



Arundo donax Removal at Lookout Park. A CREF Sponsored Project

Arundo donax is an invasive, noxious plant that occurs in limited patches along riparian habitats and formerly at Lookout Park. *Arundo donax*, because of its dense rapid growth habit, is detrimental to plant and wildlife habitat, increases flood and fire risk, and threatens infrastructure. The County of Santa Barbara Board of Supervisors through the Coastal Resources Enhancement Fund allocated \$40,000 in 2007 to remove *Arundo donax* from Lookout Park and to restore native plants there.

The removal process began with obtaining a coastal development permit (CDP). Major vegetation removal in a recreationally zoned park in the Coastal Zone requires a coastal development permit. Because Lookout Park is within the appeals jurisdiction, the County of Santa Barbara can issue the CDP. The CDP was issued on December 12, 2007.

Treatment and removal of arundo started in September 2008. The arundo was cut and undiluted glyphosate herbicide was applied directly to the cut stump immediately after cutting, a technique known as cut-stump treatment. Cut arundo slash was disposed at the County's landfill. A summary of activity relative to reimbursement by CREF follows:

Summary of Activity	Cost
Permit development, permit fees	\$2,387.45
Primary <i>Arundo donax</i> removal (approx. 508 man-hours)	\$25,764.63
<i>Arundo donax</i> disposal (approx. 21.3 tons)	\$2,317.74
Native plants installation	\$8,089.01
<i>Arundo</i> retreatment and misc. weeds treatment (approx. 68 hrs)	\$1,441.17
Total	\$40,000.00

Arundo retreatment and native plant installation occurred in years 2009 and 2010. Most of these costs, \$21,731.22, were charged to a grant from the California Department of Food and Agriculture. In-kind contributions by the Agricultural Commissioner's Office since June 1, 2007 through May 31, 2010 totaled \$9,588.00 (=141 hours X \$68). Total in-kind and cash contributions equaled \$31,319.22. Cost share was 44% (= 31K ÷ 71K). A summary of activity of the contributions follows:

Summary of Activity	Cost
Native plants – 775 – one gallon container (supplies)	\$4,967.93
Native plant installation, <i>Arundo</i> retreatment (approx. 350 hrs)	\$16,763.29
Project administration, mapping, & labor (141 hrs, in-kind)	\$9,588.00
Total	\$31,319.22

The following native plants were installed at the park:

80 <i>Artemisia californica</i>	130 <i>Atriplex lentiformis</i>
40 <i>Baccharis pilularis</i>	200 <i>Encelia californica</i>
75 <i>Isocoma menzeisii</i>	150 <i>Leymus condensatus</i>
100 <i>Rhus integrifolia</i>	

The Board of Supervisors recently awarded an additional CREF award of \$8,500 to the project, to complete restoration within Lookout Park. The assistance of the County of Santa Barbara's Coastal Resource Enhancement Fund (CREF) – a partial mitigation of impacts from the following offshore oil and gas projects: Point Arguello, Point Pedernales, Santa Ynez Unit, and Gaviota Interim Marine Terminal, is greatly appreciated.

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July 21, 2010

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Maps and Pictures – Lookout Park Arundo Removal Project



Figure 1. Lookout Park is located at the end of Evans Ave, in Summerland, just east of Santa Barbara.



Figure 2. Large patches of *Arundo donax*, marked in red, on the eastern portion of Lookout Park.



Figure 3. Smaller patches of *Arundo donax*, marked in red, on the western portion (west of the sidewalk down to the beach) of Lookout Park.

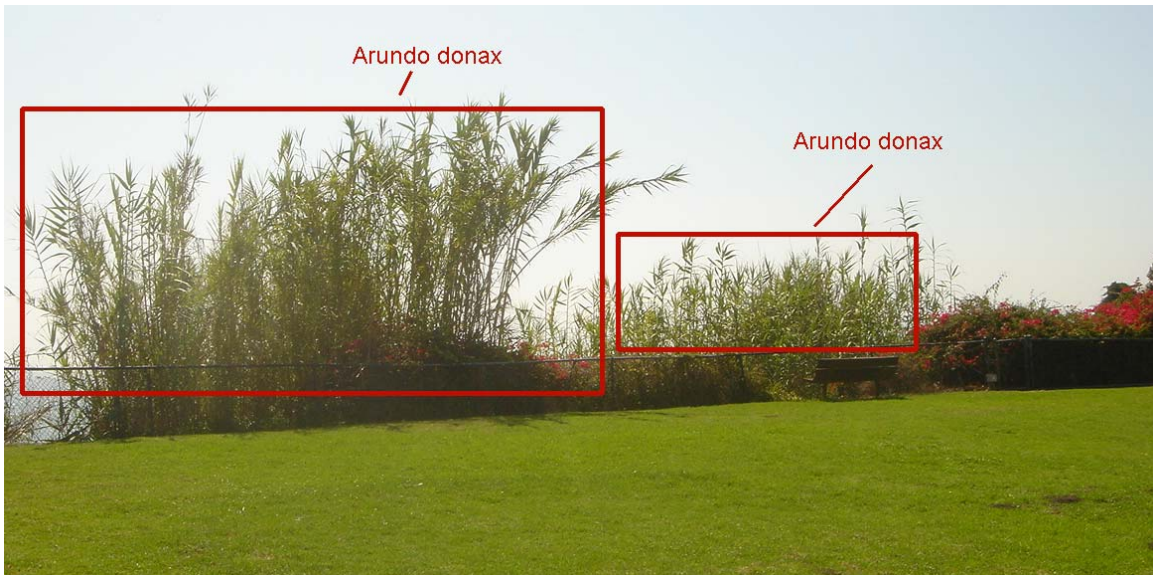


Figure 4. A old view from the top of Lookout Park, where Arundo once grew on the hill and ironically blocked a view from a bench at Lookout Park.



Figure 5. Arundo was also growing out of sand on the beach on the western portion of the park, and dead arundo stalks had accumulated on the beach there.



Figure 6. View from the beach of the largest patch of arundo on Lookout Park



Figure 7. View from beach of second and third largest patches of arundo on Lookout Park.



Figure 8. Primary arundo removal at eastern patches, in 2008



Figure 9. Primary removal of large middle patch at end of sidewalk



Figure 10. Cutting and herbicide application = Cut stump treatment



Figure 11. Arundo removal here opened access to a short trail between the beach and parking lot.



Figure 12. Before removal, at eastern side of park.



Figure 13. Appearance immediately after removal, in 2008.



Figure 14. Before removal



Figure 15. Immediately after removal, in 2008.

We did not plant native plants in 2008, as we expected the *Arundo donax* to resprout the following year. This avoids damaging native plantings when treating resprouting arundo. We treated resprouting arundo in late fall 2009, and then planted, after arundo treatment, the first round of native plants in winter 2009. In 2010, we planted additional native plants and treated weeds around previous plantings to enhance survival by eliminating competition for the native plants. In 2011, we anticipate treating weeds again to enhance survival, and planting native plants in some areas to increase the native plant density and to replace plants that may have died.



Figure 16. Arundo removal site showing arundo resprouts before treatment



Figure 17. Arundo removal site showing arundo resprouts before treatment. This site did not have much resprouting



Figure 18. Arundo removal site showing arundo resprouts before treatment



Figure 19. ...Channel Islands Restoration staff treating resprouted arundo. Foliar applications are used on resprouts for efficacy. The applicator is being protected from falling down the hill by ropes.



Figure 20. Successful second year retreatment, (2009)



Figure 21. Native plants waiting to be planted



Figure 22. Volunteers assisted by assembling irrigation parts



Figure 23. CCC staff assisted with plantings. This corps member is roped in for safety and is preparing to dig holes.



Figure 24. Plants placed into holes.



Figures 25 and 26. Plants were planted through ground cloth to discourage weeds, erosion, and conserve water. Squares were used to keep costs down. Irrigation was provided for each plant.



Figures 27 and 28. Significant rainstorms occurred during January and February 2010, but did not, to my relief, damage the project or the park.



Figure 29. The winter rains enhanced the establishment of the native plants, but also encouraged weed growth. But at least there isn't any arundo!

LOOKOUT PARK ARUNDO REMOVAL PROJECT

BEFORE:



AFTER:



This project is funded by the County of Santa Barbara's Coastal Resource Enhancement Fund (CREF) – a partial mitigation of impacts from the following offshore oil and gas projects: Point Arguello, Point Pedernales, Santa Ynez Unit, and Gaviota Interim Marine Terminal



Figure 30. West side of Lookout Park beach without arundo.