THE HISTORICAL ECOLOGY OF ALAMEDA CREEK

PROJECT OVERVIEW *Over the next two years, a team of researchers will collect and synthesize thousands of historical documents relating to the past landscape of the Alameda Creek watershed. This process will reveal what the watershed looked like and how it functioned before extensive development. This information will help local stakeholders to better understand the causes of present-day challenges and to develop strategies for watershed enhancement.*

PROJECT GOALS The Alameda Creek Historical Ecology Study aims to develop an understanding of the historical extent and function of terrestrial, fluvial, riparian, and wetland resources in the Alameda Creek watershed. Examples of topics addressed in the project include:

- *What kinds of wetlands occurred where (and why)?*
- *How did riparian vegetation, seasonal flow, and fish habitat vary among different stream reaches?*
- *How have creek depth, width, morphology, and connectivity changed over time?*
- *What habitats characterized adjacent floodplains: for example, oak savanna, wildflower meadows, or seasonal wetlands?*

The geographic focus is the floodplains, valleys, and alluvial plains adjacent to Alameda Creek and its tributaries. This includes the Livermore and Amador valleys, Sunol Valley and Niles Canyon, and the Niles cone and adjoining baylands. A pilot portion of the project will also focus on documenting landscape changes in the uplands of the San Antonio Creek watershed.

Flood view of Mocho Canal in January 1914 from the Pleasanton-Santa Rita county road. (SFPUC archives)

Lower Alameda Creek at Quarry Lakes viewed through time in a 1878 map (Thompson & West), 1939 aerial photos (USDA), and 2005 aerial photos. (USDA NAIP)

Flooded railroad tracks, early 1900s, in Niles Cone. (SFPUC archives)

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APPLICATIONS The project is designed to support several current planning efforts, including the Alameda Watershed Habitat Conservation Plan, Alameda County flood control planning, the Alameda Creek Watershed Council, the South Bay Salt Pond Restoration Project, and to advance public engagement in the watershed.

PRODUCTS AND TIMELINE Final products from the Alameda Creek Historical Ecology Study are anticipated in December 2010, including a map of historical habitats, GIS data, and an extensively illustrated, publicly accessible report. For more information or to get involved, contact one of the agencies below. For more information or for applications in other watersheds, see SFEI's Historical Ecology website: *http://www.sfei.org/HEP/*.

1916 view from Coyote Hills south across Coyote Hills Slough and the marshes. (Agriculture Department, SFPUC)

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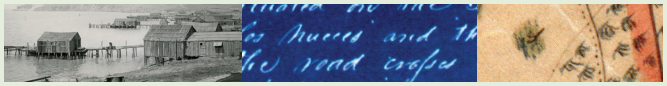
For more information, call Leslie Koenig at the Alameda County Resource Conservation District (925-371-0154 ext. 115) or Leslie.Koenig@ca.nacdnet.net.

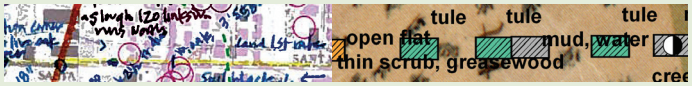
View of upland oak savanna in 1916 before the construction of San Antonio reservoir. (San Francisco Public Library)

Recipe for a **HISTORICAL ECOLOGY** Project

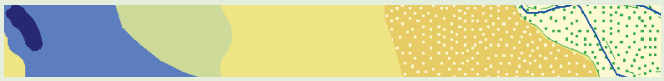
From the collection of raw source material to the production of final maps and reports, the process of building a picture of the historical characteristics of the Alameda Creek watershed is outlined briefly below.



1 DATA COLLECTION • Research begins with the acquisition of historical materials from places like the Museum of Local History in Fremont, the Livermore Heritage Guild, the Alameda County Department of Public Works, and The Bancroft Library. We look for early documents like journals, maps, and aerial and landscape photographs that describe the ecology of the area and show where early features were located.



2 DATA COMPILATION • Once the raw historical sources are collected, the data are read, sorted, and organized into usable formats. We extract pertinent quotes from historical narrative sources, and georeference selected maps, a process that ties historical maps and aerial photography to real world map coordinates so they can be compared with contemporary sources.



3 SYNTHESIS AND ANALYSIS • We rely heavily on a geographic information system (GIS) to synthesize multiple sources into layers describing historical habitats and channel alignments. Habitats to be mapped in the Alameda Creek project include lagoons, wetlands, vernal pools, oak savanna, chaparral, grassland, alkali meadow, and riparian habitat types. Once in the GIS, we can make comparisons between past and present landscapes, analyzing changes in habitat types, stream modifications, and long-term trends.

4 REPORTS, GRAPHICS, AND PRESENTATIONS • The final report will be a comprehensive guide applying understanding of historical conditions to present-day conservation challenges. The report will summarize methods and discuss results, including changes in habitat area and type, riparian conversion, channel incision/aggradation and other trends. Potential applications to floodplain management, wetland and stream restoration, and water supply management will be presented.