2026 UC Davis TERC Summer Internships for Scholars

UCDAVIS
Tahoe Environmental
Research Center

Welcome

- Name
- Where you're from
- Where you go to school
- What you're studying
- What do you want to get out of this summer internship?

UCDAVIS
Tahoe Environmental
Research Center

Stipend

- First ½ payment already issued — let Alison know if you haven't received it
- Last ½ payment issued in the last week of the program, dependent on fulfillment of deliverables

UCDAVIS
Tahoe Environmental Research Center

Complete Paperwork

- Volunteer form
- Waiver of Liability
- Consent to Record
- Patent/Oath Acknowledgment
- Letter of Commitment
- Pre-Internship Self-Evaluation Survey

UCDAVIS
Tahoe Environmental
Research Center

UC Davis Principles of Community

UCDAVIS
Tahoe Environmental
Research Center

About UC Davis TERC – Our Vision

- To achieve healthy aquatic and terrestrial ecosystems through scientific understanding and education for the benefit of communities locally and globally.
- To guide the preservation of a resilient and sustainable ecosystem at Lake Tahoe for generations to come.
- To provide objective scientific knowledge to the public, school children, private industry, government agencies, and elected officials.

UCDAVIS
Tahoe Environmental
Research Center

https://tahoe.ucdavis.edu/about

About UC Davis TERC – Our Mission

UC Davis Tahoe Environmental Research Center is dedicated to interdisciplinary research and education to advance the knowledge of aquatic and terrestrial ecosystems and their interactions within natural and developed Earth systems, and to communicate science-informed solutions worldwide.

UCDAVIS
Tahoe Environmental
Research Center

https://tahoe.ucdavis.edu/about

About TERC Summer Internships

- 8 weeks long (6/23-8/14)
- Minimum of 32 hours/week
- Tuesday group seminars
- Academic poster development
- Public presentation
- Federal Summit
- (+ optional weekly cohort activities)

UCDAVIS
Tahoe Environmental
Research Center

https://tahoe.ucdavis.edu/interns

Program Vision

- To highlight the work of TERC through intern posters and presentation
- To assist researchers and educators during the busy summer months
- To increase awareness of TERC to universities on a national level
- To create outreach material/posters that can be used at future events
- To provide professional development opportunities for students & young professionals

UCDAVIS
Tahoe Environmental
Research Center

https://tahoe.ucdavis.edu/interns


About Me
• Lake Tahoe Community College
• UC Davis – BS (Environmental and Resource Science)
• UC Davis – MS (Soil Science)
• Lahontan Water Board (1999-2019)
• CA Natural Resources Agency (2019-present)


TB4


UCDAVIS
Tahoe Environmental
Research Center
UCDAVIS
TAHOE ENVIRONMENTAL
RESEARCH CENTER
What Goes in the Compost Bin?
Yes
No
Fruits/ Vegetables
Meat/Bones
Flowers
Egg Shells
Produce Stickers
Paper Products/ Cardboard
Compostable Plastics
Tea Bags or Coffee Filters
Drop off compostable items here!

Internship Goals

- Provide a project-based internship and work experience
- Demonstrate the interdisciplinary work of TERC
- Increase awareness of diverse career paths in science and the environment
- Strengthen science communication skills
- Provide mentorship for early-career scientists and educators
- Cultivate a supportive and collaborative cohort

UCDAVIS
Tahoe Environmental
Research Center

https://tahoe.ucdavis.edu/interns


Super Seedlings: How Ideal Sugar Pine Genetics Shape Reforestation
Sugar Pines once made up 25% of Lake Tahoe's forests
Developing a Site-Specific Soil Moisture Profile
Promoting a Genetically Resilient Forest
Stronger Forests, Safer Future
Results


DO NOT


Impacts of Soil Characteristics on Sugar Pine (P. lambertiana) Seedling Survival


MUSTANG

Expectations for Mentor

- Establish weekly summer work schedule
- Communicate with Alison and Samantha for assistance or questions
- Communicate regularly with their intern to monitor work progress
- Outline poster/project clearly
- Edit poster content regarding summer work/project
- Establish expectations with intern regarding all deliverables

Expectations for Intern

- Understand TERC's work and how your project fits into TERC's greater mission
- Communicate with your mentor regarding work schedule and track hours
- Attend all group seminar sessions (Tuesdays); Work ~32 hours/week
- Develop Presentation (ppt or site activity) for one professional development session (pre-assigned)
- Create Project Poster & Present your research at group seminar, practice poster session, and public poster session
- Dress professionally at public poster session
- Create social media content showcasing your summer project or work

Intern Shared Drive

- https://drive.google.com/drive/folders/1ry8GlA1TS3yEdLSldHwUF6l2wnM6Wn8G
- Timesheet
- Social Media
- Poster drafts
- Photos

UCDAVIS Tahoe Environmental Research Center

Tracking Hours

- Right Click and Make a copy the “Intern timesheet BLANK”
- Rename Copy of Intern timeshe… with your name
- Any time dedicated to the mission of TERC, your team, or your project can be counted
- Be sure to enter notes to help track the activities you did that day

UCDAVIS
Tahoe Environmental
Research Center

Intern Timesheet

DATE	TIME IN	TIME OUT	BREAK	TOTAL HOURS	TYPE	NOTES
Week 1						
6/22/26					OOO	Program has not started yet
6/23/26	9	17	0.75	7.25	Profes...	Orientation, Summer Session Day 1
6/24/26				0.00	Other	
6/25/26				0.00	Other	
6/26/26				0.00	Other	
6/27/26				0.00	Other	
6/28/26				0.00	Other	
						7.25
Week 2						
6/29/26				0		
6/30/26				0		
7/1/26				0		
7/2/26				0		
7/3/26				0	Vacati...	July 4th Holiday
7/4/26				0	Vacati...	July 4th Holiday
7/5/26				0		
						0
Week 3						
7/6/26				0		
7/7/26				0		
7/8/26				0		

- 24-hour Military Time
- Rounded to nearest 15-minute increment
- :00 = .0
  :15 = .25
  :30 = .5
  :45 - .75
- One TYPE per day
- Use NOTES to split between TYPES and elaborate on daily activities

UCDAVIS
Tahoe Environmental Research Center

Expectations for Intern

- Understand TERC's work and how your project fits into TERC's greater mission
- Communicate with your mentor regarding work schedule, work ~32 hours/week and track hours
- Attend all group seminar sessions (Tuesdays)
- Develop Presentation (ppt or site activity) for one professional development session (pre-assigned)
- Create Project Poster & Present your research at group seminar, practice poster session, and public poster session
- Dress professionally at public poster session
- Create social media content showcasing your summer project or work

Tuesday Group Sessions

- 9:00 am start time
- Team building activities
- Professional development presentations
- Intern presentations
- Poster development and public presentation

UCDAVIS
Tahoe Environmental
Research Center

Expectations for Intern

- Understand TERC's work and how your project fits into TERC's greater mission
- Communicate with mentor regarding work schedule
- Work ~32 hours/week, and track your hours in detail
- Attend all group seminar sessions (Tuesdays)
- Develop Presentation for one professional development session
- Create Poster & Present research at group seminar, practice poster session, and public poster session
- Dress professionally at public poster session
- Create social media showcasing your summer project


Images
Activities
Weather
Citizen Science
Conditions
LAKE TAHOE IN DEPTH


To bee or not to bee?
Bee killer fly- Mallophora
Fun facts:
- Catch and eat bees and other insects out of the air
- It might mimic bees for two reasons
- To blend in with their prey
- Real bees have stingers, so it might deter predators


DO NOT

Internship presentation

- Showcase your project
- Answer questions
- Be creative
  - Field Trip out to forest sites, stream monitoring locations, field station, etc.
  - PowerPoint presentation
  - Mini-workshop: teach a skill
  - Infographic
  - Gamify
  - Demonstration

UCDAVIS
Tahoe Environmental
Research Center

Super Seedlings: How Ideal Sugar Pine Genetics Shape Reforestation

Sydney Griscavage, University of California, Berkeley, College of Natural Resources
Mentors: Dr. Patricia Maloney, Camille Jensen, Aaron Vanderpool, Forest & Conservation Biology Lab

Sugar Pines once made up 25% of Lake Tahoe's forests

Today, they are down to 5%, primarily due to historical logging and factors caused by drought, disease, bark beetles and forest fires.

Our lab is working to provide a framework to guide seed sourcing strategies in a three year reforestation project of sugar pine seedlings across the Tahoe Basin sourced from local drought and Mountain Pine Beetle "survivors."


Bark beetle pitch tubes

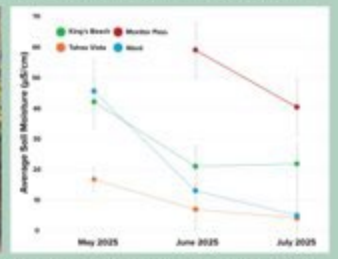

White Pine Blister Rust (Marek Argent)


Sugar pine seedlings

Developing a Site-Specific Soil Moisture Profile

Took monthly measurements of soil electrical conductivity (µS/cm) and temperature (C°) with a soil moisture probe.

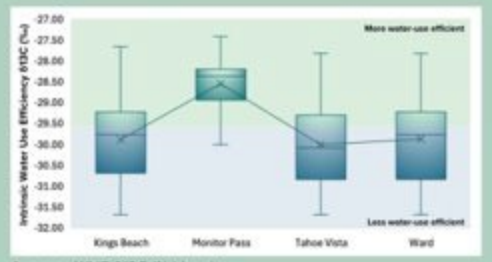

Sydney taking soil moisture reading



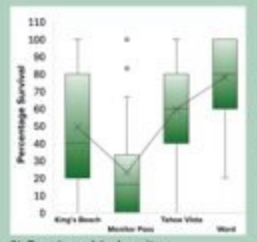
Monthly soil moisture average by site is used to determine location suitability.

Promoting a Genetically Resilient Forest

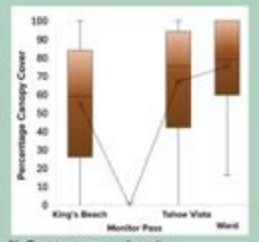
- Seedlings were offspring of trees with proven drought resilience, described by **water use efficiency (WUE)**.
  - WUE is measured by analyzing needle isotopes.
  - **Water use efficiency is the greatest measure of genetic resilience.**



Average WUE δ13C (‰) by site



% Survivorship by site



% Canopy cover by site

Results

High WUE was not strongly related with high survivorship. **Canopy cover**, as opposed to soil moisture, appears to be more of the factor that influences seedling survivorship.

Stronger Forests, Safer Future


2018 Donnell Fire (Cecilio Ricardo, US Forest Service)

- As droughts worsen, enhancing forests with water efficient trees strengthens the forest's ability to **resist catastrophic disturbances**.
- Increasing biodiversity and genetic variation **protects forests** from host specific insects and diseases.
- Water efficient trees, due to adaptability, **slow climate change-based ecosystem transition.**


Tree mortality at Monitor Pass caused by Washington Fire

Soil Moisture's Role

- Environmental attributes of reforestation sites with high survivability are incorporated into an algorithm **to determine future planting locations.**
- Soil moisture readings describe changing soil conditions throughout summer months.
- **WUE and high soil moisture alone do not guarantee survival**. Seedlings planted in fire scars will require additional support to establish.

Thank you to the UC Davis TERC Internship for Scholars and to my mentors Patricia Maloney, Camille Jensen, Aaron Vanderpool and Mui Lay.

For more information, contact
pemaloney@ucdavis.edu
sgriscavage@berkeley.edu

UCDAVIS Tahoe Environmental Research Center

Sydney Griscavage, UC Berkeley

UCDAVIS Tahoe Environmental Research Center

Investigating Ward Creek's Inflow into Lake Tahoe

Hannah Kench, University of California, Davis, College of Engineering
Mentors: Alexander Forrest, Ph.D.; Kenneth Larrieu, M.S.; Sergio Valbuena, Ph.D.

Ward Creek Inflow

Understanding the **hydrodynamics** of Ward Creek's discharge into Lake Tahoe provides insight on the **relationship between the watershed and the lake**.

Ward Creek mouth

Ward Creek location

Clarity and Optical Backscatter

Optical backscatter is a proxy for **clarity**, where it measures of the **light scattered** by **particles** in the water.

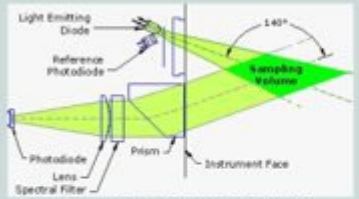
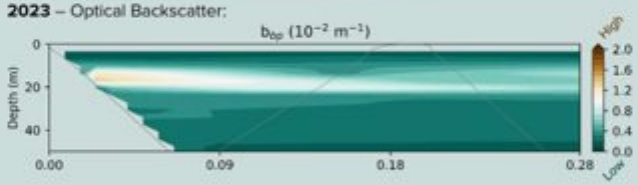


Diagram of how optical backscatter is collected by a sensor (Source: HOBI Labs, n.d.).

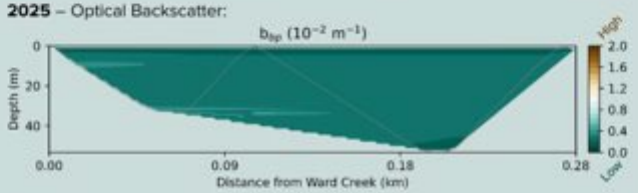
- **Turbidity** and backscattering have a good linear **correlation** (Haule et al., 2024).
- The ECO Puck measures the **backscattered** light at a discrete **crossing angle** between the beam and receiver.

Profiles of Spring Runoff

2023 – Optical Backscatter:



2025 – Optical Backscatter:



Discussion

Similarities	• **Higher** backscatter readings are **closer to the mouth**. • Most of the plot area displays < $0.5 \times 10^{-2}\ m^{-1}$, which is reasonable given the lake's exceptional clarity.
Differences	• **Higher maximum** backscatter reading of $1.3 \times 10^{-2}\ m^{-1}$ in **2023** possibly due to a thicker April **snowpack** by ~1.7 m compared to 2025.
Sources of Error	• **Glider impacting** the bottom of the lake floor. • Scattering by **large flocs** of particles in the water.

Conclusion

By inspection of the optical backscatter plots, the lake water is more **turbid closer to the mouth** of Ward Creek and at a **water depth of ~20 m**. The USBR glider deployment campaign fills gaps on **stream-lake water interactions**, informs **municipalities**, and public **recreation**.

Methods

Slocum G3 Glider deploying into Lake Tahoe during USBR campaign.

Overview:

Plan & Collect	Plan glider **missions**, deploy glider, and **collect** data.
Process	**Offload** the data from the glider and **process** it.
Analyze	Create **plots** using existing **Python** scripts.

Future Application & Takeaways

The greater project:

- Informs **municipalities** on their intakes.
- Aids the **monitoring** and **management plans** of other lake systems.

Working with TERC has exposed me to:

- The research that supports the **quality** of **drinking water**.
- How the changing **climate** influences research **motivations**.

Hannah with AUVs before deployment.

UC DAVIS Tahoe Environmental Research Center

Acknowledgments

Thank you to my mentors, Alison Toy, Oscar Sepúlveda-Steiner, and the 2025 intern cohort who contributed to my success and learning experiences. Funding for the greater research project was provided by the U.S. Bureau of Reclamation.

References:

UCDAVIS Tahoe Environmental Research Center

Hannah Kench,
UC Davis

Tahoe Takes Action: Stories of Climate, Hope, & Resilience

Mia Compton-Engle, Dartmouth College, Environmental Studies and Geography
Mentors: Heather Segale and Alison Toy

How will you share hope and take action?

52% of people don't think their actions make a difference...

Goal

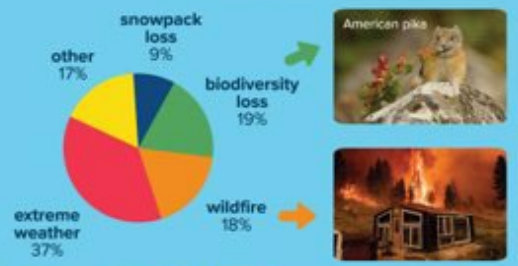
Cultivate a **culture of hope and action** by sharing community members' stories of action and calling audiences to act for the environment.

Methods

- **Seeding Action** resource toolkit
- **343** survey responses from Tahoe residents and visitors
- **20** interviews

Greatest Concerns

from 2024–2025



12 Stories of Action

from the lake, forests, mountains, and more

One example: **Brennan Lagasse (sustainability educator)** suggests learning more, supporting groups taking action, and caring for others.

Read more stories about lake clarity, sustainable recreation, defensible space, snow monitoring, education, and **share your story** here:

How can we make a difference?

Action Brainstorm

e.g. not using single-use plastics, visiting TERC, etc.

Act Now

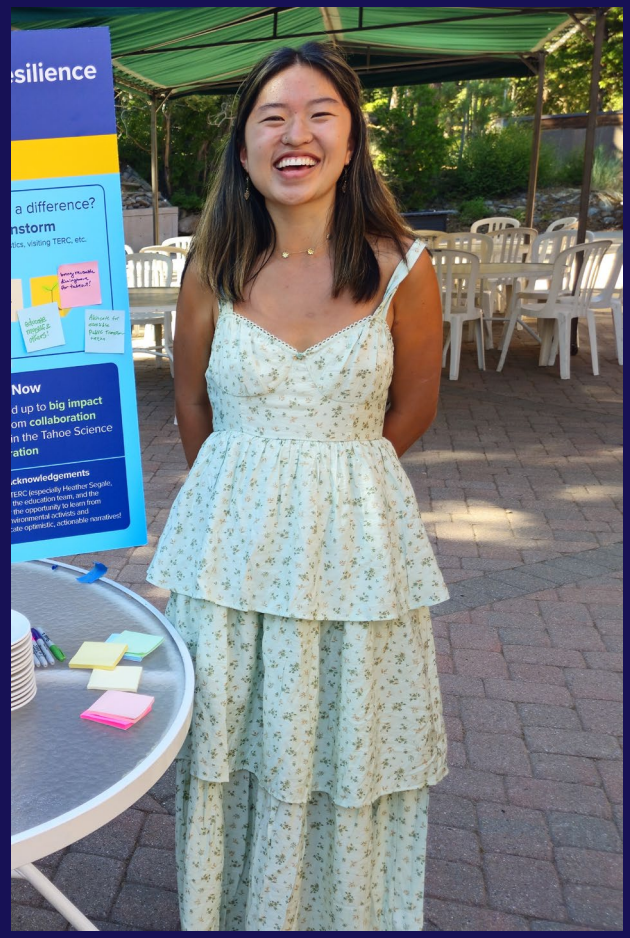
- **Small actions** add up to **big impact**
- Draw **strength** from **collaboration**
- Visit the **exhibit** in the Tahoe Science Center for **inspiration**

Contact Us

Acknowledgements

Thanks to TERC (especially Heather Segale, Alison Toy, the education team, and the interns) for the opportunity to learn from Tahoe's environmental activists and communicate optimistic, actionable narratives!

UC DAVIS Tahoe Environmental Research Center



Mia Compton-Engle, Dartmouth College

UCDAVIS Tahoe Environmental Research Center

The Fate of Water Flowing from Ward Creek into Lake Tahoe

UCDAVIS Tahoe Environmental Research Center

Emily Dumont, University of California, Davis, College of Agricultural and Environmental Science
Mentor: Sergio Valbuena, Ph.D.
Contact: epdumont@ucdavis.edu and savalbuena@ucdavis.edu

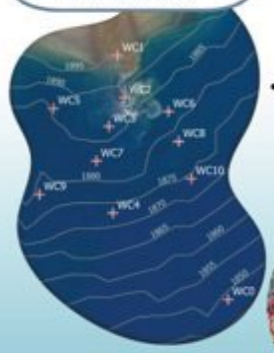
Background

- Limited knowledge regarding varying warming rates and creek-lake interactions.
  - Spring initiates **snowmelt** and **stratification.**
    - Mixing and vertical transport becomes limited.
- Inform climate change predictions.
- Inflow includes **fine particles** and **nutrients.**
  - Where are they deposited?

Most utility districts rely on Lake Tahoe as their primary water source

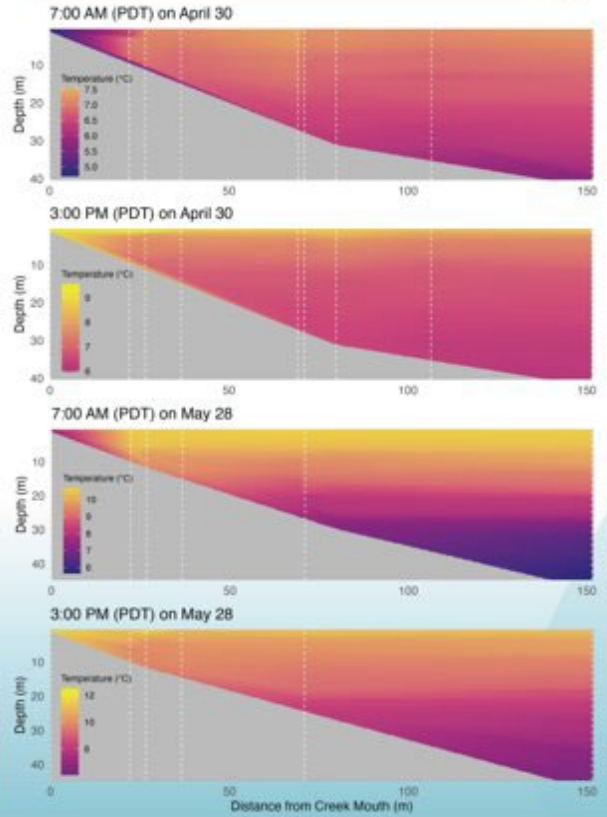
Methods

Cast locations



- Two 9-hour shifts, 5–8 casts at every Ward Creek (WC) location per shift.
- Conductivity, temperature, and depth (CTD) profiling field campaign by **RBRmaestro^3.**

Results - Temperature Profiles



Conclusion

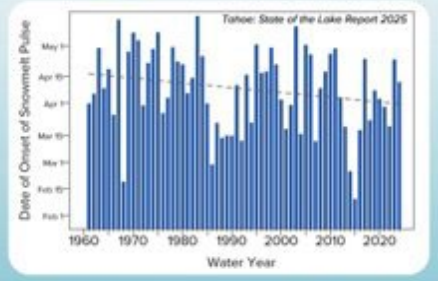
Guide municipalities on optimal water column depths for extraction

- **Wildfire** and **drought** probability on the rise.
- Dynamics vary diurnally and seasonally.
- Plume direction changes depending on wind and lake conditions.

Discussion

Periphyton

- High biomass of nearshore algae below Ward Creek.
  - Wet years can experience a **quicker onset** of runoff by snowmelt, likely improving nutrient distribution.



Trend for onset of snowmelt continues to be earlier in the year.

Acknowledgement Statement: A sincere thank you to the UC Davis Tahoe Environmental Research Center's Internships for Scholars for such a fulfilling, professional opportunity. This unique experience has made for an unforgettable summer. Therefore, I would like to acknowledge Alison Toy and Sergio Valbuena for your guidance and wealth of knowledge. Data collection made possible thanks to United States Bureau of Reclamation (USBR).

Emily Dumont,
UC Davis

UCDAVIS
Tahoe Environmental
Research Center

Preliminary Investigation of Pollinator Preferences of Nectar Composition

Mikayla Freeman, University of California, Davis, College of Agricultural & Environmental Sciences
Mentor: Dr. Rachel Vannette

Background

Why do some plants produce minor sugars? Does this change pollinator visitation to flowers?

- **Native pollinators are decreasing** as habitats degrade.
- Bees collect nectar as food.
- Some plants produce nectar with **minor sugars –** trace amounts of sugar alcohols.
  - These could protect against frost damage by **lowering freezing temperatures for plants and pollinators.**

While obtaining nectar, insects transfer pollen from one flower to the next.

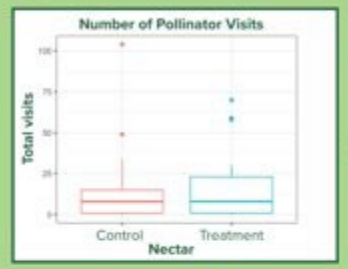
Results may recommend planting native plants with preferred nectars.

Methods

- Flowering **Red Rock Penstemon** (*Penstemon x Mexicali*).
- Inoculate with 12.5 µL of nectar.
  - **Control** - 35% sucrose in water.
  - **Treatment** - Control + 0.1% trehalose, xylitol, and sorbitol.
- Count pollinator visits for an hour, twice a day.
- 12 trials, on sunny, warm days.

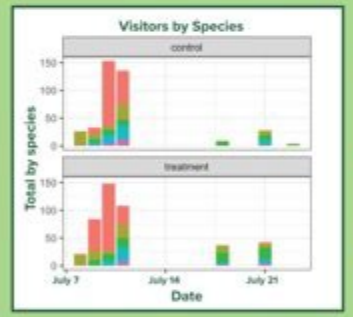
Inoculating Penstemon with nectar using a field micropipette.

Results



Both nectars attracted similar visitor numbers. The treatment nectar had greater variation.

A sweat bee on a Penstemon.



Bees visited most. **Visitor composition between treatments did not differ (p<0.5).**

- **Minor sugar composition may not have a large role** in pollinator preference.
- In later trials, plants lost flowers, lowering visitation rates.

Future Trials

- More replicates.
- **Increase number of plants and plant species.**
- Choose plants with more flowers.

Experimental setup.

Future Questions

- **Why do plants produce minor sugars?**
  - To prevent floral tissue freezing?
  - Is it a byproduct of other metabolic pathways?
- Why do plants produce different amounts of nectar?

A bumble bee on a Penstemon.

A mason bee in a Penstemon.

- **Why don't pollinators seem to have a preference** over the minor sugar composition of nectar?
- Do pollinator species exhibit different nectar preferences?
- **What do pollinators prefer regarding nectar composition?**

Acknowledgements

I'd like to thank Rachel Vannette, Heather Segale, Mahren Hudson, Soffia Ramsey, Alison Toy, and the 2025 Intern Cohort for their support.

Contact:
Mikayla Freeman - Pollinator Research and Field and Outreach Intern - mgfreeman@ucdavis.edu
Dr. Rachel Vannette - UC Davis professor and TERC Affiliate - rlvannette@ucdavis.edu
Alison Toy - Education and Outreach Program Manager - natoy@ucdavis.edu

References

Mikayla Freeman, UC Davis

UCDAVIS
Tahoe Environmental Research Center

Social Media

- 2 posts written in the 1st person tense.
- Ideally 2-3 images with content/caption and 1 reel.
- Upload image/video with captions to Alison and Abigail.
- Be prepared for feedback and a round of edits.

UCDAVIS
Tahoe Environmental
Research Center

Social Media ideas

1. Intern Spotlights or Profiles

- **Format:** Photo or short video + Q&A caption
- **Content:** Introduce intern with their background, project focus, and what excites them about the internship.

2. Behind-the-Scenes (BTS)

- **Format:** Instagram Stories, Reels, or carousel posts
- **Content:** Show daily activities, work in progress, lab tours, team meetings, fieldwork, coding sessions, look for places the average person wouldn't typically have access to.

3. Project Highlights or Achievements

- **Format:** Images or infographic slides
- **Content:** What projects interns are working on, including goals, tools used, and early findings.

Social Media ideas

4. Skills in Action

- **Format:** Time-lapse videos or before/after visuals
- **Content:** Interns building models, analyzing data, or creating visuals for science communication.

5. Mentor Moments

- **Format:** Quotes, photos, or short interviews
- **Content:** Share advice or reflections from mentors working with interns.

6. Tips & Takeaways

- **Format:** Quote cards or short text videos
- **Content:** Lessons learned, favorite tools/resources, or tips for future interns.

Social Media ideas

7. Cohort Bonding & Community

- **Format:** Group photos, team-building activities, casual hangouts
- **Content:** Showcase social and collaborative elements.

8. Intern Takeover

- **Format:** Story, introduction, photos and videos with casual comments
- **Content:** Join me out in the field

9. End-of-Internship Recaps

- **Format:** Before/after reflections, mini-presentations, or final product demos
- **Content:** What each intern accomplished and learned.

UCDAVIS
Tahoe Environmental
Research Center

Social Media tips

Humanize content

- Have a person at the center of the narrative, not just text
- **Example:** Someone specific with something interesting to say

Interactions = engagement

- **Format:** Questions, polls, add your own etc.
- Make the two-way social media conversation happen

Captions and photo descriptions!

UCDAVIS
Tahoe Environmental
Research Center

Social Media sign-up

- Communicate with Abigail / Alison / Cara by 7/7
- Propose two ideas
- Choose 1-2 weeks you will have content
  - Upload your content to your designate folder
  - Sign up for your week: https://docs.google.com/spreadsheets/d/1JVyhOaWqCzGjlP0uVM2qQqgL_GcmSSh0KamQ2vcZIII/edit?usp=drive_web&ouid=115382852521543684260
  - Write caption and link to content appropriately
- Follow @UCDavisTahoe ☺

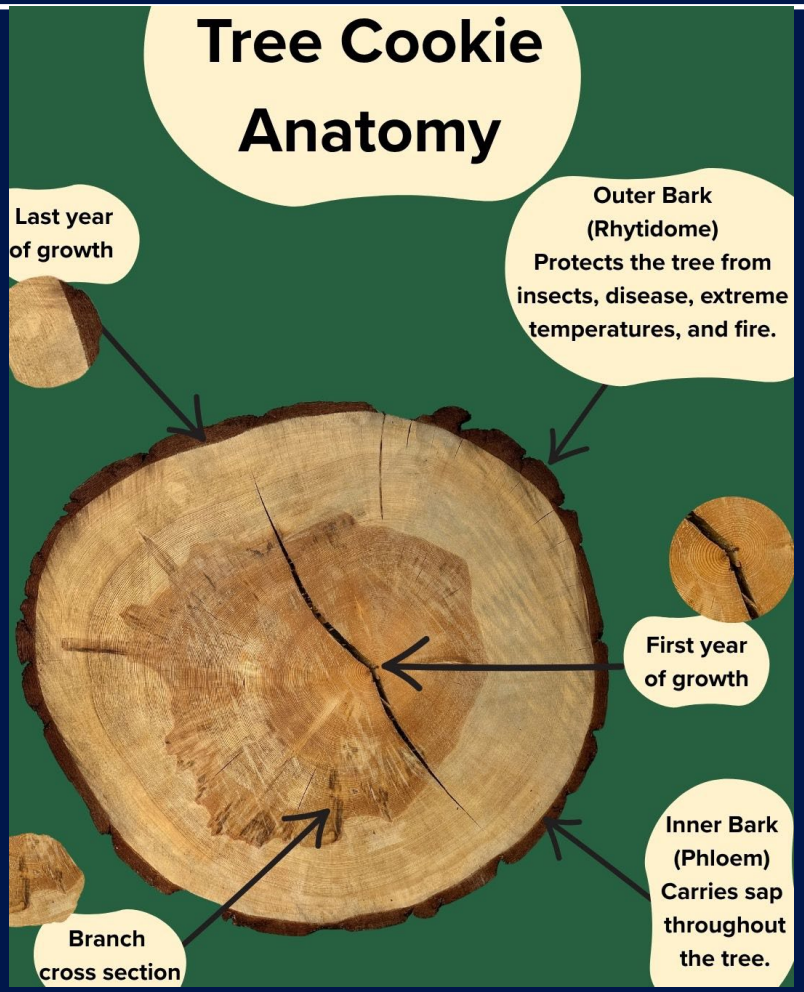
UCDAVIS
Tahoe Environmental
Research Center

Social Media tags

- Use hashtags strategically
- Pick a few good ones
- Do your due diligence
- Avoid adding too many
- Tap into the UC Davis community by browsing hashtags like #UCDavis, #OurUCDavis, and #GoAgs.
- Participate in larger hashtag campaigns like #WomenScientists, #ThisIsWhatAScientistLooksLike, #SciencetoSaveLakes and #SciComm.

UCDAVIS
Tahoe Environmental
Research Center

Social Media examples



UCDAVIS
Tahoe Environmental Research Center

Social Media examples

To Bee or Not to Bee?

UCDAVIS
Tahoe Environmental
Research Center

Optional

- Lots of extracurricular Tahoe adventures
- Outreach opportunities

UCDAVIS
Tahoe Environmental
Research Center

Program Manager and Coordinator

Alison Toy (Program Manager)

- (510) 734-9919
- antoy@ucdavis.edu

Samantha Campisi (Coordinator)

- (609) 480-7922
- scampisi@ucdavis.edu

UCDAVIS
Tahoe Environmental
Research Center

Rest of the Day / Next week

1. Logic Model
2. Prepare / Practice 1-minute elevator pitch
3. Check-in with mentor and communicate calendar
4. Docent training 1pm-5pm
5. 6/30 - Tahoe City Marina at 7:45am
6. 7/7 – Tahoe Environmental for Environmental Sciences (TCES)

UCDAVIS
Tahoe Environmental
Research Center

Elevator pitch

- 1 minute long
- Succinct
- Persuasive
- What are you doing?
- Why are you doing it?
- How does it fit in TERC research?
- Why should the audience care?
- Questions

UCDAVIS
Tahoe Environmental Research Center


Lunch?