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FORRESTAL NATURE PRESERVE PROPOSED RESTORATION OF A DISTURBED DRAW

The disturbed wetland areas in the Forrestal Preserve were visited on August 15, 2003, together with Dan Ryan, Stewardship Director and Barbara Dye, Executive Director of the Palos Verdes Peninsula Land Conservancy. During this field outing the restoration principles for the riparian and "spring" area were discussed and clarified.

The project consists of two parts of a natural drainage. The upper part to the northern edge of the quarry bowl cliff is marked as a blue line stream in the San Pedro quadrangle of the topographic map. This stretch of the disturbed upper part of the intermittent stream bed is paralleled and crossed by a trail and an old fence. At the trail crossing the stream still had water. Non-native invasive trees and shrubs like palm (*Washingtonia species*), castor bean (*Ricinus communis*), tree tobacco (*Nicotiana glauca*), myoporum (*Myoporum laetum*), fig (*Ficus carica*), ash (*Fraxinus uhdei*) as well as invasive non-native perennials like garden nasturtium (*Tropeolum majus*), fennel (*Foeniculum vulgare*), Pampas grass (*Cortaderia selloana*), horehound (*Marrubium vulgare*) and umbrella sedge (*Cyperus prob. alternifolia*) are growing within the draw. On the upper banks grow also mustards (*Brassica nigra* and *Hirschfeldia incana*), mallow (*Malva nicaensis*), garland daisy (*Chrysanthemum coronarium*) and other weedy species. Only a few native plants like giant wild rye (*Leymus condensatus*) and coyote bush (*Baccharis pilularis*) are mixed in with the disturbed vegetation.

The lower part of the project is located on the northwest side of the old quarry bowl where the "spring", the water from the above drainage, surfaces. In this area grow mostly among coyote brush (*Baccharis pilularis*) two tall Washingtonia palms, several large clumps of Pampas grass which seem to be spreading, *Acacia species* and *Schinus terebinthifolius*. In addition, tree tobacco (*Nicotiana glauca*) occurs in the coastal sage scrub above.

The following measures were discussed:

- Removal of non-native plants from the banks and bottom of the drainage and spring, as well as along the trail edges.
- In the case of non-native trees and shrubs, the plants should be cut down as low as possible and the plant parts will be properly removed from the Forrestal area. The roots should remain in the ground to reduce the ground disturbance and potential erosion risk. However, to prevent re-sprouting, the woody stumps should be thoroughly treated with a herbicide approved for use in wetland areas, such as Rodeo.

- In parts of the upper project stretch dead and cut off branches have accumulated. This heaped dead material should be removed together with the non-native weeds, so that native plants proposed for the revegetation of these areas can be planted and will have it easier to become established.
- Native plants growing in the draw will be maintained. On steeper slopes they will be left in place without any disturbance of their root system. This will help to keep the slopes stabilized.
- In addition, the parts cleared from exotic vegetation will be replanted with suitable local native plants.
- All native plants used for the restoration of this project will come from local plant sources.
- While the removal of invasive plants should commence as soon as feasible, replanting with natives should not be initiated before November/December. Native plants have their best survival chances if planted in the period of winter rains. Since irrigation, especially on the banks of the upper project part will not be possible, the plants should be aided by adding Dry Water.
- The treated areas will have to be checked in follow up visits. Newly germinating weedy species need to be regularly removed. Native plantings which did not survive may have to be replaced.

Plants Suitable for Restoration of Wetlands and Uplands

Common Name	Scientific Name	Life Form	Riparian	Bank/ Upland
Arroyo Willow	<i>Salix lasiolepis</i>	T	x	
Red Willow	<i>Salix leavigata</i>	T	x	
Mule Fat	<i>Baccharis salicifolia</i>	S	x	
Mexican Elderberry	<i>Sambucus mexicana</i>	S/T	x	x
Giant Ryegrass	<i>Leymus condensatus</i>	P		x
Mugwort	<i>Artemisia douglasiana</i>	P	x	
Rush	<i>Juncus species</i>	P	x	
Cat Tail	<i>Typha species</i>	P	x	
California Fuchsia	<i>Epilobium canum</i>	P		x
California Sagebrush	<i>Artemisia californica</i>	S		x
California Bush Sunflower	<i>Encelia californica</i>	S		x
Ashleaf Buckwheat	<i>Eriogonum cinereum</i>	P/S		x
California Buckwheat	<i>Eriogonum fasciculatum</i>	P/S		x
Black Sage	<i>Salvia mellifera</i>	S		x
Bedstraw	<i>Galium angustifolium</i>	P		x
Coyote Brush	<i>Baccharis pilularis</i>	S		x
Climbing Penstemon	<i>Keckiella cordifolia</i>	P		x
Sawtoothed Goldenbush	<i>Hazardia squarrosa</i>	S		x
Hedge Nettle	<i>Stachys rigida</i>	P		x
Foothill Needlegrass	<i>Nassella lepida</i>	P		x
California Melic Grass	<i>Melica imperfecta</i>	P		x

T - tree, S - shrub, P - perennial.