

## SAN FRANCISCO GARTER SNAKE

Listed in 1967, the San Francisco garter snake has a burnt-orange head with a back bearing a greenish-yellow stripe edged in black bordered by a red stripe, which may be broken with black blotches and which is bordered by a black stripe. The belly varies from greenish-blue to blue. Large adults can exceed 3 feet in length. Females give live birth from June through September, with litters averaging 16 newborn.



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Cruz County. Currently, although the geographical distribution may remain the same, reliable information regarding specific locations and population status is not available. Much of the remaining suitable habitat is located on private property that has not been surveyed for the presence of the snake. The U.S. Fish and

Wildlife Service is aware, however, that many locations that previously had healthy populations of garter snakes are now in decline.

The snakes typically live near densely vegetated ponds by open hillsides where they can sun, feed and find cover in rodent burrows. They also use temporary ponds and other seasonal freshwater bodies. They avoid brackish marsh areas, in which their preferred prey, the California red-legged frog, cannot survive. Vegetation such as cattails and bulrushes are used for cover.

Many of the threats that led to the listing of the San Francisco garter snake in 1967 continue to impact the species, including loss of habitat from agricultural, commercial and urban development and collection by reptile fanciers and breeders. New threats include the decline of the California red-legged frog, an essential prey species, and the introduction of bullfrogs into the snake's habitat. Bullfrogs prey not only on the snakes themselves but also on California red-legged frogs. Extirpation of California red-legged frogs in San Francisco garter snake habitat is likely to cause localized extinction of the snake.

Adult snakes sometimes evade hot, dry summer conditions by retreating to rodent burrows until conditions change. On the coast, snakes hibernate during the winter, but further inland, if the weather is suitable, they may be active year-round.

The Service is working to protect the snake's habitat in such areas as Half Moon Bay and throughout the San Francisco peninsula, where development is burgeoning. The agency also has been acquiring habitat for protection and working with the San Francisco Zoo on a captive-breeding program that has helped bring the snake to the attention of the public. However, the species remains endangered.

San Francisco garter snakes forage extensively in aquatic habitats, feeding primarily on California red-legged frogs, which are federally listed as threatened. They may also feed on juvenile bullfrogs but are unable to feed on the larger adults. Adult bullfrogs likely prey on smaller San Francisco garter snakes and may be a contributing factor in the snake's decline. Newborn and juvenile San Francisco garter snakes depend heavily upon Pacific tree frogs as prey. San Francisco garter snakes are one of the few animals able to eat the toxic California newt without suffering serious side effects.

Funding from all government sources for San Francisco garter snake recovery nationwide ranks the species number 238 out of 1,311 species, according to the U.S. Fish and Wildlife Service fiscal year 2004 report (the most recent available) to Congress, *Federal and State Endangered and Threatened Species Expenditures*. Total recovery funding for the species from all government sources that year was about \$173,000, with \$90,000 coming through the Service.

Historically, San Francisco garter snakes occurred in scattered wetland areas on the San Francisco Peninsula from approximately the San Francisco County line south along the eastern and western bases of the Santa Cruz Mountains, at least to the Upper Crystal Springs Reservoir, and along the coast south to Año Nuevo Point, San Mateo County, and Waddell Creek, Santa