

## Eel River Recovery Project Holding Annual Frog Egg Count at Benbow May 13

The Eel River is dropping and warming and the yellow-legged frogs are getting ready to reproduce in the margins of the river. Dr. Sarah Kupferberg will be conducting her annual census of the South Fork Eel River at Benbow where she has baseline data dating back more than a decade. The Eel River Recovery Project (ERRP) welcomes volunteers to come learn how to count yellow-legged frog egg masses. Those interested should come to Benbow on Saturday, May 13 at 10 AM.

There are several species of yellow-legged frogs in California and most have protected status and their populations are in decline. The causes of decline are numerous, but flow diversion and pesticide runoff are major factors. The Eel River basin, however, does not have wide-spread pesticide use and yellow-legged frogs are quite abundant in many locations, although distribution is not uniform. Over all, yellow-legged frogs experienced a major population upsurge after the 1964 flood, as the Eel River went from narrow deep and cold to wide and warm.

The reason Dr. Kupferberg focuses on counting egg masses is because the other yellow-legged frog life history phases are difficult to census. Tadpoles are too numerous and adults are too cryptic and secretive. As air temperatures rise and the edges of the main river channels warm, yellow-legged frogs come out of tributaries to spawn. Males stake out positions they instinctively know are good for egg deposition and also will attract females. Yellow-legged frogs make no noise while in the air, but the male croaks under water to attract the female. She swims by, he hops on her back and they glide downstream. Males are equipped with adhesive thumbs and strong fore-legs. The female is fertilized and then deposits her eggs in the margin.



At right: Sarah Kupferberg rescuing yellow-legged frog egg masses in May 2016.

Eggs look like a golf ball of caviar, immediately after being deposited and then take on a dusty look and expand to the size of a tennis ball over ten days before tadpoles hatch. Eggs are on the downstream side of cobbles and boulders out of the current and in relatively shallow water to avoid predation by fish. Counting frog eggs is done while walking upstream on the edge of the stream or while wading in shallow water near it. The index Dr. Kupferberg has developed is the number of yellow-legged frog eggs per kilometer. ERRP hopes to eventually get volunteers involved in similar counts Eel River basin-wide. Baseline data collected by Dr. Kupferberg and ERRP volunteers are already ecologically revealing.



Above: Yellow-legged frog egg mass.

Dr. Kupferberg's Benbow data indicated a relatively low density of frog eggs shortly after Benbow Lake stopped being filled. Yellow-legged frog egg masses increased along with riparian succession after the South Fork Eel River bed was no longer submerged for several years. As an experimental control and to broaden baseline data, Sarah also conducted a survey at the mouth of Fish Creek a few miles upstream.

As the Benbow reach increased in egg mass densities over time, the Fish Creek reach saw a dramatic drop. ERRP has framed a hypothesis that sediment impacts in Fish Creek are having ripple impacts on the yellow-legged frog egg mass numbers in the South Fork nearby. The reverse appears to be the case near the mouth of Sproul Creek, where ERRP volunteers Darcy and Larry Bruckenstein yellow-legged frog egg counts in the last two years are higher than any Dr. Kupferberg has seen anywhere in California. There has been concern over the decreasing flows in Sproul Creek and associated warming and impacts on salmonids. Dr. Kupferberg noted that yellow-legged frogs might be benefitting from the warming, which could account for very high egg mass numbers nearby.

In spring 2016, ERRP assisted Sarah in moving yellow-legged frog egg masses so that they would not be harmed by the removal of Benbow Dam by California State Parks. Egg masses, along with the rock to which they were adhered, were moved a sufficient distance upstream or downstream of the area disturbed in tubs and kayaks. Hundreds of egg clusters averaging 2000 eggs per cluster translated into hundreds of thousands of frog eggs being moved out of harm's way. Most of the foundation of the dam was removed in 2016, but a small portion remains. Due to high flows this year, State Parks is likely to hold off on the removal of the last dam remnants. Therefore, the Saturday, May 13 event will be a frog egg census and no egg masses need to be rescued or moved.



Those attending should wear river shoes and be prepared to walk on the cobble bar and to wade, if necessary. Polarized sunglasses are optimal for cutting glare when counting yellow-legged frog egg masses. The ERRP Board of Directors is hosting a picnic lunch and people are welcome to sit in ERRP Board meeting at 2 PM. Willits residents wishing to attend the training should convene at the Willits Hub at 630 S Main Street in Willits at 8:30 AM. See the ERRP Facebook page or [EelRiverRecovery.org](http://EelRiverRecovery.org) for more information or call 223-7200. No charge for participation.

See drone video of SF Eel at Benbow: <https://www.youtube.com/watch?v=4PbgfCphYvE&authuser=0>