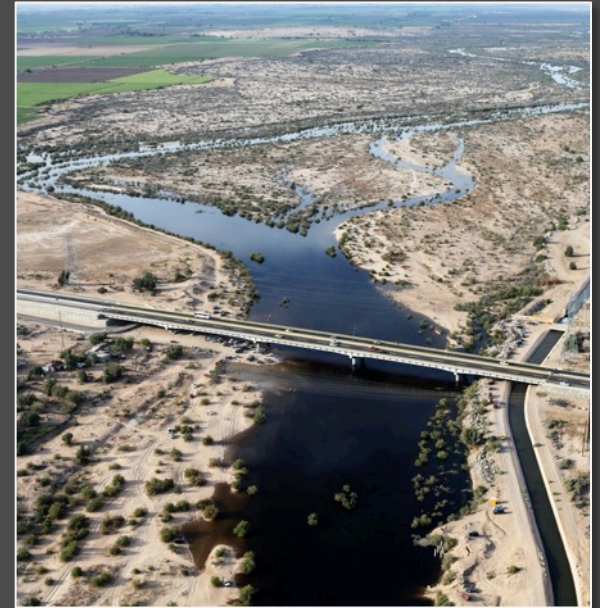


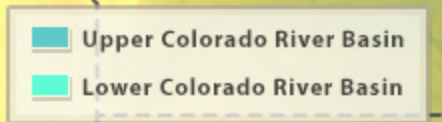
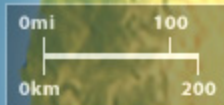
Binational Collaboration for Restoration of the Colorado River Delta



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Edith Santiago Serrano, Tomás Rivas, Matthew R. Grabau



COLORADO RIVER BASIN



Colorado River Water Use



“Law of the River” and 1944 international treaty

USA: 15 million acre-feet per year
(maf)

Mexico: 1.5 maf per year

A river in deficit:

Total allocated: 16.5 maf per year
1,000 yr average: 14.5 maf per year

Future:

- 10-20% less supply – climate change
- Increased demand – population growth

Environmental impact?
Water for Nature?

Historic Delta



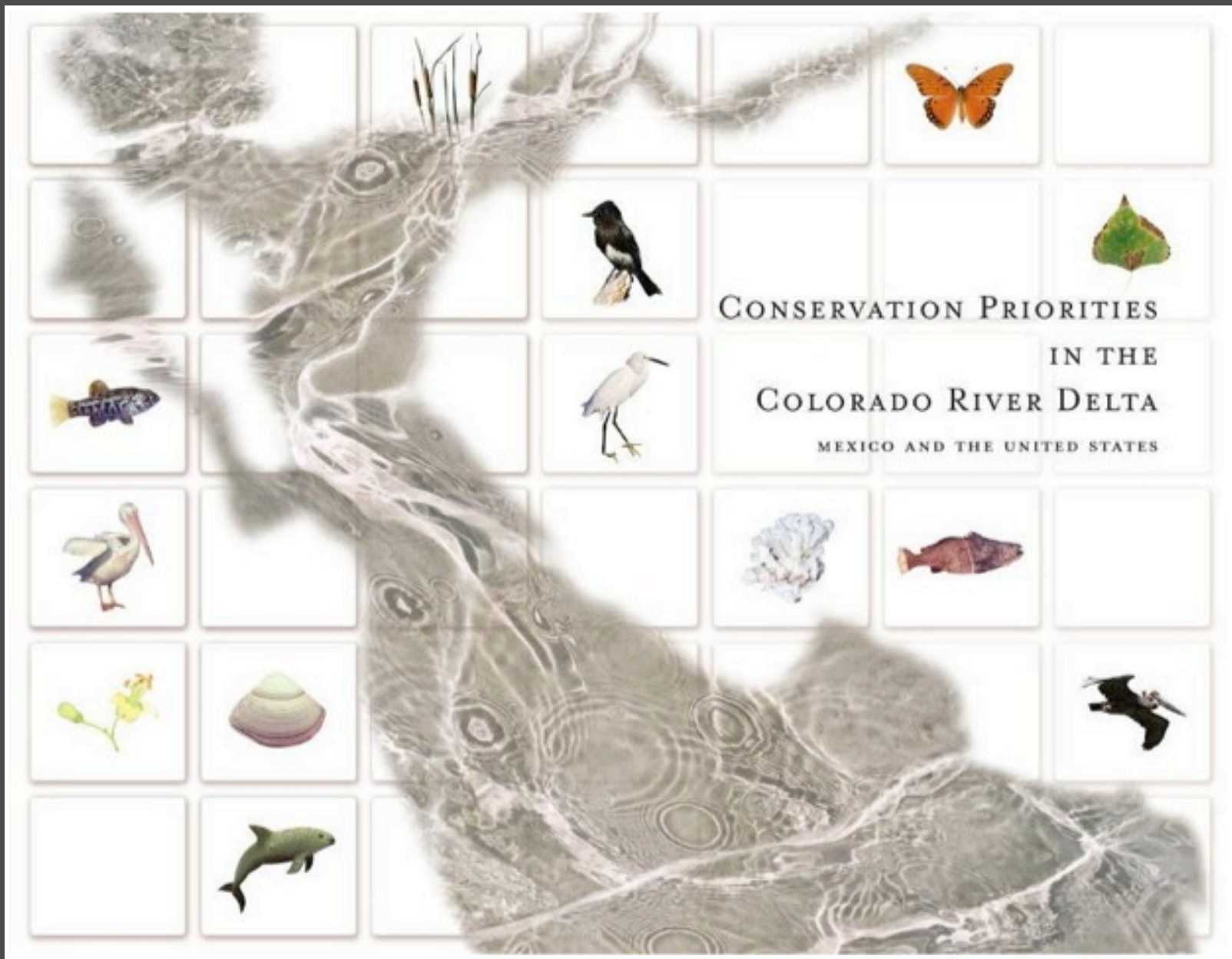


The Delta Today





- Flexible binational water policy framework
- Involvement of NGOs in political process



CONSERVATION PRIORITIES
IN THE
COLORADO RIVER DELTA
MEXICO AND THE UNITED STATES

More than a decade of research and restoration served as foundation for restoration programs



- Flexible binational water policy framework
- Involvement of NGOs in political process
- Small restoration demonstration projects
- Community and government buy-in





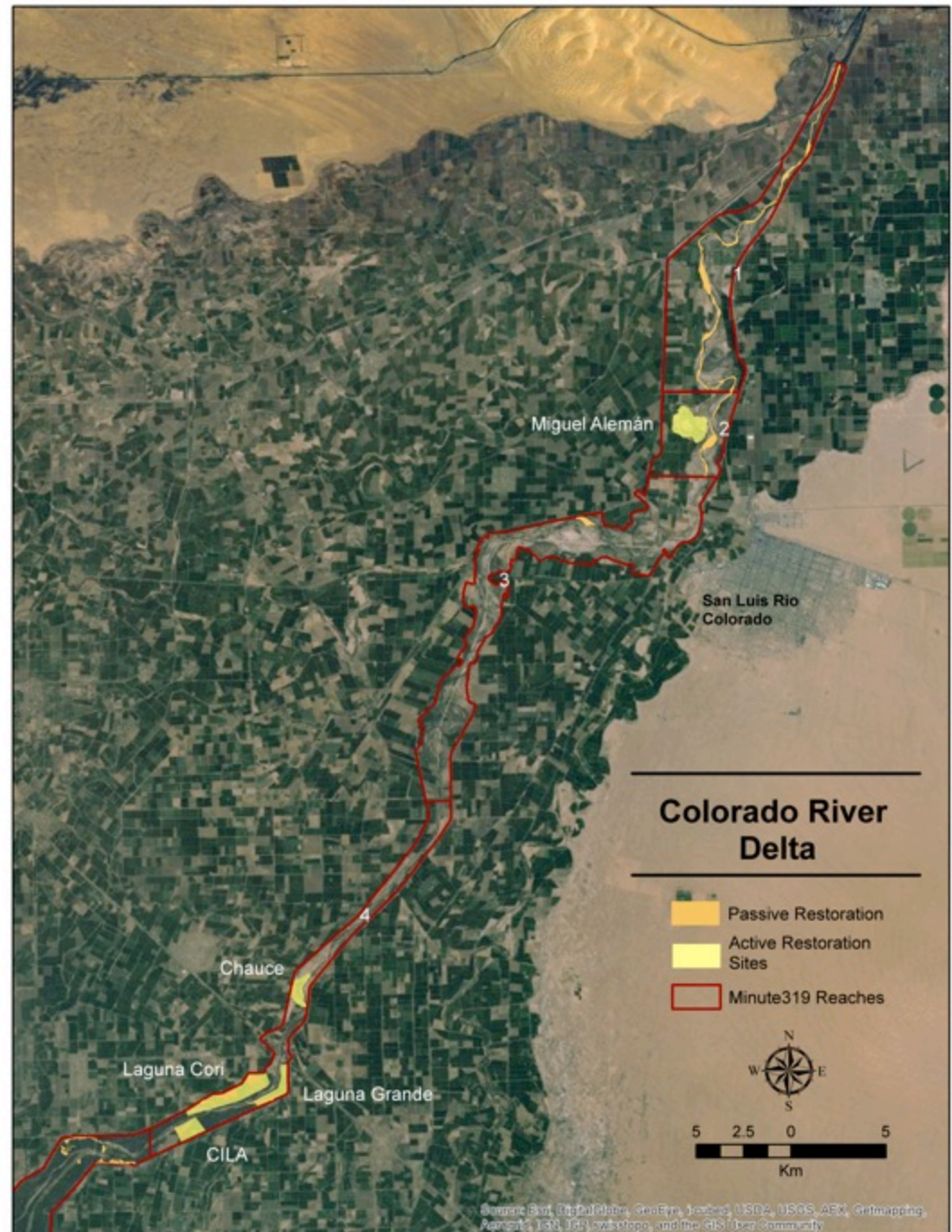
- Flexible binational water policy framework
- Involvement of NGOs in political process
- Small restoration demonstration projects
- Community and government buy-in
- Trust and long-term relationships with key actors
- Persistence!

Minute 319

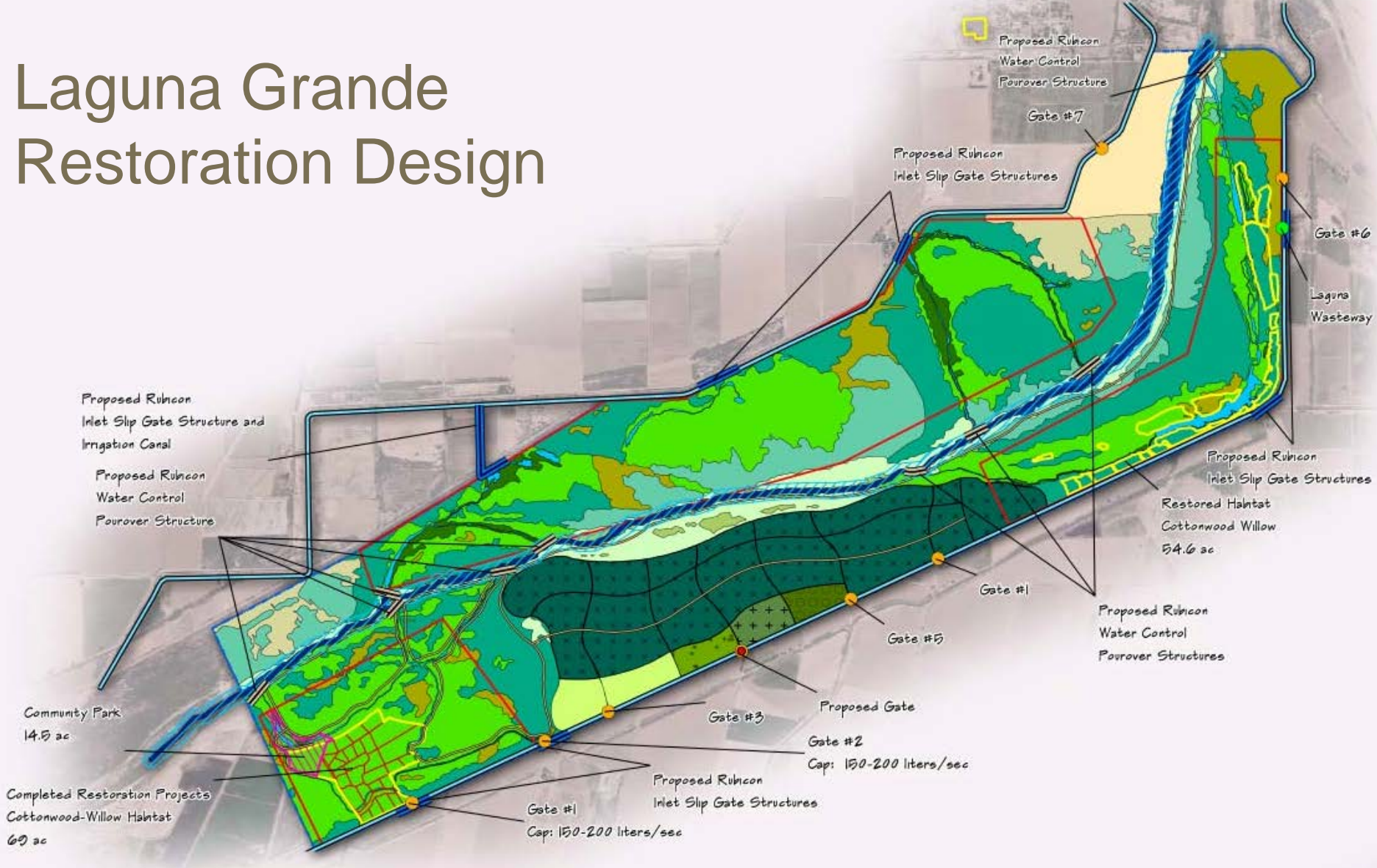
- 5-year agreement signed in November 2012 by US and Mexico
- Establishes new guidelines for the management of Colorado River water during times of drought and promotes investments in water conservation projects
- Water dedicated for ecological flows to the Colorado River in Mexico for the 1st time in history
- Total water to be dedicated to Delta: 158,088 acre-feet (af)
- Delta Water Trust to provide 52,700 af for river base flow; 105,400 af provided by US and MX for flood pulse flow
- NGO goal is to restore 2300 acres of habitat by end of 5-year term
- At end of 5-year term, US and MX will determine if/how to expand commitments

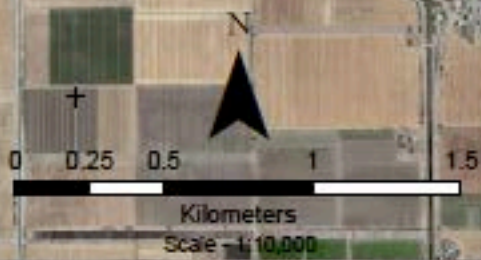
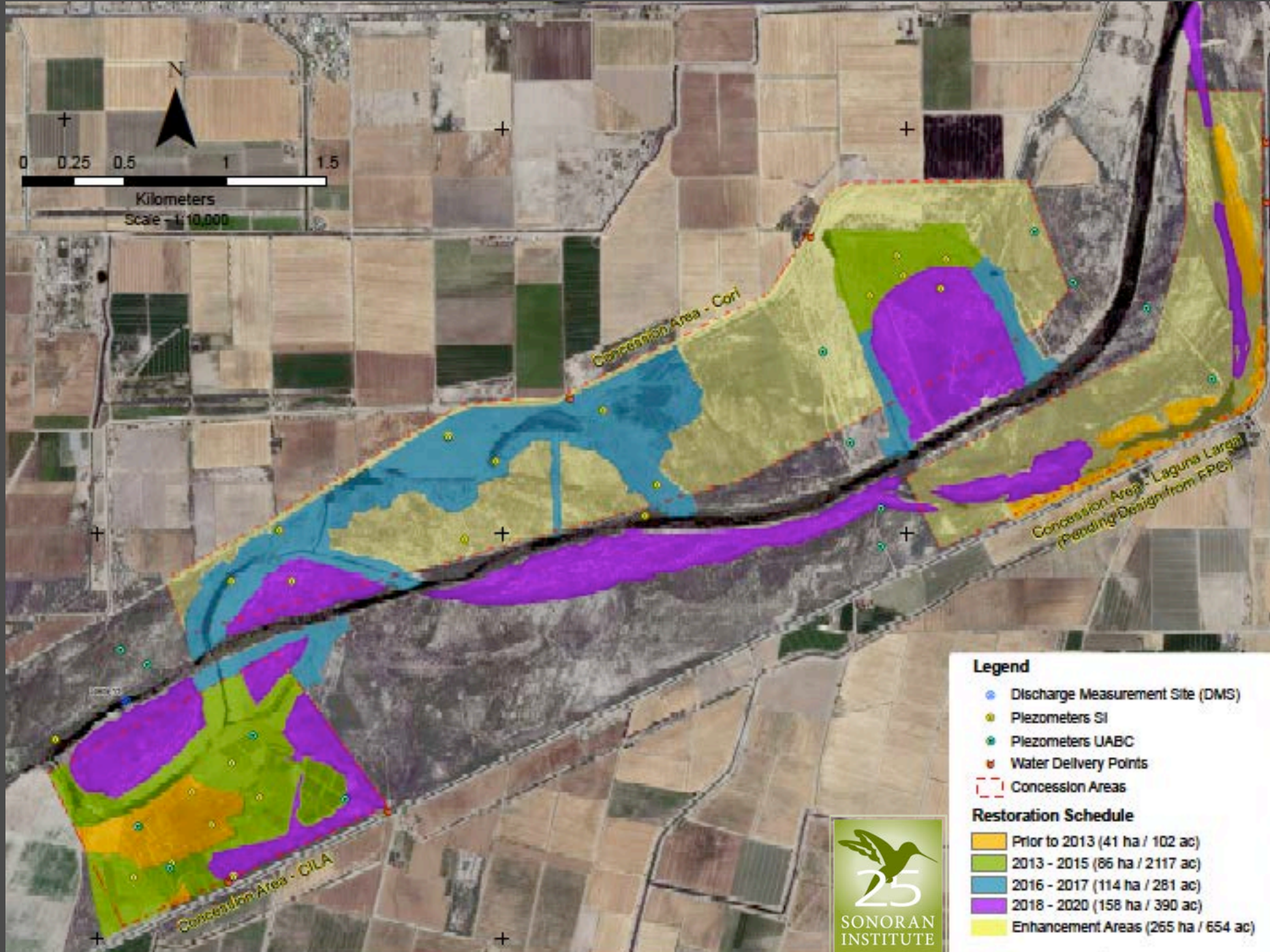
5 year restoration goal:
2300 acres

- Targeted flow delivery locations for pulse and base flows
- Various restoration techniques
- Active restoration sites:
 - Laguna Grande
 - Miguel Aleman
 - Chausse



Laguna Grande Restoration Design





Legend

- Discharge Measurement Site (DMS)
- Piezometers SI
- Piezometers UABC
- Water Delivery Points
- Concession Areas

Restoration Schedule

- Prior to 2013 (41 ha / 102 ac)
- 2013 - 2015 (86 ha / 2117 ac)
- 2016 - 2017 (114 ha / 281 ac)
- 2018 - 2020 (158 ha / 390 ac)
- Enhancement Areas (265 ha / 654 ac)











15 streamflow discharge stations
 100 piezometers (groundwater)
 29 staff gauges w/ transducers
 Geophysical methods
 LiDAR data collection
 Satellite imagery
 Aerial imagery

Topographic surveys
 Inundation mapping
 Vegetation surveys and mapping
 Water quality sampling
 Fish and shrimp postlarvae surveys
 Avian surveys
 Repeat photography

Thank you!

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