



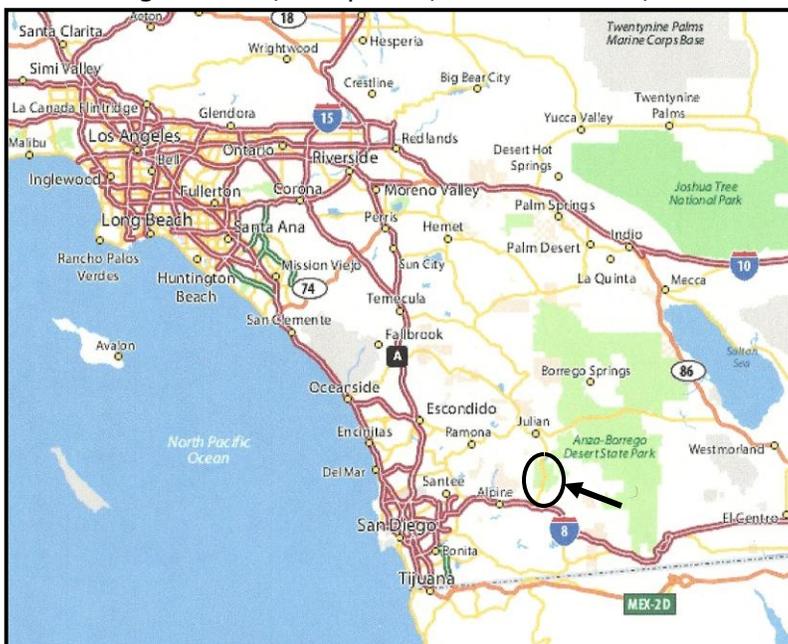
Cuyamaca Rancho State Park Reforestation Project

Project Description: In 2003, the Cedar Fire, California's largest fire in recorded history, destroyed 95% of the conifer forest in the 25,000 acre Cuyamaca Rancho State Park. The Cuyamaca Rancho State Park Reforestation Project is designed to restore the park's diverse native forest. The reforestation work consists of planting approximately 1,000,000 seedlings across 10% of the park lands in strategically located areas. Through maturation and seed dispersal these seedlings will promote the restoration of the conifer forests over time resulting in conditions favorable for critical wildlife habitat for rare and sensitive species, increased recreation values for southern California residents, and improved air quality through carbon sequestration and storage. The Project is currently undergoing third party verification to become the first reforestation project and first project on public lands to become registered at the Climate Action Reserve. Project activities are being conducted by the California Department of Parks and Recreation in partnership with the California Department of Forestry and Fire Protection (CAL FIRE).



*Inspecting 2010 Planting
on Middle Peak*

Project Location: Cuyamaca Rancho State Park is located 40 miles east of San Diego on Highway 79 in San Diego County, California. The park is situated within the Peninsular Range of mountains with elevations that range between 3,400 feet and 6,500 feet. Vegetation in the park is a mix of grassland, Chaparral, oak woodland, mixed conifer and hardwood forests (Coulter pine, canyon live oak, black oak) and coniferous forests (sugar pine, incense cedar, Jeffrey pine). Coniferous forests dominated the eastern and the northern aspects in the higher elevations prior to the Cedar Fire. The park averaged 440,000 total annual visitors in 2009 and 2010. The developed areas of the park include over 160 campsites, hiking, biking, and equestrian trails, the San Diego Outdoor School Camp, nine permanent and one seasonal residence and one historic house which is not yet open to the public.



2003 Cedar Fire: In October of 2003, the Cedar Fire burned over 270,686 acres in Southern California including almost the entire Cuyamaca Rancho State Park. This was the largest recorded fire in California as measured by fire perimeter maps which have been used to document the extent of burned areas since the early 1900's. Conifer mortality in the park was extremely high (>95%) due to the fire severity and extremely high temperatures which resulted in very low seed cone survival. Post-fire vegetation is dominated by herbs, shrubs and re-sprouting oak species.



2003 Cedar Fire – West Side of Park

Conifer forest is regenerating at only a small fraction of its pre-fire density.

Project Activities: Project activities started in fall of 2007 with planning, GIS mapping and site preparation by California State Parks and CAL FIRE employees for two pilot planting areas. Since 2007, 815 total acres have been prepared and planted. Site preparation work includes light to heavy brush removal by hand crews and mastication equipment. Seedlings are sourced from the CAL FIRE nurseries, the USFS nursery in Placerville, and other sources as available. In 2010, seed cones were collected in the park and sent to CAL FIRE's L.A. Moran Reforestation Center in Davis, CA, for germination and use in this project. The project uses 100% native species with a composition of species based on historical species surveys. The overall target mix is 65% Jeffrey pine (*Pinus jeffreyi*), 15% Coulter pine (*Pinus coulteri*), 8% sugar pine (*Pinus lambertiana*), 5% incense cedar (*Calocedrus decurrens*), and 7% white fir (*Abies concolor*). Higher percentage of Jeffrey pine has been chosen because this species has not been regenerating well on its own and is more fire and disease resistant.

A variety of seedling protection measures have been incorporated at different sites including Vexar tubing for deer browse, and shade cards or mats for excessive heat. Other activities target reductions in excess fuel buildup in the areas to be planted and in buffers around the planted areas. After ten years, the reforested areas will thinned as necessary to reduce stand density to 100 stems per acre.



Planting Site 2008 -Vexar Tubes Protect from Deer Browse

Co-Benefits: In the absence of the reforestation activities, the ceanothus vegetative cover is expected to continue to dominate the forest area for the foreseeable future. Restored coniferous forest habitat in the park will provide important protected areas for a wide variety of native mammal and bird species which are experiencing strong and continuous development pressure. Coniferous forest habitat is critical to forest dwelling species such as the red-breasted sapsucker, red-breasted nuthatch, and golden-crowned kinglet. Reforestation is necessary for preventing the spread of invasive weeds and reducing erosion risks protecting watershed function, archaeological sites, botanical reserves and the recreational capacity of the park. Additional project-related opportunities are ongoing research, such as studies of seedling survival and the role of ceanothus in soil restoration by the University of San Diego. San Diego State University, University of California at Riverside, and the University of California at Davis are among several institutions supporting or proposing to support restoration-related research at the park.



*Red Breasted
Sapsucker*

Carbon Offset Quantity and Accounting:

The climate benefits of the proposed project come from accelerated restoration of the forested landscape. In the absence of the project, shade intolerant brush and exotic annuals would be expected to persist for 50-years or more. Given the lack of natural conifer regeneration specific to the project site, this is longer than a typical succession timeline. The project incorporates systematic monitoring, reporting, and verification to assess progress towards the park's restoration goals, to meet the requirements of the Climate Action Reserve's protocol, and to ensure that credited reductions are sustained for 100 years. Initial third party verification for project eligibility and impacts of site preparation activities is currently ongoing and expected to be complete by the end of 2011. The climate benefits include the ability to reduce atmospheric carbon dioxide at a rate of approximately 1.2 metric tons per acre per year and the potential storage of 120 metric tonnes of carbon dioxide equivalent per acre.



2008 Planted Seedling in 2011

Awards: In December, 2010 The Ash Center for Democratic Governance and Innovation at the John F. Kennedy School of Government, Harvard University, selected the Cuyamaca Rancho State Park Reforestation project for its newly-created Bright Ideas program. The "Bright Ideas" is an award intended to highlight innovative government programs. During the spring of 2010 the Cuyamaca Rancho State Park Reforestation Project received the CAL FIRE Director's partnership award for demonstrating the ability of state agencies to be creative in identifying efforts that are complementary to more than one agency's mission.

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