The Aggie Brickyard

assembling the blocks of ecology at UC Davis

FALL 2019 VOL. IX

FACULTY Q&A
MARK LUBELL

FEATURE
HOLISTIC REVIEW

STUDENT PERSPECTIVES

NOTES FROM THE FIELD

DEBATE

Sunrise over Boulder, Colorado. - courtesy of Adrienne Keller

- COVER: *Juvenile bork* (Pagothenia borchgrevinki) *at Cape Evans Ice Wall, Antarctica. - Rob Robbins*

LETTER FROM THE EDITORS

"NOT ALL DEBATES ARE STAGED ON NATIONAL TELEVISION. ON THE CONTRARY, DEBATE SHOWS UP IN NEARLY EVERY ASPECT OF OUR GGE COMMUNITY."

With just under a year till the 2020 election, the Democratic presidential debates are in full swing, and they are exhausting. Seriously, how long can a person stand to watch immaculately dressed people squabble onstage? When we tire of the interruptions, soundbites, and thinly veiled boasts, we Brickyard staffers like to remember that not all debates are staged on national television. On the contrary, debate shows up in nearly every aspect of our GGE community.

For starters, ongoing debates will determine how GGE students get to campus, both proximately (Transit Debates, p. 12) and ultimately (Admissions FAQ, p. 6). Once we're here, we participate in debates of many forms. Some happen in writing, like when we submit public comments challenging the management decisions in the Tongass National Forest (SCBD Update, p. 18). Others occur in the classroom, when we get super meta and disagree about whether to hold a debate-structured seminar (Student Q&A, p. 9). Sometimes, debates can be totally wordless: the head-to-head with a seal occupying your ice-hole as you emerge from an Antarctic ice dive (Notes from the Field, p. 21).

No matter the format, enduring a debate requires a thick skin, and perhaps a support system. When you get negative feedback on your manuscript, instead of hurling angry epithets at Reviewer #2, you can fall back on a trusted social network to help you formulate your response (Letter from the Chair, p. 3). Don't rely on them too much, however—sometimes, they can act as an echo chamber, drowning out productive debate with words of approval (Faculty Q&A, p. 4).

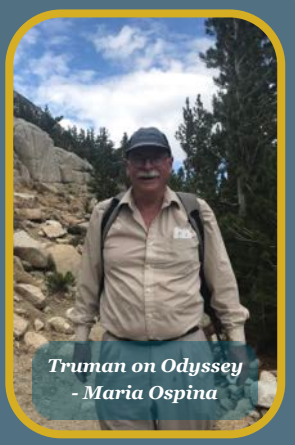
Focusing on the times we disagree may seem pessimistic at times. Here at The Brickyard, however, we are inspired and heartened by the prevalence of debate in our community. We believe (and if you read on, we're sure you will too) that differing opinions are what make the GGE such a wonderful place to study, learn, laugh and—yes—argue.

Sincerely,

Your Aggie Brickyard Editors

CHAIR-ISHED REFLECTIONS

Trumania (Truman Young)



Truman on Odyssey - Maria Ospina

"Trust that with time, you are likely to consider even the most egregious review a passing squall."
- T. Young, GGE Chair

Receiving and delivering criticism

[Warning: the idiosyncratic views of this writer are not the opinions of management. Students and their advisors are free to ignore them.]

It is a great compliment to hear that something you published has been chosen for a lab-group discussion. But it is also daunting, because you know that the graduate students will tear it to shreds! The criticism of peer review of manuscripts and proposals is how science progresses, however painfully. It is also different from other forms of scientific debate in the sense that it is often more one-sided (there is only indirect give and take), and more directly impactful (the acceptance of a paper or awarding of a grant). This adds to the angst, but the negative psychological effects can be reduced.

First, when you get back less than glowing reviews (which is pretty much every time), your natural instinct will be to feel personally attacked, sad, angry, and defensive. Go somewhere and vent for a while, then return to the reviews and start to deal with them. Remember that even the most negative or thoughtless review will improve your work, if you can get past these feelings.

Some hints:

1. Recognize that each paper and proposal you write is your precious baby, and it takes perspective to allow yourself to accept these criticisms (or even listen to them). Trust that with time, you are likely to consider even the most egregious review a passing squall.
2. Remember that reviewers have limited time and their own blinkered perspectives, and sometimes just miss stuff. Many times, I have received comments like "You should have controlled for age in the analysis" and shouted at my screen, "I did control for age! Right there on page 13!" In your response, it is often enough to just gently remind them of this. But you should also seriously consider the possibility of writing that section more clearly, so that even an idiot (!) would not miss it.
3. If you have been invited to submit another version, you should address each reviewer comment, but not necessarily acquiesce to suggestions and demands. Feel free to defend your position. But if you fail to convince the editor, consider simply letting it go, even if you feel you are right— unless it is really important (again, perspective).
4. Science is increasingly a collaborative effort, so share your thoughts and feelings not only with co-authors but with a core of trusted colleagues. They can be your shelter in a storm and powerful defenders (think Justice League).
5. The more interesting your work, the more likely it is to get pushback, especially if it is ground-breaking or controversial. Harsh reviews are then a sign that you are on the right track.

Second, when you are a reviewer, remember the feelings of the author(s), even if you find glaring issues with the manuscript or proposal. (This is even more true in lab group presentations of a lab member.) Conversely, do not lower your standards just because you are worried that they will be difficult to hear. There are ways to make your point that are more or less constructive. The authors (and the editor) will still get the message, and you will more likely move the submission to a better place.

And of course, avoid *ad hominem* comments (like "idiot").

FACULTY Q & A

UC Davis Professor Mark Lubell researches cooperation problems and environmental conflicts. His work often leads him to areas of dispute or debate; we wanted to know whether he thought structured debate could be an effective tool for collaborative environmental decision making. Brickyard staffer Victoria Dearborn caught up with him to find out.

Mark Lubell, Professor, Department of Environmental Science and Policy; Director, Center for Environmental Policy and Behavior.
Most Recent Publication: Lubell, M. and Meredith T. Niles. 2019. The limits of capacity building. Nature Climate Change, 9, pp. 578-579.


M. Lubell - UC Davis

In your own research, how has debate (whether that be formalized back-and-forth or less structured "arguing") featured into decision making processes around environmental issues?

Debate is constantly occurring in environmental policy. It could be about whether climate change caused some event like a wildfire, or whether climate change is even happening at all. Or it could be more narrowly focused on what type of policy action should be taken, such as restoring a wetland to protect against flood surge or what are the best on-farm environmental practices. However, such questions are rarely the subject of a formal "debate" process with positions, arguments, and counter arguments. Rather, the debates occur in the process of policy deliberations occurring in multiple venues, which sometimes draw on scientific discussions. Sometimes, these deliberations are facilitated by some type of conflict resolution professional or process.

When two parties are in strong disagreement over a topic (for example - a landowner and a local agency at odds about best management practices for a local watershed), do you think debate has the potential to help create consensus or foster collaboration?

I'm skeptical that formal, adversarial debate process would help. I would consider it a policy experiment to try out formal debate. Instead, I think people try to use environmental conflict resolution, collaborative governance, or other deliberative processes to forge agreements.

How do you think social networks affect the way we use and view debates in current society?

Social networks play a huge role because they influence the information and arguments that we are exposed to. The information coming from your social networks has a larger influence on your own personal beliefs than information you receive from media. However, especially in the internet age and during polarized cultural battles, people are selecting social networks where people agree with their prior dispositions. This results in "echo chamber" types of effects, which further accelerates polarization, reduces exposure to counterarguments, makes it harder to find common ground, and enables us-versus-them attitudes. Overall, I think we should be working to counteract these types of negative social network effects, which are bad for finding policy agreements, the development of scientific knowledge, and democratic processes.

When you've had to engage in debate in your professional career, what techniques have you used to make your argument effective? Or if you haven't approached issues with debate, what alternative methods of communication/negotiation have you taken?

I try to adopt conflict resolution principles such as interest-based negotiation and empathy. What are the true interests underlying somebody's position on policy or other debate? I think it is also important to appeal to science, although this is becoming harder in today's culture given the rise of anti-intellectualism and distrust in scientists.

RECENT STUDENT PUBLICATIONS

Aliperti, J. R., Van Vuren, D. H., Rossi, A.J., Armitage, K.B., 2019. Litter relocation behavior in two species of ground–dwelling squirrels. Ethology. 00:1–6.

DeSantiago, R. 2019. Black abalone declines shifted herbivore communities to those that avoid invasive *Sargassum horneri*. Poster presented at Western Society of Naturalists; Ensenada, Baja California, Mexico; November 1, 2019.

Iverson, A.R., Fujisaki I., Lamont, M., Har, K.M.t. 2019. Loggerhead sea turtle (*Caretta caretta*) diving changes with productivity, behavioral mode and sea surface temperature. *PLoS ONE* 14(8): e0220372. doi: 10.1371/journal.pone.0220372.

LoPresti, E.F., Goidell, J., **Mola, J.M.**, Page, M.L., Specht, C.D., **Stuligross, C.**, Weber, M.G., Williams, N.M., Karban, R. 2019. A lever action hypothesis for pendulous hummingbird flowers: experimental evidence from a columbine. *Annals of Botany*.

Williams, N.M., **Mola, J.M.**, **Stuligross, C.**, Harrison, T., Page, M.L. **Brennan, R.M.**, **Rosenberger**, **N.M.**, Rundlöf, M. 2019. Fantastic bees and where to find them: locating the cryptic overwintering queens for a western bumble bee. *Ecosphere*.

Clara Stuligross (left) and Maureen Page (right) search for fantastic bees- C. Stuligross

*The western bluebird (**Sialia mexicana**) was the most common species observed in the Covell Greenbelt nest boxes placed by the Society for Conservation Biology last year. - Alison Ke*

GGE Admissions Holistic Review: Frequently Asked Questions

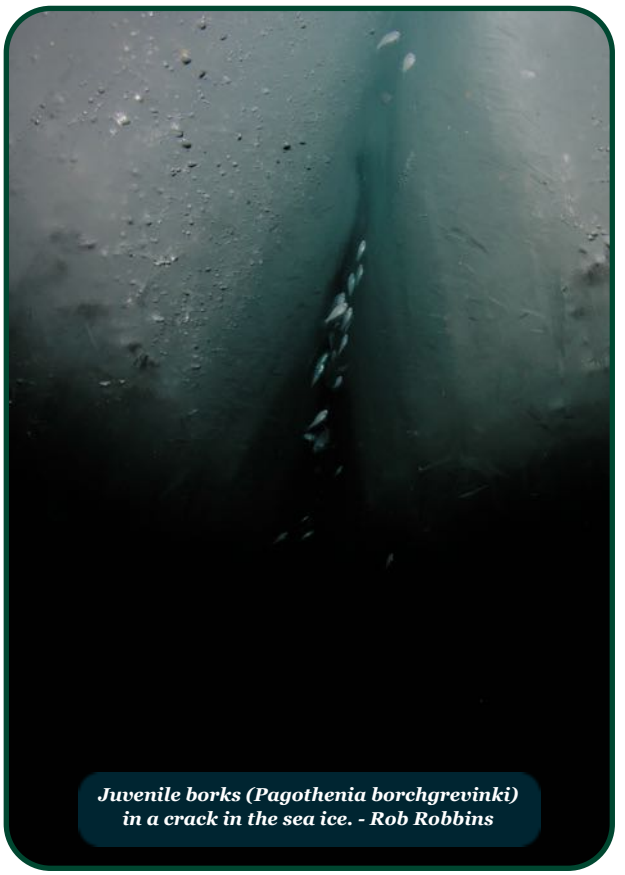
By the Diversity Committee Admissions and Awards Subcommittee

What is holistic review?

Holistic Review or "whole file" review is an evidence-based process that considers a broad range of characteristics, including both quantitative and behavioral attributes, when reviewing applications for admission. Traditional graduate program admissions primarily rely on actuarial metrics such as the GRE or GPA (Posselt and Miller 2018), which can be misinterpreted, are poor predictors of graduate and post-graduate success, and are biased against women, people of color, non-traditional, older and economically disadvantaged students (Sedlacek 2004, Awad, 2007; Louderback, 2008; Miller and Stassun 2014). Holistic review uses a comprehensive and systematic approach to evaluate applicants' academic preparation, alignment with the university or graduate community's goals, non-cognitive competencies (such as initiative or focus on long-term goals), research potential, and contributions to diversity and leadership (Posselt 2019), thereby attempting to more equitably assess an applicant's potential for future success in graduate research.

Why does the GGE use holistic review for admissions?

Our graduate group is committed to being the best ecology graduate program in the country by recruiting and training diverse cohorts to carry out relevant and impactful research. By using a holistic review approach, the GGE admissions process focuses on skills, character attributes, and the context of an applicant's path toward graduate school, enabling recruitment of diverse scientists and identifying the best quality candidates for our program. Recruiting diverse graduate students fosters innovation and creativity (Woolley et al. 2010, Puritty et al. 2017), improves science outreach and communication, increases the relevancy of ecological sciences to all populations (Klenk et al. 2015), and shifts the demographics of our profession closer to those of our



Juvenile borks (Pagothenia borchgrevinki) in a crack in the sea ice. - Rob Robbins

society (Posselt 2014, Arismendi and Penaluna 2016), thus increasing the likelihood of overall success and impact of our program.

How does the GGE admissions process work?

Admissions Chairs: This year, Professor Ben Sacks serves his second year as the GGE Admissions Chair (AC) and Professor Andrea Schreier begins her first year as Admissions Vice Chair (VC) (transitioning to AC for the 2020-21 admissions season). The AC & VC work with Matt Malepeai, GGE Student Affairs Officer (SAO) to implement and assess the admissions procedures - not a minor task for a graduate group that receives 250-300 applications per year! The AC, VC & SAO work together to recruit GGE faculty and students to voluntarily serve as reviewers, assign applications to reviewers, collect and process reviewers' scores, and determine the final rankings of applicants, which serves as the basis for internal awards offers.

Diversity Committee Awards & Admissions Subcommittee (DCAA) (2019-2020 Co-chairs Kristin Dobbin and Ellie Bolas): The DCAA initially joined in admissions work with the goal of improving the way the GGE recruits for diverse scientists. However, the role of the DCAA has since expanded to work more broadly with the AC, VC, & SAO on researching and implementing best practices in graduate admissions. DCAA activities include researching admissions practices at other competitive graduate ecology and STEM programs across the country, attending workshops to discuss best practices in holistic review, sharing the GGE's tools and methods with other graduate programs at UCD and beyond, analyzing longitudinal applicant and admissions data for the GGE, and conducting the annual *GGE Admissions Reviewer Survey*, which provides a platform to gather feedback from admissions reviewers. The DCAA also coordinates the Admissions Trainings each year, where GGE reviewers can discuss the theory and basis of holistic review and get hands-on experience with the GGE Holistic Rubric.

***Any students or faculty interested in helping with DCAA work are welcome, and should contact Kristin (kdobbin@ucdavis.edu) or Ellie (ebolas@ucdavis.edu) to learn more.**

Reviewers: Each year, between 80-90 faculty and graduate students from across the GGE volunteer to serve as admissions reviewers. Reviewers do the most important work of the whole review process by reading and scoring each application the GGE receives. Each reviewer is assigned 12-15 applications. Each application receives ~5 reviews (at least 3 from faculty). To minimize reviewer-effects on scores, all reviewer-applicant assignments are randomized for every reviewer and applicant, except that faculty reviewers are not assigned to applicants applying to work in their own labs.

So then, how are applications scored?

Every application includes GRE scores, undergraduate and masters (if applicable) degree transcripts with GPAs, a Personal History and Diversity Statement, a Statement of Purpose (i.e. research statement), and up to three letters of recommendation. Reviewers read and assess each of their assigned applications, first using the 8-Trait Holistic Rubric and then assigning a 10-point overall score.

The 8-Trait Holistic Rubric has been iteratively developed and tailored specifically for the GGE, including a more significant revision to enhance clarity for this year's (2019-20) admissions cycle. The rubric includes 8 traits that help place academic achievements in the context of personal opportunity while also reflecting on the tenacity, flexibility, leadership contributions, and research drive of applicants. Use of a holistic review rubric has become widely accepted as a best practice for

standardizing application assessment and correcting for potential bias (Fine and Handelsman 2012). Applicants are ranked as high, medium, or low (+1, 0, -1) on each trait to reflect the degree to which they demonstrate capacity for that trait through all of their application components. Read more about the rubric at https://ecology.ucdavis.edu/admissions.

The 10-point overall score is required by UCD Graduate Studies; the GGE has developed guidelines for how to determine where an applicant falls on the 1-10 scale. Applications are assigned a single number between 1-10 that indicates attributes of applicants likely to become well rounded and creative scientists successful in ecological research.

The linear mixed-effects model: A linear mixed effects model is used to partition each 10-point score into 11 additive components: a random reviewer effect, a fixed applicant intercept, 8 fixed effects for each of the 8 trait scores, and a random residual. The fixed effects for trait scores can be thought of as the average change in overall score per unit change in each trait score, averaged over all applicants and reviewers. The final corrected 10-point score for each applicant is the average of all scores after removal of reviewer and residual components. Thus, the correction removes the effect of reviewer, and deviations (residuals) from the average effects of trait scores on overall score. An applicant with raw 10-point overall scores that are low relative to the "average" scores for all applicants with equal trait scores, will receive a positive correction, and vice versa. This method is an effort to increase consistency with which reviewers assess the 8 traits and assign 10-point overall scores. The AC, VC and DCAA see the model as a tool to improve the accuracy and consistency of scoring applicants across the GGE, and aim to continually improve the method, by clarifying goals and reviewing data and alternative methodological approaches.

What happens after all that scoring of applicants?

The AC and VC use the final corrected scores to rank applicants (from highest scoring to lowest scoring) and designate "tiers" (Tier 1 constitutes the top ~30-40 students). Raw and final scores along with rankings get circulated back to all GGE faculty. Invitations for GGE visiting weekend are generally sent 20 non-local Tier 1 applicants, while local Tier 1 applicants are welcomed to join. The admissions scores and full applications of all Tier 1 students are advanced to the Awards Committee, who conduct another round of reviews and ranking for GGE internal fellowships. Admission to the GGE ultimately relies on the acceptance of an applicant into a faculty member's lab group. While students are generally admitted by faculty members they identified in their application, faculty are permitted to admit any student they show interest in, regardless if they appear as a faculty member of interest on a student's application. Admissions acceptances and GGE fellowship offers are made to approximately 40 and 12 students, respectively.

If you have more questions about the GGE admissions process, please reach out to the AC, VC, Matt or DCAA with your questions!

Basket stinkhorn fungus (Clathrus ruber) growing outside Environmental Horticulture. - Paige Kouba

STUDENT Q & A

We encounter debates throughout academia—but should they be part of the classroom? Early in the term, participants in the ECL 290 course Novel Ecosystems discussed the possibility of structuring the course around a weekly debate. By the end of the second class, students had decided to opt for a different class format. The Brickyard's Abbey Hart spoke with first-year student Katie Lauck to understand those decisions. Their conversation, below, has been edited for brevity and clarity.

K. Lauck - courtesy photo

What pros and cons do you see with the debate format for a class discussion?

The main pro I see is that it lets people get outside of the norm of agreeing. [In the discussion for the Ecology core course, we read about a contentious paper on ecosystem fragmentation by Lenore Fahrig.] In that paper, she said controversial stuff. It turns out that was unfounded, but maybe it's good to say things that no one else is saying. The debate format makes a safer space to do that. It's intentionally more controversial, instead of making people have to weigh the political or social consequences of disagreeing. There are fewer consequences for being controversial. And I like that.

So in some ways a class centered on debate gives a type of freedom?

I think it does. But I think the way it was framed in that first class—in *Novel Ecosystems*—also made it kind of inaccessible for some people. Regardless of what the format is, it's a lot easier for some people to get into conflict with others. It's less costly. Specifically in my experience as a woman, it's more costly for me to say something controversial. It's scarier because I've been socialized to agree. Also I'll probably get more push back as a woman, or people will take me less seriously, or people will view the evidence I put up as less concrete or valid. In that way I think it puts pressure on people who find it scarier, more costly to speak up.

But in a debate format class, speaking up is required.

Exactly. So instead of making a space where people whose communication is less privileged, where those voices are uplifted, it just increases the pressure for everyone to be controversial.

How did the debate structure end up working out for the class?

All the students got together and decided not to do that. We decided to set it up in a way where we chose discussion topics and two people lead. They choose a couple of papers, everybody reads the papers, and we talk about it. Basically, structured exactly the way the Ecology core course discussion is structured, except a little less rigidly — it's more focused on the discussion, and less on narrowing down exactly what the paper is saying. We use the papers as a jumping off point, and discuss how our own experiences relate to those ideas. One week, two students led class, and they decided to break us up into small groups and have each discuss a case study and then come together and talk about what all those case studies mean. And that was awesome! Smaller groups meant more people got to talk more of the time, and they were more approachable for less extroverted people.

STUDENT Q & A

Has there been a lot of disagreement during discussions? Is debate still happening within this new format?

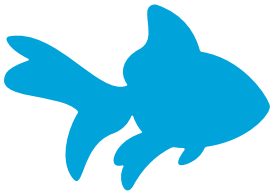
No. There's no hard-core butting heads. But there is this really awesome exchange of perspectives and ideas that I like more than artificially pitting people against each other, where there wouldn't be an actual controversy. I think it's more the framing. [The professor] likes it and I think it's productive in his opinion. I think the reason he wanted the class to be debate-centered is because he wanted it to be efficient, instead of faffing around talking about ideas everyone agrees on. The really interesting parts are what people disagree about anyways, right? This format fulfills that, but it just isn't framed as a fight, so it isn't as scary.

But I think that everyone who felt uncomfortable with the original debate format dropped the class. The format got totally changed in the second class, but people who were uncomfortable with the first format had already left. We had already lost voices. So it's a self-selected thing.

Some believe institutions intentionally avoid disagreement, to the detriment of the progression of new ideas. Do you think that debate is encouraged or avoided in academia?

That's a really good question. I think it depends on the scale. Controversy isn't necessarily encouraged for its own sake on the small scale. When you're small-timers like we are, you're supposed to stay in line and expand what's there. My advisor would probably support me in disagreeing with him, but I feel like a lot of people's advisors have entrenched ideas and want their students to build on their ideas. They aren't really interested in hearing "what about this part of your idea I want to test?". I worked for a PhD student in Indonesia. Her ideas challenged some of her advisor's ideas, and her advisor made it really difficult for her to finish her dissertation because of that.

But when you're a big timer, like Fahrig, I feel like disagreement helps make you famous. I don't know if that makes it worse. Are people just stirring the pot for the sake of it?



Right:* Antennariidae merman: *my take on fish/human chimeras - Ric DeSantiago

Transit Debates

Lisa Rosenthal, Tara Ursell, and Hyun Kim

Editors' Note:

UC Davis graduate students use several methods to commute to campus, including the UC Davis Intercampus Shuttle to and from Sacramento. However, the future of this shuttle is currently under debate. UC Davis has proposed canceling this service and sending riders to existing Yolobus and Sacramento Regional Transit (SacRT) routes.

The following letter was endorsed by the Graduate Student Association Executive Committee and sent to UC Davis leadership. The new transit plan is proposed to start in April 2020, but UC Davis still has the option to delay.

Authors' Update at Press Time:

Due to the tremendous efforts by many active shuttle riders, Yolobus and SacRT will offer hourly express bus routes and UC Davis has unofficially promised that monthly passes will not exceed the current price. The rest of our action items are still unmet and the UC Davis-particular requests have flatly been ignored.

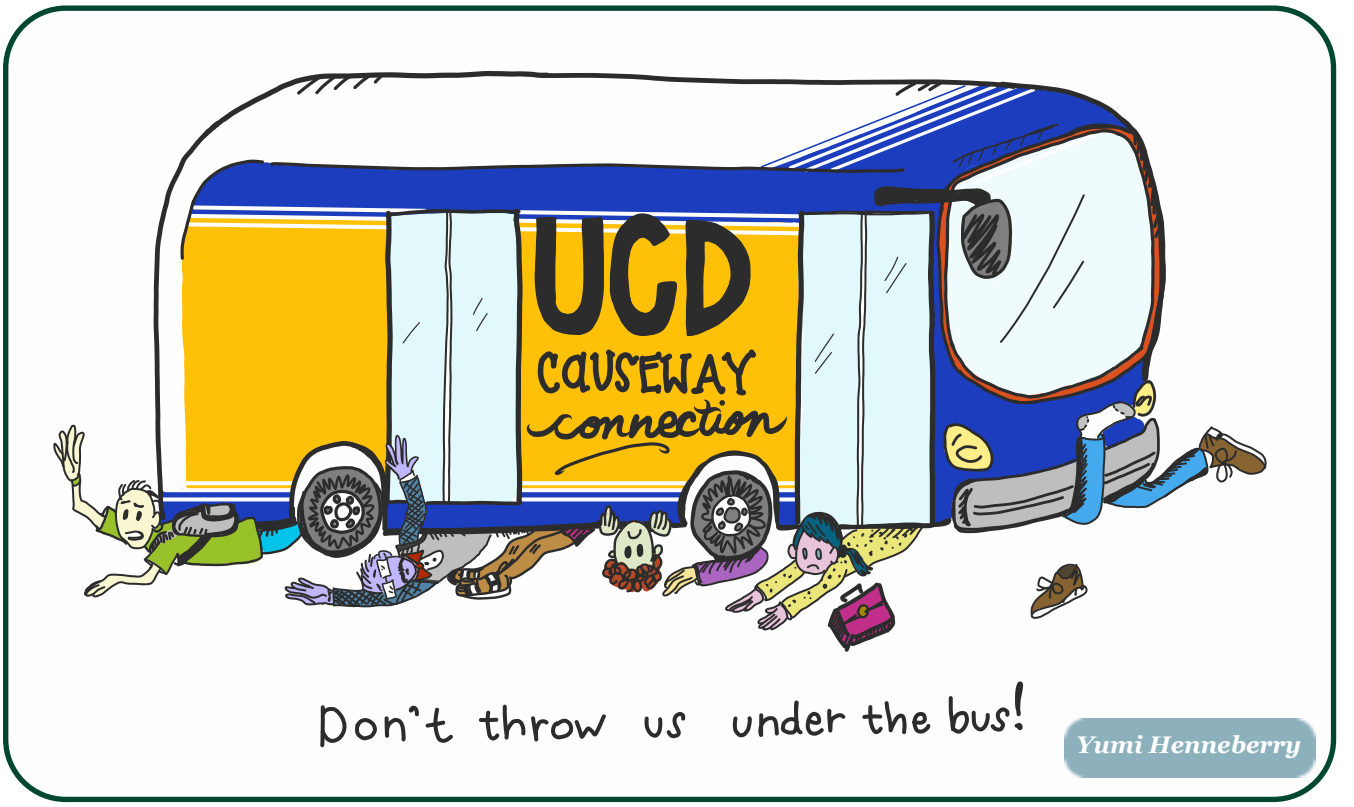
Summary of graduate student concerns re: intercampus shuttle cancellation

We are a collection of graduate students who object the proposed cancellation of the UC Davis Intercampus Shuttle. Given that more than 166 graduate students have signed our open letter that explains our concerns, this issue is felt widely and therefore we request your support.

We commute from Sacramento for various reasons: for more affordable housing options, to minimize commute time with our partners who work in other cities, and to live in the big city. What unites us is that we have built our lives around the intercampus shuttle. The shuttle is an express route that connects the main campus with many of Sacramento's affordable residential areas, such as Tahoe Park, Colonial Heights, and Oak Park. Many of us were informed about the shuttle when we were recruited to UC Davis, and many of us moved to Sacramento with the assumption that this route would be our primary transit line to arrive to campus.

What UC Davis has proposed

UCD has suggested that intercampus shuttle riders shift to an upcoming public transit line serviced by Yolobus and SacRT. This new route is not an adequate replacement because:



- The route for most of the day is significantly longer due to a detour through Downtown Sacramento and Davis, adding 50% more time to the commute under no-traffic conditions.
- There are fewer seats (33 per bus compared with 57 currently) and no seatbelts.
- Costs for grad students will increase by 67–122% ($2.50 per single trip compared with $1.50 currently; $100 per monthly pass compared with $45 currently).
- The buses will carry less than half as many bikes (3 bikes compared with 8 currently; data collected shows an average of 5 bikes per trip).

UCD planning lacks transparency and evidence-based motives

UCD negotiations with Yolobus and SacRT and planning regarding the shuttle cancellation has occurred behind closed doors for at least 1–2 years. In the short time since we learned of the changes, we have uncovered numerous discrepancies in the data and rationale used to justify the shuttle cancellation. The planners have yet to produce trustworthy data demonstrating that the future transit line will be an improvement over the current shuttle. We have also experienced an explicit unwillingness to quantitatively survey commuter needs regarding this service.

Therefore, below we list the critical features of an intercampus transit line and what we expect of the UCD administration.

What we need of the bus

Our priority is to get to and from campus as quickly and safely as we can. This means:

1. Hourly direct routes between campuses.
2. Seats with seatbelts for all riders.
3. No increase in price.
4. At least as much bicycle capacity as current.

What we need from the leadership

1. Delay the shuttle cancellation until UCD can present data and analysis motivating the changes and supporting the future components.
2. Confirmation that UCD has a system in place to monitor the transit trends of the current ridership and project the extent that UCD affiliates will be using the new transit system, and clearly identifies criteria they will use in order to adapt if it is not well-used.

We hope that UCD leadership will address the aforementioned action items before further decisions are made. We are optimistic that we can work together to find effective solutions on this issue.

The musk ox from Brickyard Vol. VIII, still decomposing in a field. Time had passed. - Conor Higgins

EGSA Fall Update

Paige Kouba, Angie Korabik, Andrea Broad, EGSA Co-Chairs

Fall arrived once again in Davis, and this season brought time-honored traditions for the members of the Graduate Group in Ecology. We put away our summer field equipment, welcomed the new first-years, and received far too many squashes in our CSA boxes. The start of the quarter also presented an opportunity to gather the members of the Ecology Graduate Student Association (EGSA) at our first meeting of the 2019-2020 school year, held on October 1st.

The meeting started with the customary reminder of just what this acronym "stands for." The EGSA is a forum where GGE students discuss their needs and issues, and a conduit for communicating those needs to the GGE Executive Committee and the broader UC Davis Graduate Student Association. The EGSA also provides support for student-run programs and committees. This year's EGSA co-chairs hope to facilitate smoother transitions for EGSA leadership posts by encouraging peer mentorship and transfer of knowledge. We believe inter-cohort collaboration will lead to better academic and emotional support in our learning community.

The EGSA community owes its strong cohesion and excellent programming to the hard work of our officers, committee chairs, and committee members. This year, Bryan Currinder was unanimously elected to serve in the essential role of EGSA Treasurer. Students taking on other EGSA leadership positions are listed below:

Academic Committee:
The Brickyard: Ellie Oldach and Paige Kouba
Open Lab Meeting Coordinator: Conor Higgins
GGE Symposium: Aviva Fiske and Emily Brodie
Charity Committee: Diana Munoz, Julia Owen
Diversity Committee: Deniss Martinez, Maria Ospina
Public Engagement Committee: Alex Gulachenski
Social Committee: Angie Korabik
Technology and Media Committee: Ann Holmes, Jasmine Green, Max Odland

Thanks to these students and the many others who contribute their hard work to make the GGE better. Keep an eye out for news on the Winter Quarter EGSA meeting, coming soon!

GGE students on The Odyssey - Abbey Hart

A mother naked dragonfish (Gymnodraco acuticeps) guarding her eggs to fend off predators. The incubation time of naked dragonfish eggs is very long for a fish, about 10 months, and the mother and father fish take turns guarding the eggs during that period. - Rob Robbins

Executive Committee Update

Aviv Karasov-Olson & Helen Killeen, EC Student Representatives

Over the past several years, the GGE Executive Committee (EC) has undertaken several projects to improve the experience of graduate students with respect to curriculum requirements, funding, and quantitative training.

Curriculum updates

Compared to other ecology programs, the GGE has a relatively large number of pre-requisite courses. A high pre-requisite course load can increase the time required to complete a degree and may not be necessary for each student's specialization. In 2018-2019, The EC voted to reduce the number of required courses to one physics, one chemistry, and one math course, down from two each. Additionally, the EC has approved a test-out option for evolution (EVE 100).

Next steps:

- Obtain approval for the reduced prerequisites from the Graduate Council
- Determine an appropriate mechanism for the EVE 100 test-out option. Students interested in testing out now should contact Matt Malepeai.

Admissions

Following the incredible work that the Diversity Committee Admissions and Awards Subcommittee has done with the GGE Admissions Committee, the EC has secured funding for an Admissions GSR to examine the impacts of our new holistic admissions review process. Please see the GGE Admissions and Holistic Review FAQ for more information on this important work.

Last spring, the EC voted to remove the GRE as an admissions requirement as it can be a poor predictor of graduate and post-graduate success, and is biased against women, people of color, and economically disadvantaged students. This change is expected to be formalized for the 2020-2021 application cycle.

Next steps:

- Obtain approval for the GRE removal from the Graduate Council

Funding

Traditionally the GGE has used Jastro funds to provide GGE fellowships as well as funding students' research. Last year, the College of Agricultural and Environmental Sciences (CA&ES) decided to reinterpret how Jastro-Shields funding is allocated to students. This change would have dramatically impacted the GGE's ability to fund student fellowships. Truman Young, Mark Lubell, and Matt Malepeai, among others, launched an effort to change these restrictions because they ultimately hurt students. They were successful in increasing Jastro-Shields funding caps to $6,000 per year and $18,000 per academic lifetime per student. This upcoming fellowship application cycle (deadline January 15), we are encouraging all eligible students with an advisor in the CA&ES to apply for a Jastro research or support award.

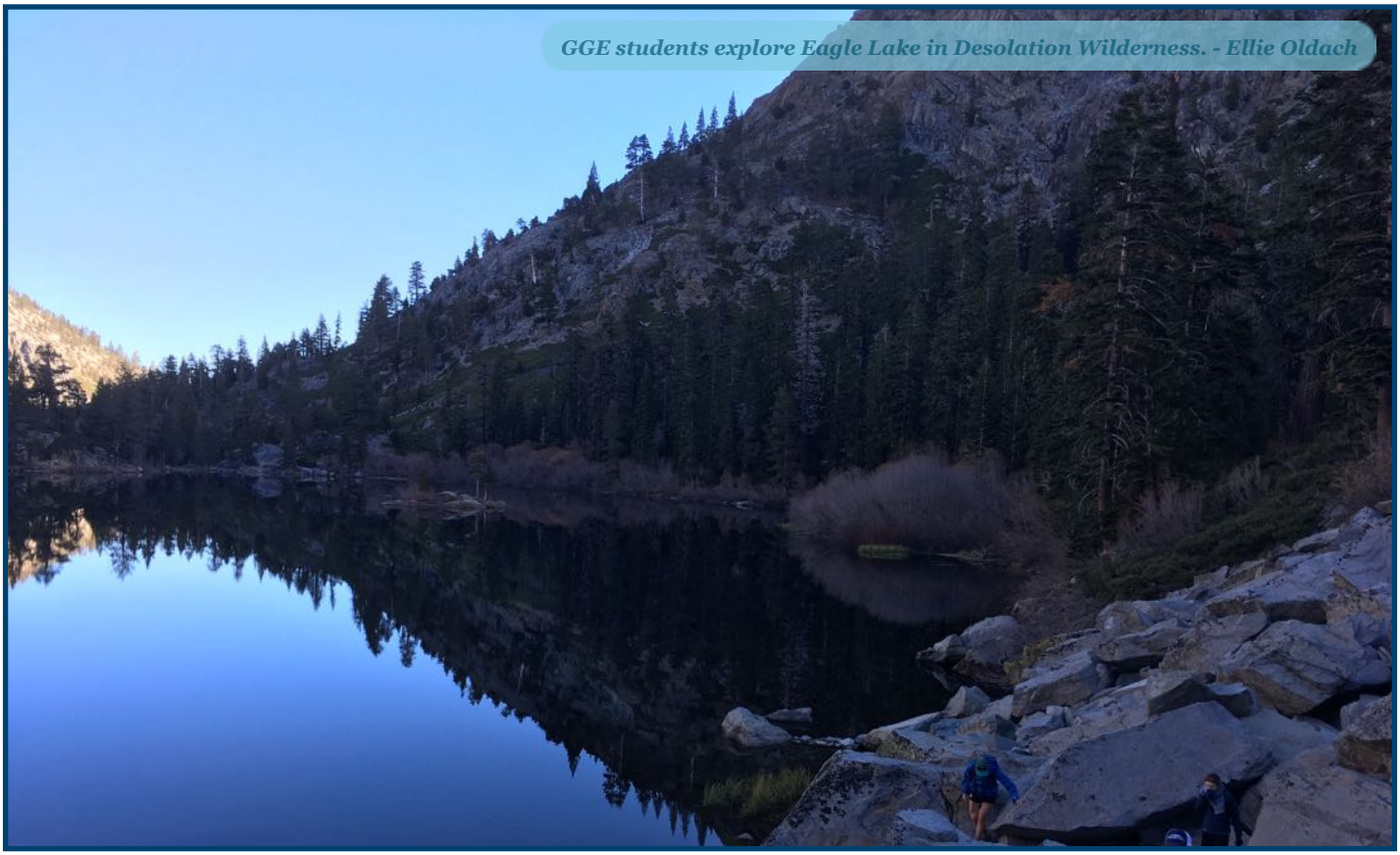
The GGE has also received additional funds through faculty donations to support the Odyssey. The Odyssey is a wonderful experience for students to learn about everything that the GGE has to offer and get to know their peers, with whom they will be taking classes and collaborating during their time here. These donations are greatly appreciated and we hope that this generosity will continue!

Quantitative Training

Last year, Helen Killeen, Jessica Rudnick, and Aviva Rossi conducted a survey to assess student perceptions of the quantitative training available to them within the GGE. Following this survey, they recommended (1) continued financial and administrative support for R-DAVIS, (2) development of recommendations for quantitative course sequences, and (3) establishment of an additional core course, covering current deficits in ecological quantitative training needs of GGE students. Please see the Brickyard's Spring 2019 volume for a complete overview of the survey results.

The EC has voted to continue to support R-DAVIS every year and to include this course as standard training for students.

We welcome any questions or comments about this year's efforts for the executive committee! You can reach us at hjkilleen@ucdavis.edu (Helen Killeen) and karasovolson@ucdavis.edu (Aviv Karasov-Olson).



GGE students explore Eagle Lake in Desolation Wilderness. - Ellie Oldach

A view from the hike up White Mountain during the Odyssey. - Emily Purvis

Ken and Martha Zillig got married August 24th and lots of GGE folks (and other grad groups) came to celebrate! #Grad-school-friends-are-the-best-friends - courtesy of Martha Zillig

Society for Conservation Biology

Ann Holmes

The Davis Chapter of the Society for Conservation Biology (SCB-D) is a student-run organization that assists student and early career conservationists in exploring and developing professional skills in the field of conservation biology. Our student-led initiatives run through our six committees: Education & Outreach, Policy, Social, Stewardship, and Sustainability. Committees meet as needed to support their projects. We have openings for new co-chairs in all committees except for Stewardship. The Chapter holds a Membership Meeting and special event once each quarter as well as social hours and field trips throughout the year.

On October 23rd, SCB-D brought together 40 undergraduates and 20 graduate students for our Fall Membership Meeting and Conservation Mentoring event. A short presentation introduced the benefits of mentoring relationships for both mentees and mentors. We followed with small group discussions centering on topics of interest within the field of conservation. Graduate students answered questions about how to get involved in research, fieldwork and policy, what to look for in a graduate program and how to apply, and job opportunities in conservation. Students across several departments and graduate groups had a great time getting to know each other and networking.

On November 6th, SCB-D Policy Committee Chair Emilie Graves hosted "Writing Effective Public Comments," a workshop where undergraduate and graduate students learned about engaging with the federal policy process through the Federal Register and discussed strategies for leveraging scientific information into public comments. The Policy Committee will be working on submitting a public comment on the Tongass Roadless Rule proposal, which would open the area up for logging. Tongass National Forest is one of the world's last intact temperate rainforests, a key resource in fighting climate change. The area is culturally important for Indigenous people and species like salmon are important as food for locals. Government agencies are required to consider public comments in actions such as this, and we invite you to join us in submitting an informed comment on this proposed change.

SCB-D's 3rd Annual "Beer and Art" fundraiser on Nov. 14. The fundraiser brought together conservation-minded folks for beer by Dunloe Brewing and art created by fellow UC Davis students. - Ann Holmes

The nest box interns measure baby bluebirds' wings each week to estimate their age. - Alison Ke

SCB-D held its third annual Fundraiser and Art Auction at Dunloe Brewing on November 14th. UC Davis students and faculty donated 36 amazing works of art for the event. Proceeds will fund our Non-Academic Conservation Career Panel coming in Spring 2020 and other SCB-D activities that support student involvement in conservation science.

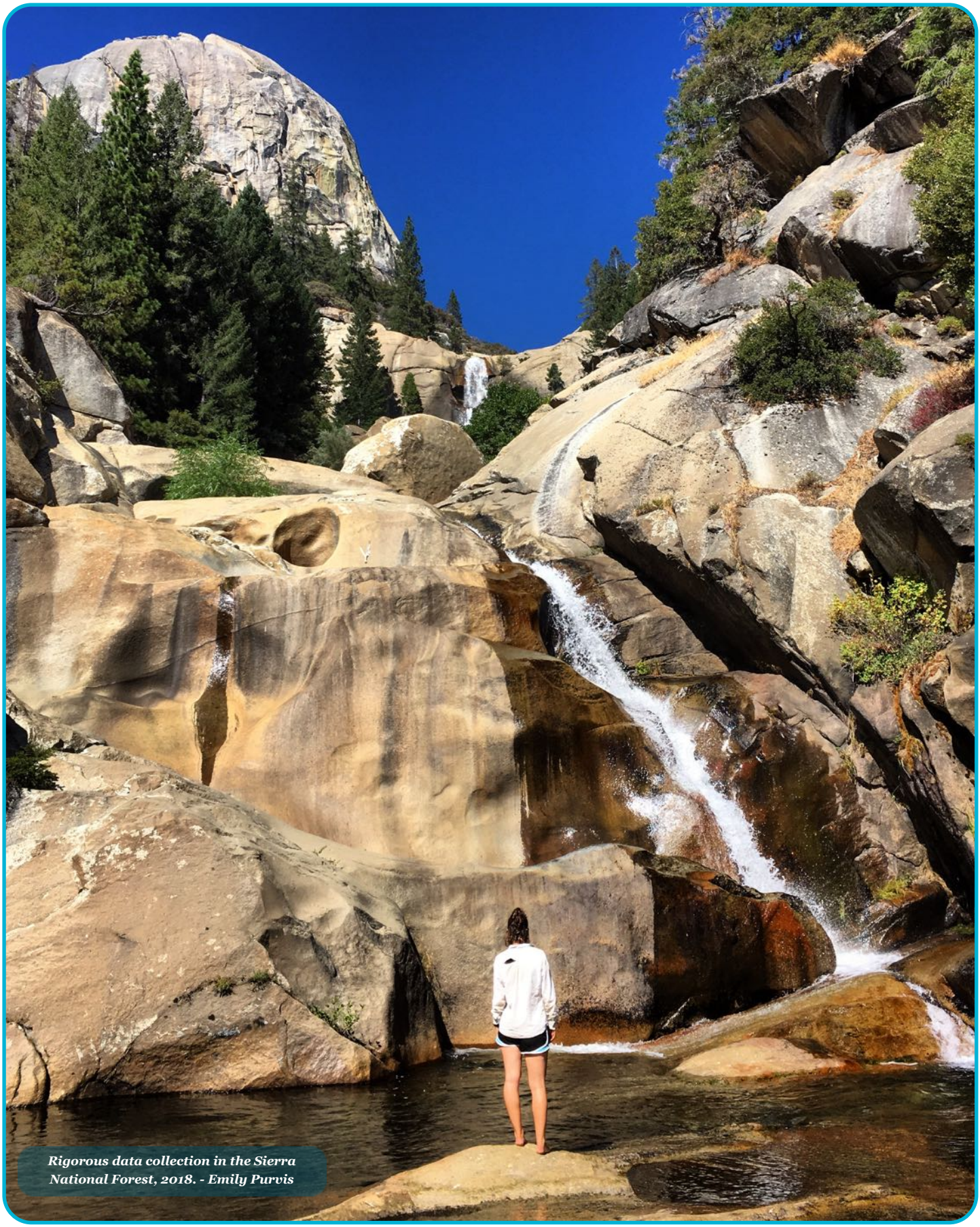
The Davis Nestbox Network coordinated by SCB-D Stewardship Committee Co-chair Alison Ke was successfully deployed through the end of the nesting season in July 2019. Details on the project's accomplishments are in the accompanying images. The Stewardship Committee also renewed SCB-D's partnership with Yolo Audubon for bird phenology surveys at Bobcat Ranch in Winters. Bobcat Ranch is a conservation property that promotes regenerative and restorative land management practices.

The Education & Outreach Committee is working on our "Diverse Voices for Biodiversity" video media initiative which showcases UC Davis researchers. The committee seeks new members to help develop finished videos from existing interviews and footage.

The Sustainability Committee is currently writing a sustainability manual for UC Davis. This will entail locally-tailored practices and resources featuring places such as the Davis Farmers Market and Yolo Bypass. We are currently working on manual design and would love additional contributors for this resource.

Our next Membership Meeting will be in early 2020. Please see our website (https://davisscb.wixsite.com/scbdavis) for committee chair contact information or to join the SCB-D listserv. We can also be found on Twitter @SCB_Davis and on Facebook https://www.facebook.com/davis.scb/. Contact SCBDavis@gmail.com with any questions.

Tree swallows are one of the species that use the nestboxes. - Alison Ke



Rigorous data collection in the Sierra National Forest, 2018. - Emily Purvis

Student Q & A

The following Q & A is from Mandy Frazier, a first-year Ph.D. student who is studying the effects of rising atmospheric CO_2 and temperature on Antarctic fishes. This fall quarter she has been living at McMurdo Station and diving under the ice to collect fish. Below are her responses to questions about her experiences.

M. Frazier - self portrait

Q: What has been the biggest challenge you have encountered while conducting research in Antarctica and how do you deal with it?

I think the biggest challenge for most of the scientists down here is being away from your life back home. We all have friends, families, pets, etc. back home that we have to leave for extended periods of time, which is hard on us as well as the loved ones at home. The internet here is really restricted, so the technology that makes distance a little bit easier (like video chatting) isn't an option for us. McMurdo is known for its community, though, and it's easy to make ice-friends here.

Q: How was your experience with the process of certifications, preparations, etc. for diving under the ice?

I had quite a lot of diving preparations to do before coming here and I probably spent every other weekend in 2019 diving to make sure I had my scientific certification, enough deep dives, and enough dry suit dives to qualify me for the NSF requirements. Thankfully our [Dive Safety Officer] at Davis (shout-out to Jason!) is fantastic and helped me make sure that I was able to get everything done. I would say that the most challenging part of the training was getting comfortable with the crazy dry gloves that we wear because it's pretty frustrating to try and do science underwater when you've lost almost all of your dexterity.

Mandy Frazier and Rob Robbins collecting juvenile fish from the anchor ice, Arrival Heights, Antarctica. - Steve Rupp

STUDENT Q&A

Mandy Frazier under the sea ice in Arrival Heights, Antarctica. The down line, at right, marks the dive hole. - Steve Rupp

Q: Diving under the polar ice cap with a mere inch of material between you and the icy water obviously seems risky. How do you mentally prepare for a dive and what thoughts go through your head while you're down there?

Jumping through the hole was definitely scary the first time I did it, but you get comfortable with it pretty quickly and my mental preparation doesn't feel much different from any other dive. If there is a seal hanging out in the hole when we get there, though, it definitely gives a good reminder that your only way out is through the hole that you came through and that there is always the potential for a seal to be occupying your hole when you are ready to come up. The seals that we have in McMurdo aren't aggressive to humans, but they do defend their breathing holes from each other so I would have to be pretty desperate before I surfaced in a hole occupied by a seal. Thankfully the visibility here is pretty incredible (we're talking hundreds of feet of visibility), so you'd have to really not be paying attention to lose the hole. As I swim around I'm always in awe at how beautiful it is and how insane it is that I'm somehow lucky enough to be diving here.

Q: Have you seen climate change's effects firsthand and what are your worries for the future of your study system/the Antarctic at large?

I've only been down here in 2018 and 2019, so I can't really say that I've witnessed any changes first hand. However, this season we have had much thinner ice than usual (it's about 4 feet this season, compared to 6 – 8 feet for a normal season). The sea ice really seems to be an integral part of the ecosystem, so I would expect that thinner ice or changes in when the ice forms or breaks out could definitely affect the ecosystem. For example, Weddell seals come into the McMurdo area to pup at this time of year, because the sea ice blocks leopard seals and killer whales from coming into the area. If the sea ice wasn't here, I really don't know where the Weddell seals would go to safely pup.

Q: What is your favorite part about diving in Antarctica?

My favorite part about diving in Antarctica is looking at the ice structures underwater. When you're standing on top of the sea ice, it just looks like a flat surface. But underwater it has all of this amazing structure that is always changing and growing. On the underside of the sea ice, there are these long brinicles that grow downwards towards the bottom and can even form ice caves in the shallower areas. There are certain spots where you're really surrounded by ice, and it just feels like you're on another planet. It's a very surreal environment to be in!

The Aggie Brickyard

White-lined sphinx moth (Hyles lineata) perched on a Jeffrey pine (Pinus jeffreyi) at Indiana Summit in the Eastern Sierras. - Paige Kouba

Want to get involved? Comments, Corrections, or Concerns?

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