



California Freshwater Shrimp Inventory at Golden Gate National Recreation Area and Point Reyes National Seashore

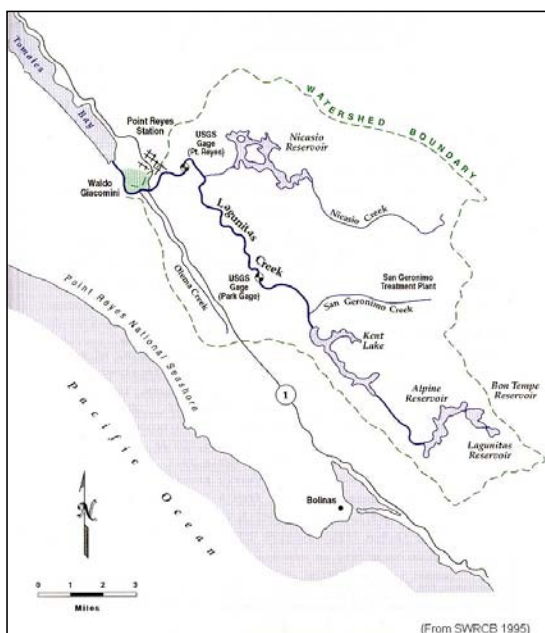
The Question: *What is the distribution of the federally endangered California freshwater shrimp (*Syncaris pacifica*) within the Lagunitas Creek watershed?*

The California freshwater shrimp is a translucent crustacean inhabiting low-elevation coastal streams. Listed as federally endangered since 1988, it is known to inhabit 16 streams in Marin, Sonoma and Napa Counties. Within Point Reyes National Seashore and Golden Gate National Recreation Area, the only streams to harbor these shrimp are mainstem Lagunitas Creek and its major tributary, Olema Creek. Other streams within both parks have the potential to harbor shrimp, but prior to this inventory in 2002, suitable habitat had not been surveyed. To fully document the distribution of this species of special concern, biologists surveyed thirteen streams within park boundaries for California freshwater shrimp presence.



Gary Fellers

The translucent California freshwater shrimp blends into its surroundings. The camouflage fools most native predators, like salmon and trout, but shrimp cannot always hide from introduced fish.



The map shows the boundary of Lagunitas watershed and some of the major creeks sampled during this inventory.

The Project: *Survey reaches in 13 creeks for California freshwater shrimp.*

Biologists surveyed 13 creeks within the Lagunitas watershed with features characteristic of California freshwater shrimp habitat - perennial flows, slow moving water, and flat gradients. Because California freshwater shrimp inhabit sluggish water where exposed roots and overhanging vegetation collect food particles and provide cover from predators, biologists surveyed along the stream banks.

To do this, biologists first divided each stream into reaches. A new reach was marked each time habitat conditions changed markedly. In each reach, a surveyor walked along the creek banks, vigorously shaking vegetation with a butterfly net. After walking less than 100 feet, the surveyor emptied the net into a pan of fresh creek water. Each organism was identified, counted and measured. They then were returned to where they were captured. Biologists evaluated environmental parameters for each creek, including temperature, water depth, amount of vegetation overhang, and amount of undercutting. Photographs of each creek were taken.



Ro M. LoBianco

The clear water and overhanging vegetation at Olema Creek provide habitat for the California freshwater shrimp. Olema Creek is the only tributary to Lagunitas Creek where biologists found the shrimp.

The Results: *Among the 13 surveyed streams, biologists found California freshwater shrimp only in a 650m reach of Olema Creek. No freshwater shrimp were found in other tributaries to Lagunitas Creek.*

The surveys confirmed that freshwater shrimp are present in Olema Creek in a 650 meter section near its confluence with Lagunitas Creek. This population is likely very small - only seven individuals were found.

No freshwater shrimp were found in the other creeks, which were all new to this survey. However, several creeks have the potential to harbor freshwater shrimp and may require further surveying before confirming their presence or absence. These streams have a particular flow structure, riparian vegetation and low level of disturbance consistent with California freshwater shrimp habitat. They

include Bear Valley, Glenbrook, Laguna and Coast Creek. Excluding cattle and horses from other creeks within the watershed may allow them to support freshwater shrimp.

Repairing fencing, removing litter along creeks, and protecting the natural stream flow, riparian structure and water quality could improve habitat conditions for freshwater shrimp and other aquatic organisms. The study recommends that streams with the potential to have California freshwater shrimp should be resurveyed. The Olema Creek population should continue to be monitored to assess population growth.

Additional Resources:

“California Freshwater Shrimp: A ghost-like crustacean we can’t afford to lose.”

Larry Serpa. 1996. Tideline Vol.16 No. 2, 1-3. Don Edwards San Francisco Bay National Wildlife Refuge.
<http://www.fws.gov/desfbay/Archives/shrimp/shrimp.htm>

U.S. Fish and Wildlife. Endangered Species Account

http://www.fws.gov/sacramento/es/animal_spp_acct/california_freshwater_shrimp.htm

For More Information:

Marcus Koenen, Inventory and Monitoring Coordinator, National Park Service, San Francisco Bay Area Network, Fort Cronkhite Bldg. 1063, Sausalito, CA 94965. Marcus_Koenen@nps.gov

Darren Fong, Aquatic Ecologist, National Park Service, Golden Gate National Recreation Area, Fort Cronkhite Bldg. 1061, Sausalito, CA 94965. Darren_Fong@nps.gov