



Compsopogon coeruleus
in the Santa Ana River

Select Slides

Kai Palenscar
May 15, 2014

February 13, 2014

17 Non-native fish removed:
2 largemouth bass
14 black bullhead catfish
1 green sunfish



Algae first noted as potentially problematic during non-native fish removal at the RIX discharge pool.

In attendance USFWS, USFS, CDFW, RCRC, SBVMWD, RIX personnel

Algae collected from RIX discharge pool
Feb. 13, 2014 – dark brown/black and filamentous



Downstream of discharge pool Feb. 25, 2014



Preferred Habitat (Necchi *et al* 2013)

Aquarium

- Epiphytic Pest

Wildland

- Clear Water
- Rapid Velocity
- Hard Substrate
- Water Temp.
 - Mean 70°F (20°C)
 - Min. 56°F (12°C)
- pH
 - usually alkaline >7.5
- Specific Conductivity
 - Wide Range:
fresh to brackish water

RIX* Discharge

Rialto Channel



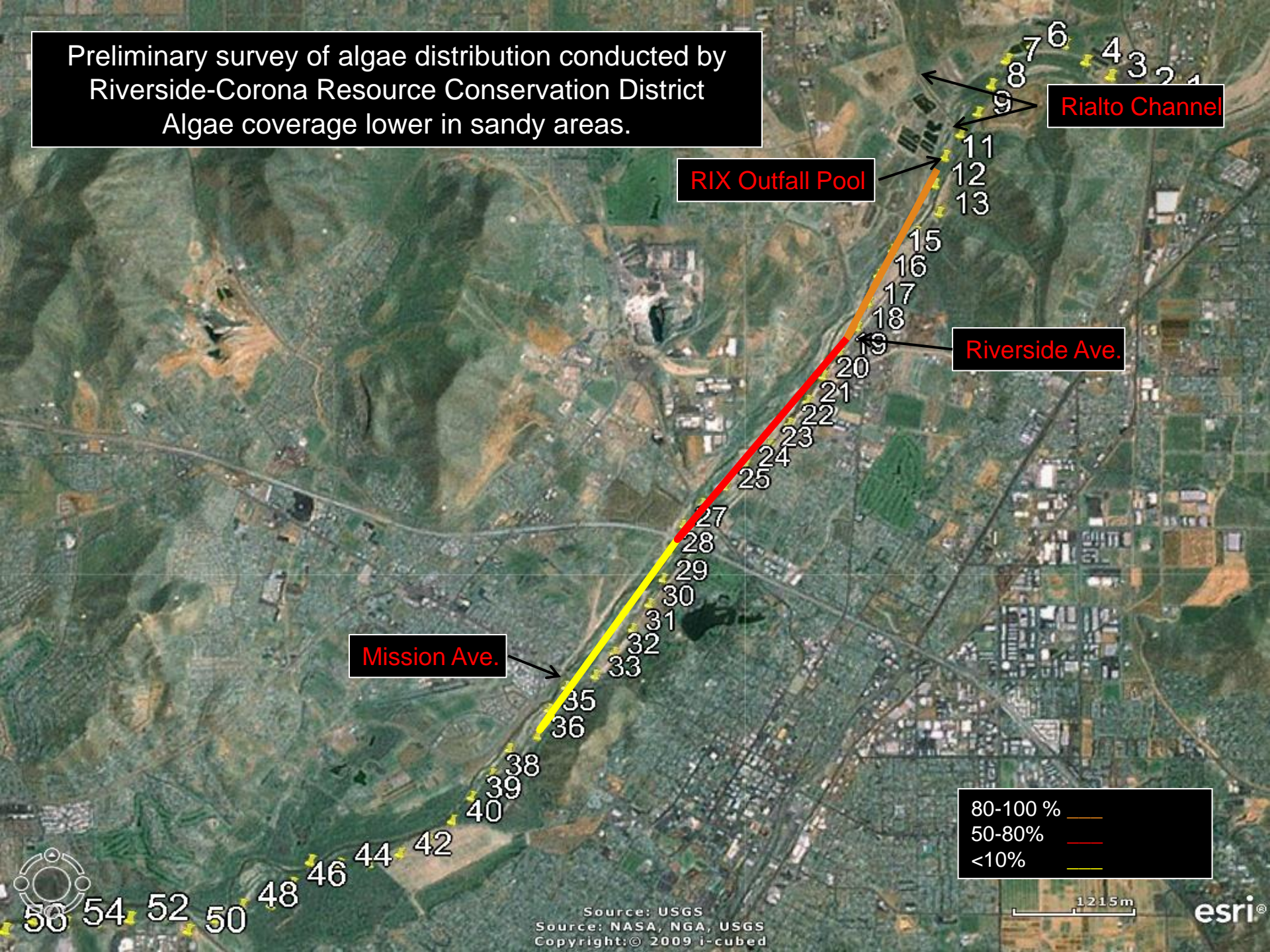
Algae Present

Algae Not Present

Algae Habitat = Sucker Habitat

*RIX – Rapid Infiltration and Extraction

Preliminary survey of algae distribution conducted by Riverside-Corona Resource Conservation District
Algae coverage lower in sandy areas.



Rialto Channel

RIX Outfall Pool

Riverside Ave.

Mission Ave.

80-100 %
50-80%
<10%

1215m

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Source: USGS
Source: NASA, NGA, USGS
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56 54 52 50 48 46 44 42

38 39 40

33 32 31 30 29 28 27

25 24 23 22 21 20 19

15 16 17 18

11 12 13

9 8 7 6

4 3 2 1

Pre-invasion – fall 2011



Post-invasion – Feb. 25, 2014



Santa Ana River Population of Santa Ana Sucker



Potential Range of the Santa Ana Sucker in the Santa Ana River (32 river miles)

La Cadena Bridge

Colton

Chino Hills

Prado Dam

Riverside

Weir Canyon Drop Structure

Current distribution much more limited.

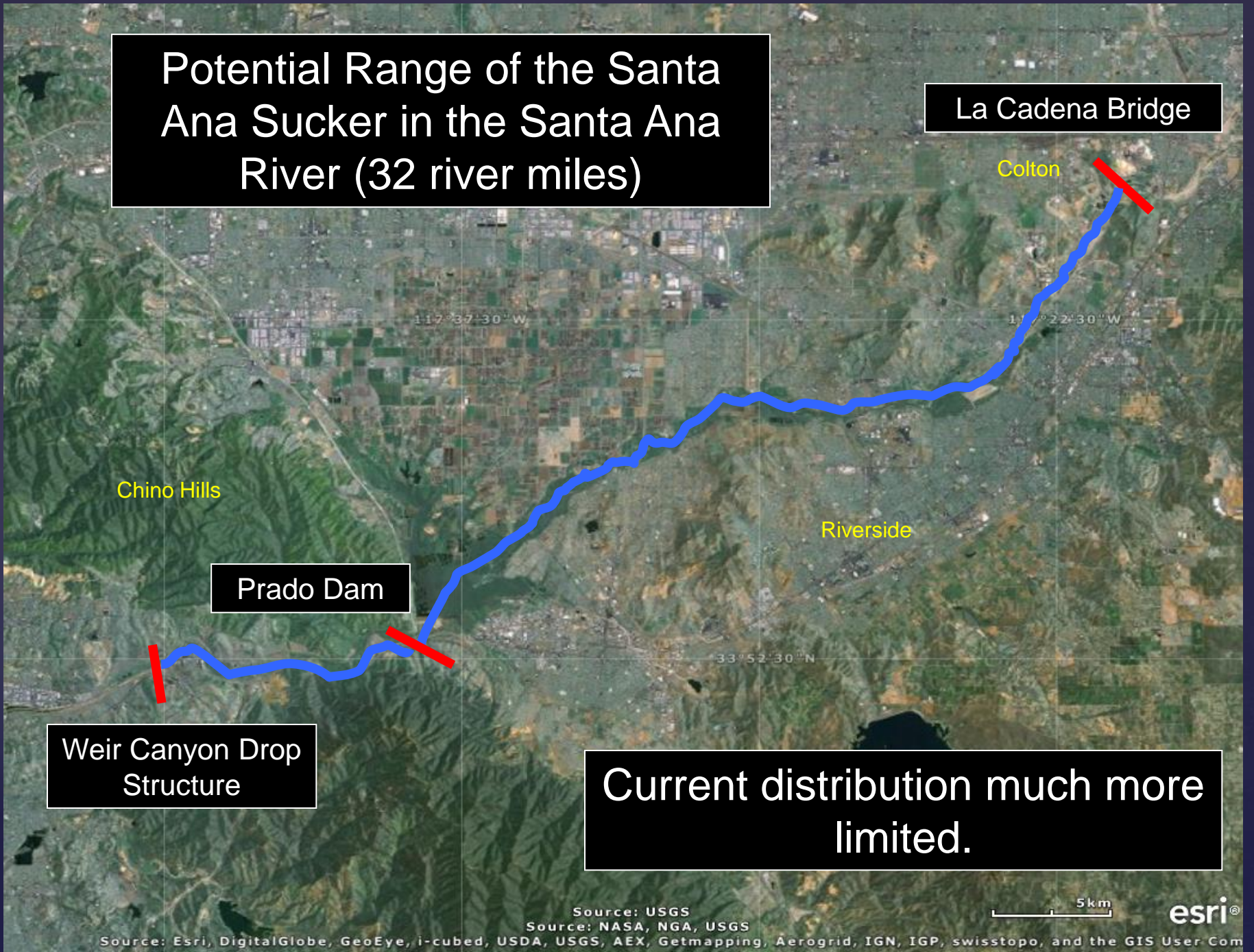
Source: USGS

Source: NASA, NGA, USGS

Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Com

5 km

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Survey for Santa Ana Sucker

February 25, 2014

- Snorkel Survey
 - Riverside Ave. to RIX discharge pool
- Data
 - Underwater video/photos
 - Location of sucker and algae presence
- Results
 - Algae cover is 75-100 percent of river bottom
 - 135 Santa Ana sucker observed (80-150 mm)
 - Arroyo chub more common (adults and juveniles)



Survey Points for Snorkel Survey (Feb. 25, 2014):

Red = sucker occurrences

Blue = Riverwalk data point locations

Threats to the sucker in the Santa Ana River

Long-term viability is precarious due to the limited extent of suitable habitat

- Habitat is limited by
 - barriers, water availability and rocky substrate (cobble/gravel)
- Other threats
 - non-native aquatic species, off-road vehicles, water quality, hydrologic regime, water temperature (?), algae (?)
- Amount of suitable habitat
 - At time of listing - 32 mi. (defined by river barriers)
 - Actual - <7 mi. (defined by presence of rocky substrate)
 - Without algae - <½ mi. (majority = Rialto Channel)
- Algae is a new potential threat to Santa Ana sucker and its habitat that we need to further evaluate.

Current

Conditions

- Since February, three precipitation events have occurred
 - Algae density decreased with each rain event
- Regrowth estimated at 1-2 cm per day

Santa Ana River after rain event at Rialto Confluence March 1, 2014



At RIX Discharge Location



Between RIX and Riverside Ave.



May 2, 2014

Next Steps -What do we do now?

- Determine nativity and range in CA
 - Few occurrence records (northern and southern CA, all recent)
- Determine threat to the sucker
 - Survey river for presence and measure regrowth
 - Conduct trials at RCRCO – feeding/spawning
- Management
 - Containment to Santa Ana River
 - Control
 - Chemically (copper sulfate, chlorine, barley extract?)
 - Drying - Realign upper portion of the river and allow to dry
- Partners
 - USFWS, USDA, USACE, CDFW, RWQCB, MWD, local cities, flood control, local water agencies (SBVMWD, SBVWCD, OCWD, SBMWD, etc.), CSU San Marcos – Sheath Lab.