

1999 California Freshwater Shrimp (*Syncaris pacifica*)
Survey, Marin Co., Golden Gate National Recreation Area
and Point Reyes National Seashore



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INTRODUCTION

The California freshwater shrimp (*Syncaris pacifica*) is listed by the U.S. Fish and Wildlife Service as endangered (55 FR 43884) and is the only extant member of the genus. The shrimp is endemic to 17 coastal streams in Marin, Sonoma, and Napa counties north of San Francisco Bay, California.

We were interested in surveying at two sites to determine the presence or absence of California freshwater shrimp in Olema Creek and Rodeo Valley, Marin County. The California freshwater shrimp population is extremely small in Olema Creek, a tributary to Lagunitas Creek, Marin Co. Small numbers of shrimp were collected in 1996 and 1997 near the confluence with Lagunitas Creek (Fong 1999). Potential habitat for the freshwater shrimp occurs in the Rodeo Valley watershed. This potential habitat is downstream of an equestrian facility.

Permits

Because sampling activities would deliberately "take" an endangered species, a permit under section 10(a)(1)(A) of the Endangered Species Act was obtained from the U.S. Fish and Wildlife Service (subpermit no. GGNRA-2). The survey was also conducted with a Point Reyes National Seashore research and collecting permit (#99-25), issued October 7, 1999.

METHODS

The shrimp inventory was conducted using a single pass through suitable habitats. The sampling methods followed procedures described by Serpa (1991) and permitted by the U.S. Fish and Wildlife Service. A standard butterfly net was used to sweep riparian vegetation overhanging into the creek as well as undercut banks. Both banks were sampled during a single pass. Nets were frequently emptied into a shallow pan and sorted for shrimp or other unusual invertebrates.

RESULTS

South Rodeo Lake

Surveys were conducted along a 100 m length on the southern shore of Rodeo Lake (January 27, 1999 and March 2, 1999). Locations sampled for shrimp included willows with adventitious roots or vegetation hanging in the water. Most of the sampled area was a flooded riparian willow habitat with emergent vegetation in areas lacking willows. No shrimp were found. Invertebrates collected included mosquito larvae, water striders, water boatmen, backswimmers, amphipods, snails, and damselfly larvae.

Upper Rodeo Lake/Rodeo Creek.

A single survey was conducted on January 11, 1999. Two locations where willows or other types of vegetation were hanging into the water were surveyed (Figure 1). Both sites contained much detrital material on the bottom and had an anoxic smell. No shrimp were found. However, both sites had the rare Tomales asellid (*Caecidotea tomalensis*) with roughly 5-10 individuals captured at each site.

Gerbode Creek.

Gerbode Creek is a major tributary to lower Rodeo Creek. Below the Bobcat Trail crossing, the gradient is quite low and in some locations, the creek lacks a defined channel, with water flowing through a vegetated wetland (Figure 1). The riparian habitat contains overhanging species including California blackberry, willows, and dogwood. No shrimp were found during the single survey conducted on January 11, 1999.

Sampled invertebrates included amphipods, alderfly larvae (*Sialis* sp.), mayfly (*Paraleptophlebia* sp.), predaceous diving beetle (Family Dytiscidae), and case caddisfly larvae. Fish taxa captured included prickly sculpin (*Cottus asper*) and three-spine stickleback (*Gasterosteus aculeatus*).

Both Gerbode and Rodeo sites appear to have habitat suitable for shrimp. Flows are perennial and there is extensive amounts of riparian vegetation extending into the water. More frequent and extensive surveys are needed to determine whether the watershed supports the shrimp.

Olema Creek.

A single survey was conducted on October 18, 1999. We surveyed from the fallow pasture near the confluence of Lagunitas Creek to above the “Old dam” site for a total survey distance of 675 meters (Table 1, Figure 2) No adult or juvenile shrimp were captured.

Table 1: 1999 inventory of shrimp in Olema Creek, Marin Co.

Stream Reach	Sample Distance	No. of shrimp	Shrimp in '97
-Pasture Above Lagunitas Confluence to Old Dam	350 m	0	Yes
-Above Old Dam	325 m	0	Yes

We collected other aquatic invertebrates typical of slow-moving waters during sweep surveys for shrimp including water scorpion (Family Nepidae), back

swimmers (Family Notonectidae), and water striders (Family Gerridae). Fish taxa captured included sculpins (Family Cottidae), California roach, and three-spine stickleback.

The reasons for the absence of shrimp are speculative. Since past surveys, the seasonal Giacomini dam had been permanently removed on Lagunitas Creek. When in place, the dam caused the lower portion of Olema Creek to “back up,” effectively flooding normal flatwater or riffle habitats. Some of the woody riparian species had roots and branches which developed under past summer water surface elevations—and are now above current summer water surface elevations. In addition, the current survey distance and frequency was less than adequate. It is possible that shrimp could have moved further upstream in Olema Creek, above the short distance that was sampled.

Summer sampling in the Year 2000 should be conducted along the same distance (4 km) as in 1997, from near the confluence with Lagunitas Creek to confluence with the Cemetary Tributary Creek.

Lagunitas Creek.

About a half-dozen juvenile and adult shrimp were collected and released directly below the Tocaloma Bridge on October 18, 1999.

Injury and Mortality

No shrimp mortalities or injuries occurred during sampling activities.

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LITERATURE CITED

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