

REVEGETATION ALONG COYOTE CREEK (SANTA CLARA COUNTY) AT TWO FREEWAY BRIDGES¹

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In 1985, construction was completed on a new California Route 101 freeway segment San Jose and Morgan Hill, Santa Clara County. In order to mitigate the impacts to two acres of riparian habitat, on-site replacement planting was installed at two bridge sites.

Coyote Creek is one of the county's few remaining streams which supports remnant stands of mature riparian forest. It drains a watershed of over 200 square miles. Upstream, water levels are controlled by releases from Anderson Reservoir. Dominant plant species along the creek in the project area are as follows: Fremont cottonwood (*Populus fremontii*), valley willow (*Salix hind-siana*), red willow (*S. laevigata*), and coast live oak (*Quercus agrifolia*). A relatively sparse understory is dominated by California blackberry (*Rubus vitifolius*) and coyote bush (*Baccharis pilularis* ssp. *consanguinea*).

Plant materials were installed on June 31 and July 1, 1987. Planting holes were augered 18 inches wide and 3 feet deep and were backfilled with 1 cubic foot of nitrified redwood compost, 20:10:5 fertilizer tablets and native soil. Three inches of wood chip mulch were spread within the plant basins. Shrubs were planted along the middle to upper sections of the streambank. Trees, except willow, were planted along the upper slope. Specifications required hand weeding within the riparian zone, but a nonselective, postemergent contact herbicide (Diquat) was used on two occasions. Due to funding restrictions no materials were used to discourage wildlife browsing or to provide shade.

Results

Rhamnus californica showed excellent survival under a variety of planting conditions. At Site One *Gaultheria* was destroyed by wild pigs in October of 1987. The pigs uprooted the plants to get to fertilizer tablets within the backfill material. *Gaultheria shallon* in full sun did not perform well. *Populus* losses were due to scouring.

Discussion

Some of the shrub losses may be related to summer planting; however, inconsistent watering, poor soil structure, and inadequate shading may be responsible for the varied results.

Rhamnus appeared to be best suited to the various site conditions. High mortality rates of *Ribes* immediately following planting (Tables 1 and 2) may have resulted from poor quality specimens or mishandling during planting. High mortality rates between July and December of 1987 were probably due to less than optimum shading and a lack of available water within the root ball. Losses of *Gaultheria shallon* appeared due to exposure and animal damage.

Replacement plantings were done in May of 1988 in order to replace the large loss of *Ribes* which occurred in 1987. Insufficient information is available to determine the reason for the relatively poor survival of *Salix* cuttings over the first month after planting. However, dehydration during planting may have been the major factor. The few *Rubus* specimens surviving after one month were in full to partial shade.

Funding restrictions do not provide for ongoing maintenance. With the current drought conditions, this will undoubtedly be a critical period for the small plants which may not be fully established.

As of September 14, 1988 only *Gaultheria shallon* specimens planted in full shade were alive. This was due to the lack of supplemental irrigation after June 1988.

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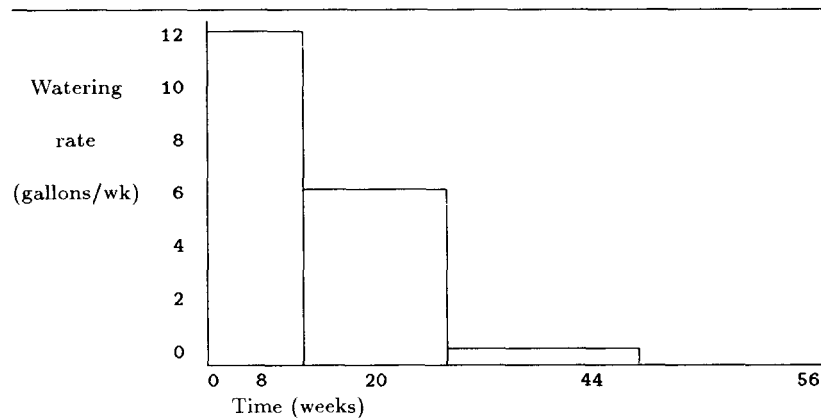


Figure 1 - Watering Schedule

Table 1 - Plant List

Species	No. of specimens		Size	Total no. specimens	Density Ft. on Ctr.
	Site 1	Site 2			
<i>Rhamnus californica</i>	104	118	1 gal	222	10
<i>Ribes sanguineum</i>	520	301	1 gal	821	5
<i>Gaultheria shallon</i>	221	183	1 gal	404	6
<i>Heteromeles arbutifolia</i>	89	55	1 gal	144	12
<i>Quercus agrifolia</i>	42	12	5 gal	54	20
<i>Populus fremontii</i>	50	21	1 gal	71	—
<i>Platanus racemosa</i>	12	5	5 gal	17	—
<i>Aesculus californica</i>	5	5	5 gal	10	—
<i>Salix hindsiana</i> ¹	—	—	—	—	2V
<i>Rebus vitifolius</i> ¹	—	—	—	—	2V

¹ Cuttings planted May 1988.

² Plantings were made in previously dug holes at varying densities.

Table 2 - Percent survival at Site 1 (S1) and Site 2 (S2)

Species	July 87		Dec. 87		Mar. 88		June 88		Sept. 88	
	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2
<i>Rhamnus californica</i>	100	100	98	100	98	99	97	98	95	97
<i>Ribes sanguineum</i>	85	98	5	24	3	15	3	15	3	15
<i>Gaultheria shallon</i>	¹ x	¹ x	80	65	64	63	62	61	*	*
<i>Heteromeles arbutifolia</i>	100	100	95	93	78	78	78	78	78	78
<i>Quercus agrifolia</i>	100	100	100	100	98	100	98	100	98	100
<i>Populus fremontii</i>	100	100	100	100	100	50	100	50	100	50
<i>Platanus racemosa</i>	100	100	100	100	100	100	100	100	98	100
<i>Aesculus californica</i>	100	100	100	100	100	100	100	100	100	100
<i>Salix hindsiana</i> ²	n	n	n	n	n	n	32	29	*	*
<i>Rebus vitifolius</i> ²	n	n	n	n	n	n	12	31	*	*

¹ x = no data available.

² Cuttings installed in May 1988.

n = No data since cuttings installed in May 1988.

* Roots system may be functioning; mortality cannot be determined.