

Foothill Yellow-Legged Frog Docent Program 2017 Season Summary

Brenna Fowler, AmeriCorps Watershed Stewards Program



Figure 1: Little Carson Falls at peak flow, January 2017; taken by FYLF Program Lead, Brenna Fowler

Historically found in Oregon, California, and western Mexico, the Foothill Yellow-Legged Frog (FYLF) has lost approximately 45% of its range in California alone. Invasive species, pollutants, stabilization of seasonal stream flows, anthropogenic recreation, and habitat damage from dams have all contributed to the decline of the species¹. In 2017 the California Fish and Game Commission updated their legal status from “a species of special concern” to a candidate species under the California Endangered Species Act.

Within the Mt. Tamalpais watershed, there are two small, yet stable, populations—both of which are threatened by visitor usage. One of these populations persists at Little Carson Falls despite steadily increasing visitation since the early 2000’s. Online publicity in recent years has solidified it as a heavily trafficked hiking destination. The picturesque cascades and rocky pools, where the FYFLs lay their eggs, are alluring to hikers and off leash dogs that both occasionally swim and wade in the pools. Managed by the Marin Municipal Water District (MMWD), and almost completely within the boundaries of the Mt. Tamalpais State Game Refuge, the trails leading to the falls are among the many open to recreationalists from all over the San Francisco Bay region.

¹ Foothill Yellow-legged Frog - *Rana boylei*. "California Herps." California Herps.

In an effort to raise awareness about the breeding site at Little Carson Falls, and to balance the increased traffic, visitor enjoyment, community outreach, and FYLF protection, MMWD established the Frog Docent Program in 2005. Every spring, volunteers are recruited and trained by MMWD staff on FYLF life history and visitor interaction. As a FYLF docent, volunteers spend weekends during the March-June breeding period at the falls, educating visitors about frogs and watching out for destructive behavior.



Figure 2: Underwater shot of male FYLF and his brood; taken by GANDA surveyor Kevin Wiseman

The February training was attended by 14 people, and the volunteer pool for the season was 18, which included seven new docents and eleven returners. Following an introduction to the program by MMWD AmeriCorps Watershed Stewards Program member Brenna Fowler, Garcia and Associates (GANDA) herpetologist Karla Marlow led a section on frog biology and critical habitat. Ranger Brett Pedisich also trained the group in safety, radio use protocols, and successful interactions with the public. The second half of the training included a hike to the falls from the Azalea Hill Trailhead, where, unfortunately, frogs were not basking but volunteers still managed to practice using the spotting scopes and familiarize themselves with the location.

The past winter was distinguished as a record-breaking wet season with weather systems described as ‘atmospheric rivers.’² The subsequent weeks after training and mid-season were very rainy—the highest rainfall events of 2017 were observed on March 21st (2.2 inches), April 7th (2.9 inches) and 8th (2.5 inches). The rainy weather not only ended the six-year-

² Ting, Amy and Graff, Eric. "Record-breaking Rain Hits Bay Area in 2017: Here Are the Numbers." SFGate. Hearst Communications, 10 Feb. 2017. Web. 26 June 2017.

long drought California had been experiencing, but also caused many mudslides and road closures to occur all throughout the watershed. The closure of Bolinas-Fairfax Road, the route to the more popular waterfall hotspot, Cataract Falls, prompted visitors to hike to Carson Falls as an alternative. This increased the risk of frog egg masses being dislodged by visitors, adding to the risk of dislodgment by high flows. Many Bay Area news articles emerged: ranging from the MarinIJ³ to the San Francisco Chronicle⁴ to the Mercury News⁵-- all siting Little Carson Falls as a post-winter spectacle for waterfall-chasers. After the wet season passed and warmer temperatures ensued, the program came to a close on June 4th.



Figure 3: Garter snake having a high protein meal of a gravid FYLF female; handled by GANDA surveyor Kevin Wiseman, picture taken by GANDA surveyor Karla Marlow

Over the course of the season the 18 docents dedicated a total of 239 hours to the protection of the frogs. Docents covered 62% of the 58 total weekend shifts, either morning (9am-1pm) or afternoon (1-5pm), and 83% of the 29 possible volunteer days. Docents shared FYLF information with 85% of the visitors, for a whopping total of 1100 individuals. Due to the fact that there are no docents during the week, we have no visitor usage numbers for weekdays.

³ Correspondent, Tacy Dunham IJ. "Hike: Carson Falls above Fairfax Is a Winter Treat." Marin Independent Journal. Marin Independent Journal, 03 Feb. 2017. Web. 26 June 2017.

⁴ Stienstra, T. (2016, December 14). Winter gift: West Marin road to waterfalls, lakes, trails reopens. Retrieved June 26, 2017, from <http://www.sfchronicle.com/outdoors/article/Winter-gift-West-Marin-road-to-waterfalls-10797146.php>

⁵ Vournas, C. D. (2017, April 19). Spectacular California waterfalls to see right now. Retrieved June 26, 2017, from <http://www.mercurynews.com/2017/04/02/spectacular-california-waterfalls-to-see-right-now/>



Throughout the covered shifts docents encountered a total of 1293 individual visitors with 147 dogs. Of those totals, only four people and three off-leash dogs were seen inside of the pools! This is a sharp decrease from 2016's total of 19 visitors entering the water. Almost all of the visitors to the falls leashed their dogs or removed themselves from the water upon request, and docents recorded only one negative reaction for the season, which was expertly handled by the volunteers, one of which was one of our two youth docents!

In addition to educating watershed visitors, docents also make observations of the frogs and other wildlife. This season there were 139 frog sightings, including observations of amplexus (mating). The data collected by docents are particularly useful for GANDA biologists when deciphering signs of damage or predation to egg masses. Additionally, volunteers observed a host of other wildlife, from garter snakes, newts, fence lizards, skinks, tree frogs, and dragonflies, to hummingbirds, red-tailed hawks, black tailed sparrows, and an osprey with a fish in its mouth. On a GANDA survey, a garter snake was found near the pools ingesting a gravid female FYLF. The surveyors decided to let the snake have her high-protein lunch and recorded the frog and egg mass.

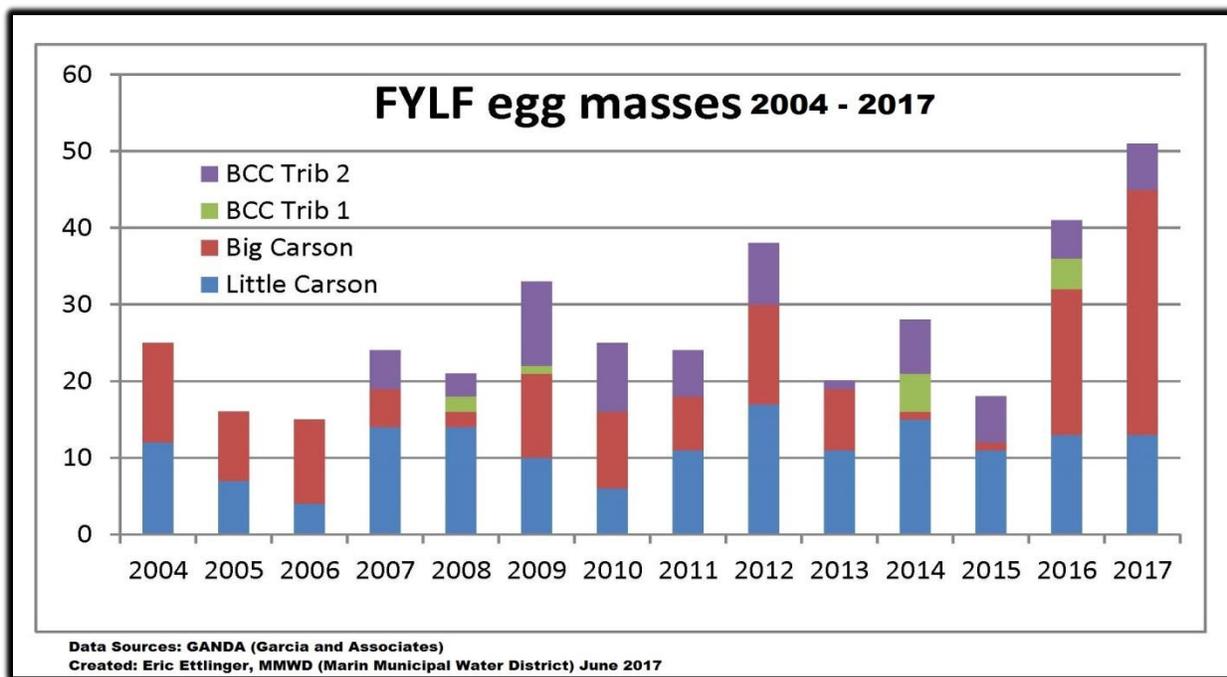


Figure 4: FYLF Egg Masses 2005-2017; data collected by GANDA and MMWD

This year was an extraordinarily good year for the frogs and their egg masses. Surveys conducted by GANDA yielded observations of 93 adult males, at least 20 female frogs, and 51 egg masses at Little Carson Falls and Big Carson Creek. This is the highest number recorded



since surveys began in 2005. The breeding season was longer than usual, with the last egg mass observed on May 26th in the Big Carson system. Of the 51 observed, there is only one record of a scoured and frayed egg mass. 6 egg masses were relocated from the road crossing at Big Carson Creek to a safer location downstream.



Figure 5: The final and 51st egg mass spotted in Big Carson Creek May 26th; taken by FYLF Program Lead, Brenna Fowler

Since the inception of the program, volunteers with the frog program have dedicated more than 2800 hours to the protection of the frogs and the education of watershed visitors. They've informed 7256 individuals about the plight and conservation of the FYLF. The docents are vital in ensuring that all watershed residents and visitors can enjoy the natural resource. We are immensely appreciative of our 2017 docents: Peter Suri, Cindi Darling, Frederic Leist, Janet Bodle, Lorri Gong, Jim Garlock, Rob Ruiz, Amber Lancaster, James Fair, Ethan Fair (son), Rich Cimino, Bill Bain, Tracy Matthes, Raine Matthes (daughter), Clara Cardillo, Maddie Halloran, Monica Tonty, Marisol Da Camara. Thanks to all of you for your time and support!

