

## 2011 Annual Report Update Irish Canyon Riparian Restoration Project

Save Mount Diablo (SMD) began a riparian woodland restoration project on the 320-acre Irish Canyon property in January, 2010, at the request of the East Contra Costa County Habitat Conservancy (Conservancy). Designed by HT Harvey and Associates, the project aims to expand riparian woodland vegetation in three areas and enhance habitat for California red-legged frog around an active in-channel spring. The following annual report summarizes current project status.

In 2011, 90 volunteers worked for a total of 600 hours on the project. Many of the volunteers return each workday allowing the group to be more efficient and spend more time managing each planting site. Nearly three quarters of the sites outlined in the project description are currently occupied. Lack of substantial rainfall has postponed replanting this year until early 2012.

Sightings of ground squirrels, voles and gophers within the planting sites last fall prompted the installation of tree tubes around each of the oak saplings. No buckeye mortality from small mammal damage has been observed but this condition will continue to be monitored. In December 2010, tree tubes were installed around each oak planting within Channel Enhancement Area (CEA) #1, but weather related access issues delayed installation at CEA#2 and CEA#3 until spring 2011. Benefits to the oaks resulting from adding protective tree tubes include: reduced mortality from small mammals, reduced competition from annual non-native weeds, reduced water loss, and significantly increased vertical growth. Several oaks are now greater than 5 ft. tall.

Extensive weeding took place throughout the first half of the year. Annual grasses made individual site management difficult in 2010 so special attention was given to maintain a 1-2 ft. radius devoid of vegetation around each site this year. Non-native weed cover varies between each of the three CEA's furthermore presence of specific weed species within each of the areas are influenced by environmental factors such as soil composition, moisture and exposure. A combination of manual hand pulling and weed whacking was used to control weeds in each CEA.

Grassland within CEA #1, and throughout the property, has been invaded by medusahead grass (*Taeniatherum caput-medusae*). Due to high silica content in its tissues, it is seldom grazed by cattle, so in one or two growing seasons the highly invasive weed is able to form a monoculture and drown out native annual and perennial vegetation. A specifically timed mowing treatment on June 23<sup>rd</sup> had the effect of limiting spread of medusahead within CEA #1 compared to no treatment in 2010. The condition will be monitored throughout 2012 but future management will be needed to contain its spread throughout the channel and planting area.

Back to back wet winters saturated hillsides creating optimal conditions for sapling establishment and survival. Seasonal creeks that hadn't flowed in several years unexpectedly conveyed large volumes of water. Water was present in the seasonal drainage along CEA #1 for three months (April-June) and runoff collapsed a 20' section of exclusion fencing there inundating several sites. We estimated a total loss due to over-saturation at 4 trees. Additional mortality occurred from feral pig damage inside the fenced area.

At the time of the initial planting, two caging techniques were used to protect saplings from cattle; one large enclosure, or individual enclosures. As the second year of the project comes to a close, we are able to weigh the pros and cons of each approach:

- Large Enclosure – **PROS:** cost effective, time efficient, easier to manage sites and remove non-native weeds, benefits to native plants and creek segments within the enclosure; **CONS:** More susceptible to accidents, cattle not able to graze weeds between the plantings.
- Individual Enclosures – **PROS:** less risk of an accident impacting plantings, easier to locate and track saplings; **CONS:** more expensive, time consuming to build and manage.

Future projects should analyze the pros and cons of caging techniques based on factors such as site characteristics, species planted, existing land use and long term management.

Sites were watered every three weeks throughout the dry season, with at least one gallon of water per planting. Consistent with observations in 2010, vole, gopher and ground squirrel activity increased in the late summer and fall months but less than 5 total trees died as a result of gopher predation. Year 2 replacement planting will take place as soon as a strong storm system develops this winter. Acorns and buckeyes for the replacement plantings were collected on site in October and November from trees adjacent to the CEA's.

Other than reimbursement for fuel, staff time, and overhead, no major equipment or supply expenditures were made from the budget this year. We anticipate replacing some supplies for planting and regular maintenance in 2012.

In summary, fifty-two percent of the sites planted in Year 1 have survived through the end of the second growing season. The success of a sapling which survived Year 1, surviving Year 2, was 77%. Of the sites we replanted at the end of Year 1, 75% made it through their first year. See the table below for detailed information about planting success through two years at each of the CEAs.

Weeding, watering and replanting will continue in 2012 through the contract period. A final 2012 annual report will be provided to the Conservancy by the end of next year.

Second Year Planting (2010 acorns/seeds)				First Year Planting (2009 acorns/seeds)				
		Planted	Survived Y1			Planted	Survived Y1	Survived Y2
CEA #1	Buckeye	12	11	CEA #1	Buckeye	30	15	8
	Oak	18	14		Oak	70	50	39
CEA #2	Buckeye	1	0	CEA #2	Buckeye	6	5	5
	Oak	4	2		Oak	16	12	9
CEA #3	Buckeye	4	3	CEA #3	Buckeye	8	4	4
	Oak	5	3		Oak	17	12	10
subtotal		44	33	subtotal		147	98	75
Sapling Survival Y1 75%				Sapling Survival Y1 67%				
				Sapling Survival Y2 77%				

**Table 1.**

The table is divided into two sections, First Year Planting and Second Year Planting. Individual trees were tracked to monitor survivorship. A total of 108 sites (74%) are currently occupied, 33 "Second Year Planting" trees, and 75 "First Year Planting" trees.



# 2011 Annual Report Images

## Irish Canyon Riparian Restoration Project

Prepared by Save Mount Diablo on behalf of the  
East Contra Costa County Habitat Conservancy







July 2011 - CEA #1, 5 ft. tall valley oak sapling.



July 2011 - CEA #2, 5 ft. tall valley oak sapling.





May 2011 - CEA #2, 4 ft. buckeye sapling  
above the in-channel spring.



May 2011 - CEA #2, buckeye sapling  
along the in-channel spring.





July 2011 - CEA #1, volunteers fill up 3 gallon jugs to water nearby trees.



May 2011 - CEA #2, SMD's OUV makes it possible to access sites year round.





October 2011 - CEA #2, valley oak sapling nearing the top of the tree tube.



October 2011 - CEA #3, valley oak sapling nearing the top of the tree tube.





April 2011 - CEA #1, high water volume damaged one section of the fence.



April 2011 - CEA #1, running water inundated a small number of sites.





June 2011 - CEA #1, feral pig damage to the channel. Tubes protected saplings.



June 2011 - CEA #1, feral pig damage in the seasonal drainage.





January 2011 - CEA #1, medusahead  
thatch inside large enclosure



June 2011 - CEA #1, after mowing me-  
dusahead inside large enclosure





January 2011 - CEA #1, medusahead  
thatch inside large enclosure.



June 2011 - CEA #1, After mowing me-  
dusahead inside large enclosure.





June 2011 - CEA #1, mowed area along fence to reduce medusahead thatch.



July 2011 - CEA #1, a month after mowing, very little medusahead regeneration.