

Mapping Riparian Areas in Southern California By Ethan Inlander, Conception Coast Project

Riparian areas are landscapes that are in close proximity to a water body or aquatic system and are influenced by that proximity. They commonly form narrow corridors along creeks and generally occupy about five percent of the area of a given watershed. These areas are characterized by vegetation that differs from adjacent uplands, and generally is adapted to the wetter conditions.

Riparian areas serve important ecological, hydrological and other functions. They are critically important for the health of watersheds, wildlife and people. The dense and often complex vegetation of riparian areas provides habitat for birds and mammals. The vegetation also provides organic material and shade for aquatic animals. The floodplains and vegetation in riparian areas can decrease the impacts of flooding and help recharge groundwater supplies. Riparian plants are able to uptake and remove pollutants and agricultural nutrients from the waters they abut.

However, despite their importance to watershed functions, biodiversity, and human values, Southern California riparian areas and aquatic habitats are severely threatened. By 1989, 90-95% of Southern California's riparian ecosystems had been destroyed or severely degraded.

The Southern California Wetlands Recovery Project (SCWRP) is a partnership of public agencies working cooperatively to acquire, restore, and enhance coastal wetlands, riparian areas and watersheds between Point Conception and the border with Mexico. SCWRP uses a non-regulatory approach and an ecosystem perspective to identify wetland and riparian acquisition and restoration priorities, prepare plans for these priority sites, pool funds to undertake these projects, implement priority plans and oversee post-project maintenance and monitoring.

Conception Coast Project (CCP) is currently working with SCWRP to develop a methodology for mapping the riparian areas of southern California coastal watersheds. This 18-month pilot project will yield preliminary riparian maps for five watersheds including Carpinteria Creek, the Ventura River, the San Gabriel River, San Diego Creek (Orange County) and Escondido Creek (San Diego County). If the mapping methodology proves to be accurate and cost-effective, it may later be applied to other watersheds in southern California and other parts of the State. SCWRP partners and others may use the riparian maps to identify and prioritize riparian areas for conservation and restoration actions.

The mapping methodology involves two main objectives. The first is to delineate the extent of the riparian area, or riparian zone. In mountainous areas digital elevation models can be used to identify the valley floor, which is synonymous with the riparian zone for the purposes of this project. In valley and coastal areas, the riparian zone will be delineated using other digital map data including aerial photography, FEMA floodways, levees, soils and geology.

The second objective of the mapping methodology is to characterize the vegetation within the riparian zone. Vegetation characteristics such as canopy cover and plant community types will be mapped using digital aerial and satellite imagery. Field surveys are used to calibrate and validate the mapping for both objectives.

Carpinteria Creek is the smallest of the five pilot watersheds with a total area of about 15 square miles. Delineating the riparian zone for Carpinteria Creek will rely on digital elevation models for the mountainous portions of the creek down to the Highway 154 crossing. Field surveys were conducted this summer at about 30 sites throughout the watershed. Maps will be completed by June of 2004. If you'd like more information on this project, please contact Ethan Inlander, Conception Coast Project, at (805) 687-2073.

Caption for map: This GIS-generated map is an example of what will be created to predict riparian area extent in the Carpinteria Creek watershed.