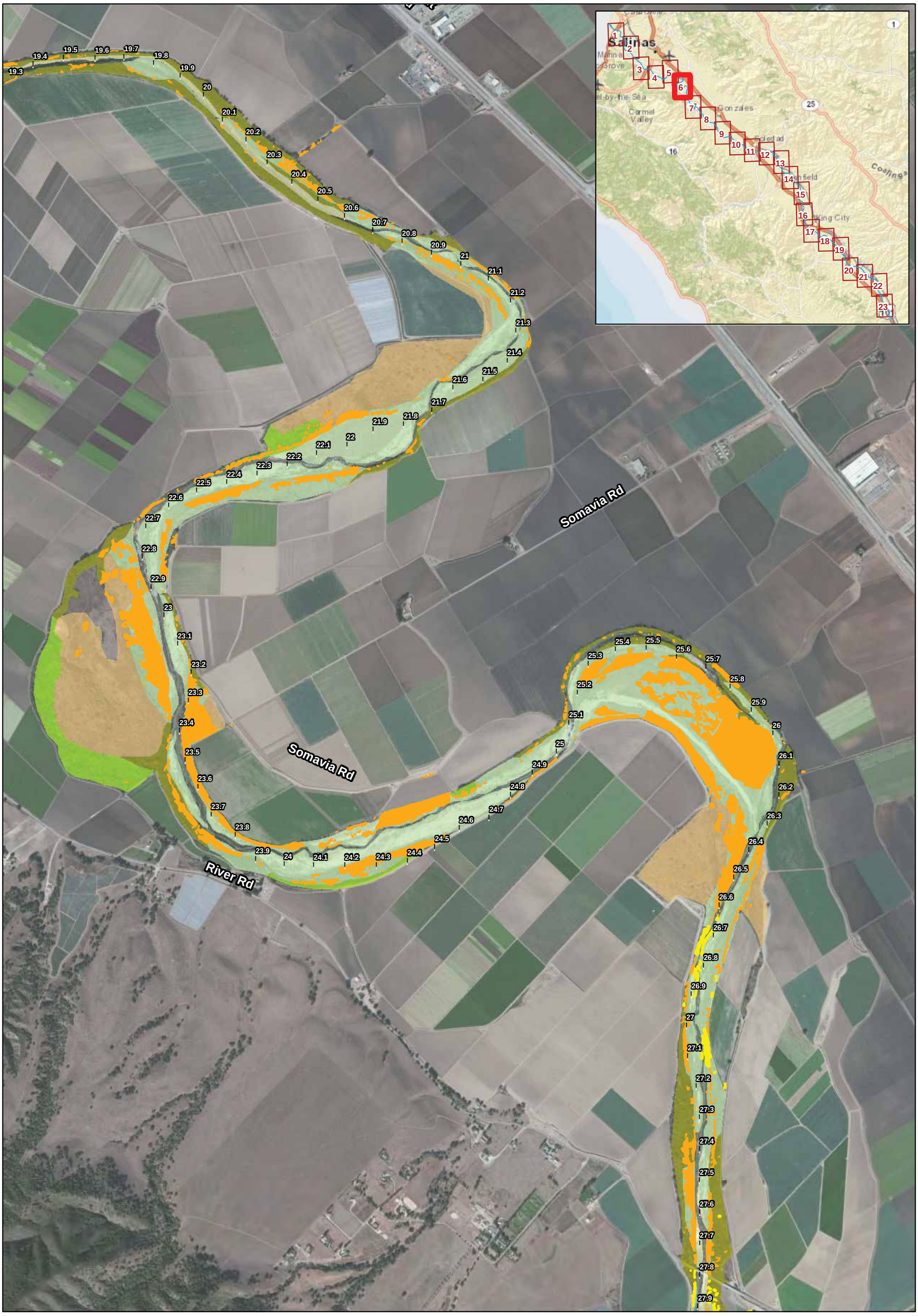


Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

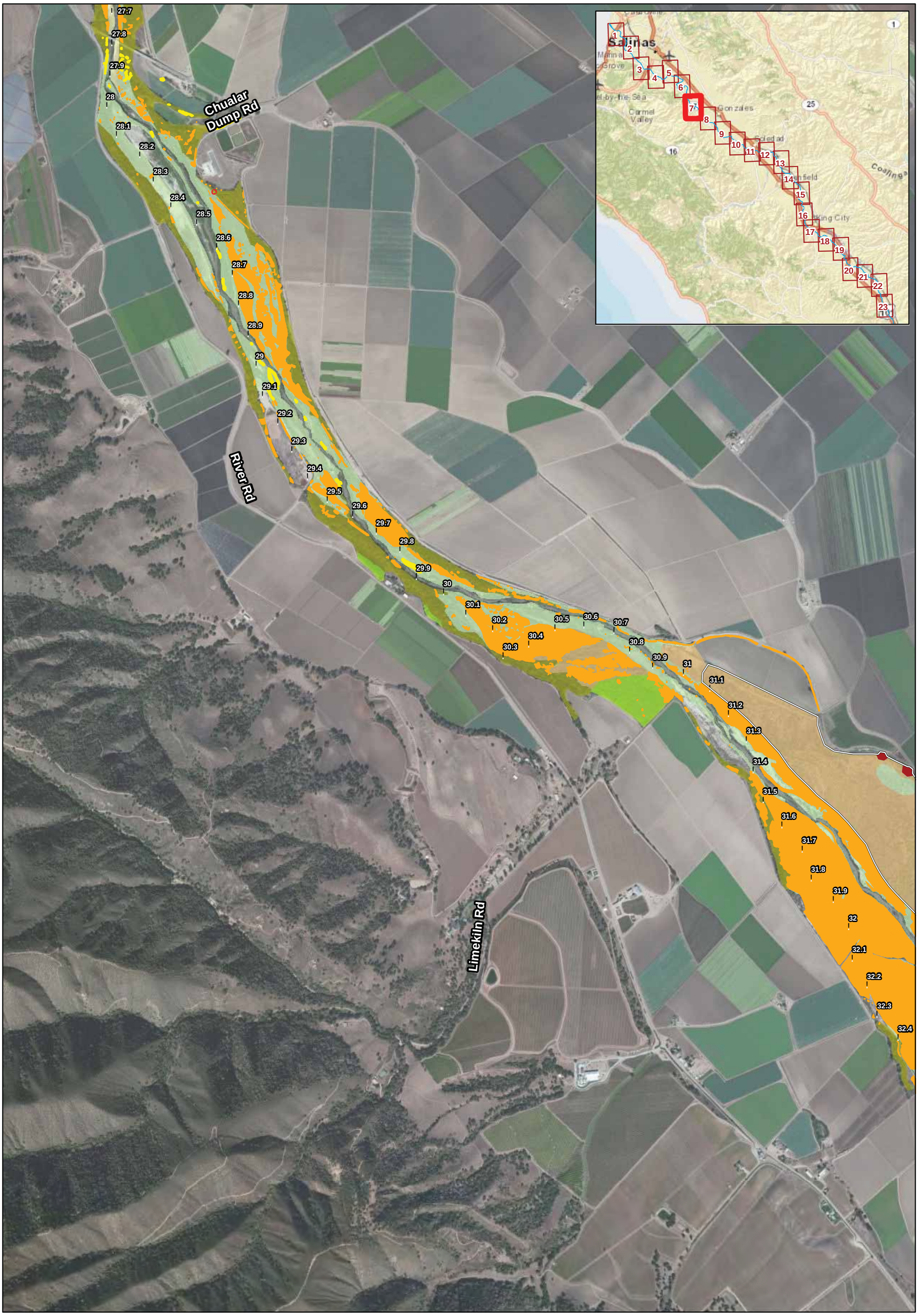
Map 6 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

Map 7 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

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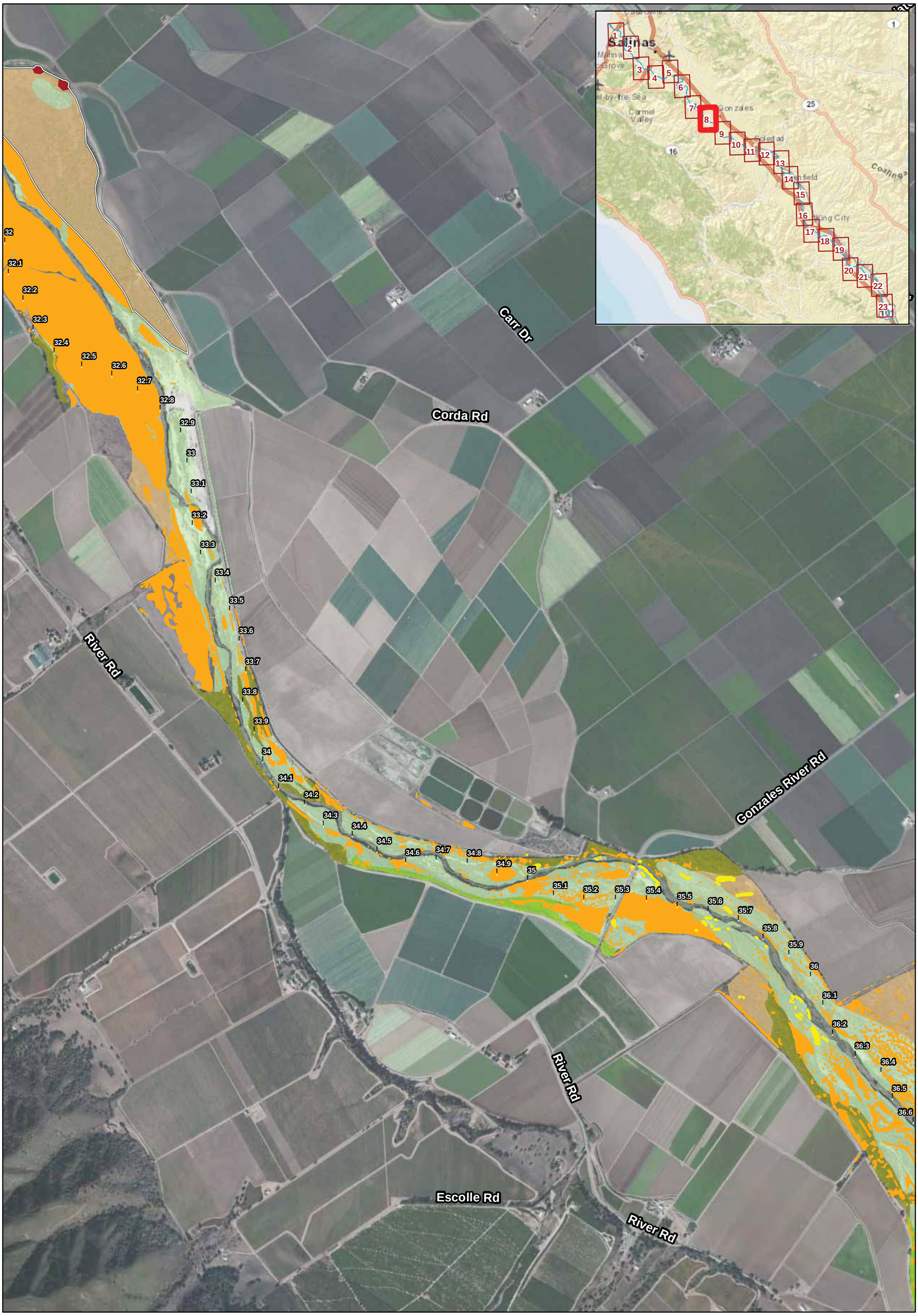

Non-native Vegetation

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- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

Map 8 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

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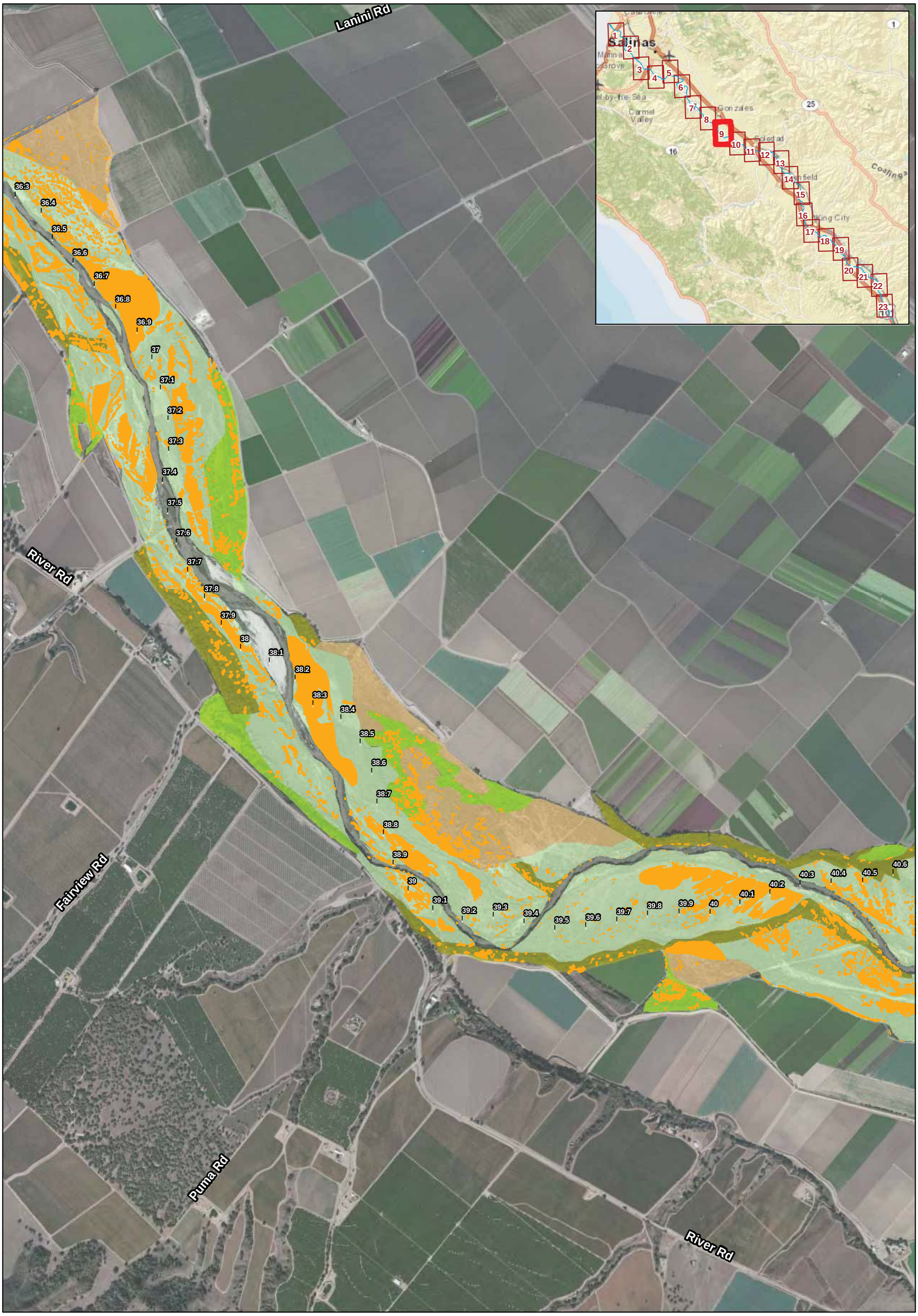

Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

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- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

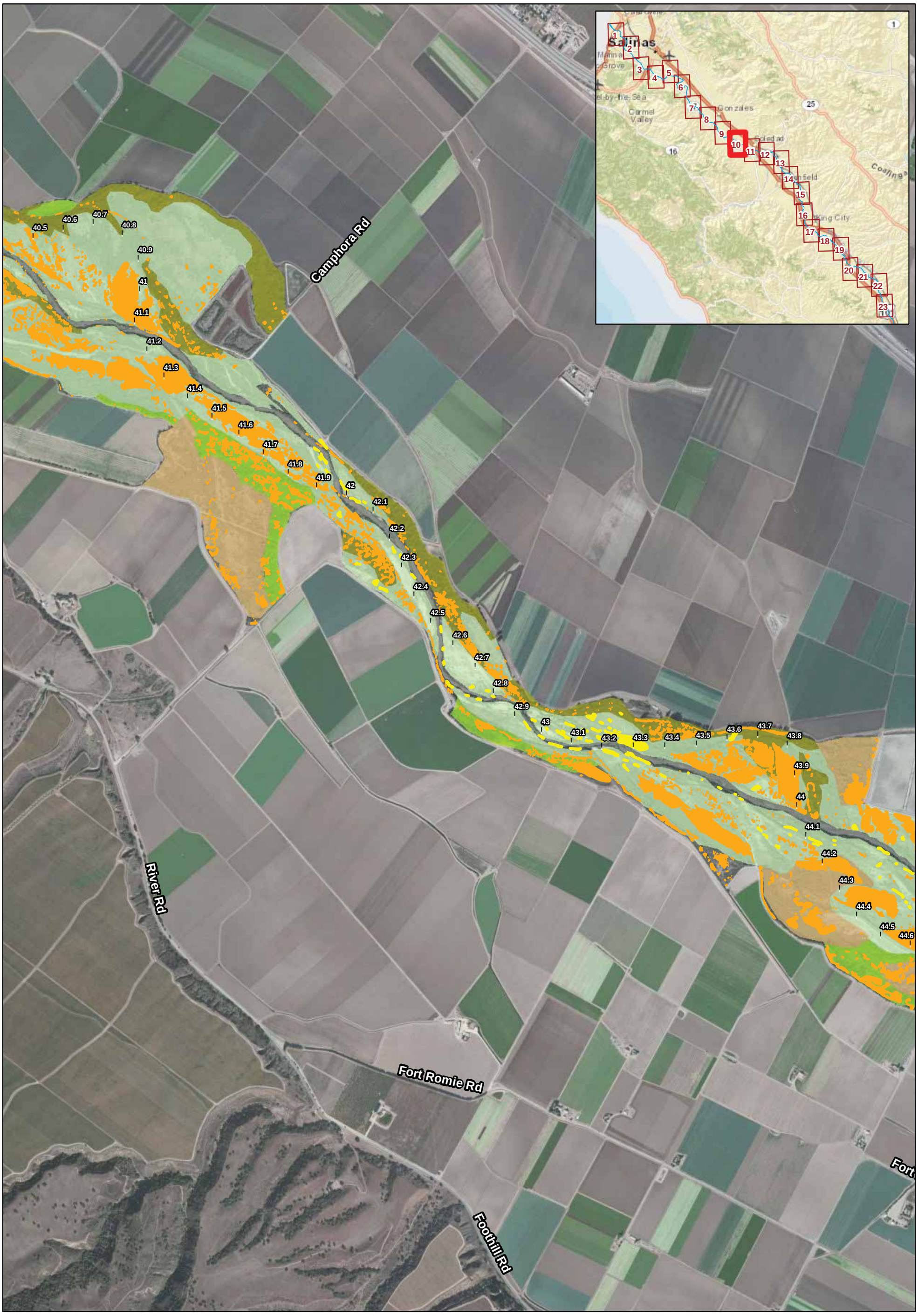
Map 9 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

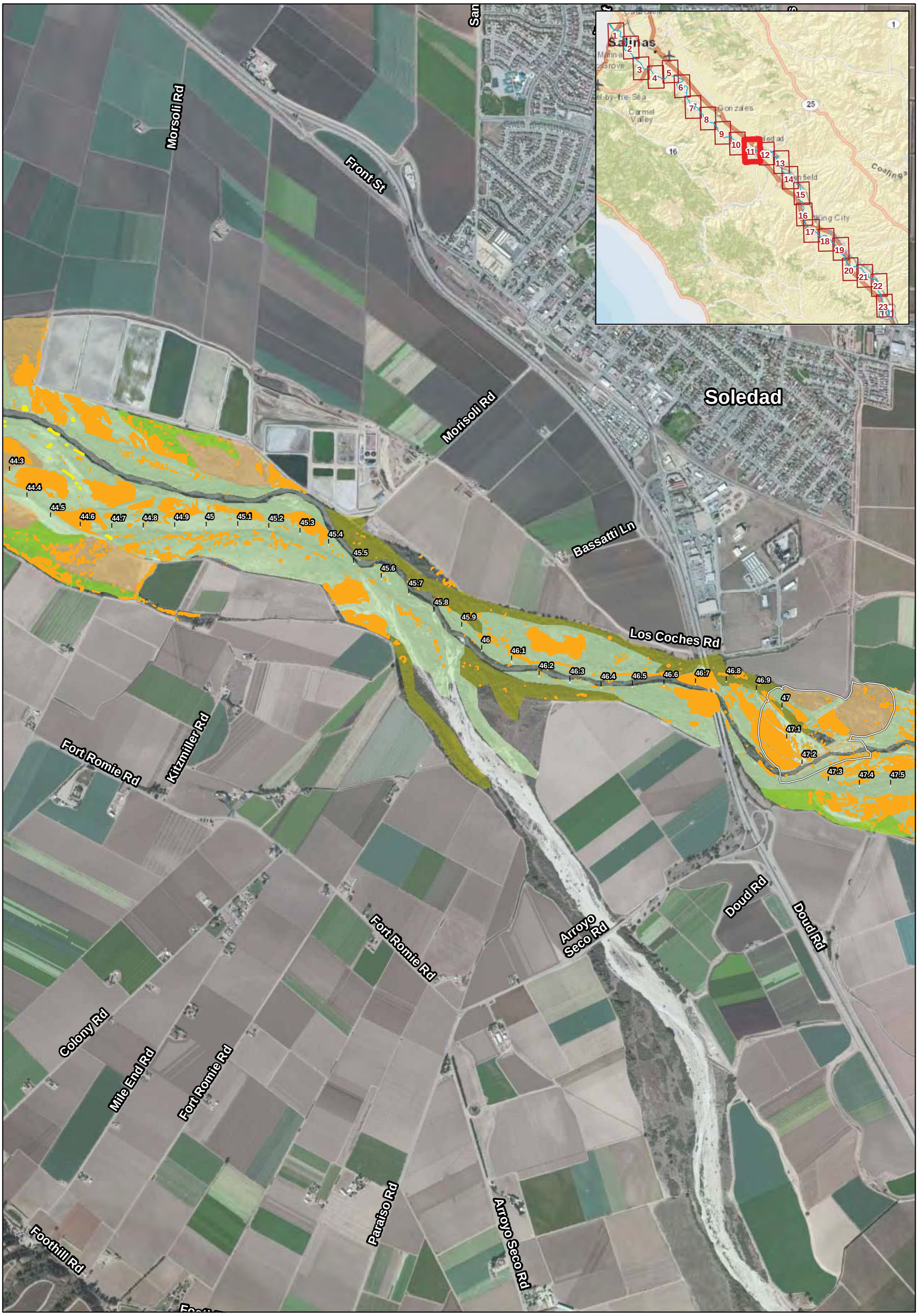
Map 10 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

Map 11 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

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Non-native Vegetation

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- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

Map 12 of 23

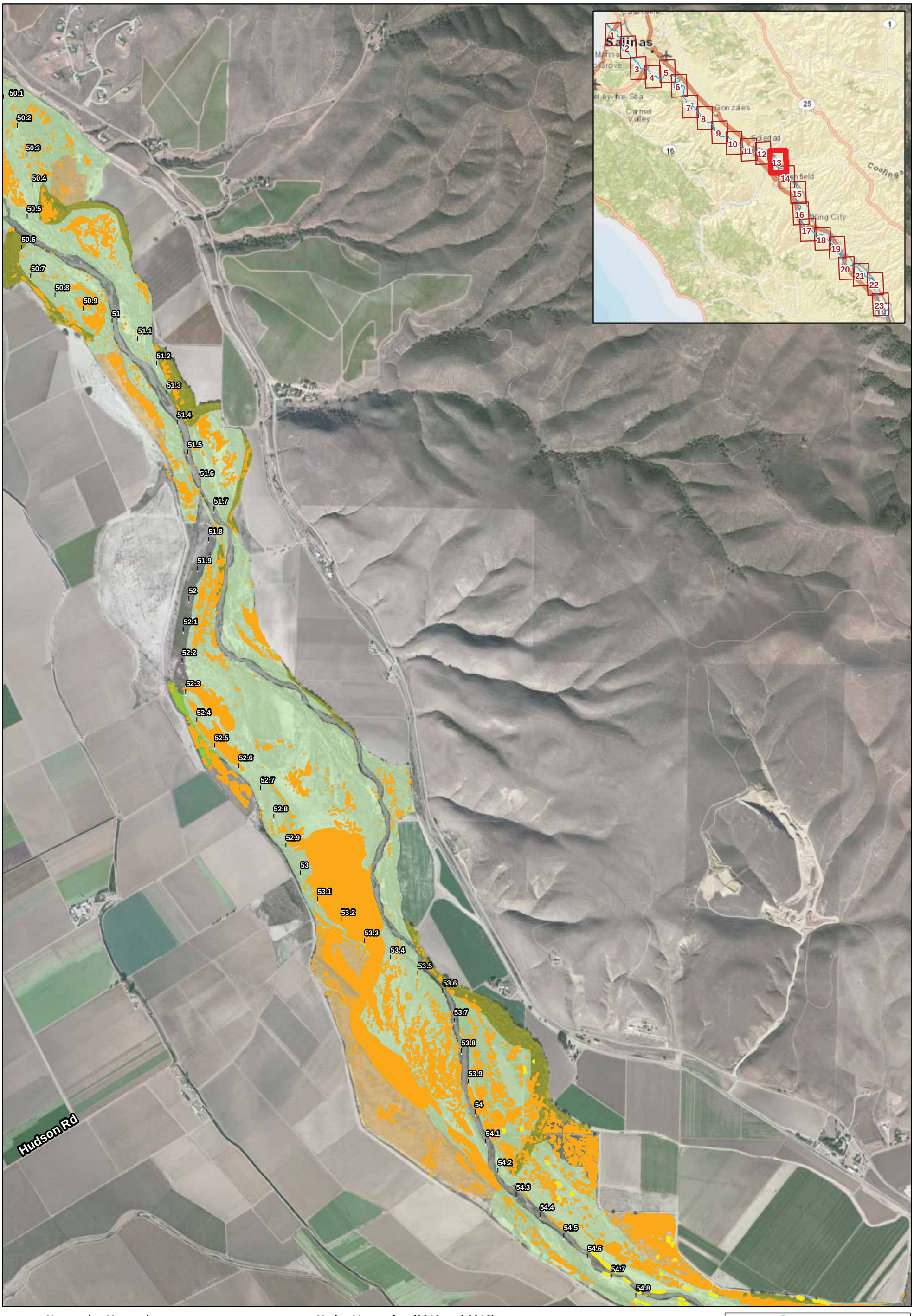
Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12

Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

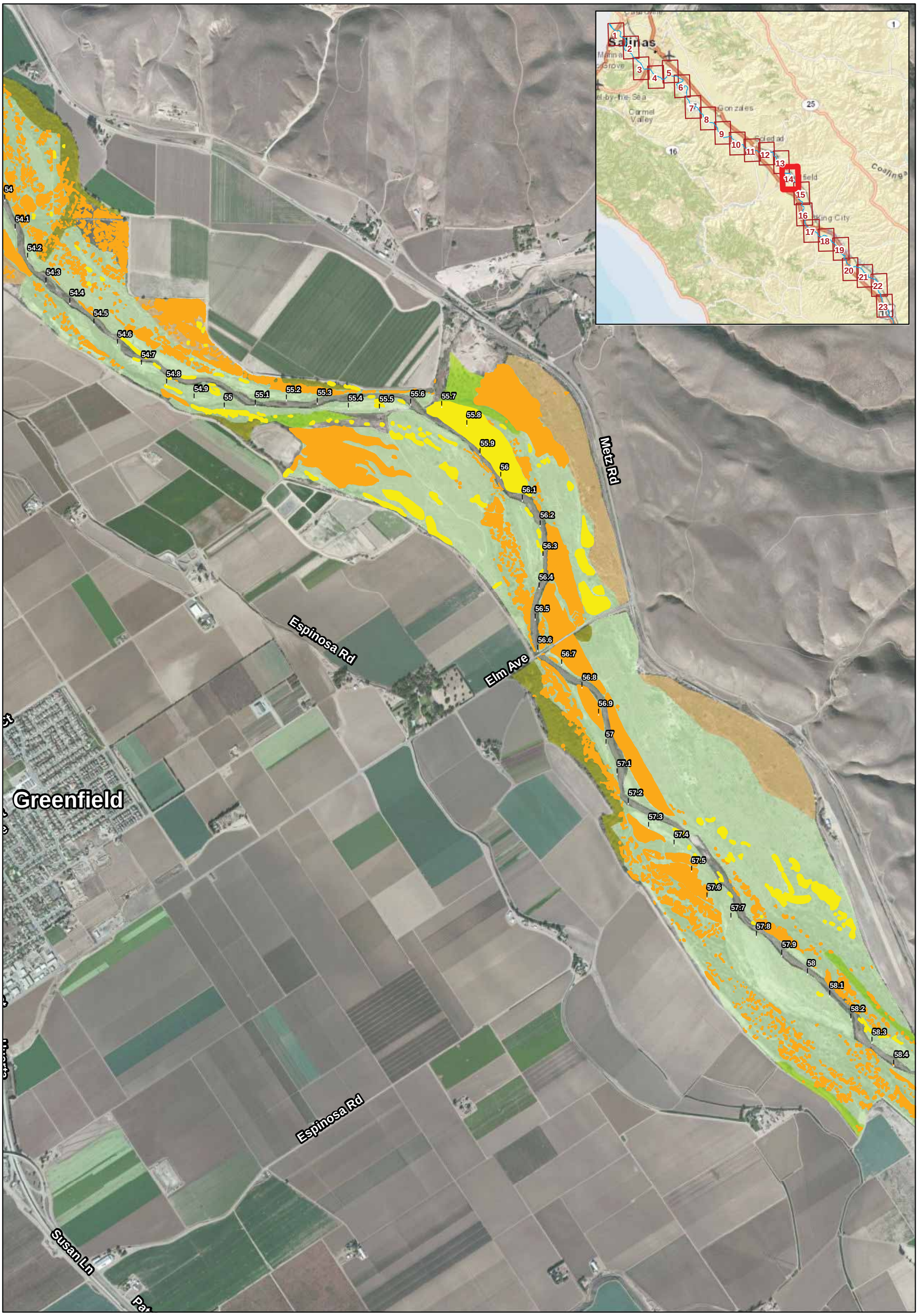
Map 13 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

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- Spikerushes & Cattails
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- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

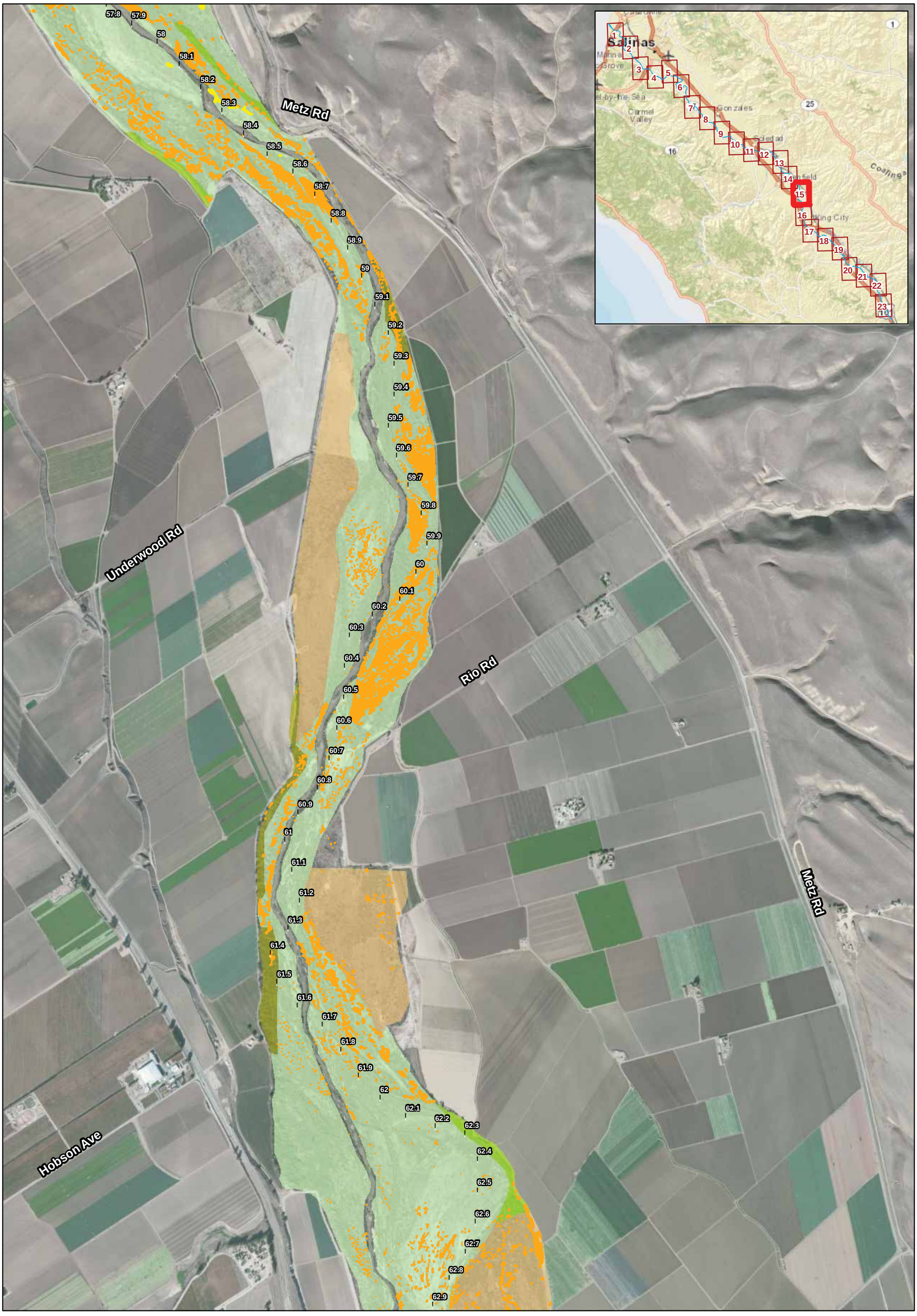
Map 14 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

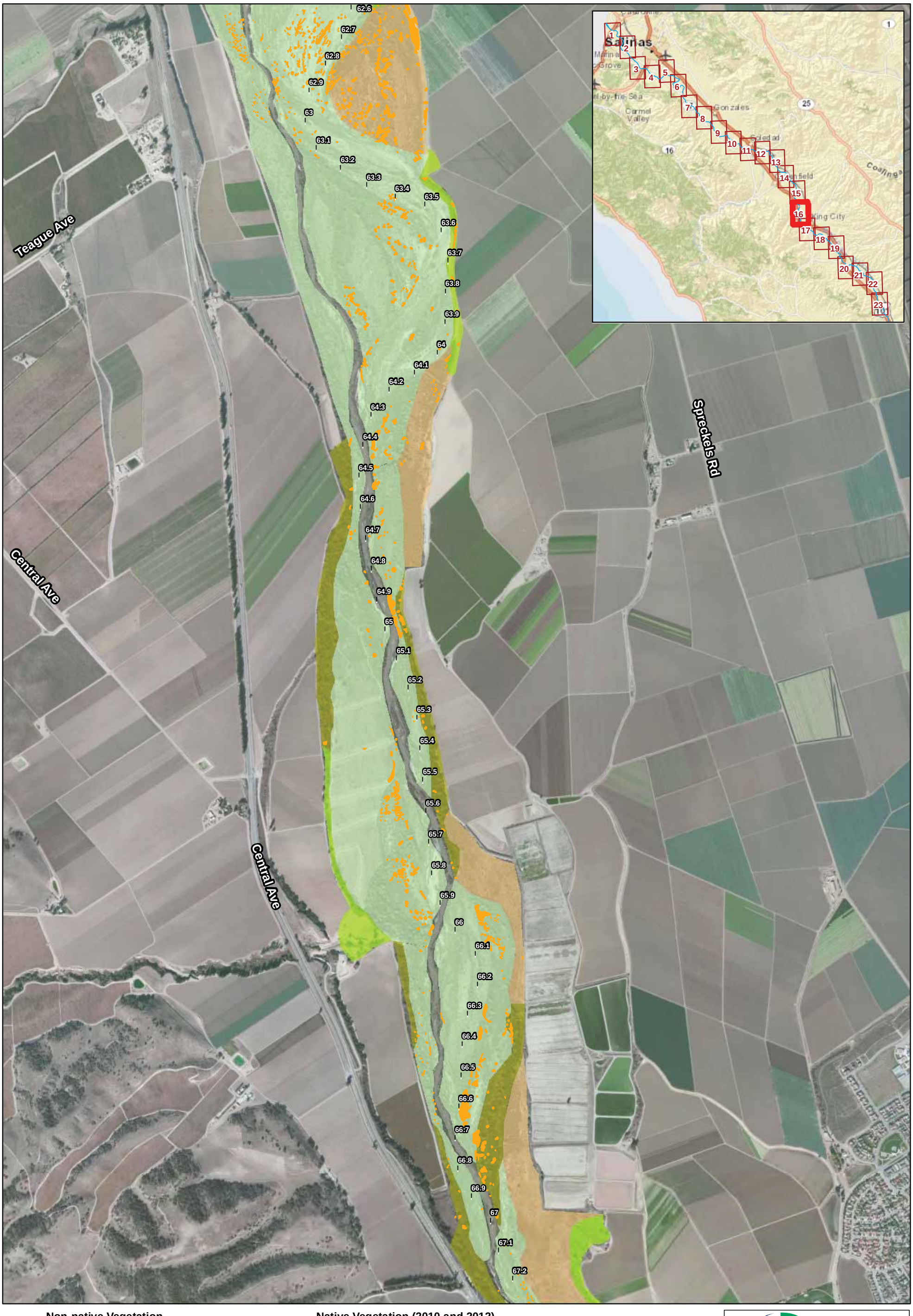
Map 15 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

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- Mixed Willows
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- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

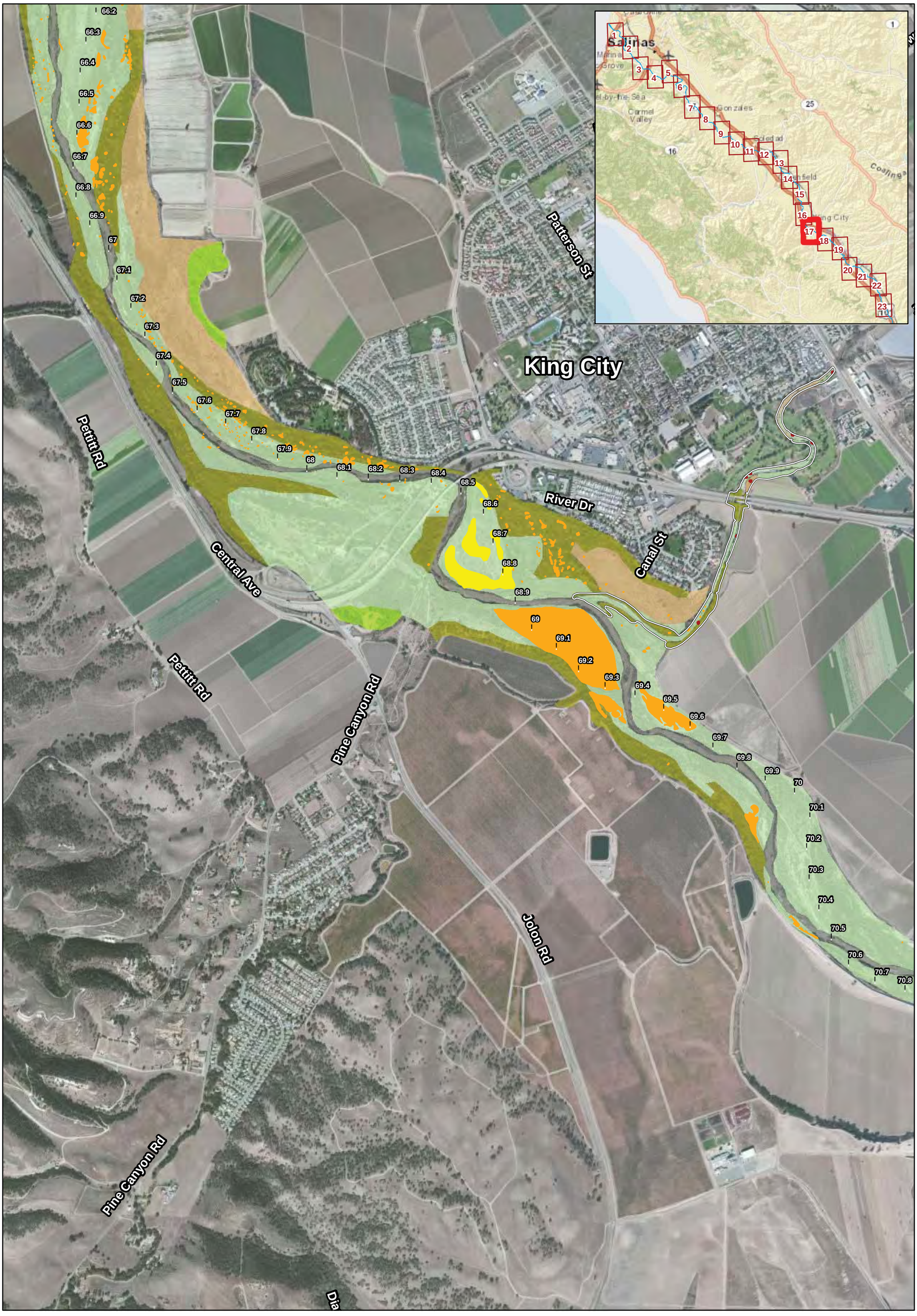
Map 16 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

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- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

Map 17 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd

Non-native Vegetation

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- Jubata Grass: Cal - IPC (2007)

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- Spikerushes & Cattails
- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

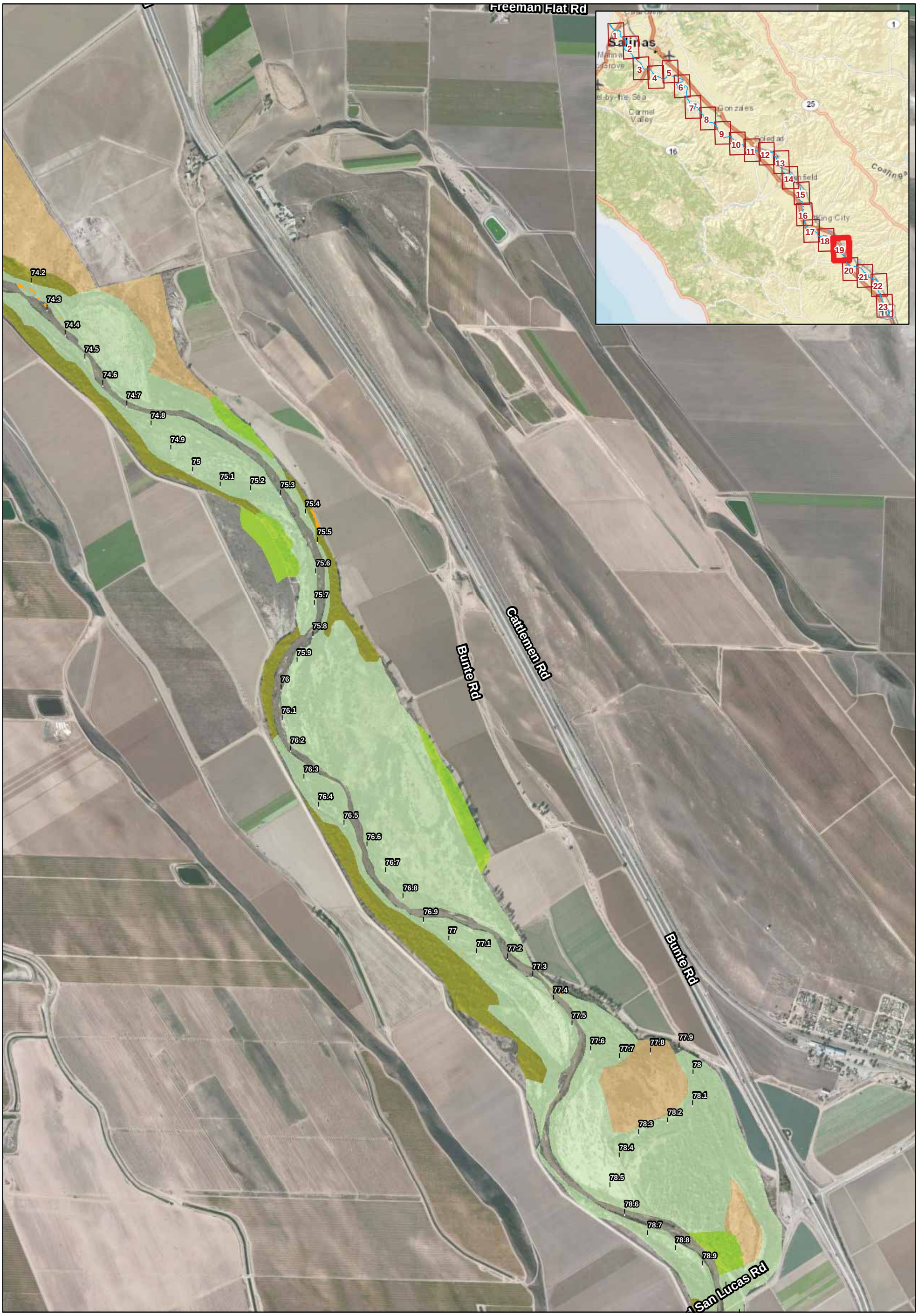
Map 18 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

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- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
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- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

- Spikerushes & Cattails
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- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

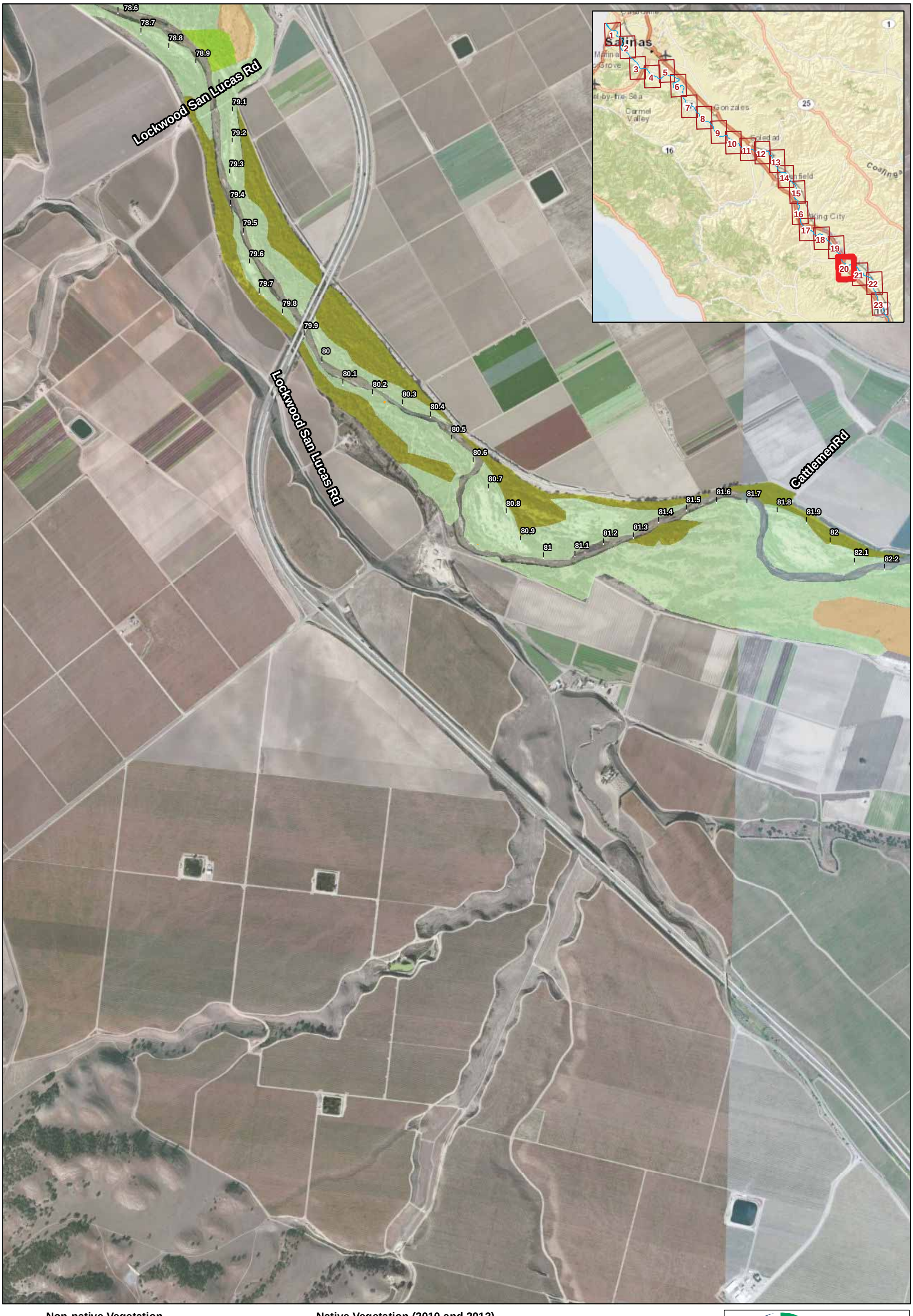
Map 19 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

Native Vegetation (2010 and 2012)

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- Mixed Willows
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- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

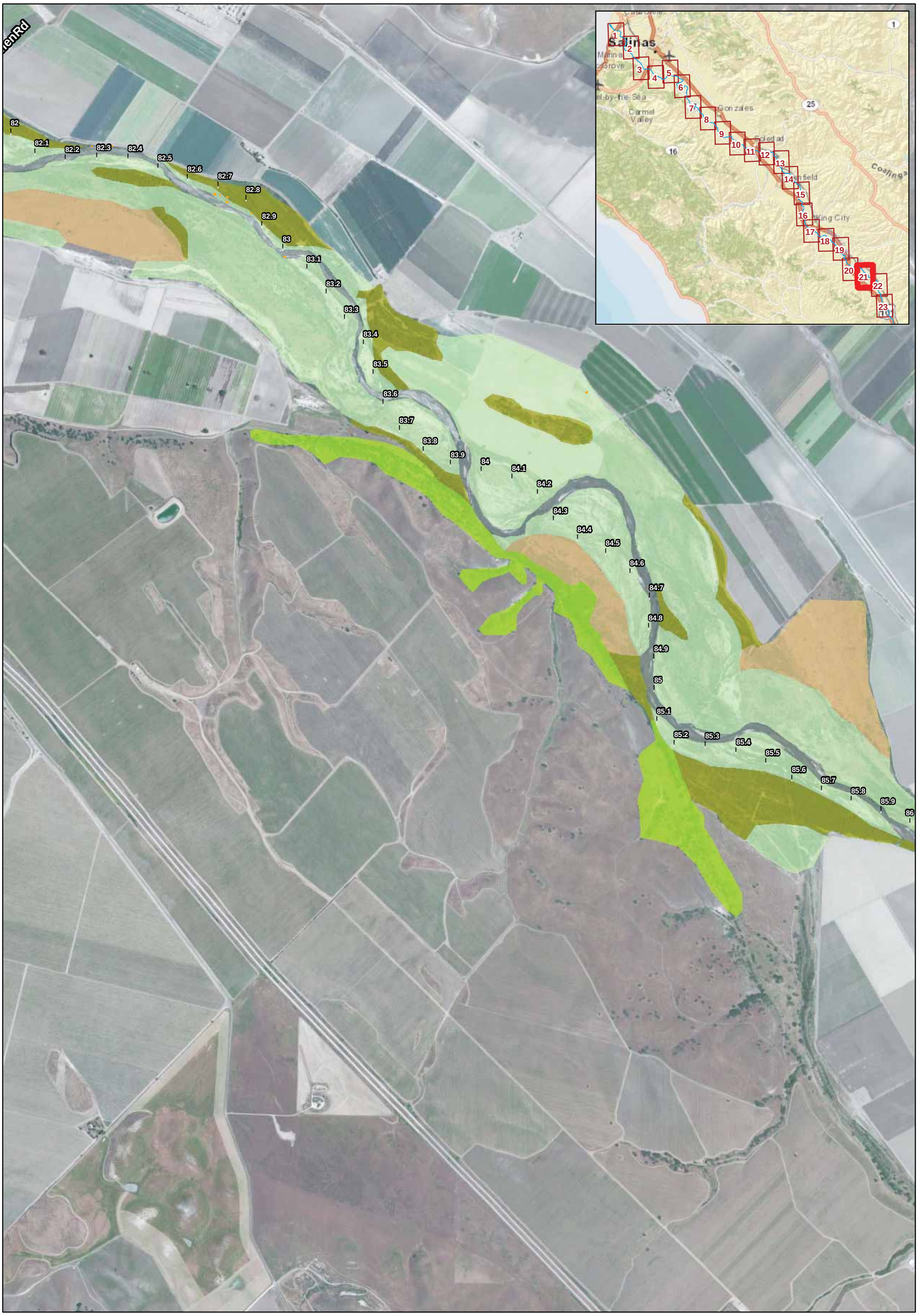
Map 20 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

- Arundo: Updated 2012
- Arundo: Updated 2010
- Arundo: Cal - IPC (2007)
- Canary Island Date Palm: Cal - IPC (2007)
- Jubata Grass: Cal - IPC (2007)

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- Mixed Willows
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- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

Map 21 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd

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- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

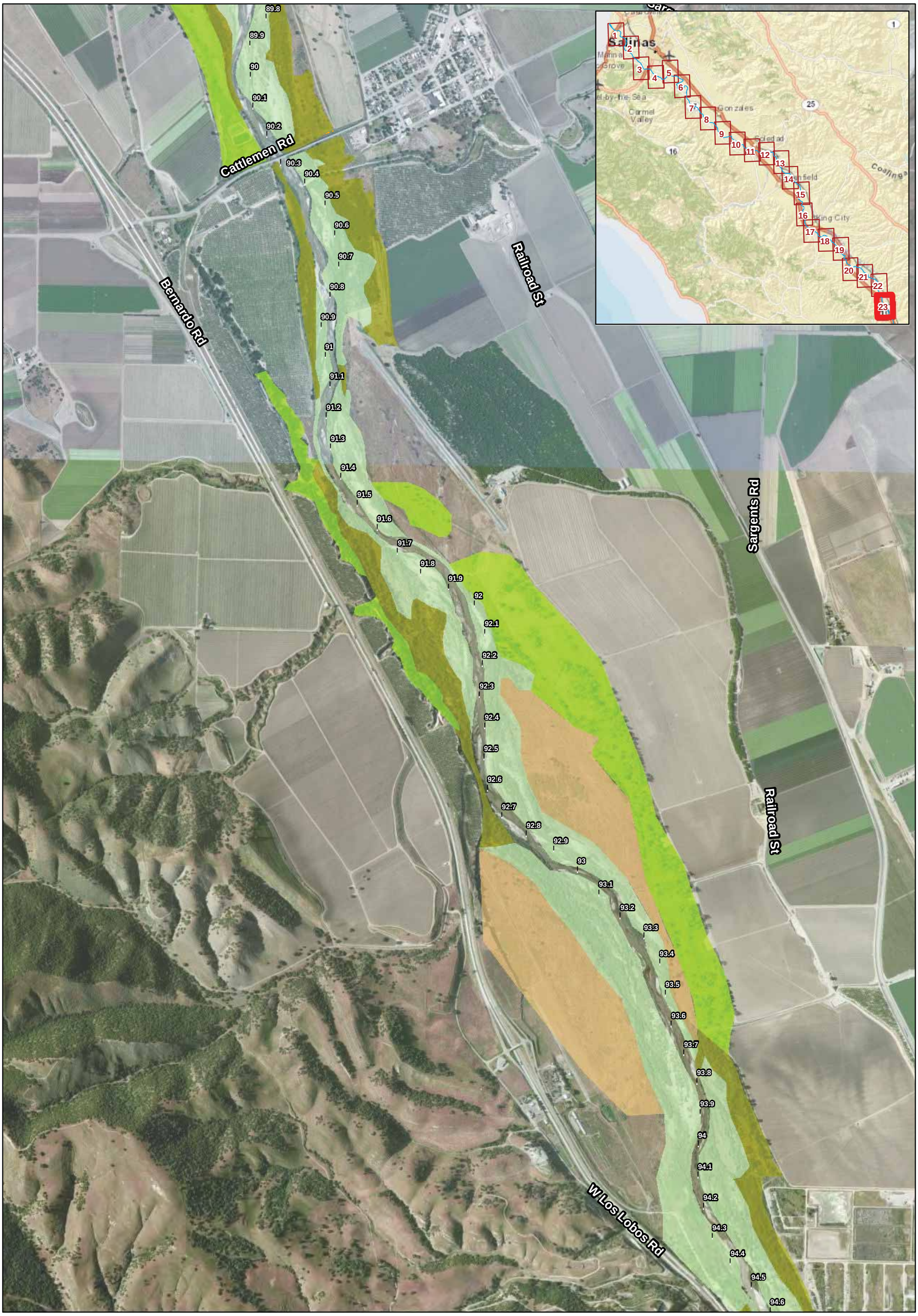
Map 22 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd



Non-native Vegetation

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- Jubata Grass: Cal - IPC (2007)

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- Mixed Willows
- Mixed Deciduous Trees
- Oaks
- Pines
- Coyote Brush Scrub
- Salt-tolerant Species
- Area of Tributary Mapping

River Mile (1/10)

Cardno ENTRIX

Map 23 of 23

Distribution of Native and Non-native Vegetation Along the Salinas River

0 1,000 2,000 Feet

06/22/12 Projection: CASP, Zone 4 Datum: NAD 83

Z:\GIS\Entrix\3169801_SalinasRiver\map\Vegetation\Vegetation_on_SalinasRiver_RM94_MapSeries.mxd

APPENDIX D

Habitat Assessment

Salinas River Habitat Assessment

Salinas River Stream Maintenance Program EIR

30206011

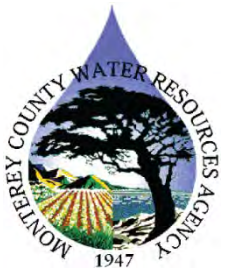
Cardno ENTRIX

Shaping the Future

Document Information

Prepared for	Monterey County Water Resources Agency
Project Name	Salinas River Stream Maintenance Program EIR
Project Number	30206011
Project Manager	Lisa Mash
Task Lead	Danica Schaffer-Smith
Date	August 9, 2012

Prepared for:



Monterey County Water Resources Agency
893 Blanco Circle, Salinas, CA 93901

Prepared by:

Cardno ENTRIX
Shaping the Future

Cardno ENTRIX
2300 Clayton Rd., Suite 200, Concord, CA 94520

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Table of Contents

Appendices

Figures

Acronyms

CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
EIR	Environmental Impact Report
MCWRA	Monterey County Water Resources Agency
mph	miles per hour
NMFS	National Marine Fisheries Service
RM	river mile
RPR	rare plant rank
SMP	Stream Maintenance Program
USFWS	U.S. Fish and Wildlife Service

1 Introduction

This assessment was undertaken as part of a suite of ecological surveys in support of the Monterey County Water Resources Agency's (MCWRA's) Salinas River Stream Maintenance Program (SMP) Environmental Impact Report (EIR). This report presents the findings of a habitat-based assessment undertaken by Cardno ENTRIX biologists Sam Bacchini, Amy Poopatanapong and Danica Schaffer-Smith in 2012 to evaluate the potential for occurrence of special-status species within sections of Gonzales Slough, Bryant Canyon Channel, and San Lorenzo Creek, tributaries to the Salinas River mainstem, where stream maintenance activities have been proposed by MCWRA. Along the Salinas River, Gonzales Slough is located at approximately river mile (RM) 31.5, Bryant Canyon Channel at approximately RM 47.1, and San Lorenzo Creek at approximately RM 69.0 (Figure 1).

The assessment focused on identifying potential habitat for special-status species designated by federal or state government agencies (i.e., U.S. Fish and Wildlife Service [USFWS], National Marine Fisheries Services [NMFS], California Department of Fish and Game [CDFG], etc.), in particular arroyo toad (*Anaxyrus californicus*), California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and least Bell's vireo (*Vireo belli pusillus*). The potential for occurrence of each of these species as well as other special-status species including nesting raptors, breeding songbirds, bats, and special-status plants is summarized in Section 3.2 herein.

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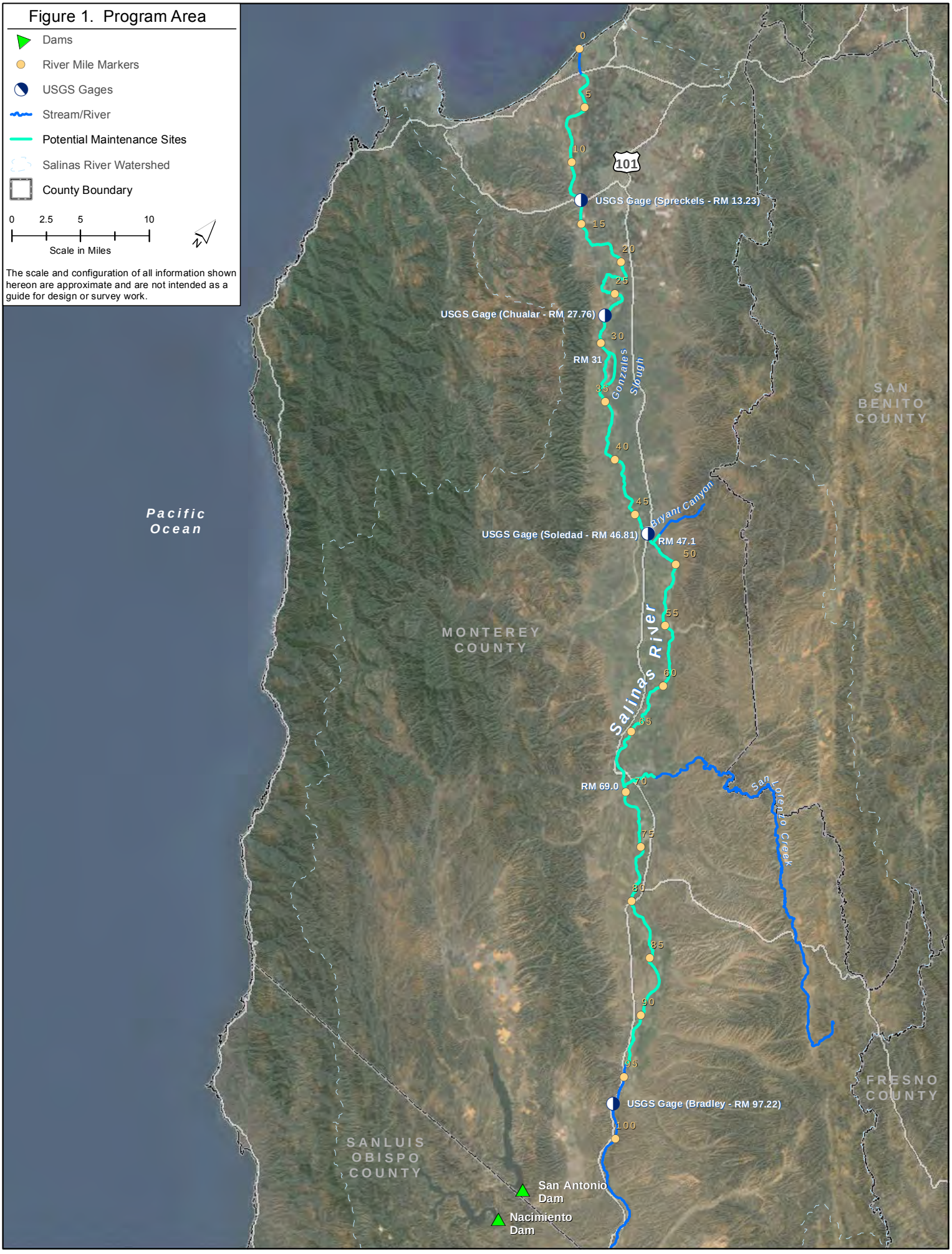
Figure 1. Program Area
Dams
River Mile Markers
USGS Gages
Stream/River
Potential Maintenance Sites
Salinas River Watershed
County Boundary
0 2.5 5 10
Scale in Miles
The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.
Pacific Ocean
0
5
10
101
USGS Gage (Spreckels - RM 13.23)
15
20
25
USGS Gage (Chualar - RM 27.76)
30
RM 31
Gonzales Slough
35
40
45
Bryant Canyon
USGS Gage (Soledad - RM 46.81)
RM 47.1
50
55
MONTEREY COUNTY
Salinas River
60
65
RM 69.0
70
San Lorenzo Creek
75
80
85
90
95
USGS Gage (Bradley - RM 97.22)
100
SAN BENITO COUNTY
FRESNO COUNTY
SANLUIS OBISPO COUNTY
San Antonio Dam
Nacimiento Dam

2 Study Approach

2.1 Database Search and Field Surveys

Evaluations of the potential for special-status species to occur at each of the proposed work areas along the abovementioned tributaries were conducted based on examining electronic aerial photographs on Google Earth, results of a California Natural Diversity Database (CNDDB)[1] query, and conditions observed during the site visit. Prior to the field survey the CNDDB was queried for any recorded observations of special-status species within 5 miles of the Program Area. The survey consisted of a pedestrian survey along the above mentioned tributaries on May 2, 2012, during daylight hours. During the survey, habitat conditions were documented in notes and photos, including: general plant community descriptions, height and condition of vegetation, and the presence of water features and/or structures.

Representative photos are shown in Appendix A at the end of this report. The list of all wildlife species observed during the habitat assessment and the potential for each species to occur at the three proposed maintenance sites are provided in Appendix B.

2.1.1 Survey Limitations and Weather Conditions

The habitat assessment survey is a reconnaissance-level effort. Lack of special-status presence during this survey is not indicative of potential for occurrence. In particular, use of structures and trees by bat and bird species is highly variable, across different seasons, as well as on a daily basis; however, the timing of the site visit was satisfactory for the habitat assessment for the wildlife species of concern: arroyo toad, California red-legged frog, California tiger salamander, and least Bell's vireo. The habitat assessment did not include any focused surveys for rare plant species; however, given the survey timing, it is likely that rare plants would have been observed if present, at least in vegetative condition.

The weather conditions were optimal: the temperature was 55° F at the start of the survey and 92° F at the end of the survey with 65% humidity. Wind speed was between calm and 10 miles per hour (mph) from the southwest.

[1] California Natural Diversity Database Online Viewer, Biogeographic Data Branch. Department of Fish and Game. Accessed on March 14, 2012.

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3 Results

3.1 Data Review

The CNDDB query provided historical records of 48 special-status wildlife species (12 federally or state-listed threatened or endangered), 34 special-status plant species (6 federally or state- listed threatened or endangered), and 6 special-status vegetation communities in the vicinity of the Program Area. The Program Area for the Salinas River SMP EIR is defined as the Salinas River mainstem from the Highway 1 Bridge upstream to RM 94, including the tributaries of Gonzales Slough (at RM 31.6), Bryant Canyon Channel (at RM 47.1), and San Lorenzo Creek (at RM 69.0).

Some of these records date back as far as 1901. A complete list of the records, including species listed as threatened or endangered, and other species tracked by the CNDDB, but not given formal protection under the state or federal ESAs, is included in Appendix B. Although previously considered to be absent from the Program Area, CDFG and USFWS requested that the habitat assessment determine the potential for arroyo toad and least Bell's vireo to occur at the proposed maintenance areas within the three tributaries: Gonzales Slough, Bryant Canyon Channel, and San Lorenzo Creek.

3.1.1 Gonzales Slough

The location within Gonzales Slough proposed for maintenance appears to be connected to the Salinas River during high flows. During low flows, however, the impoundment tends to be cut off from the nearby channel and culvert near Salinas River RM 32.5. Ponded water was present at the time of the survey (Appendix A, Photo 1). Vegetation at the site consisted mostly of weedy non-native species. Immature willows (*Salix* sp.), giant reed (*Arundo donax*), and coyote brush (*Baccharis pilularis*) are located within the proposed maintenance work area, and additional scrub habitat extends west toward the Salinas River (Appendix A, Photo 2). Intensive agriculture dominates the land east of the proposed maintenance site.

No protocol surveys for arroyo toad have previously been completed in the Program Area. A population of arroyo toads was identified in the San Antonio River at Ft. Hunter Liggett in 1996, but this population has only been studied intensively since 2003. Similar to other arroyo toad populations in southern California, arroyo toad at Ft. Hunter Liggett prefer to use sandy or gravelly areas open to the sky for breeding. Arroyo toads need shallow, slow flows to breed. They will not utilize stagnant areas and too much flow, particularly later in the season, will dislodge egg masses. Different from other populations, arroyo toads at Ft. Hunter Liggett breed later in the year, beginning in May rather than February (J. Hancock, Ft. Hunter Liggett Wildlife Biologist, personal communication, May 15, 2012).

Within the Program Area, the Salinas River generally lacks the sandy substrate, shallow water and slow flows that the arroyo toad requires. The banks of the Salinas River are generally steep and stabilized with vegetation that makes them unsuitable for use by arroyo toads. Flows within the river are maintained at levels too high to support arroyo toad breeding. Gonzales Slough does not provide the sand and gravel substrate or the flow regime required for arroyo toad breeding. Stagnant water is not suitable for arroyo toad; therefore, the species is not expected to occur at the site. Upland habitat between Gonzales Slough and the Salinas River might be suitable for more mature arroyo toads, if suitable breeding habitat were located nearby.

California tiger salamanders are not expected to use the pool along Gonzales Slough for breeding. California tiger salamanders do not occur in rivers or perennial streams but rather breed in seasonal ponds or other fish-free water bodies near their upland habitat. The Salinas River would act as a barrier between any populations to the west, and any of the potential work areas. Because of the seasonal connection of the Slough and the Salinas River, the pool that remains after high flows have ceased is likely to contain fish and crayfish. The presence of these predators makes the pool unsuitable for

California tiger salamander breeding. California tiger salamanders do not occur in riparian scrub habitat, so the area between the Salinas River and Gonzales Slough would also be unsuitable upland habitat for California tiger salamanders. Additionally, the nearest potential upland habitat is approximately 4 miles to the east and is separated from the Slough by intensive agriculture (row crops) that is likely to create a barrier to California tiger salamander movement.

Known records for California red-legged frog in the vicinity of proposed work areas are all from the hills approximately 4 miles to the east and approximately 1 mile to the west across the Salinas River. California red-legged frogs do not occur in high flow rivers or streams, but rather prefer slow backwaters with deep pools and overhanging vegetation. The ponded water or pool that remains for extended periods appears to be shallow with little to no vegetation along the immediate bank, and there were no undercut banks or overhanging vegetation present during the time of the site visit. Based on the poor quality of habitat present, and the sites isolation from known California red-legged frog records, it is unlikely the species would occur at the Gonzales Slough site.

No protocol surveys for least Bell's vireo have been conducted within the Program Area in over 10 years. Preferred habitat for the species consists of early successional riparian woodland, with dense cover 3 to 6 feet above ground, where nests are usually placed. Based on the habitat structure present, composed mostly of small weedy non-native vegetation, it is unlikely the species would nest or forage at the Gonzales Slough site.

There is a low potential for coast horned lizard (*Phrynosoma blainvilii*), western spadefoot toad (*Spea hammondii*), coast range newt (*Taricha torosa*), least Bell's vireo, and Abbott's bush-mallow (*Malacothamnus abbottii*) to occur at the proposed maintenance area(s) within Gonzales Slough. There is a moderate potential for tri-colored blackbird (*Agelaius tricolor*) to occur. One larger willow south of the proposed maintenance site could support nesting raptors and other breeding birds; however, no evidence of nesting activity was observed at the time of the survey.

3.1.2 Bryant Canyon Channel

Bryant Canyon Channel is located where an engineered drainage in a riparian scrub meets the Salinas River corridor, just south of Soledad. The channelized portion of Bryant Canyon Channel remains dry much of the year, and contains little vegetation. Where the channel approaches the mainstem of the Salinas River, the channel features very sandy soils with mature riparian trees, including cottonwoods (*Populus* sp.) and willows, as well as dense stands of giant reed (Appendix A, Photos 3 and 4). The maintenance site likely experiences stormwater flows, but no evidence of sustained flows were present during the survey. The site has been disturbed by off-highway vehicles and trash dumping activity. The adjacent mainstem of the Salinas River is bordered by dense riparian vegetation with a thick understory of Arundo. Flows in the channel were deep and fast at the time of the survey. MCWRA has indicated that high flows are maintained in order to meet the requirements of the Salinas Valley Water Project Biological Opinion (S. Juarez, MCWRA Hydrologist, personal communication, April 19, 2012).

The proposed maintenance site at Bryant Canyon Channel does not support suitable breeding habitat for the arroyo toad, as no flow is typically present at the site during the expected breeding season (beginning typically in May) for the species (based on breeding patterns of the Ft. Hunter Liggett population). The nearby Salinas River is too deep with flows much too high to support arroyo toad breeding requirements.

The Bryant Canyon maintenance site is separated from hills containing suitable upland habitat for California tiger salamanders. Bryant Canyon Channel appears to be directly connected to the Salinas River during the wet season, which would likely allow fish and crayfish from the Salinas River to enter and be present during time of inundation. The channel is unsuitable as breeding habitat for California tiger salamanders, and no suitable upland habitat for this species occurs within 2 miles of the work site. Therefore, California tiger salamanders would be unlikely to occur in the vicinity of the work site.

The maintenance site is isolated from potential records for California red-legged frog by intensive agriculture and urban development. The lack of vegetation in the channel, and the lack of water during most of the California red-legged frogs breeding season (typically December through April in the Salinas River) would make the work site unsuitable for California red-legged frogs. It is possible that California red-legged frogs could use the Bryant Canyon Channel as a movement corridor during the early part of its breeding season, when the channel has flowing water, but it is unclear whether any suitable habitat occurs downstream, between the maintenance site and the Salinas River. This site therefore has low potential to support California red-legged frogs.

Based on recent habitat use and range expansion data, there is a moderate potential for least Bell's vireo to occur in the disturbed riparian habitat at the Bryant Canyon Channel maintenance site. Potential for least Bell's vireo occurrence would be higher closer to the Salinas River.

Several California species of special concern could occur at the Bryant Canyon Channel maintenance site. There is a moderate potential for Cooper's hawk (*Accipiter cooperii*) and sharp-shinned hawk (*Accipiter striatus*) to nest in the large trees present, as well as other raptor species protected during the breeding season (typically February through August). There is a low potential for coast range newt, yellow warbler (*Dendroica petachia brewsteri*), western small-footed myotis (*Myotis ciliolabrum*), and Monterey dusky-footed woodrat (*Neotoma macrotis luciana*) to occur at the site.

One California rare plant rank (RPR) 1B species, Abbott's bush-mallow, also has a low potential for occurrence at the Bryant Canyon Channel site.

3.1.3 San Lorenzo Creek

San Lorenzo Creek, which flows through the King City Golf Course into the Salinas River, carries seasonal flow but is dry for much of the year. Maintenance work has been proposed along approximately 1.5 miles between First Street and the Salinas River (Appendix A, Photos 5 and 6). The surrounding area is largely urbanized with residential, commercial, and light industrial development. The golf course and nearby residential development both feature mostly non-native ornamental vegetation (Appendix A, Photo 5). Artificial pond features at the golf course could provide habitat for aquatic wildlife species. Agricultural land is located immediately southeast of the lower portion of San Lorenzo Creek.

Northeast of the golf course, the creek banks are disturbed (Appendix A, Photo 5); the south bank is mostly unvegetated and the north bank is dominated by weedy species such as tree tobacco (*Nicotiana glauca*), cocklebur (*Xanthium strumarium*), and slender wild oat (*Avena barbata*) along the same reach. Some native shrub species, including quail bush (*Atriplex lentiformis*) and coyote bush (*Baccharis sarothroides*), are also present. Within the golf course, San Lorenzo Creek features cottonwood and willow habitat with the highest quality habitat near the mainstem of the Salinas River (Appendix A, Photo 8). At the time of the survey, slow, shallow flows were observed within a sandy portion of the lower San Lorenzo Creek channel flowing from the adjacent agricultural operation (Appendix A, Photo 7). A small patch of freshwater marsh vegetation is present in the Salinas River, across from the San Lorenzo Creek outflow. Freshwater marsh is considered to be a sensitive wildlife habitat due to the extensive loss of this habitat type throughout California.

Three structures occur within the Creek: First Street Bridge overcrossing, a pedestrian bridge within the golf course, and the US-101 overpass in lower San Lorenzo Creek (Appendix A, Photo 6). The US-101 overpass and the First Street Bridge overcrossing could both support breeding birds and bat roosting. Active cliff swallow (*Petrochelidon pyrrhonota*) nests were detected at the First Street Bridge structure at the time of the survey. The pedestrian bridge within the golf course is less likely to be used; debris deposits indicate that flows have reached nearly as high as the pedestrian walkway during storm conditions. There is substantial ambient noise at the road crossings and railroad crossing immediately northeast of the First Street Bridge, which likely could deter some species from taking up residence in the structures on San Lorenzo Creek.

Arroyo toads are not expected to occur within the proposed work area in San Lorenzo Creek. Most of the Creek does not support suitable sandy or gravelly substrate that the species would use for breeding. Furthermore, MCWRA confirmed that no sustained shallow flow is typically present during the expected Arroyo toad breeding season (beginning in May). Flows observed during the survey in the lower section of the Creek were from irrigation at the nearby agricultural operation (Appendix A, Photo 7). Agricultural runoff flows are typically not sustained throughout the spring and summer months (S. Juarez, MCWRA Hydrologist, personal communication, May 3, 2012).

California tiger salamanders do not occur in creeks or riparian areas, so this site would be entirely unsuitable for this species.

It is possible that California red-legged frogs could use San Lorenzo Creek as a movement corridor during the early part of its breeding season (typically December through April in the Salinas River), when the Creek has flowing water, but this site is likely too shallow to support California red-legged frog breeding requirements. Therefore, San Lorenzo Creek has a low potential to support California red-legged frogs.

There is a moderate potential for least Bell's vireo to utilize vegetated portions of San Lorenzo Creek, with higher potential along the riparian corridor of lower San Lorenzo Creek leading into the Salinas River (Appendix A, Photo 8). Of the three maintenance sites, San Lorenzo Creek has the highest potential to support this species. This reach provides early successional riparian habitat with an open canopy, and there is relatively limited disturbance or non-native species presence, particularly in the lower section of the Creek.

One CDFG fully-protected species, white tailed kite (*Elanus leucurus*), also has a moderate potential to roost in riparian vegetation along San Lorenzo Creek or within ornamental trees associated with the golf course and adjacent development. Additional raptor species, which are protected during the breeding season, could also occur in these same habitats.

A moderate potential exists for yellow warbler and Monterey dusky-footed woodrat to also occur within San Lorenzo Creek, with higher potential near the mainstem of the Salinas River. Coast range newt, Cooper's hawk, sharp-shinned hawk, tricolored blackbird, great blue heron (*Ardea herodias*), long-eared owl (*Asio otus*), yellow warbler, Coast horned lizard, western pond turtle, and two-striped garter snake (*Thamnophis hammondii*), all California species of special concern, have a low potential to occur in or adjacent to San Lorenzo Creek. Two bat species which are tracked by the CNDDB, but do not have formal protection from the state or federal governments, also have a low potential to occur: hoary bat (*Lasiurus cinereus*) and western small-footed bat (*Myotis ciliolabrum*).

Two RPR 1B plant species have the potential to occur in San Lorenzo Creek: Abbott's bush mallow and Davidson's bush mallow (*Malacothamnus davidsonii*). No other listed or RPR plant species are expected to occur at the site based on the habitat conditions observed during the survey.

3.2 Summary of Results by Species

3.2.1 Listed Amphibians

Based on the habitat conditions present, the arroyo toad is not expected to occur at any of the three tributary locations where maintenance activities have been proposed (Figure 1). Thus, no mitigation for arroyo toad should be necessary for maintenance activities at these sites to proceed.

There is a low potential that California red-legged frogs could use the habitat at the Bryant Canyon Channel and San Lorenzo Creek sites. MCWRA has previously developed take avoidance measures for the California red-legged frog in consultation with USFWS and CDFG as part of the Section 7 consultation for the 2003-2008 Salinas River SMP. To avoid and minimize effects on California red-legged frog during channel maintenance activities, the following minimization measures are proposed:

- Work site observations will be made to determine if red-legged frogs are present prior to conducting work.
- Field crews will be trained to recognize red-legged frogs (i.e., distinguishing physical characteristics of all life stages) and will be instructed to avoid them.
- If a red-legged frog is found, then a qualified biologist will be called to capture the frog and move it to a safe location.
- Channel maintenance crews will be required to ensure that the work site is free of trash (e.g., food wrappers) that might attract predators.

These minimization measures will occur at certain times of the year in order to coincide with the particular stages of California red-legged frog development. Stream maintenance activities are scheduled to occur outside of the red-legged frog breeding season (typically December through April in the Salinas River).

California tiger salamanders are not expected to occur at the three maintenance sites. Thus, no avoidance and minimization measures for this species should be required.

3.2.2 Least Bell's Vireo

Based on recent habitat use data, there is a potential that least Bell's vireo could breed at the proposed maintenance areas within Bryant Canyon Channel and San Lorenzo Creek. It is recommended that MCWRA develop take avoidance measures for least Bell's vireo, similar to those in place for California red-legged frog, for work at the three tributary sites and within the mainstem of the Salinas River.

3.2.3 Nesting Raptors and other Breeding Birds

Suitable nesting habitat for raptors is located at both the Bryant Canyon Channel and San Lorenzo Creek maintenance sites. Breeding songbirds could use habitat at all three proposed maintenance locations. At the San Lorenzo Creek site, breeding birds could utilize not only the riparian habitat, but the ornamental trees associated with the golf course, and the three overcrossing structures within the Creek. Active nests may not be disturbed during the breeding season (February 15 through August 31) in compliance with the federal Migratory Bird Treaty Act and CDFG Code.

To minimize potential impacts to breeding birds, maintenance work should be conducted outside of the breeding season if possible. If work during the breeding season cannot be avoided, a qualified biologist should conduct pre-construction surveys within 7 days ahead of scheduled ground disturbing activities, vegetation removal, or vegetation trimming to confirm that young have fledged from any nests that may be present. If active nests are identified, CDFG will be contacted and additional measures, such as work exclusion zones, may be implemented.

3.2.4 Bat Species

Since it is possible that bats may use trees at Bryant Canyon Channel and both trees and bridge structures within San Lorenzo Creek, a pre-construction survey by a qualified biologist is recommended to determine the status of bats at both of those maintenance locations.

3.2.5 Special-Status Plant Species

Abbott's bush mallow could occur at all three maintenance sites, with the highest potential in the lower section of San Lorenzo Creek. Davidson's bush mallow could also occur at the San Lorenzo Creek site. Focused surveys should be conducted during the peak of the blooming period for these plants (June through October and June through September, respectively) to determine their presence or absence before the start of maintenance activities. Impacts to RPR 1B species must be considered under CEQA.

3.2.6 Other Special-Status Species

If possible, work in the tributaries should be scheduled to avoid impacts to additional special-status species that could occur at each proposed work location (as described above and in Appendix B). If this is not feasible, pre-construction surveys should be conducted to confirm the absence of these species before the start of maintenance activities. These surveys could be performed simultaneously with other pre-construction surveys, for example least Bell's vireo surveys. If any sign of special-status species presence is identified during pre-construction surveys, the resource agencies should be contacted regarding appropriate avoidance and minimization measures, which may include seasonal work restrictions, construction monitoring by a qualified biologist, or implementation of work exclusion zones.

4 References

USFWS. 2011. Endangered and Threatened Wildlife and Plants; Reclassifying Least Bell's Vireo From Endangered To Threatened. 50 CFR 17.

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Salinas River Stream Maintenance Program EIR

APPENDIX A

REPRESENTATIVE SITE PHOTOS

Gonzales Slough

Photo 1. Looking North at Ponded Area of Gonzales Slough

Photo 2. General Habitat Looking West from Gonzales Slough Toward the Salinas River Corridor

Bryant Canyon Channel

Photo 3. Proposed Maintenance Area Within Bryant Canyon Tributary, Looking Southwest

Photo 4. Riparian Habitat with Invasive Giant Reed Within the Proposed Maintenance Area in Bryant Canyon

San Lorenzo Creek

Photo 5. Looking Upstream into San Lorenzo Creek from the Confluence with the Salinas River

Photo 6. U.S. Highway 101 Overpass within San Lorenzo Creek

Photo 7. Flow in San Lorenzo Creek from Adjacent Agricultural Operation

Photo 8. Looking Upstream into San Lorenzo Creek from the Confluence with the Salinas River

Salinas River Stream Maintenance Program EIR

APPENDIX B

SPECIAL-STATUS SPECIES OCCURRENCES

Table B-1 Species Observed during the Site Visit on May 2, 2012

Scientific Name	Common Name	Gonzales Slough	Bryant Canyon	San Lorenzo Creek
Invertebrates				
Papilio sp.	swallowtail butterfly			●
Vanessa cardui	painted lady			●
Odonata sp.	dragonfly			●
Fish				
Gambusia affinis	mosquito fish	●		●
Reptiles and Amphibians				
Anaxyrus Boreas	Western Toad	●		
Sceloporus occidentalis	western fence lizard			●
Uta stansburiana	side-blotched lizard			●
Birds				
Agelaius phoeniceus	red-winged blackbird	●		
Aphelocoma californica	western scrub-jay			●
Buteo jamaicensis	red-tailed hawk		●	●
Callipepla californica	California quail	●		
Calypte anna	Anna's hummingbird		●	●
Carduelis lawrencei	Lawrence's goldfinch[1]			●
Carpodacus mexicanus	house finch	●		●
Bombycilla cedrorum	cedar waxwing			●
Chamaea fasciata	wrentit	●	●	●
Corvus brachyrhynchos	American crow			●
Corvus corax	common raven	●	●	
Geothlypis trichas	common yellowthroat	●		
Hirundo rustica	barn swallow	●	●	
Icterus bullockii	Bullock's oriole			●
Melospiza melodia	song sparrow	●	●	●
Mimus polyglottos	Northern mockingbird			●
Molothrus ater	brown-headed cowbird		●	
Pheucticus melanocephalus	black-headed grosbeak		●	●
Pipilo crissalis	California towhee			●
Pipilo maculatus	spotted towhee		●	●
Psaltriparus minimus	bushtit		●	●
Quiscalus mexicanus	great-tailed grackle			●
Spinus psaltria	lesser goldfinch			●
Stelgidopteryx serripennis	northern rough-winged swallow		●	●
Streptopelia decaocto	Eurasian collared dove			●

Scientific Name	Common Name	Gonzales Slough	Bryant Canyon	San Lorenzo Creek
Sturnus vulgaris	European starling*		●	●
Toxostoma redivivum	California thrasher[1]			●
Thryomanes bewickii	Bewick's wren			●
Troglodytes aedon	house wren			●
Tyrannus verticalis	western kingbird		●	
Zenaida macroura	mourning dove	●		
Mammals				
Canis domesticus	domestic dog* (tracks/scat)		●	
Canis latrans	coyote (tracks/scat)		●	
Didelphis virginiana	Opossum* (tracks)			●
Felis catus	domestic cat (carcass)*			●
Odocoileus hemionus	mule deer			●
Procyon lotor	raccoon (tracks)			●
Sus scrofa	wild pig*		●	
Sylvilagus bachmani	western brush rabbit (tracks)		●	

*non-native species
[1]Audubon Watch List

Table B-2 Potential for Occurrence of Special-Status Species

Scientific Name	Common Name	Status	Rare Plant Rank	Habitat Requirements	Gonzales Slough	Bryant Canyon Channel	San Lorenzo Creek
Invertebrates							
Branchinecta lynchi	Vernal pool fairy shrimp	FE		Endemic to the grasslands of the central valley, central coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone depression pools and grassed swale, earth slump, or basalt-flow depression pools.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.
Coelus globosus	Globose dune beetle			Inhabitant of coastal sand dune habitat, from bodega head in Sonoma county south to Ensenada, Mexico. Inhabits foredunes and sand hummocks; it burrows beneath the sand surface and is most common beneath dune vegetation.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.
Danaus plexippus	Monarch butterfly			Winter roost sites extend along the coast from northern Mendocino, California to Baja, Mexico. Roosts located in wind-protected tree groves of eucalyptus, Monterey pine, and cypress, with nectar and water sources nearby.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.
Euphilotes enoptes smithi	Smith's blue butterfly	FE		Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz counties. Hostplant: eriogonum latifolium and eriogonum parvifolium are utilized as both larval and adult foodplants.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.
Optioservus canus	Pinnacles optioservus riffle beetle			Aquatic. Found on rocks and in gravel or riffles in cool, swift, clear streams.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.
Tryonia imitator	Mimic tryonia (=California brackishwater snail)			Inhabits coastal lagoons, estuaries and salt marshes from Sonoma county south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Fish							
Eucyclogobius newberryi	Tidewater goby	FE, SC		Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego Co. To the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.
Oncorhynchus mykiss irideus	Steelhead - south/central California coast DPS	FT, SC		Fed listing refers to runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.
Reptiles/amphibians							
Ambystoma californiense	California tiger salamander	FT, ST		Central valley DPS federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered. Need underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding	Not expected. The ponded impoundment and riparian scrub do not provide suitable habitat. The Salinas River would serve as a barrier between populations to the west and the work area.	Not expected. No suitable habitat is present. The Salinas River would serve as a barrier between populations to the west and the work area.	Not expected. No suitable habitat is present. The Salinas River would serve as a barrier between populations to the west and the work area.

Scientific Name	Common Name	Status	Rare Plant Rank	Habitat Requirements	Gonzales Slough	Bryant Canyon Channel	San Lorenzo Creek
Anniella pulchra nigra	Black legless lizard	SC		Sand dunes and sandy soils in the Monterey Bay and Morro Bay regions. Inhabit sandy soil/dune areas with bush lupine and mock heather as dominant plants. Moist soil is essential.	Not expected. No suitable habitat is present.	Not expected. Sandy soils are present, but this location lacks the vegetative components for the species. There is a high level of OHV activity and this likely maintains the open sandy sites in this area.	Not expected. No suitable habitat is present.
Anniella pulchra pulchra	Silvery legless lizard	SC		Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	Not expected. No suitable habitat is present.	Not expected. Suitable open sandy soils are present at Salinas River side of the proposed work area in Bryant Canyon, but there is little to no soil moisture. There is a high level of OHV activity and this likely maintains the open sandy sites in this area. Soils nearer to the main stem would be more suitable.	Not expected. No suitable habitat is present.
Emys marmorata	Western pond turtle	SC		Aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	Not expected. No suitable habitat is present. There is no cover and no basking sites are present.	Not expected. No suitable habitat is present in the proposed work area. There is a low potential that this species could occur in the main stem of the Salinas River. Banks are steep and densely vegetated, which does not provide suitable open sites for basking. High flows are also maintained in the main channel.	Low. Where San Lorenzo Creek meets the Salinas River there is a patch of aquatic vegetation
Phrynosoma blainvillii	Coast horned lizard	SC		Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Low. River side of proposed work area features scattered shrubby vegetation with openings that could support the coast horned lizard.	Not expected. Open sandy areas are present at the river side of the work area but there is no suitable shrub cover. The proposed work area would not be suitable for the coast horned lizard during periods of high flow.	Low. The banks of upper San Lorenzo Creek may represent marginal habitat for the coast horned lizard. However, ornamental plantings associated with the golf course and disturbed or unvegetated areas are not ideal vegetative habitat for the lizard. The channel would not be suitable during periods of high flow.
Rana boylii	Foothill yellow-legged frog	SC		Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.
Rana draytonii	California red-legged frog	FT, SC		Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Low. Marginal breeding habitat occurs at the site with the ponded water in the slough and suitable upland estivation sites in the adjacent riparian scrub. Riparian scrub connects the site with the Salinas River. The river mainstem does not provide suitable breeding habitat, given maintained high flows, but could serve as a movement corridor.	Not expected. No suitable breeding habitat occurs at the site. Riparian scrub connects the site with the Salinas River, but the mainstem also does provide suitable breeding habitat, given maintained high flows.	Not expected. California red-legged frogs may use San Lorenzo Creek for movement and may use adjacent upland areas, but there is no suitable breeding habitat present.
Spea hammondii	Western spadefoot	SC		Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Vernal pools are essential for breeding and egg-laying.	Low. Adjacent baccharis and riparian scrub to the west could provide connectivity between suitable habitat and the slough.	Not expected. No suitable breeding sites for spadefoot are present at the location.	Not expected. No suitable breeding or egg laying sites for spadefoot are present.

Scientific Name	Common Name	Status	Rare Plant Rank	Habitat Requirements	Gonzales Slough	Bryant Canyon Channel	San Lorenzo Creek
Taricha torosa	Coast range newt	SC		Coastal drainages from Mendocino County to san diego county. Lives in terrestrial habitats and will migrate over 1 km to breed in ponds, reservoirs and slow moving streams.	Low. Adjacent baccharis and riparian scrub to the west could provide connectivity to additional suitable habitat.	Low. The proposed work area in Bryant Canyon would not likely support breeding given the lack of ponding or slow-moving stream habitat. However, there is suitable terrestrial habitat at the site.	Moderate. The proposed maintenance area within San Lorenzo Creek is bordered by agriculture and a housing development. Low flows were observed during the habitat assessment in the lower portion of the channel, but they appeared to be sourced from agricultural runoff, and it is uncertain if they are a recurring seasonal source of flow in the creek. Ponds occur at the adjacent golf course.
Thamnophis hammondii	Two-striped garter snake	SC		Coastal California from vicinity of Salinas to northwest Baja California. From sea to about 7,000 ft. elevation. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present at proposed work location. The main stem of the Salinas River nearby does not feature rocky bed.	Low. Low flows were present in San Lorenzo Creek at the time of the habitat assessment. These were apparently from agricultural irrigation runoff. The main stem of the river does not support the preferred rocky bed.
Birds							
Accipiter cooperii	Cooper's hawk	WL		Woodland, chiefly of open, interrupted or marginal type. Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Not expected. No suitable nesting trees are present in the immediate vicinity of the proposed work area.	Moderate. Suitable nesting trees are present near the proposed work area at the Bryant Canyon location.	Moderate. Suitable nesting trees are present near the proposed work area in San Lorenzo Creek.
Accipiter striatus	Sharp-shinned hawk	WL		Ponderosa pine, black oak, riparian deciduous, mixed conifer and jeffrey pine habitats. Prefers riparian areas. North-facing slopes, with plucking perches are critical requirements. Nests usually within 275 ft. of water.	Not expected. No suitable nesting trees are present in the immediate vicinity of the proposed work area.	Moderate. Suitable nesting trees are present near the proposed work area at the Bryant Canyon location.	Moderate. Suitable nesting trees are present near the proposed work area in San Lorenzo Creek.
Agelaius tricolor	Tricolored blackbird	SC		Highly colonial species, most numerous in central valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few km of the colony.	Moderate. Red-winged blackbirds were observed on Hemlock and Arundo during the habitat assessment. These plants may serve as marginal habitat in lieu of emergency marsh vegetation.	Not expected. The proposed work area at Bryant Canyon is not adjacent to permanent water and no suitable emergent wetland vegetation is present.	Moderate. The highest potential for tricolored blackbird is at the confluence of San Lorenzo Creek and the mainstem of the Salinas River. There is permanent water and small patches of emergent wetland vegetation (bulrush) are present flanking the flowing channel.
Aquila chrysaetos	Golden eagle	BCC, SC		Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Not expected. No suitable nesting trees are present in the immediate vicinity of the proposed work area.	Not expected. No suitable nesting trees are present in the immediate vicinity of the proposed work area.	Not expected. No suitable nesting trees are present in the immediate vicinity of the proposed work area.
Ardea herodias	Great blue heron			Colonial nester in tall trees, cliff sides, and sequestered spots on marshes. Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Not expected. No suitable nesting sites are present in the immediate vicinity of the proposed work area.	Not expected. The proposed work area in Bryant Canyon does not support the preferred vegetation. There would be higher potential in the nearby Salinas River mainstem and the adjacent trees.	Moderate. The lower portion of San Lorenzo Creek supports suitable nesting trees and permanent water is nearby in the Salinas River.
Asio flammeus	Short-eared owl	SC		Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Not expected. No suitable habitat is present in the proposed work area. There may be a low potential for short-eared owl to occur in the adjacent riparian scrub on the river side of the slough.	Not expected. No suitable habitat is present in the immediate vicinity of the proposed work area.	Not expected. No suitable habitat is present in the immediate vicinity of the proposed work area.

Scientific Name	Common Name	Status	Rare Plant Rank	Habitat Requirements	Gonzales Slough	Bryant Canyon Channel	San Lorenzo Creek
Asio otus	Long-eared owl	SC		Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Not expected. No suitable habitat is present in the proposed work area. There may be a low potential for short-eared owl to occur in the adjacent riparian scrub on the river side of the slough.	Not expected. Disturbed riparian vegetation is present with evidence of frequent OHV recreation. No old nests were observed. There may be higher potential for this species to occur closer to the mainstem of the Salinas River.	Moderate. Relatively high quality riparian vegetation is present along the lower portion of San Lorenzo Creek. Agriculture adjacent to the creek would provide suitable forage for the species. Potential for occurrence is highest near the main stem of the Salinas River.
Charadrius alexandrinus nivosus	Western snowy plover	FT, BCC, SC		Sandy beaches, salt pond levees and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.	Not expected. No suitable habitat is present.
Dendroica petechia brewsteri	Yellow warbler	SC		Riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging. Also nests in Montane shrubbery in open conifer forests.	Not expected. No suitable habitat is present in the proposed work area.	Low. Disturbed riparian vegetation is present. There may be higher potential for this species to occur closer to the mainstem of the Salinas River.	Moderate. Relatively high quality riparian vegetation is present along the lower portion of San Lorenzo Creek. Agriculture adjacent to the creek would provide suitable forage for the species. Potential for occurrence is highest near the main stem of the Salinas River.
Elanus leucurus	White-tailed kite	BCC, FP		Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. Disturbed riparian vegetation is present. Frequent disturbance by OHV traffic may reduce potential for nesting due to noise impacts. There may be higher potential for this species to roost closer to the mainstem of the Salinas River.	Moderate. Suitable nesting sites and adjacent foraging habitat are present, particularly within the lower portion of San Lorenzo Creek.
Eremophila alpestris actia	California horned lark			Coastal regions, chiefly from Sonoma co. To san diego co. Also main part of San Joaquin valley and east to foothills. Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Falco mexicanus	Prairie falcon			Inhabits dry, open terrain, either level or hilly. Breeding sites located on cliffs. Forages far afield, even to marshlands and ocean shores.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.
Falco peregrinus anatum	American peregrine falcon	FD		Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures. Nest consists of a scrape or a depression or ledge in an open site.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.
Haliaeetus leucocephalus	Bald eagle	FD, FP, SE		Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mi of water. Nests in large, old-growth, or dominant live tree w/open branches, especially ponderosa pine. Roosts communally in winter.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Rallus longirostris obsoletus	California clapper rail	FE, FP, SE		Salt-water and brackish marshes traversed by tidal sloughs in the vicinity of San Francisco bay. Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.

Scientific Name	Common Name	Status	Rare Plant Rank	Habitat Requirements	Gonzales Slough	Bryant Canyon Channel	San Lorenzo Creek
Riparia riparia	Bank swallow	ST		Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	Not expected. No suitable nesting habitat is present in the proposed work area.	Not expected. No suitable nesting habitat is present in the proposed work area.	Not expected. No suitable nesting habitat is present in the proposed work area.
Vireo bellii pusillus	Least bell's vireo	FE, SE		Summer resident of southern California in low riparian in vicinity of water or in dry river bottoms; below 2000 ft. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, baccharis, mesquite.	Low. The riparian scrub adjacent to the work area may serve as marginal habitat for the species, but no suitable nesting habitat is present in the proposed work area. Immediately adjacent agriculture would reduce nesting success. Least bell's vireo has not been documented in the Salinas River region for over 10 years.	Moderate. Disturbed riparian vegetation is present. Frequent disturbance by OHV traffic may reduce potential for nesting. There may be higher potential for this species to occur closer to the mainstem of the Salinas River. Least bell's vireo has not been documented in the Salinas River region for over 10 years.	Moderate. The lower portion of San Lorenzo Creek provides a shrub understory that may be suitable for least bell's vireo nesting with a relatively open canopy. Agriculture and development immediately adjacent to the creek would reduce the likelihood of nesting. Least bell's vireo has not been documented in the Salinas River region for over 10 years. The highest potential for occurrence is at the confluence of San Lorenzo Creek and the Salinas River.
Mammals							
Antrozous pallidus	Pallid bat	SC		Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Corynorhinus townsendii	Townsend's big-eared bat	SC		Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Eumops perotis californicus	Western mastiff bat	SC		Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Lasiurus blossevillii	Western red bat	SC		Roosts primarily in trees, 2-40 ft. above ground, from sea level up through mixed conifer forests. Prefers habitat edges and mosaics with trees that are protected from above and open below with open areas for foraging.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Lasiurus cinereus	Hoary bat			Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Low. The riparian edge with agriculture and the adjacent mainstem of the Salinas River may provide marginal habitat for the species. The lower section of San Lorenzo Creek supports more dense riparian habitat that is of higher suitability for hoary bat.
Myotis ciliolabrum	Western small-footed myotis			Wide range of habitats mostly arid wooded and brushy uplands near water. Seeks cover in caves, buildings, mines and crevices. Prefers open stands in forests and woodlands. Requires drinking water. Feeds on a wide variety of small flying insects.	Not expected. No suitable roosting habitat is present in the proposed work area.	Low. The proposed work area features riparian vegetation that has been invaded by dense stands of Arundo. Adjacent areas closer to the main stem of the Salinas River may provide more suitable habitat.	Low. The narrow band of vegetation along the bank of lower San Lorenzo Creek may represent marginal habitat for this species. Areas closer to the mainstem of the Salinas River would be slightly more suitable.

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Myotis evotis	Long-eared myotis			Found in all brush, woodland and forest habitats from sea level to about 9000 ft. Prefers coniferous woodlands and forests. Nursery colonies in buildings, crevices, spaces under bark, and snags. Caves used primarily as night roosts.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.
Myotis thysanodes	Fringed myotis			In a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood and hardwood-conifer. Uses caves, mines, buildings or crevices for maternity colonies and roosts.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.
Myotis yumanensis	Yuma myotis			Optimal habitats are open forests and woodlands with sources of water over which to feed. Distribution is closely tied to bodies of water. Maternity colonies in caves, mines, buildings or crevices.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.	Not expected. No suitable roosting habitat is present in the proposed work area.
Neotoma macrotis luciana	Monterey dusky-footed woodrat	SC		Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Nests constructed of grass, leaves, sticks, feathers, etc. Population may be limited by availability of nest materials	Not expected. There is a very low potential that Monterey dusky footed woodrat use riparian scrub habitat adjacent to the work area, on the Salinas River side of the slough. This scrub habitat provides connectivity with suitable habitat along the mainstem of the river. No middens were observed during the habitat assessment.	Low. Although disturbed and with substantial non-native species composition, the riparian scrub on the river side of the proposed work area could support Monterey dusky-footed woodrat. No middens were observed during the habitat assessment.	Moderate. The lower portion of San Lorenzo Creek may provide suitable habitat for Monterey dusky-footed woodrat. No middens were observed during the habitat assessment.
Reithrodontomys megalotis distichlis	Salinas harvest mouse			Known only from the Monterey bay region. Occurs in fresh and brackish water wetlands and probably in the adjacent uplands around the mouth of the Salinas River.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area. Small patches of marsh are present in the main stem of the Salinas River near the confluence with San Lorenzo Creek, but Salinas harvest mouse is known only from the bay region and the mouth of the Salinas River.
Taxidea taxus	American badger	SC		Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable burrowing sites are present in the proposed work area. Badger could use the area as a movement corridor.	Not expected. No suitable burrowing sites are present in the proposed work area. Badger could use the area as a movement corridor.
Vulpes macrotis mutica	San Joaquin kit fox	FE, ST		Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Plants							
Allium hickmanii	Hickman's onion		1b.2	Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland, coastal prairie. Sandy loam, damp ground and vernal swales; mostly in grassland though can be assoc. With chaparral or woodland. 20-200 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Amorpha californica var. Napensis	Napa false indigo		1b.2	Broadleafed upland forest, chaparral, cismontane woodland. Openings in forest or woodland or in chaparral. 150-2,000 m	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.

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Arctostaphylos hookeri ssp. Hookeri	Hooker's manzanita		1b.2	Chaparral, coastal scrub, closed-cone coniferous forest, cismontane woodland. Sandy soils, sandy shales, sandstone outcrops. 85-300 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Arctostaphylos Montereyensis	Toro manzanita		1b.2	Chaparral, cismontane woodland, coastal scrub. Sandy soil, usually with chaparral associates. 30-730 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Arctostaphylos pumila	Sandmat manzanita		1b.2	Closed-cone coniferous forest, chaparral, cismontane woodland, coastal dunes, coastal scrub. On sandy soil with other chaparral associates. 3-205 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
California macrophylla	Round-leaved filaree		1b.1	Cismontane woodland, valley and foothill grassland. Clay soils. 15-1,200 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Calycadenia villosa	Dwarf calycadenia		1b.1	Chaparral, cismontane woodland, valley and foothill grassland, meadows and seeps. Open, dry meadows, hillsides, gravelly outwashes. 215-1,275 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Camissonia hardhamiae	Hardham's evening-primrose		1b.2	Chaparral, cismontane woodland. Decomposed carbonate. 330-500 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Castilleja ambigua ssp. Insalutata	Pink johnny-nip		1b.1	Coastal bluff scrub, coastal prairie. 0-100 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Castilleja densiflora ssp. Obispoensis	San Luis Obispo owl's-clover		1b.2	Valley and foothill grassland. 10-215 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Caulanthus lemmonii	Lemmon's jewel-flower		1b.2	Pinyon-juniper woodland, valley and foothill grassland. 80-1,220 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Chorizanthe pungens var. Pungens	Monterey spineflower	FT	1b.2	Coastal dunes, chaparral, cismontane woodland, coastal scrub. Sandy soils in coastal dunes or more inland within chaparral or other habitats. 0-150 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. Suitable soils are present, but riparian habitat that is periodically flooded would not be expected to support this species. The spineflower could occur in upland areas outside of the proposed worksite.	Not expected. No suitable habitat is present in the proposed work area.
Chorizanthe rectispina	Straight-awned spineflower		1b.3	Chaparral, cismontane woodland, coastal scrub. Often on granite in chaparral. 355-1,035 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Chorizanthe robusta var. Robusta	Robust spineflower	FE	1b.1	Cismontane woodland, coastal dunes, coastal scrub. Sandy terraces and bluffs or in loose sand. 3-120 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area. There is a low potential that the spineflower could occur in sandy soils in more upland sites, outside of the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Collinsia multicolor	San Francisco Collinsia		1b.2	Closed-cone coniferous forest, coastal scrub. On decomposed shale (mudstone) mixed with humus. 30-250 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.

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Cordylanthus rigidus ssp. Littoralis	Seaside bird's-beak	SE	1b.1	Closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, coastal dunes. Sandy, often disturbed sites, usually within chaparral or coastal scrub. 0-.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Delphinium hutchinsoniae	Hutchinson's larkspur		1b.2	Broadleafed upland forest, chaparral, coastal prairie, coastal scrub. On semi-shaded, slightly moist slopes, usually west-facing. 0-365 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Didymodon norrisii	Norris' beard moss		2.2	Cismontane woodland, lower montane coniferous forest. Moss from seasonally wet sheet drainages on exposed rock slabs or terraces that completely dry in summer.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Eriastrum luteum	Yellow-flowered eriastrum		1b.2	Broadleafed upland forest, cismontane woodland, chaparral. On bare sandy decomposed granite slopes. 360-1,000 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Ericameria fasciculata	Eastwood's goldenbush		1b.2	Closed-cone coniferous forest, chaparral (maritime), coastal scrub, coastal dunes. In sandy openings. 30-275 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Erysimum ammophilum	Sand-loving wallflower	FE, SE	1b.2	Chaparral (maritime), coastal dunes, coastal scrub. Sandy openings. 0-130 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Erysimum menziesii ssp. Yadonii	Yadon's wallflower		1b.1	Coastal dunes. Foredunes. 0-15 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Fritillaria liliacea	Fragrant fritillary		1b.2	Coastal scrub, valley and foothill grassland, coastal prairie. Often on serpentine; various soils reported though usually clay, in grassland. 3-410 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Gilia tenuiflora ssp. Arenaria	Sand gilia	FE, ST	1b.2	Coastal dunes, coastal scrub, chaparral (maritime), cismontane woodland. Bare, wind-sheltered areas often near dune summit or in the hind dunes; 2 records from pleistocene inland dunes. 0-245 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Horkelia cuneata ssp. Sericea	Kellogg's horkelia		Ab.1	Closed-cone coniferous forest, coastal scrub, chaparral. Old dunes, coastal sandhills; openings. 10-.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Malacothamnus abbottii	Abbott's bush-mallow		1b.1	Riparian scrub. Among willows near rivers and along roadsides. 135-525 m.	Low. The proposed work area has been maintained and no bush mallow was observed during the habitat assessment. The riparian scrub adjacent to the work area on the river side may provide suitable habitat.	Low. Suitable sandy soils are present in the proposed work area. OHVS and invasion by Arundo have reduced the suitability of the habitat; however, Abbott's bush mallow has been documented in disturbed roadside sites.	Moderate. Riparian woodland and scrub habitats are present, with some areas featuring sandy soils.
Malacothamnus davidsonii	Davidson's bush-mallow		1b.2	Coastal scrub, riparian woodland, chaparral. Sandy washes. 180-855 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. Suitable sandy soils are present in the proposed work area. However, high disturbance from OHVS and invasion by Arundo have reduced the suitability of the habitat.	Moderate. Riparian woodland and scrub habitats are present, with some areas featuring sandy soils.

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Navarretia prostrata	Prostrate vernal pool navarretia		1b.1	Coastal scrub, valley and foothill grassland, vernal pools. Alkaline soils in grassland, or in vernal pools. Mesic, alkaline sites. 15-700 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Piperia yadonii	Yadon's rein orchid	FE	1b.1	Closed-cone coniferous forest, chaparral, coastal bluff scrub. On sandstone and sandy soil, but poorly drained and often dry. 10-415 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Plagiobothrys uncinatus	Hooked popcorn-flower		1b.2	Chaparral, cismontane woodland, valley and foothill grassland, coastal bluff scrub. Sandstone outcrops and canyon sides; often in burned or disturbed areas. 300-820 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Stebbinososeris decipiens	Santa Cruz microseris		1b.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub. Open areas in loose or disturbed soil, usu. Derived from sandstone, shale or serp., on seaward slopes. 10-	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Trifolium buckwestiorum	Santa Cruz clover		1b.1	Coastal prairie, broadleafed upland forest, cismontane woodland. Moist grassland. 60-545 m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Trifolium hydrophilum	Saline clover		1b.2	Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0-300m.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.	Not expected. No suitable habitat is present in the proposed work area.
Vegetation Communities							
Central dune scrub	Central dune scrub				Absent.	Absent.	Absent.
Central maritime chaparral	Central maritime chaparral				Absent.	Absent.	Absent.
Coastal and valley freshwater marsh	Coastal and valley freshwater marsh				Absent.	Absent.	Present. Small patches of emergent marsh are present at the confluence with the mainstem of the Salinas River (across the channel from the end of the proposed maintenance area).
Northern coastal salt marsh	Northern coastal salt marsh				Absent.	Absent.	Absent.
Sycamore alluvial woodland	Sycamore alluvial woodland				Absent.	Absent.	Absent.
Valley oak woodland	Valley oak woodland				Absent.	Absent.	Absent.

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