IIPAY NATION OF SANTA YSABEL

Huunash Ewaa

Southwestern Pond Turtle Habitat Restoration

US Army Corps of Engineers

SAN DIEGUITO RIVER PARK

USDA NRCS
United States Department of Agriculture
Natural Resources Conservation Service

USGS
science for a changing world

SAN DIEGO TURTLE & TORTOISE SOCIETY

U.S. Fish and Wildlife Service
Partners for Fish & Wildlife

U.S. FISH & WILDLIFE SERVICE
DEPARTMENT OF THE INTERIOR

Cultural Significance

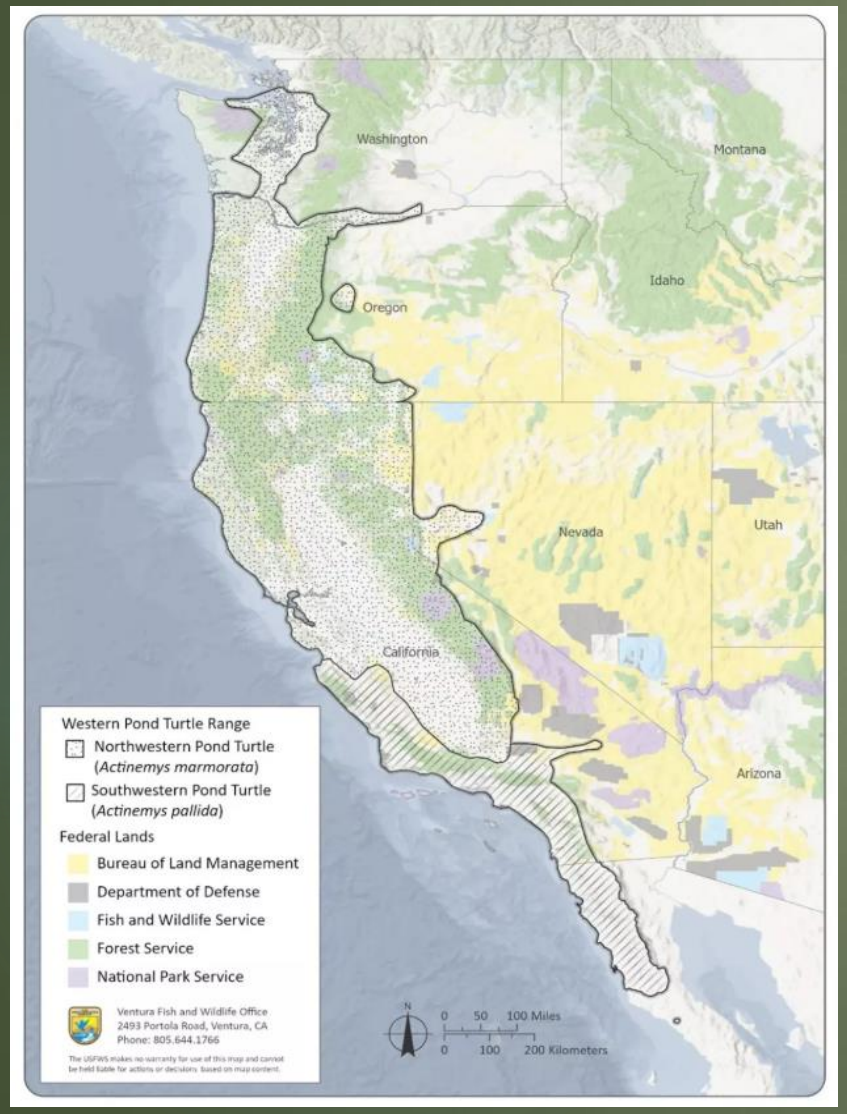
- Origin Stories:Turtle Island
- Ceremonial: Rattles
- Food Source

Huunash Ewaa

Southwestern Pond Turtle

Actinemys pallida

STATUS: Priority 1 Species of Special Concern
USFWS: Proposed Threatened

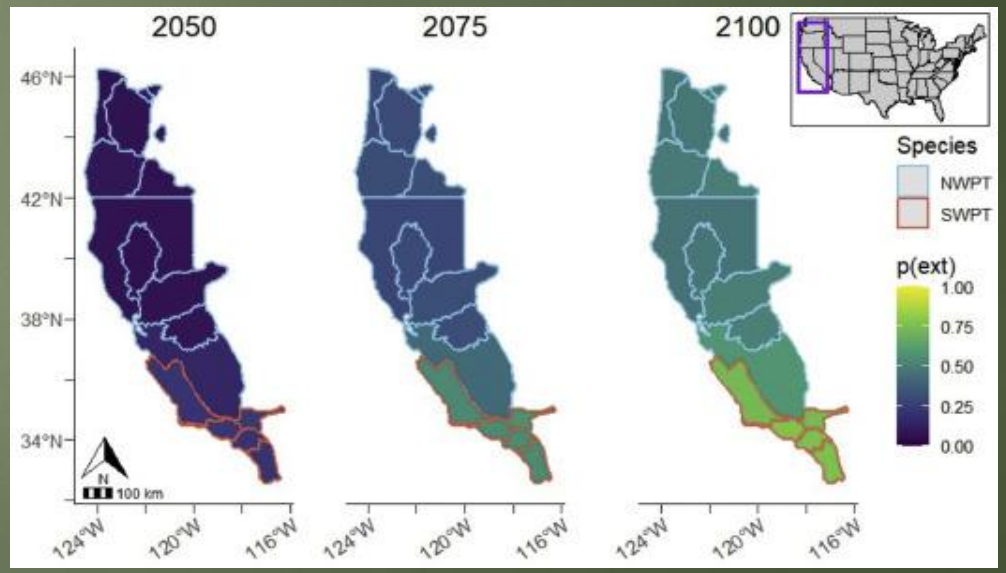


U.S. Fish and Wildlife Service (2023)

USFWS 2023 report indicated:

- Northwestern species: Have a high probability to sustain populations through 2050.
- Southwestern species: Have a 25% of extinction through 2050, which is a low extinction probability. *HOWEVER, extinction rates jump to 50% by 2075 and 70% by 2100 for Southwestern species.*

- *Increased risk due to stochasticity (demographic and environmental)*
- *Inability to adapt to changing conditions.*



(Feng et al.,2022), (Gregory et al., 2024)

Habitat

Habitat Needs

Aquatic

Aquatic underwater plants, floating vegetation, pond resiliency

Upland

Dry soils 3-400m in areas outside canopy cover. Nesting occurs ~100 meters from the pond.

Basking

Ponds with basking sites have higher population rates than those without.

Turtle Points of Interest

Mating

February-November

Roughly one clutch every other year, sometimes two per year

Nesting &Overwintering

<u>Overwintering:</u>

~ 500 meters from water or in silt/mud deposits underwater.

<u>Nesting:</u>

~ 100 meters from water

Soft soil

Sun exposure

*(temp. dependent sex determination)

Actinemys pallida

Higher historic genetic diversity are held within this species.

1

Conservation and Evaluation Monitoring Activity (CEMA) /Indigenous Stewardship Methods Evaluation (ISME)

2

Pond and Riparian Habitat Restoration

3

Data Collection/Mapping

4

Community Engagement

5

Cattle Exclusion

6

Turtle Highway Master Plan

PROJECT GOALS

- Environmental Director
- Environmental Assistant
- Environmental Technician
- Water Quality Technician
- Propagation Specialist
- Interns
- INSY Roads Department

Key Tribal Staff

INSY Environmental Department

Coordinating Entity

General Council

Tribal Ecological Knowledge

ISME Group

Provide TEK Guidance

Tribal Council

Guidance and Approval

Partners

Funding & Support

USDA NRCS United States Department of Agriculture Natural Resources Conservation Service

U.S. Fish and Wildlife Service Partners for Fish & Wildlife

U.S. FISH & WILDLIFE SERVICE

Funding Partner

INSY Cattle Ranchers

Negotiating

USGS science for a changing world

Tracking Population

US Army Corps of Engineers

Determine Assistance Needs

San Diego Turtle & Tortoise Society

Project Support Work

Habitat Threats

Altered Hydrology

- Dams upstream disrupt the natural flow of water in the stream.
- Erosion from cattle

Non-native species

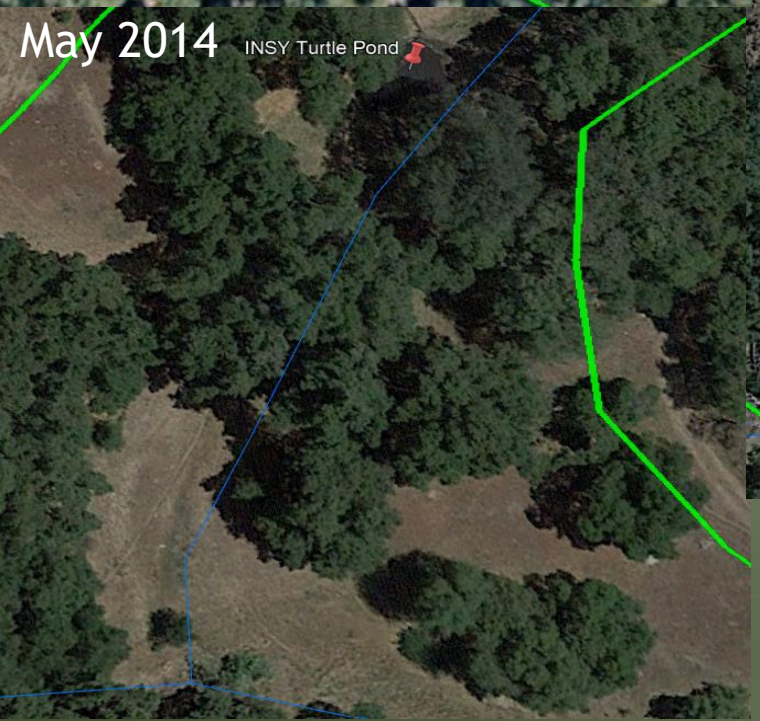
- Blackberry-invasive
- Bullfrogs-predation
- Fish- predation

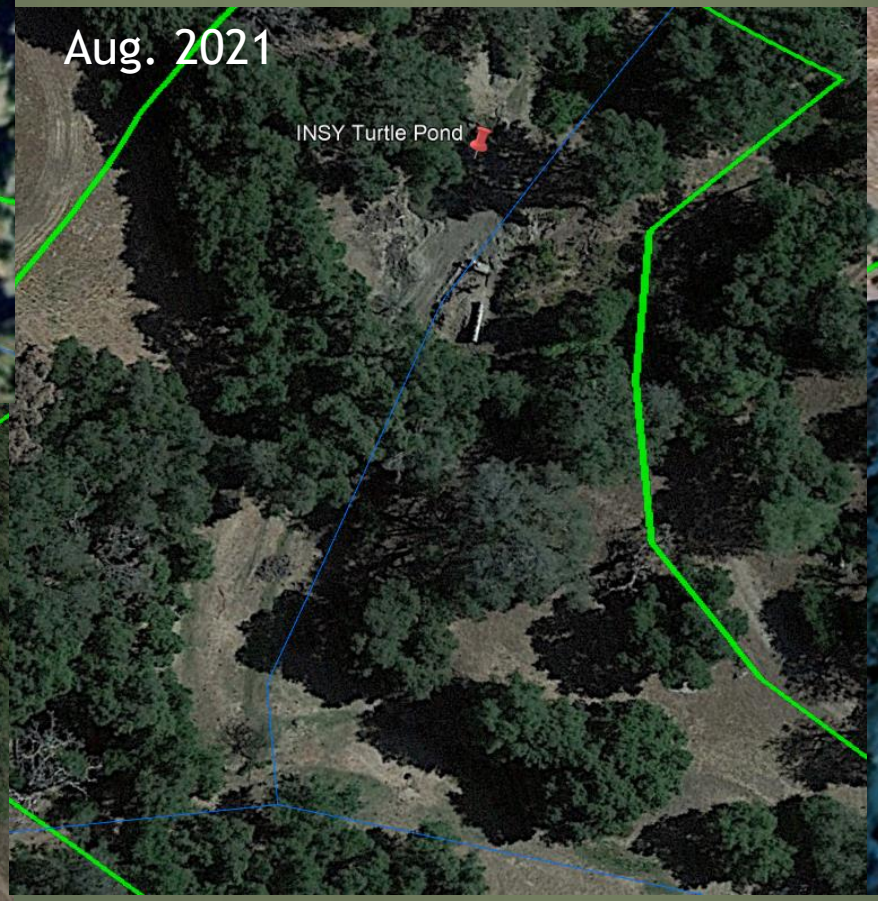
Other Concerns

- Habitat Loss/Fragmentation
- Humans
- Disease

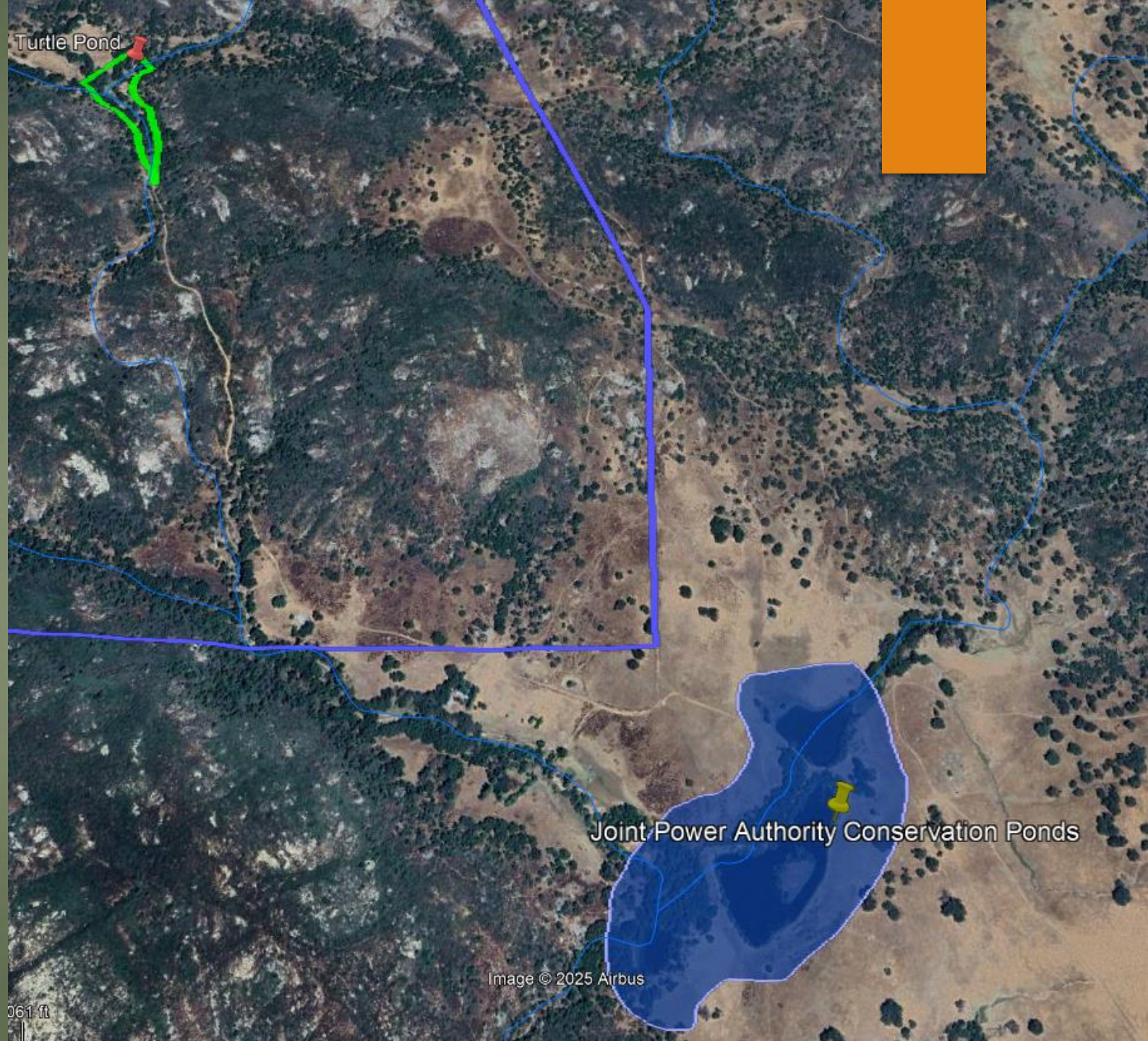
Project Location

Google Earth Timelapse





Turtle Highway



United States Department of Agriculture
Natural Resources Conservation Service

$35,000 – NRCS (Pending)

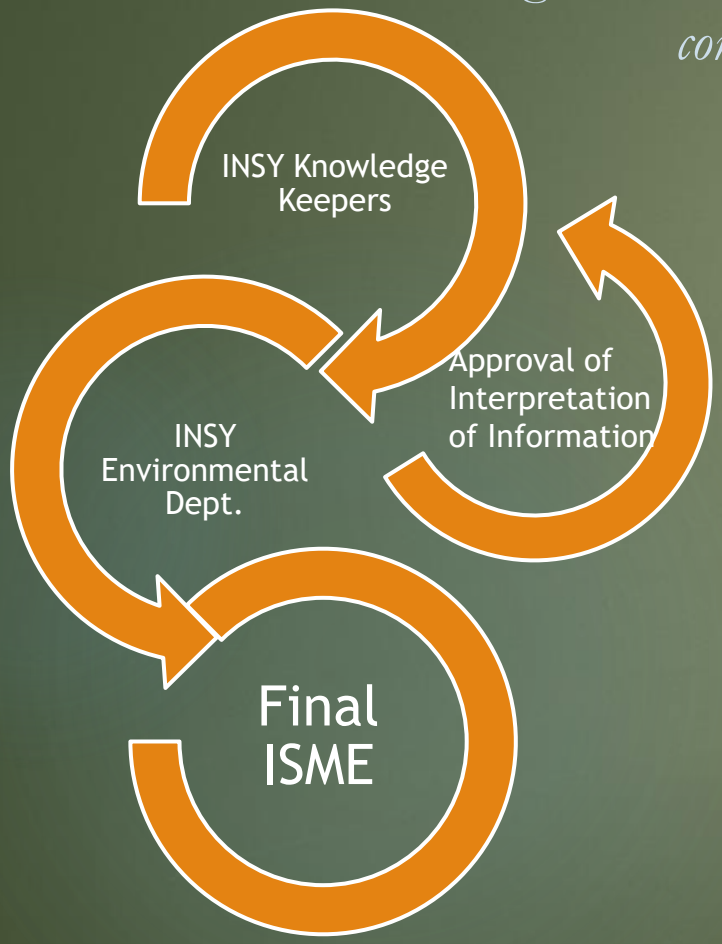
Objectives:

1) Brush Management
2) Fencing
3) Restore Riparian Forest Buffer
4) Indigenous Stewardship Methods Evaluation

❑ Conservation Evaluation Monitoring Activity (CEMA)

Indigenous Stewardship Methods Evaluation (ISME)

An evaluation of land uses, capabilities, and limitations with respect to Indigenous Stewardship Methods (ISM) that informs the conservation planning process



- Identify Qualified Individual
  - INSY requested QI to consist of a group of Tribal Members
- Site Walk
  - Identified flora for cultural significance
  - Language
  - Possible cultural burn sites
  - Note-taking and mapping
- Introduction
  - Data and information sovereignty
  - Introduction to the focus area
  - Field Questions
  - Open Discussion
- Document Review
  - Read the CEMA and provide feedback
  - Sign document upon approval

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a'yau	Willow	Cuttings	Medicinal/ Ceremonial	
Ku'pal	Blue Elderberry	Seed/Cuttings	Ripe fruit is edible but only once ripe.	
Ich'ta	Sumac	Cuttings/ Transplant	Fibers/ Baskets *Irritant to some people with allergies*	
Samaay	Yarrow	Seed	Stop blood wounds pain relief, fever and blood issues of all kinds	
Quai'usch	Deergrass	Harvest in Fall	Fibers	
kmaay or milly	Deer Tongue Dudleya	Plant slope, rocky	Thirst, good for gums, boiled root for lungs	
Quanaay	Juncus	Seed/ Transplant	Fibers	

QIs helped to developed a list of culturally significant plants.

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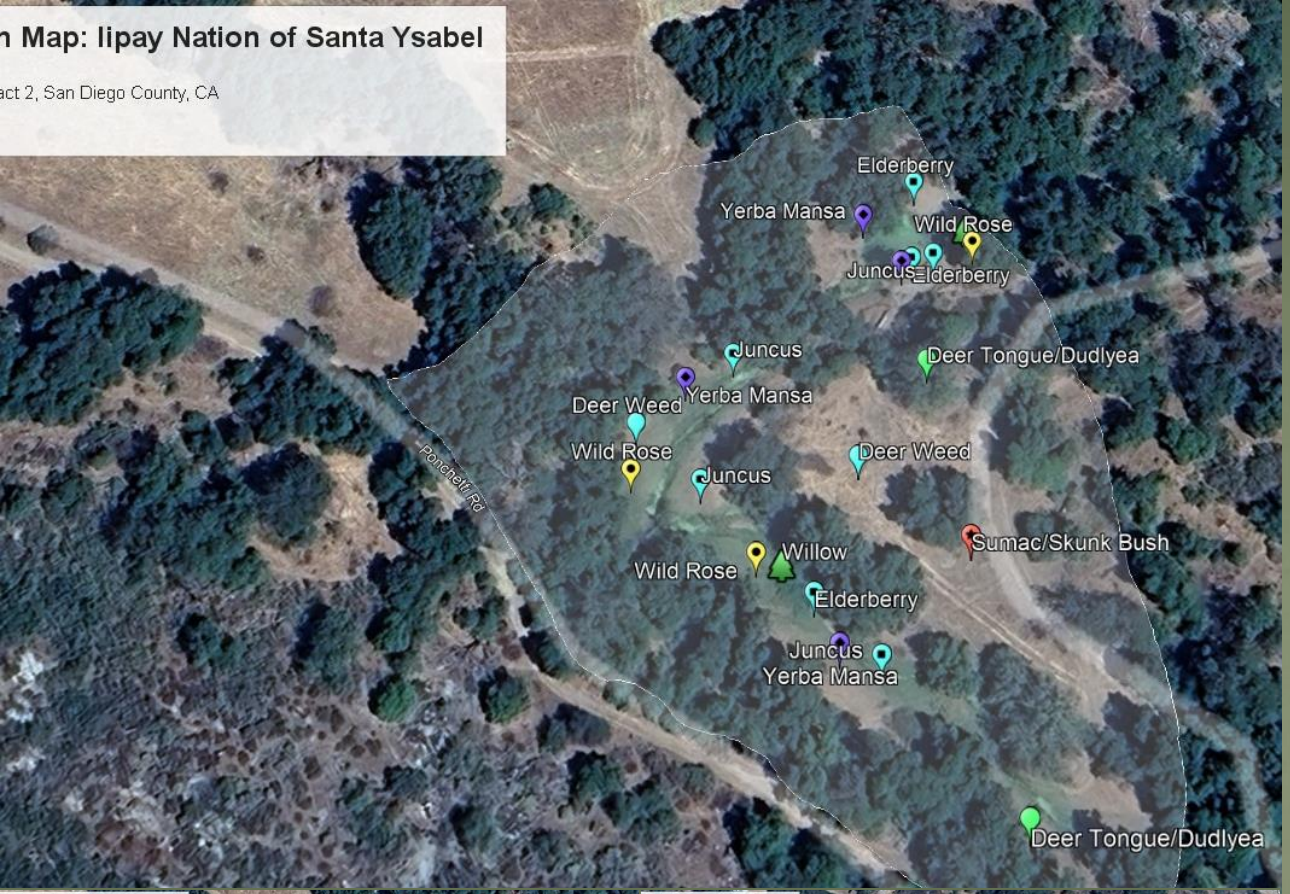
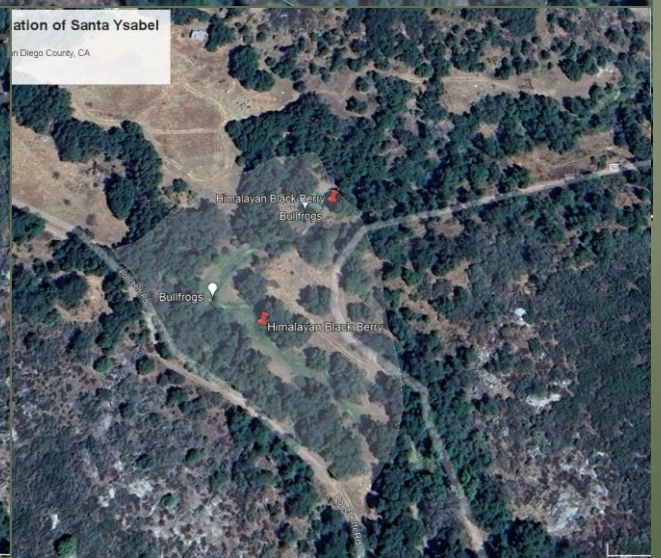
Mapping





- Areas QIs recommended restoring flora.
- Areas needing invasive species removal.
- Possible future cultural burn sites.

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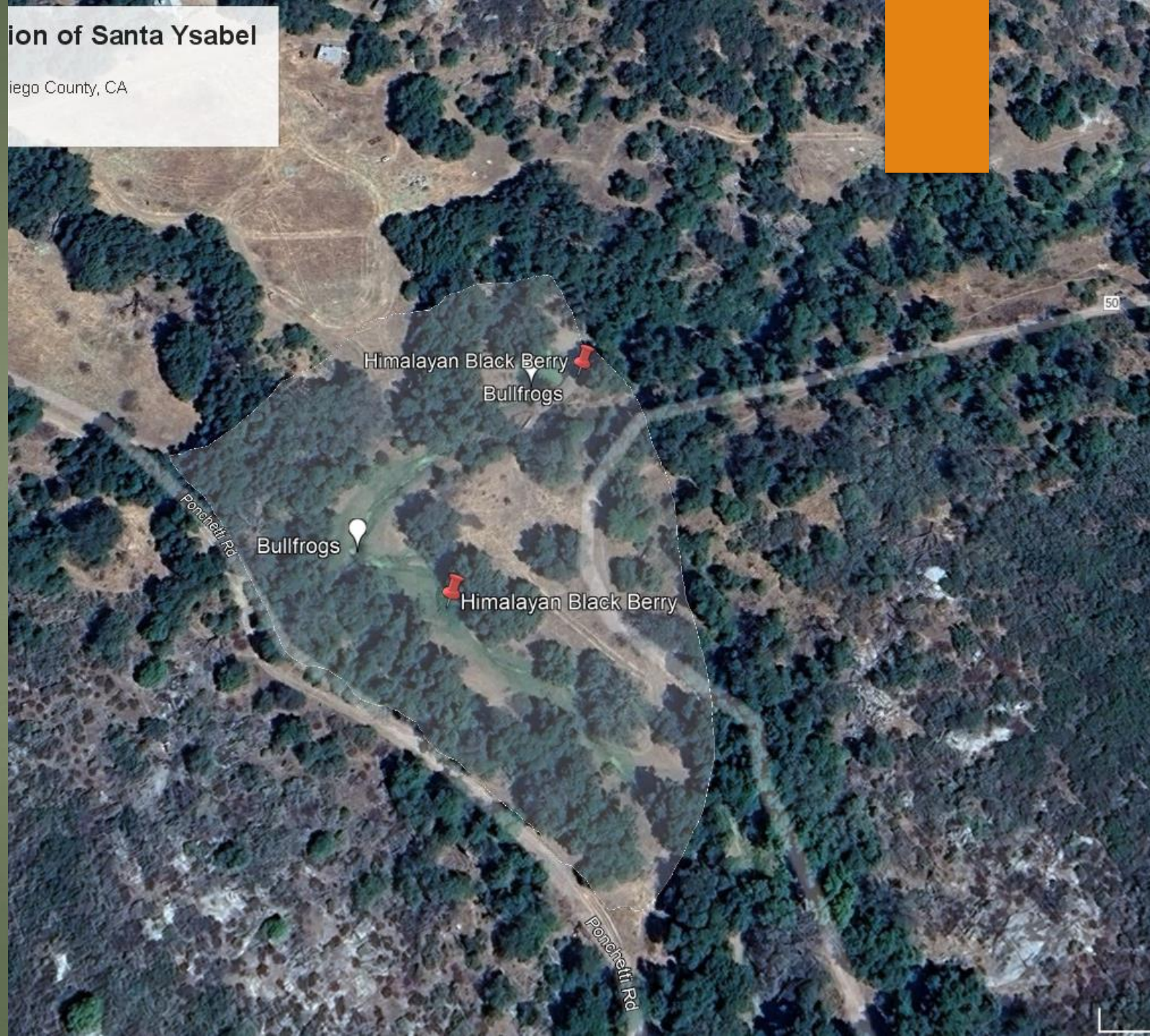
Mitigate Invasive Flora Species

- Strategies
  - Mechanical Removal of blackberry.
  - Bi-annual removal of new growth to limit succession.
  - Plant willows to shade out new growth.



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Propagation

- GPS Mapping of seed collection and cutting sites.
- Tracking of species and propagation strategies.
- Youth engagement

San Diego Turtle and Tortoise Foundation

Ongoing collaborator, turtle monitoring, and volunteer coordinating

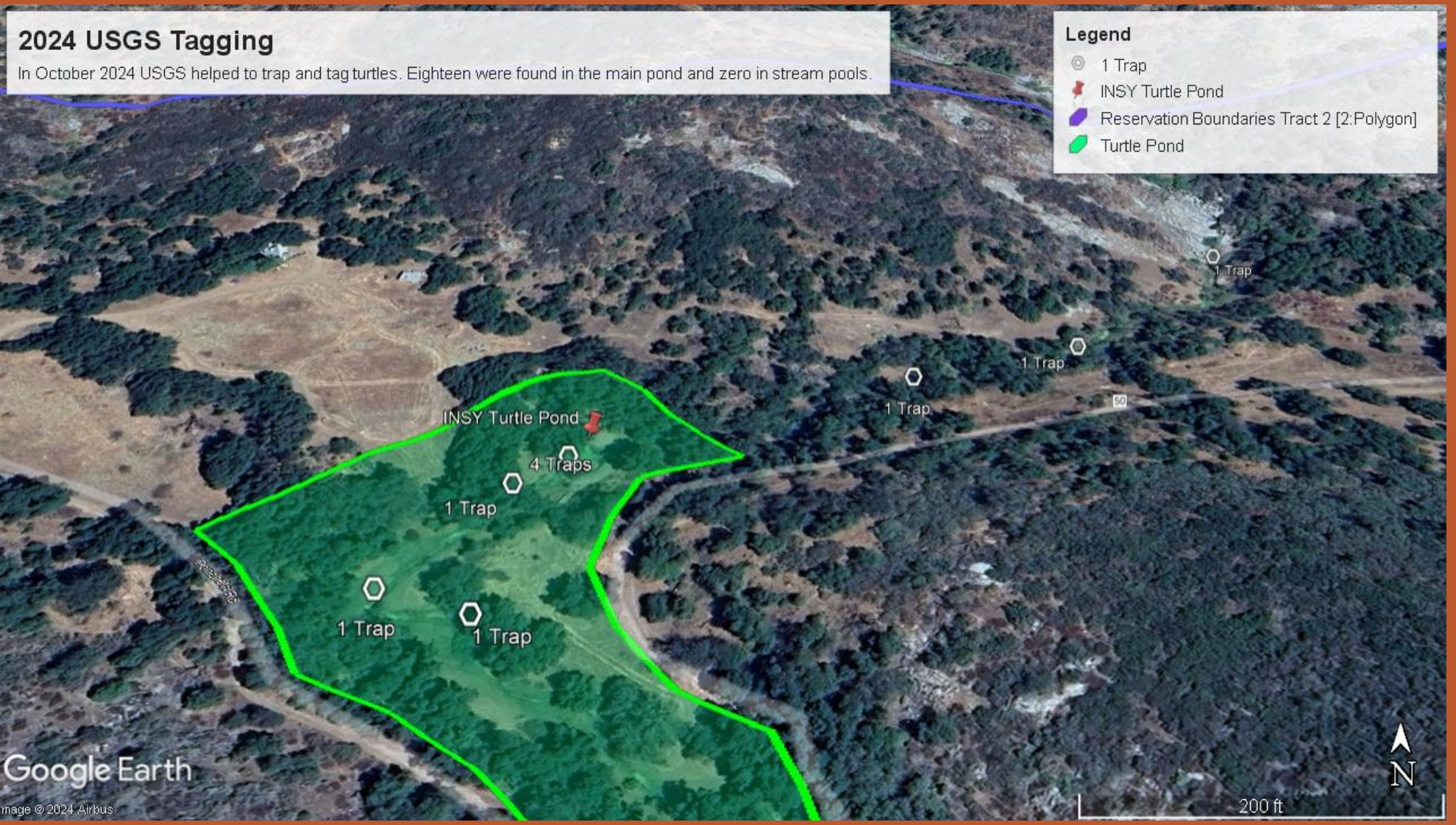
Retaining Wall & Dredging

- $20,000 – Partners for Fish and Wildlife Program, USFWS

Retaining wall will help to establish a barrier for erosion.

Dredging helped to remove sand bar and reestablish pond depth within the stream flow.

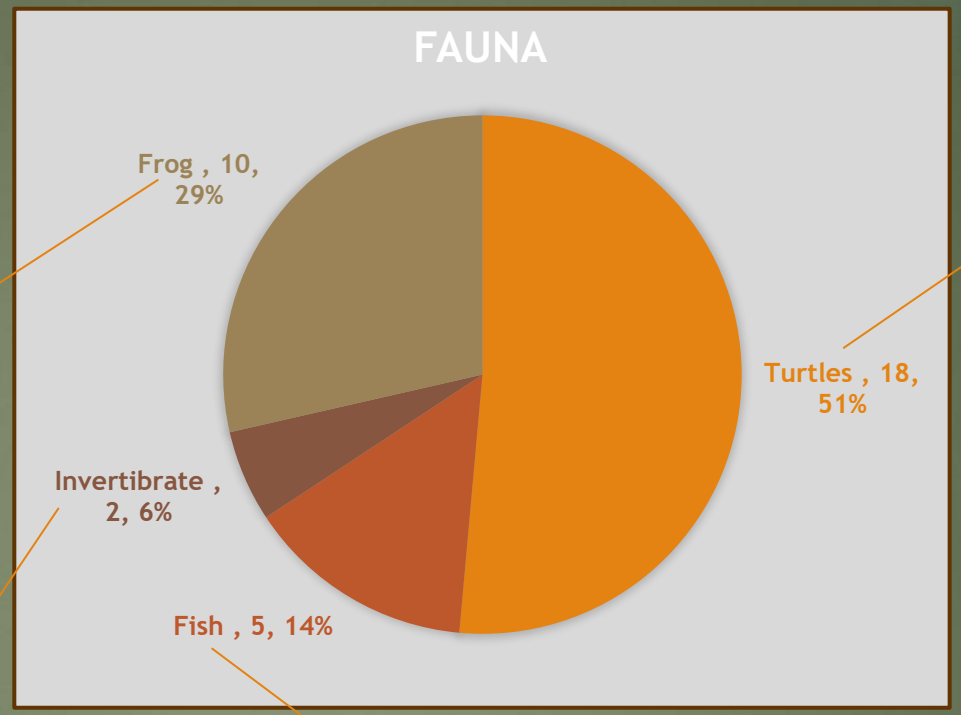
Turtle Tagging:
1 Week October 2024



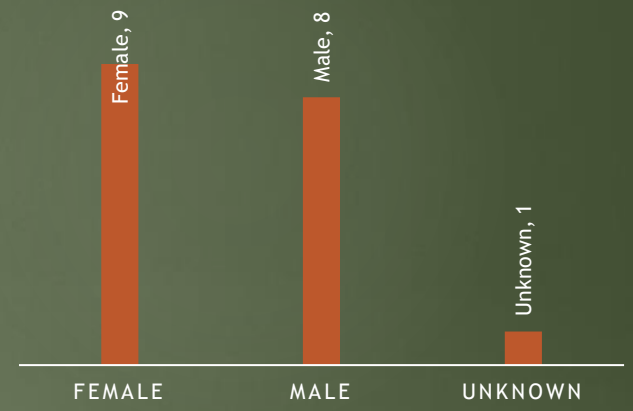
- 2- Green Treefrog, *Hyla cinerea*

- 4- Bull Frog, *Rana Catesbeiana*

- *4-Baja CA Treefrog, Pseudacris hypochondriaca hypochondriaca*



- *18- Southwestern Pond Turtle, Clemmys marmorata pallida*



- 1- Toe biter (large water beetle
- 1-Odonate larvae (dragonfly or damselfly)

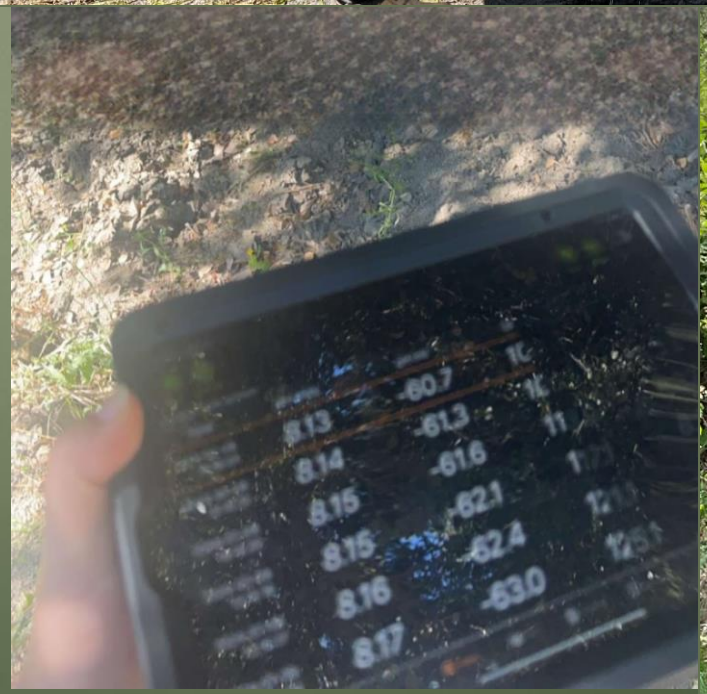
- 1- Red-eared Sunfish, *Lepomis microlophus* (the first one in USGS Fisher Lab database)

- 4- Largemouth bass, *Micropterus salmoides*

Abnormal Plastron Growth

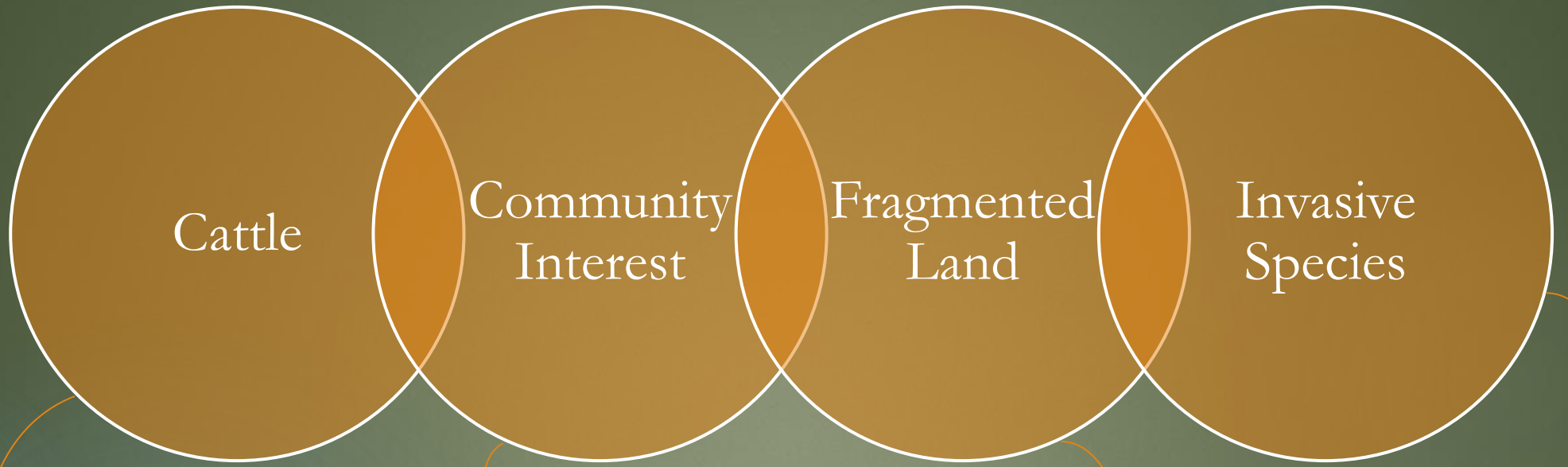
INSY Summer Interns

- Stream Hydrology Remediation
- Cutting Collections
- Propagation
- Water Testing



Dredging was done while staff and volunteers monitored turtle behavior in the pond.

Challenges



The pond is a water source for cattle to access drinking water year-round. Building a water hole outside fencing.

Food insecurities, health and welfare, housing needs, and road repairs take precedent to environmental issues.

Upstream is privately owned manmade fishing pond. Both non-native fish and bullfrogs live in this connected pond.

Bullfrogs
Trapping/Killing is difficult.

Himalayan Blackberry Bushes
Long term removal requires consistent time and resources.

Thank you!

Questions?

Resources

- U.S. Fish and Wildlife Service. (2023). Species status assessment report for the northwestern pond turtle (Actinemys marmorata) and southwestern pond turtle (Actinemys pallida), Version 1.1, April 2023. U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office, Ventura, California.
- Feng, T., Zhou, H., Qiu, Z., Kang, Y (2022). Impacts of demographic and environmental stochasticity on population dynamics with cooperative effects. *Mathematical Biosciences.* (353). https://doi.org/10.1016/j.mbs.2022.108910.
- Gregory, K. M., Darst, C., Lantz, S.M., Powelson, K., McGowan. C. P. (2024). Effects of drought, invasive species, and habitat loss on future extinction risk of two species of imperiled freshwater turtle. *Climate Change Ecology.* (7)1-9. https://doi.org/10.1016/j.ecochg.2023.100078.