

## Habitat Enhancement & Watershed Restoration

The District sees stream maintenance as an integrated stream management approach that involves protecting and enhancing existing instream resources while providing for necessary flood conveyance capacity in the channel. The District's primary habitat enhancement goals are to protect and enhance instream physical processes, water quality conditions, riparian vegetation, and instream habitat.

The objective of the riparian planting program is to establish vegetation that mimics natural plant communities found in the Program Area under similar environmental conditions. As the restoration plantings mature they provide shade to the active channel, provide foraging and nesting habitat for many small mammals and birds, forage for aquatic species and moderate water temperatures, and help reduce the need for future sediment removal as the shade from the riparian canopy discourages cattail establishment which in turn traps sediment.

### The SMP goals are to:

- Enhance instream physical processes that create diverse flow conditions and instream landforms including, bars, riffles, pools and benches.
- Improve water quality through alleviating blockages to maintain circulation and remove debris and trash.
- Develop a mature native riparian canopy to shade out emergent and invasive vegetation.
- Protect and enhance aquatic habitat used by benthic macro invertebrates, fish, amphibians, birds, and other wildlife.



## Napa County Flood Control & Water Conservation District

## Stream Maintenance Program & Watershed Management



## Stream Bank Stabilization Cost Share Program

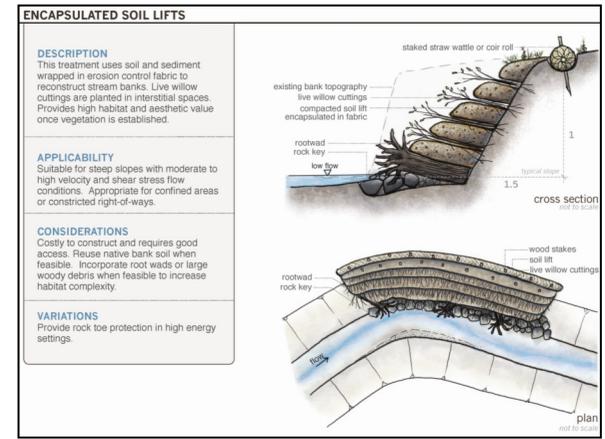
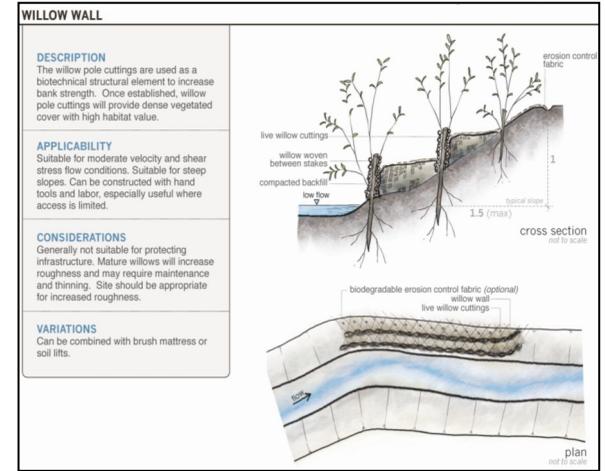
The District is committed to making a concerted effort to reduce streambank erosion and enhance riparian corridors throughout Napa County. Riparian and stream bank enhancement measures include extensive planting of riparian vegetation along exposed streambanks and removing non-native and invasive species along watercourses. These preventative measures not only reduce streambank erosion, but also improve ecological functions and values of channels in the program area.

In an effort to reduce streambank erosion the District offers a cost share program to assist private property owners with stream bank stabilization projects. The District offers three cost-share options:

1. 50/50 native riparian planting solution,
2. 50/50 bank stabilization for engineered hardscape solution,
3. 75/25 biotechnical bank stabilization solution,



Biotechnical Bank Stabilization Project Browns Valley Creek

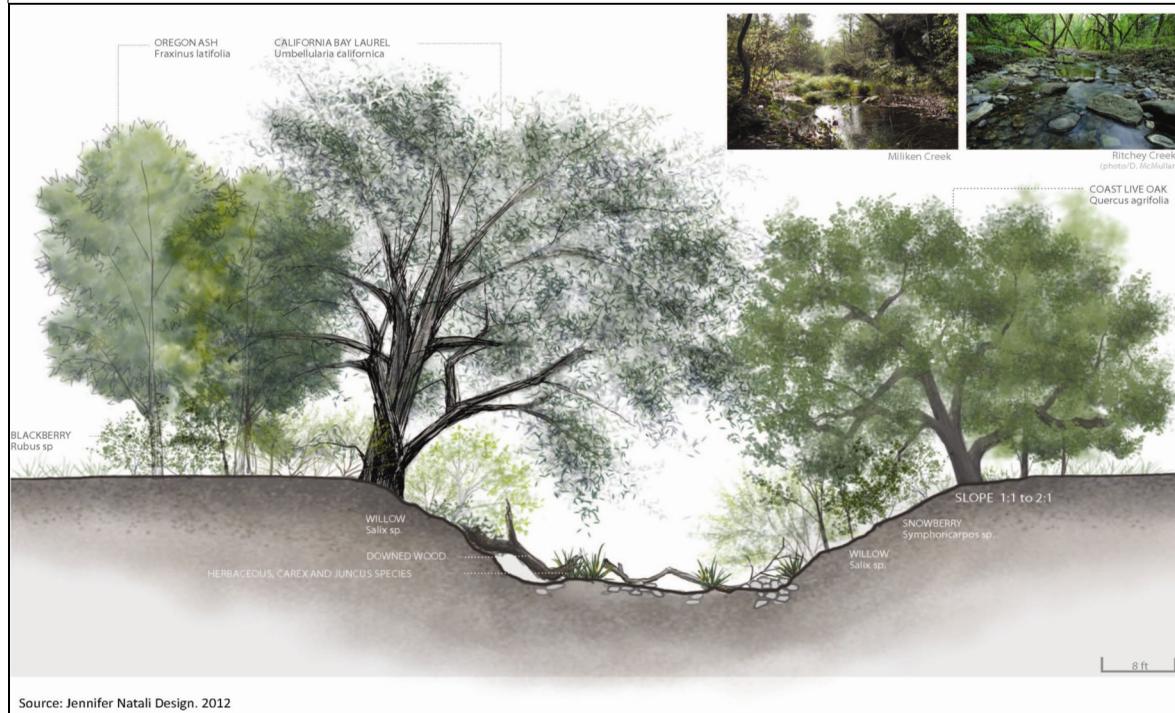


## Napa County Flood Control & Water Conservation District Stream Maintenance Program

The District's Stream Maintenance Program (SMP) is a proactive watershed based approach to flood protection and stream and habitat enhancement. The District conducts annual creek and river surveys to assess and prioritize potential issues that can be addressed through maintenance. The District also responds to citizens and government alerts to potential flooding, erosion problems and implements routine maintenance projects from June 15<sup>th</sup> –October 31<sup>st</sup>. The SMP has four primary activities: vegetation management, down tree management, erosion protection and bank stabilization and sediment and debris removal.

The Watershed and Stream Maintenance Program is funded through a local tax assessments and supports:

- Maintenance of the District's approximate 13 miles of flood control channels and easements,
- Managing debris and vegetation for flood damage reduction and resource protection throughout the District, particularly within the Napa River and its tributaries,
- Erosion protection for river and stream banks through the Bank Stabilization Cost Share Program,
- Management of non-native invasive vegetation and watershed restoration projects.



## Down Tree Management & Large Woody Debris

The District's encourages the recruitment of large woody debris (LWD) and the formation of channel features that enhance instream habitat by providing channel shading, flow eddies, scour pools, slack water and refugia for aquatic species.

However, downed trees and branches can also potentially increase the flood risk and raise water elevations. When these processes elevate the flood risk, increase erosion, or occur near a facility such as a stream crossing or culvert, the downed tree may require District management activities including tree removal, pruning, stabilization, or repositioning.

## Vegetation Maintenance

The District's vegetation maintenance objective is to increase flood protection while enhancing local streams to improve water quality and provide habitat for wildlife. Routine vegetation maintenance activities seek to prune, thin, or remove vegetation that is causing flow blockages or significantly increasing the hydraulic roughness and thereby reducing channel conveyance capacity. Vegetation maintenance activities also include planting native trees, shrubs, grasses, and removing non-native invasive vegetation that is causing flood control issues or inhibiting the growth of native vegetation.

## Sediment & Debris Removal

The District's approach relies on recognizing fundamental hydrological, geomorphic, and biological processes that affect a given stream reach and adaptively managing and maintaining streams based on these underlying processes. The District is taking a sustainable approach to sediment management through identifying key watershed sediment sources and reducing sediment delivery from upper watershed sources while planting canopy vegetation to inhibit emergent vegetation that traps fine sediment to maintain low flow channels and instream habitat quality.

## District's Mission

The Napa County Flood Control and Water Conservation District was formed in 1951 with the dual goals of providing flood protection and water conservation to Napa County.

Over the years since the District's forming, flood protection and water conservation approaches have evolved, particularly with regard to an increased focus on the protection of natural resources within the District's Boundaries. Local streams provide habitat for a range of flora and fauna including certain rare, threatened or endangered species.

The District's mission is the conservation and management of flood and storm waters to protect life and property, the maintenance of the County watershed using the highest level of environmentally sound practices, and to provide coordinated planning for water supply needs of the community.



For more information about the stream bank stabilization program or to request stream maintenance contact the NCFWCD at (707)259-8600 or visit us online at [www.napacounty.org/FloodDistrict](http://www.napacounty.org/FloodDistrict)

