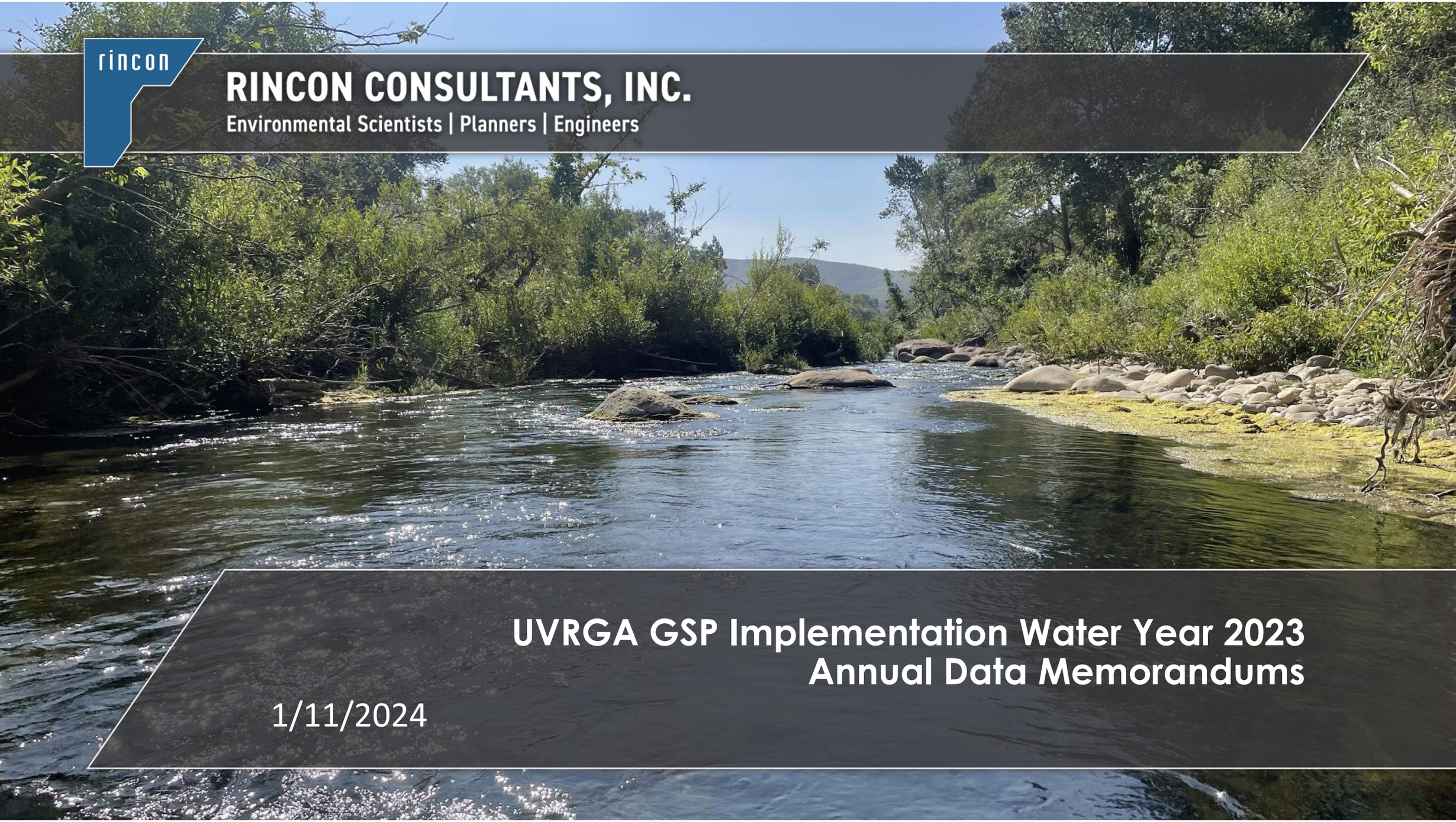


RINCON CONSULTANTS, INC.

Environmental Scientists | Planners | Engineers

UVRGA GSP Implementation Water Year 2023 Annual Data Memorandums

1/11/2024

Annual Data Memorandums

- Groundwater Levels
- Visual Streamflow Monitoring
- Camino Cielo Flow Monitoring
- Riparian GDE Monitoring
- Aquatic GDE Monitoring

- Available on UVRGA website at https://uvrgroundwater.org/sgma-overview/

Habitat Mapping, July 2023

Groundwater Levels

Overview

Data Collected:

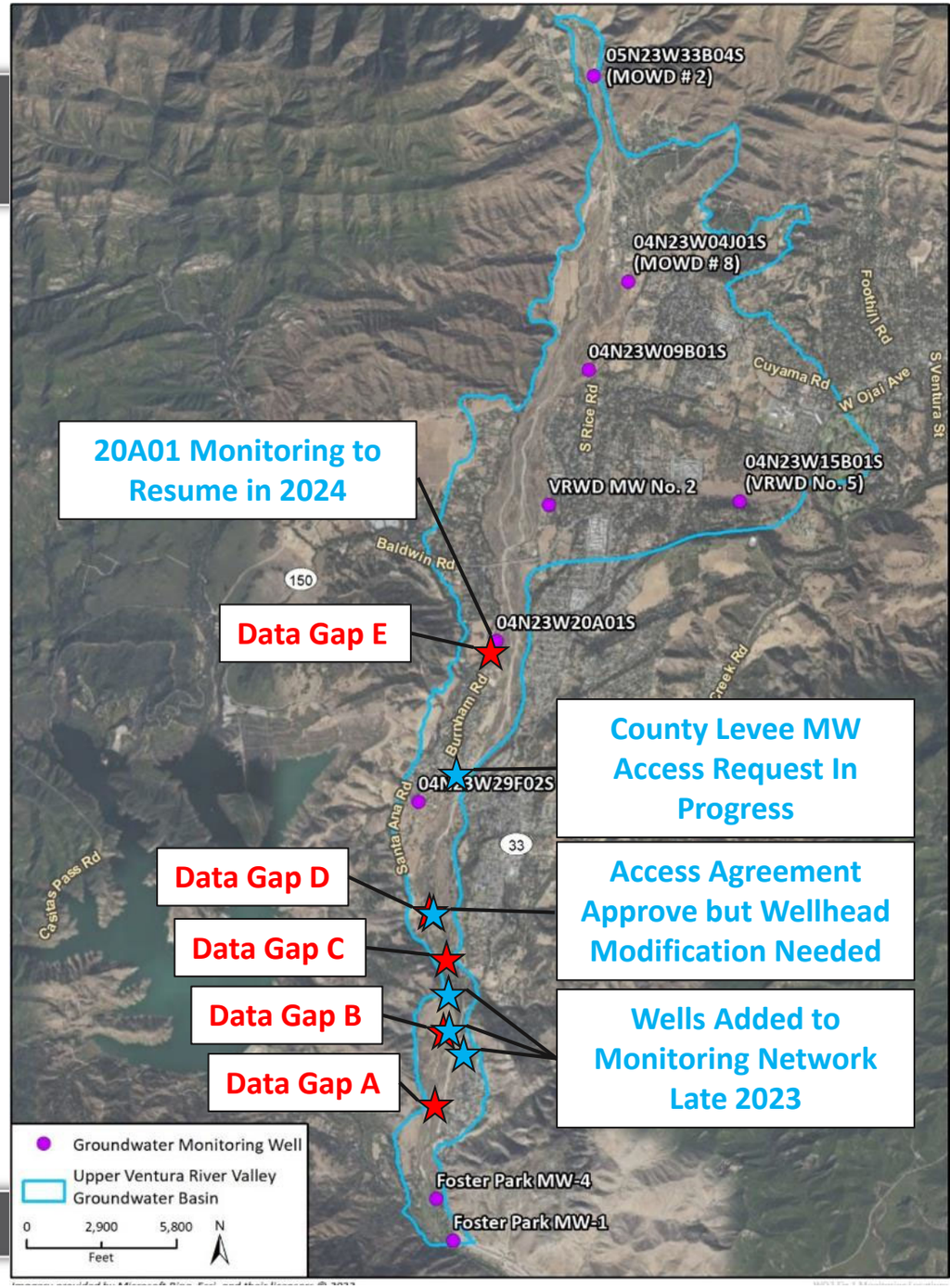
- Manual water levels
- Continuous pressure transducer data

Reason Collected:

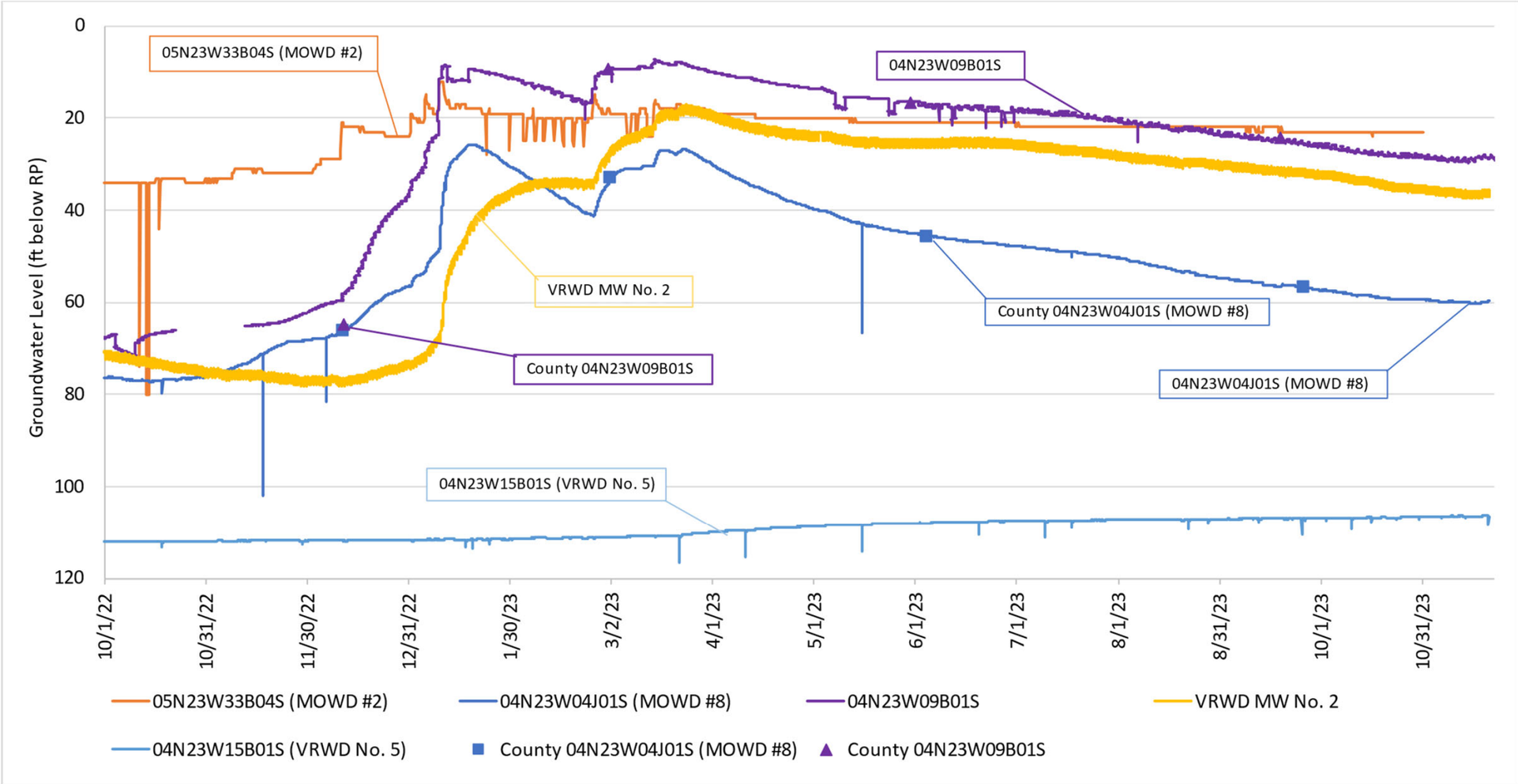
- Chronic lowering of groundwater levels and groundwater storage SMC.

Progress on Addressing Data Gaps:

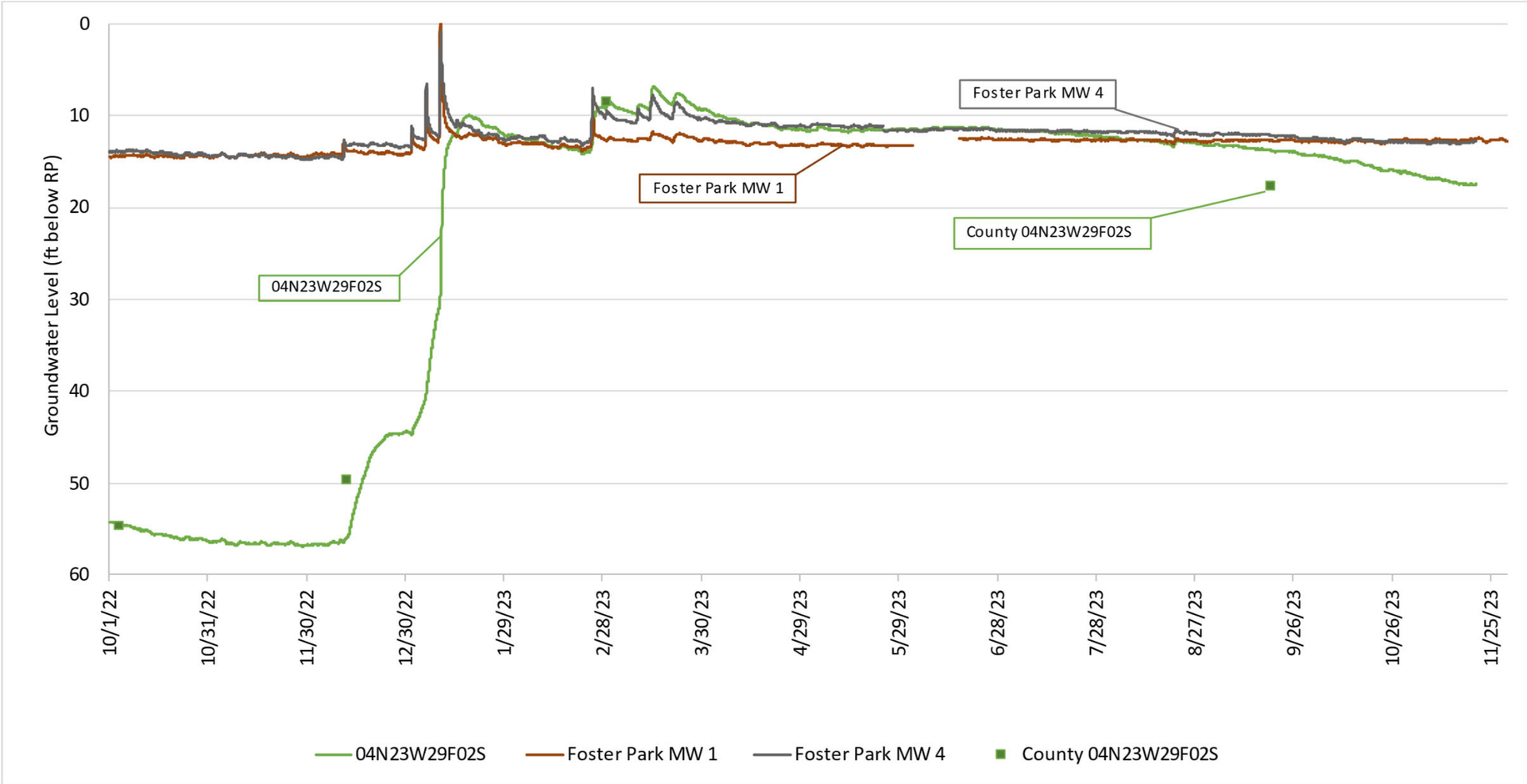
- 5 data gaps identified in GSP
- 6 wells added or soon to be added will address 4 of the 5 data gaps.



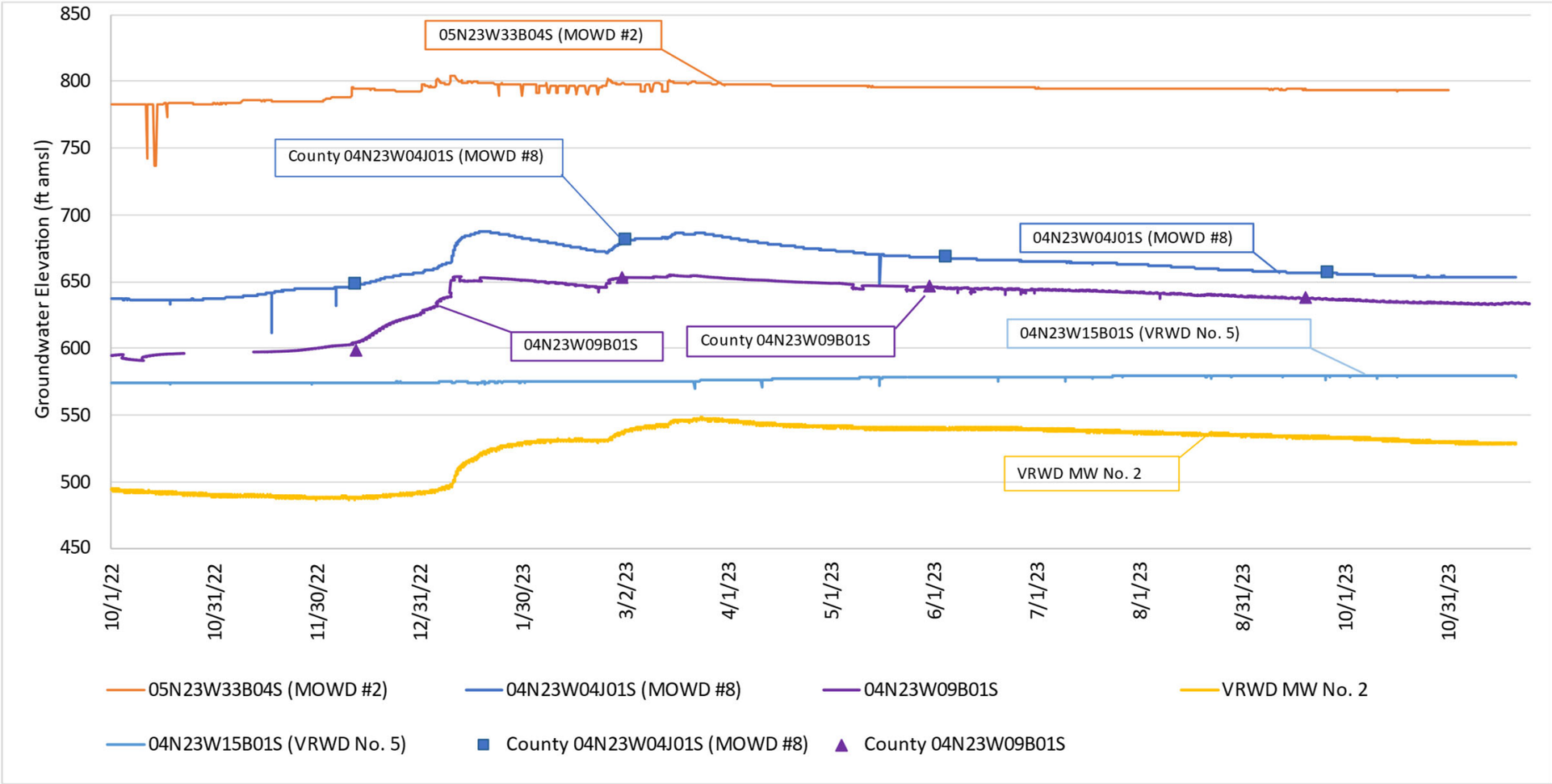
Groundwater Levels North of Baldwin Road



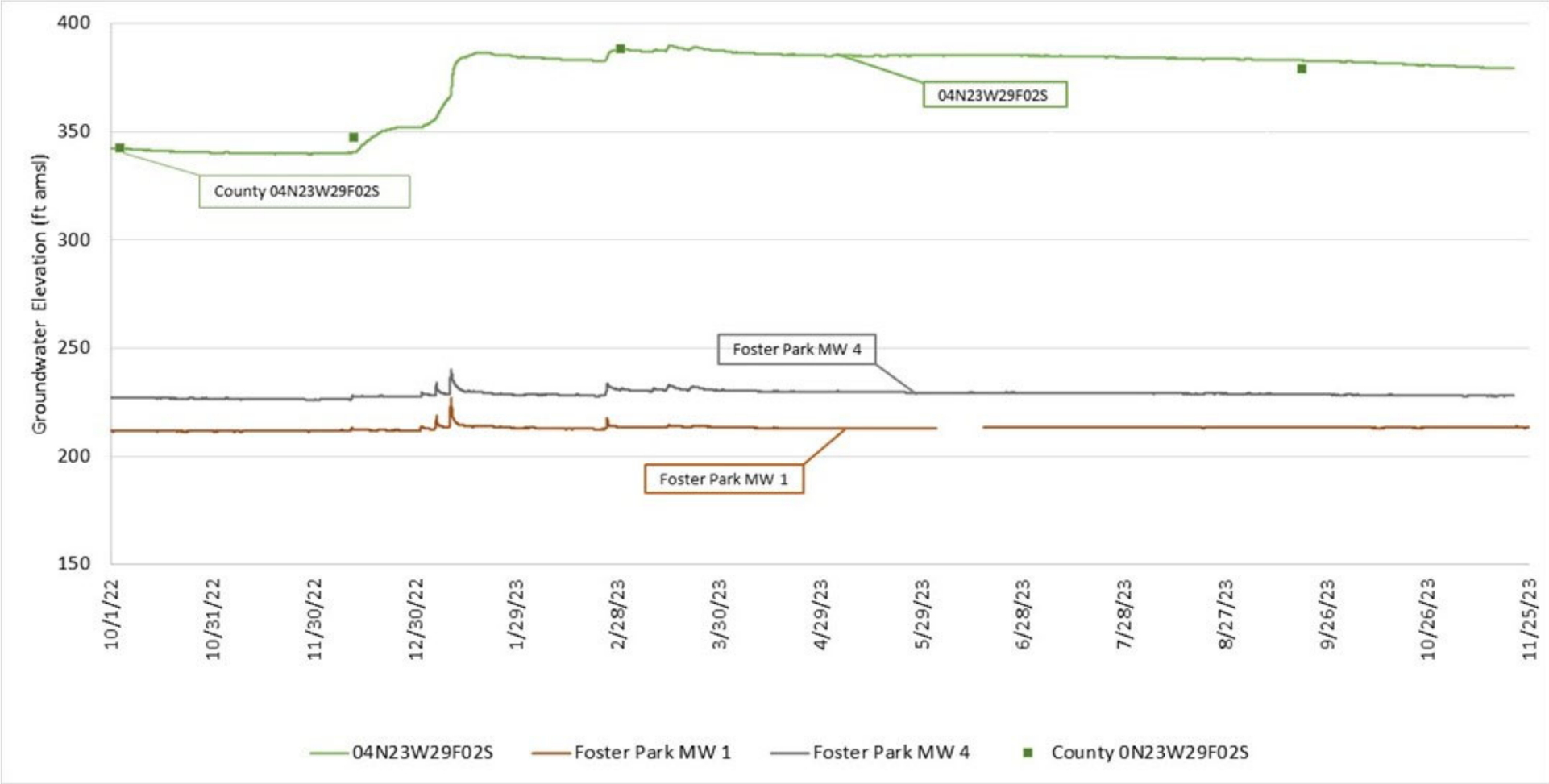
Groundwater Levels South of Baldwin Road



Groundwater Elevations North of Baldwin Road



Groundwater Elevations South of Baldwin Road



Key Observations

- Overall, groundwater levels rose following 2023 winter storms
- While levels declined during the dry season, they remained above 2022 levels

Visual Stream Monitoring

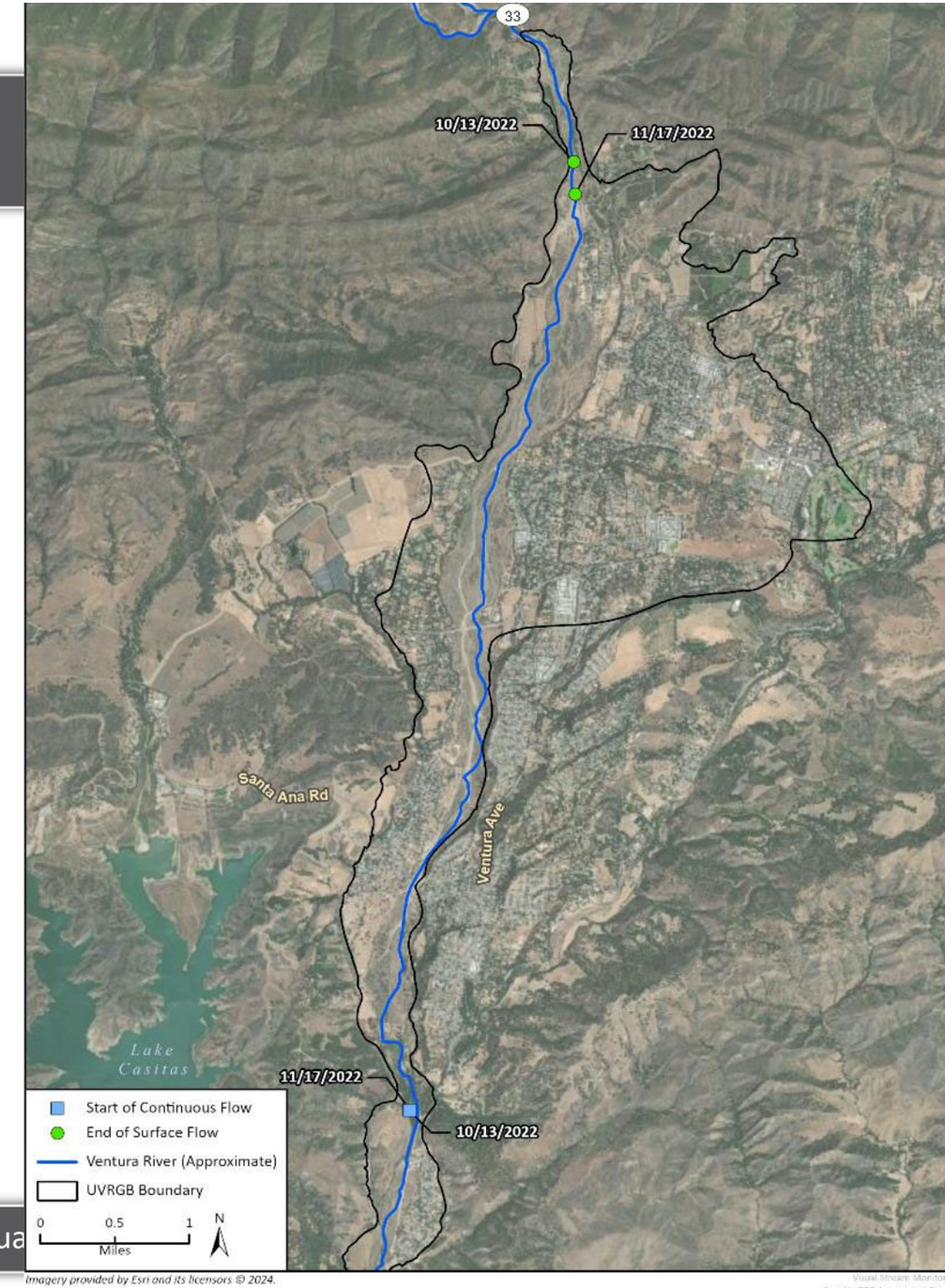
Overview

Data Collected:

- GPS locations of intermittent flow in the Ventura River

Reason Collected:

- Identify the timing/locations where intermittent flow ceases



Key Observations

- Following 2023 winter storms, flow was continuous for the rest of the Water Year

Ventura River at Santa Ana Bridge, February 2023

Camino Cielo Flow Monitoring

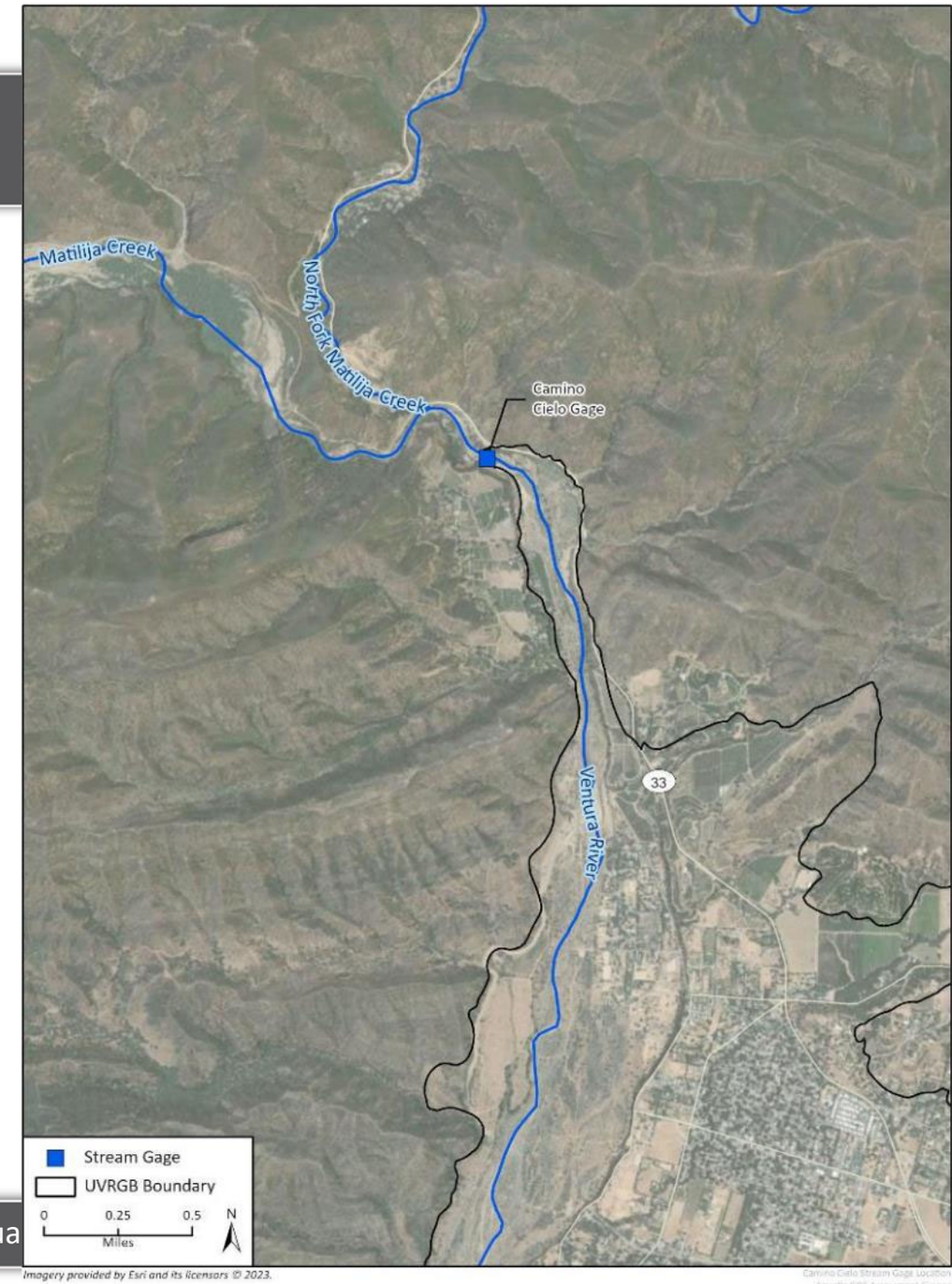
Overview

Data Collected:

- Cross section survey
- Channel slope survey
- High frequency pressure transducer data
- Monthly instantaneous flow measurements

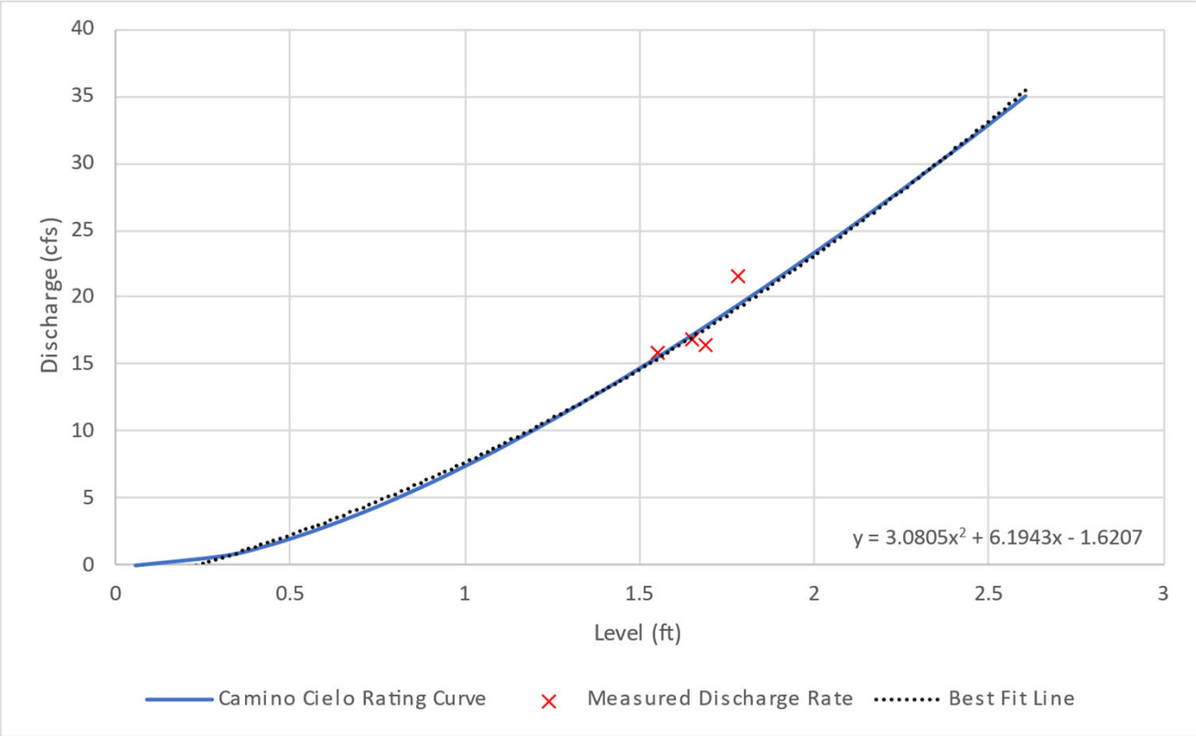
Reason Collected:

- Quantification of surface flow entering the basin

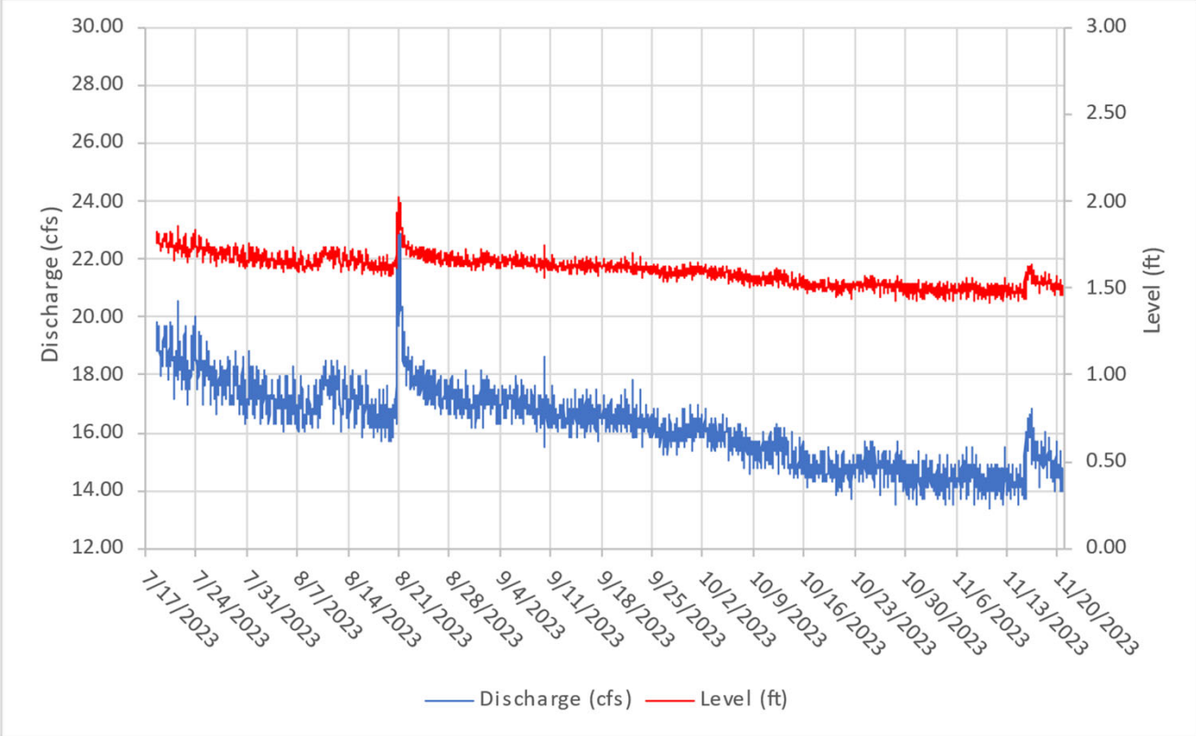


Camino Cielo Rating Curve and Hydrograph

Rating Curve



Hydrograph



Key Observations

- High flows prevented equipment deployment until July 2023
- Surface water flows remained high throughout the monitoring period, slightly decreasing during the dry season

Flow monitoring at Camino Cielo
October 13, 2023

Riparian GDE Monitoring

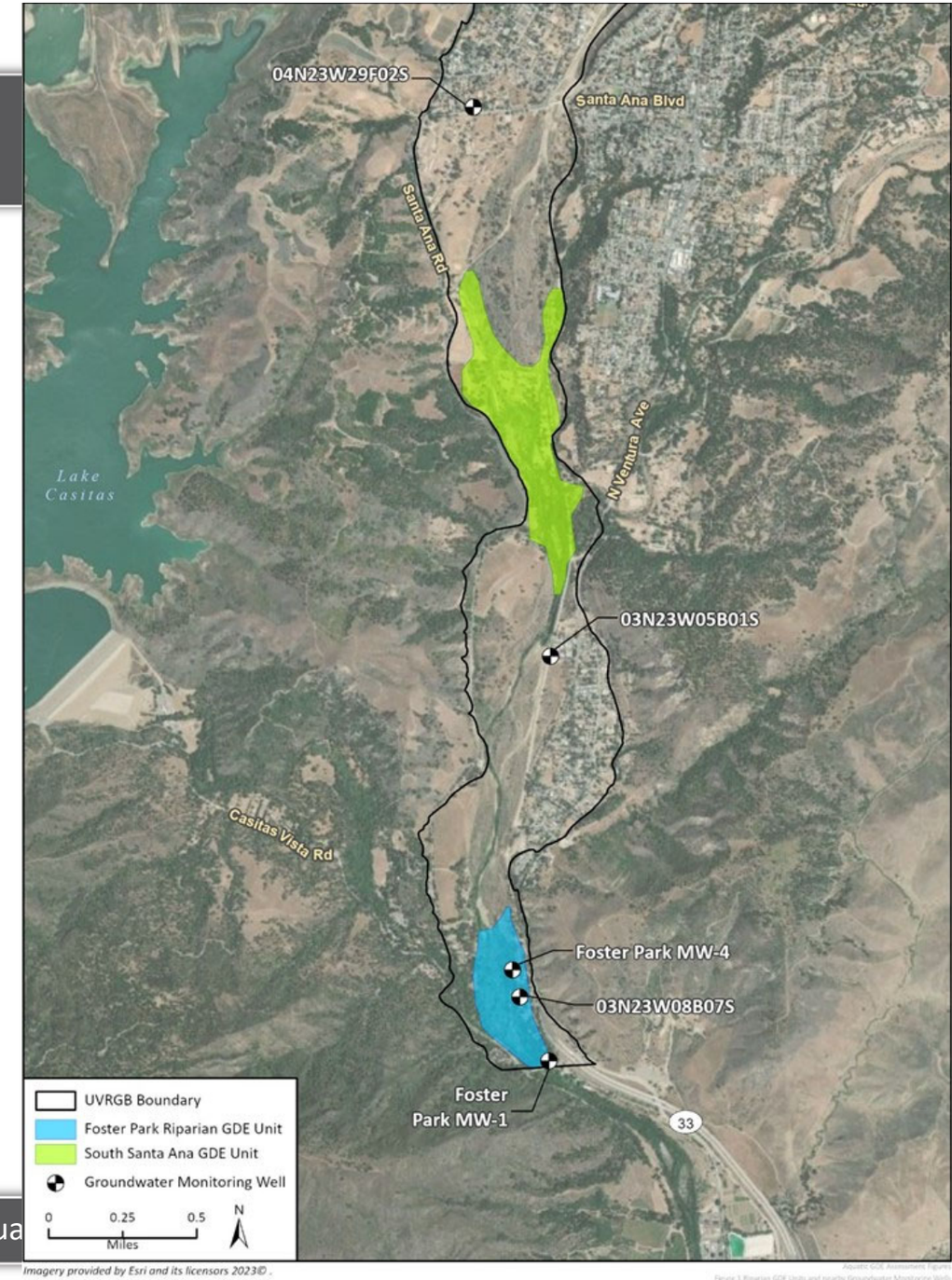
Overview

Data Collected:

- Remote Satellite Data: NDVI and NDMI
- Aerial orthoimagery via drone
- Groundwater levels
- Precipitation

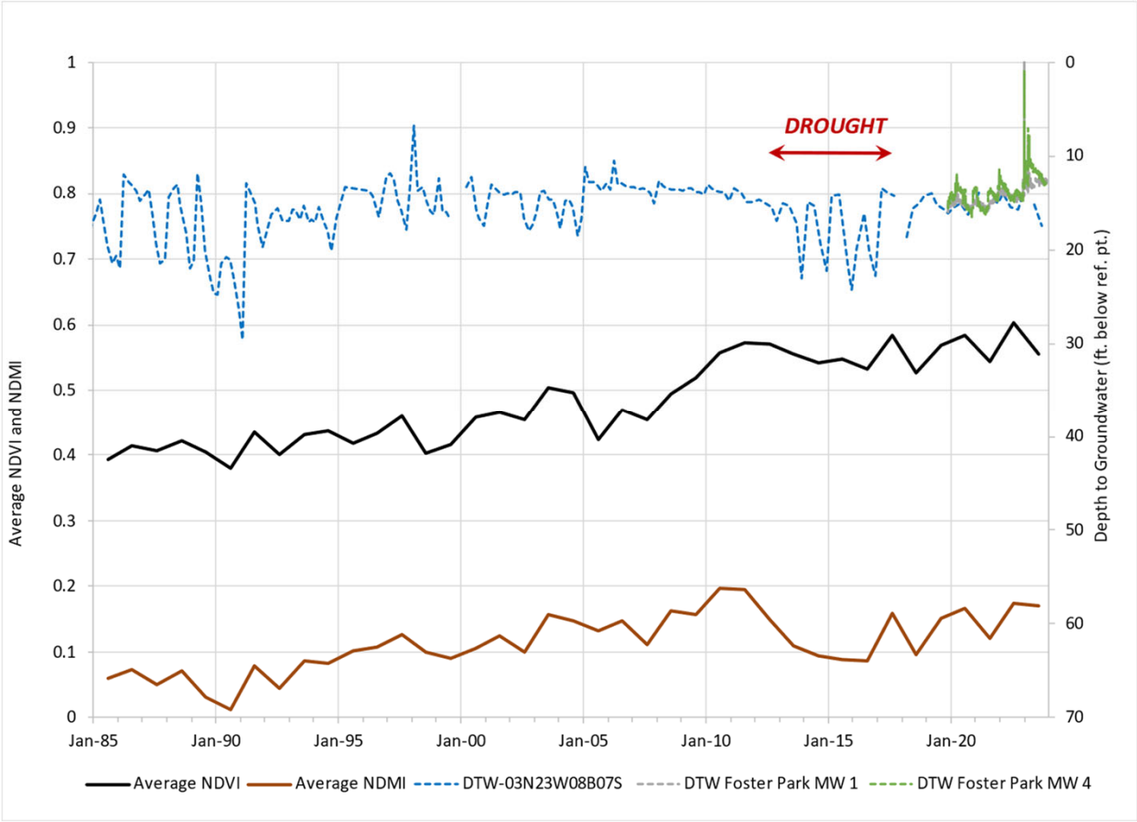
Reason Collected:

- Assess vegetation health related to groundwater levels

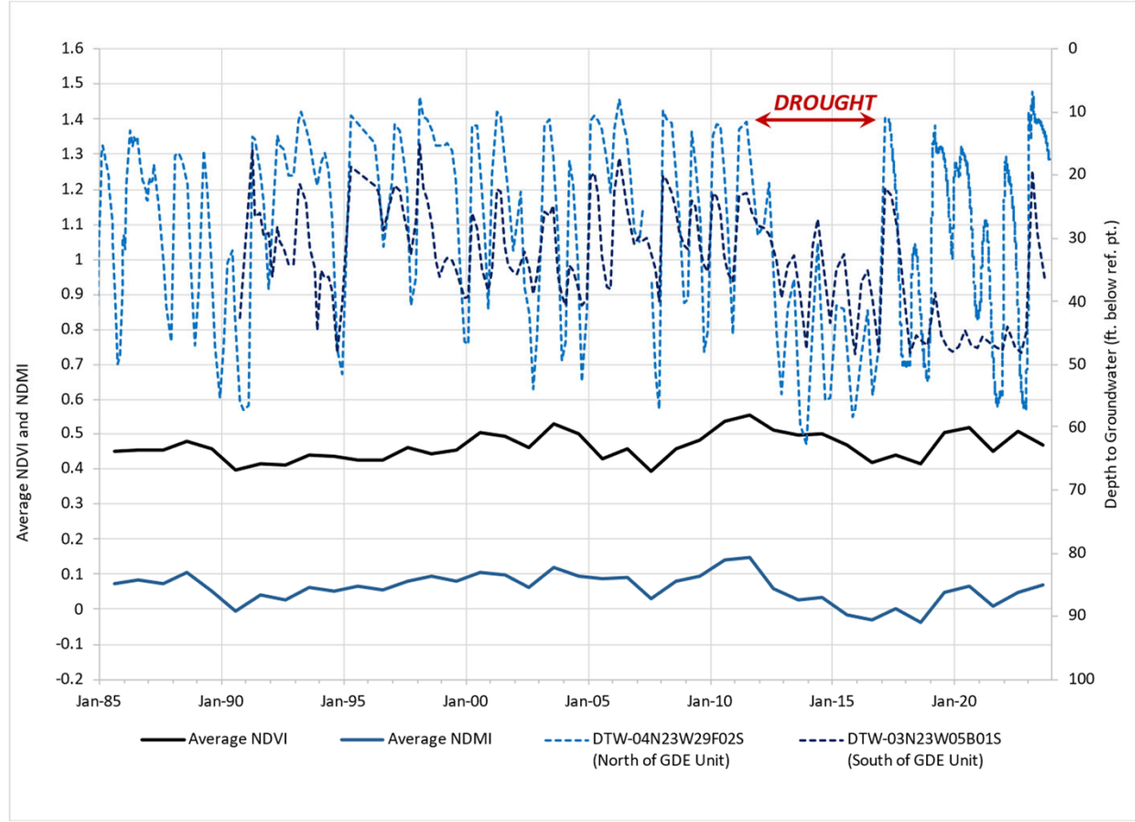


NDVI, NDMI, and Groundwater Levels

Foster Park Riparian GDE



South Santa Ana Riparian GDE



Key Observations

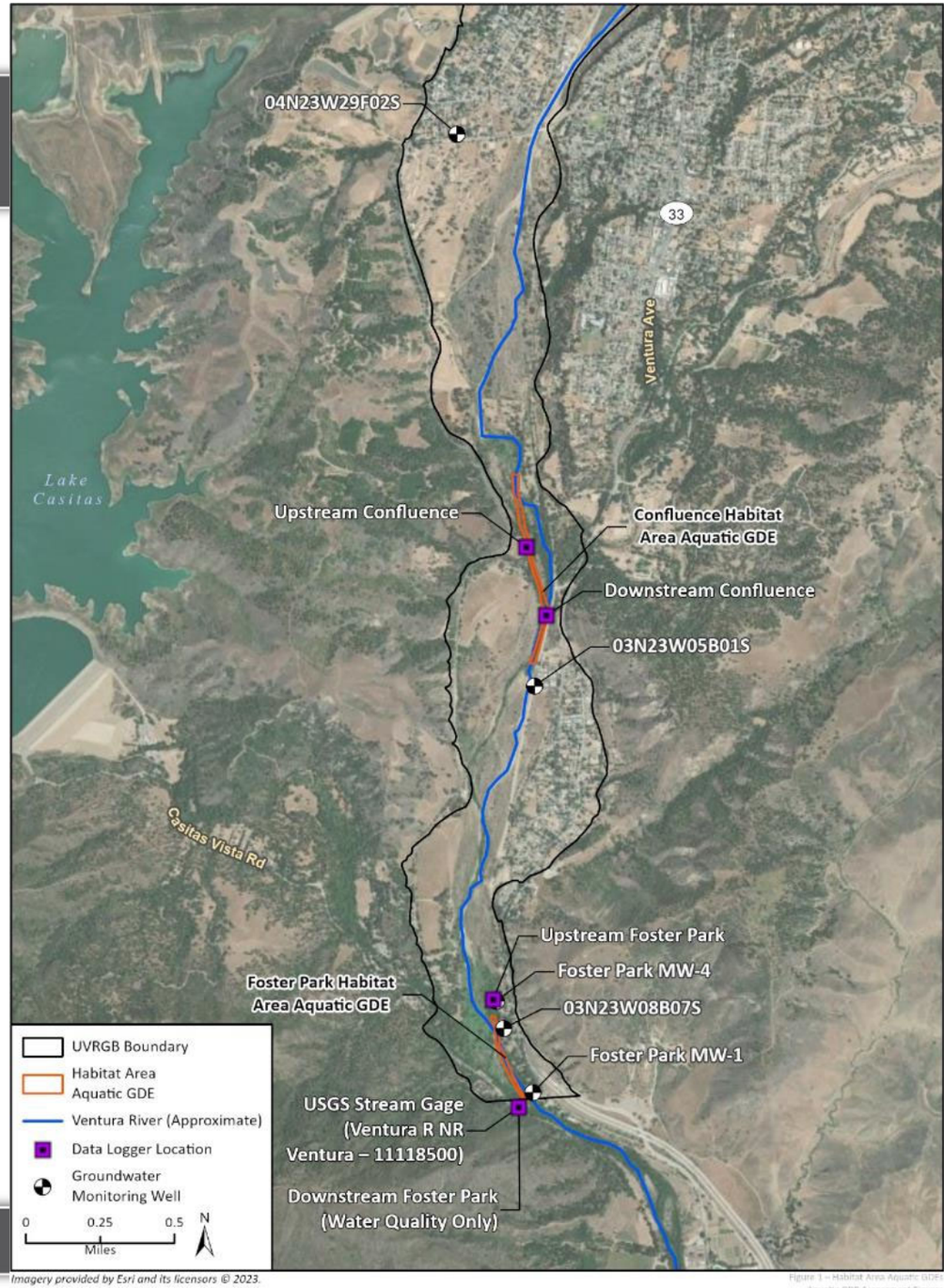
- NDVI values decreased while groundwater levels increased
- This was expected due to vegetation scouring following winter 2023 storms

Aquatic GDE Monitoring

Overview

Monitoring Components:

- Habitat Mapping
- Fish Stranding and Mortality Surveys
- Routine Habitat Suitability and Snorkel Surveys
- Water Quality and Flow Monitoring
- Aerial Photography
- Ground Photography



Imagery provided by Esri and its licensors © 2023.

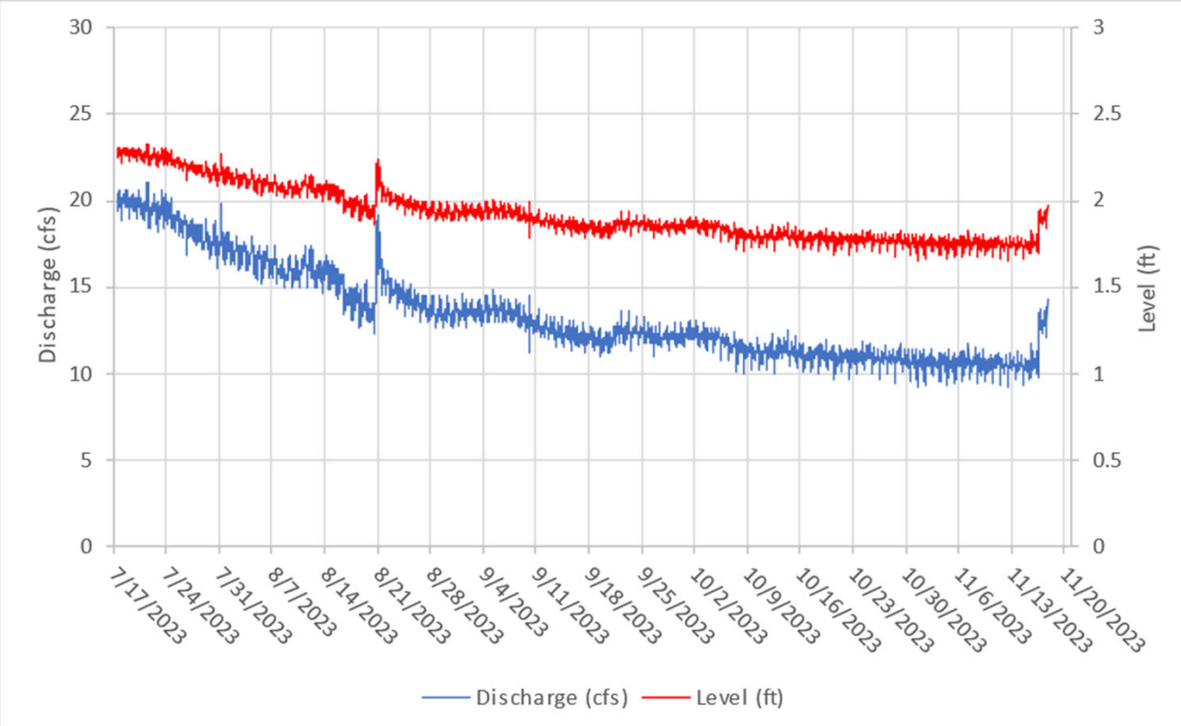
Overview (continued)

Monitoring Purpose:

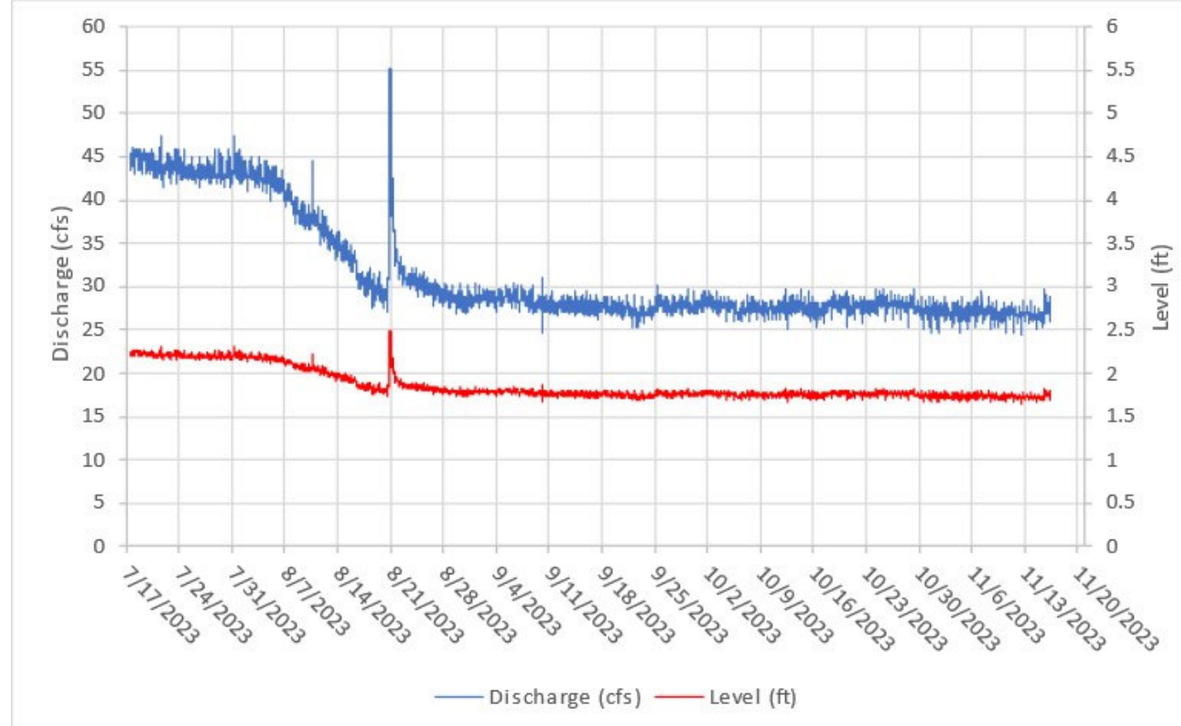
- Confluence Aquatic Habitat Area GDE
  - Evaluate if ISW depletion is causing significant and unreasonable effects
  - Assess whether SMC are needed
  - If SMC deemed necessary, inform long-term monitoring plan
- Foster Park Aquatic Habitat Area GDE
  - Assess performance of the ISW depletion SMC
  - Inform long-term monitoring needs

Aquatic GDE Monitoring Flow Data

Upstream Confluence Hydrograph

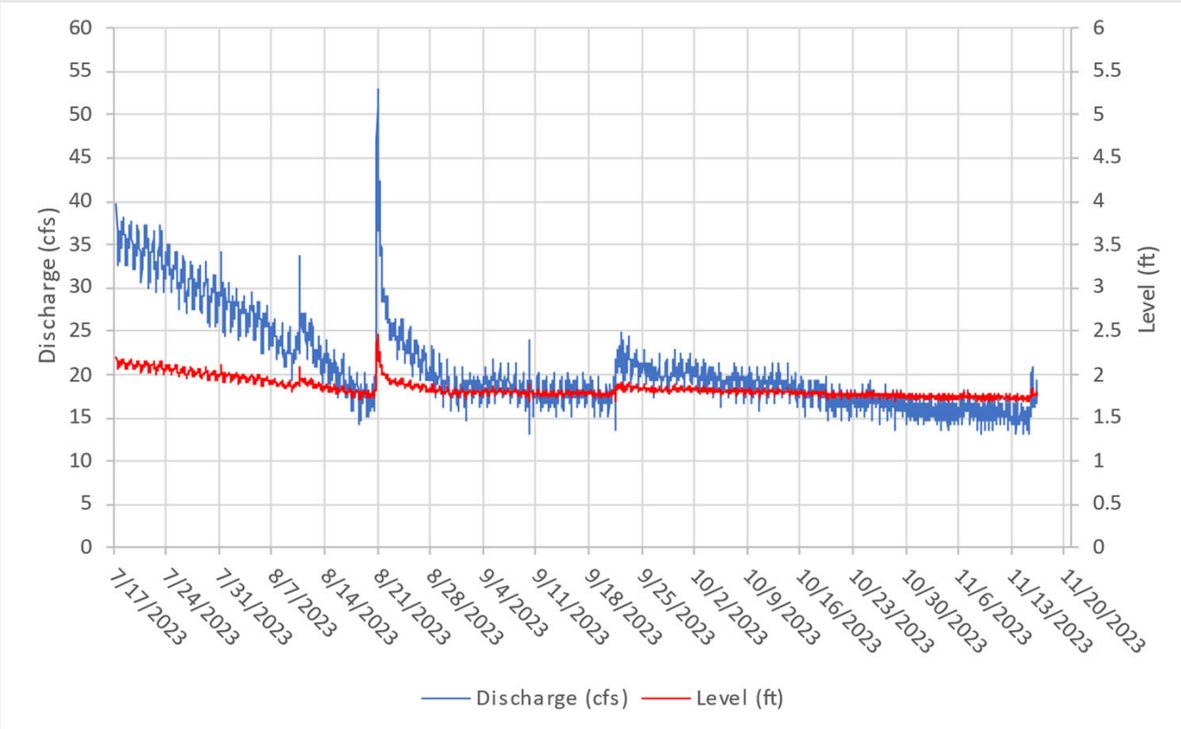


Downstream Confluence Hydrograph

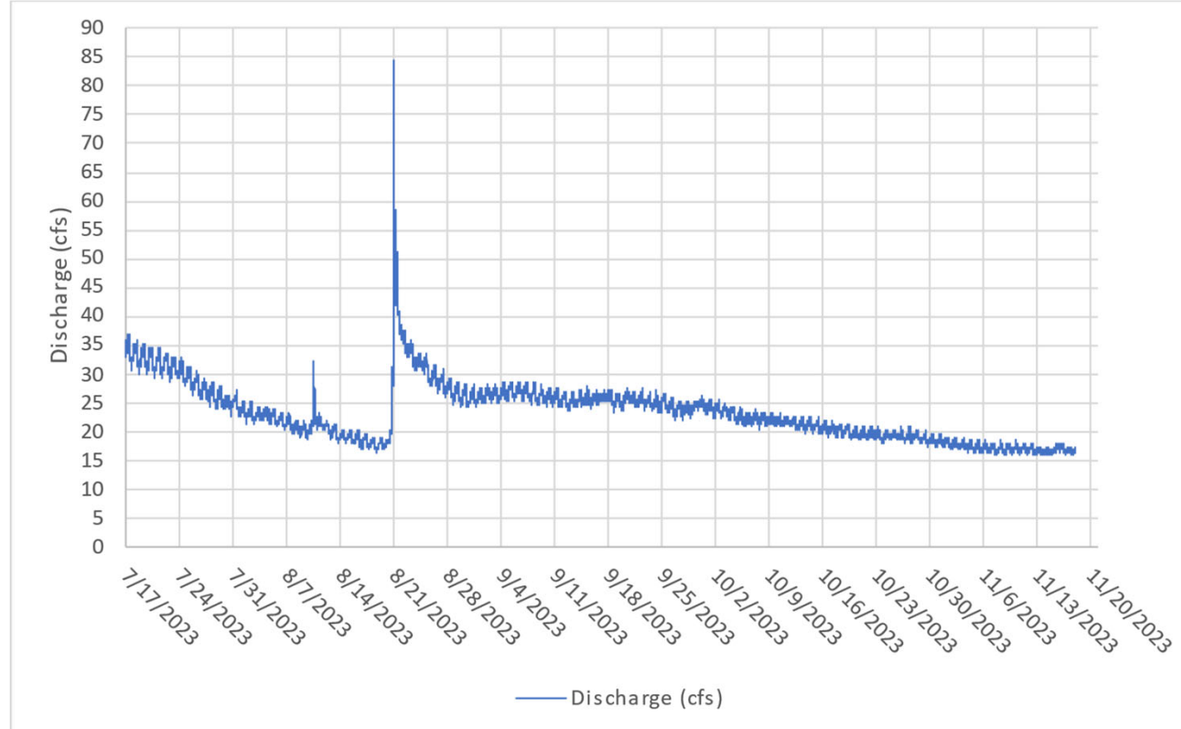


Aquatic GDE Monitoring Flow Data

Upstream Foster Park Hydrograph



Downstream Foster Park Hydrograph- USGS Site: Ventura R NR Ventura - 11118500



Aquatic GDE Monitoring Mesohabitat Data

Habitat Type	Number of Field Observations
Pool	28
Riffle	35
Run	20
Other (dry)	3

Field observations at each data point included:

Habitat and channel type (for main and secondary channels), air and water temperature, length and width of habitat area, average and max depth, substrate composition (% silt/clay, sand, gravel, cobble, boulder, bedrock, concrete), canopy cover, gravel embeddedness, instream cover, algae cover, migration barrier

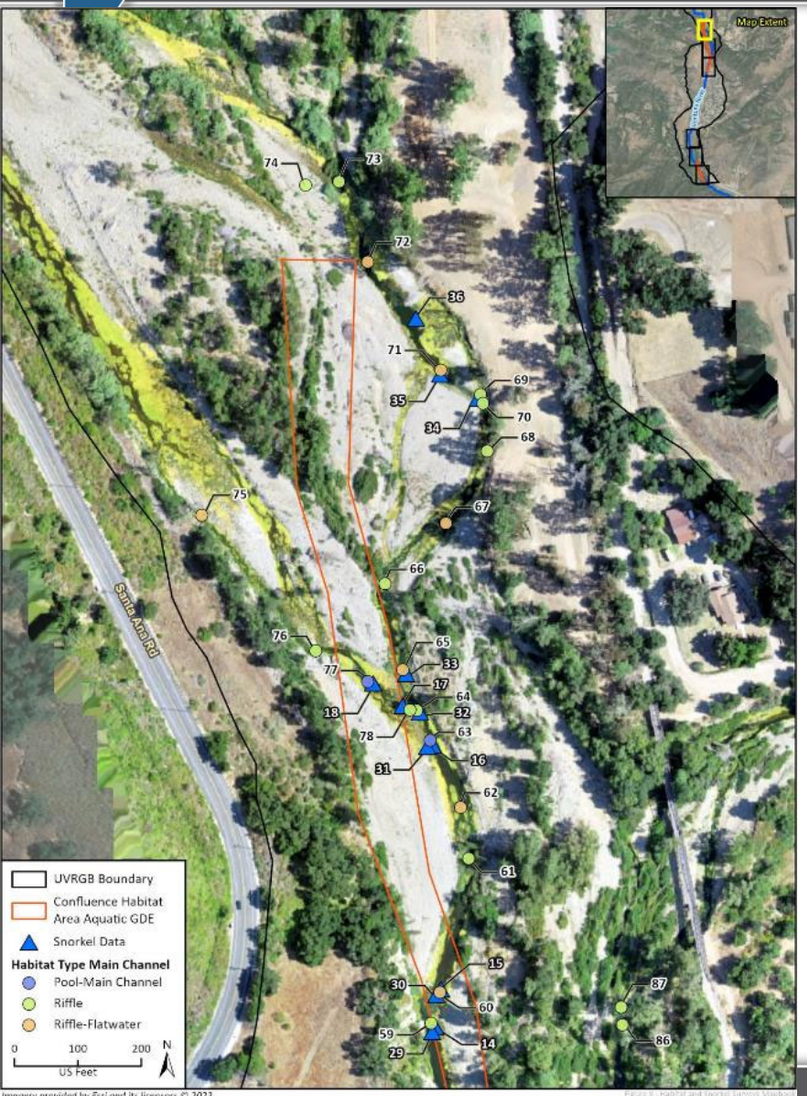
Aquatic GDE Monitoring Snorkel Data

Habitat Type	Number of Field Observations
Pool	12
Riffle	12
Run	12

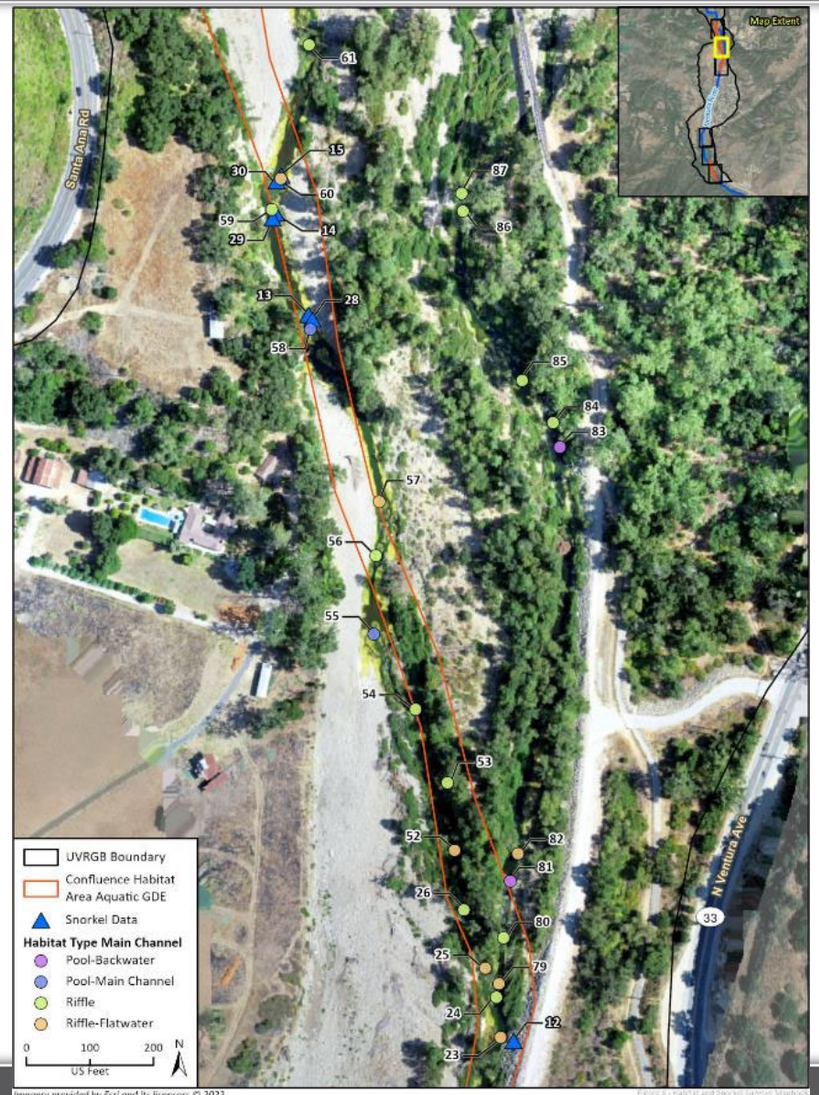
Field observations at each data point included:

Habitat type, water temperature, macroinvertebrate presence, fish species, life stage, and count, fish notes, invasive species present

Confluence Aquatic GDE Monitoring Habitat and Snorkel Survey Data



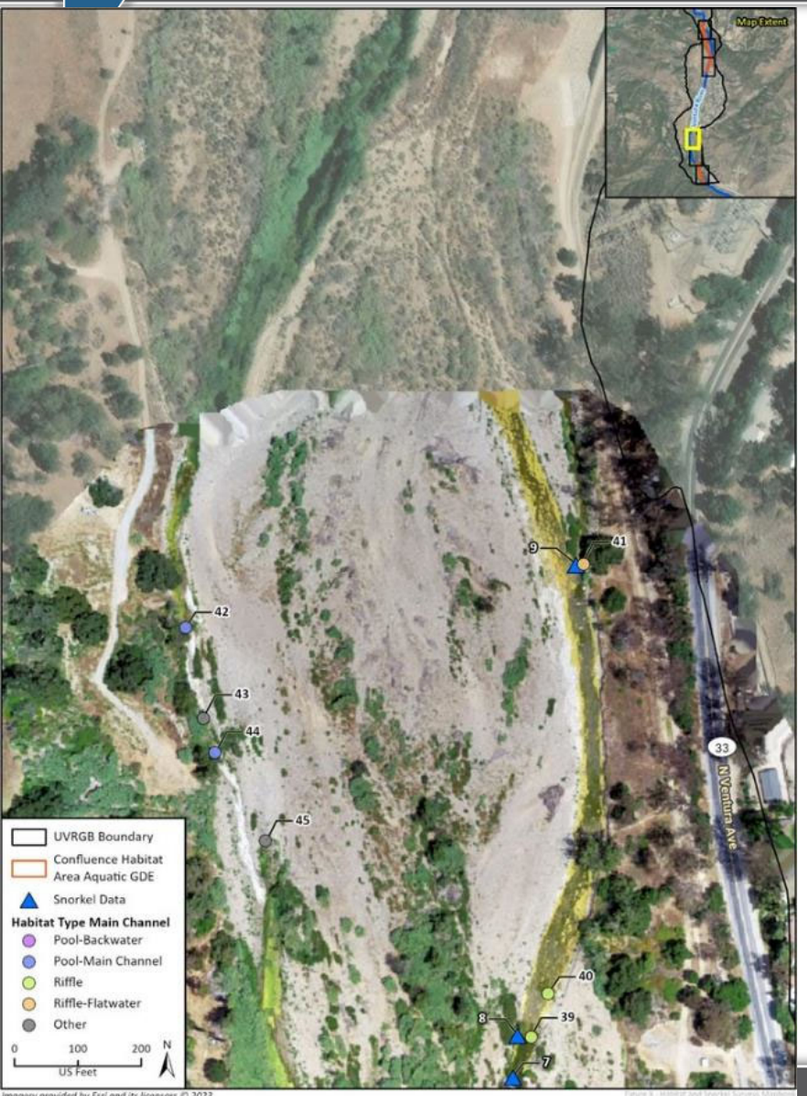
Imagery provided by Esri and its licensors © 2023.
Additional Imagery provided by Rincon Environmental Consultants Inc. July 2023



Imagery provided by Esri and its licensors © 2023.
Additional Imagery provided by Rincon Environmental Consultants Inc. July 2023

Imagery provided by Esri and its licensors © 2023.
Additional Imagery provided by Rincon Environmental Consultants Inc. July 2023

Foster Park Aquatic GDE Monitoring Habitat and Snorkel Survey Data



Imagery provided by Esri and its licensors © 2023.
Additional imagery provided by Rincon Environmental Consultants Inc. July 2023

Imagery provided by Esri and its licensors © 2023.
Additional imagery provided by Rincon Environmental Consultants Inc. July 2023

Imagery provided by Esri and its licensors © 2023.
Additional imagery provided by Rincon Environmental Consultants Inc. July 2023

Key Observations

- Aquatic conditions were representative of higher-than-normal flow conditions.
- No fish stranding or mortality was observed during Water Year 2023
- While sensitive aquatic species were observed during snorkel surveys, steelhead and lampreys were not