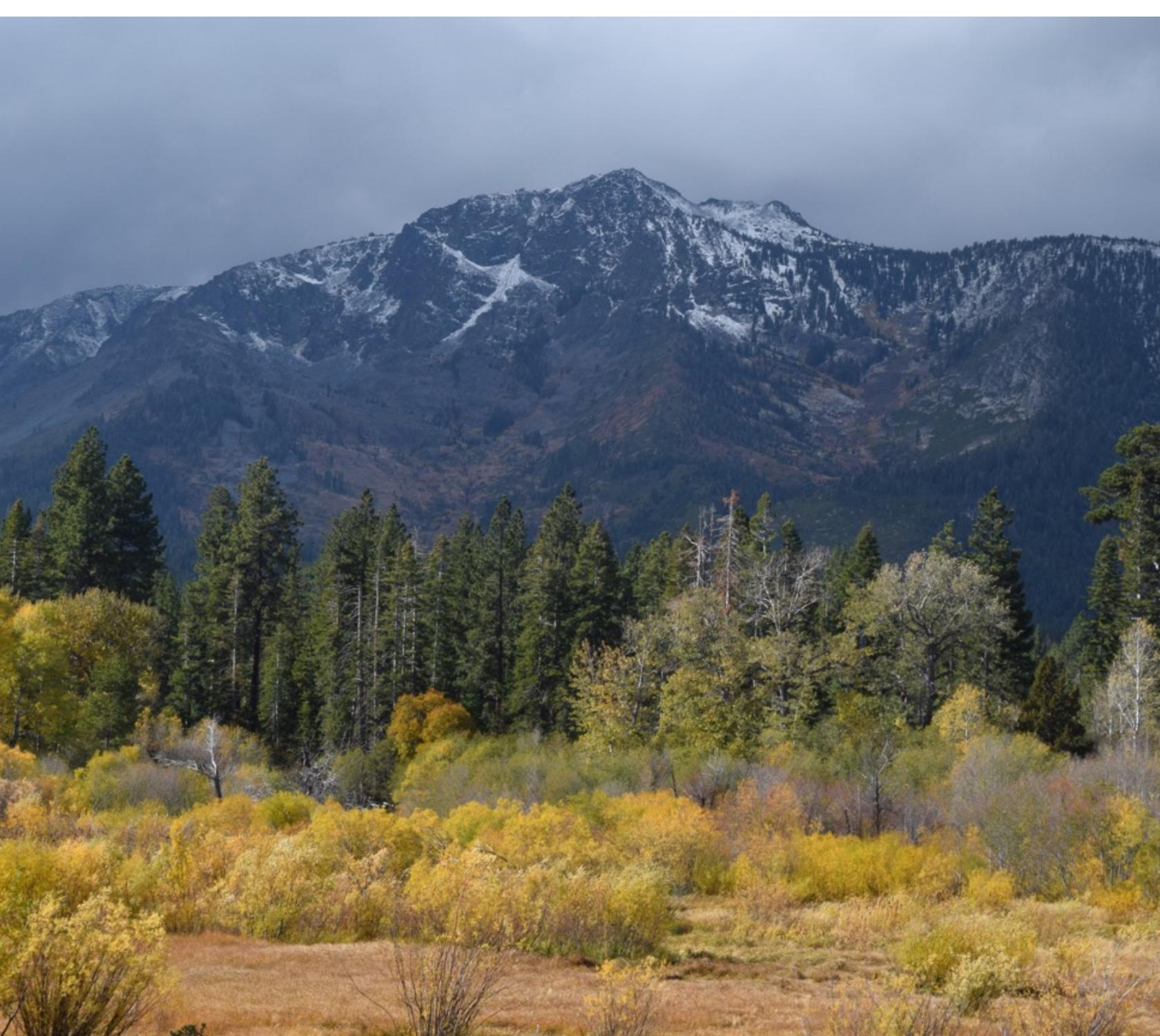


THE AGGIE BRICKYARD



assembling the blocks of ecology at UC Davis



Editorials

DIVERSITY AND
GENDER IN SCIENCE



FROM THE FIELD
AMPHIBIANS, LIONS,
AND FOXES



STUDENT
PERSPECTIVES
GENDER EQUITY



COMMUNITY
WOMEN IN SCIENCE &
DIVERSITY

EQUITY OR EQUALITY?



- ◆ COVER: Mt. Tallac with fall foliage, South Lake Tahoe - **Annelise Del Rio**



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LETTER FROM THE EDITORS

“All my life I have placed great store in civility and good manners, practices I find scarce among the often hard-edged, badly socialized scientists with whom I associate. Tone of voice means a great deal to me in the course of debate. I despise the arrogance and doting self-regard so frequently found among the very bright.”

— Edward O. Wilson, Naturalist

The decision to start the Aggie Brickyard was born out of a desire to create a forum for having hard conversations; a place where faculty and students could both push each other to hone ideas and support each other in times of confusion or strife. We made the decision to focus this quarter's issue on the ongoing conversation about diversity within the GGE (and ecology more broadly) months ago in hopes that we might meet these goals and those set out by E.O. Wilson in the quote above. The results of the recent elections make this discussion more imperative today. As Editors, we feel it is critical to ask questions like “What do we mean when we say we want diversity?”, “How does the graduate group or ecology as a discipline benefit from the pursuit of diversity?”, and “What strategies actually have proven effective in the pursuit of diversity?” As humans, we think it is equally critical to ask these questions with a tone of openness and respect, one that welcomes others' points of view, especially when they differ from our own.

As ecologists, we have spent a great amount of energy working to understand what diversity means in the ecosystems we study. We understand the idea that species exist within niches and that overcrowding of niches often results in competition and mortality. We also understand that the strength of this competition and the number of niches available is often governed by the resources available to the individuals trying to occupy them. We even recognize that there is a fundamental difference between species richness and diversity when characterizing the communities in the ecosystems we study. Do we recognize this when we consider the graduate group ecosystem or that of our discipline(s)? Do we understand what resources constrain the niches available for new individuals or how to add resources to create new niches? Are we confusing richness and diversity in our efforts to meet various targets and benchmarks? These questions are not simple, but asking them is critical if we are truly interested in defining and achieving success.

(continued next page)



LETTER FROM THE EDITORS

As scientists, we understand the value of questions, particularly those that cause us to re-examine our fundamental assumptions. We do not, as E.O. Wilson points out, often appreciate the importance of tone and civility when asking those questions. Now, in an era where antagonism and discrimination feel increasingly normalized, we must find this nexus between hard questions and civility. This does not mean we will always get it right, but we must try. We must be leaders—not just in advancing our understanding of complex systems, but in demonstrating tolerance and compassion for competing views. This is at the heart of the UC Davis Principles of Community and a core value for us at The Brickyard. In this issue, we have assembled the reflections of our peers on the election outcomes and their impact, what diversity might mean to us, the role of diversity in committees and seminar series, tools for recognizing and responding to harassment, and even some thoughts on ecologists in popular culture. We hope that the pieces in this issue find that balance between rigor and compassion and serve as a touchstone for how we as a community approach these issues going forward. The road will not be easy, and many of the conversations will be uncomfortable. The key is to work through that discomfort. We are proud to provide one venue for doing that work. As always, we welcome your thoughts and appreciate your willingness to join us in this conversation.

Sincerely,

Your Aggie Brickyard Editors

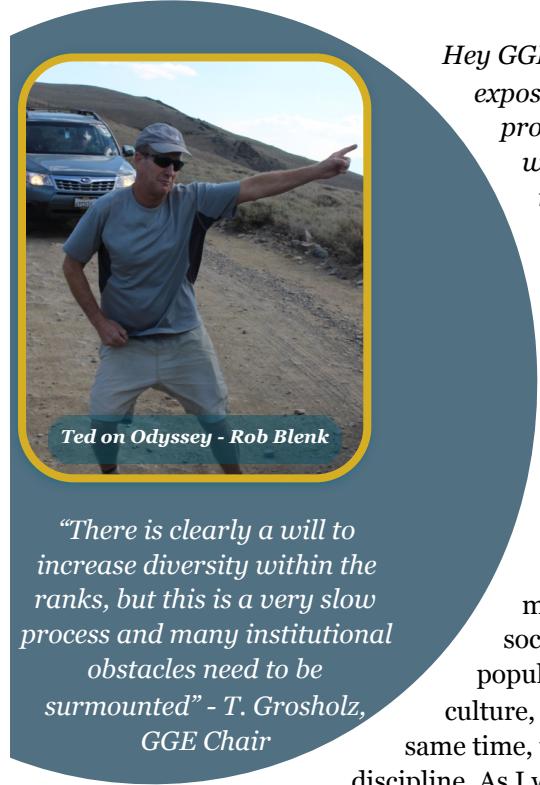


Why The Aggie Brickyard?

Bernard Forscher invokes the brickyard metaphor in his classic essay "**Chaos in the Brickyard**" (Science, 1963, Vol. 142, No. 3590, p339) to illustrate the dangers of becoming focused simply on producing bricks rather than on building edifices. As graduate students, we are trained to become specialized in whatever narrow area of expertise we have chosen for ourselves. We continue to discover new facts and, in the process, become excellent brickmakers. Yet, to truly understand the complexity of ecological systems, we must do more than produce facts—we must integrate them into a structure. In a graduate group that includes soil chemists, shark biologists, resource economists, social scientists, and everything in between, there is little doubt that we can produce some of the finest bricks. Our challenge remains to create buildings that are both more beautiful and durable than the sum of the bricks on which they rest.

CHAIR-ISHED REFLECTIONS

A Ted-itorial



Hey GGE faithful. As the holidays beckon, I thought I would once again expose a few of my idiosyncratic thoughts on some really important problems facing the GGE with respect to increasing diversity both within the GGE and beyond. As before, these thoughts represent my own perceptions about the GGE and do not represent the broader view points of the group. Not only is there an obvious need and a clear internal motivation to increase diversity in the GGE, but this is also a top priority listed in the GGE Program Review (2015) recommendations.

What is your philosophy on diversity with the discipline? What do you see being done to encourage diversity and what roadblocks remain?

It is clear from any number of observations of faculty membership in ecology departments, participants at professional society meetings like ESA, the demographics of graduate student populations, etc., that diversity (broadly defined to include race, culture, gender, socio-economic background, ...) is far too low. At the same time, there are many obstacles to increasing diversity in ecology as a discipline. As I will argue here and below, I believe a large part of this is the absence of diversity in the pipeline applying to programs like the GGE. There are reasons why this may be the case, and I will mention a few that I think are both important and surmountable. One is the failure to involve underrepresented students in research opportunities at the undergrad level, so students don't know who to contact during the admissions process and also may lack the kind of research background mentors would like to see. A second is the failure to communicate the potential opportunities for jobs in ecology – not just academic positions, but more broadly with federal and state resource agencies, NGOs, consulting firms, etc. These obstacles are often compounded by the inability of underrepresented students to pursue summer research opportunities (even at low or no cost), and frequent family pressures to pursue higher paying careers, especially for those who are the first in the family to go to college. We as a discipline need to focus more on how we can lower the height of these obstacles and better communicate what the opportunities are for future ecologists.

How is the GGE specifically working to increase diversity? Are there big changes in the works?

Our efforts to increase diversity are focused on two fronts at the moment. The first front is to increase and retain a diverse group of incoming graduate students in the GGE. We are working hard, in particular via the efforts spearheaded by Matt Malepeai, to realize greater diversity in our incoming graduate student cohorts. This includes training modules for faculty and student members of the admissions committee, which are being put together by Matt and Emilio Laca. This also includes communicating resources available for underrepresented students such as the Graduate Students of Color Mentor Program and our own GGE mentoring program. The second front is to increase the numbers of underrepresented groups in the pipeline applying to the GGE graduate program. I personally feel this is where we need to make the biggest strides. We

CHAIR-ISHED REFLECTIONS

We are in the process of developing programs with partners at SFSU, CSU Fullerton and SDSU to provide opportunities for undergraduates from underrepresented groups to discuss possible summer or postgraduate research opportunities with GGE faculty who might be future graduate mentors. Furthermore, with the support of the GGE Diversity Committee, Matt and five GGE students successfully held the first graduate student forum for students of the Environmental Science and Management Major. This and similar future events will expand the applicant pipeline by informing students who would not have access to information about graduate school opportunities in ecology. We will also be applying for funding through the UC Office of the President (March 2017) to help support student applicants from Historically Black Colleges and Universities (HBUCs). Finally, we will also be applying for a site REU program through NSF (August 2017) that would bring a diverse pool of undergraduates to UCD for summer research experiences with GGE faculty who could be future mentors. At the faculty level, the GGE specifically has little authority to help increase diversity in faculty hiring decisions, but we continue to support efforts to diversify our faculty. We can and do make every effort to encourage broad participation and increase the diversity of membership in the GGE.

Given the current political climate, what roles do you see for the graduate group, the university, and academia as a whole for encouraging diversity?

According to the new Prez-elect, there is no global warming: “The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.” Unfortunately, this attitude is likely to apply to the political climate as well at the federal level. I think it is unlikely that we will see any new leadership with respect to increasing diversity or increasing participation of underrepresented groups anywhere at the federal level. Luckily we live in the progressive state of California, with a supportive state government and a generally forward-thinking university administration. However, with all that said, I think we can make the most progress immediately at the lower levels like the university and within the UC Office of Graduate Studies and we hope to push ahead with this. Certainly university departments can succeed with increasing diversity, as shown by the UCD Law School, which is now “majority-minority” and among the most diverse law schools in the country (47% female, 56% minority). I think with considerable effort we could achieve at least some of the success the law school has experienced within departments like DESP, EVE, LAWR, WFCB, Plant Sciences and others that contribute faculty significantly to the GGE. Within academia generally and the field of ecology specifically, there is clearly a will to increase diversity within the ranks, but this is a very slow process and many institutional obstacles need to be surmounted. The same issue regarding the pipeline stated above needs to be addressed to increase the diversity of professional ecologists produced by nationally ranked graduate programs. A great deal more is needed to increase participation of underrepresented groups, including a substantive family leave policy, more proactive hire policies for academic spouses (60% of academic women have an academic spouse), and greater transparency in the recruiting process. The hope is that leadership at some of these higher levels will help to create a background for increasing diversity within the more modest ranks of the GGE.

Dr. Ted Grosholz



FACULTY Q & A

Post-Election Thoughts

Fran Moore

Did you reach out to your students regarding the election results? Why or why not?

I did not reach out to my students about the election results in general, though we did discuss the implications for climate policy in the class following the election. I teach environmental policy analysis, which unfortunately has become a partisan issue. Rather than simply reflect that, I am trying to resist it and to give students space to think about the environment in a non-partisan way.

How do you see the election affecting you, your research, and your students?

There is no doubt that this election will see a major change in direction for climate policy. Since so much action on climate change in the last 8 years has happened through executive authority, it is an issue where, perhaps more than any other, the presidential election has the power to immediately halt and in some cases reverse the work undertaken by President Obama.

In terms of research, it seems likely that the change in administration will alter funding priorities at the federal level. During the Bush administration, agencies were explicitly or implicitly discouraged from funding research related to climate change. Something similar seems probable under a Trump administration. However, there are also a range of fascinating new research questions raised, particularly around the ability of state and local actors to undertake climate action without the support of the federal government. The question of what happens internationally is also fascinating: if the US stops supporting the Paris Agreement, will China be able and willing to take its place as the global leader on climate change? Finally, I believe the work I do on trying to understand how people and communities can adapt to climate change will, unfortunately, be more relevant than ever.

What advice might you give to graduate students that will be emerging as professionals during a very strange (and potentially anti-science) political time?

I think the climate science community has learned a lot over the last few decades about communicating with integrity and authority to diverse groups. It is important to separate the areas in which you speak with special authority (scientific facts) from those where you don't (value-based questions where every person can legitimately have a different view). I can tell you as a scientist what will happen if we don't reduce emissions, but I can not tell you what we should do about climate change because that question depends on how society values a complex set of impacts, including those that happen in the future or to people in other countries. I may have an opinion as a citizen, but that opinion should not carry more weight than anyone else's.

I think this distinction between facts and values has been blurred consistently by people on both the right and the left. This is a major contributor to the so-called "politicization" of science and I would urge students to carefully police this boundary in their own thinking and writing.



F. Moore - UC Davis

FACULTY Q & A

Post-Election Thoughts

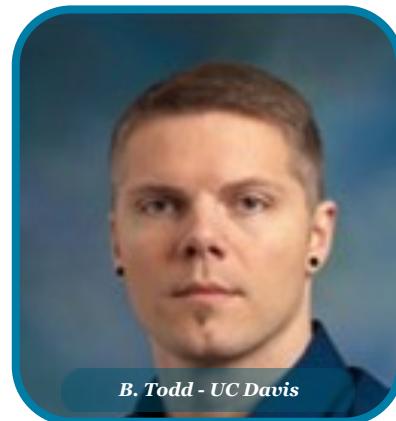
Brian Todd

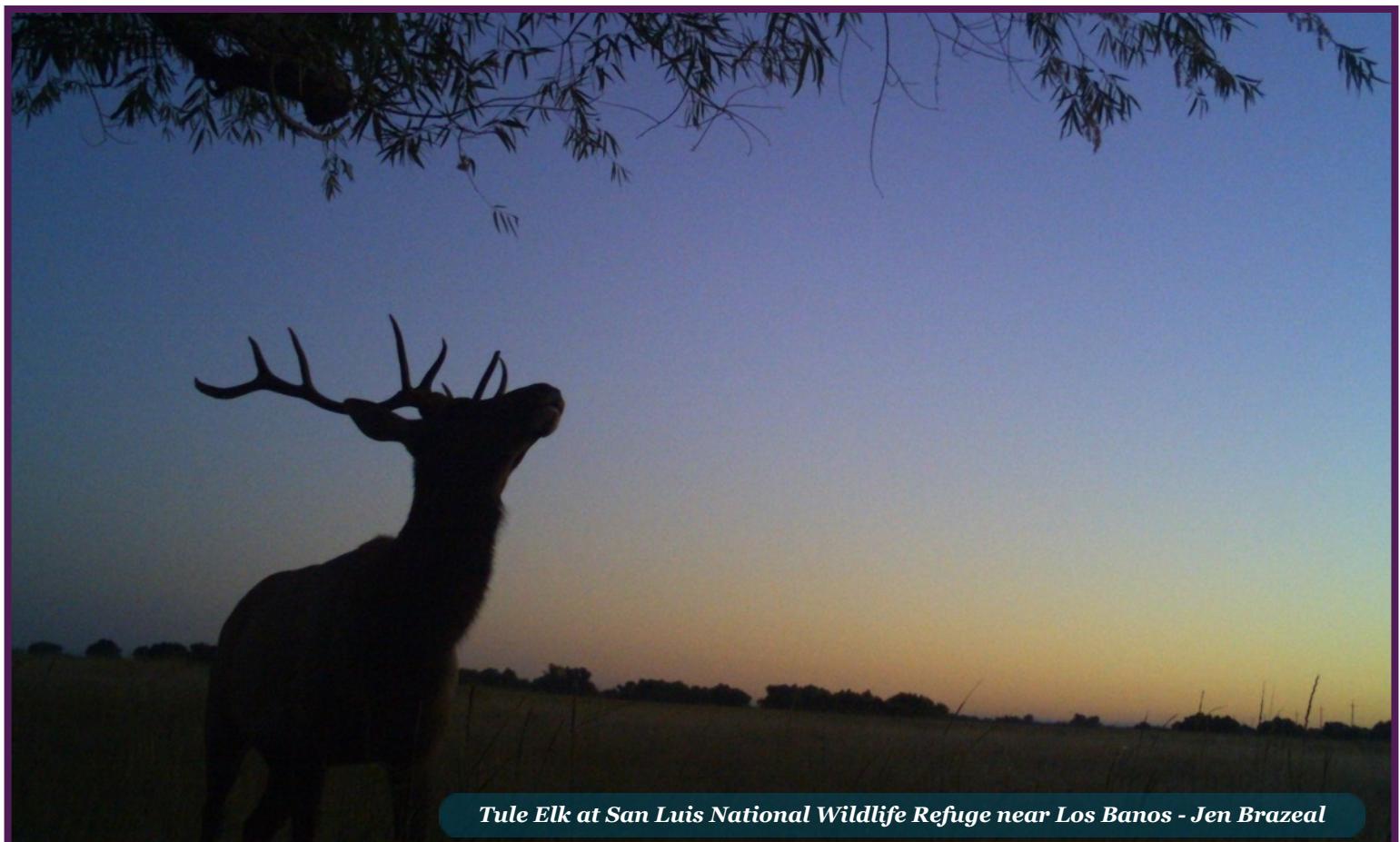
Like many of us, I woke up a bit bleary-eyed the morning after the election trying to process what the results meant. Overnight I received several emails from concerned students in my upper division Conservation Biology course. For context, I had (stupidly or naively) scheduled an exam for the day after the election. Their emails focused on a proximate concern — how could anyone possibly study for, or concentrate on, an exam given the events of the past 24 hours? But hidden in their emails was a much larger ultimate concern — what good is knowing this stuff when our society seems not to value it?

Conservation biology as a discipline is dark enough. It is challenging to walk the line between well-placed, defensible alarmism and a sense of optimism at our collective scientific abilities, accomplishments, and societal willpower. I've noticed when I teach conservation biology that students appreciate the sense of empowerment that comes from seeing the successful ways in which the tools they are learning about have been implemented. Who, after all, doesn't want to know their pursuits are worthwhile? My [letter](#), prompted in part after seeing one from an east-coast colleague who woke 3 hours ahead of us, was meant to reassure my students of the importance of what we do and of the value of the contributions we can and will all need to make going forward. It also included an homage to an important conservation biology principle — that human presence must be included in conservation — by reaffirming that an inclusive and equitable society will make greater strides in our field. This last bit was especially important to me given that the rhetoric of the victorious presidential campaign has left many in this country feeling marginalized and vulnerable.

Going forward, I share many of the same concerns that colleagues around the country are expressing. There is now a collective worry that the already challenging funding climate for science will erode even more quickly and dramatically. My guess is that some of the applied sciences may fare a bit better in this regard because much of our work directly addresses environmental challenges that are unlikely to disappear on their own. Colleagues who do less applied work may struggle more, especially those who work in areas ideologically challenging to a new presidential administration that is hostile to facts like climate change or evolution. Mostly, I worry for the many talented graduate students who may have a difficult time finding traditional job opportunities in labs previously funded by national science programs or in federal agencies, given the expected fiscal approach of the new administration.

I would encourage graduate students to prepare themselves for this new future in a few ways. First, broaden your expectations career-wise and diversify your experiences in preparation. There has been a real growth of private sector and less traditional jobs in the past decade, even in fields like ecology. Recent GGE students have taken highly esteemed positions at science consortiums, for example, and important policy and science "think tanks" are also becoming more common. Don't box yourself in early by thinking there is only one measure of success and only one career path for you. Second, be involved and communicate science. It will be increasingly important to reach across this divided electorate to find common ground and to be an approachable, productive example of who scientists are and what we do. Our communities need us, and if they don't know it, that too can be addressed. What they do not need is us fleeing to silos to "wait it out." Third, stay optimistic. Optimism won't pay the bills, but it might remind you that with challenges come opportunities; seizing opportunities is where real gains can be made in life. Finally, if all else fails, there's whiskey.





Tule Elk at San Luis National Wildlife Refuge near Los Banos - Jen Brazeal



Fallen Leaf Lake, South Lake Tahoe - Annelise Del Rio

A Survey on Gender Representation in the Academy, a Focus on Graduate Committee Selection in the GGE

Survey by John Mola and Jenny Van Wyk, edited by Jenny Van Wyk, John Mola, and Madeline Gottlieb

The inspiration for this article stemmed from several conversations amongst ourselves and other GGE students. We wondered whether or not it was important to strive for gender diversity in our exam and dissertation committees. Would it improve the quality of a students' work? Is gender a factor in committee design? What are the positive and negative ramifications of choosing a particular person for the sake of diversity on a committee (i.e. are we choosing a "token" member)? And are differences in perspectives on this issue among the students and faculty dependent on the gender of the individual?

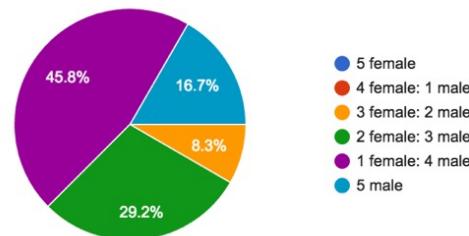
We created this survey with a very specific set of ideas and questions around gender representation in the academy. The intent was to see if students and faculty feel that it is a reasonable choice to purposefully select someone for their gender or other minority representation to serve on an exam committee

- Is it undue burden to select these faculty for a task that may not be the best way to increase diversity in Ecology?
- Is this a case of students wanting to see more diversity in their own ecological research sphere and this is the only way that many have any agency to do so?

Our aim in the survey was to generate feedback without putting our own editorial spin on the questions before soliciting unbiased feedback. Unfortunately, this resulted in a partially vague and sometimes misunderstood survey. We'd like to thank everyone for taking the time to respond and for providing critical feedback.

On revealing the gender of the quoted respondents: we were split on this decision, and so our compromise is to point out that one could discover the gender of the quoted-person by going online to the individual responses. As Jenny summarizes, "*I'd personally like to have a voice on gender without having my gender be a part of that voice.*"

So, what did we find? The results of the survey and some selected answers are shown below. The following quotes may be shortened for brevity sake. For the full results of the survey, visit us at aggiebrickyard.github.io.



QE Committee Gender Split: Committees are predominantly male-dominated (likely a result of the gender split in our faculty).

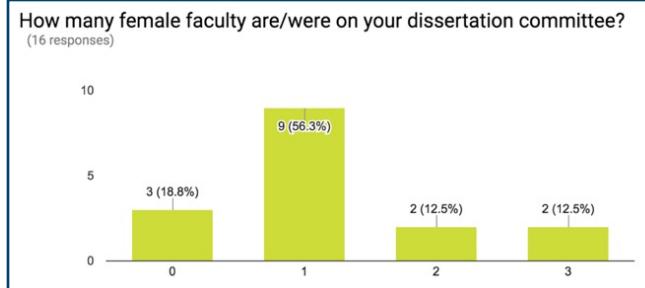
"This survey is hella binary" (student)

We agree and we apologize that we only presented the common, binary (male/female) options when considering gender representation in committees. There was conscious focus on inclusivity when asking all respondents to self-identify, but unfortunately we missed the boat in considering the ways to be more inclusive when asking students to report gender of committee members. Our goal was to ask whether women are or are perceived to be overrepresented on QE committees relative to the ratio of male/female/other faculty on campus. We believe this survey gives us an important first look into the representation of female faculty on committees.

One faculty quote directly addresses concerns we had when considering this topic. We've copied it here because we think it is of the utmost importance in this conversation. We'd like to point out that our intention in this survey was never to suggest an administrative policy, quota, or mandate that committees should have a "gender minimum." Rather, we knew this was a consideration for at least some students, and we wanted to survey the students and faculty to hear peoples' perspectives and relay them to the GGE community.

"For faculty of color and for women in field with a minority of women, representation on committees at every level, from admin to student committees, is constantly sought. This greatly increases the service load for these people and hinders their research progress. So, before we go requiring that every committee have a woman or person of color, please think of what you are doing to those faculty !!! Yes, I believe they have valuable perspectives, but no, I don't think it is a good idea that we require such representation, at least not until there are roughly equal numbers of women and people of color on the faculty as others. We are hindering their success in already more difficult conditions." – faculty

Students' gender responses were fairly representative of the makeup of the student body, but faculty had a much higher female response rate. Almost 50% of the responses were from women yet they represent only ~30% of the faculty. This seems relevant in that the female faculty (who we've noted may already be overburdened) thought it was important to spend the time to respond to this topic.

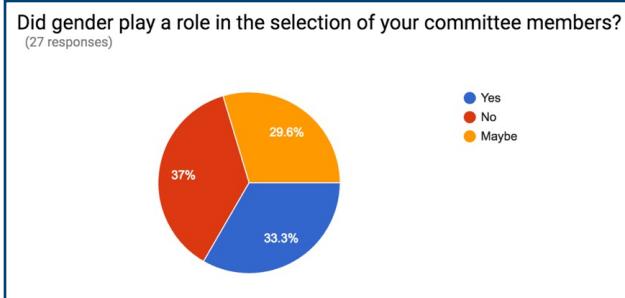


Our main takeaway: Many believed that diversity on committees would be enlightening or comforting for individual students, but few believed it could be a vehicle for further gender representation in ecology:

Almost 50% of the responses were from women yet they represent only ~30% of the faculty.

"I personally chose to have women on both my QE and Dissertation committees because I wanted to have folks who had expertise on my subject of study, who also shared my life experience as a woman in STEM. As to the question of if this level of representation helps with the broader issue of the gender gap at the professor level of academic ecological pursuits, I'm not so sure." – student

"The prospect of a room full of men for my qualifying exam was my worst nightmare so I chose a female professor for the quantitative section. Having a woman in the room was 90% of the reason she was on my committee and I still feel strange about that." – student



Gender occasionally plays a role in students' selection of committee members.

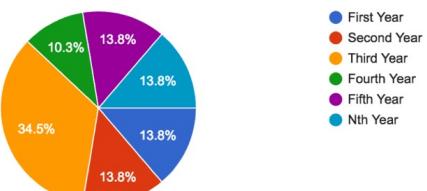
A Survey On Gender Representation In The Academy (*continued*)

"I agree that some individuals may feel more comfortable interacting with a faculty member of their own gender—for whatever reason. Fine; that's between the individuals concerned." – faculty

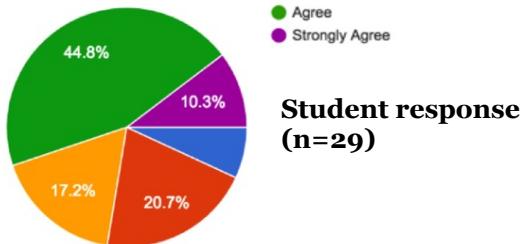
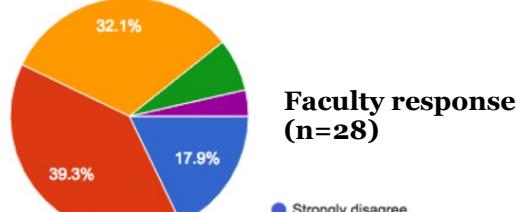
"I can see how for a female student having a female dissertation committee member might be helpful as this individual may become a mentor. ... I would advise a student to select an exam committee based on the expertise of faculty and the student's prior relationship with them. Perhaps a female student would feel more comfortable having female examiners, however." - faculty

The third-year cohort really likes to answer surveys: thanks for taking the time to procrastinate on preparing for quals! While you are all in the thick of committee selection, we hope that you are having productive and critical conversations about the

What cohort are you? (29 responses)



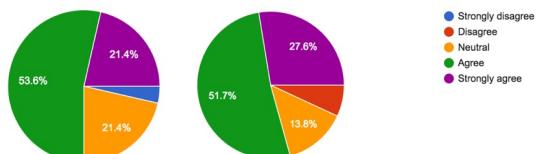
***"I believe it is important for exam/guidance committees to have equal gender representation"*¹**



Students felt equal or proportional gender representation was important, faculty did not. However, all agreed gender could serve as a "tie breaker" between equally qualified candidates.

¹ Many people thought this question was poorly worded and that we should have said "proportional gender representation" not necessarily equal representation. However, we feel people for the most part answered to the intention of the question. Some individuals stated they selected "Neutral" since they knew splitting a 5 member committee equally is... not possible.

Faculty (n=28) Students (n=29)



Despite that difference, both students and faculty thought **"Gender can be a relevant consideration in a choice between two equally qualified committee members."**

RESEARCH SPOTLIGHT



Reintroducing the Native Red Fox to the Sacramento Valley

Sophie Preckler-Quisquater

 Field research often comes with a wide range of emotions as we push ourselves day after day to explore, collect, track, map, and measure the world around us. I'm sure we all have exhaustive lists of frustrating, silly or downright frightening moments – from getting work trucks stuck in the mud, to forgetting to turn on a \$500 transmitter before deploying it on an animal, to stumbling unsuspectingly on an active marijuana grow site [while singing loudly to Taylor Swift on your ipod]. These stories are no doubt fun to share with our peers, but it is the moments of success and triumph in our work that remind us why we chose to become research ecologists.

Since joining UC Davis' Mammalian Ecology and Conservation Unit in 2015, I have been working on a non-invasive study exploring the population dynamics of the Sacramento Valley red fox (*Vulpes vulpes patwin*), a medium-sized carnivore endemic to the northern portion of California's Central Valley.

One of the primary objectives of the study is to better understand the evolutionary and ecological relationship between these native red foxes and the non-native red foxes that were introduced to the area in the mid-1900's. A previous study concluded that the Sacramento Valley red fox tends to occur in close proximity to human development, likely as a means of refuge against coyotes. This occasionally results in wildlife conflict issues with people primarily manifesting in the form of depredation.

In early April I received an email from the Sierra Wildlife Rescue after they had recovered a litter of red fox pups in the Sacramento Valley. The adult foxes had been extirpated from the property by landowners who were less than thrilled about the rapid reduction in their free-range chicken population. The landowners agreed to allow the wildlife rescue to remove the litter of five from the den beneath their garden shed. The rescue contacted our lab at UC Davis in hopes that we could run a genetic analysis to determine whether the pups were of native or non-native ancestry and could be rehabilitated and reintroduced into the wild.

 After confirming that they were in fact native Sacramento Valley red foxes we began searching for a suitable release site. We teamed up with the US Air Force and The Wildlife Heritage Foundation, a 501(c)(3) non-profit organization that specializes in habitat restoration, conservation and ecological monitoring. Using a previously developed red fox habitat distribution model, we chose a release site within the vicinity of their initial capture that we believed would offer the pups the greatest chance of survival. In early August we released all five pups back into the wild and deployed a series of game cameras in the area, hoping to periodically capture images of the pups before they dispersed in the Fall.

We continually observed red fox activity in the area through the month of October, indicating that the release was likely a success. As ecologists working in the field it's easy to get bogged down by the trials and tribulations we often face, but it's important to remember the accomplishments too, even if they may seem small or insignificant. These successes are what drive us to answer bigger ecological questions and to tackle broader issues in our field.

Who's watching who?

Ryan Peek

I love field work. It's always an unknown journey, a chance to see something you haven't seen before, a glimmer in time worth observing with a bit of luck and a sharp eye.

Typically we (ecologists) go to study something, to collect information on or about a system, creature, or community of creatures. We are looking for something specific. In my case, I am often surveying creeks and rivers for amphibians, especially the foothill yellow-legged frog (*Rana boylii*). I'm interested in understanding how these river-breeding frogs have been impacted by changes in the historical and current landscape—viewed through the lens of genomics—such as Gold-rush era hydraulic mining and changes to natural flow regimes from dams or hydropower generation.



Near Loney Meadow - Ryan Peek

I'm usually looking for small things in or around the water, and I've gotten to see some pretty amazing and bizarre sights over the course of my field career. Even after over a decade of tramping through rivers throughout California, Oregon, and Arizona, I am still amazed and surprised. For example, I recently observed an abundance of giant toe-biters (Belostomatidae) in a small pond I was surveying. These aquatic beetles can grow to be several inches long, have a hollow needle-like mouth part which they pierce their prey with and inject an enzymatic concoction that digests the insides of their prey, and are excellent swimmers.



Near Loney Meadow - Ryan Peek

They are incredible creatures (though they do have a painful “bite”). Anyway, I happened to catch one in the act of preying on a nearly metamorphosed Pacific chorus frog tadpole, which while gruesome, was fascinating.

Similarly, while simultaneously failing to catch a frog and falling into a creek I was sampling from, I stumbled onto a mayfly hatching off the back of a banana slug. The banana slug was precariously



Indian Creek, North Yuba - Ryan Peek

balanced on a small twig over the water, making a suitable perch for the recently emerged winged insect.

But, while I am always looking and watching for small things, what might be watching me? Though we may forget what the “wild” in wild and scenic can mean, occasionally there are reminders that shake our senses and jump-start reactions deeply wired in all of us. I’m talking about mountain lions. I’ve done field work in the Sierra Nevada’s for almost fifteen years now and I’ve been fortunate to see a total of two mountain lions over thousands of field hours. Makes you wonder how many times they’ve seen you when you don’t see them. However, I had an exceptional and amazingly long encounter recently while hiking to

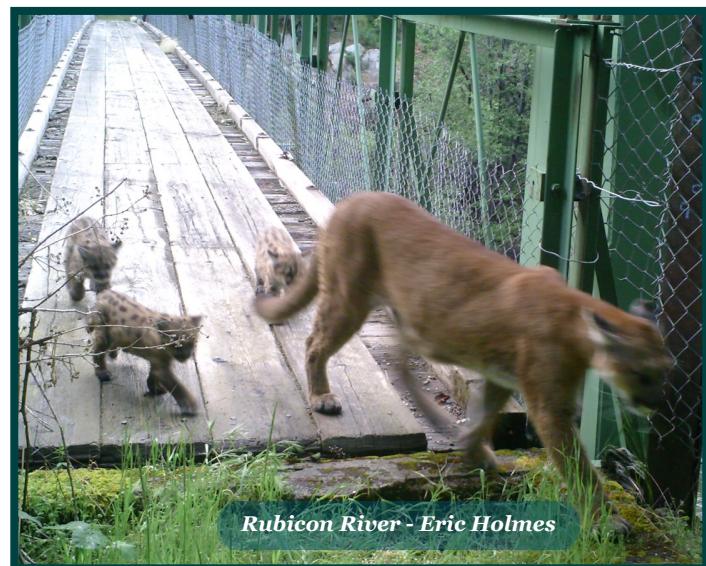
I was hiking on a trail to a small creek to collect samples for my dissertation research. A relatively recent (2013) fire burned through this area but it was largely a low-intensity burn and the vegetation has recovered quickly. My friend and I were hiking through a wooded oak forest portion along the trail as it contoured the side of the canyon. It was mid-day, hot, and there was absolutely no one around in the river or on the trail. I heard the bushes rustling ahead and figured it was a deer, as it sounded big. However, after the initial noise, I didn't hear anything. At about 10 yards (the tree in the foreground of the picture), I realized something was moving upslope slowly and quietly. It stopped, turned and looked at me, at which point I knew this was an entirely different situation than what I initially expected. I was staring at an adult mountain lion who was: a) 10 yards from me, b) completely unperturbed that I was in the trail, and c) in no hurry to go anywhere.

At that moment, I muttered a few choice words followed by "it's a mountain lion!" I mentally categorized what was immediately accessible and currently on my person (a 1.5 meter dipnet with a wooden handle, a pocket knife on a quick clip, my sunglasses, and a GPS).



Not sure what I was planning on doing if I had to defend myself with a bug net and my GPS, but it was nonetheless going through my mind. As the cat and I continued to stare at each other at a proximity I was not very comfortable with, I yelled to my friend (without looking away) to please get his arse up here because I was staring at a mountain lion (he was 30-40 yards behind me on the trail but couldn't see what was happening or where I was). He proceeded to ask if he should turn around and head the other way. Which wasn't very reassuring. He made it up to me, and as he approached the lion moved further up the hill (to the location it is in the photo), and continued to just watch us, almost curiously. We waved our arms made some noise and it slowly and nonchalantly turned and moved away.

It was amazing and I feel fortunate to have had the experience. Though the picture from my encounter isn't great, I must also include a picture a fellow researcher at the Center for Watershed Sciences (Eric Holmes) captured with his game camera at a field site we regularly survey. The picture was taken only a few hours after we had been snorkeling beneath the footbridge these cubs and adult female used to cross the river. Again, sometimes we are lucky in crossing paths with something unknown, and we can choose to learn from it, appreciate it, or fear it. I think it depends on the person and the experience. My take is don't do field work alone when possible, and be prepared and open to the unknown.





Labryinth (Brain coral), Sulawesi, Indonesia - Erin Satterthwaite



Pacific chorus frog (Bear River) - Ryan Peek



Crane/Heron - Julia Michaels



Gamble's Quail - Shannon Skalos

When We Talk of [Human] Diversity

Grace Ha

Does diversity matter?

We assume – or are afraid to contest – that diversity is a good thing. The reality is, diversity is hard. Diversity means you cannot assume the person sitting next to you shares your beliefs, values, opinions, or experiences. Diversity means potentially awkward conversations and disagreements. Diversity means you could be confronted by your biases – or confronting friends with theirs. Diversity means the opposite of homogeneity and the comfort of its bubble.

We are at a point where we have long acknowledged the lack of diversity in our communities, whether it is the Graduate Group in Ecology, ecology as a field, or academia as a whole. Much work has been done – reports on the state of diversity in our institutions, training tutorials and workshops, and various programs meant to support minority students – but progress is slow. We are still not where we could be.

A handful of individuals are doing a great deal of work to increase and support diversity within our community. For the rest of us, diversity is the outreach program, secondary (if even that) to our real work.

"Ironically, we as ecologists are in a better position than almost any other group to be moving forward on the diversity front."

We do not talk about why diversity matters, whether it matters. However, without that conversation the work we do as a community to increase diversity is well-meaning but shallow, driven in equal parts by a blind sense of justice and a desire to not look bad.

Ironically, we are ecologists, and diversity is supposed to be our jam. We and our intellectual forebears have defined it, measured it, figured out what drives it, experimented with it, fought about what the consequences the relative dearth or wealth of it entails, and perhaps most presciently, have studied what it means that so much of it is disappearing in ecosystems around the world. However, we have not given similar critical thought to human diversity, ostensibly because it is not within our realm of expertise.

Well, let us ask ourselves: does the homogeneity of our scientists affect our science? Would our work be the same, regardless of our color, creed or circumstance? Does our human diversity matter when it comes to our primary function as scientists?



Not much research is available on the effect of human diversity on the field of ecology, but we can turn to other fields to help us surmise what that relationship might look like.

In business, racial and gender diversity is associated with increased sales revenues, more customers, greater market share, and greater profitability (Herring 2009). In entertainment, higher percentages of minority cast members on TV shows are positively correlated to increased median viewer ratings for the prized 18-49 age group (Hunt et al. 2016).

From social science, a study on fraternities found teams joined by a stranger were better at correctly solving murder mystery puzzles than teams that were joined by a fellow brother (Phillips et al. 2009). Lastly, in perhaps the most directly-relevant study of diversity and ecological science, synthesis groups at the

National Center for Ecological Analysis and Synthesis (NCEAS) with greater numbers of participating institutions publish significantly more papers than groups with less diverse composition (Hampton & Parker 2011). These results support the idea that workforce diversity and productivity go hand in hand, by increasing collective creativity, innovation, and relevance to the greater public.

However, the available research also suggests making diversity work is not a simple matter of throwing a bunch of colorful people together. Instead, the fruits of diversity depend heavily on the structure of human interactions and power dynamics: how many times people have met face to face (Hampton & Parker 2011), how far apart colleagues live (Cummings & Kiesler 2003), whether employees are forced versus offered to undergo diversity training (Dobbin & Kalev 2016), and if the diversity of the workforce concerns not only the employees but also the upper-level management (Pitts 2005).

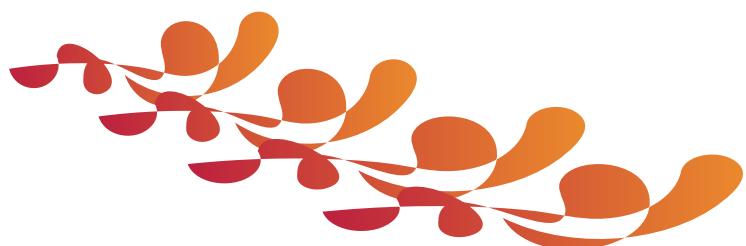
Research suggests greater human diversity is good, not just for the sake of equality and justice, but because it also makes us better at what we do as scientists: problem-solving, collaborating, publishing, and producing work that is important to our society. Diversity matters because it helps us grow. In our lack of diversity, we are missing the voices of those who would challenge our worldviews and broaden our understanding of transformative science.

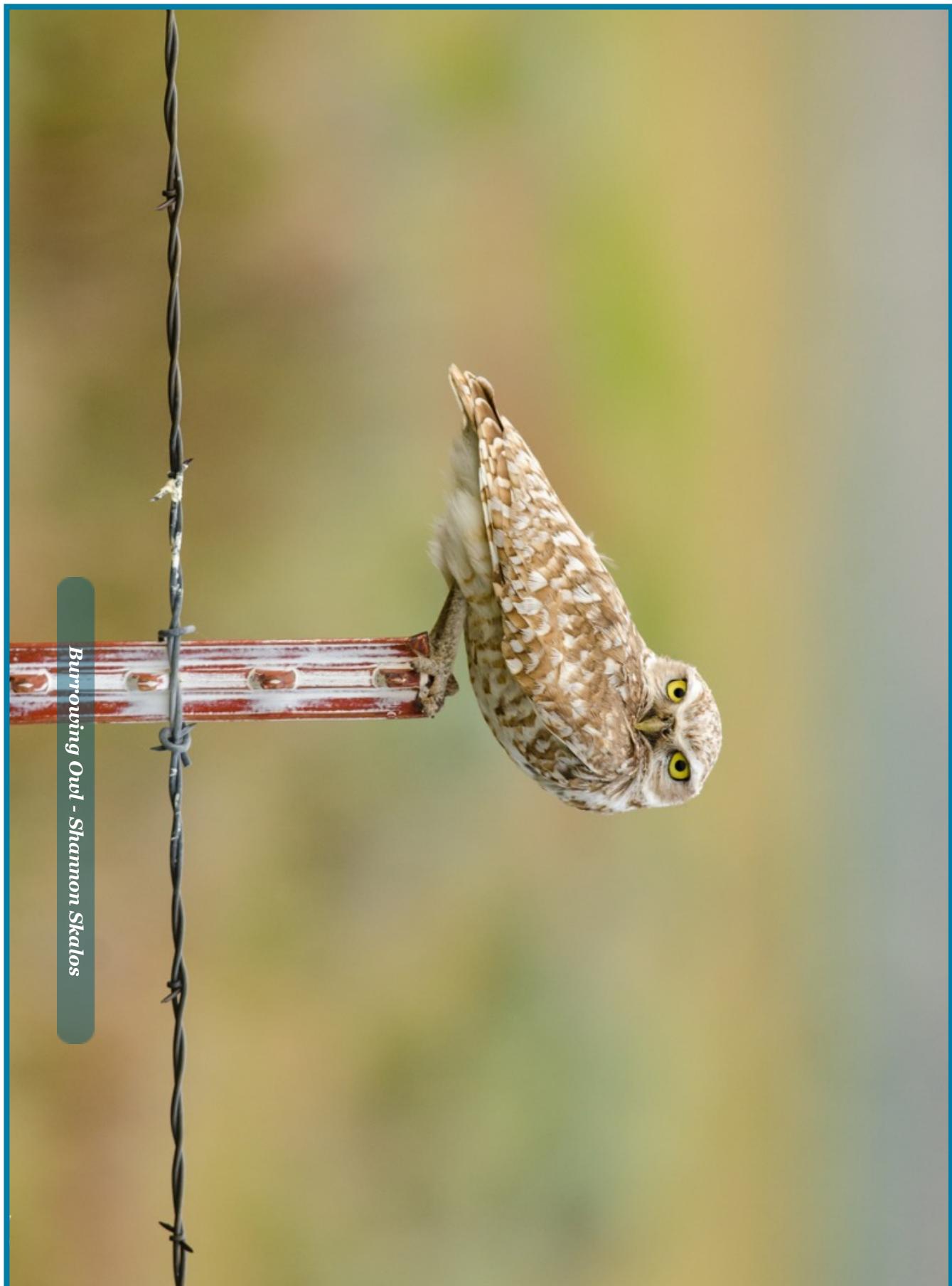


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- Dobbin, Frank and Alexandra Kalev. 2016. Why diversity programs fail. Harvard Business Review 94(7).
- Hampton, Stephanie E. and John N. Parker. 2011. Collaboration and productivity in scientific synthesis. BioScience 61(11): 900-910.
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- Hunt, Darnell, Ana-Christina Ramon and Michael Tran. 2016. 2016 Hollywood diversity report: business as usual? Ralph J. Bunche Center for African American Studies, UCLA.
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ART AND SCIENCE





Burrowing Owl - Shannon Skalos

Safe Spaces, Labs, & Fields: Resources for Sexual Violence and Harassment at UC Davis

Erin Flynn

With the high profile cases of sexual violence and harassment (SVH) in the public sphere this fall, it's a pertinent time to talk about prevention, resources, and policies at UC Davis. Within the GGE, we strongly support the principles of community and human diversity in our graduate group, and we can each play an active role in creating a climate that reduces SVH within our profession. The newly required trainings (starting in 2015) for all graduate and professional students are a great resource, but it can be a lot of new information to remember and may not cover all the situations we encounter as ecology graduate students.

From being trainees (with all the inherent power imbalance that entails) to working closely with undergraduates (that may share situations that we are responsible to report) to researching in far-flung places (possibly without phone reception), there's a lot to cover. Furthermore, you may be an employee one quarter, on fellowship the next, and then at a field course in the summer—does that change anything? To provide a simplified guide, I've broken it down, flow-chart style (see Figure), with help from Sexual Violence Prevention and Response (<http://sexualviolence.ucdavis.edu/>), for complainants, witnesses, potential responsible employees, and respondents:

What everyone can do:

- Support survivors: Know that people of all gender identities may experience SVH, that it's not okay and not their fault, and there are 24/7 confidential resources available to all UC Davis students, staff members, and

faculty (<http://sexualviolence.ucdavis.edu/support.html>)

- Be informed: Familiarize yourself with the University of California's policy on sexual violence and harassment (<http://policy.ucop.edu/doc/4000385/SVSH>) as it may be different from your previous institution or since you were an undergrad, and keep up-to-date with required trainings (1st quarter in person or online training for incoming students, yearly online for employees)
- Be proactive: As a supervisor, include SVH prevention and reporting as part of routine safety training for all team members, especially before going into the field or working at other non-UC Davis affiliated locations. Make sure students and employees know they can always contact UC Davis resources that can help them navigate finding local services, how to report, and answer questions (<http://care.ucdavis.edu/services/>). Staff in the Harassment & Discrimination Assistance and Prevention Program (HDAPP) can help you with messaging and reviewing content.
- Change the culture: Like other types of harassment and discrimination, it can be challenging to talk about SVH for many reasons. There may be concerns of retaliation or negative consequences for reporting, particularly for those with the least power. We worry about saying the wrong thing without realizing it or meaning harm, and we also worry about how to speak up when someone says or does something that is hurtful. We can all work on open communication, empathy, willingness to improve, and acknowledging that overcoming implicit and explicit beliefs requires work at the individual, department, and institutional level.

Safe Spaces Resources

Recommended reading:

On SVH during fieldwork, mostly by other team members, that no one knows how to report:

- Clancy KBH, Nelson RG, Rutherford JN, Hinde K (2014) Survey of Academic Field Experiences (SAFE): Trainees Report Harassment and Assault. PLoS ONE 9(7): e102172.

A field opportunity of a lifetime, but something doesn't feel right:

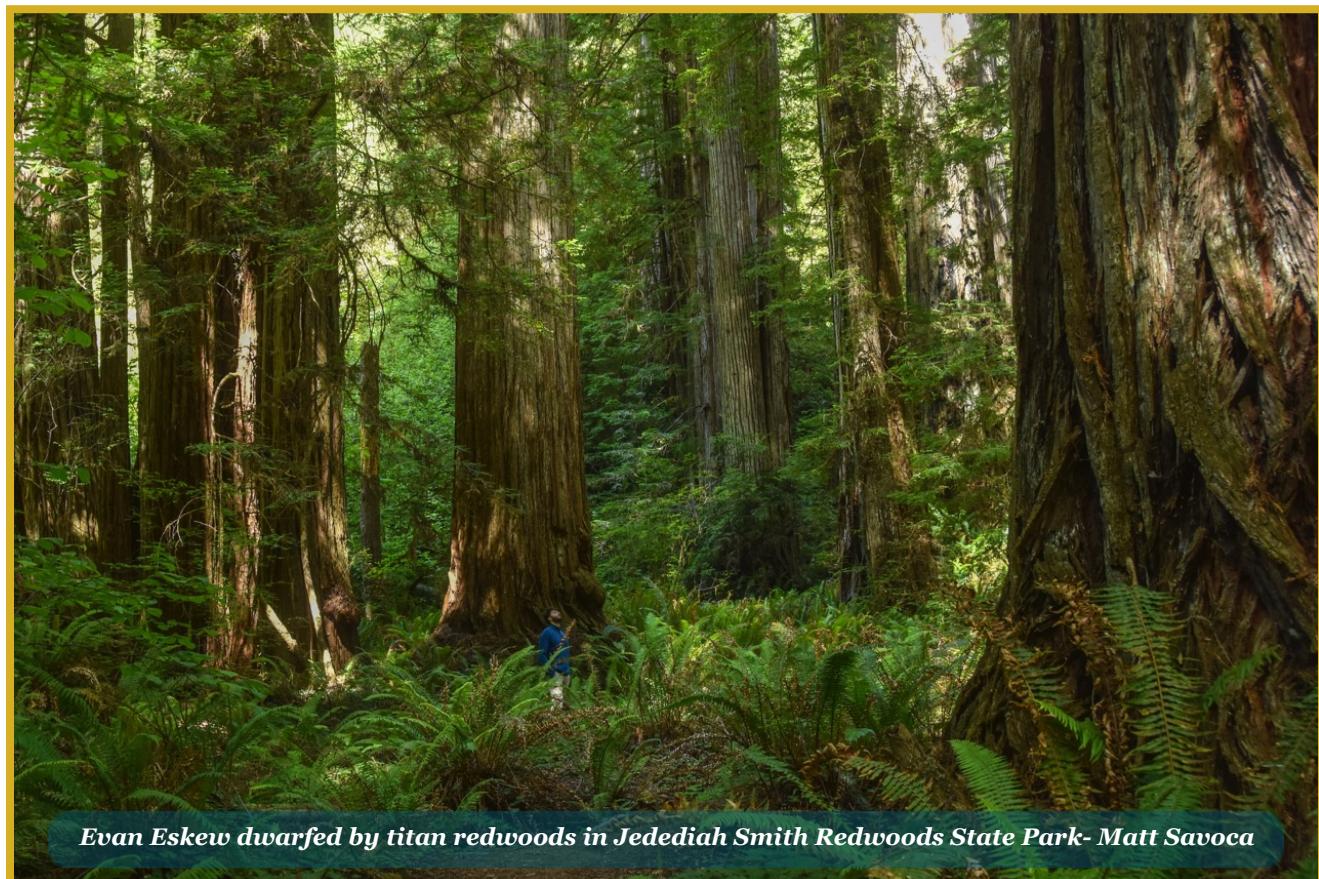
- <https://tenureshewrote.wordpress.com/2014/06/10/do-i-trust-my-gut/>

How harassment often begins, with a drunken, late night email:

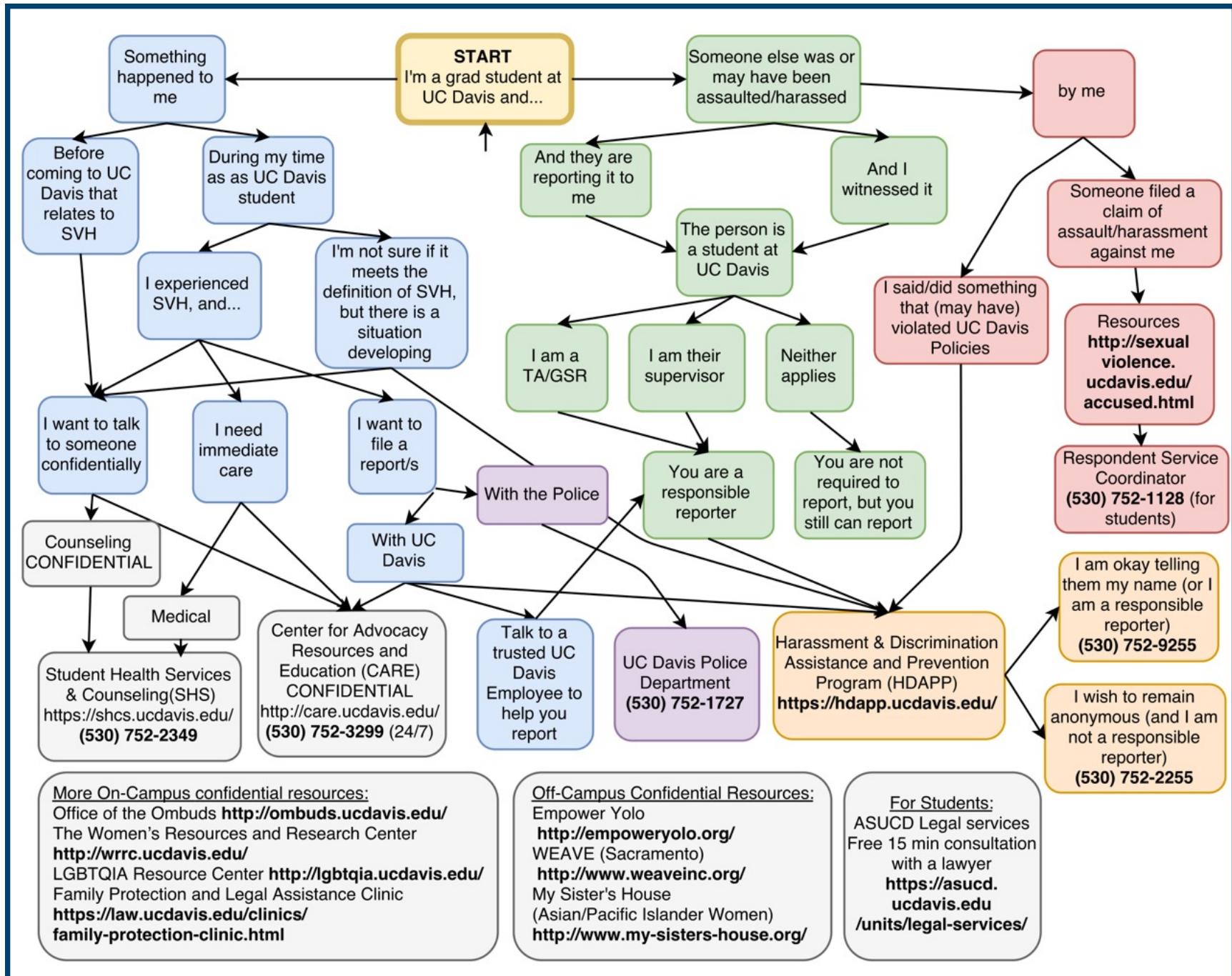
- <http://www.nytimes.com/2016/03/06/opinion/sunday/she-wanted-to-do-her-research-he-wanted-to-talk-feelings.html>

Speaking up, especially as someone with more social power:

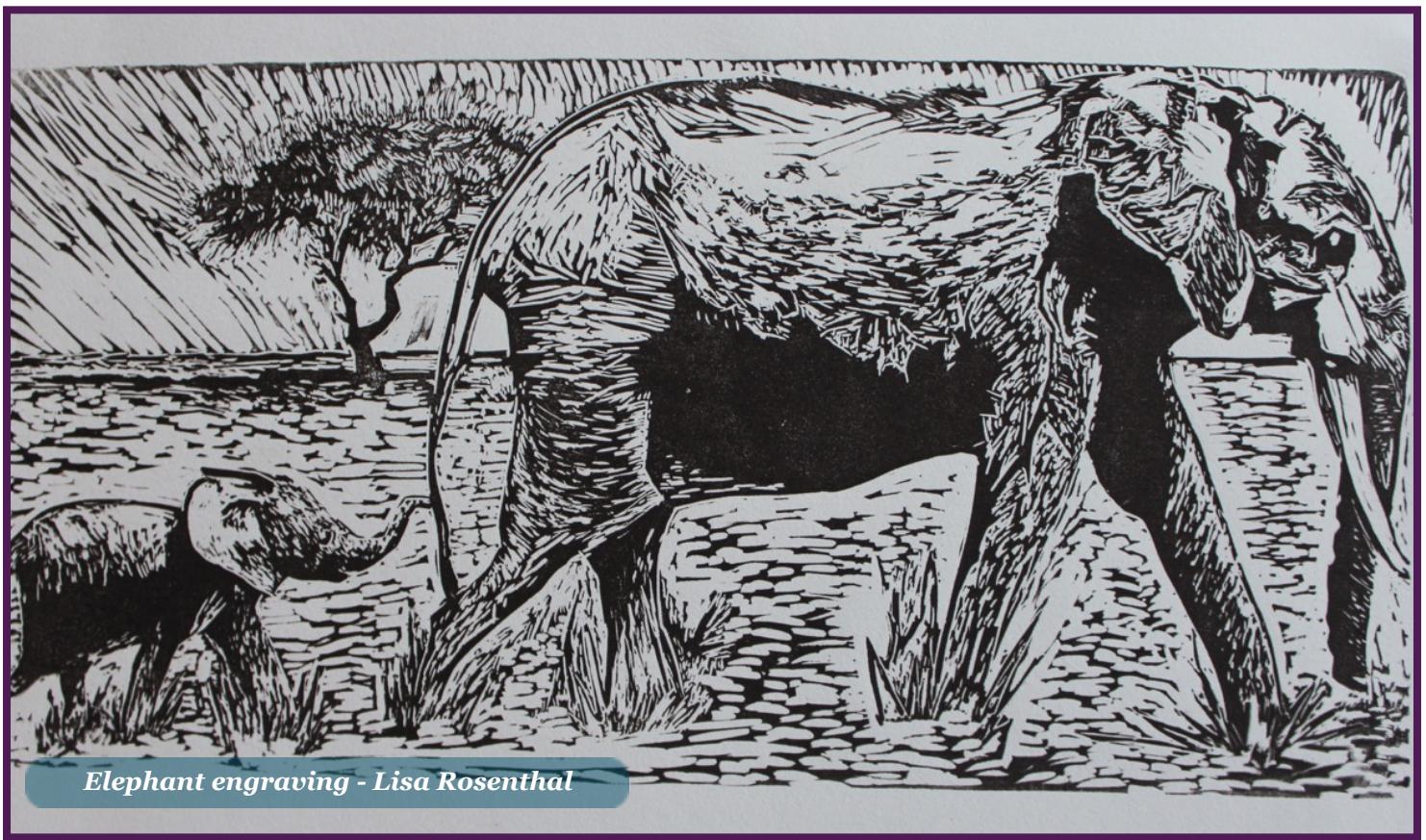
- <https://smallpondscience.com/2016/10/31/creating-an-academic-environment-hostile-to-sexual-misconduct/>



Evan Eskew dwarfed by titan redwoods in Jedediah Smith Redwoods State Park- Matt Savoca



Safe Spaces: Sexual Violence Prevention And Response Flow Chart



Elephant engraving - Lisa Rosenthal



Pacific Rattlesnake- Shannon Skalos



Female Vixen with pups - Sophie Preckler-Quisquater



(SOME) RECENT STUDENT PUBLICATIONS

*GGE (current/former students) in **bold**

Arnold, G., L. Long and **M. Gottlieb**. 2016. Shale development and policy entrepreneurship in upstate New York. *Policy Studies Journal* 1-27.

Feurtey A., P. Gladieux, A. Snirc, M. Hood, A. Cornille, **L. Rosenthal**, and T. Giraud. 2016. Strong phylogeographic costructure between the anther fungus and its white campion host. *New Phytologist* 212:668–679.

Hameed, S.O., J.W. White, **S.H. Miller**, **K.J. Nickols**, and S.G. Morgan. 2016. Inverse approach to estimating larval dispersal reveals limited population connectivity along 700 km of wave-swept open coast. *Proceedings of the Royal Society B: Biological Sciences* 283:20160370–9.

LoPresti, E.F. and K. Toll. The three criteria for resistance by carrion provisioning; insect entrapment and predator enrichment on *Mimulus bolanderi*. *Ecological Entomology*, in press.

LoPresti, E.F. and M.G. Weber. 2016. Breaking barriers in evolutionary biology: a pioneering woman in science and her early theory of plant chemical macroevolution. *American Naturalist* 188:2-4.

Morris, M.M., J.M. Haggerty, B.N. Papudeshi, A.A. Vega, M.S. Edwards, and E.A. Dinsdale. 2016. Nearshore pelagic microbial community abundance affects recruitment success of giant kelp, *Macrocystis pyrifera*. *Frontiers in Microbiology*.

Rosenthal L.M., S. Branco, J.A. Chung, S.I. Glassman, H.L. Liao, K.G. Peay, D.P. Smith, J.M. Talbot, J.W. Taylor, E.C. Vellinga, R. Vilgalys, and T.D. Bruns. Survey of corticioid fungi in North American pinaceous forests reveals hyperdiversity, underpopulated sequence databases, and species that are potentially ectomycorrhizal. *Mycologia*, in press.

Rudnick, J., A. DeVincentis, and **L. Mendez-Barrientos**. The sustainable groundwater management act challenges the diversity of California farms. *California Agriculture* 70:4.

Savoca, M.S., **M.E. Wohlfel**, S.E. Ebeler, and G.A. Nevitt. 2016. Marine plastic debris emits a keystone infochemical for olfactory foraging seabirds. *Science Advances* 2(11):p.e1600395.

Steel, Z.L., **A.E. Steel**, **J.N. Williams**, **J.H. Viers**, P.A. Marquet, and O. Barbosa. 2016. Patterns of bird diversity and habitat use in mixed vineyard-matorral landscapes of Central Chile. *Ecological Indicators* 73:345-357.

(SOME) RECENT STUDENT PUBLICATIONS

Stevens, J.T., B.M. Collins, J.W. Long, M.P. North, S.J. Prichard, L.W. Tarnay, and A.M. White. 2016. Evaluating potential trade-offs among fuel treatment strategies in mixed-conifer forests of the Sierra Nevada. *Ecosphere* 7:eo1445.

Stevens, J.T., H.D. Safford, M.P. North, J.S. Fried, A.N. Gray, P.M. Brown, **C.R. Dolanc**, S.Z. Dobrowski, D.A. Falk, C. Farris, J.F. Franklin, P.Z. Fulé, K.R. Hagmann, E.E. Knapp, J.D. Miller, G.F. Smith, T.W. Swetnam, and A.H. Taylor. 2016. Average stand age from forest inventory plots does not describe historical fire regimes in ponderosa pine and mixed-conifer forests of western North America. *PLoS One* 11:eo147688.

Tiedeman, K., S. Yeh, B. Scanlon, J. Teter, and G. Shankra Mishra. Recent trends in water use and production for California oil production. *Environmental Science & Technology* 50:7904-7912.

Waring B.G., M.G. Gei, **L.M. Rosenthal**, and J.S. Powers. 2016. Plant-mycorrhizal interactions along a gradient of soil fertility in tropical dry forest. *Journal of tropical ecology* 32:314–323.

Yarnell, S., **R. Peek**, G. Epke and A. Lind. 2016. Management of the spring snowmelt recession in regulated systems. *JAWRA Journal of the American Water Resources Association* 52(3):723–736.



Undulations (Mushroom Soft Coral), Sulawesi, Indonesia - Erin Satterthwaite

COMMUNITY

Women in Science, the Home, and the Community

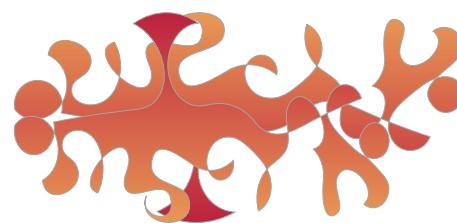
Julia Michaels

As I scanned the crowd of scientists chatting excitedly with their neighbors, I savored the particular type of calm that I feel only when in a room surrounded by other women. I felt proud to be sitting with our contingent of U.C. Davis Ecology grad students, about to listen to female scientists that I respect and admire so much. Not surprisingly, it only took five minutes for the conversation at our table to turn to the proper definition of “mansplaining”. But as the lights went down and Jane Goodall addressed us via Skype from her field station, the focus turned away from frustration at men, and towards a celebration of just how far women have come in STEM. Jane explained that she has never had a women teacher or professor in her whole career, but that her mother had encouraged her to “work very hard, take advantage of opportunities, and never give up.” Many of the speakers shared similar experiences of having few female mentors or role models to look up to in the STEM field. Some of the oldest women told shocking stories of oppression that seem crazy by today’s standards. One anthropologist spoke of being ordered by her advisor to have an abortion so that she could meet her research deadlines; others told shocking stories of sexual assault and discrimination.

When the conversation shifted to work-life balance, the conference opened up into a collective brainstorm on how to compete in the job market despite the fact that women are still disproportionately burdened with household duties. I was impressed by Jane Lubchenko,

former head of NOAA, who talked about how her strategic planning allowed her to negotiate the first ever shared tenure appointment which allowed her and her husband to both work part time and share equally the burden of raising their young children. She was followed by a speaker who encouraged us to ditch our babysitters and bring our children along as helpful field assistants. In general, this conversation confirmed what I felt everyone in the room already knew – that raising a family while producing meaningful research is still extremely challenging and there is no clear recipe for making it work.

The conference wrapped up with a shamefully-short treatment of the fact that the female experience is not equal across race, socio-economic background, sexual orientations, or gender identities, and that low-income, minority, and queer women face exponentially more roadblocks than their upper-middle class, white, and straight counterparts. In the end, the tone was one of passing a torch to our generation. It is clear that while we have made incredible progress, women in STEM today face many of the same challenges as our predecessors. To overcome systemic gender discrimination we must devise creative solutions and we must be willing to advocate for ourselves and for each other. Furthermore, each of us is personally responsible for reaching out to underrepresented women to join our growing community.



DIVERSITY

Rally call from the GGE Diversity Committee

“Science is the people and the process” – The Diversity Committee of the GGE

Many scientists are concerned about declining research funds, dwindling job opportunities, a diminishing voice in public discourse, and the very ability for humans to inhabit this planet. Many have harbored these concerns for some time, and many feel they are exacerbated by recent events. We share these concerns.

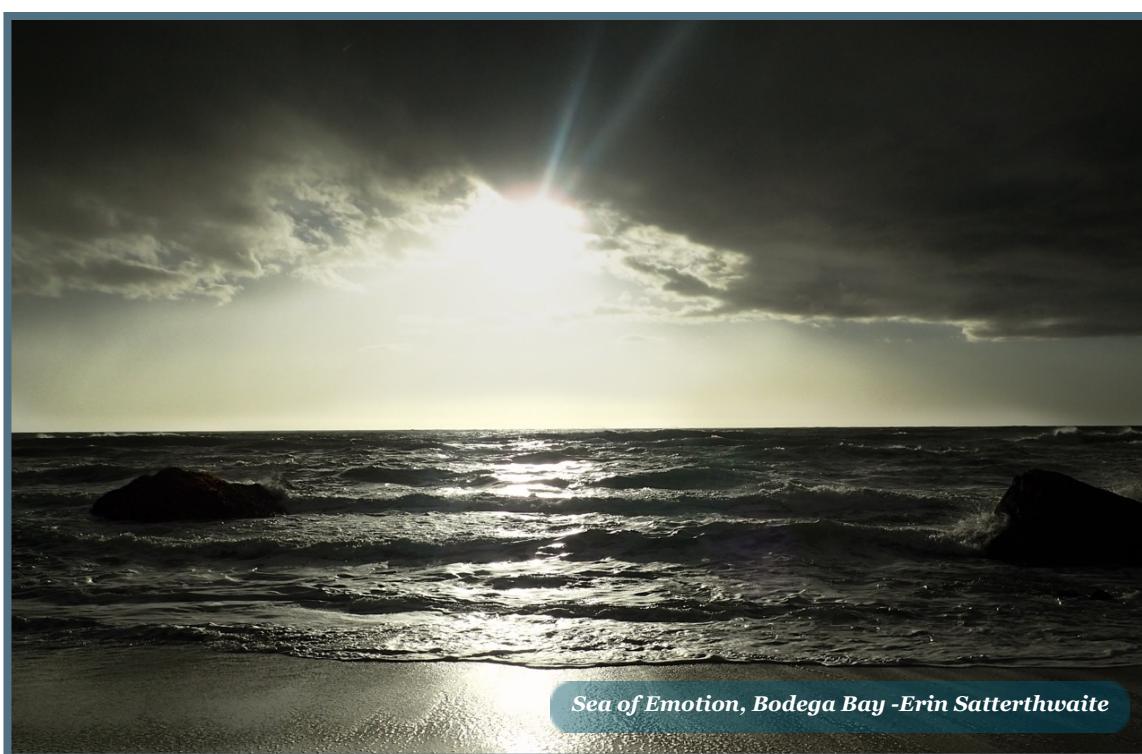
But first and foremost, we must not forget that science is the people as much as it is the process. When our colleagues hurt, science hurts with them. When an inhospitable environment bars would-be scholars from our profession, science suffers. When current and historical social contexts of marginalization imperil the humans that do science, science itself is imperiled.

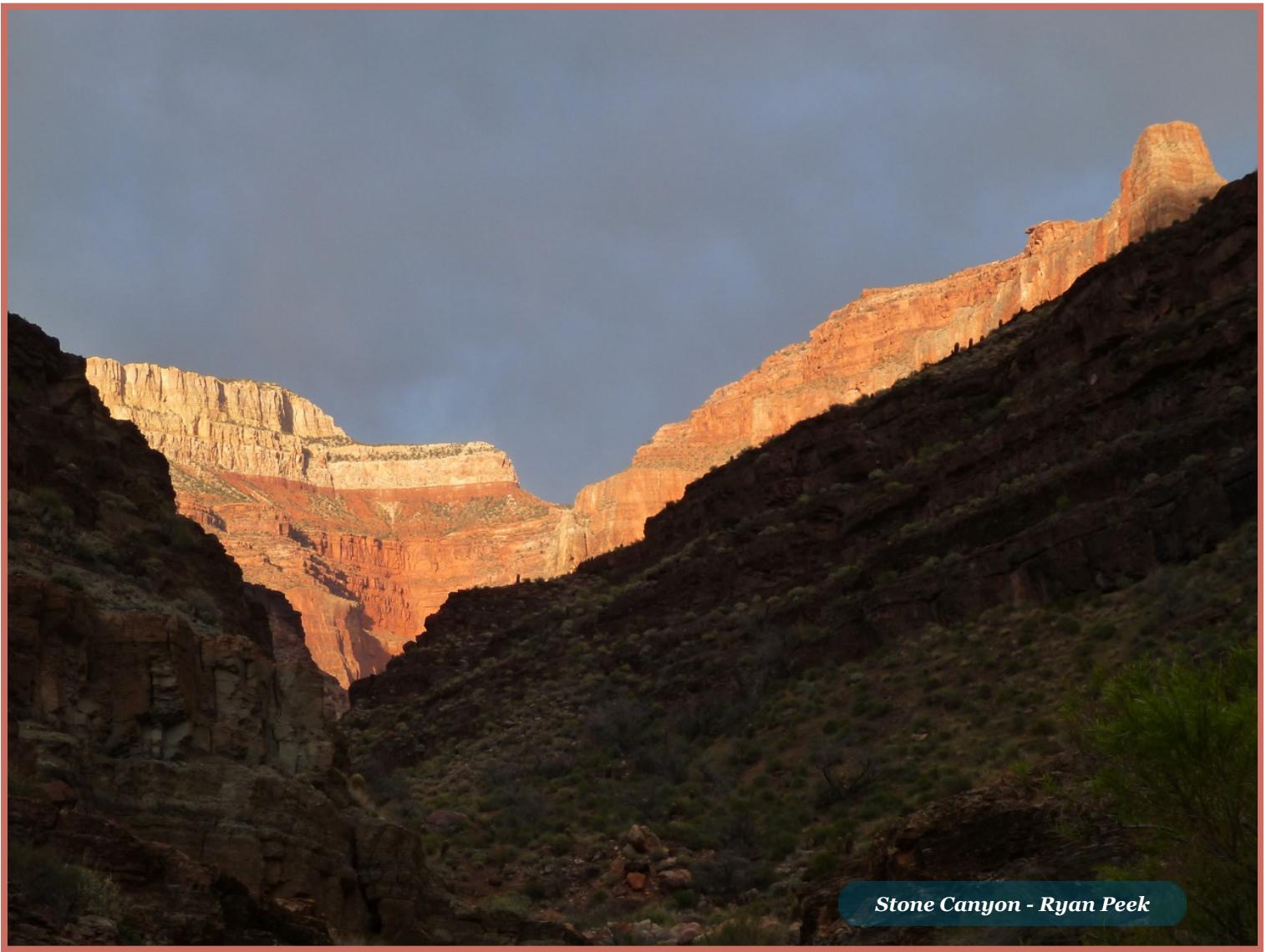
Now is the time to rally for science. We do that by rallying for scientists and potential scientists. We stand with those among us most at risk and assert that the threat to science comes not only from a populace that rejects reason, but from one that persecutes our people.

To embolden this spirit, we borrow from UC Davis' own Principles of Community to which we all subscribe:

“We affirm the dignity inherent in all of us. We strive to maintain a climate of equity and justice demonstrated by respect for one another. We confront and reject all manifestations of discrimination.”

If you are feeling downtrodden, lost, or concerned for your well-being, please know – you matter. We support you, we care about you, and we will fight for you as scientists and as humans.





Stone Canyon - Ryan Peek



Sacramento Valley Red Fox - Sophie Preckler-Quisquater



Sacramento Valley Red Fox - Sophie Preckler-Quisquater

MAD LIBS

by Lisa Rosenthal

Did you miss this year's round of GRFP applications? Do you get stuck trying to conjure the perfect words to articulate your brilliance? Even if you're fully funded, having an original research proposal tucked away for other grants never hurts. Just fill in the blanks below and you'll have gobs of funding in no time!

TITLE: The role of (organism A) community composition in novel (synonym for antagonistic) interactions

INTRODUCTION: Fluctuations in the relative abundance and geographic boundaries of (organism A) species occur naturally and create conditions favoring new (organism A) - (organism B) interactions. New interactions are expected to become more frequent under the context of (impending doom). The most devastating outbreaks of (something awful) involve natural selection in (plural noun A). Limited attention has been paid to the evolution of specificity in (organism B) in new (organism A) - (organism B) interactions, especially in native (noun) communities.

RESEARCH OBJECTIVES: I will use the (genus name A) / (genus name B) system native to (location) to:

- A. Estimate selective pressure on (plural noun A) from field sites through experimental (noun ending in -ation) of ancestral and novel (plural organism A).
- B. Examine the relationship between selective pressure and (another awful thing) prevalence in the field.

INTELLECTUAL MERIT: It is unknown how (organism A) community composition affects the evolution of (organism B) specificity, which is often a precursor to emergent (bad thing). (Impending doom) is leading to rapid species range migration, altering (organism A) communities globally and making this knowledge gap more pressing. My study specifically addresses these interactions in (fragile biome) habitats, which are among the most vulnerable in the face of (synonym for said impending doom). Results in this system will provide prognostic patterns for ecosystems worldwide.

BROADER IMPACTS: This study provides vital information for models that predict (bad thing) spread and its effects on biological diversity, which will inform land managers and policy makers. (adjective) fieldwork will involve cross-cultural exchange with researchers and students from several institutions. I will teach field, greenhouse and molecular techniques to undergraduate students, paying special attention to recruiting assistants from (adjective) groups.

THE AGGIE BRICKYARD



Buffleheads - Ken Zillig

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