

**BASELINE DATA  
ON THE PLANT COMMUNITIES OF  
CACHE CREEK**

**BY**

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# **BASELINE DATA ON THE PLANT COMMUNITIES OF CACHE CREEK**

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## **Abstract**

The goal of this project was to provide quality baseline data documenting the condition and composition of Cache Creek's riparian corridor. Using aerial slides of the watershed, a vegetation map was created. This map identified areas of similar plant cover. The information on the vegetation maps were verified on the ground. Plant percent coverage, species composition and topography data were gathered at a representative set of sites. The main objective of this study was to gather data, however this data suggests that percent coverage of *Tamarix parviflora* in the shrub layer of the canopy is inversely related to the number of native plant species present.

## **Introduction**

The plant communities that populate the banks of Cache Creek are together a vital part of Yolo County. In recent years, the habitat along this valuable riparian corridor has begun to deteriorate. This loss is the combined result of several physical processes and human activities, including, the introduction of non-native plants, agricultural and urban development, water diversion, erosion and sedimentation, and aggregate mining. The response to this crisis has been in the form of several proposed restoration projects. The starting point for any effective environmental restoration, however, must be with the understanding of the system to be restored. The primary aim of this study was to document the existing plant populations of Cache Creek. It is hoped that the data collected in this study will provide a baseline of information for future restoration and monitoring projects. A secondary goal of this project is to better understand the relationship between non-native plant species and the riparian environment. One such non-native is Tamarisk or Salt Cedar (*Tamarix parviflora*). Tamarisk, a hardy shrub commonly seen along the riverbanks, washes and sand dunes of the South Western United States, is distinguished by an abundance of small pink flowers and small overlapping scale-like leaves. An attractive drought tolerant plant, Tamarisk was brought over from its native habitat of South Eastern Europe, in the 1800s and

cultivated as an ornamental windbreak. Since its introduction Tamarisk has been seen to establish well and spread rapidly. Tamarisk appears to be so well adapted to its new habitat that it has begun to displace the native riparian vegetation. This exotic invasive shrub has become, in the past few decades, one of the dominant species within the Cache Creek watershed and was of special concern in this project.

## Methods

### Vegetation Mapping

All sites are located within a stretch of Cache Creek, from the town of Rumsey in the North to the Creeks' intersection with Interstate 5 in the South. Aerial slides from the USDA Farm Agency, taken in April 1996, were used to create a vegetation map of the study area. With careful analysis of the aerial images, regions of homogenous vegetation (polygons) were identified. All polygons were outlined and then labeled with a letter indicating the vegetation(cover) type (as shown in the below key), and a number giving the spatial order of each site ("1" being the site furthest upstream of that "type".) Refer to the below key to vegetation types:

#### Plant Cover Type:

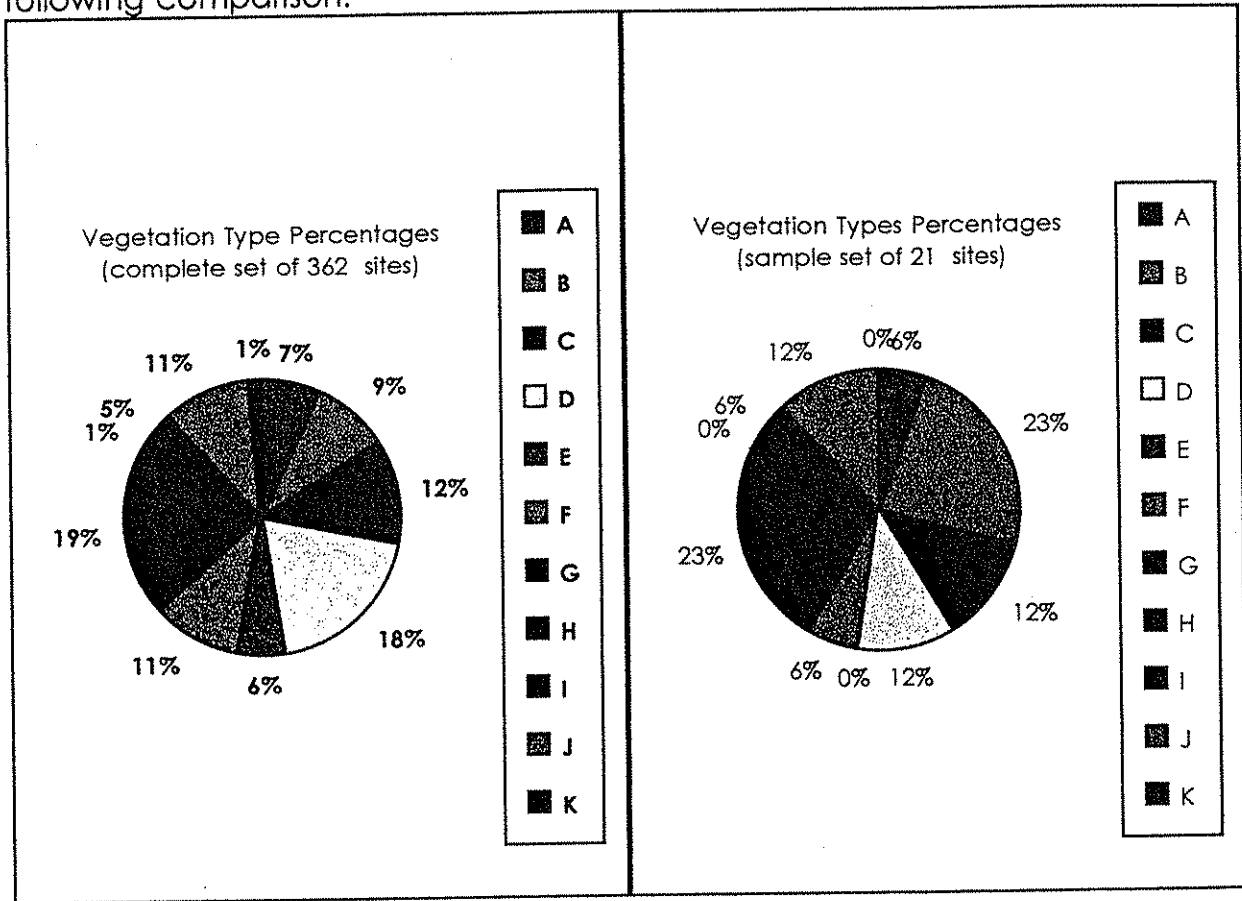
<b>A</b>	Tamarix (Full cover)	<b>G</b>	Shrubs (Near full cover)
<b>B</b>	Tamarix (Half cover)	<b>H</b>	Upland(Tamarix & Shrubs)
<b>C</b>	Tamarix (Scattered cover)	<b>I</b>	Upland(Tamarix & Grasses)
<b>D</b>	Trees	<b>J</b>	Shrubs (Scattered cover)
<b>E</b>	Grasses	<b>K</b>	Tamarix (Mottled cover)
<b>F</b>	Mixed Tamarix & Shrubs(Full cover)	<b>X</b>	Sandbars

### Site Selection

At this point a percentage of each vegetation type was randomly selected from a pool of 362 sites resulting in a set of 42 sites to be sampled. With the intention being to ground truth the aerial data, permission to enter each site was required. A notification letter to each landowner was sent out and entry permits for the following 21 sites were received:

<b>A</b>	19	<b>G</b>	27, 46, 49a, 49b
<b>B</b>	3, 4a, 4b, 11	<b>I</b>	11
<b>C</b>	3, 32	<b>J</b>	8, 21
<b>D</b>	14, 34	<b>X</b>	48, 66, 92a, 92b
<b>F</b>	26		

It is important to note here that for a section of Cache Creek (from Road 61 to Road 85) no entry permits were received due to a lack of landowners' interest. Regardless of this, the vegetation types found within the overall study area are well represented in the final set of the above 21 sites; as illustrated in the following comparison:



### Data Collection

The collection of data from the sample sites began in August 1996 and continued through September 1996. For this study the field sampling protocol of the California Native Plant Society was used. At each site a sampling location was objectively chosen and a 50 m long point-transect was laid down. This transect was centered within a 50 m by 5 m plot. (The majority of transects ran perpendicular to the channel, however, there were a few sites that were too narrow for this orientation. In these cases the transect was laid down parallel to the channel.) Next, moving along the transect starting from the 0.5 m mark, and at each 0.5 m interval from there, an imagined line was extended up from this point through the layers of vegetation. Each plant that fell on this vertical line was recorded, its species name and the layer it was found in (tree, shrub, or ground.) Each record is called a hit. If and only if there

was no vegetation intercepting the vertical line then the litter or non-vegetation ground cover was recorded. The plot was then carefully surveyed for any plant species not recorded along the transect, but found within the plot. At this point an approximation of the topography along the transect was recorded and photographs were taken from each end of the transect.

### Data Analysis

All the hits for each site were tallied by species and layer or non-vegetation type. Given that along a 50 m transect there are 100 points taken, then the number of hits for each species can be calculated according to the layer within which the plant was found. For example, at site B 3 the tally for *Tamarix parviflora* (Tamarisk) in the shrub layer was 26, this count directly translates to 26%. Using following the scale (that assigns numerical values to show percent coverages) allows for the presentation of data to be more readily understood.

<u>Numerical value</u>	<u>Percent coverage</u>
5	>75%
4	50-75%
3	25-50%
2	5 -25%
1	1 - 5%
*** +	was assigned to species found within the plot but not falling on the transect.

### Results

The resulting data are presented in the following tables. The percent coverage data are presented in two sets: 1) BY VEGETATION TYPE and 2) BY SPATIAL ORDER. For Data presented by vegetation type the number and letter pairs across the top row correspond to sampling sites. For Data presented in the latter form the numbers across the top row correspond to sampling sites in order from upstream on down. The following is a key to these numbers:

**ORDER:** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21  
**SITE:** (type)C B B B D B F X C X G I A X X D J J G G G  
 (number)2 3 4a 4b 14 11 26 48 32 66 27 11 19 92a 92b 34 8 21 46 49a 49b

For both sets the far left column indicates the cover type (non vegetation or plant name by family & species) and the native plant species are in **bold print**. Cover type is further divided into the canopy layer in which the species is found (tree, shrub, or ground.) A list of common name for each species is found on pages 26 & 27.

PLANT COVER BY TYPE

PLANT COVER

COVER TYPE	Layer	A		B		C		D		F		G		I		J		X		X	
		19	3	4a	4b	11	3	32	14	34	26	27	46	49a	49b	11	8	21	48	66	92a
Non-Vegetation																					
Open Water																					
Silt		2	1	2	1		2	1		2		2	1			2	2		3	2	
Sand			3			1						2			1		2		1	1	
Gravel			1	1	2			1			2	2			1	2	2		4	4	2
Cobbles			2	3	3	2	4	3								3			5		
Log			2					2					1								
Litter			1	1	1			2		2					5		1				
Access road (gravel)										2	2										
<b>Amaranthaceae</b>																					
<b>Amaranthus blitoides</b>	Tree																				
<b>Amaranthus blitoides</b>	Shrub																				
<b>Amaranthus blitoides</b>	Ground																				+
<b>Anacardiaceae</b>																					
<b>Toxicodendron diversilobum</b>	Tree																				
<b>Toxicodendron diversilobum</b>	Shrub																				
<b>Toxicodendron diversilobum</b>	Ground											1									
<b>Asteraceae</b>																					
<b>Ambrosia ptilostachya</b>	Tree																				
<b>Ambrosia ptilostachya</b>	Shrub																				
<b>Ambrosia ptilostachya</b>	Ground											1	1		1						
<b>Artemisia douglasiana</b>	Tree																				
<b>Artemisia douglasiana</b>	Shrub																				
<b>Artemisia douglasiana</b>	Ground								1			1	1	1	+						+
<b>Baccharis pilularis</b>	Tree																				
<b>Baccharis pilularis</b>	Shrub																				
<b>Baccharis pilularis</b>	Ground																				
<b>Baccharis salicifolia</b>	Tree																				
<b>Baccharis salicifolia</b>	Shrub																				1
<b>Baccharis salicifolia</b>	Ground																				2
<b>Bidens frondosa</b>	Tree																				
<b>Bidens frondosa</b>	Shrub																				
<b>Bidens frondosa</b>	Ground																				1
<b>Centaurea solstitialis</b>	Tree																				
<b>Centaurea solstitialis</b>	Shrub																				
<b>Centaurea solstitialis</b>	Ground																				+





PLANT COVER BY TYPE

PLANT COVER

COVER TYPE	Layer	A	B	B	B	B	C	C	D	D	D	F	G	G	G	G	I	J	J	J	8	21	48	66	92a	92b
Salsola tragus	Tree	19																								
Salsola tragus	Shrub																									
Salsola tragus	Ground																									
<b>Cyperaceae</b>																										
Cyperus odoratus	Tree																									
Cyperus odoratus	Shrub																									
Cyperus odoratus	Ground																									
Scirpus americanus	Tree																									
Scirpus americanus	Shrub																									
Scirpus americanus	Ground																									
<b>Equisetaceae</b>																										
Equisetum arvense	Tree																									
Equisetum arvense	Shrub																									
Equisetum arvense	Ground																									
<b>Euphorbiaceae</b>																										
Eremocarpus setigerus	Tree																									
Eremocarpus setigerus	Shrub																									
Eremocarpus setigerus	Ground																									
<b>Fabaceae</b>																										
Lotus corniculatus	Tree																									
Lotus corniculatus	Shrub																									
Lotus corniculatus	Ground																									
Lotus denticulatus	Tree																									
Lotus denticulatus	Shrub																									
Lotus denticulatus	Ground																									
Glycyrrhiza lepidota	Tree																									
Glycyrrhiza lepidota	Shrub																									
Glycyrrhiza lepidota	Ground																									
Melilotus alba	Tree																									
Melilotus alba	Shrub																									
Melilotus alba	Ground																									
Melilotus indica	Tree																									
Melilotus indica	Shrub																									
Melilotus indica	Ground																									
<b>Fagaceae</b>																										
Quercus lobata	Tree																									
Quercus lobata	Shrub																									
Quercus lobata	Ground																									
<b>Hydrophyllaceae</b>																										
Eriodictyon californicum	Tree																									
Eriodictyon californicum	Shrub																									
Eriodictyon californicum	Ground																									

PLANT COVER BY TYPE

PLANT COVER

COVER TYPE	Layer	A	B	B	B	B	C	C	D	D	F	G	G	G	G	I	J	J	J	X	X	X	X	X	X
		19	3	4a	4b	11	3	32	14	34	26	27	46	49a	49b	11	8	21	48	66	92a	92b			
<u>Juglandaceae</u>																									
Junglans californica var. hindsii	Tree								4																
Junglans californica var. hindsii	Shrub		+						2			+	2												
Junglans californica var. hindsii	Ground								2																
<u>Lamiaceae</u>																									
Lamium purpureum	Tree																								
Lamium purpureum	Shrub																								
Lamium purpureum	Ground											+													
Marrubium vulgare	Tree																								
Marrubium vulgare	Shrub								1																
Marrubium vulgare	Ground												+												
Mentha arvensis	Tree																								
Mentha arvensis	Shrub																								
Mentha arvensis	Ground						+																		
Mentha xipiperita	Tree																								
Mentha xipiperita	Shrub																								
Mentha xipiperita	Ground																								
Trichostema lanceolatum	Tree																								
Trichostema lanceolatum	Shrub																								
Trichostema lanceolatum	Ground																								
Trichostema laxum	Tree																								
Trichostema laxum	Shrub																								
Trichostema laxum	Ground																								
<u>Loaceae</u>																									
Mentzelia laevicaulis	Tree																								
Mentzelia laevicaulis	Shrub																								
Mentzelia laevicaulis	Ground																								
<u>Lythraceae</u>																									
Lythrum californica	Tree																								
Lythrum californica	Shrub																								
Lythrum californica	Ground																								
<u>Onagraceae</u>																									
Ludwigia pepioides	Tree																								
Ludwigia pepioides	Shrub																								
Ludwigia pepioides	Ground																								
<u>Poaceae</u>																									
Arundo donax	Tree																								
Arundo donax	Shrub																								
Arundo donax	Ground																								
Avena sativa	Tree																								
Avena sativa	Shrub																								
Avena sativa	Ground																								

PLANT COVER BY TYPE

PLANT COVER

COVER TYPE	A	B	B	B	B	C	C	D	D	F	G	G	G	G	I	J	J	X	X	X	X	X
	19	3	4a	4b	11	3	32	14	34	26	27	46	49a	49b	11	8	21	48	66	92a	92b	
Cortaderia seloana																						
Cortaderia seloana					+																	
Cortaderia seloana																						
Crypsis schoenoides																						
Crypsis schoenoides				2																		
Crypsis schoenoides																						
Cynodon dactylon																						
Cynodon dactylon																						
Cynodon dactylon																						
Piptatherum millaceum																						
Piptatherum millaceum																						
Piptatherum millaceum																						
Polygonon monspeltensis																						
Polygonon monspeltensis																						
Polygonon monspeltensis																						
<b>Polygonaceae</b>																						
Polygonum lapathifolium																						
Polygonum lapathifolium																						
Polygonum lapathifolium																						
Rumex crispus																						
Rumex crispus																						
Rumex crispus																						
<b>Salicaceae</b>																						
Populus fremontii																						
Populus fremontii																						
Populus fremontii																						
Salix laevigata																						
Salix laevigata																						
Salix laevigata																						
Salix lasiolepis																						
Salix lasiolepis																						
Salix lasiolepis																						
<b>Scrophulariaceae</b>																						
Kickxia spuria																						
Kickxia spuria																						
Kickxia spuria																						
Verbascum thapsus																						
Verbascum thapsus																						
Verbascum thapsus																						

PLANT COVER BY TYPE

PLANT COVER

COVER TYPE	Layer	A	B	B	B	B	C	C	C	D	D	D	F	G	G	G	G	I	J	J	X	X	X	X	X
		19	3	4a	4b	11	3	32	14	34	26	27	46	49a	49b	11	8	21	48	66	92a	92b			
<u>Solanaceae</u>																									
Datura wrightii	Tree																								
Datura wrightii	Shrub																								
Datura wrightii	Ground																								
Nicotiana glauca	Tree																								
Nicotiana glauca	Shrub	1																							
Nicotiana glauca	Ground																								
Nicotiana quadrivalvis	Tree																								
Nicotiana quadrivalvis	Shrub																								
Nicotiana quadrivalvis	Ground																								
<u>Tamaricaceae</u>																									
Tamarix parviflora	Tree						2			2	2														
Tamarix parviflora	Shrub	5	3	2	3	2	2			1	2	+	2	2											
Tamarix parviflora	Ground		2	1						1	2	1	1	2											
<u>Typhaceae</u>																									
Typha latifolia	Tree																								
Typha latifolia	Shrub																								
Typha latifolia	Ground																								
<u>Vitaceae</u>																									
Vitis californica	Tree																								
Vitis californica	Shrub																								
Vitis californica	Ground																								
<u>Unknown A = Panicum</u>	Tree																								
	Shrub																								
	Ground						1																		
<u>Unknown B = Apiaceae</u>	Tree																								
	Shrub																								
	Ground																								
<u>Unknown C = Cuscuta</u>	Tree																								
	Shrub																								
	Ground																								
<u>Unknown D = Bromus</u>	Tree																								
	Shrub																								
	Ground																								
<u>Unknown E = Vicia</u>	Tree																								
	Shrub																								
	Ground																								
<u>Unknown F = "Foxtail"</u>	Tree																								
	Shrub																								
	Ground																								

PLANT COVER BY TYPE

PLANT COVER

	A	B	B	B	B	B	C	C	D	D	D	F	G	G	G	G	I	J	J	X	X	X	X	X
	19	3	4a	4b	11	3	32	14	34	26	27	46	49a	49b	11	8	21	48	66	92a	92b			
COVER TYPE																								
Unknown G = Phalaris																								
Layer																								
Tree																								
Shrub																								
Ground																								
Tree																								
Shrub																								
Ground																								
Tree																								
Shrub																								
Ground																								
Unknown H = Chenopodium																								
Unknown I = Cyperus																								
PARAMETER																								
SPECIES/PLOT	5	20	14	19	10	24	12	7	17	8	24	26	22	22	24	22	24	24	24	17	10	16	22	



PLANT COVER BY SPATIAL ORDER

PLANT COVER BY SPATIAL ORDER

COVER TYPE	Layer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
Cichorium intybus	Tree																						
Cichorium intybus	Shrub																						
Cichorium intybus	Ground		+																				
Conyza canadensis	Tree																						
Conyza canadensis	Shrub																						
Conyza canadensis	Ground																						
Gnaphalium purpureum	Tree																						
Gnaphalium purpureum	Shrub																						
Gnaphalium purpureum	Ground																						
Heterotheca oregona var. compacta	Tree																						
Heterotheca oregona var. compacta	Shrub																						
Heterotheca oregona var. compacta	Ground																						
Silybum marianum	Tree																						
Silybum marianum	Shrub																						
Silybum marianum	Ground																						
Solidago californica	Tree																						
Solidago californica	Shrub																						
Solidago californica	Ground																						
Xanthium strumarium	Tree																						
Xanthium strumarium	Shrub																						
Xanthium strumarium	Ground																						
<b>Boraginaceae</b>																							
Heliotropium curassavicum	Tree																						
Heliotropium curassavicum	Shrub																						
Heliotropium curassavicum	Ground																						
Heliotropium europaeum	Tree																						
Heliotropium europaeum	Shrub																						
Heliotropium europaeum	Ground																						
<b>Brassicaceae</b>																							
Brassica nigra	Tree																						
Brassica nigra	Shrub																						
Brassica nigra	Ground																						
<b>Caprifoliaceae</b>																							
Sambucus mexicana	Tree																						
Sambucus mexicana	Shrub																						
Sambucus mexicana	Ground																						
<b>Chenopodiaceae</b>																							
Chenopodium botrys	Tree																						
Chenopodium botrys	Shrub																						
Chenopodium botrys	Ground																						

PLANT COVER BY SPATIAL ORDER

COVER TYPE	Layer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Salsola tragus	Tree																					
Salsola tragus	Shrub																					
Salsola tragus	Ground																					
<u>Cyperaceae</u>																						
Cyperus odoratus	Tree																					
Cyperus odoratus	Shrub																					
Cyperus odoratus	Ground																					
Scirpus americanus	Tree																					
Scirpus americanus	Shrub																					
Scirpus americanus	Ground																					
<u>Equisetaceae</u>																						
Equisetum arvense	Tree																					
Equisetum arvense	Shrub																					
Equisetum arvense	Ground																					
<u>Euphorbiaceae</u>																						
Eremocarpus setigerus	Tree																					
Eremocarpus setigerus	Shrub																					
Eremocarpus setigerus	Ground																					
<u>Fabaceae</u>																						
Lotus corniculatus	Tree																					
Lotus corniculatus	Shrub																					
Lotus corniculatus	Ground																					
Lotus denticulatus	Tree																					
Lotus denticulatus	Shrub																					
Lotus denticulatus	Ground																					
Glycyrrhiza lepidota	Tree																					
Glycyrrhiza lepidota	Shrub																					
Glycyrrhiza lepidota	Ground																					
Mellilotus alba	Tree																					
Mellilotus alba	Shrub																					
Mellilotus alba	Ground																					
Mellilotus indica	Tree																					
Mellilotus indica	Shrub																					
Mellilotus indica	Ground																					
<u>Fagaceae</u>																						
Quercus lobata	Tree																					
Quercus lobata	Shrub																					
Quercus lobata	Ground																					
<u>Hydrophyllaceae</u>																						
Eriodictyon californicum	Tree																					
Eriodictyon californicum	Shrub																					
Eriodictyon californicum	Ground																					





PLANT COVER BY SPATIAL ORDER

PLANT COVER BY SPATIAL ORDER

COVER TYPE	Layer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Cortaderia seloana	Tree																					
Cortaderia seloana	Shrub																					
Cortaderia seloana	Ground																					
Crypsis schoenoides	Tree																					
Crypsis schoenoides	Shrub																					
Crypsis schoenoides	Ground																					
Cynodon dactylon	Tree																					
Cynodon dactylon	Shrub																					
Cynodon dactylon	Ground																					
Piptatherum miliaceum	Tree																					
Piptatherum miliaceum	Shrub																					
Piptatherum miliaceum	Ground																					
Polygonon monspeliensis	Tree																					
Polygonon monspeliensis	Shrub																					
Polygonon monspeliensis	Ground																					
<b>Polygonaceae</b>																						
Polygonum lapathifolium	Tree																					
Polygonum lapathifolium	Shrub																					
Polygonum lapathifolium	Ground																					
Rumex crispus	Tree																					
Rumex crispus	Shrub																					
Rumex crispus	Ground																					
<b>Salicaceae</b>																						
Populus fremontii	Tree																					
Populus fremontii	Shrub																					
Populus fremontii	Ground																					
Salix laevigata	Tree																					
Salix laevigata	Shrub																					
Salix laevigata	Ground																					
Salix lasiolepis	Tree																					
Salix lasiolepis	Shrub																					
Salix lasiolepis	Ground																					
<b>Scrophulariaceae</b>																						
Kickxia spuria	Tree																					
Kickxia spuria	Shrub																					
Kickxia spuria	Ground																					
Verbascum thapsus	Tree																					
Verbascum thapsus	Shrub																					
Verbascum thapsus	Ground																					

PLANT COVER BY SPATIAL ORDER

PLANT COVER by SPATIAL ORDER

COVER TYPE	Layer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
<u>Solanaceae</u>																							
Datura wrightii	Tree																						
Datura wrightii	Shrub																						
Datura wrightii	Ground																						
Nicotiana glauca	Tree																						
Nicotiana glauca	Shrub																						
Nicotiana glauca	Ground																						
Nicotiana quadrivalvis	Tree																						
Nicotiana quadrivalvis	Shrub																						
Nicotiana quadrivalvis	Ground																						
<u>Tamaricaceae</u>																							
Tamarix parviflora	Tree																						
Tamarix parviflora	Shrub																						
Tamarix parviflora	Ground																						
<u>Typhaceae</u>																							
Typha latifolia	Tree																						
Typha latifolia	Shrub																						
Typha latifolia	Ground																						
<u>Vitaceae</u>																							
Vitis californica	Tree																						
Vitis californica	Shrub																						
Vitis californica	Ground																						
Vitis californica	Tree																						
<u>Unknown A = Panicum</u>	Shrub																						
<u>Unknown B = Api</u>	Ground																						
<u>Unknown C = Cuscuta</u>	Tree																						
<u>Unknown C = Cuscuta</u>	Shrub																						
<u>Unknown C = Cuscuta</u>	Ground																						
<u>Unknown D = Bromus</u>	Tree																						
<u>Unknown D = Bromus</u>	Shrub																						
<u>Unknown D = Bromus</u>	Ground																						
<u>Unknown E = Vicia</u>	Tree																						
<u>Unknown E = Vicia</u>	Shrub																						
<u>Unknown E = Vicia</u>	Ground																						
<u>Unknown F = Foxtail</u>	Tree																						
<u>Unknown F = Foxtail</u>	Shrub																						
<u>Unknown F = Foxtail</u>	Ground																						

PLANT COVER BY SPATIAL ORDER

PLANT COVER BY SPATIAL ORDER

COVER TYPE	Layer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
Unknown G = Phalaris	Tree																						
	Shrub																						
	Ground																+						+
Unknown H = Chenopodium	Tree																						
	Shrub																						
	Ground																	+					
Unknown I = Cyperus	Tree																						
	Shrub																						
	Ground																		+				+
PARAMETER																							
SPECIES/PLOT		24	20	14	19	7	10	8	17	12	10	24	24	5	16	22	17	22	24	26	22	22	

NUMBER & PERCENT OF SITES / PLANT

PLANT COVER

COVER TYPE	Layer	# of sites plant is found	% of sites plant is found
<u>Non-Vegetation</u>			
Open Water			
Silt			
Sand			
Gravel			
Cobbles			
Log			
Litter			
Access road (gravel)			
<u>Amaranthaceae</u>			
<i>Amaranthus blitoides</i>	Tree	0	0%
<i>Amaranthus blitoides</i>	Shrub	0	0%
<i>Amaranthus blitoides</i>	Ground	3	14%
<u>Anacardiaceae</u>			
<i>Toxicodendron diversilobum</i>	Tree	0	0%
<i>Toxicodendron diversilobum</i>	Shrub	1	5%
<i>Toxicodendron diversilobum</i>	Ground	1	5%
<u>Asteraceae</u>			
<i>Ambrosia psilostachya</i>	Tree	0	0%
<i>Ambrosia psilostachya</i>	Shrub	0	0%
<i>Ambrosia psilostachya</i>	Ground	7	33%
<i>Artemisia douglasiana</i>	Tree	0	0%
<i>Artemisia douglasiana</i>	Shrub	1	5%
<i>Artemisia douglasiana</i>	Ground	9	43%
<i>Baccharis pilularis</i>	Tree	0	0%
<i>Baccharis pilularis</i>	Shrub	1	5%
<i>Baccharis pilularis</i>	Ground	0	0%
<i>Baccharis salicifolia</i>	Tree	0	0%
<i>Baccharis salicifolia</i>	Shrub	9	43%
<i>Baccharis salicifolia</i>	Ground	2	10%
<i>Bidens frondosa</i>	Tree	0	0%
<i>Bidens frondosa</i>	Shrub	0	0%
<i>Bidens frondosa</i>	Ground	5	24%
<i>Centaurea solstitialis</i>	Tree	0	0%
<i>Centaurea solstitialis</i>	Shrub	0	0%
<i>Centaurea solstitialis</i>	Ground	15	71%

NUMBER & PERCENT PLANT/SITE

PLANT COVER

COVER TYPE	Layer	# of sites plant is found	% of sites plant is found
Cichorium intybus	Tree	0	0%
Cichorium intybus	Shrub	0	0%
Cichorium intybus	Ground	1	5%
Cichorium intybus	Tree	0	0%
<i>Conyza canadensis</i>	Tree	0	0%
<i>Conyza canadensis</i>	Shrub	0	0%
<i>Conyza canadensis</i>	Ground	3	14%
<i>Conyza canadensis</i>	Tree	0	0%
<i>Gnaphalium purpureum</i>	Tree	0	0%
<i>Gnaphalium purpureum</i>	Shrub	0	0%
<i>Gnaphalium purpureum</i>	Ground	5	24%
<i>Gnaphalium purpureum</i>	Tree	0	0%
<i>Heterotheca oregona</i> var. <i>compacta</i>	Shrub	0	0%
<i>Heterotheca oregona</i> var. <i>compacta</i>	Ground	4	19%
<i>Heterotheca oregona</i> var. <i>compacta</i>	Tree	0	0%
<i>Silybum marianum</i>	Tree	0	0%
<i>Silybum marianum</i>	Shrub	0	0%
<i>Silybum marianum</i>	Ground	2	10%
<i>Silybum marianum</i>	Tree	0	0%
<i>Solidago californica</i>	Shrub	0	0%
<i>Solidago californica</i>	Ground	3	14%
<i>Solidago californica</i>	Tree	0	0%
<i>Xanthium strumarium</i>	Shrub	4	19%
<i>Xanthium strumarium</i>	Ground	18	86%
<i>Xanthium strumarium</i>	Tree	0	0%
<i>Xanthium strumarium</i>	Shrub	0	0%
<i>Xanthium strumarium</i>	Ground	10	48%
<i>Xanthium strumarium</i>	Tree	0	0%
<i>Xanthium strumarium</i>	Shrub	0	0%
<i>Xanthium strumarium</i>	Ground	7	33%
<b><u>Boraginaceae</u></b>			
<i>Heliotropium curassavicum</i>	Tree	0	0%
<i>Heliotropium curassavicum</i>	Shrub	0	0%
<i>Heliotropium curassavicum</i>	Ground	10	48%
<i>Heliotropium europaeum</i>	Tree	0	0%
<i>Heliotropium europaeum</i>	Shrub	0	0%
<i>Heliotropium europaeum</i>	Ground	7	33%
<b><u>Brassicaceae</u></b>			
<i>Brassica nigra</i>	Tree	0	0%
<i>Brassica nigra</i>	Shrub	0	0%
<i>Brassica nigra</i>	Ground	17	81%
<b><u>Caprifoliaceae</u></b>			
<i>Sambucus mexicana</i>	Tree	0	0%
<i>Sambucus mexicana</i>	Shrub	2	10%
<i>Sambucus mexicana</i>	Ground	1	5%
<i>Sambucus mexicana</i>	Tree	0	0%
<i>Sambucus mexicana</i>	Shrub	0	0%
<i>Sambucus mexicana</i>	Ground	1	5%
<b><u>Chenopodiaceae</u></b>			
<i>Chenopodium botrys</i>	Tree	0	0%
<i>Chenopodium botrys</i>	Shrub	1	5%
<i>Chenopodium botrys</i>	Ground	8	38%

NUMBER & PERCENT OF SITES / PLANT

PLANT COVER

COVER TYPE	Layer	# of sites plant is found	% of sites plant is found
Salsola tragus	Tree	0	0%
Salsola tragus	Shrub	0	0%
Salsola tragus	Ground	1	5%
<b>Cyperaceae</b>			
Cyperus odoratus	Tree	0	0%
Cyperus odoratus	Shrub	0	0%
Cyperus odoratus	Ground	3	14%
Scirpus americanus	Tree	0	0%
Scirpus americanus	Shrub	1	5%
Scirpus americanus	Ground	3	14%
<b>Equisetaceae</b>			
Equisetum arvense	Tree	0	0%
Equisetum arvense	Shrub	0	0%
Equisetum arvense	Ground	1	5%
<b>Euphorbiaceae</b>			
Eremocarpus setigerus	Tree	0	0%
Eremocarpus setigerus	Shrub	0	0%
Eremocarpus setigerus	Ground	5	24%
<b>Fabaceae</b>			
Lotus corniculatus	Tree	0	0%
Lotus corniculatus	Shrub	0	0%
Lotus corniculatus	Ground	1	5%
Lotus denticulatus	Tree	1	5%
Lotus denticulatus	Shrub	0	0%
Lotus denticulatus	Ground	3	14%
Glycyrrhiza lepidota	Tree	0	0%
Glycyrrhiza lepidota	Shrub	1	5%
Glycyrrhiza lepidota	Ground	2	10%
Mellilotus alba	Tree	0	0%
Mellilotus alba	Shrub	2	10%
Mellilotus alba	Ground	15	71%
Mellilotus indica	Tree	0	0%
Mellilotus indica	Shrub	1	5%
Mellilotus indica	Ground	3	14%
<b>Fagaceae</b>			
Quercus lobata	Tree	2	10%
Quercus lobata	Shrub	2	10%
Quercus lobata	Ground	0	0%
<b>Hydrophyllaceae</b>			
Eriodictyon californicum	Tree	0	0%
Eriodictyon californicum	Shrub	0	0%
Eriodictyon californicum	Ground	2	10%

NUMBER & PERCENT OF SITES / PLANT

PLANT COVER

COVER TYPE	Layer	# of sites plant is found	% of sites plant is found
<u>Juglandaceae</u>			
Junglans californica var. hindsii	Tree	2	10%
Junglans californica var. hindsii	Shrub	4	19%
Junglans californica var. hindsii	Ground	1	5%
<u>Lamiaceae</u>			
Lamium purpureum	Tree	0	0%
Lamium purpureum	Shrub	0	0%
Lamium purpureum	Ground	1	5%
Marrubium vulgare	Tree	0	0%
Marrubium vulgare	Shrub	0	0%
Marrubium vulgare	Ground	3	14%
Mentha arvensis	Tree	0	0%
Mentha arvensis	Shrub	0	0%
Mentha arvensis	Ground	2	10%
Mentha xipiperita	Tree	0	0%
Mentha xipiperita	Shrub	0	0%
Mentha xipiperita	Ground	1	5%
Trichostema lanceolatum	Tree	0	0%
Trichostema lanceolatum	Shrub	0	0%
Trichostema lanceolatum	Ground	6	29%
Trichostema laxum	Tree	0	0%
Trichostema laxum	Shrub	0	0%
Trichostema laxum	Ground	1	5%
<u>Loaceae</u>			
Mentzelia laevicaulis	Tree	0	0%
Mentzelia laevicaulis	Shrub	0	0%
Mentzelia laevicaulis	Ground	3	14%
<u>Lythraceae</u>			
Lythrum californica	Tree	0	0%
Lythrum californica	Shrub	1	5%
Lythrum californica	Ground	3	14%
<u>Onagraceae</u>			
Ludwigia peploides	Tree	0	0%
Ludwigia peploides	Shrub	0	0%
Ludwigia peploides	Ground	1	5%
<u>Poaceae</u>			
Arundo donax	Tree	1	5%
Arundo donax	Shrub	9	43%
Arundo donax	Ground	2	10%
Avena sativa	Tree	0	0%
Avena sativa	Shrub	0	0%
Avena sativa	Ground	9	43%



NUMBER & PERCENT OF SITES / PLANT

PLANT COVER

COVER TYPE	LAYER	# of sites plant is found	% of sites plant is found
Cortaderia selloana	Tree	0	0%
Cortaderia selloana	Shrub	2	10%
Cortaderia selloana	Ground	0	0%
Cortaderia selloana	Tree	0	0%
Crypsis schoenoides	Shrub	0	0%
Crypsis schoenoides	Ground	8	38%
Crypsis schoenoides	Tree	0	0%
Cynodon dactylon	Shrub	0	0%
Cynodon dactylon	Ground	6	29%
Cynodon dactylon	Tree	0	0%
Piptatherum milliaceum	Shrub	0	0%
Piptatherum milliaceum	Ground	5	24%
Piptatherum milliaceum	Tree	0	0%
Polygonon monspeliensis	Shrub	0	0%
Polygonon monspeliensis	Ground	11	52%
<b>Polygonaceae</b>			
Polygonum lapathifolium	Tree	0	0%
Polygonum lapathifolium	Shrub	1	5%
Polygonum lapathifolium	Ground	8	38%
Rumex crispus	Tree	0	0%
Rumex crispus	Shrub	0	0%
Rumex crispus	Ground	6	29%
<b>Salicaceae</b>			
Populus fremontii	Tree	3	14%
Populus fremontii	Shrub	5	24%
Populus fremontii	Ground	4	19%
Salix laevigata	Tree	5	24%
Salix laevigata	Shrub	10	48%
Salix laevigata	Ground	9	43%
Salix lasiolepis	Tree	2	10%
Salix lasiolepis	Shrub	9	43%
Salix lasiolepis	Ground	9	43%
<b>Scrophulariaceae</b>			
Kickxia spuria	Tree	0	0%
Kickxia spuria	Shrub	0	0%
Kickxia spuria	Ground	4	19%
Verbascum thapsus	Tree	0	0%
Verbascum thapsus	Shrub	0	0%
Verbascum thapsus	Ground	1	5%

NUMBER & PERCENT OF SITES / PLANT

PLANT COVER

COVER TYPE	Layer	# of sites plant is found	% of sites plant is found
<u>Solanaceae</u>			
Datura wrightii	Tree	0	0%
Datura wrightii	Shrub	0	0%
Datura wrightii	Ground	2	10%
Nicotiana glauca	Tree	1	5%
Nicotiana glauca	Shrub	5	24%
Nicotiana glauca	Ground	1	5%
Nicotiana quadrivalvis	Tree	0	0%
Nicotiana quadrivalvis	Shrub	0	0%
Nicotiana quadrivalvis	Ground	4	19%
<u>Tamaricaceae</u>			
Tamarix parviflora	Tree	4	19%
Tamarix parviflora	Shrub	16	76%
Tamarix parviflora	Ground	12	57%
<u>Typhaceae</u>			
Typha latifolia	Tree	0	0%
Typha latifolia	Shrub	2	10%
Typha latifolia	Ground	3	14%
<u>Vitaceae</u>			
Vitis californica	Tree	0	0%
Vitis californica	Shrub	1	5%
Vitis californica	Ground	1	5%
<u>Unknown A = Panicum</u>	Tree	0	0%
	Shrub	0	0%
	Ground	6	29%
<u>Unknown B = Aptaceae</u>	Tree	0	0%
	Shrub	0	0%
	Ground	7	33%
<u>Unknown C = Cuscuta</u>	Tree	0	0%
	Shrub	0	0%
	Ground	3	14%
<u>Unknown D = Bromus</u>	Tree	0	0%
	Shrub	0	0%
	Ground	2	10%
<u>Unknown E = Vicia</u>	Tree	0	0%
	Shrub	0	0%
	Ground	1	5%
<u>Unknown F = "Foxtail"</u>	Tree	0	0%
	Shrub	1	5%
	Ground	2	10%

NUMBER & PERCENT OF SITES / PLANT

PLANT COVER

COVER TYPE	Layer	# of sites plant is found	% of sites plant is found
Unknown G = Phalaris	Tree	0	0%
	Shrub	0	0%
	Ground	2	10%
Unknown H = Chenopodium	Tree	0	0%
	Shrub	0	0%
	Ground	2	10%
Unknown I = Cyperus	Tree	0	0%
	Shrub	0	0%
	Ground	3	14%

SCIENTIFIC NAME	COMMON NAME**	SCIENTIFIC NAME	COMMON NAME**
<u>Amaranthaceae</u> Amaranthus blitoides	Prostrate Pigweed	<u>Lamiaceae</u> Lamium purpureum	Dead Nettle
<u>Anacardiaceae</u> Toxicodendron diversilobum	Polsen Oak	Marrubium vulgare	Horehound
<u>Asteraceae</u> Ambrosia psilostachya	Western Ragweed	Mentha arvensis	Mint
Artemisia douglasiana	Mugwort	Mentha xipiperita	Peppermint
Baccharis pilularis	Coyote Brush	Trichostema lanceolatum	Vinegar Weed
Baccharis salicifolia	Mule Fat	Trichostema laxum	Turpentine Weed
Bidens frondosa	Stick Tight	<u>Loaceae</u>	
Centaurea solstitialis	Star Thistle	Mentzella laevicaulis	Blazing Star
Cichorium intybus	Chicory	<u>Lythraceae</u>	
Conyza canadensis	Horseweed	Lythrum californica	California Loosestrife
Gnaphallium purpureum	Everlasting	<u>Onagraceae</u>	
Heterotheca oregona var. compacta	Telegraph Weed--G	Ludwigia peploides	Water Primrose--G
Silybum marianum	Milk Thistle	<u>Poaceae</u>	
Solidago californica	California Goldenrod	Arundo donax	Giant Reed
Xanthium strumarium	Cocklebur	Avena sativa	Oats
<u>Boraginaceae</u> Heliotropium curassavicum	Heliotrope--G	Cortaderia selloana	Pampas Grass
Heliotropium europaeum	Heliotrope--G	Crypsis schoenoides	Swamp Grass
<u>Brassicaceae</u> Brassica nigra	Black Mustard	Cynodon dactylon	Bermuda Grass
<u>Caprifoliaceae</u> Sambucus mexicana	Blue Elderberry	Piptatherum millaceum	Smilo Grass
		Polyogon monspeliensis	Beard Grass
		<u>Polygonaceae</u>	
		Polygonum lapathifolium	~~~~~
		Rumex crispus	Curly Dock

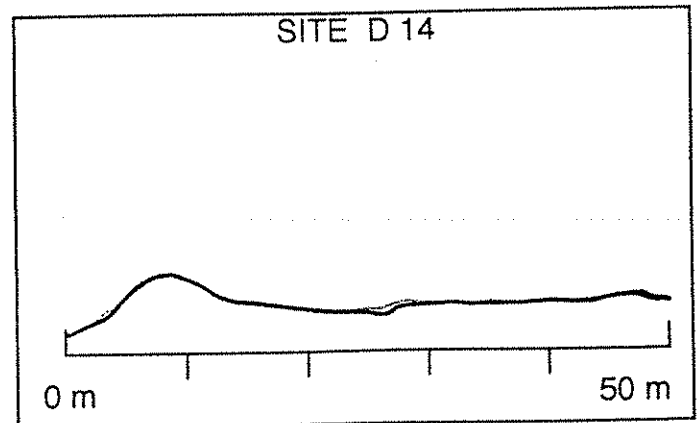
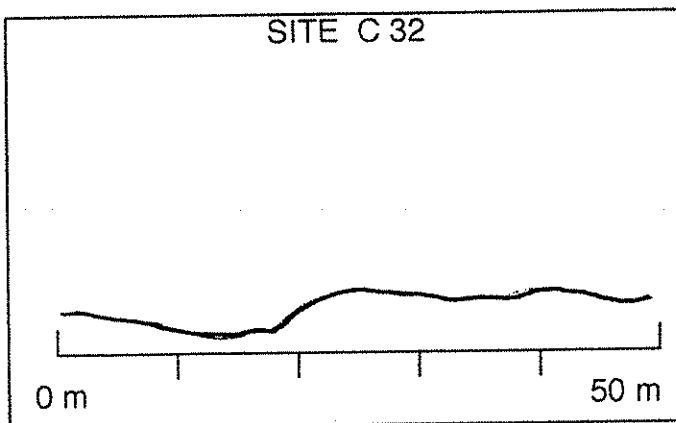
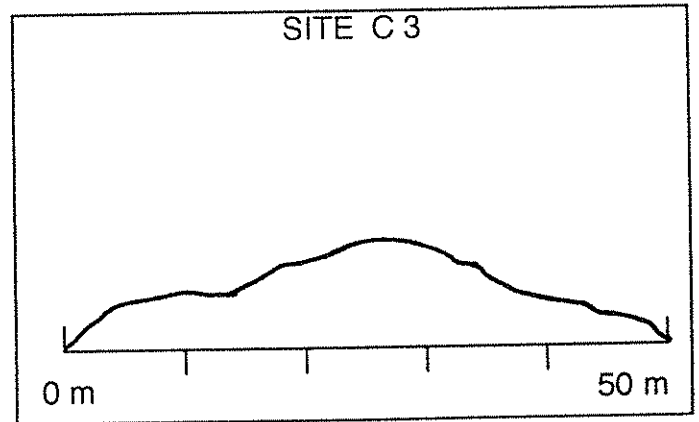
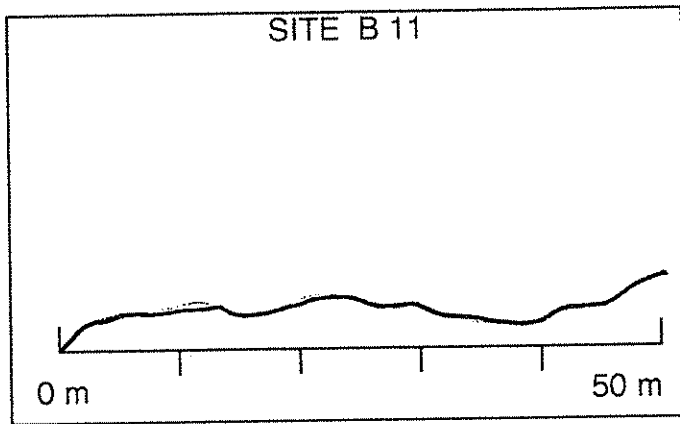
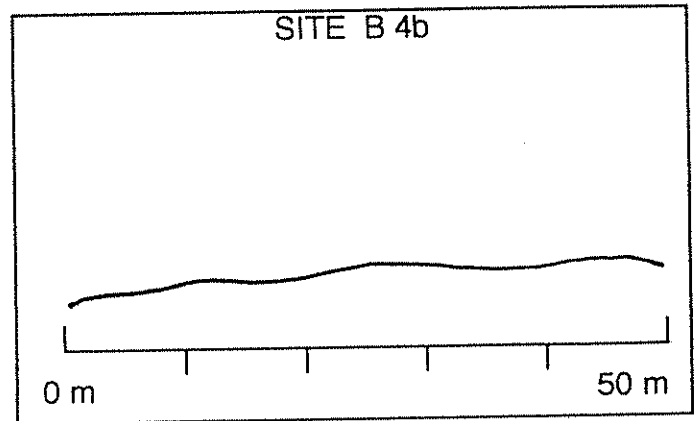
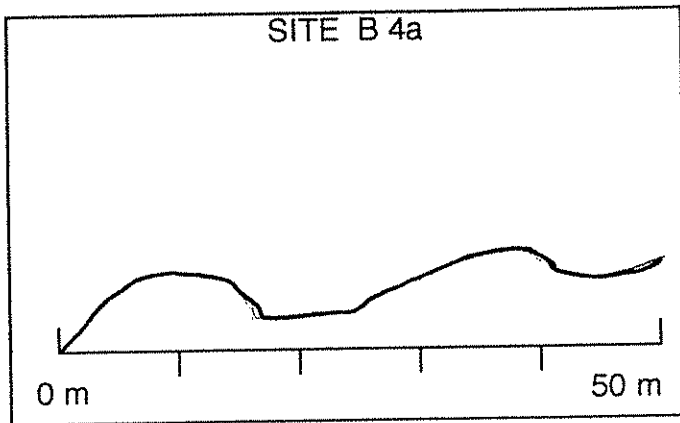
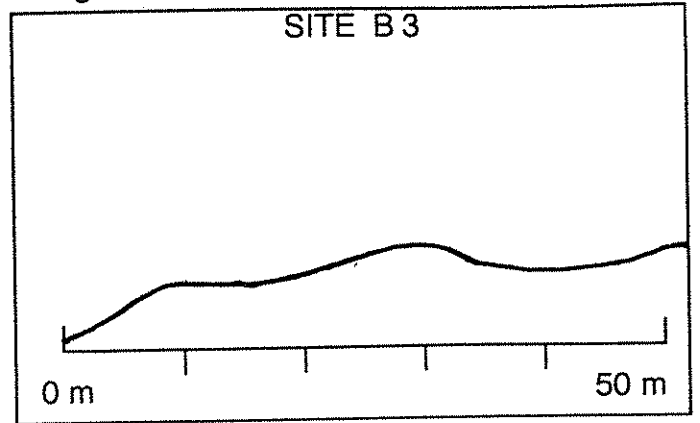
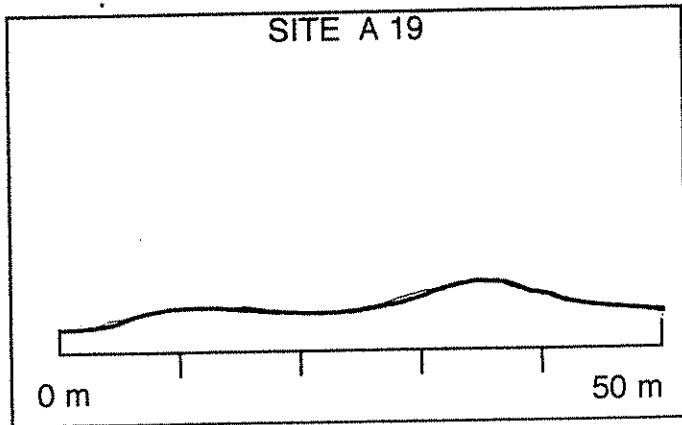
COMMON NAMES

SCIENTIFIC NAME	COMMON NAME**	SCIENTIFIC NAME	COMMON NAME**
<u>Chenopodiaceae</u>		<u>Salicaceae</u>	
Chenopodium botrys	Jerusalem Oak	Populus fremontii	Cottonwood
Salsola tragus	Tumbleweed	Salix laevigata	Red Willow
		Salix lasiolepis	Arroyo Willow
<u>Cyperaceae</u>		<u>Scrophulariaceae</u>	
Cyperus odoratus	Nutsedge--G	Kickxia spuria	Fluellin--G
Scirpus americanus	Bulrush--G	Verbascum thapsus	Woolly Mullein
<u>Equisetaceae</u>		<u>Solanaceae</u>	
Equisetum arvense	Common Horsetail	Datura wrightii	Jimpsom Weed--G
		Nicotiana glauca	Tree Tobacco
<u>Euphorbiaceae</u>		Nicotiana quadrivalvis	Tobacco
Eremocarpus setigerus	Turkey Mullein	<u>Tamaricaceae</u>	
		Tamarix parviflora	Tamarisk
<u>Fabaceae</u>		<u>Typhaceae</u>	
Lotus corniculatus	Birdfoot Trefoil	Typha latifolia	Cattails
Lotus denticulatus	~~~~~	<u>Vitaceae</u>	
Glycyrrhiza lepidota	Wild Licorice	Vitis californica	Wild California Grapes
Mellotus alba	White Sweet Clover		
Mellotus indica	Yellow Sweet Clover		
<u>Fagaceae</u>		UNKNOWN PLANTS	
Quercus lobata	Valley Oak	<u>Unknown A = Panicum</u>	Millet
		<u>Unknown B = Apiaceae</u>	Carrot Family
<u>Hydrophyllaceae</u>		<u>Unknown C = Cuscuta</u>	Dodder
Eriodictyon californicum	Yerba Santa	<u>Unknown D = Bromus</u>	Brome
		<u>Unknown E = Vicia</u>	Vetch
<u>Juglandaceae</u>		<u>Unknown F = "Foxtail"</u>	~~~~~
Junglans californica var. hindsii	California Black Walnut	<u>Unknown G = Phalaris</u>	~~~~~
		<u>Unknown H = Chenopodium</u>	Goosefoot Family
		<u>Unknown I = Cyperus</u>	~~~~~

\*\*Common names followed by --G are the common Genus names

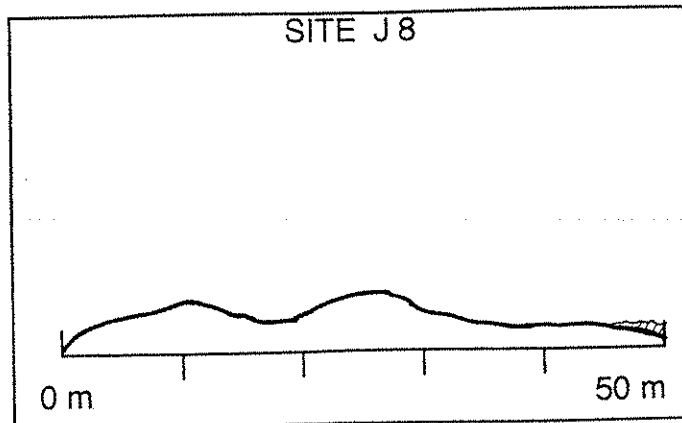
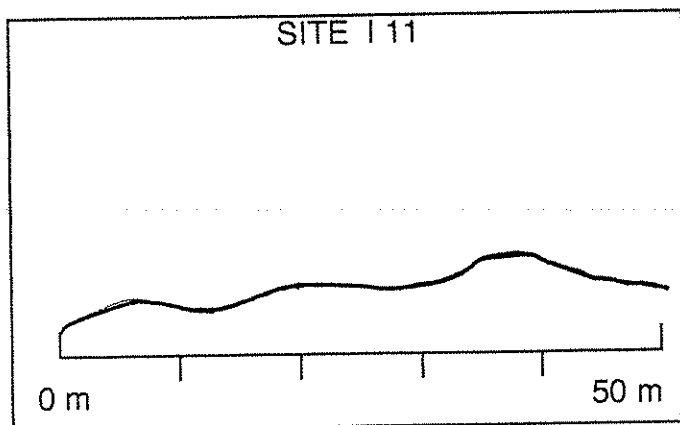
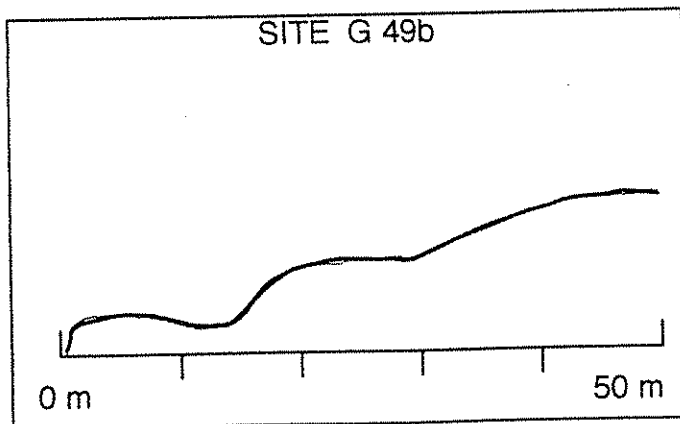
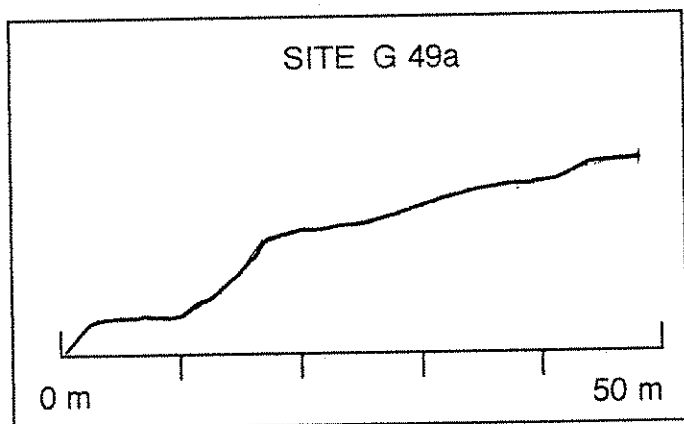
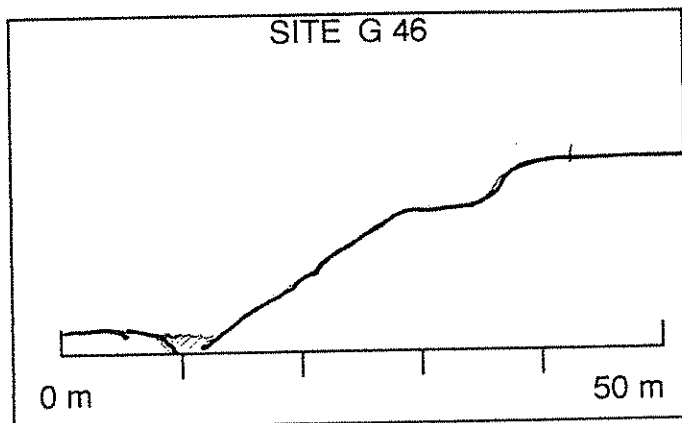
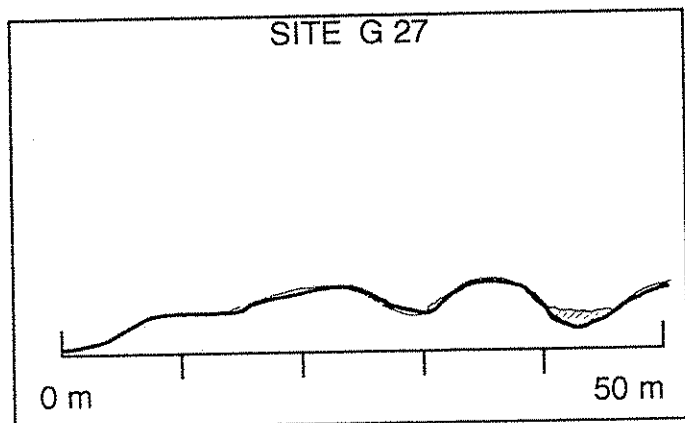
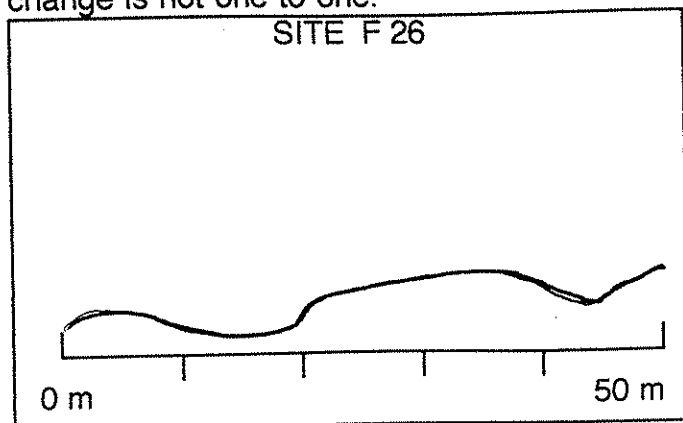
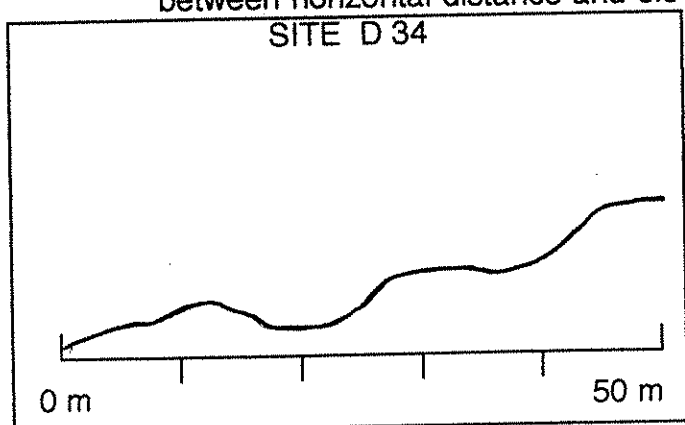
# TOPOGRAPHY

The following graphs represent an approximation of topography along the 50 meter point-transect line at each of the 21 sample sites. The relationship between horizontal distance and elevation change is not one to one.



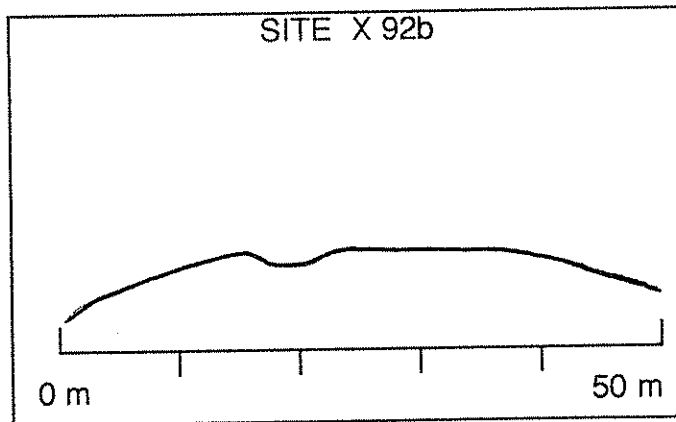
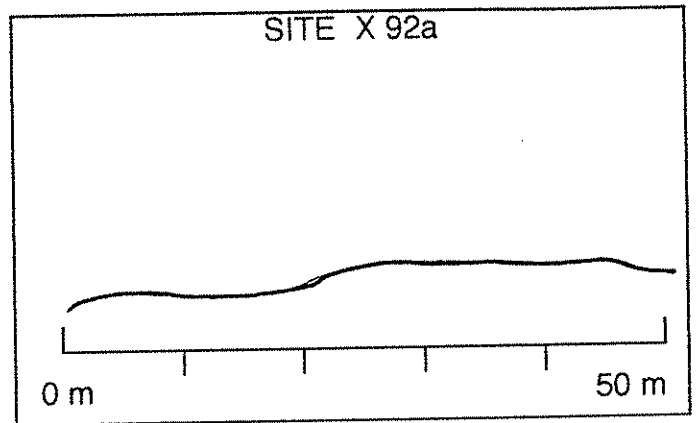
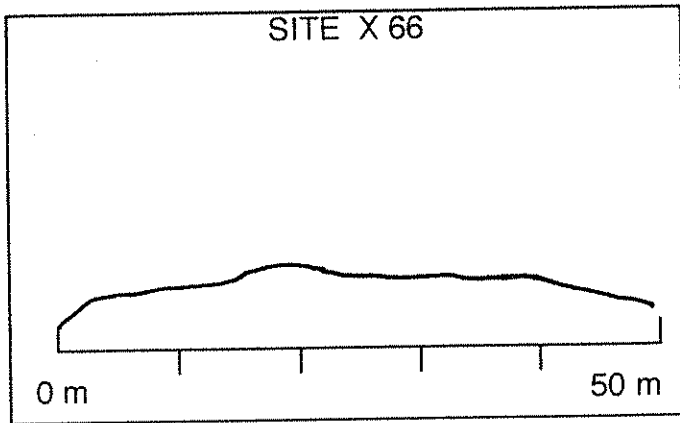
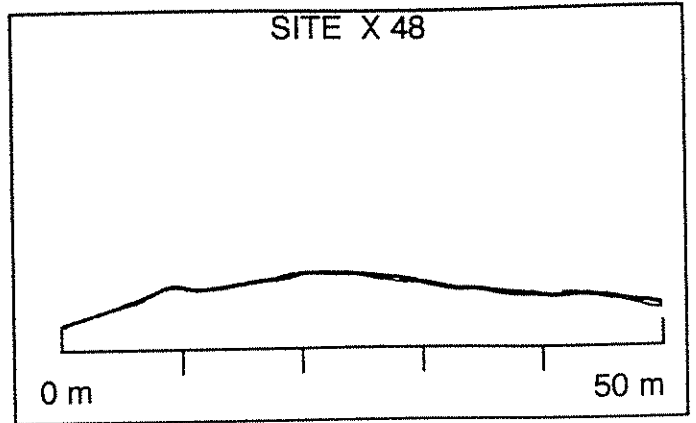
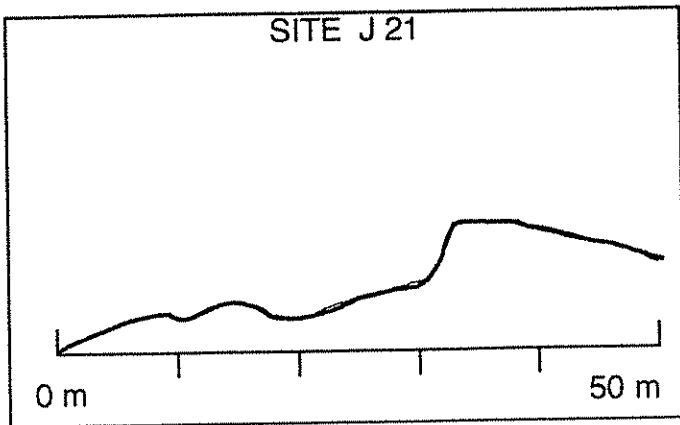
# TOPOGRAPHY

The following graphs represent an approximation of topography along the 50 meter point-transect line at each of the 21 sample sites. The relationship between horizontal distance and elevation change is not one to one.



# TOPOGRAPHY

The following graphs represent an approximation of topography along the 50 meter point-transect line at each of the 21 sample sites. The relationship between horizontal distance and elevation change is not one to one.





Species Lists

Site A 19

Site B 3

<p><b><u>Brassicaceae</u></b> Brassica nigra</p> <p><b><u>Fabaceae</u></b> Melilotus alba</p> <p><b><u>Poaceae</u></b> Arundo donax</p> <p><b><u>Solanaceae</u></b> Nicotiana glauca</p> <p><b><u>Tamaricaceae</u></b> Tamarix parviflora</p>	<p><b><u>Asteraceae</u></b> Ambrosia psilostachya Artemisia douglasiana Bidens frondosa Centaurea solstitialis Cichorium intybus Heterotheca oregona var. compacta Solidago californica Xanthium strumarium</p> <p><b><u>Boraginaceae</u></b> Heliotropium curassavicum</p> <p><b><u>Brassicaceae</u></b> Brassica nigra</p> <p><b><u>Euphorbiaceae</u></b> Eremocarpus setigerus</p> <p><b><u>Fabaceae</u></b> Melilotus alba</p> <p><b><u>Hydrophyllaceae</u></b> Eriodictyon californicum</p> <p><b><u>Juglandaceae</u></b> Juglans californica var. hindsii</p> <p><b><u>Poaceae</u></b> Arundo donax Avena sativa Polypogon monspeliensis</p> <p><b><u>Salicaceae</u></b> Salix laevigata Salix lasiolepis</p> <p><b><u>Tamaricaceae</u></b> Tamarix parviflora</p>
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Species Lists

Site B 4a

Site B 4b

<p><b><u>Asteraceae</u></b>  <b>Ambrosia psilostachya</b>  <b>Baccharis salicifolia</b>  <b>Bidens frondosa</b>            Centaurea solstitialis  <b>Xanthium strumarium</b></p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Chenopodiaceae</u></b>            Chenopodium botrys</p> <p><b><u>Fabaceae</u></b>            Melilotus alba</p> <p><b><u>Lamiaceae</u></b>  <b>Trichostema lanceolatum</b></p> <p><b><u>Loaceae</u></b>  <b>Mentzelia laevicaulis</b></p> <p><b><u>Poaceae</u></b>            Cynodon dactylon            Polypogon monspeliensis</p> <p><b><u>Solanaceae</u></b>  <b>Nicotiana quadrivalvis</b></p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p>	<p><b><u>Asteraceae</u></b>  <b>Ambrosia psilostachya</b>  <b>Baccharis salicifolia</b>  <b>Bidens frondosa</b>            Centaurea solstitialis  <b>Heterotheca oregona var. compacta</b>  <b>Solidago californica</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b>            Heliotropium europaeum</p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Fabaceae</u></b>            Melilotus alba</p> <p><b><u>Lamiaceae</u></b>  <b>Trichostema lanceolatum</b></p> <p><b><u>Poaceae</u></b>            Avena sativa            Cortaderia seloana            Crypsis schoenoides            Cynodon dactylon            Piptatherum miliaceum            Polypogon monspeliensis</p> <p><b><u>Polygonaceae</u></b>  <b>Polygonum lapathifolium</b></p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p>
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Species Lists

Site B 11

Site C 3

<p><b><u>Asteraceae</u></b>  <b>Ambrosia psilostachya</b>            Centaurea solstitialis  <b>Xanthium strumarium</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b></p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Fabaceae</u></b>            Melilotus alba</p> <p><b><u>Poaceae</u></b>            Avena sativa            Polypogon monspeliensis</p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Vitaceae</u></b>  <b>Vitis californica</b></p>	<p><b><u>Asteraceae</u></b>  <b>Baccharis salicifolia</b>  <b>Bidens frondosa</b>            Centaurea solstitialis  <b>Heterotheca oregona var. compacta</b>  <b>Solidago californica</b>  <b>Xanthium strumarium</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b>            Heliotropium europaeum</p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Chenopodiaceae</u></b>            Chenopodium botrys</p> <p><b><u>Euphorbiaceae</u></b>  <b>Eremocarpus setigerus</b></p> <p><b><u>Fabaceae</u></b>            Lotus denticulatus            Melilotus alba            Melilotus indica</p> <p><b><u>Hydrophyllaceae</u></b>  <b>Eriodictyon californicum</b></p> <p><b><u>Lamiaceae</u></b>  <b>Mentha arvensis</b>  <b>Trichostema lanceolatum</b></p> <p><b><u>Loaceae</u></b>  <b>Mentzelia laevicaulis</b></p> <p><b><u>Polygonaceae</u></b>  <b>Polygonum lapathifolium</b></p> <p><b><u>Salicaceae</u></b>  <b>Populus fremontii</b>  <b>Salix laevigata</b>  <b>Salix lasiolepis</b></p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Unknown A, Panicum</u></b></p>
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Species Lists

Site C 32

Site D 14

<p><b><u>Asteraceae</u></b>  <b>Baccharis salicifolia</b>            Centaurea solstitialis  <b>Xanthium strumarium</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b></p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Euphorbiaceae</u></b>  <b>Eremocarpus setigerus</b></p> <p><b><u>Lamiaceae</u></b>  <b>Trichostema lanceolatum</b></p> <p><b><u>Poaceae</u></b>            Arundo donax</p> <p><b><u>Salicaceae</u></b>  <b>Populus fremontii</b>  <b>Salix laevigata</b></p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Unknown B. Apiaceae</u></b></p>	<p><b><u>Asteraceae</u></b>  <b>Artemisia douglasiana</b></p> <p><b><u>Caprifoliaceae</u></b>  <b>Sambucus mexicana</b></p> <p><b><u>Fagaceae</u></b>  <b>Quercus lobata</b></p> <p><b><u>Juglandaceae</u></b>  <b>Juglans californica var. hindsii</b></p> <p><b><u>Lamiaceae</u></b>            Marrubium vulgare</p> <p><b><u>Poaceae</u></b>            Avena sativa</p> <p><b><u>Salicaceae</u></b>  <b>Populus fremontii</b></p>
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Species Lists

Site D 34

Site F 26

<p><b><u>Asteraceae</u></b>  <b>Baccharis salicifolia</b>            Centaurea solstitialis  <b>Conyza canadensis</b>  <b>Heterotheca oregona var. compacta</b>  <b>Xanthium strumarium</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b>            Heliotropium europaeum</p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Poaceae</u></b>            Avena sativa            Polypogon monspeliensis</p> <p><b><u>Polygonaceae</u></b>            Rumex crispus</p> <p><b><u>Salicaceae</u></b>  <b>Populus fremontii</b>  <b>Salix laevigata</b>  <b>Salix lasiolepis</b></p> <p><b><u>Scrophulariaceae</u></b>            Kickxia spuria</p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Unknown B. Apiaceae</u></b></p>	<p><b><u>Asteraceae</u></b>  <b>Baccharis salicifolia</b>            Centaurea solstitialis  <b>Xanthium strumarium</b></p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Poaceae</u></b>            Arundo donax            Avena sativa</p> <p><b><u>Salicaceae</u></b>  <b>Salix laevigata</b></p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p>
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Species Lists

Site G 27

Site G 46

<p><b><u>Asteraceae</u></b>  <b>Artemisia douglasiana</b>            Centaurea solstitialis  <b>Xanthium strumarium</b></p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Cyperaceae</u></b>            Cyperus odoratus            Scirpus americanus</p> <p><b><u>Equisetaceae</u></b>            Equisetum arvense</p> <p><b><u>Fabaceae</u></b>            Lotus corniculatus            Melilotus alba</p> <p><b><u>Juglandaceae</u></b>            Juglans californica var. hindsii</p> <p><b><u>Lamiaceae</u></b>            Lamium purpureum            Mentha arvensis</p> <p><b><u>Lythraceae</u></b>            Lythrum californica</p> <p><b><u>Onagraceae</u></b>            Ludwigia peploides</p> <p><b><u>Poaceae</u></b>            Arundo donax            Polypogon monspeliensis</p> <p><b><u>Polygonaceae</u></b>            Polygonum lapathifolium</p> <p><b><u>Salicaceae</u></b>            Populus fremontii            Salix laevigata            Salix lasiolepis</p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Typhaceae</u></b>            Typha latifolia</p> <p><b><u>Unknown A, Panicum</u></b>  <b><u>Unknown I, Cyperus</u></b></p>	<p><b><u>Anacardiaceae</u></b>  <b>Toxicodendron diversilobum</b></p> <p><b><u>Asteraceae</u></b>  <b>Ambrosia psilostachya</b>  <b>Artemisia douglasiana</b>  <b>Baccharis pilularis</b>  <b>Baccharis salicifolia</b>            Centaurea solstitialis  <b>Gnaphalium purpureum</b>  <b>Xanthium strumarium</b></p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Caprifoliaceae</u></b>  <b>Sambucus mexicana</b></p> <p><b><u>Fabaceae</u></b>            Melilotus alba</p> <p><b><u>Juglandaceae</u></b>  <b>Juglans californica var. hindsii</b></p> <p><b><u>Lamiaceae</u></b>            Marrubium vulgare</p> <p><b><u>Poaceae</u></b>            Avena sativa            Crypsis schoenoides            Cynodon dactylon            Piptatherum miliaceum            Polypogon monspeliensis</p> <p><b><u>Salicaceae</u></b>  <b>Populus fremontii</b>  <b>Salix laevigata</b>  <b>Salix lasiolepis</b></p> <p><b><u>Solanaceae</u></b>            Nicotiana glauca</p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Unknown B, Apiacea</u></b>  <b><u>Unknown C, Cuscuta</u></b>  <b><u>Unknown F, "Foxtail"</u></b></p>
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Species Lists

Site G 49a

Site G 49b

<p><b><u>Anacardiaceae</u></b>  <b>Toxicodendron diversilobum</b></p> <p><b><u>Asteraceae</u></b>  <b>Ambrosia psilostachya</b>  <b>Artemisia douglasiana</b>            Centaurea solstitialis            Silybum marianum  <b>Xanthium strumarium</b></p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Fabaceae</u></b>  <b>Glycyrrhiza lepidota</b>            Melilotus alba</p> <p><b><u>Fagaceae</u></b>  <b>Quercus lobata</b></p> <p><b><u>Poaceae</u></b>            Avena sativa            Cynodon dactylon            Piptatherum miliaceum</p> <p><b><u>Polygonaceae</u></b>            Rumex crispus</p> <p><b><u>Salicaceae</u></b>  <b>Salix laevigata</b>  <b>Salix lasiolepis</b></p> <p><b><u>Scrophulariaceae</u></b>            Kickxia spuria</p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Unknown B, Apiaceae</u></b></p> <p><b><u>Unknown D, Grass</u></b></p> <p><b><u>Unknown E, Vicia</u></b></p> <p><b><u>Unknown F, "Foxtail"</u></b></p>	<p><b><u>Asteraceae</u></b>  <b>Artemisia douglasiana</b>            Centaurea solstitialis            Silybum marianum  <b>Xanthium strumarium</b></p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Fabaceae</u></b>  <b>Glycyrrhiza lepidota</b>            Melilotus alba            Melilotus indica</p> <p><b><u>Fagaceae</u></b>  <b>Quercus lobata</b></p> <p><b><u>Poaceae</u></b>            Avena sativa            Crypsis schoenoides            Piptatherum miliaceum            Polypogon monspeliensis</p> <p><b><u>Polygonaceae</u></b>            Rumex crispus</p> <p><b><u>Solanaceae</u></b>            Nicotiana glauca  <b>Nicotiana quadrivalvis</b></p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Vitaceae</u></b>            Vitis californica</p> <p><b><u>Unknown B, Apiaceae</u></b></p> <p><b><u>Unknown C, Cuscuta</u></b></p> <p><b><u>Unknown D, Grass</u></b></p> <p><b><u>Unknown F, "Foxtail"</u></b></p>
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Species Lists

Site I 11

Site J 8

<p><b><u>Asteraceae</u></b>  <b>Ambrosia psilostachya</b>  <b>Artemisia douglasiana</b>  <b>Bacharris salicifolia</b>            Centaurea solstitialis  <b>Xanthium strumarium</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b></p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Chenopodiaceae</u></b>            Chenopodium botrys</p> <p><b><u>Cyperaceae</u></b>  <b>Scirpus americanus</b></p> <p><b><u>Fabaceae</u></b>            Melilotus alba</p> <p><b><u>Juglandaceae</u></b>  <b>Juglans californica var. hindsii</b></p> <p><b><u>Lamiaceae</u></b>            Marrubium vulgare            Mentha xpiperita</p> <p><b><u>Loaceae</u></b>  <b>Mentzelia laevicaulis</b></p> <p><b><u>Poaceae</u></b>            Arundo donax            Polypogon monspeliensis</p> <p><b><u>Polygonaceae</u></b>            Rumex crispus</p> <p><b><u>Salicaceae</u></b>  <b>Salix laevigata</b>  <b>Salix lasiolepis</b></p> <p><b><u>Scrophulariaceae</u></b>            Verbascum thapsus</p> <p><b><u>Solanaceae</u></b>  <b>Datura wrightii</b>            Nicotiana glauca</p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Unknown B, Apiaceae</u></b></p>	<p><b><u>Asteraceae</u></b>  <b>Bacharris salicifolia</b>  <b>Conyza canadensis</b>  <b>Xanthium strumarium</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b></p> <p><b><u>Chenopodiaceae</u></b>            Chenopodium botrys</p> <p><b><u>Cyperaceae</u></b>  <b>Cyperus odoratus</b>  <b>Scirpus americanus</b></p> <p><b><u>Euphorbiaceae</u></b>  <b>Eremocarpus setigerus</b></p> <p><b><u>Fabaceae</u></b>            Melilotus alba</p> <p><b><u>Poaceae</u></b>            Arundo donax            Crypsis schoenoides            Polypogon monspeliensis</p> <p><b><u>Polygonaceae</u></b>  <b>Polygonum lapathifolium</b>            Rumex crispus</p> <p><b><u>Salicaceae</u></b>  <b>Populus fremontii</b>  <b>Salix laevigata</b>  <b>Salix lasiolepis</b></p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Unknown A, Panicum</u></b>  <b><u>Unknown G, Phalaris</u></b>  <b><u>Unknown I, Cyperus</u></b></p>
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Species Lists

Site J 21

Site 49

<p><b><u>Asteraceae</u></b>  <b>Artemisia douglasiana</b>            Centaurea solstitialis  <b>Conyza canadensis</b>  <b>Gnaphalium purpureum</b>  <b>Xanthium strumarium</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b>            Heliotropium europaeum</p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Fabaceae</u></b>            Melilotus alba</p> <p><b><u>Poaceae</u></b>            Arundo donax            Crypsis schoenoides            Cynodon dactylon            Piptatherum miliaceum            Polypogon monspeliensis</p> <p><b><u>Polygonaceae</u></b>  <b>Polygonum lapathifolium</b>            Rumex crispus</p> <p><b><u>Salicaceae</u></b>  <b>Salix laevigata</b>  <b>Salix lasiolepis</b></p> <p><b><u>Scrophulariaceae</u></b>            Kickxia spuria</p> <p><b><u>Solanaceae</u></b>  <b>Datura wrightii</b>            Nicotiana glauca            Nicotiana quadrivalvis</p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Unknown A, Panicum</u></b>  <b><u>Unknown B, Apiaceae</u></b>  <b><u>Unknown C, Cuscuta</u></b></p>	<p><b><u>Asteraceae</u></b>  <b>Xanthium strumarium</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b>            Heliotropium europaeum</p> <p><b><u>Brassicaceae</u></b>            Brassica nigra</p> <p><b><u>Euphorbiaceae</u></b>  <b>Eremocarpus setigerus</b></p> <p><b><u>Fabaceae</u></b>            Melilotus alba</p> <p><b><u>Lamiaceae</u></b>  <b>Trichostema lanceolatum</b></p> <p><b><u>Lythraceae</u></b>  <b>Lythrum californica</b></p> <p><b><u>Poaceae</u></b>            Crypsis schoenoides            Cynodon dactylon</p> <p><b><u>Polygonaceae</u></b>  <b>Polygonum lapathifolium</b></p> <p><b><u>Salicaceae</u></b>  <b>Populus fremontii</b>  <b>Salix laevigata</b>  <b>Salix lasiolepis</b></p> <p><b><u>Tamaricaceae</u></b>            Tamarix parviflora</p> <p><b><u>Unknown A, Panicum</u></b>  <b><u>Unknown H, Chenopodium</u></b></p>
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Species Lists

Site 66

Site 92a

<p><b><u>Amaranthaceae</u></b>  <b>Amaranthus blitoides</b></p> <p><b><u>Asteraceae</u></b>  <b>Gnaphalium purpureum</b>  <b>Xanthium strumarium</b></p> <p><b><u>Chenopodiaceae</u></b>  Chenopodium botrys  Salsola tragus</p> <p><b><u>Fabaceae</u></b>  <b>Lotus denticulatus</b></p> <p><b><u>Lamiaceae</u></b>  Trichostema lanceolatum  Trichostema laxum</p> <p><b><u>Salicaceae</u></b>  Salix laevigata</p> <p><b><u>Tamaricaceae</u></b>  Tamarix parviflora</p>	<p><b><u>Amaranthaceae</u></b>  <b>Amaranthus blitoides</b></p> <p><b><u>Asteraceae</u></b>  Centaurea solstitialis  <b>Gnaphalium purpureum</b>  <b>Xanthium strumarium</b></p> <p><b><u>Boraginaceae</u></b>  <b>Heliotropium curassavicum</b>  Heliotropium europaeum</p> <p><b><u>Brassicaceae</u></b>  Brassica nigra</p> <p><b><u>Chenopodiaceae</u></b>  Chenopodium botrys</p> <p><b><u>Fabaceae</u></b>  <b>Lotus denticulatus</b>  Melilotus indica</p> <p><b><u>Poaceae</u></b>  Crypsis schoenoides</p> <p><b><u>Polygonaceae</u></b>  <b>Polygonum lapathifolium</b></p> <p><b><u>Salicaceae</u></b>  Salix laevigata</p> <p><b><u>Scrophulariaceae</u></b>  Kickxia spuria</p> <p><b><u>Solanaceae</u></b>  <b>Nicotiana quadrivalvis</b></p> <p><b><u>Tamaricaceae</u></b>  Tamarix parviflora</p>
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Species Lists

Site 92b

**Amaranthaceae**

**Amaranthus blitoides**

**Asteraceae**

**Bacharris salicifolia**

**Bidens frondosa**

**Gnaphalium purpureum**

**Xanthium strumarium**

**Chenopodiaceae**

**Chenopodium botrys**

**Cyperaceae**

**Cyperus odoratus**

**Fabaceae**

**Melilotus alba**

**Melilotus indica**

**Lythraceae**

**Lythrum californica**

**Poaceae**

**Arundo donax**

**Crypsis schoenoides**

**Polygonaceae**

**Polygonum lapathifolium**

**Salicaceae**

**Populus fremontii**

**Salix laevigata**

**Salix lasiolepis**

**Tamaricaceae**

**Tamarix parviflora**

**Typhaceae**

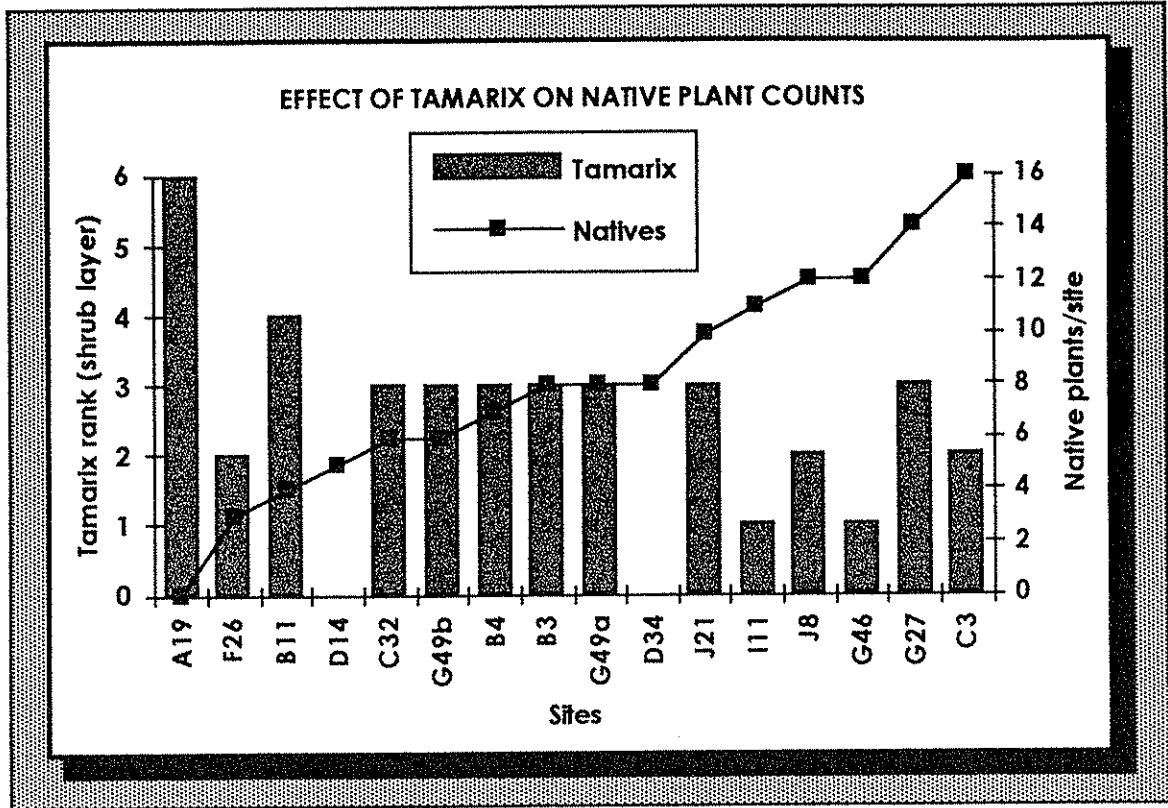
**Typha latifolia**

**Unknown A. Panicum**

**Unknown G. Phalaris**

**Unknown H. Chenopodium**

**Unknown I. Cyperus**



## **Acknowledgements**

We express our appreciation for the efforts of Josh Meyers, Kimya Lambert, Chris Conard, Kathy Hughes and Corvin Brown for thier efforts in the field and Dr. Micheal Barbour and for his shared equipment and technical expertise. We acknowlegde the help received from Dr. Todd Keeler-Wolf. We sincerely thank the USDA Farm Agency for allowing us the use of thier aerial photographs and Lauri Bailey and Phil Hogan for thier essential support and assistance. We are grateful for the financial support and genorous help from the Yolo County Flood Control and Water Conservation District.

## **Literature Cited**

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**LANDOWNER NOTIFICATION LETTER**  
Yolo County Flood Control and Water Conservation District  
H.A.W.K.AmeriCorps  
34274 State Highway 16 ~ Woodland, CA 95695



Everardo & Lucille Lopez  
P. O. Box 130  
Zamora, CA 95698

August 30, 1996

Re: Request of Entry Authorization

Dear Everardo & Lucille Lopez:

The powerful flood waters of 1995 caused damage to a substantial portion of the land and vegetation alongside Cache Creek. The lush forests that line sections of Cache Creek are collectively a great resource.

I am a H.A.W.K./AmeriCorps volunteer working with the Yolo County Flood Control and Water Conservation District and the Yolo County Natural Resources Conservation Service on a project which will lead to a better understanding of how flood waters and other factors effect the plant communities of Cache Creek.

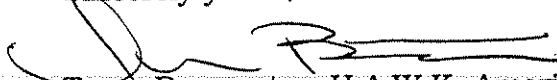
H.A.W.K./AmeriCorps has made basic vegetation maps of the creek from above Rumsey to the Settling Basin using post flood aerial photographs. Forty points within that area were randomly selected for field investigation. This August and September, we hope to be able to visit those sites for visual survey to verify the information on the vegetation maps. We plan also to track future changes in the vegetation at these same sites.

I am writing to you because one of the selected sites is on your property. See the enclosed map. We are requesting access to the site for 3-8 hours on a mutually agreed upon date. The data collecting team will consist of two persons from the H.A.W.K./AmeriCorps team. The data collection method used will be purely observational. Obviously, you are welcome to watch and to receive copies of the information which we gather.

If you will grant permission to include your parcel in this project, please sign and date the form on the next page and mail it using the provided self-addressed stamped envelope. An extra copy is provided for your files. If you have any questions, please call me. As I anticipate being in the field most days, I will probably have to return your call. I am providing two phone numbers which will get messages to me, (916) 662-0265 is voice mail through Yolo County Flood Control and (916) 756-3648 is my home answering machine.

The Yolo County Flood Control and Water Conservation District, the Yolo County Natural Resources Conservation Service and the H.A.W.K./AmeriCorps program sincerely thank you for your consideration of our request and your cooperation in this effort to better understand the dynamics of Cache Creek

Sincerely yours,

  
Tracy Burmester, H.A.W.K. AmeriCorps

Enclosures: Map  
Envelope  
Entry Permit (2 copies)

## ENTRY PERMIT

<Everardo & Lucille Lopez>

### ENTRY PERMIT

I, \_\_\_\_\_, hereby grant to H.A.W.K./AmeriCorps ("Permittee") and its agents permission to enter on the lands owned by me and described as portions of Yolo County Assessor's Parcel Number \_\_\_\_\_ on and or along Cache Creek. The purpose of this entry is for visual observations of the property's physical features.

In consideration of granting this permission, the Permittee agrees that:

- 1) All operations will be at its own risk and expense;
- 2) Permittee shall be liable for any and all damages to the property of the Landowner, or any other third party or parties; by reason of the exercise of the privileges conferred by this Permit;
- 3) Permittee shall indemnify, hold harmless and defend the Landowner from any and all liability and damages arising out of the activities of Permittee and its agents under this Permit, exception that Permittee shall not be held liable for the Landowner's sole negligence, willful misconduct or active negligence; and
- 4) The period of this agreement is for one day to be mutually agreed upon prior to entry.

Signed by: \_\_\_\_\_

Dated: \_\_\_\_\_

Telephone Number: \_\_\_\_\_