

SKY
ISLAND
ALLIANCE

Protecting our Mountain Islands
and Desert Seas

Restoration in the Sky Islands:

Bringing volunteers, landowners,
practitioners and agencies together
to benefit wildlife and habitats
in a global biodiversity hotspot

Sky Island Alliance

Dedicated to the protection and restoration of the rich natural heritage of native species and habitats in the Sky Island region of the southwestern United States and northwestern Mexico

www.skyislandalliance.org

Landscape Restoration Program

Restore habitats, watersheds
and ecosystem function

- Inventory historical locales
- Identify native and non-native plant and animal locations
- Restore degraded areas
- Control non-native species and restore native species
- Monitoring and management

Targets

Habitats/structural elements

- Cottonwood/willow gallery forest
- Mesquite bosque
- Cienegas
- Springs
- Creeks
- Tobosa and sacaton floodplains
- Ephemeral arroyos



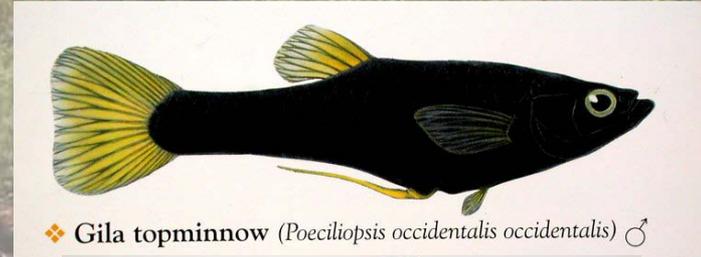
Targets



Chiricahua leopard frog **Lowland leopard frog**



Mexican garter snake



❖ Gila topminnow (*Poeciliopsis occidentalis occidentalis*) ♂



❖ Desert pupfish (*Cyprinodon macularius macularius*) ♂

Native fish

Targets

Non-Native Species

- Bullfrogs –introduced for sport/disperses up to 7 miles
- Fish –introduced for sport/widely stocked
- Crayfish –released or escaped bait
- Salamanders –released or escaped bait/interbreed with native
- Plants –introduced as forage or landscaping, escaped

Problem Statement



Ciénega Creek Watershed

Goals

- Prioritize eroding tributary drainages and implement restoration
- Coordinate activities with partnering agencies and local landowners
- Train at least 40 volunteers in erosion control techniques
- Restore up to 16 kilometers of eroding tributary drainages
- Ensure that ongoing habitat restoration work endures at the administrative level









Scotia Canyon



Peterson Ranch Pond

Upper Spring
Impoundment

Travertine Spring
Impoundment

Lower In-channel
Impoundment

Peterson Ranch Pond





Lower Impoundment





Travertine Spring Impoundment







Bullfrog Control



Monitoring



Peloncillo Cienegas



The Cloverdale Valley

Upper Ciénegas

Lower Ciénegas





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Inventory and Assessment

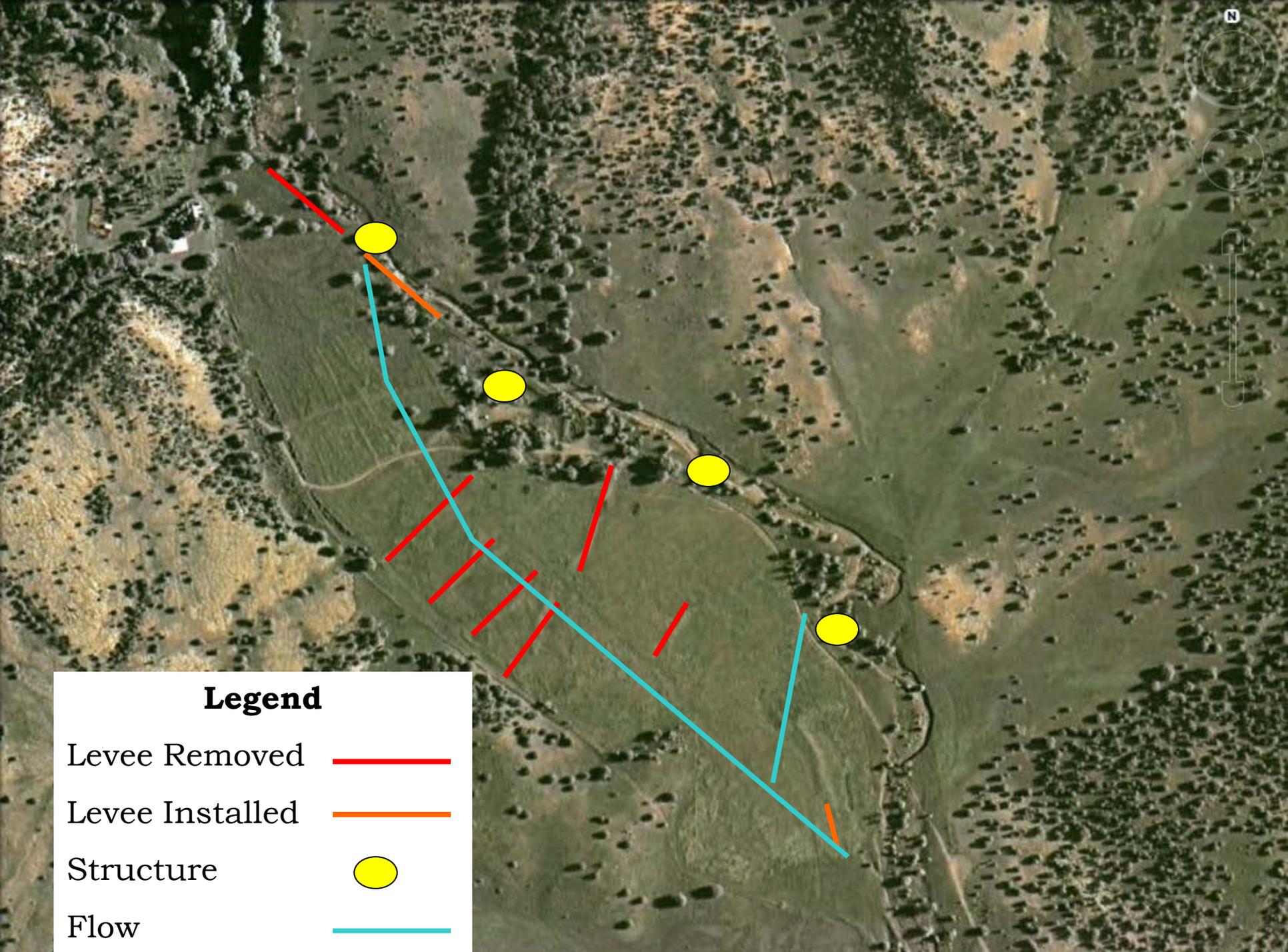


Planning



Implementation





Legend

Levee Removed 

Levee Installed 

Structure 

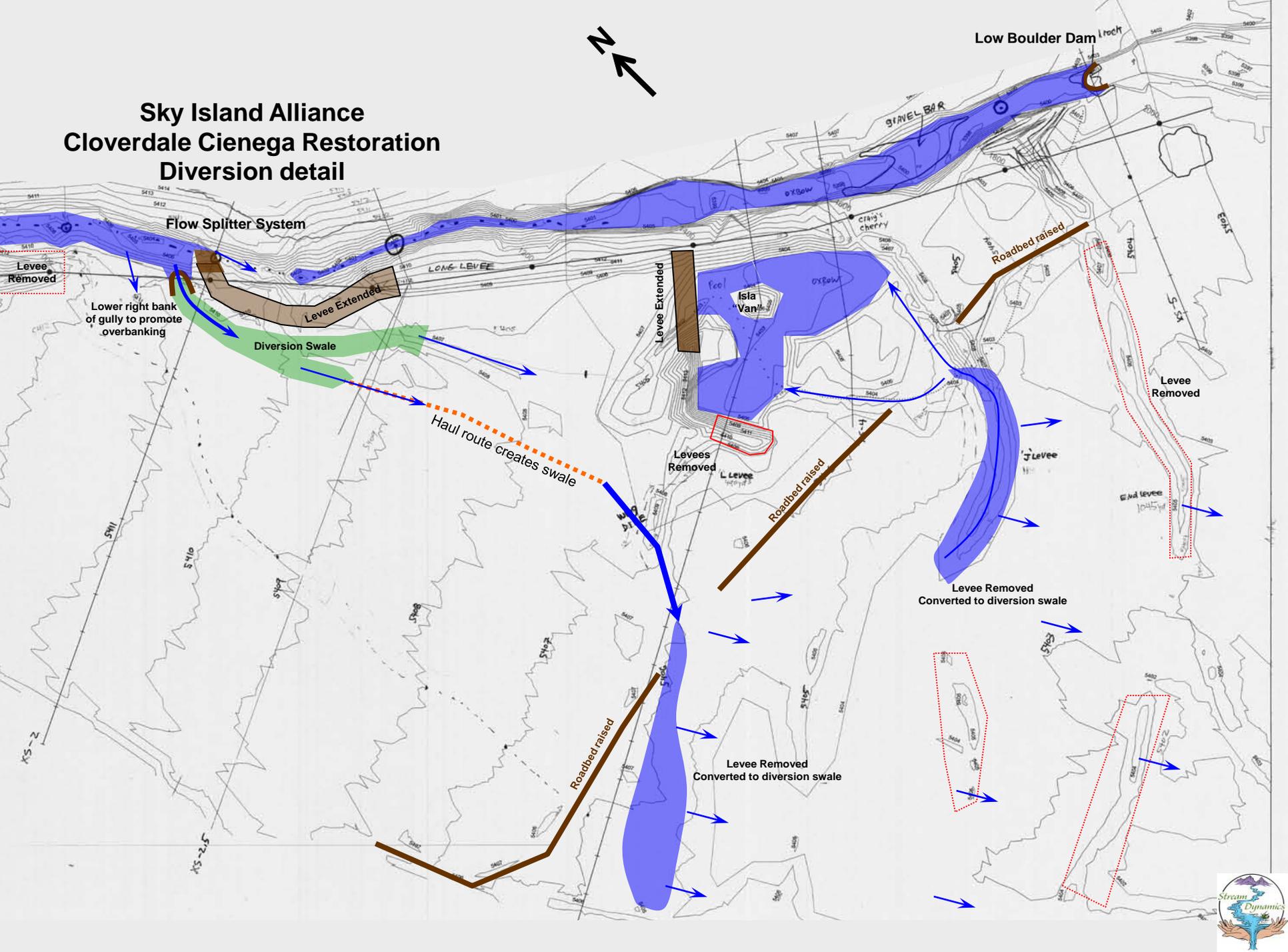
Flow 

Bedrock reconstructed
with boulders

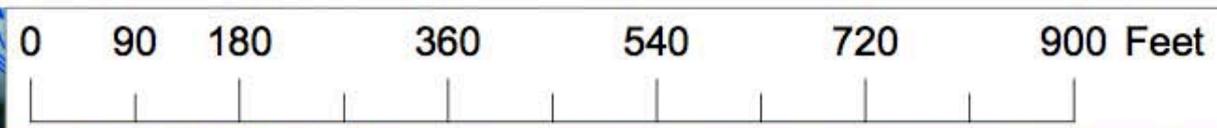
Flow splitter diverts flood
flows to cienega

Base flow to gully for
ecological maintenance

Sky Island Alliance Cloverdale Cienega Restoration Diversion detail



Diverted flow trapped on Cienega



Cloverdale Cienega Lower Section as built



Remove Levees and haul to Plug 4

Spillway Detail

channel drain trench, backfilled with sand and gravel to create porous seep

cofferdam

Invert elevations 5398

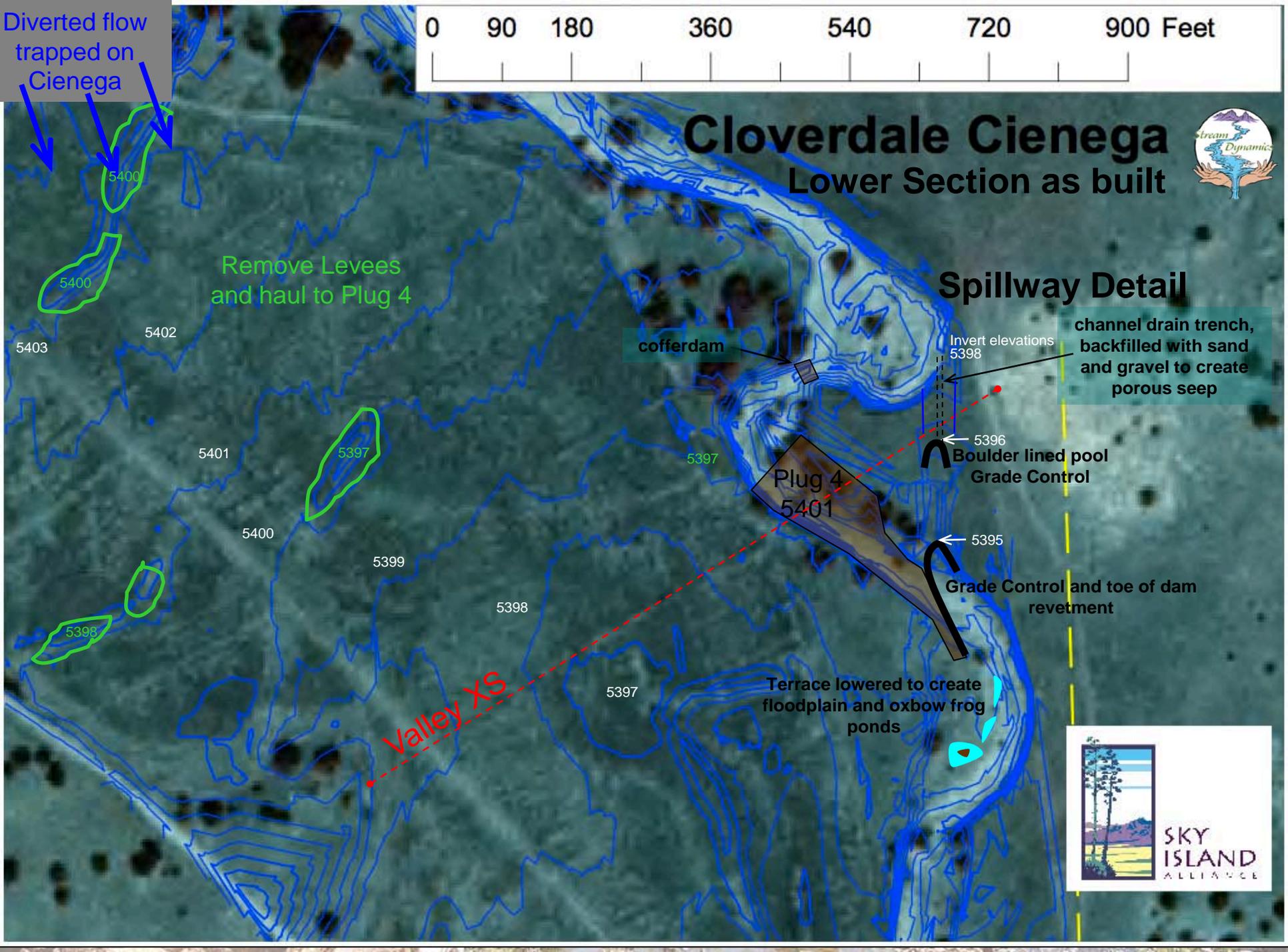
5396
Boulder lined pool
Grade Control

5395
Grade Control and toe of dam
revetment

Plug 4
5401

Terrace lowered to create floodplain and oxbow frog ponds

Valley XS



Lessons Learned

- Early & consistent communications
- Experienced help –hydrology, botany, geomorphology, land & wildlife management
- Use volunteers
- Use low-tech methods
- Study, think, look, ask
- Start small
- Look at the whole watershed

Lessons Learned

Budget time and money for thorough & thoughtful observation

“Don’t just do something, stand there”

-Bill Zeedyk

“Ecosystems are not only more complex than we think, they are more complex than we can think”-Frank Egler

“Think like a mountain” –Aldo Leopold

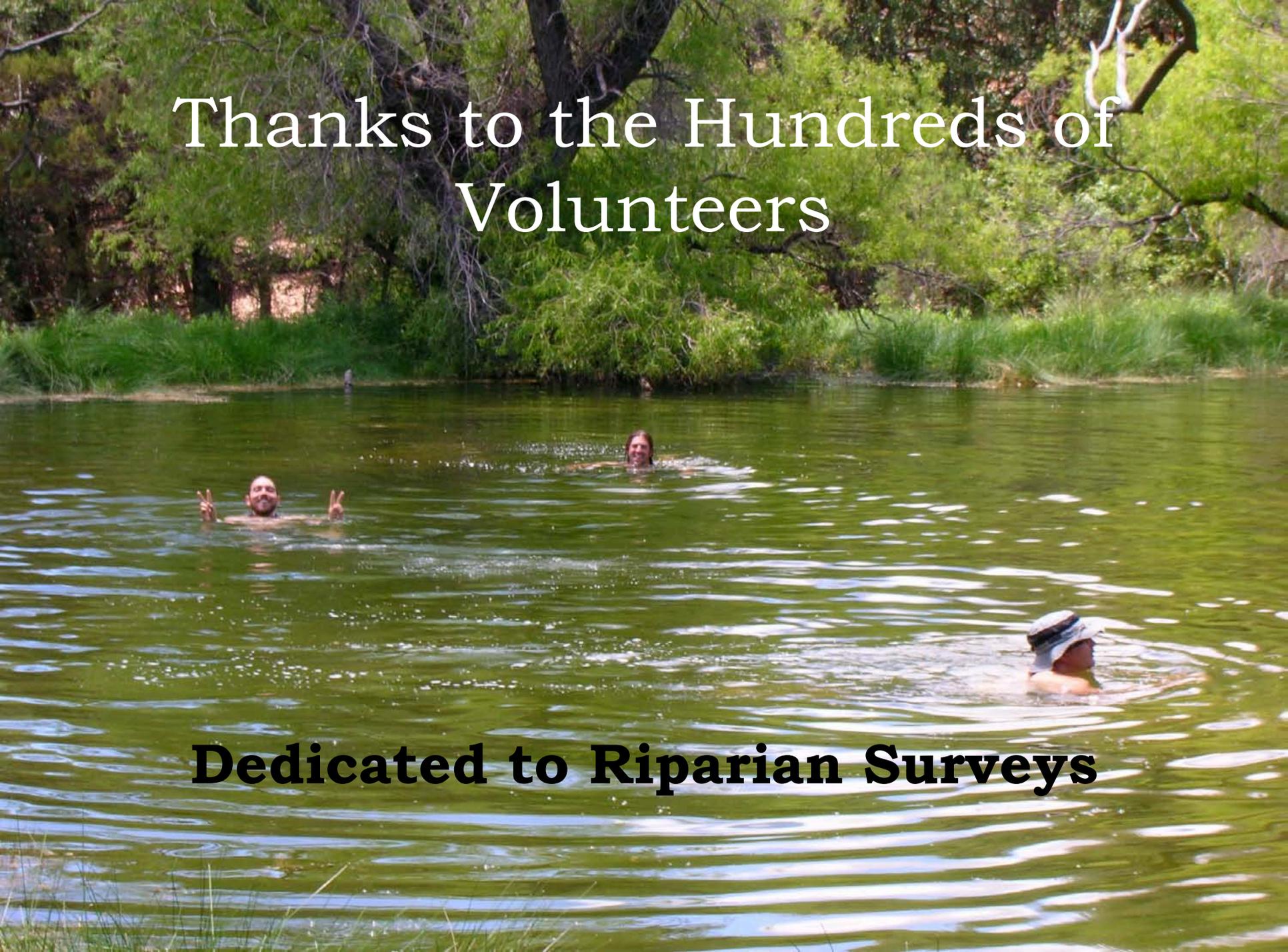
What's next?

- Working on restoration in an experimental (BACI) design on three ranches in Sonora
- Springs, Seeps and Shallow Groundwater Inventory, Assessment and Management Analysis Project

How to Get Involved

- Volunteer with Sky Island Alliance on over 20 field weekends every year
- Support your local conservation organization
- Tell your Elected Officials to support conservation
- **Get Out There & See Why!**



A photograph of three people swimming in a river. The water is a greenish-brown color. The background is filled with dense green trees and foliage. The text "Thanks to the Hundreds of Volunteers" is overlaid in white at the top. The text "Dedicated to Riparian Surveys" is overlaid in bold black at the bottom.

Thanks to the Hundreds of
Volunteers

Dedicated to Riparian Surveys