Field methods for determining distribution of red algae in Santa Ana River

October 11, 2016

1 Materials and Equipment

Analogue pyrex thermometer
GPS
Swim goggles
Densiometer
5 containers for algae specimens, from EA laborary
30cm x 30cm Quadrat
30 m measuring tape
Random number generator: https://www.random.org/

2 Procedures

Site selection: 3 nonrandom reaches (Reaches A-C) were selected on the Santa Ana River due to their distinct physical characteristics. Reach A was farthest down stream, selected at the recommendation of US Fish and Wildlife for its abundance of SA suckers, at N34*2'5" W117*21'17". Reach B was just below the SA River's confluence with the RIX facility's outflow pipe, at N34*2'21" W117*21'20". Reach C was farthest upstream, above the confluence, at N34*2'29" W117*21'15".

Along each reach, 3 sites 1-10m apart were selected (Sites 1-3) with site 1 being farthest downstream in a reach, site 3 being farthest upstream. A random number generator was used ahead of time to select the distances between sites within a reach. Each site was composed of individual measurements along the right, middle, and lefthand sides of the stream (while facing upstream).

Each measurement (27 total: right, middle, and left for 3 sites for 3 reaches; 3x3x3=27 measurements) consisted of the following parameters:

Percent algae: a 30cm x 30cm quadrat was placed into the stream, which was then viewed using goggles. Percent cover was visually estimated 10 percent increments.

Stream bed composition: the relative coarseness of the streambed was categorically characterized as either coarse (gravel and cobbles) or fine (sand and silt).

Canopy cover: directly above each alage measurement, the densiometer was used quantify canopy cover. Measurements were recorded as the proportion of dark dots on the densiometer.

Temperature: the analogue pyrex themometer was submerged into the stream for approximately 1 minute, then read.