

Floodplain Restoration Feasibility Study

Location: Santa Clara River, Ventura County, CA
Client: California Coastal Conservancy

The Santa Clara River Parkway project seeks to partially ameliorate historical impacts in the lower Santa Clara River and conserve existing riparian habitats by acquiring and restoring existing habitat and flood-prone property from willing sellers. The Feasibility Study conducted by Stillwater Sciences was designed to assist the Coastal Conservancy and its partners in the identification of the opportunities and constraints associated with the acquisition, management, and eventual restoration of Parkway lands. The Feasibility Study augments existing studies by providing a comprehensive understanding of physical and biological processes within the lower river.

Assessment of Geomorphic Processes: Geomorphic processes were evaluated for the entire watershed, including the magnitude, frequency, and spatial characteristics of hillslope, fluvial, and estuarine geomorphic processes in the watershed, with a focus on the characteristics and dynamics of the lower river corridor. The report emphasizes how geomorphic process changes have occurred over time, providing the basis for process-based restoration planning in the lower river.

Riparian Vegetation Mapping: A detailed vegetation map was developed for approximately 15,000 acres of riparian habitat within the 500-year floodplain. The classification and mapping, which includes rare, sensitive, and non-native vegetation types, provides useful information to prioritize areas for vegetation conservation, restoration, and non-native invasive species removal.

Analysis of Riparian Vegetation Dynamics: A conceptual model was developed to assess riparian vegetation changes over time using existing literature and historical floodplain vegetation mapping. An analysis of physical factors that control the distribution of riparian vegetation was conducted and provides a basis for predicting how different vegetation types will establish and survive on restored floodplains within the study area, and identifying the issues that will shape revegetation success.

Focal Species Analysis and Habitat Characterization: Information was compiled on the life history and habitat requirements of eleven focal species to



define and map a set of habitat features that could be spatially identified from existing vegetation and geomorphic mapping. The resulting maps help prioritize areas for habitat conservation and restoration to protect focal species populations and provide a pre-project baseline that will be helpful in assessing the effectiveness of future restoration projects in improving focal species habitat quality and quantity.

Santa Clara River Parkway Floodplain Restoration Feasibility Study Report: The Feasibility Report summarizes and integrates these as well as other studies to: 1) provide an understanding of physical processes, habitat dynamics, and biological resources in the lower river; 2) assess opportunities and constraints to property acquisition and restoration implementation; and 3) describe strategies for acquiring, managing and restoring the Parkway that are technically and scientifically sound, feasible to implement, and support long-term Parkway objectives. The Feasibility Report presents reach-specific strategies for priority habitat conservation, active and passive levee setback and removal, native plant revegetation, non-native species removal, fish passage improvement, and water-quality treatment to improve geomorphic functioning and terrestrial and aquatic habitat quality and quantity in the lower Santa Clara River.