

The Community VOICE

Rohnert Park, Cotati, & Penngrove

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Urban streams: Balancing humans and habitat

By Keenan Foster
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No matter where we live our lifestyles directly affect the creeks in our watershed. These creeks tirelessly accumulate the various byproducts of our civilization from our streets, driveways, lawns, hard surfaces, and waste places and ultimately carry them to the ocean. There are many actions we can take along this route that improve how these habitats look and function ecologically. Historically, flood control followed a paradigm that focused on the human need to move water out of town fast along straight and narrow channels without vegetation to obstruct high flows.

While successful from an engineering standpoint, this approach caused unintended consequences including, frequent maintenance needs, poor habitat complexity, degraded water quality, and the proliferation of weedy species. With fewer wild places for us to enjoy as Sonoma County develops, it becomes more relevant to focus attention on how urban streams could function more naturally.

Sonoma County Water Agency (SCWA) maintains flood capacity in many of the creeks in the Cotati-Rohnert Park area. These creeks were modified in the 1970's as an adjunct to the Central Sonoma Watershed Project, which created a series of reservoirs and channelized most of the streams in urban areas on the Santa Rosa Plain. Historically, work involved the complete removal of any woody vegetation in the channel and sides combined with periodic large-scale sediment removal.

This treatment left bare trapezoidal water courses vegetated by weedy grasses and herbs and filled with dense stands of cattails. This configuration isn't aesthetically pleasing, provides minimal habitat for wildlife, encourages cattails and Himalayan blackberry which catch and increase sedimentation, and the lack of shade promotes increased water temperatures. Since salmon listings and increased public scrutiny, SCWA has worked to develop friendlier ways to maintain capacity yet preserve habitat.

The dilemma is allowing more vegetation to persist in urban channels can significantly reduce designed capacity and result in creeks jumping their banks and flooding adjacent neighborhoods. Generally, capacity or level of protection is based on how much water is carried during flood intervals that represent 25-, 50-, 75- or 100-year storm events.

Allowing vegetation to establish in flood channels adds "roughness" that reduces the designed level of protection. To address this SCWA coordinates with cities to select the level of protection acceptable under their jurisdiction. Most choose a compromise that allows selected woody vegetation to persist on the side and upper banks but not in the bottom. Then the balance of vegetation retained or removed is adjusted adaptively depending on performance following storm events.

Currently, SCWA encourages a specific species palette and arrangement based on location in the channel. Methods include retaining existing and planting large tree species on the upper bank (primarily oaks), retaining, pruning, and planting more vegetation on the channel sides (primarily willows, maples, alders, and box elder, as well as introducing invasive native grasses to the understory), installing native sedges, rushes and grasses in the channel bottom and developing alternative sediment removal designs that add complexity.

The goal with the trees is to achieve a closed canopy, and when sediment removal is required, SCWA is evaluating the construction of in-stream sediment basins and "low-flow" ditches in the channel bottom that mimic the natural sinuosity observed for each stream. These ditches help to confine flows and improve water quality by decreasing the area exposed to sunlight.

Additionally, the ditches combined with planting native forbs should reduce available habitat for cattails and shrubby willows and provide "flood control friendly" overhanging vegetation close to the water. In-stream sediment basins will minimize impacts by limiting the work area.

SCWA anticipates these approaches will result in a more natural ecology in managed creeks, decrease the overall management effort as a result of shaded riparian corridors (thinner understory), improve water quality, and mobilize sediment during intermediate flows. To implement these approaches most effectively, SCWA is looking to work with local stakeholders to obtain federal, state, and local grants available for creek restoration. SCWA believes that while flood control is a necessary evil to levy upon our creeks to protect home and property, it can be executed by sharing a compromise vision that balances human interests with water quality and habitat.

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