

PROTECTING OUR NATIVE FISH

Did you know that dry Southern California has native fish?

Our native fish are *endemic*, found nowhere else in the world. They are distinct kinds or species of fish. They have adapted to shallow, warm inland streams and the plants and animals that grow in and along southern California waterways. Native fish, such as the Santa Ana Sucker and Arroyo Chub, were once common in the Santa Ana River and its tributaries. Today, many Inland Empire streams can no longer support populations of native fish.



Photo courtesy of Kenwin Russel

The *threatened* Santa Ana Sucker.

Our abundance of native fish is rapidly declining. Of the North American freshwater fish in streams, rivers, and lakes, nearly 40% are considered vulnerable or endangered!

Why is it important to protect and restore native species?

In an ecosystem, native plants and animals have developed together and hold complementary roles; they are *interdependent*. Removal of even one species can disrupt natural interactions and reduce another species' ability to survive.

Why are Southern California's fish absent or rare within their native waterways?

The main reason for the decline of native fish is loss of habitat. Waterways are narrowed and fragmented, lined with concrete, and contained in pipes. Less than one tenth of California's historic riparian (streamside) habitat remains.

Native fish species are also declining from degradation of stream habitat due to water pollution, exotic fish and aquatic animals, flood control dams, water diversion, and sand and gravel mining. Soil disturbance in the watershed, largely from land grading and fire, results in erosion and sediment that may also degrade habitat.

What is an exotic species?

An exotic species is one that is living outside of its natural range. Non-native species become invasive when they out-compete natives by using limited resources in a habitat, such as food or nesting sites. Aquatic invaders often eat smaller native fish, amphibians, tadpoles and eggs. The exotics may be successful at taking over a habitat because they are larger, quicker, grow faster, or lack natural controls (such as predators) in their adopted environment. Locally, successful invaders often have broad tolerances for fluctuating environmental factors, such as water temperature, quality, or availability.

Invasive Exotics



Photo courtesy of Brian Gratwicke



Photo courtesy of Michelle Tribe

Exotic species such as the Bullfrog and the Crayfish eat native fish and/or their eggs.



Southern California native fish prefer clean, clear, moving water in streams with shallow pools and gravelly or cobbly bottoms. Streams that move too slowly can trap fish, causing them to fall prey to birds and land animals. Good quality riparian habitat provides streamside vegetation, which shades and cools the water. Most native fish cannot survive in water that gets too warm (over 80 degrees). The quality of the water degrades with warmer temperatures. Good water quality supports varied populations of macro-invertebrates, an important food source for many types of fish. The better the water quality, the more likely native fish will thrive.

The term macro-invertebrate refers to small animals that can be seen without the use of magnifying equipment and that do not have backbones, such as mayfly, stonefly, and dragonfly larvae. Biologists count the variety and number of macro-invertebrates to help measure a stream's health.



Photos courtesy of Kerwin Russell



Biologists search for macro-invertebrates, indicators of water quality.

Remaining Native Fish of the Inland Empire

Species	Size	Status	Distribution
Santa Ana Sucker <i>Catostomus santaanaea</i>	6-8" long	Threatened	Upper Santa Ana River,
Arroyo Chub <i>Gila orcutti</i>	3-5" long	Uncommon	Upper Santa Ana River, Goldenstar Creek
Speckled Dace <i>Rhynchichthys osculus</i>	3-5" long	Rare	Cajon, Lytle, Plunge, Indian and City Creeks
Rainbow Trout <i>Oncorhynchus mykiss</i>	6-10" long	Natives Rare	Headwaters of the Santa Ana and San Jacinto Rivers (hatchery-raised and stocked in streams and lakes)
Partially Armored Three-spined Stickleback <i>Gasterosteus aculeatus</i>	3-4" long	Rare	Headwaters of the Santa Ana and San Jacinto Rivers
Unarmored Three-spined Stickleback <i>Gasterosteus aculeatus williamsoni</i>	3-4" long	Endangered	Headwaters of the Santa Ana River



The **Santa Ana Sucker** is the only species of sucker found in the Inland Empire and other parts of Southern California. Suckers now occupy only the upper portion of the Los Angeles and San Gabriel drainages, and the lower part of the Santa Ana River. Because there are so few remaining, they are considered *threatened* and protected by the Endangered Species Act.

Like other suckers, the Santa Ana type scrapes rock surfaces to eat different kinds of algae, detritus and insects. Santa Ana Suckers live in small, permanent streams, with depths from a few inches to over a foot. The water must be cool, but suckers have been known to withstand water temperatures of up to 80 degrees. This native fish may live up to 5 years.



Photo courtesy of Joe Ferreira



Photo courtesy of Joe Ferreira

The **Arroyo Chub** is a minnow-like fish that has a larger girth than other native fish, hence the name. They are helpful to us, because they feed on immature mosquitoes. Chub eat a varied diet of aquatic insects, algae, plants, and small crustaceans. Chub prefer calm water but are found both in slow-moving and fast-moving sections of streams, usually deeper than 6 inches. Chub have adapted to survive wide fluctuations in water temperature and

can tolerate from 60 to over 80 degrees Fahrenheit. Arroyo chub habitat includes the warm streams of the Inland Empire, which may be muddy torrents during the winter and clear quiet brooks in the summer, possibly drying up in places. If lucky, Chub may live about 4 years.

The **Speckled Dace** is a small, minnow-like fish that prefers clean, cool running water (50 to 70 degrees), from a few inches to a few feet deep. Speckled dace are omnivores, feeding on algae and other plant material and occasionally on bottom-dwelling aquatic insects.

Dace have a “speckled” pattern on their bodies and are broadcast spawners, meaning they do not make a nest on the bottom of the creek. During breeding, males often accompany a single female who broadcasts eggs over the streambed. Each female produces between 200 and 500 eggs. Dace have a life span of about 4 years.



Photos courtesy of Kerwin Russell

The **Rainbow Trout** is a species of salmonid native to tributaries of the Pacific Ocean and many other streams of the United States. The ocean going (anadromous) form are known as steelhead. There are some populations of rainbow trout in local streams, but those are still being tested to determine if they are the native coastal rainbow trout or planted stock.

Rainbow trout have been introduced for food or sport to over 45 countries. In some of these locations, they have had serious negative impacts on native fish species. Stocked trout will interbreed with closely related species and subspecies of native trout. They can also eat and out-compete other native fish when their numbers are high.



Something Fishy at RCRCD

In an effort to increase fish populations in their native ranges of the Santa Ana Watershed, the Riverside-Corona Resource Conservation District (RCRCD) has been conducting a variety of research and restoration projects since 2000. RCRCD has increased and managed populations of Santa Ana Sucker, Speckled Dace, and Arroyo Chub at the RCD's created stream and holding tanks. Over 5,000 fish have been reared and returned to the Santa Ana and San Jacinto Rivers and tributaries over the past 8 years.

RCRCD created a 300-foot long stream with a controlled environment to study and reproduce native fish. The District has been working to help native fish:

- Rescuing and relocating fish from Plunge and Lytle Creeks before they could be harmed by post-fire sediment. After being reared in tanks, the populations are returned to their native streams in the San Bernardino National Forest.
- Rescuing Speckled Dace from Indian Creek after fire, before they could be harmed by eroded sediment.
- Removing exotic animal and plant species and reintroducing the Arroyo Chub to a creek at Sycamore Canyon Park in the City of Riverside.
- Surveying for fish at Coldwater Creek.



Photo courtesy of Diana Ruiz

RCRCD continues to test water quality to determine suitable sites for the re-introduction of native fish and to monitor for fish and water quality at Temescal Wash in Corona.

Partners

RCRCD projects are often cooperative efforts between private landowners, agencies and/or organizations. Projects are conducted on public and/or private lands, or on the District's conservation easements.

The U.S. Forest Service funded the Speckled Dace Recovery Project for Indian, Plunge and Lytle Creeks. The California Department of Fish and Game assisted with the cooperative program.

The California Water Boards, locally the Santa Ana Regional Water Quality Control Board, funded the Special Environmental Projects for Sycamore Creek and the Temescal Creek Native Fish Restoration Program.

RCRCD has recently begun a new study to assess the impacts of water pollution on the Santa Ana Sucker, in cooperation with the US Fish and Wildlife Service.

The Santa Ana Watershed Association (SAWA) is an ongoing partner, providing funding, invasive species removal, and biologist assistance on RCRCD projects. SAWA continues to fund the maintenance and equipment for the 300-foot long Native Fish Stream at the RCRCD's LandUse Learning Center.

To learn more about reducing impacts on waterways and native habitats, request *Living on the Edge* of the Urban-Wildland Interface brochure, (free to RCRCD residents) at (951) 683-7691, Ext. 207 or snyder@rcrcd.com, or visit our website at www.rcrcd.com.

