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Tassajara Creek restoration project: Continued riparian habitat monitoring

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# Tassajara Creek Restoration Project: Continued Riparian Habitat Monitoring

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### **Abstract**

Tassajara Creek is located in Dublin, California, and drains an area of 23.2 square miles. Alameda County restored a one mile reach of the river in 1999 and 2000 to stop the channel incision and reestablish the riparian vegetation and habitat. Subsequent monitoring by University of California, Berkeley, students determined that the restoration efforts successfully halted the channel incision. This paper establishes the progress of the riparian habitat restoration through plant transects and photomonitoring. The plant transects and photomonitoring are based on the monitoring surveys established in 2000 and 2001 by Davis Environmental Consulting. We concluded that plant diversity and plant growth increased since 2001. Six new species were observed in the plant transects, and plants in 2008 were 1.5 to 8 times their original height in 2000. We also observed a reduced total number of plants Reach 1, when compared with 2000, which may be due to the death of weak plants over the past few years. Few foreign species were observed in the project reach and mature oak trees are in good health. The downstream reach (Reach 1) has denser vegetation growth than the upstream reaches (Reaches 2 and 3), which may be due to Reach 1 having a lower flood frequency interval and depth to groundwater ratio than Reaches 2 and 3. We conclude that the riparian habitat is in good health and successfully met the qualitative goals of the restoration project.

#### Introduction

Tassajara Creek is located in the City of Dublin, California, approximately 35 miles east of the San Francisco Bay. The creek drains an area of approximately 23.2 square miles as a tributary to Alameda Creek (Hudzic and Truitt, 2001), (Figure 1). Heavy agricultural use, cattle grazing, and urban development impacted the creek and caused channel incision, erosion, and damage of native vegetation. A navy hospital previously occupied the site, and military engineers changed the geometry of the channel into a trapezoid and lined the banks with concrete in the 1960s. Floods ruined most of the concrete over the years (Lave, 2002).

In 1999, Alameda County conducted a restoration project along a one-mile stretch of Tassajara Creek in order to stop the incision and improve the riparian habitat. This paper continues the riparian habitat monitoring that was conducted in 2000 and 2001. The following summarizes the restoration project goals and actions, previous monitoring studies, and current evaluations.

#### Restoration Project Goals and Actions

From 1999 to 2000, Alameda County restored a one-mile-long, 280-foot-wide corridor reach of Tassajara Creek north of I-580 in Dublin (Davis Environmental Consulting, 2001). The goals of the restoration project were to stop channel incision, reconnect the floodplain, provide a 100-year flood capacity of 5,200 cubic feet per second, protect and enhance the riparian habitat, preserve existing mature oak and willow trees, and link the creek to the Dublin trail system for recreational benefits (Sycamore Associates, 1996; Rio Associates, 1997). The creek is now owned and maintained by Livermore-Amador Valley Zone 7 Water Agency (Zone 7).

The project was completed for three distinct reaches in two phases. The first reach (Reach 1) extended from I-580 to Dublin Boulevard and was graded to a 2-year flow (Q2) (Stuart Cook, personal communication). The second reach (Reach 2) extended from Dublin Boulevard to Gleason Avenue and was graded for a 5-year flow (Q5). The third reach (Reach 3) extended north of Gleason Avenue for

approximately 800 feet. Reach 3 needed minimal replanting, cleaning, and grading because it was already a relatively natural channel.

Phase One was completed in April 1999 along Reach 1 and included the riparian plantings and irrigation system along 1,100 linear feet of the restoration reach. Phase Two was completed in August 2000 along Reaches 2 and 3 and included the riparian plantings, irrigation system, and trail corridor. Most of the riparian plants and grasses were established by hydroseeding the banks of the channel, planting saplings, or planting cuttings from mature species. A list of the woody riparian vegetation (Davis Environmental Consulting, 2000) planted is shown in Appendix A. The system was irrigated for the first three years and is not currently irrigated.

### **Monitoring**

Davis Environmental Consulting prepared two habitat monitoring reports in 2000 and 2001 in order to provide a quantitative analysis of the ecological goals and a qualitative photodocumention of the changes in the riparian habitat. During the monitoring procedure, project ecologist Ellyn Davis (Davis Environmental Consulting) conducted 14 plant transects (Figure 2) along the width of the restoration project to assess the survival and number of woody riparian species in the channel (Appendix B). Davis also took photos at 11 photomonitoring sites (Figure 6) to document the vegetation growth over time.

The success criterion for the riparian plantings was 85 percent survival of the original number of plants installed, and 75 percent of the plants in "good or excellent health" during the monitoring period (Davis Environmental Consulting, 2000). Davis recorded an 88 to 100 percent survival rate in 2000 (Davis Environmental Consulting, 2000) and 87 to 99 percent survival rate in 2001 (Davis Environmental Consulting, 2001) along the plant transects in the restoration project. The report concluded that the restoration project was successful in achieving the performance goals of 85 percent survival; however, the report did not define the 75 percent good health or provide a definition of "good or excellent health".

According to the monitoring reports and discussions with Davis and project manager Stuart Cook (Alameda County), other issues included weed invasions, damage from deer, and vandalism to the irrigation system. The riparian habitat has largely recovered from the weeds and deer damage through replantings and time.

Other monitoring included a channel morphology monitoring in 2001 (Hudzic and Truitt, 2001), which was followed by several post project appraisals conducted by University of California Berkeley (UC Berkeley) students (Lave, 2003; Krofta and Novotney, 2003; Oden and DeHollan, 2004; Chan and Heard, 2006; Tompkins, 2006). These post-project appraisals documented the restoration project's success in meeting the first goal of stopping incision in the channel (Table 1) through cross sectional surveys and longitudinal profiles. Chan and Heard also back calculated the roughness coefficient (Manning's "n") at their channel cross-sections using the geometry of the channel and the elevation of the high water marks. No other monitoring of the habitat was conducted; however, the above reports do include limited photos of the riparian habitat.

#### **Current Monitoring Evaluation Goals**

In this study, we assessed the progress of both habitat and vegetation in the restoration project area in order to evaluate whether the project met its second goal of restoring the riparian habitat. The report is organized as follows: first, we describe the methods that were used in the study; second, we present the analysis and discussion of the results; last, we present our conclusions about the project.

Our assessment is based on a qualitative evaluation of each reach's habitat diversity (number of different species present compared to the number of species originally planted) and habitat health (growth, self sustainability of the plant species, and weed/pest maintenance issues). Since one of the original project goals included preservation of mature tree species, we assessed the survival status of the mature oak trees. Finally, we discuss the observed wildlife in the restoration reach, since "riparian habitat is extremely

important to wildlife" (Faber and Holland, 1988), and the presence of wildlife may be an indicator of the health of the riparian habitat.

### Methods

The methods include plant monitoring transects and photomonitoring, which are discussed below.

# Plant Monitoring Transects

We conducted plant monitoring along 14 transects in the restoration project on November 4 and 11, 2008 (Figure 3, 4 and 5) in order to quantitatively assess the health of the restoration reach. The plant transects consisted of identifying and locating woody riparian species along a six foot wide corridor from the top of bank to the edge of the water, on each side of the bank (Appendix C). We located the plants based on distance from the top of bank. We recorded plant survival (dead/alive), plant height for large species, and plant width for large species.

We used a Global Position System (GPS) instrument (Garmin GPSmap 76Cx), 200 foot measuring tape, and photos to locate the plant transect and riparian species locations. The plant transect locations were based on plant transects established in the "Tassajara Creek Restoration Project Annual Monitoring Report 2000" (Davis Environmental Consulting, 2000). Exact matches could not be determined because most of the T-post markers were no longer present, and the original map of the transects from Davis Environmental Consulting (Figure 2) was not to scale. Transects 7, 10 and 11 had the original T-posts in place and have been reproduced at the same location as in the 2000 monitoring.

We conducted two transects in the first reach, north of Gleason Avenue, eight transects in the second reach between Gleason Avenue and Dublin Boulevard, and four transects in the third reach between Dublin Boulevard and I-580. The coordinates of the transects were recorded using the GPS module so that future transects could be done at the same locations.

The last plant transects were conducted in 2001 (Davis Environmental Consulting), and much has changed in terms of the growth of the established species and the number of species. Therefore, the previously established standards that were based on the survival rate of planted species only (Davis Environmental Consulting, 2000) are no longer applicable. Percent survival was instead based on the number of alive species present in the transect. Many species were also difficult to identify and locate based on the fall season. Thus, we base our assessment on standards discussed in the Introduction.

# **Photomonitoring**

We took digital photographs at 11 previously established photographic monitoring stations (Davis Environmental Consulting, 2000), (Table 2 and Figure 6), in order to qualitatively document the changes and current conditions of the riparian habitat along the restoration reaches. These panoramic photos span upstream and downstream and across the entire channel width from the photomonitoring stations. Some of the stations do not match exactly with the previous monitoring (Figure 6) because no monuments were present, the station map was not to scale, and the camera used for both monitoring studies had different view angles. Oak trees and buildings in the photos were used to identify the stations. We recorded the positions of our photomonitoring stations using a GPS module for future monitoring (Table 2).

We also took photos along the width of each transect in order to document the condition and location of the transects and plants. The photos are stored electronically in the attached compact disc and can be used in future studies to compare the vegetation changes over time.

# **Results and Analysis**

This section first provides the results and discussions of the plant transects in Reach 1, Reach 2, and Reach 3. The species in the plant transects are listed in Appendix C. The results also include an assessment of the mature oak tree health, wildlife corridor, weed invasions, and maintenance issues. Finally, the photomonitoring results are presented and compared with the photomonitoring from previous monitoring programs.

### Reach 1

Plant transects 11 through 14 were conducted in Reach 1 (Figure 5) and were matched successfully with previous plant transects in 2000 and 2001 (Figure 2). Reach 1 exhibited a large diversity of species, 15 woody riparian species (Appendix B), some of which include coyote brush, willow, snowberry, sycamore and wild rose. We observed 13 out of 17 species planted during the restoration project (Appendix A) in our plant transects. All of the original plant species were observed in Reach 1, in addition to two volunteer species (arrowweed and cattail), which increased the reach diversity.

The plant transects experienced an 18 to 49 percent decrease in the total number of species counted (Appendix B and Appendix C). The number of species in 2001 may have been higher because the restoration habitat was a new system (less than 2 years old) that was still irrigated and maintained by Alameda County. Some plants may have died since 2001 due to pests and plant competition in subsequent years. However, the remaining plants that survived and established in the channel experienced significant plant growth ranging from 1.5 to 4 times their more recent reported size (Davis Environmental Consulting, 2000). For example, box elders increased from a maximum height of 10 feet to 15 feet, blue elderberries increased from a maximum height of 6 feet to 15 feet, and willows increased from a maximum height of 7 feet to 25 feet. Established plants grew significantly in the past 8 years, indicating strong growth and health of the riparian habitat.

The plants were the most densely packed along the banks in Reach 1, with some grassy areas closer to the water's edge. The plants had a 100 percent survival rate with no dead plants exhibited. The grassy areas near the water were also very damp and moist compared with the banks. The high density and health of the plants could be affected by the Q2 bank design in Reach 1. The waters are more likely to flood onto the banks of the channel and provide water to the plants. The plants did not need irrigation to survive and were self sustaining on the available water in the reach. We conclude the habitat to be in good health based on the survival count, plant growth, and self sustainability.

Reach 1 also has the least amount of vandalism (damaged irrigation covers) and dog feces when compared with Reaches 2 and 3. Vandalism on irrigation system during the first years of the project increased the potential failure of the restoration of riparian habitat. The decreased human impact may be due to Reach 1 being closed to the public and experiencing less traffic.

#### Reach 2

Reach 2 is located between Dublin Boulevard and Gleason Avenue (Figure 3 and 4). Plant transects 3 through 10 were conducted in Reach 2. The locations of the transects were approximated based on previous plant transects in 2000 and 2001. Reach 2 exhibited a large diversity of species, 15 woody riparian species (Appendix C), which included oak, coyote brush, toyon, willow, box elder, and cottonwood. We observed 11 out of 17 species planted during the restoration project (Appendix A) in our plant transects. All plant species except for snowberry were observed throughout Reach 2, in addition to three volunteer species (fennel, arrowweed, and lupine) which increased the reach diversity.

Plant transects 3 through 10 were not in the same location as the original plant transects in 2000 and 2001, therefore, a total number count comparison could not be performed. Further monitoring at the same transect locations is recommended in order to perform a comparison of the total number of plants.

However, the plants in the reach experienced significant plant growth ranging from 3 to 8 times their most recent reported size (Davis Environmental Consulting, 2000). For example, trees reported as 3 to 3.5 feet tall are now typically 10 to 20 feet tall, which is an increase of 3 to 6 factors. Shrubs reported as 1 to 1.5 feet tall are now typically 3 to 8 feet tall, which is an increase of 3 to 5 factors. Established plants grew significantly in the past 8 years, indicating strong growth and health of the riparian habitat.

The plants were densely packed along the river; however they were more sparsely spaced along the remainder of the channel area. We observed a 75 to 100 percent plant survival rate. Some areas along transects 5 through 8 and transect 10 had large areas of grassy meadow with fewer established woody riparian vegetation such as oak or toyon. This may be due to higher salinity in the soil along this reach

(Ellyn Davis, personal communication, 2008), however further testing of the soil must be conducted to verify the higher salinity levels. The plants did not need irrigation to survive. We concluded the habitat to be in good health based on the survival count, plant growth, and self sustainability.

Limiting growth may also be attributed to the bank levels in Reach 2, which were graded to a Q5 flood level. Therefore, these plants would not experience as much flooding as Reach 1 (Q2 flood level). The plants in Reach 2 are also at a higher elevation which limits their access to the groundwater and may have resulted in a slower plant development than in Reach 1. Despite lower concentrations of woody species growth, the meadow habitat may offer benefits by increasing the system's habitat diversity.

We detected minimal vandalism of the irrigation system and frequent dog feces along the top banks of the channel. This may be due to human and dog traffic on the trail and an access road which runs along the banks of the channel. Increased education signs about the restoration project and prohibiting dog litter may decrease the amount of dog feces along the banks.

# Reach 3

Reach 3 is located north of Gleason Avenue (Figure 3). Plant transects 1 and 2 were conducted in Reach 3. The locations of the transects were approximated based on previous plant transects in 2000 and 2001. Reach 3 exhibited high diversity and density of species which is expected since Reach 3 is a relatively natural channel. Minimal grading was performed on the channel banks. We observed 9 woody riparian plant species during the plant transects, which seems low, however only 2 plant transects were performed in the reach. All the species listed in Appendix A except for snowberry were observed throughout the Reach 3, in addition to four volunteer species (California buckwheat, curly dock, fennel, and arrowweed) which increased the reach diversity.

Plant transects 1 and 2 were not in the same location as the original plant transects in 2000 and 2001, therefore, a total number count comparison could not be performed. Further monitoring at the same transect locations is recommended in order to perform a comparison of the total number of plants.

However, the plants in the reach experienced significant plant growth ranging from 3 to 7.5 times their most recent reported size (Davis Environmental Consulting, 2000). For example, trees reported as 2 to 2.5 feet tall are now typically 15 feet tall, which is an increase of 6 to 7.5 factors. Shrubs originally reported as 1 to 1.5 feet tall are now typically 3 to 7 feet tall, which is an increase of 3 to 4.5 factors. Established plants grew significantly in the past 8 years, indicating strong growth and health of the riparian habitat.

We observed a 75 to 96 percent plant survival rate. The plants did not need irrigation to survive and were self sustaining. We conclude that the habitat is in good health based on the survival count, plant growth, and self sustainability. We detected minimal vandalism or dog feces along the top banks of the channel.

Reach 3 does not have trail paths which may limit the human impact on the channel.

### Mature Oak Tree Health

All mature oak trees in the restoration project appear healthy. The channel was diverted around the oak trees in Reach 2 to prevent incision of the channel around the roots. The diversion was successful and the water does not flow past the oak roots. Some roots of the oak trees are exposed (Figure 7 and 8), but their condition has been stabilized over time because the incision of the banks around the roots was stopped by after construction of the restoration project (Ellyn Davis, personal communication, 2008).

#### Wildlife Habitat

Observed wildlife included numerous birds, deer, rabbit, turkey, bees, and other large birds (hawk or falcon). The restoration project provides a suitable habitat for these wildlife to survive, indicating that the riparian habitat has achieved at least some measure of growth and adequate health. Detailed monitoring of the diversity and health of the wildlife in the riparian and aquatic habitat is necessary to further determine the habitat's influence on wildlife.

# Weeds, Pests, and Maintenance

The restoration project contained few invasive weeds. A grove of poplar trees was established in Reach 2 prior to the restoration project construction (Figure 9), and maintenance crews have been unable to eradicate them (Stuart Cook and Ellyn Davis, personal communication, 2008). A large pampas grass plant (*Cortaderia jubata*) was also seen in Reach 2 near the Dublin Boulevard Bridge (Figure 10). We recommend removing this weed before it becomes an invasive colonizer (National Parks Service website). Other weeds included fennel, however it is not considered invasive. Damage from deer and other rodents was not noticeable. The plants also did not appear to be suffering from any disease.

Irrigation maintenance is no longer in place since irrigation of the restoration project ceased in 2003. The riparian habitat has survived well without irrigation. An annual maintenance activity was observed after the first large storm of the season on November 4, 2008. A maintenance crew under contract with the City of Dublin was cleaning the pedestrian walkway in Reach 2 (Figure 11) and clearing tall approximately 100 yards north and south of the walkway.

Information regarding other maintenance activities can be obtained by contacting Zone 7.

# **Photomonitoring**

Table 2 shows the locations of the photomonitoring stations that were reproduced for this report. Figure 12 to Figure 24 show the photographs compared to the photographs taken in 2000 (Davis Environmental Consulting, 2000). The pictures taken in 2000 show Reaches 2 and 3 after one growing season and Reach 1 after two growing seasons. Our pictures are taken after, respectively, eight and nine growing seasons for Reaches 2, 3 and 1.

Figures 23 and 24 show the vegetation progress in Reach 1. The vegetation is fully developed on the floodplain (Figure 23) and along the river bank (Figure 24). Figures 13 to 22 show the results for Reach 2. Some areas of the floodplain are meadows of dry grasses and do not contain woody riparian species

(Figures 14 and 16). The outer side of the floodplain and the river banks are typically fully vegetated (Figures 15, 17, 19, 20 and 21). Figure 12 shows the evolution in Reach 3. As in Reach 2, the river banks are fully vegetated and the floodplain has sparser wood riparian species coverage.

The observations of the photomonitoring confirm that Reach 1 has denser tree coverage while Reaches 2 and 3 have sparser coverage with dry grassy meadows. Reach 1 was built on a Q2 floodplain; therefore the vegetation may have had more water available due to the more frequent flooding and facilitated groundwater access. Reaches 2 and 3 are located on a Q5 floodplain, which flooded less frequently than Reach 1, thus it produced sparser vegetation.

#### Conclusion

The Tassajara Creek restoration project, implemented in 1999 and 2000, incorporated grading and planting to stop the creek's incision and to restore the habitat along the creek. Previous studies indicated that the incision goal was fulfilled.

The 2008 plant transects and photomonitoring indicate that vegetation growth and diversity has increased throughout the channel. Six new species were observed in the plant transects. Plants in 2008 were 1.5 to 8 times their original height in 2000. We also observed a reduced total number of plants Reach 1, when compared with 2000, which may be due to the death of weak plants over the past few years.

Mature oak trees were preserved during the restoration process and are still in good health. We observed few weeds in the project area. The reaches have a high survival count (above 75 percent) and do not need irrigation to survive. The photomonitoring indicates that vegetation has grown densely throughout the project reach and is self-sustaining.

The three reaches of the project have developed differently due to the reach structure. The floodplain for Reach 1 was graded for a Q2 flow, whereas the floodplains for Reaches 2 and 3 were graded for a Q5 flow. Reach 1 is flooded more frequently and has a lower depth to groundwater than Reaches 2 and 3,

which may explain the denser and taller vegetation in Reach 1. The plant roots in Reach 1 have more access to the water. In addition, high soil salinity levels in Reach 2 can also be a factor contributing to lower woody species. Future work could include testing the soil salinity in Reach 2 to confirm our hypothesis of the higher proportion of dry grassy meadows in Reach 2.

Our experience of reproducing previous monitoring shows that accurate and to-scale maps and well documented monuments are essential to accurate monitoring. We established plant transects and photomonitoring stations using a GPS module to allow future monitoring to be done at the same locations. Future comparisons of growth and plant number counts are more accurate if done at the same locations. Further monitoring of riparian and aquatic wildlife is also recommended to assess the habitat's suitability for animals and microorganisms. The success of this restoration project indicates that restoration alternatives for channel design can be used successfully to convey water and promote habitat restoration.

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**Table 1. Past Monitoring Efforts** 

Year	Author	Methods	Conclusions
1997	Kondolf and Matthews	Long profile	
1999	MacWilliams and Harrison	1D and 3D flow modeling	
2000	Davis Environmental Consulting	Vegetation transects and photo monitoring.	Establishment of the monitoring plan for vegetation.
2001	Davis Environmental Consulting	Vegetation transects and photo monitoring.	Good survival rate and volunteer appearing.
2001	Hudzic and Truitt	Eight cross sections and long profile.	Established a monitoring plan, concluded that some incision took place
2003	Lave	Four cross sections resurveyed.	
2003	Krofta and Novotney	Four cross sections resurveyed, long profile, photo monitoring.	No definite conclusion on incision, vegetation
2004	Oden and DeHollan	Four southern cross sections surveyed.	
2006	Chan and Heard	Cross sections, long profile, high water marks.	Calculated roughness and channel capacity show that 100 year flow conveyance objective is fulfilled.
2006	Tompkins	Cross sections, long profile, facies, vegetation and aquatic habitat mapping.	Flow objective fulfilled, riparian habitat objective fulfilled.

 $\ \, \textbf{Table 2: Photomonitoring Stations (Descriptions from Davis, 2000)} \\$ 

Station Number	Description	North GPS Coordinates	West GPS Coordinates
1	Upstream View of North from Gleason Drive Bridge	N 37° 42.769'	W 121° 52.701'
2	Downstream View to South from Gleason Drive Bridge	N 37° 42.753'	W 121° 52.710'
3	Upstream View of East Bank Between Gleason Drive and Stairs	N 37° 42.691'	W 121° 52.721'
4	Panoramic Photo from West Bank Between Stairs and Central Parkway	N 37° 42.604'	W 121° 52.805'
5-a	Upstream View to North of Central Parkway Bridge	N 37° 42.529'	W 121° 52.763'
5-b	Upstream View to North of Central Parkway Bridge	N 37° 42.527'	W 121° 52.791'
6	Downstream View to South of Central Parkway Bridge	N 37° 42.512'	W 121° 52.711'
7	Panoramic Photo from West Bank South of Central Parkway	N 37° 42.456'	W 121° 52.781'
8	Upstream View to North of Dublin Boulevard Bridge	N 37° 42.350'	W 121° 52.711
9	Downstream View to South of Dublin Boulevard Bridge	N/A	N/A
10	Panoramic Photo from West Bank South of Dublin Boulevard	N 37° 42.288'	W 121° 52.719'
11	Upstream View to North from Highway 580 Bridge	N 37° 42.120'	W 121° 52.739'

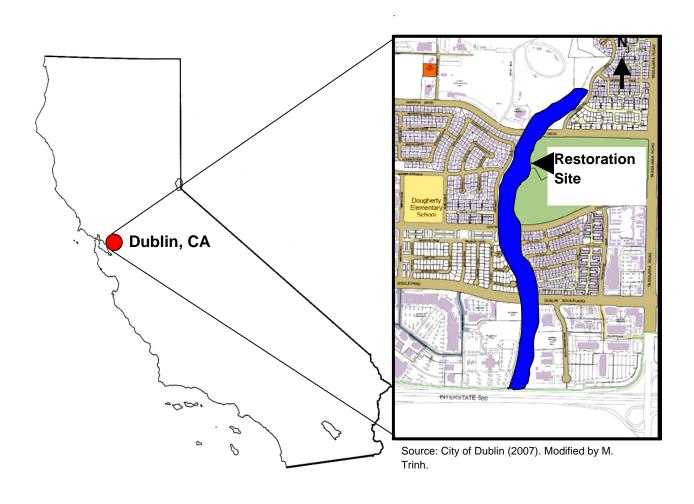


Figure 1: Tassajara Creek restoration project site map.

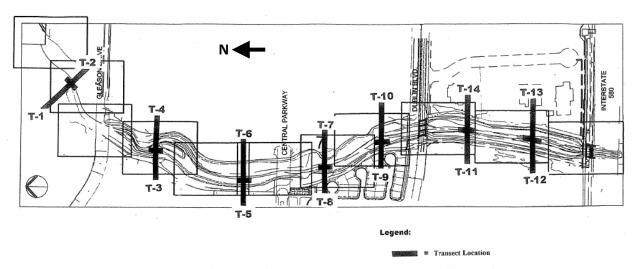


Figure 2: Transect locations for 2000 and 2001 (Davis Environmental Consulting, 2000). No scale.



Figure 3: Reaches 2 and 3 (Transects 1-6), from Gleason Bridge to Central Parkway Bridge (Googlemaps, 2008)



Figure 4: Reach 2 (Transects 5-10), Central Parkway Bridge to Dublin Boulevard Bridge (Googlemaps, 2008)



Figure 5: Reach 1 (Transects 11 -14), Dublin Boulevard Bridge to I-580 (Googlemaps, 2008)

### PHOTOGRAPHIC MONITORING LOCATIONS

- Upstream View to North of Gleason Drive Bridge
  Downstream View to South of Gleason Drive Bridge
  Upstream View of East Bank Between Gleason Drive and Stairs
  Panoramic Photo from West Bank Between Stairs and Central Parkway
  Upstream View to North of Central Parkway Bridge
  Downstream View to South of Central Parkway Bridge
  Panoramic Photo from West Bank South of Central Parkway
  Upstream View to North of Dublin Boulevard Bridge
  Downstream View to Such of Dublin Boulevard Bridge
  Downstream View to Such of Dublin Boulevard Bridge

- Downstream View to South of Dublin Boulevard Bridge
  Panoramic Photo from West Bank South of Dublin Boulevard
  Upstream View to North From Highway 580 Bridge

Figure 4. Tassajara Creek Restoration Photographic **Monitoring Stations** 

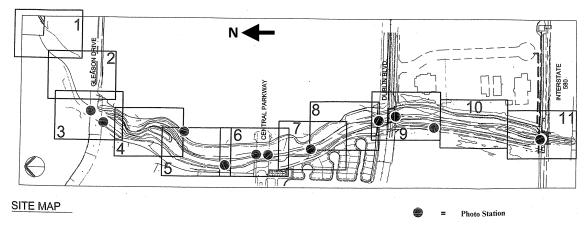


Figure 5: Photomonitoring locations (Davis Environmental Consulting, 2000). No scale.



**Figure 6: Oak Tree Roots Exposure** 



Figure 7: Oak Tree Roots Exposure

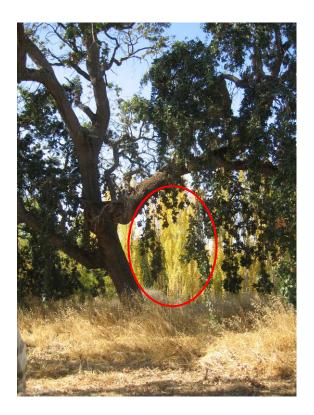


Figure 8: Poplar Trees in Background with Oak Trees in Foreground



Figure 9: Pampas Grass Weed (Cortaderia jubata) at Dublin Boulevard Bridge



Figure 10: Annual Maintenance at the Pedestrian Walkway (Reach 2, Right of Bank)

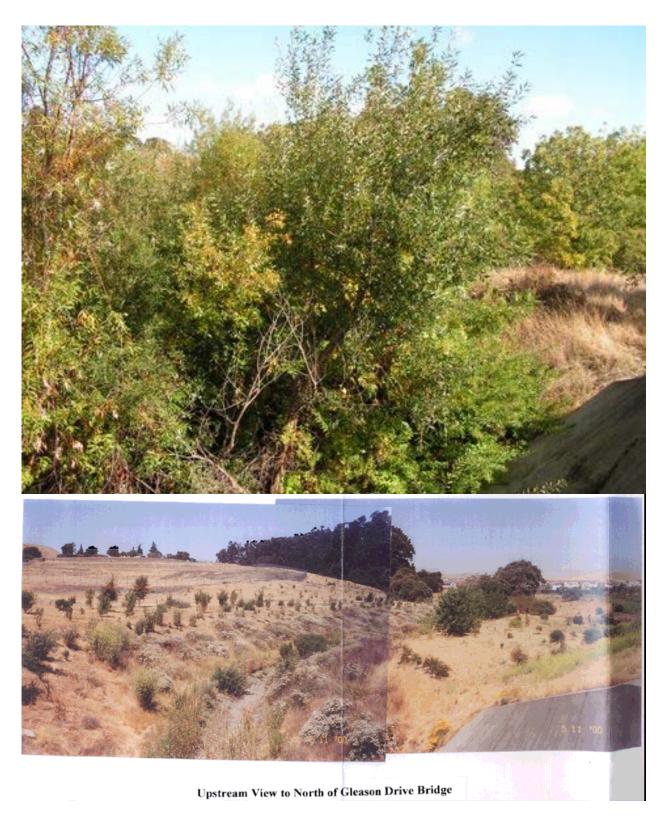


Figure 11: Upstream View of North of Gleason Drive Bridge (N 37 42.769' W 121 52.701'), top picture taken on November 4<sup>th</sup> 2008, bottom picture 2000 (Davis Environmental Consulting, 2001).

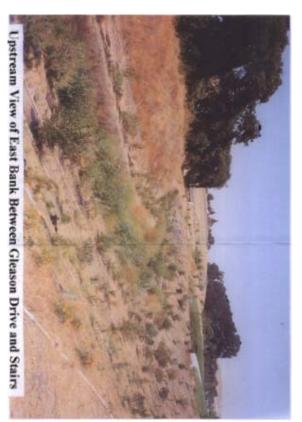




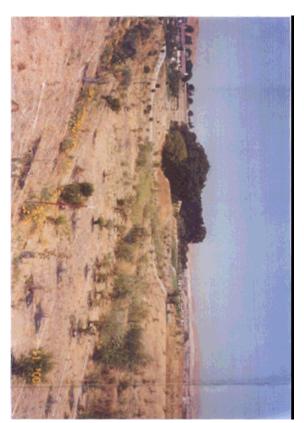
Figure 12: Downstream View to South of Gleason Drive Bridge (N 32 42.753' W 121 52.710'), top picture taken on November 4<sup>th</sup> 2008, bottom picture 2001 (Davis Environmental Consulting, 2001).

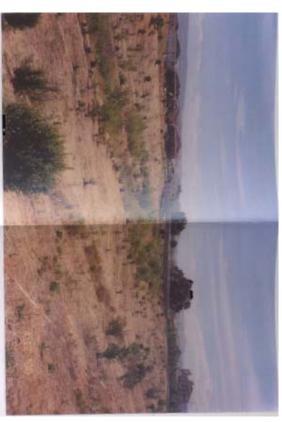
Downstream View to South of Gleason Drive Bridge

Figure 13: Upstream View of East Bank Between Gleason Drive and Stairs, top picture taken on November 4<sup>th</sup> 2008, bottom picture taken in 2001 (Davis Environmental Consulting, 2001).











Panoramic Photo from West Bank Between Stairs and Central Parkway

Figure 14: Panoramic Photo from West Bank Between Stairs and Central Parkway (N 37 42.604' W 121 52.805'), right picture taken on November 4<sup>th</sup> 2008, left picture taken in 2001 (Davis Environmental

Consulting, 2001).



Figure 15: Upstream View to North Central Parkway Bridge, Left bank panoramic (N 37 42.529' W 121 52.763')

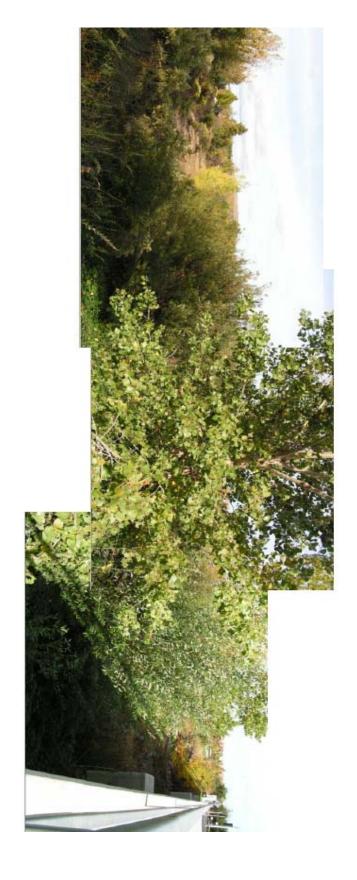


Figure 16: Upstream View to North of Central Parkway Bridge, Right Bank panoramic (N 37 42.527' W 121 52.791')

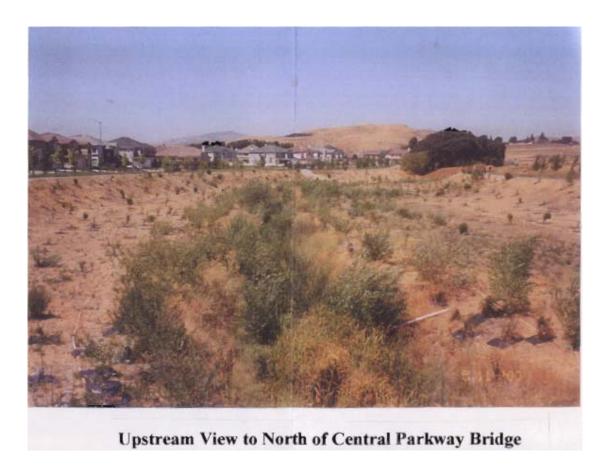


Figure 17: Upstream View to North of Central Parkway Bridge, 2001 (Davis Environmental Consulting, 2001).

View to South of Central Parkway (N 37 42.512' W 121 52.711' to N 37 42.510' W 121 52.784'), picture taken on November 4<sup>th</sup> 2008, bottom picture taken in 2001 (Davis Environmental Consulting, 2001).

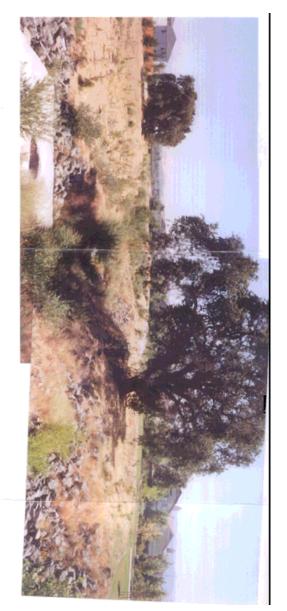
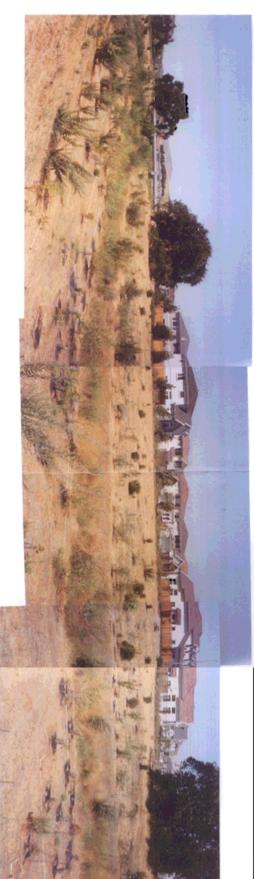




Figure 18: Downstream



Downstream View to South of Central Parkway Bridge



Panoramic Photo from West Bank South of Central Parkway

Figure 19: Panoramic Photo from West Bank South of Central Parkway (N 37 42.456' W 121 52.781'), bottom picture taken in 2001

(Davis Environmental Consulting, 2001).





Upstream View to North of Dublin Boulevard Bridge (note natural colonization of emergent vegetation in channel)

Figure 20: Upstream View to North of Dublin Boulevard Bridge (N 37 42.350' W 121 52.711'), top picture taken on November 4<sup>th</sup> 2008, bottom picture taken in 2001 (Davis Environmental Consulting, 2001).



Figure 21: Upstream View to North of Dublin Boulevard Bridge

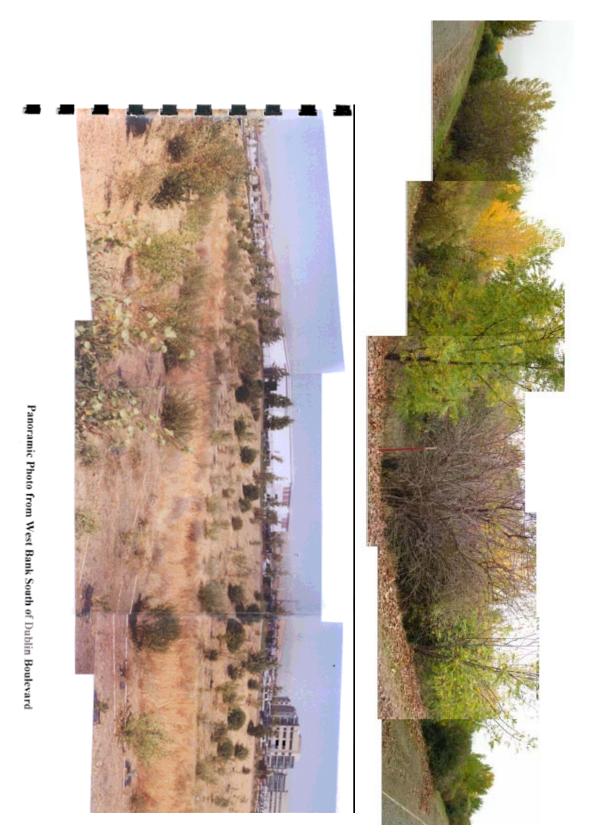


Figure 22: Panoramic Photo from West Bank South of Dublin Boulevard (N 37 42.288' W 121 52.719')



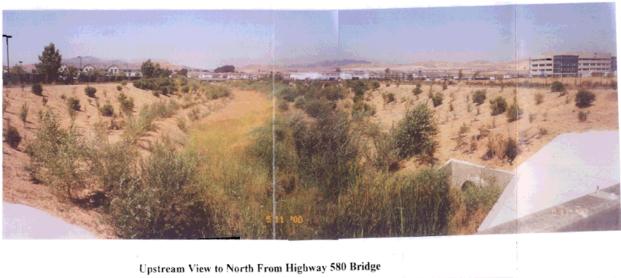


Figure 23: Upstream View to North from Highway 580 Bridge (N 37 42.120' W 121 52.739'), top picture taken on November 11<sup>th</sup> 2008, bottom picture taken in 2001 (Davis Environmental Consulting, 2001).

### Appendix A – Davis Environmental Consulting Performance Standards 2000

Table 1. Performance Standards for Riparian Vegetation at Tassajara Creek Restoration Project

Plant Species	Initial Number Planted	15% loss	85% survival
Black Walnut (Juglans californica var. hindsii)	155	23	132
Blue Elderberry	452	68	384
(Sambucus mexicana)			
Box Elder (Acer	207	31	176
negundo californica)	1.505	239	1,356
California Blackberry	1,595	239	1,550
(Rubus ursinus)	205	30	175
California Buckeye	205	30	173
(Aesculus californica)	1,016	152	864
California Coffeeberry	1,016	132	
(Rhamnus californica)	298	45	253
California Wild Grape (Vitus californica)	296	45	233
California Wild Rose	1,194	179	1,015
(Rosa californica)	1,154	117	,,,,,,
Coast Live Oak	36	5	31
(Quercus agrifolia)		•	
Coyote Brush	435	65	370
(Baccharis pilularis			
consanguinea)			
Fremont's Cottonwood	223	33	190
(Populus Fremontii)			
Oregon Ash (Fraximus	104	15	89
latifolia)			
Snowberry	377	56	321
(Symphoricarpos albus)			
Toyon (Heteromeles	425	63	362
arbutifolia)	·		
Valley Oak (Quercus	183	27	156
lobata)			
Western Sycamore	53	8	45
(Platanus racemosa)			
Willow (Salix sp.)	705	106	599
TOTAL	7663	1145	6518

Tassajara Creek Restoration Project

### Appendix B – Davis Environmental Consulting Transects 2001

## TASSJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

Transect 1

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )	2		
Valley oak (Quercus lobata )	5		
California sycamore (Platanus racemosa )	3		
California buckeye (Aesculus californicus )	7		
Fremont's cottonwood (Populus fremontii )	1		
California black walnut (Juglans californica )	3		
Box elder (Acer negundo var. calif)	3		
Willow species (Salix spp.)	6		
Oregon ash (Fraxinus latifolia )	4		
Blue elderberry (Sambucus mexicana )	3		
Toyon (Heseromeles arbutifolia )	2		
California coffeeberry (Rhamnus californicus )	18	1	
Coyote bush (Baccharis pilularis )	3		
Snowberry (Symphocarpus mollis )	3		
California wild grape (Vitis californica )			
California blackberry (Rubus ursinus )	10		
California wild rose (Rosa californica )	11		
Unknown		2	Some evidence of rodent
			burrows but no noticeable damage.
Total	84	3	
Percent survived	97%		

## TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )			
California sycamore (Platanus racemosa )	1		
California buckeye (Aesculus californicus )	6		
Fremont's cottonwood (Populus fremontii )	5		
California black walnut (Juglans californica )	4		
Box elder (Acer negundo var. calif)	1		
Willow species (Salix spp.)	9	4	
Oregon ash (Fraxinus latifolia )	4		
Blue elderberry (Sambucus mexicana )	3		
Toyon (Heteromeles arbutifolia )	3		
California coffeeberry (Rhamnus californicus )	11		
Coyote bush (Baccharis pilularis )	7		
Snowberry (Symphocarpus mollis )	6		
California wild grape (Vitis californica )			
California blackberry (Rubus ursinus )			
California wild rose (Rosa californica )	38		
Unknown		8	Rodent burrows very evident. This
			side less healthy than other side
Total	98	12	of transect; may be due to
Percent survived	89%		improper irrigation.

#### TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )	3	2	5 11/6 11
California sycamore (Platanus racemosa )			
California buckeye (Aesculus californicus )	9 1	2	4
Fremont's cottonwood (Populus fremontii )		1	
California black walnut (Juglans californica )	2	4	
Box elder (Acer negundo var. calif)		2	
Willow species (Salix spp.)	1	1	
Oregon ash (Fraxinus latifolia )	3		
Blue elderberry (Sambucus mexicana )	3	5	
Toyon (Heteromeles arbutifolia )	2	2	
California coffeeberry (Rhamnus californicus )	0	9	
Coyote bush (Baccharis pilularis )	A	5	100
Snowberry (Symphocarpus mollis )			
California wild grape (Vitis californica )		1	
California blackberry (Rubus ursinus )	1	8	
California wild rose (Rosa californica )	2		
Unknown			3 Bush lupine, California poppy
			and mugwort volunteers abundant.
Total	6	6 Likius	3
Percent survived	969	6 Jennald	and any said years

#### TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )	3		
California sycamore (Platanus racemosa			
California buckeye (Aesculus californicus	5		
Fremont's cottonwood (Populus fremonti	1		
California black walnut (Juglans californ	2		
Box elder (Acer negundo var. calif )	1		
Willow species (Salix spp.)	9		
Oregon ash (Fraxinus latifolia )	3		
Blue elderberry (Sambucus mexicana )	3		
Toyon (Heteromeles arbutifolia )	2		
California coffeeberry (Rhamnus californ	6		
Coyote bush (Baccharis pilularis )	4		
Snowberry (Symphocarpus mollis )			
California wild grape (Vitis californica)	1		
California blackberry (Rubus ursinus )	25		
California wild rose (Rosa californica )	2		
Unknown		1	
Total	67	1	Mugwort and lupine
Percent survived	99%		establishing extremely well.

#### Transect 5

# TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )	3		
California sycamore (Platanus racemosa )			
California buckeye (Aesculus californicus )	1		
Fremont's cottonwood (Populus fremontii )	5		
California black walnut (Juglans californica )	1		
Box elder (Acer negundo var. calif)	2		
Willow species (Salix spp.)	6		
Oregon ash (Fraxinus latifolia )	_ 1		
Blue elderberry (Sambucus mexicana )	6		
Toyon (Heteromeles arbutifolia )	7		
California coffeeberry (Rhamnus californicus )	7		
Coyote bush (Baccharis pilularis )	9		
Snowberry (Symphocarpus mollis )			
California wild grape (Vitis californica)	1		
California blackberry (Rubus ursínus )	29		
California wild rose (Rosa californica )	6		
Unknown		4	
Total	84	4	
Percent survived	95%		

#### TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )	1		
Valley oak (Quercus lobata )	1		
California sycamore (Platanus racemosa )			
California buckeye (Aesculus californicus )		5	
Fremont's cottonwood (Populus fremontii )	3	3	
California black walnut (Juglans californica )	3	3	
Box elder (Acer negundo var. calif)		5	
Willow species (Salix spp.)	10	)	
Oregon ash (Fraxinus latifolia )	2	2	
Blue elderberry (Sambucus mexicana )	10	)	
Toyon (Heteromeles arbutifolia )		5	
California coffeeberry (Rhamnus californicus )	14	ı	
Coyote bush (Baccharis pilularis )	(	5	
Snowberry (Symphocarpus mollis )			
California wild grape (Vitis californica )	(	5	and a subtract of
California blackberry (Rubus ursinus )	16	5	2
California wild rose (Rosa californica )	- 5	9	
Unknown			2
Total	96	5	4 Page of page 1 share
Percent survived	96%	þ	Catalani const grow.

#### TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )	1		
California sycamore (Platanus racemosa )	1		
California buckeye (Aesculus californicus )	6		
Fremont's cottonwood (Populus fremontii )			
California black walnut (Juglans californica )			
Box elder (Acer negundo var. calif)	1		
Willow species (Salix spp.)	4		
Oregon ash (Fraxinus latifolia )	2		
Blue elderberry (Sambucus mexicana )	2		
Toyon (Heteromeles arbutifolia )	4		
California coffeeberry (Rhamnus californicus )	3		
Coyote bush (Baccharis pilularis )	6	1	
Snowberry (Symphocarpus mollis )			
California wild grape (Vitis californica)	3		
California blackberry (Rubus ursinus )	9	2	
California wild rose (Rosa californica )	21	1	
Unknown		3	
Total	63	7	Plants in good shape.
Percent survived	90%		Limited cover crop.

#### TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )	1		
California sycamore (Platanus racemosa )	2		
California buckeye (Aesculus californicus )	1		
Fremont's cottonwood (Populus fremontii )	1		
California black walnut (Juglans californica )			
Box elder (Acer negundo var. calif)	2		
Willow species (Salix spp.)	9		
Oregon ash (Fraxinus latifolia )	2		
Blue elderberry (Sambucus mexicana )	6		
Toyon (Heteromeles arbutifolia )	2		
California coffeeberry (Rhamnus californicus )	2		
Coyote bush (Baccharis pilularis )	4		
Snowberry (Symphocarpus mollis )			
California wild grape (Vitis californica )	1		
California blackberry (Rubus ursinus )	27	1	
California wild rose (Rosa californica)	7		
Unknown		6	
Total	67	7	
Percent survived	91%		

# TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )	2		
California sycamore (Platanus racemosa )	1		
California buckeye (Aesculus californicus )	3		
Fremont's cottonwood (Populus fremontii )	3		
California black walnut (Juglans californica )			
Box elder (Acer negundo var. calif)	1		
Willow species (Salix spp.)	3		
Oregon ash (Fraxinus latifolia )			
Blue elderberry (Sambucus mexicana )	3		
Toyon (Heteromeles arbutifolia )	2		
California coffeeberry (Rhamnus californicus )	7		
Coyote bush (Baccharis pilularis )	4		
Snowberry (Symphocarpus mollis )			
California wild grape (Vitis californica)	1		
California blackberry (Rubus ursinus )	13		
California wild rose (Rosa californica )	16	1	
Unknown		3	
Total	59		Several mugwort volunteers.
Percent survived	94%		

## TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )	1		
Valley oak (Quercus lobata )			
California sycamore (Platanus racemosa )	1		
California buckeye (Aesculus californicus )	9		
Fremont's cottonwood (Populus fremontii )	2		
California black walnut (Juglans californica )	1		
Box elder (Acer negundo var. calif )	5		
Willow species (Salix spp.)	10	1	
Oregon ash (Fraxinus latifolia )	4		
Blue elderberry (Sambucus mexicana )	5		
Toyon (Heteromeles arbutifolia )	5		
California coffeeberry (Rhamnus californicus )	6		
Coyote bush (Baccharis pilularis )	11		
Snowberry (Symphocarpus mollis )			
California wild grape (Vitis californica )	4		
California blackberry (Rubus ursinus )	6		
California wild rose (Rosa californica )	11		
Unknown		11	
Total	81	1.2	Generally healthy plants.
Percent survived	87%		

# TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )	2		
California sycamore (Platanus racemosa )			
California buckeye (Aesculus californicus )	4		
Fremont's cottonwood (Populus fremontii)	6		
California black walnut (Juglans californica )	2		
Box elder (Acer negundo var. calif)	5		
Willow species (Salix spp.)	8		
Oregon ash (Fraxinus latifolia )	2		
Blue elderberry (Sambucus mexicana )	4		
Toyon (Heteromeles arbutifolia )	3		
California coffeeberry (Rhamnus californicus )	4		
Coyote bush (Baccharis pilularis )	13		
Snowberry (Symphocarpus mollis )	12		
California wild grape (Vitis californica)	9		
California blackberry (Rubus ursinus )	14		
California wild rose (Rosa californica )	24		
Unknown			l Very large specimens.
			Many volunteer coyote bush.
Total	112		1 Some volunteer wild roses.
Percent survived	99%		

#### TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )	3		
California sycamore (Platanus racemosa )			
California buckeye (Aesculus californicus )	1		
Fremont's cottonwood (Populus fremontii )	4		
California black walnut (Juglans californica )			
Box elder (Acer negundo var. calif)	2		
Willow species (Salix spp.)	4		
Oregon ash (Fraxinus latifolia )			
Blue elderberry (Sambucus mexicana )	7		
Toyon (Heteromeles arbutifolia )	1		
California coffeeberry (Rhamnus californicus )	6		
Coyote bush (Baccharis pilularis )	5		
Snowberry (Symphocarpus mollis )	12		
California wild grape (Vitis californica)	6	1	
California blackberry (Rubus ursinus )	13		
California wild rose (Rosa californica )	10		
Unknown		2	Dense sandbar willows.
			~12 volunteer coyote bushes.
Total	74	3	-
Percent survived	96%		-

#### TASSAJARA CREEK RESTORATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )		1	
Valley oak (Quercus lobata )	EM TELL	2	
California sycamore (Platanus racemosa )	11		
California buckeye (Aesculus californicus )	1	1	
Fremont's cottonwood (Populus fremontii )		4	
California black walnut (Juglans californica )		1	
Box elder (Acer negundo var. calif )		5	
Willow species (Salix spp.)		5	
Oregon ash (Fraxinus latifolia )			
Blue elderberry (Sambucus mexicana )		7	
Toyon (Heteromeles arbutifolia )		4	
California coffeeberry (Rhamnus californicus )	1	1	
Coyote bush (Baccharis pilularis )		2	
Snowberry (Symphocarpus mollis )		6	
California wild grape (Vitis californica )	1.3	3	
California blackberry (Rubus ursinus )	101 1	2	
California wild rose (Rosa californica )	25 2	2.5	
Unknown			4 Many volunteer willows.
Total	UF S	9	4
Percent survived	96	%	N) W AND SHEET

#### TASSAJARA CREEK REVEGETATION PROJECT VEGETATION MONITORING SUMMER 2001

PLANT SPECIES	ALIVE?	DEAD?	COMMENTS
Coast live oak (Quercus agrifolia )			
Valley oak (Quercus lobata )	1		
California sycamore (Platanus racemosa	3		
California buckeye (Aesculus californicus	2		4
Fremont's cottonwood (Populus fremonti	4		
California black walnut (Juglans californ	3		
Box elder (Acer negundo var. calif)	3		
Willow species (Salix spp.)	9		
Oregon ash (Fraxinus latifolia )	1		
Blue elderberry (Sambucus mexicana )	8		
Toyon (Heteromeles arbutifolia )	5		
California coffeeberry (Rhamnus californ	15		
Coyote bush (Baccharis pilularis )	9		
Snowberry (Symphocarpus mollis )	5		
California wild grape (Vitis californica)	12		
California blackberry (Rubus ursinus )	10		
California wild rose (Rosa californica )	25		
Unknown		1	
		+	
Total	115	1	Healthy specimens.
Percent survived	99%		Wild grape very vigorous.

### Appendix C

Transect 1 Upstream of Gleason Bridge Right Bank (West side of Creek)

Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.806' W 121 52.677'	0				
	22	Coyote brush ( <i>Baccharis pilularis</i> )	Α	5'	5'
	39	Curly dock (Rumex crispus )	А	5'	2'
	54	California wild rose (Rosa californica)	D		
	65	California wild rose or California blackberry	D		
	68	Buckwheat ( <i>Eriogonum fasiculatum</i> )	Α	7'	
	72	Buckwheat ( <i>Eriogonum fasiculatum</i> )	Α	7'	
	76	Buckwheat ( <i>Eriogonum fasiculatum</i> )	Α	7'	
	78	Buckwheat ( <i>Eriogonum fasiculatum</i> )	Α	7'	
	82	Fennel (Foeniculum vulgare )	D		
	83	Buckwheat ( <i>Eriogonum fasiculatum</i> )	Α		
	85	Willow species (Salix spp.)	Α	15'	5'
	90	Willow species (Salix spp.)	А	15'	5'
N 37 42.793' W 121 52.672'	end				
		Survival rate (%)	75	5	

Coast live oak ( <i>Quercus agrifolia</i> )	0
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore (Platanus racemosa)	0
California buckeye (Aesculus californicus )	0
Fremont's cottonwood (Populus fremonti )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut ( <i>Juglans californica</i> )	0
Box elder ( <i>Acer negundo var. calif</i> )	0
Willow species (Salix spp.)	2
Oregon ash (Fraxinus latifolia )	0
Blue elderberry (Sambucus mexicana )	0
Toyon (Heteromeles arbutifolia )	0
California coffeeberry (Rhamnus californicus )	0
Coyote brush (Baccharis pilularis )	1
Snowberry ( <i>Symphocarpus mollis</i> )	0
California wild grape (Vitis californica)	0
California blackberry (Rubus ursinus )	0
California wild rose (Rosa californica)	1
Arrowweed ( <i>Pluchea sericea</i> )	0
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail ( <i>Typha domingensis</i> )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	5
Curly dock (Rumex crispus )	1
Fennel ( <i>Foeniculum vulgare</i> )	1
Unknown	0
Total	11

Transect	

Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.774' W 121 52.667'	0	At irrigation pipe + t-post			
	2	California wild rose (Rosa californica)	Α		1.5'
	5	California wild rose (Rosa californica)	Α		
	6	California wild rose (Rosa californica)	Α		
	7	California wild rose (Rosa californica)	Α		
	11	California wild rose (Rosa californica)	Α		
	15.5	California wild rose (Rosa californica)	Α		
N 37 42,779' W 121 52.669'	42	Curly dock (Rumex crispus )	D		
	47	California wild rose (Rosa californica)	Α		
	55.5	California wild rose (Rosa californica)	Α		
	57.5	California wild rose (Rosa californica)	Α		
	62	Coyote brush (Baccharis pilularis )	Α		4.5'
	66	California wild rose (Rosa californica)	Α		
	67	California wild rose (Rosa californica)	Α		
	73	Valley oak (Quercus lobata)	Α	10cm	
	77.5	California black walnut (Juglans californica)	Α	3'	
	79.5	California wild rose (Rosa californica)	Α		
	80.5	California wild rose (Rosa californica)	Α		
	81	California wild rose (Rosa californica)	Α		
	82	California wild rose (Rosa californica)	Α		
	84	California wild rose (Rosa californica)	Α		
	90	Buckwheat ( <i>Eriogonum fasiculatum</i> )	Α	3'	1.5'
	93.5	Buckwheat ( <i>Eriogonum fasiculatum</i> )	Α	3'	1.5'
	102	Buckwheat ( <i>Eriogonum fasiculatum</i> )	Α	3'	1.5'
	104	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	106	Arrowweed (Pluchea sericea )	Α		
	107	Willow species (Salix spp.)	Α	15'	6'
N 37 42.788' W 121 52.675					
		Survival rate (%)	96		

Coast live oak (Quercus agrifolia)	0
Valley oak ( <i>Quercus lobata</i> )	1
California sycamore (Platanus racemosa)	0
California buckeye (Aesculus californicus)	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut (Juglans californica )	1
Box elder (Acer negundo var. calif)	0
Willow species (Salix spp.)	1
Oregon ash (Fraxinus latifolia )	0
Blue elderberry (Sambucus mexicana )	0
Toyon (Heteromeles arbutifolia )	0
California coffeeberry (Rhamnus californicus)	0
Coyote brush (Baccharis pilularis )	1
Snowberry ( <i>Symphocarpus mollis</i> )	0
California wild grape (Vitis californica)	0
California blackberry (Rubus ursinus)	0
California wild rose (Rosa californica)	16
Arrowweed ( <i>Pluchea sericea</i> )	2
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail (Typha domingensis )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	3
Curly dock (Rumex crispus )	1
Fennel ( <i>Foeniculum vulgare</i> )	0
Unknown	0
Total	26

	5 . (6) 5:1 5:1:5 1 (24 .:1 (6)
Transect 3	Downstream of Gleason Bridge Right Bank (West side of Creek)
	Downstream or oreason bridge ingrit barn (west side or oreal)

Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.738' W 121 52.737'	0				
		Toyon (Heteromeles arbutifolia )	Α	6'	4'
	33	Blue elderberry (Sambucus mexicana )	Α	10'	
N 37 42.738' W 121 52.733'	54	Fennel ( <i>Foeniculum vulgare</i> )	D		
	60-70	Willow species (Salix spp.)	Α	7-8'	
		California blackberry (Rubus ursinus )	Α		
	80	Willow species (Salix spp.)	Α	15'	
N 37 42.730' W 121 52.722'	0	Bottom of the willow at 80'			_
1137 12.730 W 12132.722		Coyote brush (Baccharis pilularis )	A	4'	3'
	6.5	California wild rose or California blackberry	Α		
	21	Fennel (Foeniculum vulgare )	Α		
	24	Valley oak ( <i>Quercus lobata</i> )	Α	1'	
N 37 42.729' W 121 52.718'	51				
	65	Willow species (Salix spp.)	А	25'	
		Survival rate (%)	91		

Coast live oak ( <i>Quercus agrifolia</i> )	0
Valley oak ( <i>Quercus lobata</i> )	1
California sycamore ( <i>Platanus racemosa</i> )	0
California buckeye (Aesculus californicus)	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut ( <i>Juglans californica</i> )	0
Box elder ( <i>Acer negundo v</i> ar. <i>calif</i> )	0
Willow species (Salix spp.)	3
Oregon ash ( <i>Fraxinus latifolia</i> )	0
Blue elderberry ( <i>Sambucus mexicana</i> )	0
Toyon (Heteromeles arbutifolia )	1
California coffeeberry (Rhamnus californicus )	0
Coyote brush ( <i>Baccharis pilularis</i> )	1
Snowberry (Symphocarpus mollis )	0
California wild grape (Vitis californica)	0
California blackberry (Rubus ursinus)	1
California wild rose (Rosa californica)	0
Arrowweed ( <i>Pluchea sericea</i> )	0
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail ( <i>Typha domingensis</i> )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock (Rumex crispus )	0
Fennel ( <i>Foeniculum vulgare</i> )	2
Unknown	0
Total	9

Transect 4	Dawnetraam (cauth)	of Gleason Bridge Left Bank	(Eact cide of Crook)
I I diisect 4	Jownstieani (South)	of dieasoff bridge Left ballk	(East side of Creek)

Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.723' W 121 52.708'	0				
	7.5	Coast live oak (Quercus agrifolia )	А	5cm	
	10	California coffeeberry (Rhamnus californicus )	А	5'	3'
	10	Blue elderberry (Sambucus mexicana )	А	7'	3'
	12	California blackberry (Rubus ursinus)	А	3'	4'
	13	Toyon (Heteromeles arbutifolia )	А	8'	
	16	Unknown	D		
	19	California coffeeberry (Rhamnus californicus)	А	7'	4'
	20	California blackberry (Rubus ursinus)	А		
	24	California blackberry (Rubus ursinus)	А	<1'	
	24	California blackberry (Rubus ursinus)	А	2'	
N 37 42.725' W 121 52.711'	25.5	Arrowweed ( <i>Pluchea sericea</i> )	А	4'	
	33	California blackberry (Rubus ursinus)	А		
	37	Willow species (Salix spp.)	А	25'	25'
	=	Survival rate (%)	92		_

Coast live oak ( <i>Quercus agrifolia</i> )	1
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore ( <i>Platanus racemosa</i> )	0
California buckeye (Aesculus californicus)	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut (Juglans californica)	0
Box elder ( <i>Acer negundo v</i> ar. <i>calif</i> )	0
Willow species (Salix spp.)	1
Oregon ash (Fraxinus latifolia )	0
Blue elderberry (Sambucus mexicana )	0
Toyon (Heteromeles arbutifolia )	1
California coffeeberry (Rhamnus californicus )	2
Coyote brush ( <i>Baccharis pilularis</i> )	0
Snowberry ( <i>Symphocarpus mollis</i> )	0
California wild grape ( <i>Vitis californica</i> )	0
California blackberry (Rubus ursinus)	5
California wild rose (Rosa californica)	0
Arrowweed ( <i>Pluchea sericea</i> )	1
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail (Typha domingensis )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock (Rumex crispus )	0
Fennel ( <i>Foeniculum vulgare</i> )	0
Unknown	1
Total	12

Transect 5 Halfway between stairway and Central Parkway bridge on Right bank (West side of creek)	
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Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.601' W 121 52.802'	0				
	9	Toyon (Heteromeles arbutifolia )	А	4'	4'
	18	California black walnut ( <i>Juglans californica</i> )	А	10'	5'
	18	Blue elderberry (Sambucus mexicana )	D		
	22	Arrowweed ( <i>Pluchea sericea</i> )	D		
	26	Arrowweed ( <i>Pluchea sericea</i> )	А		
	40	Toyon (Heteromeles arbutifolia )	Α	7'	5'
N 37 42.602' W 121 52.789'	65				
	75	Willow species (Salix spp.)	Α		
	75	California blackberry ( <i>Rubus ursinus</i> )	Α		
		Survival rate (%)	75		

Coast live oak ( <i>Quercus agrifolia</i> )	0
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore ( <i>Platanus racemosa</i> )	0
California buckeye (Aesculus californicus)	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut ( <i>Juglans californica</i> )	1
Box elder ( <i>Acer negundo</i> var. <i>calif</i> )	0
Willow species ( <i>Salix</i> spp.)	1
Oregon ash ( <i>Fraxinus latifolia</i> )	0
Blue elderberry (Sambucus mexicana )	0
Toyon (Heteromeles arbutifolia )	2
California coffeeberry (Rhamnus californicus)	0
Coyote brush ( <i>Baccharis pilularis</i> )	0
Snowberry (Symphocarpus mollis )	0
California wild grape (Vitis californica)	0
California blackberry (Rubus ursinus)	1
California wild rose (Rosa californica )	0
Arrowweed ( <i>Pluchea sericea</i> )	2
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail ( <i>Typha domingensis</i> )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock (Rumex crispus )	0
Fennel ( <i>Foeniculum vulgare</i> )	0
Unknown	0
Total	7

Transect 6 Halfway between stairway and Central Parkway bridge on Left bank (East side of creek)	
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Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.599' W 121 52.764'	0				
	6	Valley oak ( <i>Quercus lobata</i> )	Α	5'	3'
	14	Lupine ( <i>Lupinus latifolius</i> )	Α	6'	5'
	36	Coyote brush ( <i>Baccharis pilularis</i> )	Α	1'	
	52	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	57	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	59	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	61	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	62.5	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	65	Arrowweed ( <i>Pluchea sericea</i> )	Α		
N 37 42.602' W 121 52.778'	88	Lupine ( <i>Lupinus latifolius</i> )	Α	3'	2'
	89	Coyote brush (Baccharis pilularis)	Α	7-8'	3'
	92	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	95-100	Willow species (Salix spp.)	Α	12'	
		California blackberry ( <i>Rubus ursinus</i> )	Α		
		Survival rate (%)	100		

Coast live oak (Quercus agrifolia)	0
Valley oak ( <i>Quercus lobata</i> )	1
California sycamore (Platanus racemosa)	0
California buckeye (Aesculus californicus)	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut (Juglans californica)	0
Box elder ( <i>Acer negundo var. calif</i> )	0
Willow species (Salix spp.)	1
Oregon ash (Fraxinus latifolia )	0
Blue elderberry (Sambucus mexicana)	0
Toyon (Heteromeles arbutifolia )	0
California coffeeberry (Rhamnus californicus )	0
Coyote brush ( <i>Baccharis pilularis</i> )	2
Snowberry (Symphocarpus mollis )	0
California wild grape (Vitis californica)	0
California blackberry (Rubus ursinus )	1
California wild rose (Rosa californica)	0
Arrowweed ( <i>Pluchea sericea</i> )	7
Lupine ( <i>Lupinus latifolius</i> )	2
Cattail ( <i>Typha domingensis</i> )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock (Rumex crispus )	0
Fennel (Foeniculum vulgare )	0
Unknown	0
Total	14

Transect 7	Downstream (Sout	h) of Central Parkway	bridge on Left bank	(East side of creek)

Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.468' W 121 52.742'	0			Î	
	22	Curly dock (Rumex crispus )	Α	3'	
		Coyote brush (Baccharis pilularis )	Α	7'	7'
	68-75	Arrowweed (Pluchea sericea )	A		
	68-75	Arrowweed ( <i>Pluchea sericea</i> )	A		
	68-75	Arrowweed (Pluchea sericea )	Α		
	68-75	Arrowweed (Pluchea sericea )	A		
	68-75	Arrowweed (Pluchea sericea )	Α		
	68-75	Arrowweed (Pluchea sericea )	А		
	68-75	Arrowweed (Pluchea sericea )	A		
N 37 42.602' W 121 52.778'	68-75	Arrowweed (Pluchea sericea )	A		
	68-75	Arrowweed (Pluchea sericea )	Α		
	68-75	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	75	Unknown	D		
	75	Arrowweed ( <i>Pluchea sericea</i> )	А		
	80	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	80	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	80	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	80	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	80	Arrowweed (Pluchea sericea )	Α		
	82	Arrowweed (Pluchea sericea )	Α		
	82	Arrowweed (Pluchea sericea )	Α		
	86	California wild rose (Rosa californica)	Α		
	86	California wild rose (Rosa californica)	Α		
	90	California wild rose (Rosa californica)	Α		
	90	California wild rose (Rosa californica)	Α		
	93.5	California wild rose (Rosa californica)	Α		
	95	California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	Α		
	97.5	California wild rose (Rosa californica)	Α		
	99.5	California wild rose (Rosa californica)	Α		
	101	California wild rose (Rosa californica)	А		
	104	California wild rose (Rosa californica)	А		
	105	California wild rose (Rosa californica)	А		
	106	California wild rose (Rosa californica)	Α		
	107	California wild rose (Rosa californica)	Α		
	107	California blackberry (Rubus ursinus )	Α		
N 37 42.466' W 121 52.765'	109	California wild rose (Rosa californica)	Α		
	109	, , , , , , , , , , , , , , , , , , , ,	A		
	112	California wild rose ( <i>Rosa californica</i> )	Α		
	112	California blackberry (Rubus ursinus )	Α		
	115	Willow species (Salix spp.)	Α	20'	20'
	115	California blackberry (Rubus ursinus )	Α		
	115	Poison Oak	Α		
		Survival rate (%)	98		

Coast live oak ( <i>Quercus agrifolia</i> )	0
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore ( <i>Platanus racemosa</i> )	0
California buckeye (Aesculus californicus )	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut ( <i>Juglans californica</i> )	0
Box elder ( <i>Acer negundo v</i> ar. <i>calif</i> )	0
Willow species ( <i>Salix</i> spp.)	1
Oregon ash ( <i>Fraxinus latifolia</i> )	0
Blue elderberry (Sambucus mexicana )	0
Toyon (Heteromeles arbutifolia )	0
California coffeeberry (Rhamnus californicus )	0
Coyote brush ( <i>Baccharis pilularis</i> )	1
Snowberry ( <i>Symphocarpus mollis</i> )	0
California wild grape (Vitis californica)	0
California blackberry (Rubus ursinus )	4
California wild rose (Rosa californica)	16
Arrowweed ( <i>Pluchea sericea</i> )	18
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail (Typha domingensis )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock ( <i>Rumex crispus</i> )	1
Fennel ( <i>Foeniculum vulgare</i> )	0
Unknown	1
Total	42

Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.464' W 121 52.782'	0				
	5	Blue elderberry (Sambucus mexicana )	Α	15'	10'
	42	Oregon ash ( <i>Fraxinus latifolia</i> )	А	10'	3'
	42	Arrowweed ( <i>Pluchea sericea</i> )	А		
	42	California blackberry (Rubus ursinus )	Α		
	42	California wild rose (Rosa californica)	А		
	43	California blackberry (Rubus ursinus)	А		
	43	California blackberry (Rubus ursinus)	Α		
	43	Arrowweed ( <i>Pluchea sericea</i> )	А		
	43	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	43	Arrowweed ( <i>Pluchea sericea</i> )	Α		
		California blackberry (Rubus ursinus)	Α		
	50	Willow species (Salix spp.)	Α	20'	8'
	50	California blackberry (Rubus ursinus)	Α		
	50	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	50	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	52	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	52	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	60	Arrowweed ( <i>Pluchea sericea</i> )	А		
	60	Arrowweed ( <i>Pluchea sericea</i> )	А		
N 37 42.466' W 121 52.772'					
		Survival rate (%)	100		

Coast live oak ( <i>Quercus agrifolia</i> )	0
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore ( <i>Platanus racemosa</i> )	0
California buckeye (Aesculus californicus)	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut ( <i>Juglans californica</i> )	0
Box elder ( <i>Acer negundo v</i> ar. <i>calif</i> )	0
Willow species (Salix spp.)	1
Oregon ash ( <i>Fraxinus latifolia</i> )	1
Blue elderberry ( <i>Sambucus mexicana</i> )	0
Toyon (Heteromeles arbutifolia )	0
California coffeeberry (Rhamnus californicus )	0
Coyote brush ( <i>Baccharis pilularis</i> )	0
Snowberry (Symphocarpus mollis )	0
California wild grape ( <i>Vitis californica</i> )	0
California blackberry (Rubus ursinus)	5
California wild rose ( <i>Rosa californica</i> )	1
Arrowweed ( <i>Pluchea sericea</i> )	10
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail (Typha domingensis )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock ( <i>Rumex crispus</i> )	0
Fennel ( <i>Foeniculum vulgare</i> )	0
Unknown	0
Total	18

Transect 9	Upstream (North) of Dublin Bridge, Right bank (West side of creek)
	T-post still in place on top and at bank level

Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.409' W 121 52.749'					
		Coyote brush ( <i>Baccharis pilularis</i> )	Α	3'	3'
	17-20	Arrowweed ( <i>Pluchea sericea</i> )	А		
	17-20	Arrowweed ( <i>Pluchea sericea</i> )	А		
	17-20	Arrowweed ( <i>Pluchea sericea</i> )	А		
	17-20	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	17-20	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	17-20	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	33	Coyote brush ( <i>Baccharis pilularis</i> )	Α	10'	7'
	35	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	35	Arrowweed ( <i>Pluchea sericea</i> )	Α		
	37.5	Arrowweed ( <i>Pluchea sericea</i> )	Α		
N 37 42.412' W 121 52.741'	end				
	-	Survival rate (%)	100		

Coast live oak ( <i>Quercus agrifolia</i> )	0
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore ( <i>Platanus racemosa</i> )	0
California buckeye (Aesculus californicus )	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut ( <i>Juglans californica</i> )	0
Box elder ( <i>Acer negundo var. calif</i> )	0
Willow species (Salix spp.)	0
Oregon ash (Fraxinus latifolia )	0
Blue elderberry ( <i>Sambucus mexicana</i> )	0
Toyon (Heteromeles arbutifolia )	0
California coffeeberry (Rhamnus californicus)	0
Coyote brush (Baccharis pilularis )	2
Snowberry ( <i>Symphocarpus mollis</i> )	0
California wild grape (Vitis californica)	0
California blackberry (Rubus ursinus)	0
California wild rose (Rosa californica)	0
Arrowweed ( <i>Pluchea sericea</i> )	9
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail (Typha domingensis )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock (Rumex crispus )	0
Fennel (Foeniculum vulgare )	0
Unknown	0
Total	11

Transect 10 Upstream (North) of Dublin Bridge, Left bank (East side of creek)
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Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.422' W 121 52.716'	0				
	38	Toyon (Heteromeles arbutifolia )	Α	5'	4'
	77	Oregon ash ( <i>Fraxinus latifolia</i> )	Α	10'	
	80	California wild rose (Rosa californica)	Α		
	81	California wild rose (Rosa californica)	A		
	81	California wild rose (Rosa californica)	A		
	82	California wild rose (Rosa californica)	A		
	82	California wild rose (Rosa californica)	Α		
	83	California wild rose (Rosa californica)	Α	10'	7'
	84	California wild rose (Rosa californica)	Α		
	85	California wild rose (Rosa californica)	Α		
	85.5	California wild rose (Rosa californica)	Α		
	85.5	California wild rose (Rosa californica)	Α		
	87	California wild rose (Rosa californica )	Α		
	87	California wild rose (Rosa californica )	Α		
	87	California wild rose (Rosa californica )	Α		
	88	California wild rose (Rosa californica )	Α		
	88	California wild rose (Rosa californica )	Α		
	89	California wild rose (Rosa californica )	Α		
	89	California wild rose (Rosa californica )	Α		
	89	California wild rose (Rosa californica )	Α		
	89	California wild rose (Rosa californica)	Α		
	90	California wild rose (Rosa californica)	Α		
	90	California wild rose (Rosa californica)	Α		
	90	California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	Α		
	91	California wild rose (Rosa californica )	Α		
	92	California wild rose (Rosa californica )	Α		
	95	Box elder ( <i>Acer negundo v</i> ar. <i>calif</i> )	Α	9'	4'
	99	Oregon Ash or Black Walnut	D		
N 37 42.412' W 121 52.734'	115.5				
	117	Willow species (Salix spp.)	A	10'	3'
		Willow species (Salix spp.)	A	20'	10'
	120	Dandelion flower	A		
	-	Survival rate (%)	97		
		` '			

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30

Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.287' W 121 52.720'	0				
	3	California black walnut (Juglans californica )	Α	15'	5'
	7	Blue elderberry (Sambucus mexicana )	A	15'	10'
	8	Snowberry (Symphocarpus mollis )	A	<1'	
	8	Snowberry (Symphocarpus mollis )	Α	<1'	
	8	Snowberry (Symphocarpus mollis )	A	<1'	
		Snowberry (Symphocarpus mollis )	Α	<1'	
	8	Snowberry (Symphocarpus mollis )	Α	<1'	
	9	Snowberry (Symphocarpus mollis )	Α	<1'	
	9	Snowberry (Symphocarpus mollis )	Α	<1'	
	9	Snowberry (Symphocarpus mollis )	Α	<1'	
		Snowberry ( <i>Symphocarpus mollis</i> )	A	<1'	
	9	Snowberry ( <i>Symphocarpus mollis</i> )	Α	<1'	
	15	Snowberry (Symphocarpus mollis )	Α	4'	
	15	Snowberry (Symphocarpus mollis )	Α	4'	
	15	Snowberry ( <i>Symphocarpus mollis</i> )	Α	4'	
		Snowberry (Symphocarpus mollis )	Α	3'	
		Snowberry ( <i>Symphocarpus mollis</i> )	Α	3'	
		Snowberry (Symphocarpus mollis )	Α	3'	
		Snowberry (Symphocarpus mollis )	A	3'	
		Snowberry (Symphocarpus mollis )	Α	3'	
		Snowberry (Symphocarpus mollis )	Α	3'	
		Snowberry (Symphocarpus mollis )	Α		
		Snowberry (Symphocarpus mollis )	Α		
		Snowberry (Symphocarpus mollis )	Α		
		Snowberry (Symphocarpus mollis )	Α		
	19.5	Snowberry (Symphocarpus mollis )	Α		
	21	Snowberry ( <i>Symphocarpus mollis</i> )	Α	2'	
		Snowberry (Symphocarpus mollis )	A	2'	
	25.5	Snowberry (Symphocarpus mollis )	Α		
	25.5	Snowberry (Symphocarpus mollis )	Α		
N 37 42.287' W 121 52.714'	31				
		Willow species (Salix spp.)	Α	20'	
		California blackberry (Rubus ursinus )	A		
N 37 42.286' W 121 52.709'		Cattail (Typha domingensis )	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis )	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha dominansis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
		Cattail (Typha domingensis)	A		
	64	Cattail (Typha domingensis )	Α		

Coast live oak ( <i>Quercus agrifolia</i> )	0
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore ( <i>Platanus racemosa</i> )	0
California buckeye (Aesculus californicus)	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut ( <i>Juglans californica</i> )	1
Box elder ( <i>Acer negundo</i> var. <i>calif</i> )	0
Willow species (Salix spp.)	1
Oregon ash ( <i>Fraxinus latifolia</i> )	0
Blue elderberry ( <i>Sambucus mexicana</i> )	0
Toyon (Heteromeles arbutifolia )	0
California coffeeberry (Rhamnus californicus)	0
Coyote brush ( <i>Baccharis pilularis</i> )	0
Snowberry (Symphocarpus mollis )	28
California wild grape (Vitis californica)	0
California blackberry (Rubus ursinus )	1
California wild rose (Rosa californica )	0
Arrowweed ( <i>Pluchea sericea</i> )	0
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail ( <i>Typha domingensis</i> )	35
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock (Rumex crispus )	0
Fennel ( <i>Foeniculum vulgare</i> )	0
Unknown	0
Total	66

Transect 12	Upstream (North) of I-580 Bridge, Right bank (West side of creek)
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Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.206' W 121 52.733'	(				
	2	Toyon (Heteromeles arbutifolia )	А		
		Coyote brush ( <i>Baccharis pilularis</i> )	А		
		Coyote brush ( <i>Baccharis pilularis</i> )	А	10'	7'
	(	Toyon (Heteromeles arbutifolia )	А		
	(	Coyote brush ( <i>Baccharis pilularis</i> )	А		
	1:	L Coyote brush ( <i>Baccharis pilularis</i> )	А		
	1:	L Coyote brush ( <i>Baccharis pilularis</i> )	А		
	1:	Snowberry (Symphocarpus mollis )	А	2'	
	15	Snowberry (Symphocarpus mollis )	А		
	15	Coyote brush ( <i>Baccharis pilularis</i> )	А		
	19	Willow species (Salix spp.)	А	15'	
		Willow species (Salix spp.)	А	15'	
	19	Willow species (Salix spp.)	А	15'	
	19	Willow species (Salix spp.)	А	15'	
		Willow species (Salix spp.)	А	15'	
	19	Willow species (Salix spp.)	А	15'	
	19	Willow species (Salix spp.)	А	15'	
	19	Willow species (Salix spp.)	А	15'	
	19	Willow species (Salix spp.)	А	15'	
	2:	Snowberry (Symphocarpus mollis )	А		
	2:	Snowberry (Symphocarpus mollis )	А		
	24	Arrowweed ( <i>Pluchea sericea</i> )	А	2'	
	2.5	Arrowweed ( <i>Pluchea sericea</i> )	А	7'	
	2.5	Arrowweed ( <i>Pluchea sericea</i> )	А	7'	
	28	Arrowweed ( <i>Pluchea sericea</i> )	А	8'	
	42	Willow species (Salix spp.)	А	10'	4'
	44	1 California blackberry (Rubus ursinus )	А		
	44	1 California blackberry (Rubus ursinus )	А		
	46	California blackberry (Rubus ursinus)	А		
	46	Willow species ( <i>Salix</i> spp.)	А	12'	
		Willow species (Salix spp.)	A		
		California blackberry ( <i>Rubus ursinus</i> )	A		
		California blackberry ( <i>Rubus ursinus</i> )	A		
		California blackberry ( <i>Rubus ursinus</i> )	A		1
		Willow species (Salix spp.)	A		
		L California blackberry (Rubus ursinus)	A		
		California blackberry (Rubus ursinus)	A		1
		California blackberry (Rubus ursinus)	A		1
		California blackberry (Rubus ursinus)	A		
		California blackberry (Rubus ursinus)	A		
N 37 42.204' W 121 52.721'	57	, , ,	<u> </u>		1
		Survival rate (%)	100	1	_

Coast live oak ( <i>Quercus agrifolia</i> )	0
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore ( <i>Platanus racemosa</i> )	0
California buckeye (Aesculus californicus)	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut ( <i>Juglans californica</i> )	0
Box elder ( <i>Acer negundo v</i> ar. <i>calif</i> )	0
Willow species (Salix spp.)	13
Oregon ash ( <i>Fraxinus latifolia</i> )	0
Blue elderberry (Sambucus mexicana )	0
Toyon (Heteromeles arbutifolia )	2
California coffeeberry (Rhamnus californicus )	0
Coyote brush (Baccharis pilularis )	6
Snowberry ( <i>Symphocarpus mollis</i> )	4
California wild grape (Vitis californica)	0
California blackberry (Rubus ursinus )	11
California wild rose (Rosa californica)	0
Arrowweed ( <i>Pluchea sericea</i> )	4
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail (Typha domingensis )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock (Rumex crispus )	0
Fennel ( <i>Foeniculum vulgare</i> )	0
Unknown	0
Total	40

Dosition	Et from hoginning	Charine	Dood/Alivo	Hoight	Midth
		Species	Dead/Alive	Height	Width
N 37 42.202' W 121 52.698'	0 6	California wild rose (Rosa californica )	٨		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica )	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	A		
		` , ,	A		
		Blue elderberry (Sambucus mexicana )	A	15'	15'
		Toyon (Heteromeles arbutifolia ) Coyote brush (Baccharis pilularis )	Α	7'	
		Toyon (Heteromeles arbutifolia )	Δ	6'	4'
			A	10cm	,
		Snowberry (Symphocarpus mollis )	A		
	29	Willow species (Salix spp.)	A	20'	
	33	Willow species (Salix spp.)	Α	20'	
	33	Willow species (Salix spp.)	Α	20'	
		Willow species (Salix spp.)	A	20'	
		Willow species (Salix spp.)	A	_	_
		California coffeeberry (Rhamnus californicus )	A	7'	/'
		Willow species (Salix spp.) Willow species (Salix spp.)	Α	3' 2'	-
			Α Α	4	
		,	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica )	A		
			Α		
	51	Willow species (Salix spp.)	A	10'	
		California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	A		
		. , ,	Α .		
		California wild rose (Rosa californica ) California wild rose (Rosa californica )	Α		
		California wild rose (Rosa californica)	Δ		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica )	A		
		California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	Α		
	62	California wild rose (Rosa californica)	Α		
			A		
		California wild rose (Rosa californica )	A		
		California wild rose (Rosa californica)	A		
N 37 42.204' W 121 52.713'		California wild rose (Rosa californica ) California wild rose (Rosa californica )	Α		
N 37 42.204 W 121 32.713			Α		
		California wild rose (Rosa californica)	A		
			A		
		California wild rose ( <i>Rosa californica</i> )	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	A A		-
		California wild rose (Rosa californica ) California wild rose (Rosa californica )	Δ		1
		California wild rose (Rosa californica )  California wild rose (Rosa californica )	A	<b>—</b>	
		California wild rose (Rosa californica)	A		
		Arrowweed ( <i>Pluchea sericea</i> )	A		
	76	California wild rose (Rosa californica)	A		
			A		
		California blackberry (Rubus ursinus )	A		
		Willow species (Salix spp.)	A	15'	3'
			A A		
		California blackberry (Rubus ursinus ) California blackberry (Rubus ursinus )	Λ	<b>—</b>	<b>.</b>
		California blackberry ( <i>Rubus ursinus</i> )  California blackberry ( <i>Rubus ursinus</i> )	A		1
		,,	A		
		Arrowweed (Pluchea sericea )	A		
		Arrowweed (Pluchea sericea )	A		
		Arrowweed (Pluchea sericea )	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	A		
		California wild rose (Rosa californica)	A		-
		California wild rose (Rosa californica)	A A	-	-
		California wild rose (Rosa californica ) California wild rose (Rosa californica )	Δ		<b>-</b>
			A		
		California wild rose (Rosa californica)	A		
		California wild rose ( <i>Rosa californica</i> )	A		
		Survival rate (%)	100		

Coast live oak ( <i>Quercus agrifolia</i> )	1
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore ( <i>Platanus racemosa</i> )	0
California buckeye (Aesculus californicus )	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	0
California black walnut ( <i>Juglans californica</i> )	0
Box elder ( <i>Acer negundo v</i> ar. <i>calif</i> )	0
Willow species (Salix spp.)	9
Oregon ash ( <i>Fraxinus latifolia</i> )	0
Blue elderberry (Sambucus mexicana )	0
Toyon (Heteromeles arbutifolia )	2
California coffeeberry (Rhamnus californicus )	1
Coyote brush ( <i>Baccharis pilularis</i> )	1
Snowberry ( <i>Symphocarpus mollis</i> )	1
California wild grape (Vitis californica)	1
California blackberry (Rubus ursinus )	6
California wild rose (Rosa californica)	53
Arrowweed ( <i>Pluchea sericea</i> )	6
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail (Typha domingensis )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock (Rumex crispus )	0
Fennel ( <i>Foeniculum vulgare</i> )	0
Unknown	0
Total	81

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Position	Ft from beginning	Species	Dead/Alive	Height	Width
N 37 42.283' W 121 52.684'	0				
	6	Snowberry (Symphocarpus mollis )	А	3'	
	13	California sycamore ( <i>Platanus racemosa</i> )	Α	20'	3'
	18	Toyon (Heteromeles arbutifolia )	A	15'	20'
	31	California sycamore (Platanus racemosa)	А	5'	1'
	40	Coast live oak (Quercus agrifolia )	А	20'	3'
	53	California wild rose (Rosa californica)	А		
	53	California wild rose (Rosa californica)	Α		
	53	California wild rose (Rosa californica)	Α		
	53	California wild rose ( <i>Rosa californica</i> )	Α		
	53	California wild rose (Rosa californica )	Α		
	53	California wild rose (Rosa californica )	A		
	53	California wild rose (Rosa californica )	Α		
	53	California wild rose (Rosa californica )	Α		
	53	California wild rose (Rosa californica )	Α		
		California wild rose (Rosa californica )	Α		
	56	California wild rose (Rosa californica )	Α		
		California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	Α		1
	57.5	California wild rose (Rosa californica)	Α		
	57.5	California wild rose (Rosa californica)	Α		
	57.5	California wild rose (Rosa californica )	Α		
	59	Box elder ( <i>Acer negundo v</i> ar. <i>calif</i> )	Α	15'	4'
	59	California wild rose (Rosa californica )	Α		
		Arrowweed ( <i>Pluchea sericea</i> )	Α		
	62	California wild rose ( <i>Rosa californica</i> )	Α		
	62	California wild rose (Rosa californica)	Α		
		California wild grape (Vitis californica)	Α		
	62	Willow species (Salix spp.)	Α	10'	
	63	California wild rose (Rosa californica)	A		
	63	California wild rose (Rosa californica)	А		
	63	California wild rose (Rosa californica)	А		
	63	California wild rose (Rosa californica)	А		
	63	California wild rose (Rosa californica)	А		
	63	California wild rose (Rosa californica)	А		
	63	California wild rose (Rosa californica)	А		
	65	California wild rose (Rosa californica)	Α		
	65	California wild rose (Rosa californica)	Α		
	65	California wild rose (Rosa californica)	Α		
	65.5	California wild rose (Rosa californica)	А		
	66	California wild rose (Rosa californica)	А		
	66	California wild rose (Rosa californica)	Α		
	66	California wild rose (Rosa californica)	Α		
	67	California wild rose (Rosa californica)	Α		
	67	California wild rose (Rosa californica)	Α		
N 37 42.284' W 121 52.696	67	California wild rose (Rosa californica)	Α		
	68	California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	А		
		California wild rose (Rosa californica)	Α		
·		California wild rose (Rosa californica)	Α		
	68	California wild rose (Rosa californica)	Α		
		California wild rose (Rosa californica)	Α		
	68	California wild rose (Rosa californica)	Α		
	69-75	California wild rose (Rosa californica)	Α		
	69-75	Snowberry (Symphocarpus mollis )	Α		
	80	Willow species (Salix spp.)	Α	25'	
	80	Black cottonwood ( <i>Populus trichocarpa</i> )	Α	30'	
	80	California blackberry (Rubus ursinus )	Α		
		Survival rate (%)	100		

Coast live oak ( <i>Quercus agrifolia</i> )	1
Valley oak ( <i>Quercus lobata</i> )	0
California sycamore ( <i>Platanus racemosa</i> )	2
California buckeye (Aesculus californicus )	0
Fremont's cottonwood ( <i>Populus fremonti</i> )	0
Black cottonwood ( <i>Populus trichocarpa</i> )	1
California black walnut ( <i>Juglans californica</i> )	0
Box elder ( <i>Acer negundo v</i> ar. <i>calif</i> )	1
Willow species (Salix spp.)	2
Oregon ash ( <i>Fraxinus latifolia</i> )	0
Blue elderberry (Sambucus mexicana )	0
Toyon (Heteromeles arbutifolia )	1
California coffeeberry (Rhamnus californicus )	0
Coyote brush ( <i>Baccharis pilularis</i> )	0
Snowberry ( <i>Symphocarpus mollis</i> )	2
California wild grape (Vitis californica)	1
California blackberry (Rubus ursinus)	1
California wild rose (Rosa californica)	45
Arrowweed ( <i>Pluchea sericea</i> )	1
Lupine ( <i>Lupinus latifolius</i> )	0
Cattail ( <i>Typha domingensis</i> )	0
Buckwheat ( <i>Eriogonum fasiculatum</i> )	0
Curly dock (Rumex crispus )	0
Fennel ( <i>Foeniculum vulgare</i> )	0
Unknown	0
Total	58