Science & the Environment
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09.17.16

Individualized Project Plan

How to save the Santa Ana Sucker?
*****Algae & Pebble Count*****

Intro

- As an individual involved in the group project, I am most interested in the red algae and its habitat and what hypothesis we may have about how its growth has affected the Santa Ana River and the Sucker. I am interested in its habitat formation, where in the stream bed it grows, how much is growing, if there are certain parts it seems to grow more etc. What is particularly interesting is if it is growing on small pebbles or not because, as cited in other sources, the Santa Ana Sucker use small pebble formations for their livelihood.

Driving Question

- Where is the red algae growing and it is presence a competition for habitat space to the Santa Ana Sucker?

Hypothesis

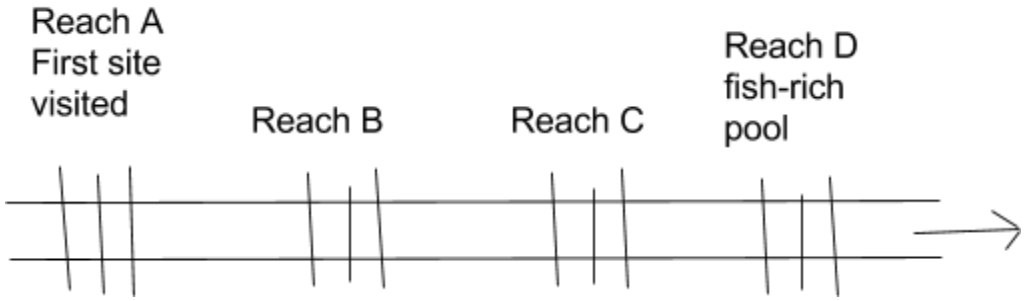
- I think that without research we will find that the red algae is prevalent, but where is yet to be discovered. If found with pebbles, I think we can hypothesize that yes, the red algae presence is competing with Santa Ana Suckers for habitat.

Notes

- Larry Brown US Geological Survey Scott suggested “mapping of algae patches and measurements of depth, velocity, and substrate to characterize "algae habitat utilization". This could be compared against sucker habitat utilization to determine if they are "competing" for habitat.” (From Syllabus)

Methods

1. Site selection: 3 measurements 1-10m apart for 4 different reaches. Use random number generator to select distance. 12 measurements total. Reach 1 = original site visited already. Must select Reaches 2 & 3 in between. Reach 4 = fish-rich pool half hour downstream



30 minutes to walk down to reach D where we will start, then proceed back upstream.

2. AT EACH SITE (25 minutes each):
    - Algae: use quadrat 30cm x 30cm. Take three measurements on right bank, middle, left bank. For each measurement, estimate % cover of algae in 10% increments
    - Pebble count. (What was the pebble structure and was the algae on the pebbles) Pebble size: qualitatively note grain size of streambed: cobbles, pebbles, coarse sand, fine sand, or silt.
    - Canopy cover: directly above each alage measurement, use canopy cover instrument to determine canopy cover.
    - Temperature: 3 measurements per site, left middle and right.
    - Time of each measurement
    - Notekeeper who records as team members call out measurements

      TOTAL TIME NEEDED: 2 hours 40 mins

Works Cited

- Power, Mary E. "Habitat Heterogeneity and The Functional Signifiance of Fish in River Food Webs." *Ecology* 73.5 (1992): 1675-688. Web.

- Gorman, Owen T., and Karr James R. "Habitat Structure and Stream Fish Communities."*Ecology* 59.3 (1978): 507-15. Web.

To Read more in Depth

- https://sakai.claremont.edu/access/content/group/CX_mtg_93545/Project%201/Santa%20Ana%20Sucker%20and%20Fish%20Habitat%20Selection/Thompson_2010_Habitat%20dynamics%20on%20the%20distribution%20and%20abundance%20of%20Santa%20Ana%20Sucker.pdf
- https://sakai.claremont.edu/access/content/group/CX_mtg_93545/Project%201/Santa%20Ana%20Sucker%20and%20Fish%20Habitat%20Selection/Greenfield_1970_Some%20aspects%20of%20the%20life%20history%20of%20the%20santa%20ana%20sucker.pdf
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