

# Borrego Springs Watermaster Board Meeting

January 15, 2025

# I. Opening Procedures

\*\*\*This meeting is being recorded

- A. Call to Order and start meeting recording
- B. Pledge of Allegiance
- C. Roll Call
- D. Approval of Agenda



# II. Public Correspondence

## II.A – Written Correspondence - *None*

## II.B – Public Comment

### Instructions for Public Comment

The public may address the Board on items within the Watermaster's Jurisdiction that are included or not included on the meeting agenda.

To address the Board on items that are not included on the meeting agenda, the public may request to speak during ***Agenda Item III – Public Correspondence***. Comments may be limited to three minutes per speaker.

To address the Board on items that are included on the meeting agenda, the Board Chairperson will call for public comments immediately following the agenda item's staff report presentation and prior to Board discussion.

*The Board may direct staff to include topics brought forward during Public Correspondence and Comment on a future meeting agenda. No action or discussion is otherwise taken by the Board.*

## III. Consent Calendar

- A. Approval of Minutes: Special Meeting – December 19, 2024
- B. Approval of November 2024 Financial Report
- C. Approval of December 2024 Financial Report
- D. Receive and file Watermaster Staff invoices from November 2024 (RWG and West Yost)

# IV. Status Update on the Groundwater Dependent Ecosystems Project (UCI)

# **The Groundwater Dependent Ecosystem (GDE) Identification, Assessment, and Monitoring Program**

Watermaster Meeting  
January 15, 2025



# Groundwater Dependent Ecosystem (GDE)

## Identification, Assessment, and Monitoring Program - Proposition 68 SGMA Grant

Nikki Fiore



Laurel Brigham



Travis Huxman



Robert Staehle



Daniel Donovan



Jon Rebman



David Garmon



Lori Paul



### Research Team & Partners

University of California, Irvine

the Nat SAN DIEGO  
NATURAL HISTORY  
MUSEUM



# Project Objective

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Project aims to determine whether the mesquite bosque near the Borrego Sink is a **groundwater dependent ecosystem (GDE)**, and thus must be considered as a beneficial user of groundwater under SGMA.

GDEs are specifically defined under SGMA as:

*"ecological communities of species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" (23 CCR § 351(m)).*



# Guiding Framework

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## The Nature Conservancy's **SGMA Guidance for Identifying, Monitoring, and Managing GDEs:**

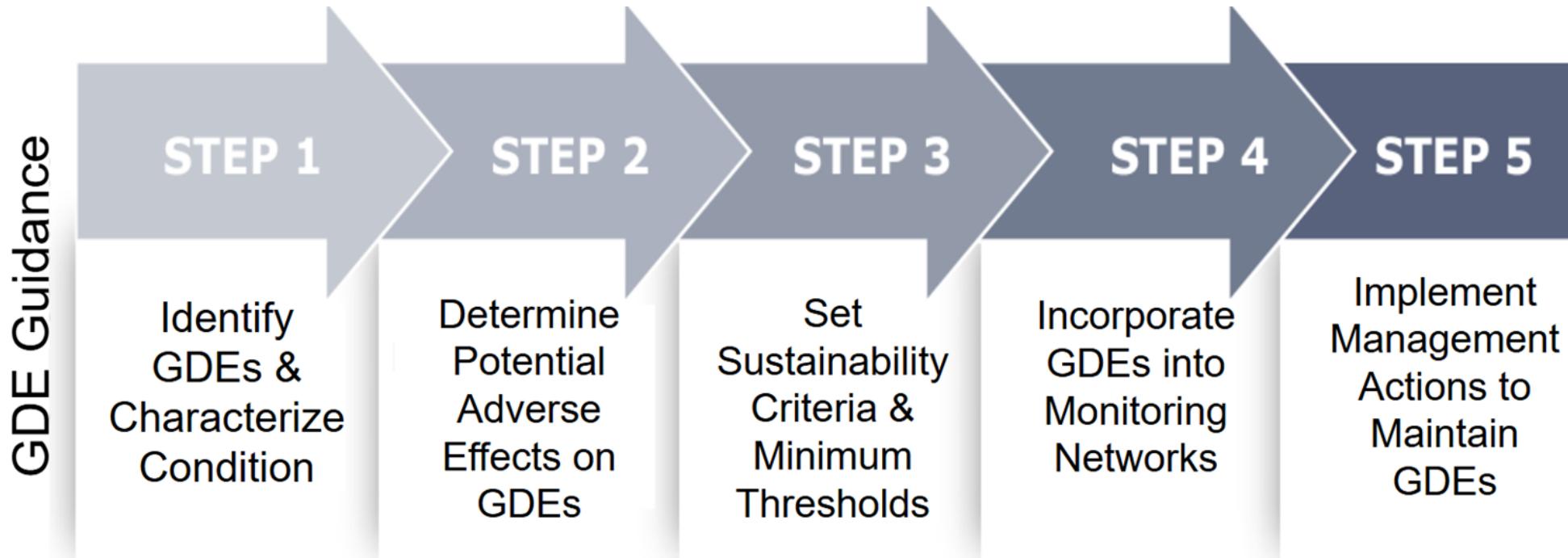
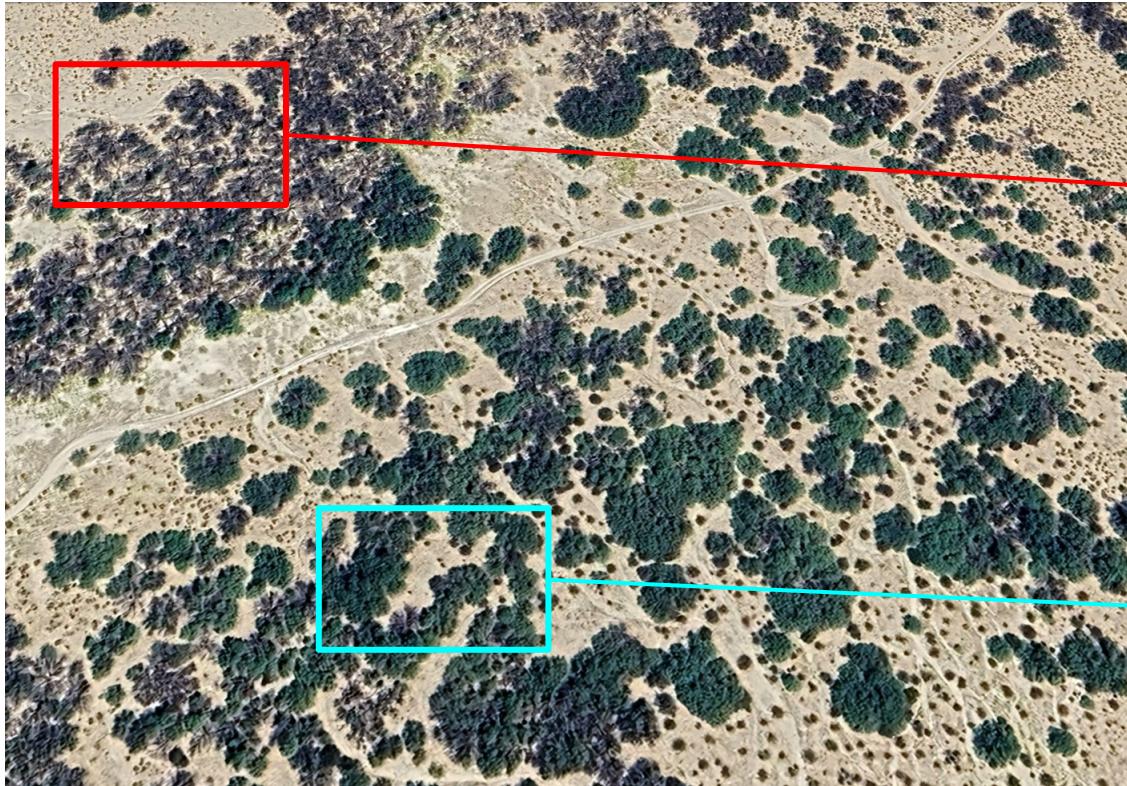


Figure modified from: Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans  
Available at: [https://www.groundwaterresourcehub.org/content/dam/tnc/nature/en/documents/GWR\\_Hub\\_GDE\\_Guidance\\_Doc\\_1-31-18.pdf](https://www.groundwaterresourcehub.org/content/dam/tnc/nature/en/documents/GWR_Hub_GDE_Guidance_Doc_1-31-18.pdf)

# Project Approach

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Project uses a functional approach that combines remote sensing, field, and laboratory methods to identify GDE mesquite and assess their health and water use patterns.



*Aerial imagery of patches of mesquite near the Borrego Sink, July 2024*

# Project Progress

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All of our past Project Update documents can be found online at:

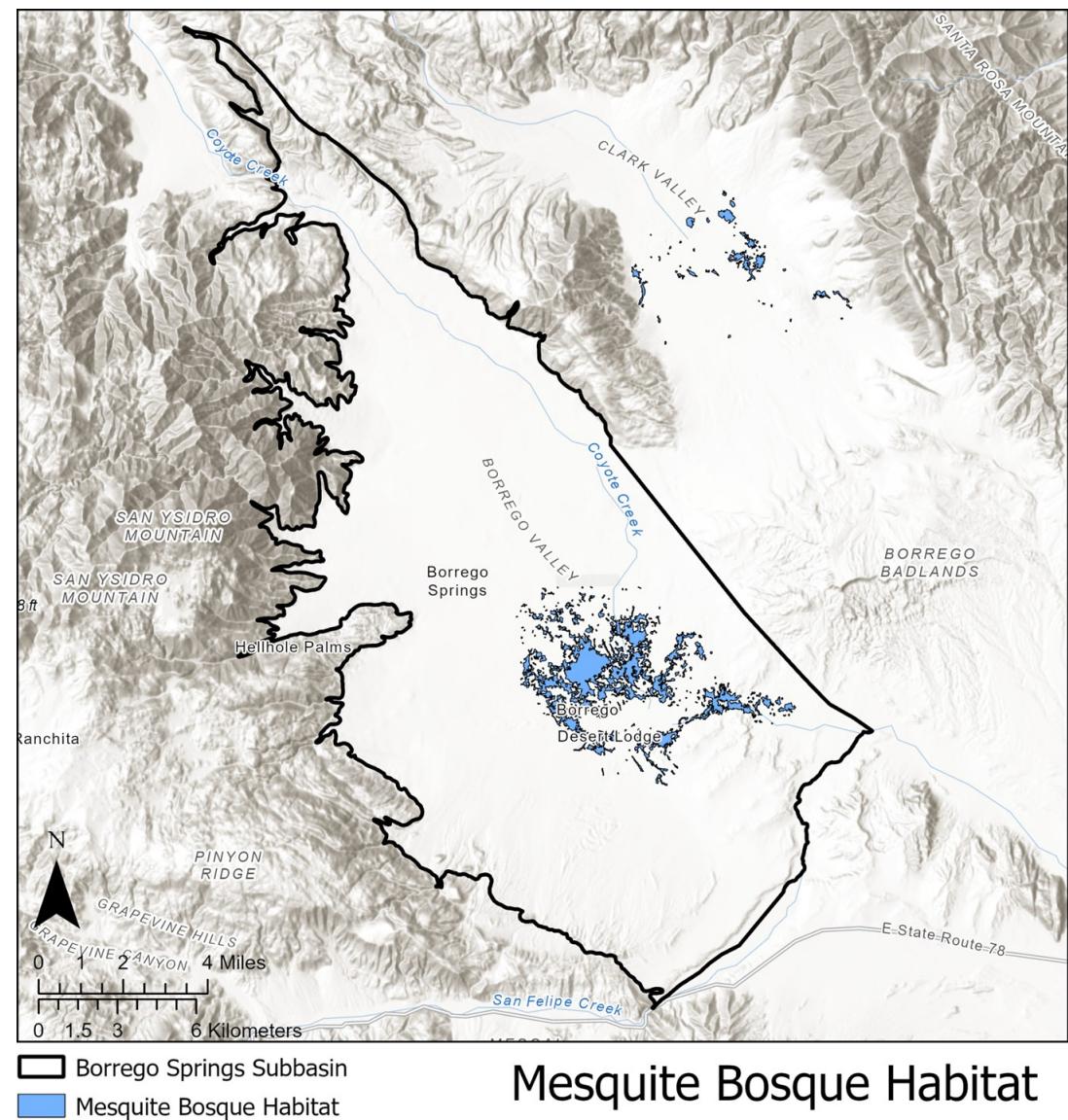
<https://anzaborrego.ucnrs.org/data-publications/>

Final Report will be available March 31, 2025

Final Presentation on April 7th at the Steele Burnand Research Center

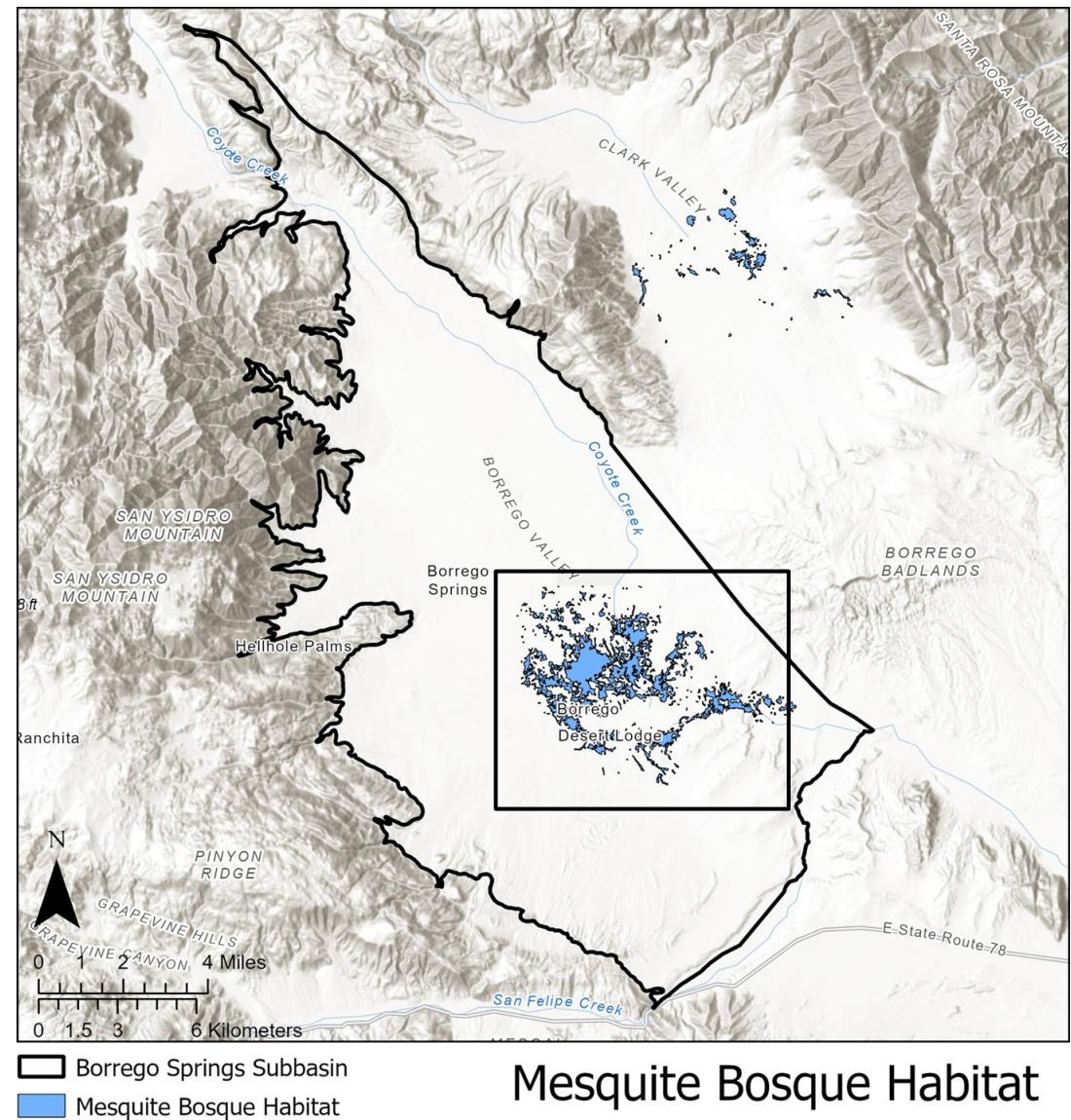
# Project Progress: Identifying GDEs

- Used image classification of high resolution (1 m) imagery to identify **1,800 acres of live mesquite bosque habitat** found in the Central and South Management Areas



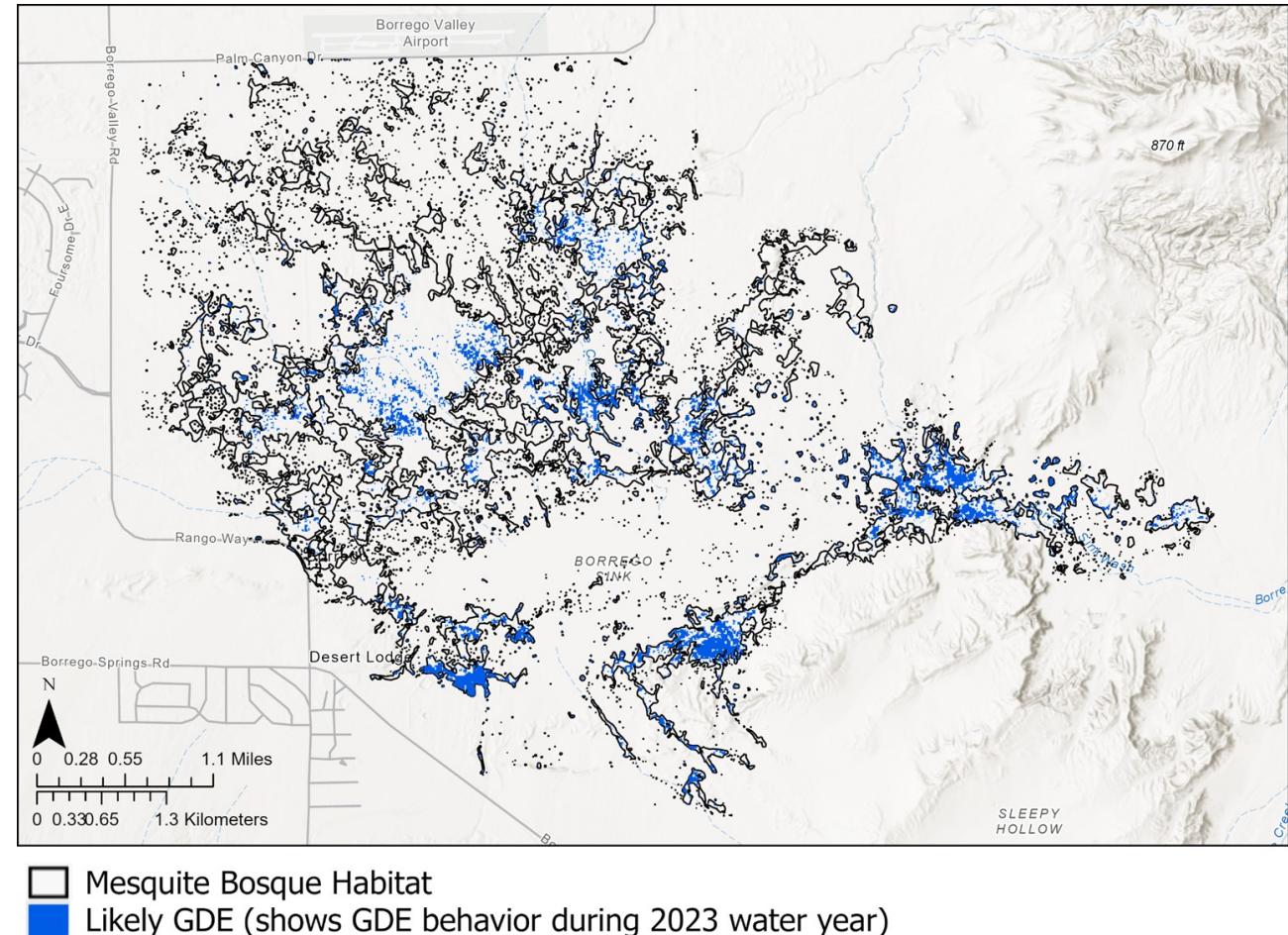
# Project Progress: Identifying GDEs

- Designed 3 remote sensing approaches to identify GDE behavior throughout the mesquite bosque



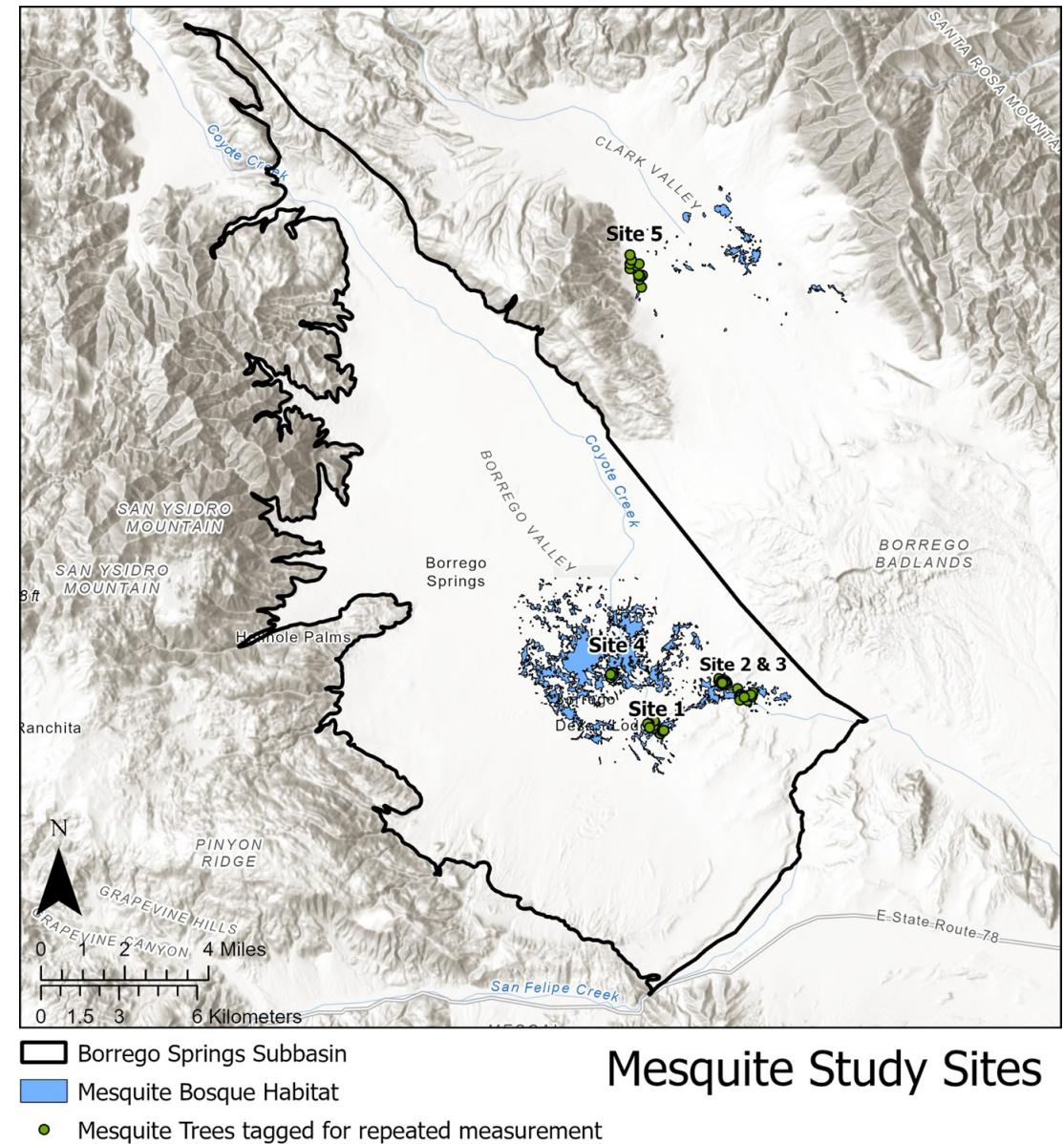
# Project Progress: Identifying GDEs

- Designed 3 remote sensing approaches to identify GDE behavior throughout the mesquite bosque
- Found widespread indications of mesquite GW use



# Project Progress: Field Monitoring

- Established 5 mesquite study sites to investigate mesquite health and water use on the ground:
  - 1-4 in Borrego
  - 5 at Clark Dry Lake



# Project Progress: Field Monitoring

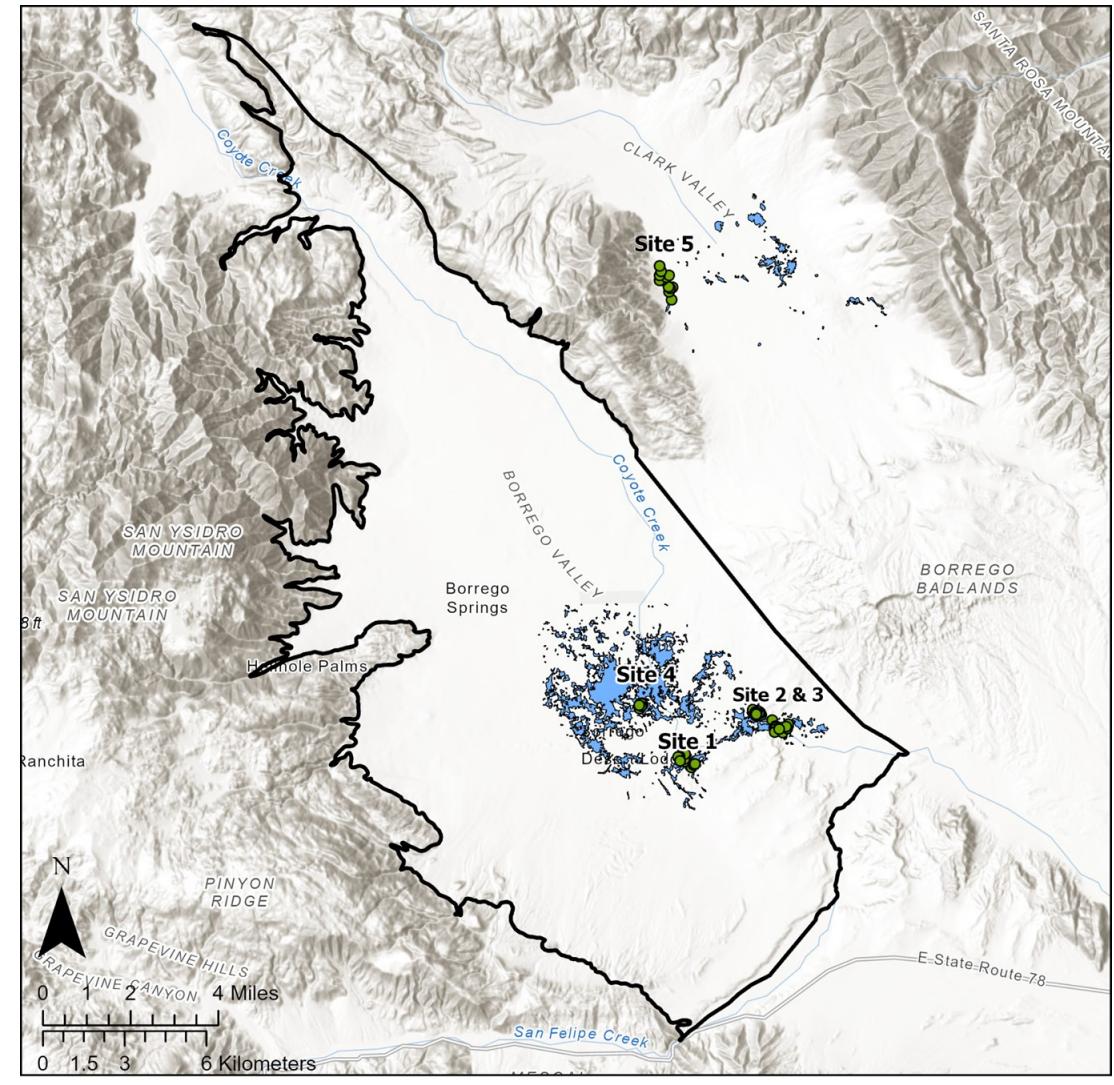
- Performed seasonal sampling (3x per year) of
  - Mesquite twig, soil, and groundwater isotopes to track water sources



N. Fiore sampling mesquite, May 2024



L. Brigham and P. Ta sampling mesquite, June 2023



Mesquite Study Sites

■ Borrego Springs Subbasin

■ Mesquite Bosque Habitat

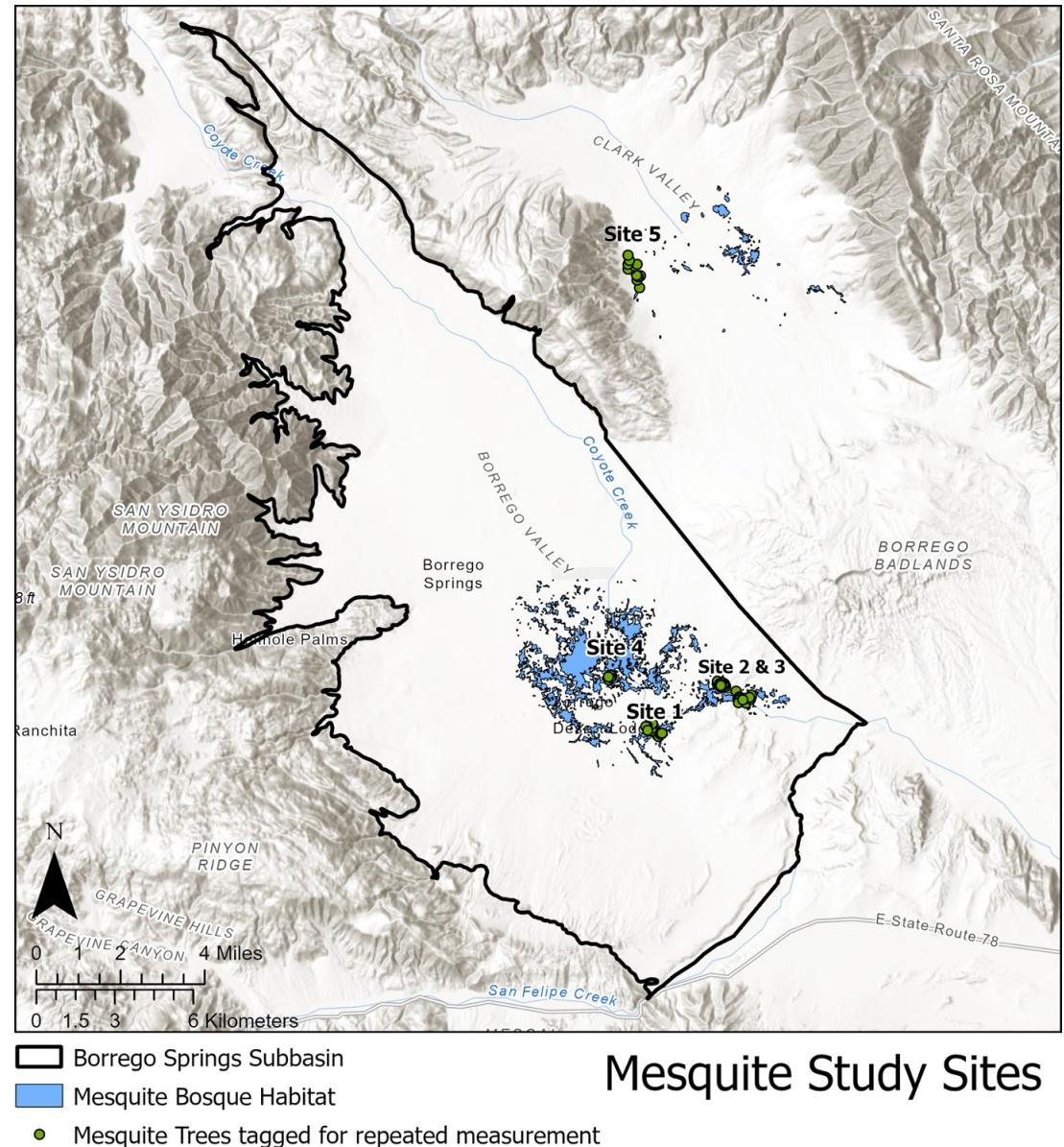
● Mesquite Trees tagged for repeated measurement

# Project Progress: Field Monitoring

- Performed seasonal sampling (3x per year) of
  - Plant water potential to determine levels of water stress

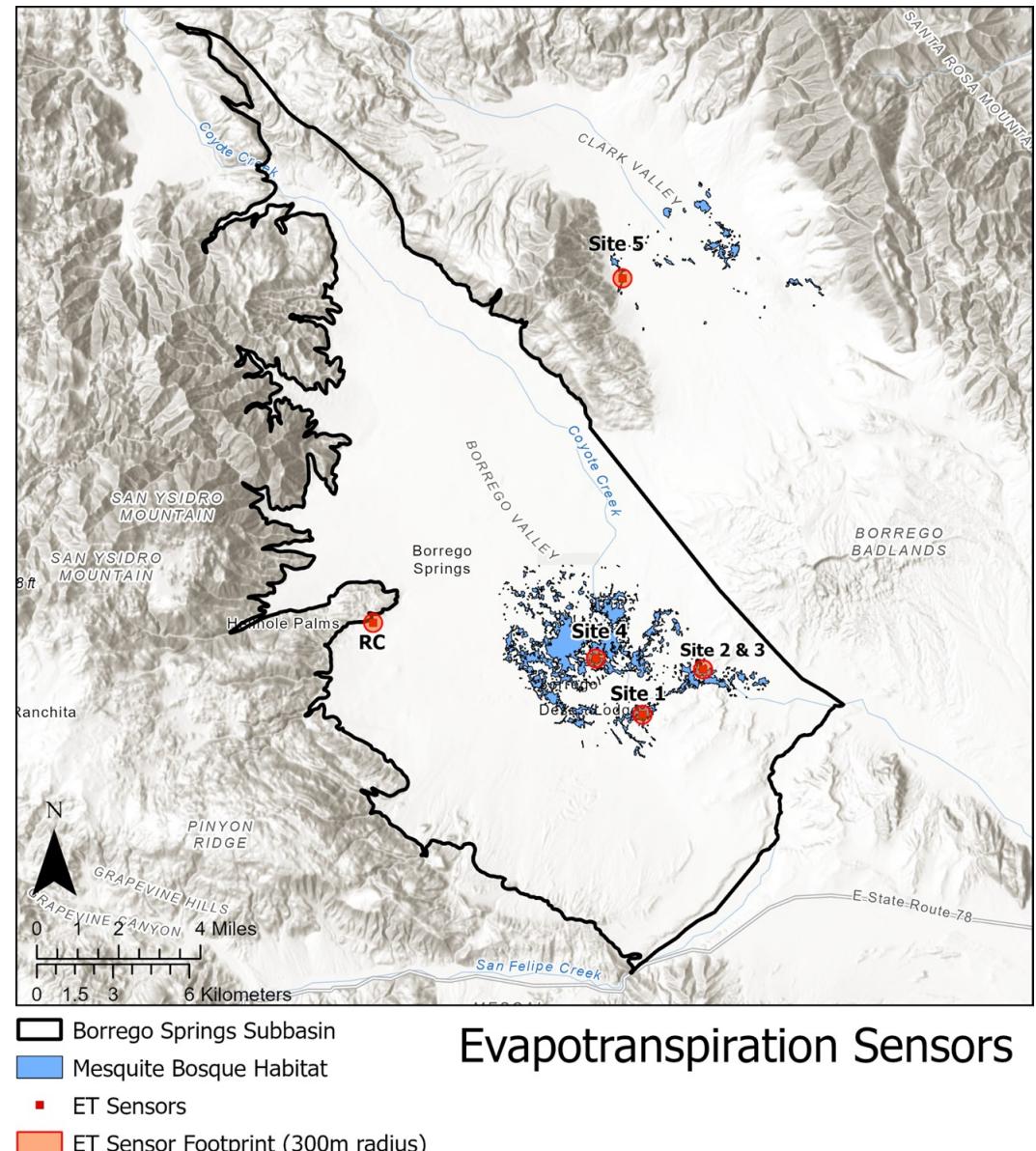


L. Brigham and N. Fiore sampling pre-dawn water potential (3am), April 2023



# Project Progress: Quantifying Water Use

- Installed state-of-the-art LI-COR Evapotranspiration Sensors in mesquite habitats at:
  - Site 1
  - Site 2
  - Site 4
  - Site 5
  - And a non-GDE habitat at the research center (RC)



# Project Progress: Quantifying Water Use

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- ET sensors directly measure evapotranspiration at 30 min intervals
- Currently analyzing data to track water use and calculate the amount of GW transpired



*ET Sensor at Site 2 in Borrego.*



*ET Sensor at Site 1 in Borrego.*

# Project Progress: Documenting Habitat Value

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- We have documented significant GDE reliant biodiversity in the mesquite bosque habitat, including:
  - 195 native plant species within the mesquite habitat near Borrego Sink
  - 175 native plant species within the mesquite habitat near Clark Dry Lake
  - 17 of which are threatened, endangered or rare.



A rare species, *Johnstonella angelica* (Angellic Johnstonella) was discovered in mesquite bosque habitat at Clark Dry Lake. This is only the second U.S. observation of this plant, with the first at the Steele/Burnand Anza-Borrego Desert Research Center in Borrego Springs in 2019.

# Project Progress: Documenting Habitat Value

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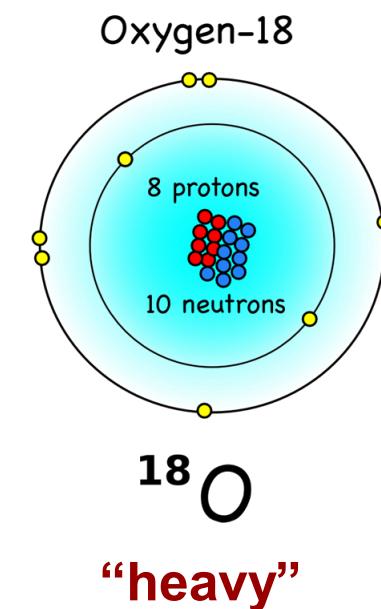
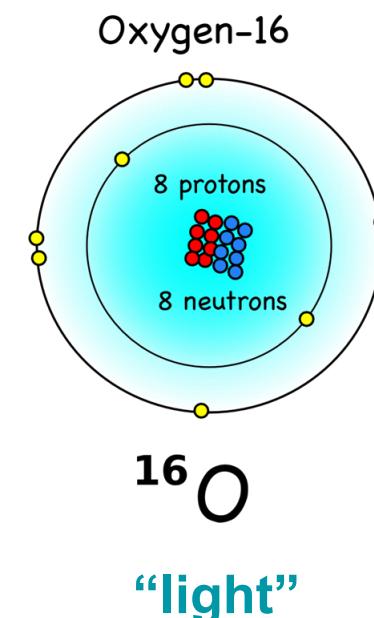
- We have documented significant GDE reliant wildlife in the mesquite bosque habitat using cameras and surveys, including:
  - 45 + animal species
  - 5 of which are species of special concern



# How can we tell if plants are using groundwater?

Stable isotopic analysis: collect samples from trees, soil, and groundwater to test for the different **isotopic signatures**

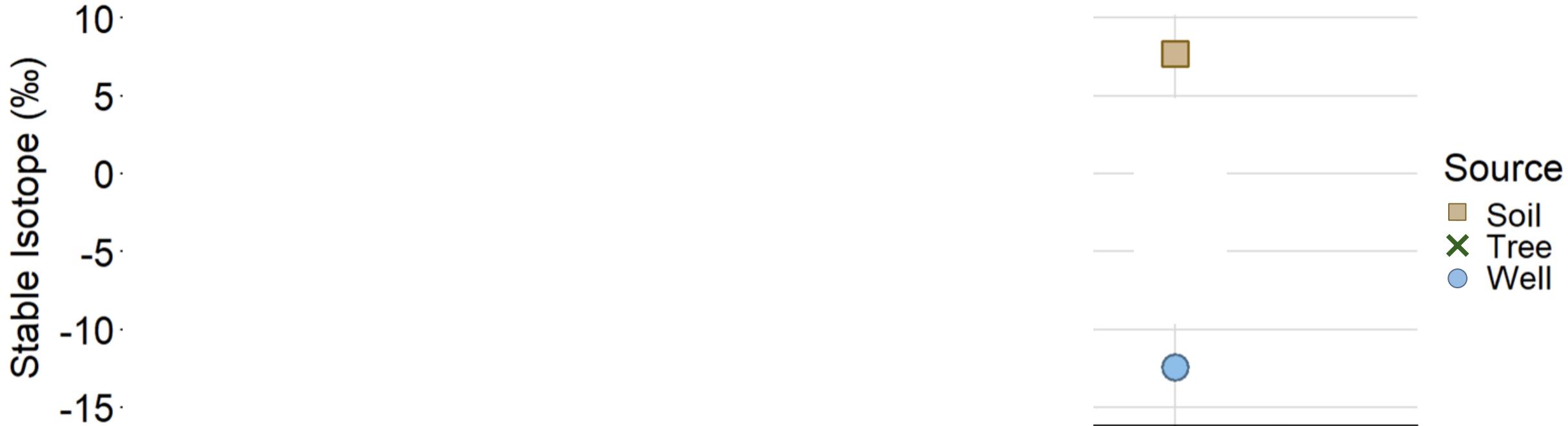
- Isotopes are versions of an element that have the same number of protons but different numbers of neutrons
- We measure the **ratio of different isotopes** in a sample to trace water sources. Each water source will have a distinct isotope signature.



# Using isotopes to trace plant water sources

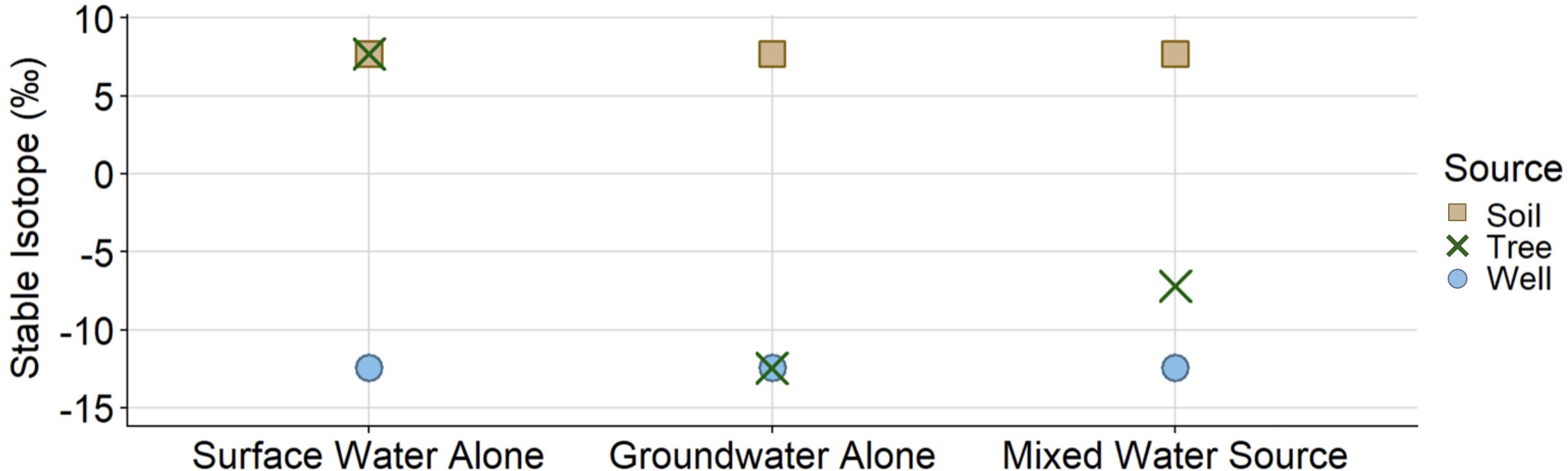
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- Plant isotope signatures will be similar to the signatures of their sources

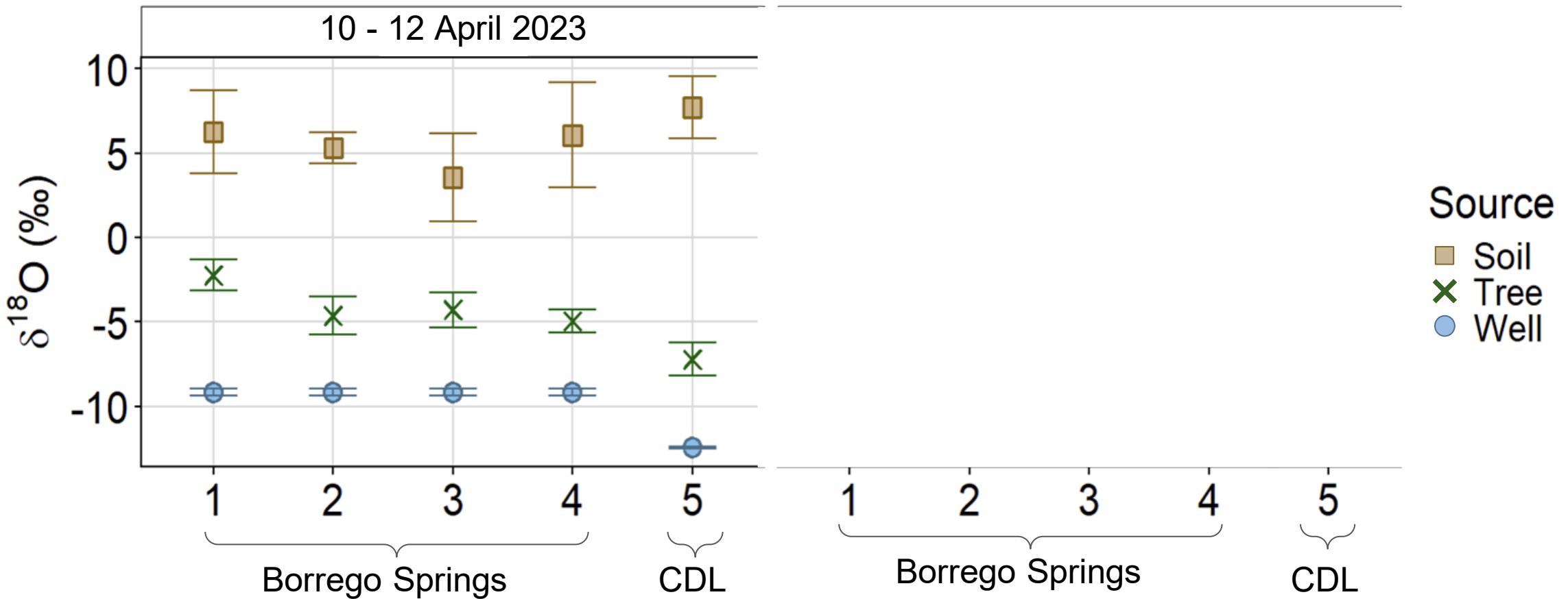


# Using isotopes to trace plant water sources

- Plant isotope signatures will be similar to the signatures of their sources

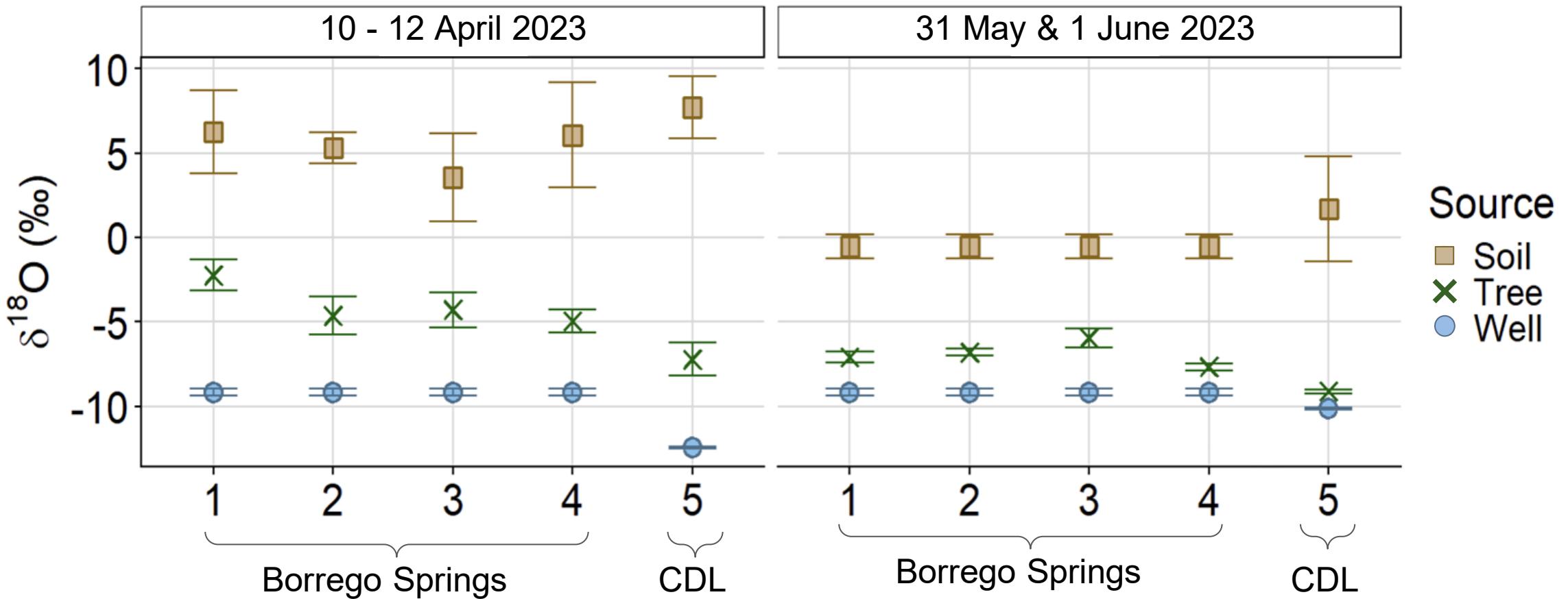


# Isotope data from Borrego Springs and Clark Dry Lake



- Mesquite tree isotope signatures show that groundwater and surface water are utilized by mesquite at all sites

# Isotope data from Borrego Springs and Clark Dry Lake



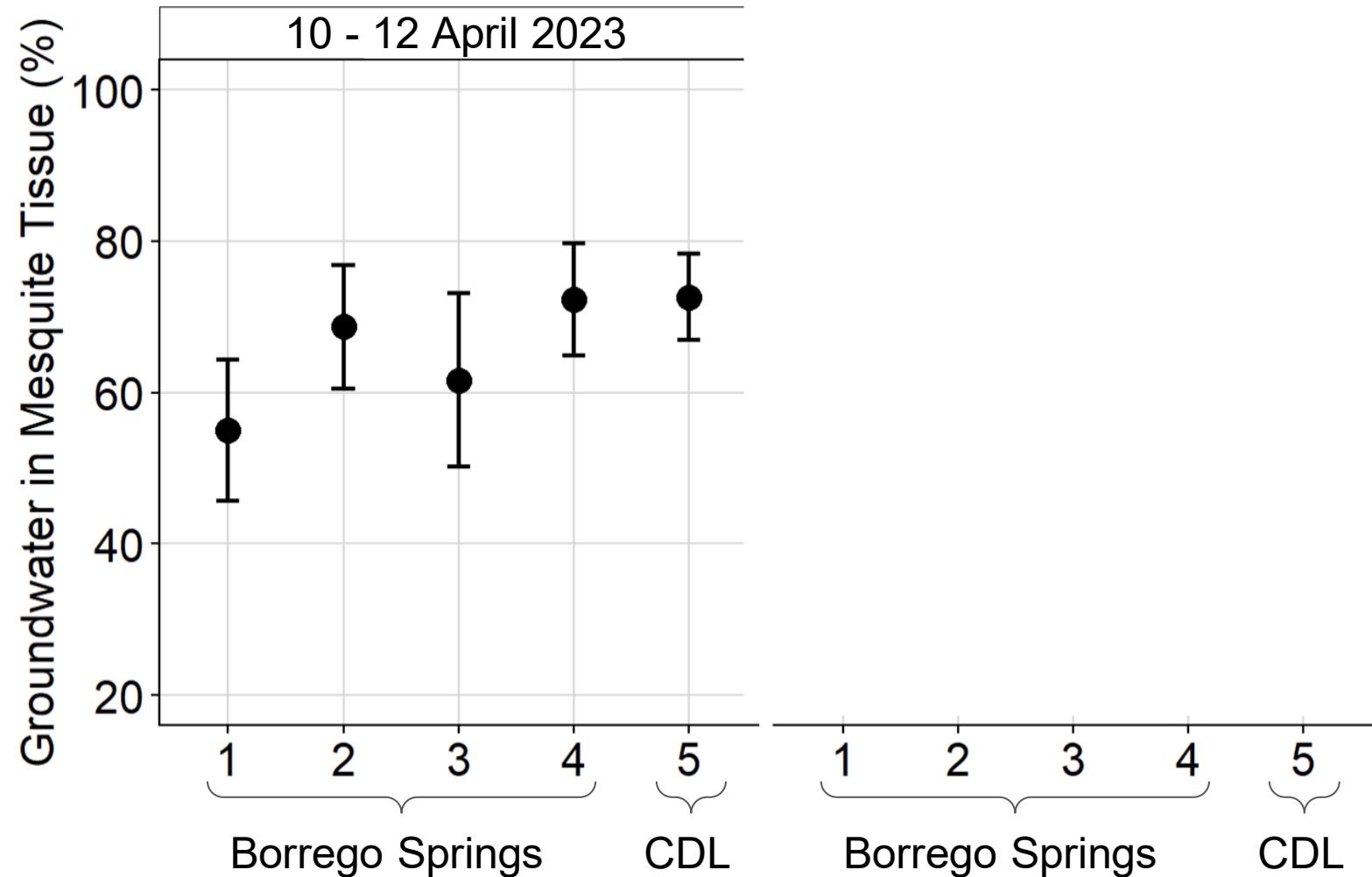
- Mesquite tree isotope signatures show that groundwater and surface water are utilized by mesquite at all sites

# Quantifying the amount of groundwater in trees

We can use mixing model formulas to estimate the percent of groundwater in plant tissues from isotope data

In April 2023:

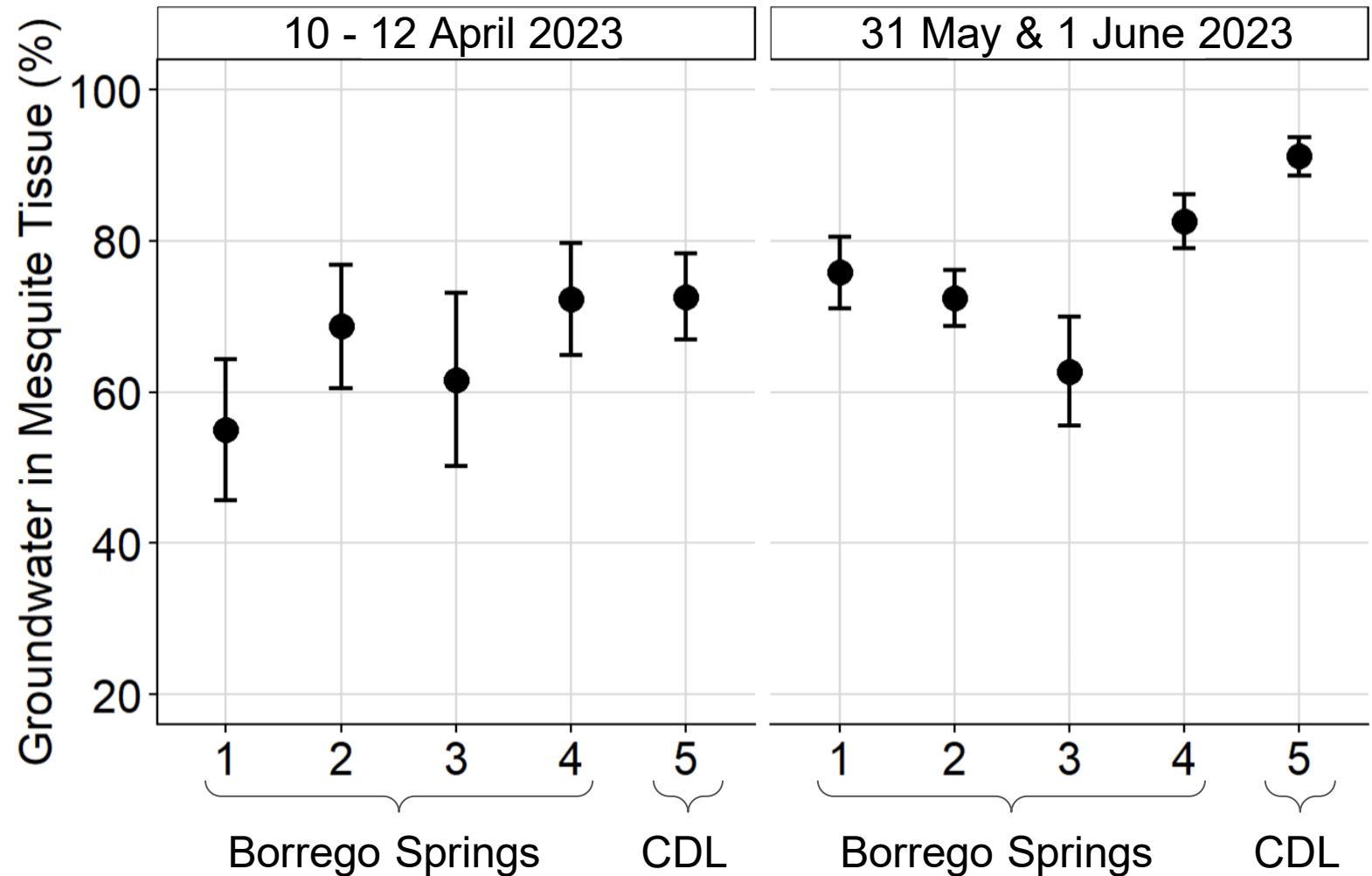
- ~ 45 - 80% of water in mesquite trees comes from GW



# Quantifying the amount of groundwater in trees

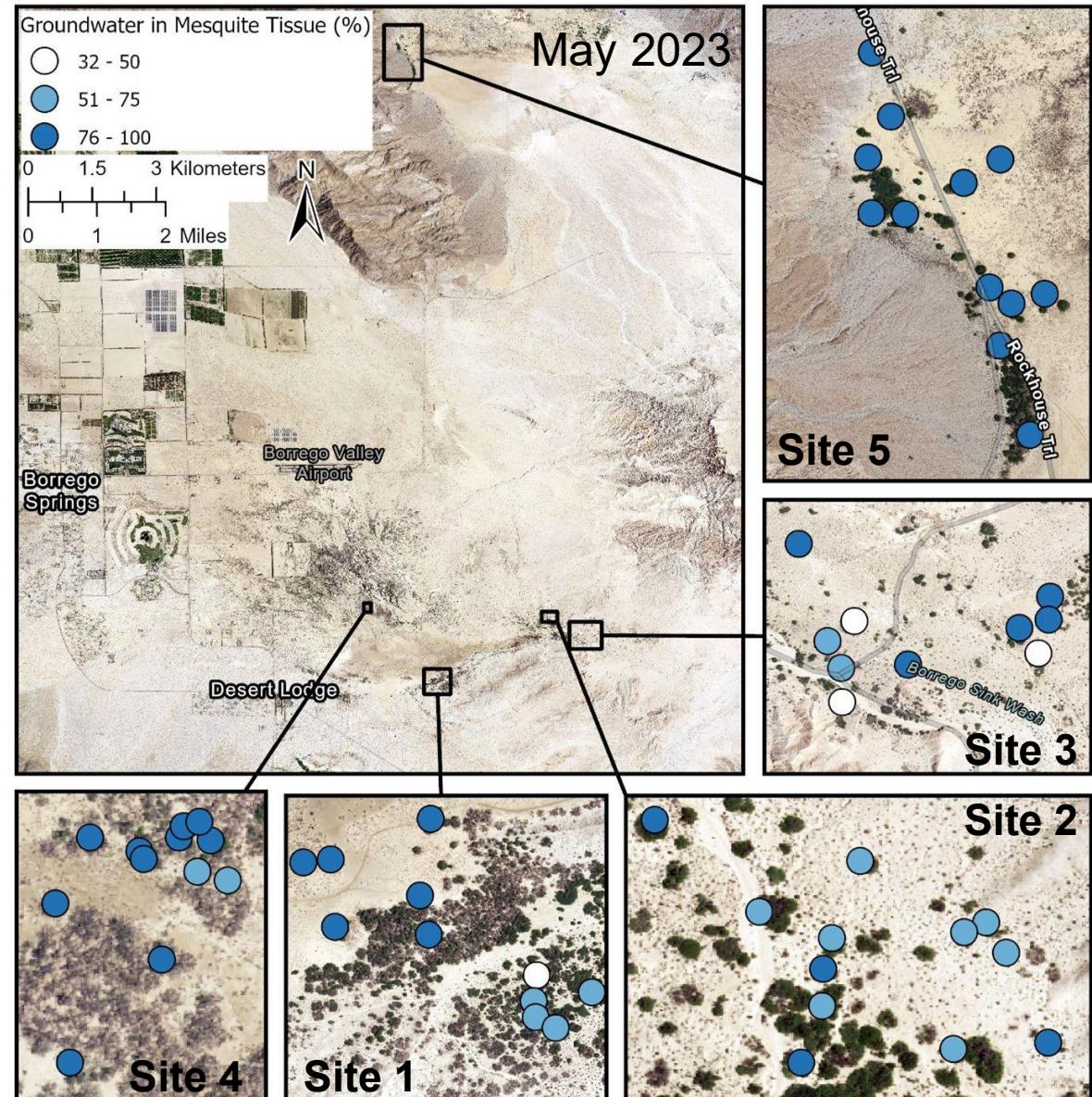
In May 2023:

- ~ 55 - 90% of water in mesquite trees comes from GW
- As the dry season progresses, most trees use more groundwater



# Spatial variation in mesquite groundwater use

- Certain trees use more groundwater than others
- This variation likely reflects differences in plant age, size, rooting depth, or access to surface soil moisture



# Variation in mesquite across Borrego Springs

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*Mesquite near the east side of Site 1 in Borrego, May 2024*



*Mesquite near the west side of Site 1 in Borrego, May 2024*

# Variation in mesquite across Borrego

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*Mesquite near site 2 in Borrego, May 2024*



*Mesquite near Site 4 in Borrego, May 2024*

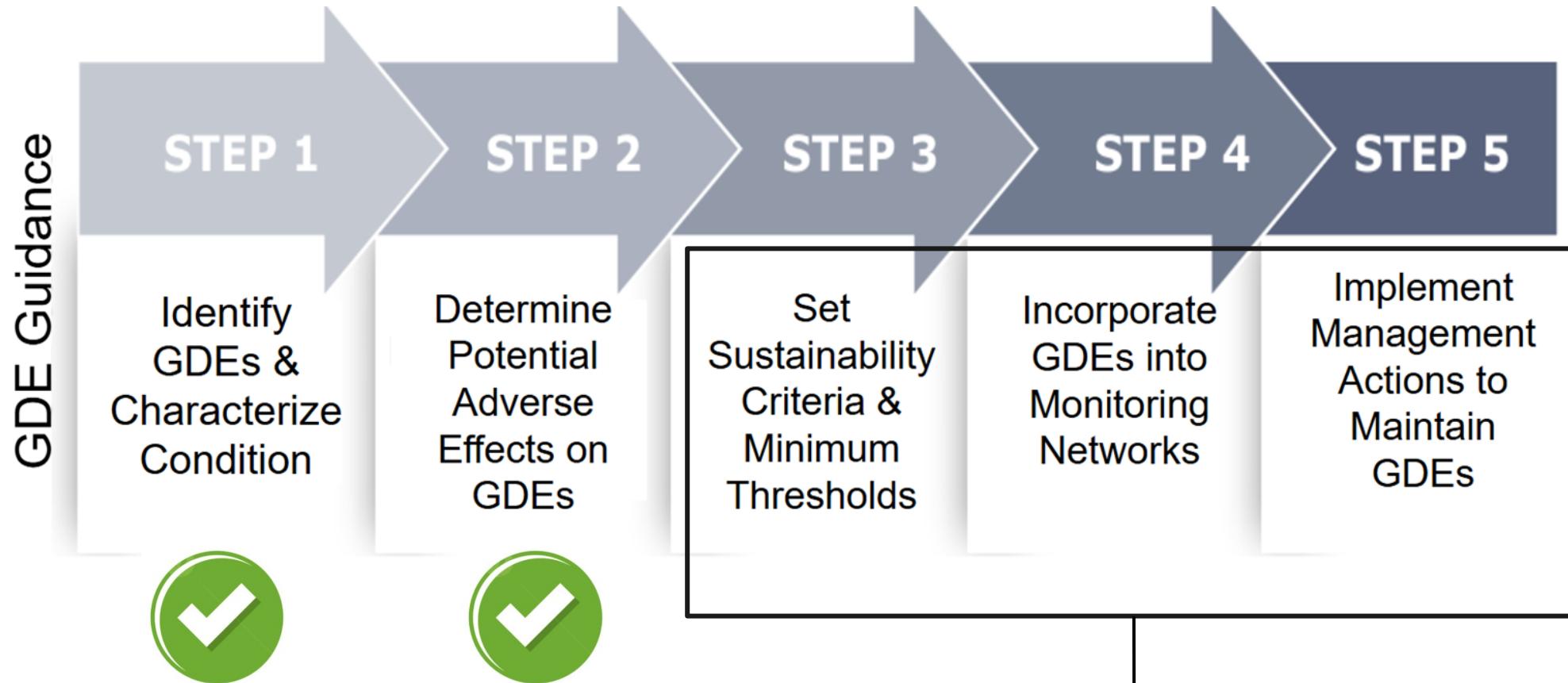
# Project Next Steps

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- **Quantify Groundwater Use:** Directly calculate the amount of groundwater transpired by mesquite using ET sensor data.
- **Identify Depth of Disconnect:** Determine the depth at which mesquite trees lose access to groundwater to aid in establishing minimum thresholds for wells near the mesquite bosque.
- **Develop Monitoring Guidelines:** Establish protocols for GDE monitoring.

# Final Thoughts

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How can our project support data-driven decisions by the WM to tackle these GDE management steps going forward?

# Questions



**Nikki Fiore**  
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**Laurel Brigham**  
[brighaml@uci.edu](mailto:brighaml@uci.edu)



# V. Closed Session

# VI.A Biological Restoration of Fallowed Lands Project Update

## Recommended Actions:

1. Approve submission of a grant amendment request to DWR to transfer \$35,000 from Grant Component 7 to Grant Component 6. The grant amendment request would also describe the additional scope of work to complete the Sand Fence Case Study.
2. Approve an amendment to the Land IQ contract to increase the project budget in the amount of \$30,000 (increase from \$706,480 to \$736,480).
3. **As part of Agenda Item IV.B** Amend the WY 2025 Budget to reflect the increased project expenditures by approving a carry forward of unspent WY 2024 budget from certain grant-funded tasks.

## Fiscal Impact:

The total grant funding request of DWR will not change. Grant funding will be reallocated between grant Components 6 and 7.

The WY 2025 budget expenditures will need to be increased, but this can be covered with available carry forward budget from WY 2024 (as explained in Agenda Item VI.B)

## VI.A - Biological Restoration of Fallowed Lands Project Update

- Project Status
  - ***Task 1: Review and Analysis of Existing Data.*** Complete and under budget.
  - ***Task 2: Existing Fallowed Farmland and Referenced Natural Habitat Field Study.*** Complete and under budget.
  - ***Task 3: Brush Pile Wildlife Sand Fence Case Study.*** In progress, behind schedule, and over budget.
  - ***Task 4: Farmland Fallowing Rehabilitation Studies.*** A draft report is being finalized. Will be completed under budget.
  - ***Task 5: Farmland Fallowing Prioritization.*** A prioritization map is being prepared and will be included in the final Task 4 report. We completed under budget.
  - ***Task 6: EWG Meetings.*** There is one final grant-funded EWG meeting: January 23, 2025.

# VI.A - Biological Restoration of Fallowed Lands Project Update

- Budget Status

Task	Approved Budget	Estimated Cost at Completion	Budget Variance
Project Administration	\$37,500.00	\$40,000.00	+ \$2,500
Task 1	\$84,070.00	\$82,545.70	- \$1,524.30
Task 2	\$218,750.00	\$155,204.47	- \$63,545.53
Task 3	\$220,680.00	\$380,249.83	+ \$159,569.83
Task 4	\$75,220.00	\$53,220.00	- \$22,000.00
Task 5	\$56,620.00	\$16,620.00	- \$40,000.00
Task 6	\$62,500.00	\$62,500.00	\$0.00
<b>Total</b>	<b>\$755,340.00</b>	<b>\$790,340.00</b>	<b>+ \$35,000</b>

## VI.A - Biological Restoration of Fallowed Lands Project Update

- Task 3: Brush Pile Wildlife Sand Fence Case Study
  - Jake Fredericks is requesting change orders to complete the field work.
    - Change Order #1 to remove 9 palm trees = \$9,105.80
    - Change Order #2 to mark corners of experimental sites = \$13,486.88
    - Change Order #3 to move remaining dead trees = \$54,179.70
    - Total change order request = **\$76,772.38**
  - West Yost needs an additional \$5,000 to support completion of the project
  - To cover the change orders and complete the project:
    - Land IQ can utilize \$46,772.38 from under-budget tasks.
    - Transfer \$35,000 of grant budget from Addressing Inactive/Abandoned Wells project, which is under budget by about \$100,000.
  - DWR must approve of changes in scope and budget transfers through a Grant Amendment, which is due by January 16, 2025.

# VI.A Biological Restoration of Fallowed Lands Project Update

## Recommended Actions:

1. Approve submission of a grant amendment request to DWR to transfer \$35,000 from Grant Component 7 to Grant Component 6. The grant amendment request would also describe the additional scope of work to complete the Sand Fence Case Study.
2. Approve an amendment to the Land IQ contract to increase the project budget in the amount of \$30,000 (increase from \$706,480 to \$736,480).
3. **As part of Agenda Item IV.B** Amend the WY 2025 Budget to reflect the increased project expenditures by approving a carry forward of unspent WY 2024 budget from certain grant-funded tasks.

## Fiscal Impact:

The total grant funding request of DWR will not change. Grant funding will be reallocated between grant Components 6 and 7.

The WY 2025 budget expenditures will need to be increased, but this can be covered with available carry forward budget from WY 2024 (as explained in Agenda Item VI.B)

## VI.A Biological Restoration of Fallowed Lands Project Update



TAKE PUBLIC  
COMMENT



BOARD DISCUSSION

# VI.B Consideration of Approval of Amendment to the WY 2025 Budget and the Impacted Professional Service Agreements with Consultants

## **Recommended Actions:**

Staff is requesting consideration of four actions related to amending the WY 2025 Budget, including carrying forward up to \$259,185 of unspent budget from WY 2024 and allocating it to certain grant-funded projects.

***NOTE: Requires a supermajority vote of the Board (4 of 5)***

## VI.B Consideration of Approval of Amendment to the WY 2025 Budget and the Impacted Professional Service Agreements with Consultants

- \$300,276.73 of unspent WY 2024 carry forward budget across four grant-funded projects available
- Carry forward budget is available because the four projects were behind schedule and not all funds were spent in WY 2024 (various reasons across projects)
- \$259,185 of the unspent WY 2024 funds are needed to complete the projects in WY 2025
  - On track to be completed by March 31, 2025

## VI.B Consideration of Approval of Amendment to the WY 2025 Budget and the Impacted Professional Service Agreements with Consultants

**Table 2. Requested Carry Forward into the 2025 Budget for Four Grant Eligible Projects**

Project	2025 Approved Budget	Requested Carry Forward Amount	Proposed Amended 2025 Budget
Sustainable Yield	\$ 27,973.00	\$ 62,617.00	\$ 90,590.00
Address Inactive Wells <sup>3</sup>	\$ 133,392.00	\$ 69,881.00	\$ 203,273.00
5-Year GMP Assessment	\$ 94,947.00	\$ 45,561.00	\$ 140,508.00
Biological Restoration <sup>4</sup>	\$ 152,675.00	\$ 81,126.00	\$ 233,801.00
<b>Totals</b>	<b>\$ 408,987.00</b>	<b>\$ 259,185.00</b>	<b>\$ 668,172.00</b>

# VI.B Consideration of Approval of Amendment to the WY 2025 Budget and the Impacted Professional Service Agreements with Consultants

## Fiscal Impact:

- The increased expenditures related to the carry forward budget will not require an increase in the 2025 Pumping Assessments because the work was already assessed and paid for in WY 2024.
- The increased expenditures from the carry forward budget result in a \$3,165 increase in interest on Vendor Terms.
- If the carry forward is not approved, there would be insufficient budget for West Yost and Land IQ to complete the work as scoped under the grant agreement with DWR.
- West Yost and Land IQ understand that the Watermaster does not intend to absorb any loss of reimbursements from DWR for work performed after the grant reimbursement deadline if the deadline is missed due to the negligence of West Yost or Land IQ, and their subcontractors.

# VI.B Consideration of Approval of Amendment to the WY 2025 Budget and the Impacted Professional Service Agreements with Consultants

## Recommended Actions if Land IQ Change Order APPROVED in VI.A:

1. Amend the Water Year (WY) 2025 Budget to carry forward \$259,185 of unspent budget from WY 2024.
2. Allocate \$76,126 of the carry forward budget to the Biological Restoration of Fallowed Lands Project, for biological services to be performed by Land IQ.
3. Allocate \$183,059 of the carry forward budget for technical services provided by West Yost for technical work to (i) convert inactive/abandoned wells, (ii) complete modeling of the 2025 Sustainable Yield, (iii) advance work on the 5-year assessment of the GMP, and (iv) manage the biological restoration of fallowed lands project.
4. Approve legal counsel to prepare and execute a contract amendment to the West Yost Services Agreement to include the approved carry forward budget \$183,059 (Amendment No. 11).

**NOTE: Requires a supermajority vote of the Board**

# VI.B Consideration of Approval of Amendment to the WY 2025 Budget and the Impacted Professional Service Agreements with Consultants

## Recommended Actions if Land IQ Change Order NOT Approved in VI.A :

1. Amend the Water Year (WY) 2025 Budget to carry forward \$229,185 of unspent budget from WY 2024.
2. Allocate \$46,126 of the carry forward budget to the Biological Restoration of Fallowed Lands Project, for biological services to be performed by Land IQ.
3. Allocate \$183,059 of the carry forward budget for technical services provided by West Yost for technical work to (i) convert inactive/abandoned wells, (ii) complete modeling of the 2025 Sustainable Yield, (iii) advance work on the 5-year assessment of the GMP, and (iv) manage the biological restoration of fallowed lands project.
4. Approve legal counsel to prepare and execute a contract amendment to the West Yost Services Agreement to include the approved carry forward budget \$183,059 (Amendment No. 11).

**NOTE: Requires a supermajority vote of the Board**

## VI.B Consideration of Approval of Amendment to the WY 2025 Budget and the Impacted Professional Service Agreements with Consultants



TAKE PUBLIC  
COMMENT



BOARD DISCUSSION

## VI.C Next EWG and TAC Meeting Agendas

### Recommended Actions:

1. Approve the agenda for the next TAC meeting, with any recommended changes.
2. Approve the agenda for the next EWG meeting, with any recommended changes.

### Fiscal Impact:

None. These meetings were included in the Watermaster WY 2025 budget.

## VI.C – Recommended Agenda for the Next TAC Meeting

- TAC meeting to be scheduled for late January/early February 2025
- Agenda items:
  - Pumping Projections to Support the GMP Assessment Report
  - Discussion of the 5-Year GMP Assessment Report
  - Updates on progress to fill data gaps in the monitoring network and the inactive/abandoned wells conversion program

## VI.C – Recommended Agenda for the next EWG Meeting

- EWG meeting scheduled for January 23, 2025 at 9am
- Agenda items:
  1. Farmland Fallowing Rehabilitation Strategies:
    - a) Review feedback from EWG on the Task 4 - *Recommended Retired Farmland Rehabilitation Strategies* report
    - b) Presentation of a prioritization model for permanently fallowing farmland based on the likelihood of successful biological rehabilitation strategies (Task 5)
  2. Update from the UCI Conservation and Restoration Science Masters students on progress/plans for monitoring of sand fences

## VI.C Next EWG and TAC Meeting Agendas



TAKE PUBLIC  
COMMENT



BOARD DISCUSSION

## VII.A – Legal Counsel Report

## VII.B – Technical Consultant Report

### Conversion of Abandoned Wells Project

- DWR approved use of entry agreements for monitoring at private wells in December
- Resumed executing entry agreements with private well owners
- Field work to convert and/or secure wells scheduled for January 20<sup>th</sup> – February 20<sup>th</sup>

## VII.B – Technical Consultant Report

### 5-Year GMP Assessment Report

- Report due June 25, 2026, but completing as much as possible using grant funding
- Working on developing the future pumping plans to use in running BVHM projections of the pumping Rampdown to predict future expected changes in groundwater levels and storage
- Continued work on report elements that don't require DWR feedback on the current GMP:
  - Documenting updates to the monitoring well network
  - Making recommendations for changes to the Sustainable Management Criteria in the GMP based on new information

## VII.C – Executive Director Report

### WY 2024 Annual Report and Status

- Report must be filed with the Court and DWR by April 1, 2025
- Schedule to Complete:
  - **January 29, 2025:** Draft Annual Report posted to the Watermaster website. This begins review period and hearing to receive comments
  - **February 19, 2025:** Board meeting includes hearing to receive comments on draft report
  - **February 28, 2025:** Written comments due
  - **March 7, 2025:** Staff releases revised Annual Report, with response to comments document as an appendix
  - **March 19, 2025:** Board meeting to review and adopt Annual Report (part of regular Board meeting)
  - **Not later than April 1, 2025:** Staff files Annual Report with the Court and DWR

## VII.C – Executive Director Report

### SGM Grant Status

- Status of Reimbursement Requests:
  - Request #6: Submitted in August 2024, grant manager approved (payment expected late March)
  - Request #7: Submitted to DWR on November 30, 2024
- Staff completed and submitted draft “Grant Completion Report” on December 31, 2024
  - Grant manager will review and provide feedback in early 2025
  - Final Grant Report due 1-month after receipt of DWR comments
- Final opportunity to transfer budget between grant categories and components, due January 16th; planned amendment includes:
  - Reallocation of funding amongst C7 projects → surplus budget from abandoned wells to monitoring program and other tasks in the “reporting” category
  - Transfer C7 funding to C6 (Biological Restoration) to cover increased cost of sand fences (pending outcome of Item VI.A)

## **VII.C – Executive Director Report**

### **Annual Meter Verification Process**

- Final year grant funding will be available to cover costs
- Verification testing has begun → all tests should be completed by late January

### **BPA and Party Updates:**

- February 13, 2025 hearing for 3 new Parties to intervene into the Judgment

### **DWR Review of the Judgment and GMP:**

- No updates

## **VII.D – Chairperson’s Report**

## **VIII. Establishing Agenda for February 19, 2025 Regular Board Meeting**

### **Recommended Actions:**

Develop and approve agenda for February 19, 2025 Regular Board Meeting

### **Process:**

1. Review the initial January agenda topics planned by Staff
2. Review the March and April tentative topics planned by Staff and previously requested items by Board members, as listed below
3. List out additional items that have arisen during the January 15, 2025 Board meeting
4. Call on Directors to request additional items for consideration of inclusion on the January 2025 or other future agenda
5. Consider motion(s) to approve the agenda (the agenda can be approved in a single motion or multiple motions to cover each item).

Note: The Agenda/items are approved by majority vote (3 of 5 directors)

# Initial Agenda for February Regular Meeting

1. Land IQ Presentation of Biological Restoration Project
2. Hearing to review the 2024 Draft Annual Report to the DWR
3. 1<sup>st</sup> Quarter WY 2025 Budget Status Review
4. Fall 2024 Semi-Annual Monitoring Report
5. Status report on the 5-year Assessment of the GMP
6. DWR Review of 2020 GMP (*if available*)

## Future Agenda Items

### March

1. Water Year 2024 Annual Report
2. Land IQ Presentation of Biological Restoration Project
3. Status report on the 5-year Assessment of the GMP
4. DWR Review of 2020 GMP (*if available*)

### April

1. SGM Grant Project Status/Close-Out
2. 2<sup>nd</sup> Quarter WY 2025 Budget Status Review
3. WY 2026 Budget Scoping
4. DWR Review of 2020 GMP (*if available*)

# Set Agenda for February Regular Meeting

1. Land IQ Presentation of Biological Restoration Project
2. Hearing to review the 2024 Draft Annual Report to the DWR
3. 1<sup>st</sup> Quarter WY 2025 Budget Status Review
4. Fall 2024 Semi-Annual Monitoring Report
5. Status report on the 5-year Assessment of the GMP
6. DWR Review of 2020 GMP (*if available*)
7. BVSC white paper presentation and feedback

## **VIII. Establishing Agenda for February 19, 2025 Regular Board Meeting**



**TAKE PUBLIC  
COMMENT**



**BOARD DISCUSSION**

## IX. Board Member Comments

## X. Next Meetings of the Borrego Springs Watermaster

- Regular Board Meeting – February 19, 2025
- Regular Board Meeting – March 19, 2025
- Environmental Working Group Meeting – January 23, 2025

## XI. Adjournment

- Thank you for your participation!