

THE AGGIE BRICKYARD



assembling the blocks of ecology at UC Davis

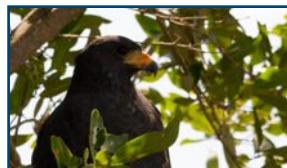




FACULTY Q&A
CLIMATE CHANGE



RECENT GGE
PUBLICATIONS



STUDENT
PERSPECTIVES



COMMUNITY &
COMMITTEE UPDATES

WHAT'S ON YOUR MIND?



- ♦ COVER: A CO₂ flux tower at Harvard Forest, Massachusetts. - Paige Kouba



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LETTER FROM THE EDITORS

“Sometimes the best way to address big problems is in our everyday lives.”

We all have trouble sleeping from time to time. Late at night, lying awake, we contemplate wishes, worries, and what-ifs ranging in scope from global to personal. Climate change, social inequality, Donald Trump, cats, regrets about that last cup of coffee—at night, the macro and the micro both loom large.

This spring, we editors wanted to know: What big questions do GGE students and faculty take on? We found that members of the GGE community make it their business to think about intractable and systemic challenges, in addition to Coffee Bagel Donut Day and deadlines.

Sometimes the best way to address big problems is in our everyday lives. Communicating the risks of global climate change becomes personal when you’re raising a toddler (Anna Steel, pg 19), or dealing with the loss of a beloved study site (Eric Post, pg 5). To make science more inclusive, we can become better advocates and allies (Diversity Committee, pg 11). To promote conservation, we can start with wildlife right in our own community (Society for Conservation Biology, pg 17). Even the Qualifying Exam (Ann Holmes, pg 9) can be viewed as a bridge between our day-to-day studies and the high-level concepts we want to engage with as scientists. It’s important to keep some perspective, too: GGE “Grad Libs” (Alex Gulachenski, pg 18) reminds us not to sweat the small stuff. Whatever your adviser says about that broken lab equipment, it’s probably [adjective].

Even as we wonder whether we’re going the way of the dinosaurs (Maria Ospina, p. 22), we took time to appreciate beautiful things this spring. This season, we are surrounded by new life, whether it’s the infamous California Super Bloom, or a new baby welcomed to a family (congrats Madeline!). We editors are grateful to everyone in the GGE for sharing your thoughts and observations with us; we hope *The Brickyard* continues to be a space for our community to share ideas big and small. Maybe that way we can all rest a little easier.

Sincerely,

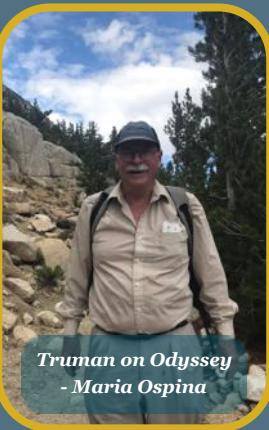
Your Aggie Brickyard Editors



CHAIR-ISHED REFLECTIONS

Trumania (*Truman Young*)

Do not confuse your dissertation with your research



"If you had lots of time (and resources), what would you study?"
- T. Young, GGE Chair

[Warning: the idiosyncratic views of this writer are not meant to be GGE guidelines, or any guidelines at all. Both students and their advisors are free to reject them completely.]

A graduate student came into my office, and they were not happy. They were working on a paper (and dissertation chapter) that was in good shape, but it had been pointed out that to more completely nail the argument, another experiment would be ideal. This experiment would require a substantial amount of time and effort, and only serve to fill in a particular qualification. (By the way, in every study, there is always another layer of experiment or analysis that could be added; it's turtles all the way.) The paper would be fine even without this experiment (see "Three Drunken Old Men"), so I asked the student, "If you had lots of time (and resources), what would you study?" The response was immediate; it would be an ambitious large-scale, long-term manipulation of anthropogenic landscape features (a logical extension of their dissertation research). I said, "Then do that!" The student pointed out that would not be feasible, since any interesting results would not come in until long after they finished their dissertation. And here is where I said for the first time (but not the last), "Do not confuse your dissertation with your research."

The goal is to think of your career more holistically (if I may borrow an overused buzzword), of which your dissertation is only a part, and a relatively small part at that. Even as you get deeper and deeper into your dissertation research and writing, take time to step back and ask yourself, "Why am I doing this dissertation? Why am I getting a graduate degree? What is my overall goal? What (else) would advance this? What makes me happy?" For example, **it is never too soon** to start building professional contacts, thinking about (and applying for) postdocs or other positions, and looking for future funding sources. One of my favorite quotes was from a graduate student (not mine) who was telling me excitedly about their new post-doc offer. I asked about their (as yet unfinished) dissertation, and they said, "Oh, that old thing!"

So back to the dissertation and the research. If research is central to your career goals, then plan a research agenda that best meets your goals and your interests (and your budget!). No matter what the schedule of the research, if it is good research and you devote sufficient time and energy to it, a dissertation will emerge, even if it includes what turn out to be just parts of bigger and better publication(s) later down the road. Similarly, do not be afraid to do side projects (as long as they do not get in the way of dissertation research). At least half of my doctoral students published such research, and actually enjoyed it. "Keep your eyes on the prize;" but the prize is not the dissertation or even the degree, it is the research itself, and perhaps even more important, the doors that it opens.

Postscript: The aforementioned student enthusiastically jumped on the new audacious project, and meanwhile happily completed their dissertation on time. A decade later, they are still monitoring that additional experiment, which has continued to produce high-quality research (and publications).

FACULTY Q & A

What's on your mind? What keeps you up at night? For the editors, climate change rises to the top of this list. In different ways, for each of us, climate change is motivating our launch into graduate school, our desire to find a better way for humans to be in this rapidly changing world. But we're at the beginning of our careers, and wondered—how do you maintain that kind of concern, if you make a career out of studying ecological patterns and processes that are sure to change? So we took the question to some of the GGE faculty members, folks who have been working in this field for years. Here's what they had to say...

Eric Post, Professor of Wildlife, Fish, & Conservation Biology

Most Recent Publication: Post, E., et al., 2019. Unusual late July observation of a fledgling Lapland longspur in low arctic Greenland following the cool spring of 2018. *Arctic Science* (ja.).

List 3 elements of climate change that are most worrisome to you.

First and foremost, it's worrisome that we as a society may not be willing to take timely action on climate change. Second, that projected impacts of climate change might be underestimated. Third, that people may be tuning out because much of the message about climate change is emotionally overwhelming.



E. Post - Self Portrait

Do you think you will feel the impacts of these changes personally?

If you're asking about whether I'll feel the impacts of the elements of climate change I find most worrisome, then yes, I already am. On taking action, at the individual level it's hard to know what you can do to make a meaningful difference, while at the institutional or governmental level there's a lot of inertia to overcome. And it seems that nearly every time I give a lecture or a talk on climate change, someone asks me afterward how I can keep working on a subject that's so disheartening. But the first step in solving any complex problem is gathering and disseminating information, so we need to be willing to talk about and listen to the realities of climate change.

We'd like to know how your views have changed over time. Think back to 5 years ago. What was your top concern then?

I think my top concern about climate change 5 years ago is still one of my top concerns: confronting climate change denial. This includes developing the tools to identify climate change denial; equipping students and the broader community with the skills to distinguish between climate fact and falsehood; and trying to understand what motivates climate change denial, confusion, or simple misunderstanding.



The melting of the Greenland ice sheet, north of Dr. Post's research sites. - Conor Higgins

FACULTY Q & A

How about 20 years ago?

Twenty years ago, I was wrapping up a post-doctoral fellowship and looking for a tenure-track position. My top concern about climate change back then was developing an independent research program focused on studying ecological consequences of climate change. It took me about two years to settle on theme (effects of climate change on species interactions, especially plant-herbivore dynamics) and a study system (Low Arctic Greenland). My recollection is that back then there was a fair amount of discussion about how to link large-scale, long-term changes in climate to local-scale and short- vs. long-term ecological dynamics. So back then I was more concerned with the conceptual and methodological challenges of studying climate change. Now, I'm more concerned with communicating the urgency of the message of what we've seen happening since then.

How does being a scientist influence how you think about or respond to these concerns?

Personally, I feel strongly emotionally attached to the system I study and the species that system comprises, especially caribou. I've been immersed in the beauty and fragility of the Arctic for over half of my life. I can't speak honestly about my work on climate change without admitting to that attachment. And in fact I think speaking openly about that attachment can motivate and inspire students as well as draw a human connection to the research. But at the same time, being a scientist equips me with the means to apply my training in trying to understand what climate change is doing to a place and a system that I love. So I don't feel the despair of a passive observer. As a scientist, I feel empowered to do something about the problem of climate change, even if that something is as simple as telling others about what our research reveals.

Jay Stachowicz, Professor of Evolution and Ecology

Most Recent Publication: DuBois, K., Abbott, J.M., Williams, S.L. and Stachowicz, J.J., 2019. Relative performance of eelgrass genotypes shifts during an extreme warming event: disentangling the roles of multiple traits. *Marine Ecology Progress Series*, 615, pp.67-77.

List 3 elements of climate change that are most worrisome to you.

More frequent breaching of thresholds (e.g., in temperature); rapid polar warming; emerging diseases/broadening ranges; changing precipitation (sorry, that's 4)



J. Stachowicz - UC Davis

Do you think you will feel the impacts of these changes personally?

Directly, I would say that I would feel them minimally if at all (I might feel differently if we are talking about my kids rather than me, given the likely number of remaining years I have versus them). Realistically, in the short term, I have the financial ability to isolate myself from many of the direct effects (e.g., increasing food prices, increasing costs of adaptation, I can move geographically if need be, etc). Indirectly, the potential for pandemics or climate disasters causing political instability is probably the most likely way that I could feel effects personally.

We'd like to know how your views have changed over time. Think back to 5 years ago. What was your top concern then?

Same. No change.

How about 20 years ago?

I'm not sure they have changed that much. I probably have a more nuanced view and recognize more of the complex indirect effects and threshold issues, but I'm not sure that my

FACULTY Q & A

list would have been that different 20 years ago. Thirty years ago, I would say my views were different—partly because of my (young) age at the time and partly because the science has matured.

How does being a scientist influence how you think about or respond to these concerns?

I wonder about this... It's hard to say because I don't know what it's like to not be a scientist. It helps in that I can respond to the criticism that climate change is a belief that is on equal footing with contrary beliefs—it's not, it's clearly borne out by evidence that I am capable of evaluating independently. That makes me really confident and unable to be swayed by contrarians—the conclusions drawn can usually be rebutted with critical analysis of the data on which they are based. But in some ways, I actually think that being a scientist makes me more cautious and circumspect about climate change impacts relative to effects of other stressors, especially over spatial and temporal scales at which we can usually do something about them. Which is a more pressing threat in your favorite ecosystem: climate change or habitat destruction?

Xiaoli Dong, Assistant Professor of Environmental Science & Policy

Most Recent Publication: Dong, X. and Fisher, S.G., 2019. Ecosystem spatial self-organization: Free order for nothing?. *Ecological Complexity*, 38, pp. 24-30.



X. Dona - UC Davis

List 3 elements of climate change that are most worrisome to you.

Extreme weather events, climate refugees, effects on ecosystems

Do you think you will feel the impacts of these changes personally?

Not much so far. But I'm reminded of the fires last winter. I was teaching a class, and we had to cut a third of class content because of the schedule changes caused by the fire. In the future, I think extreme weather events will probably lead to more personal impacts, things like disrupting travel or additional fires like the ones this winter. What's uncertain is how much those extreme weather events can be conclusively linked to climate change.

We'd like to know how your views have changed over time. Think back to 5 years ago. What was your top concern then?

Global warming

How about 20 years ago?

Twenty years ago, I was about ten years old. And I was living in China. Climate change was not something in my life, people around me were not talking about it. Today, climate change is almost like a buzzword, and children are exposed to it. But that was different ten and twenty years ago.

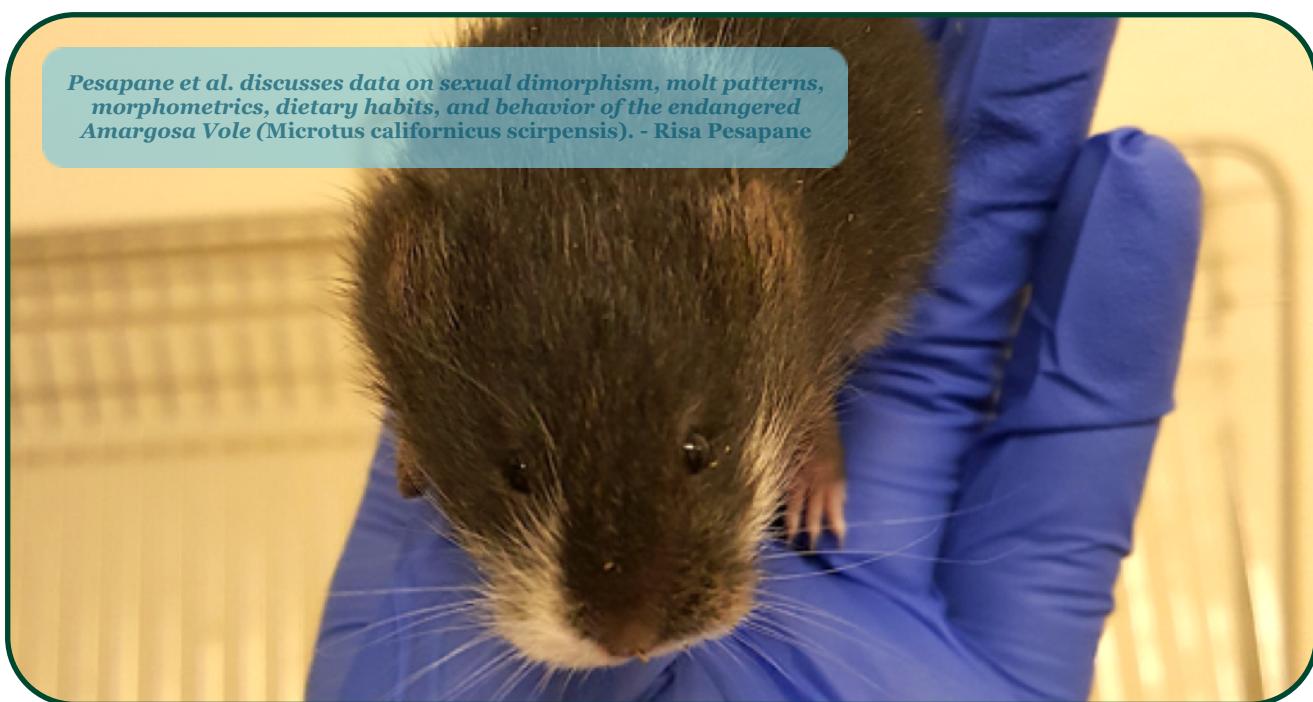
How does being a scientist influence how you think about or respond to these concerns?

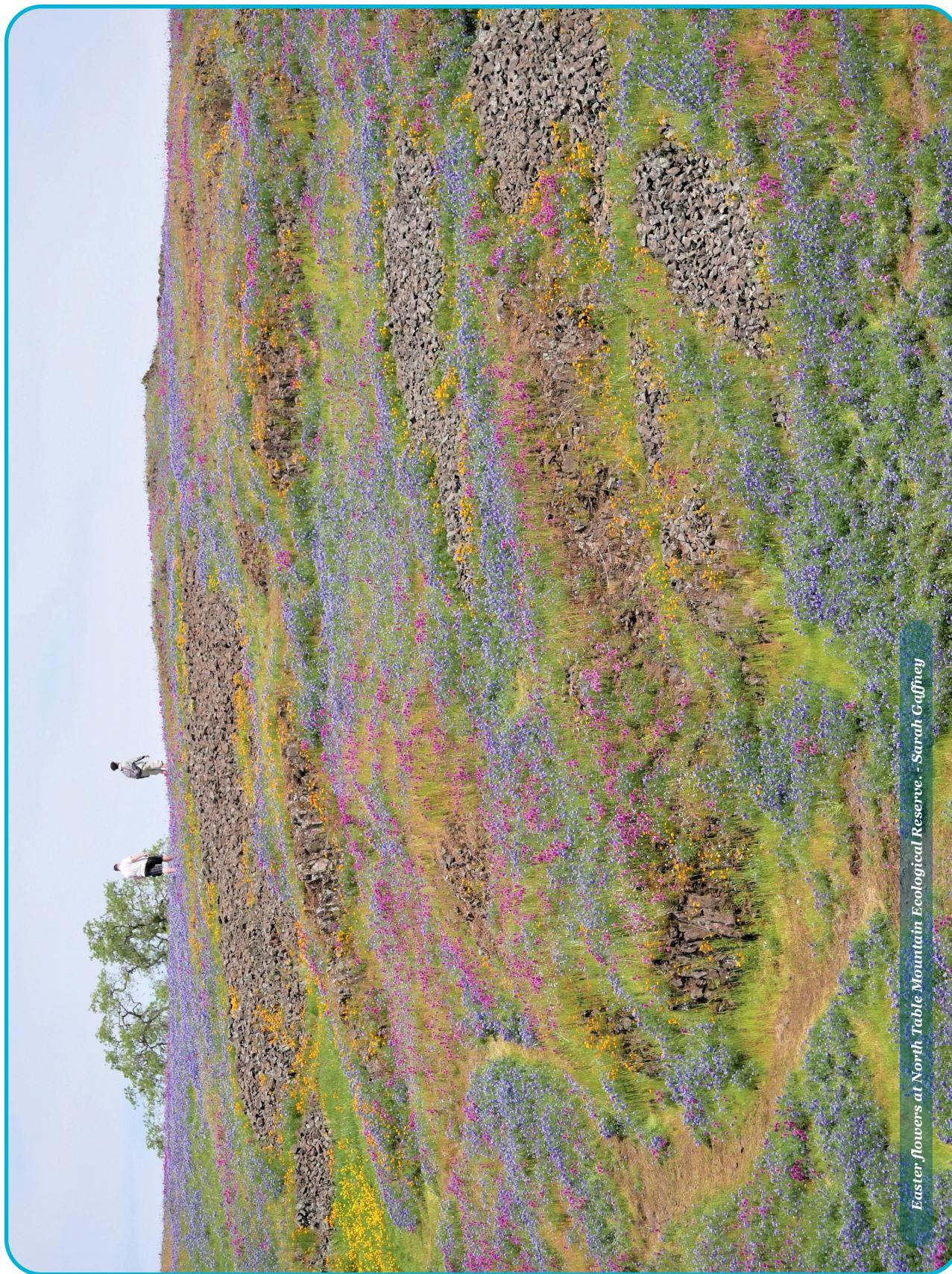
If I were not a scientist, I think my view might be more binary. For example, extreme weather events like I mentioned before are caused by climate change, or they are not. Being a scientist gives me a more continuous view of this, dealing more with probability. Science is a process, and we are increasing understanding over time. Because I'm a scientist, I have a better understanding of uncertainty associated with various issues, and I see things more probabilistically. I'm concerned about how much we still don't know and the uncertainty associated with the predictions of the future.

RECENT STUDENT PUBLICATIONS

- Bezerra, M.F.**, Lacerda, L.D., Lai, C., 2019. Trace metals and persistent organic pollutants contamination in batoids (*Chondrichthyes: Batoidea*): A systematic review *. *Environmental Pollution* 248, 684–695.
- Bourbour, R. P.**, Martinico, B. L., Ackerman, J. T., Herzog, M. P., Hull, A. C., Fish, A. M., and Hull, J. M. 2019. Feather mercury concentrations in North American raptors sampled at migration monitoring stations. *Ecotoxicology*, 1-13.
- Bourbour, R. P.**, Martinico, B. L., Crane, M. M., Hull, A. C., and Hull, J. M. 2019. Messy eaters: Swabbing prey DNA from the exterior of inconspicuous predators when foraging cannot be observed. *Ecology and Evolution*, 9(3), 1452-1457.
- Dent, C., Miller, M., Batac, F., Dodd, E., Smith, W., **Pesapane, R.** & Foley, J.E. (2019) Pathology and epidemiology of nasopulmonary acariasis (*Halarachne sp.*) in southern sea otters (*Enhydra lutris nereis*). *International Journal for Parasitology: Parasites and Wildlife*, 9, 60–67.
- Filigenzi, M.S., **E.E. Graves**, L.A. Tell, K.A. Jelks, R.H. Poppenga. 2019. Quantitation of neonicotinoid insecticides combined with broad range qualitative screening for other xenobiotics in small-mass avian tissue samples using UHPLC-high resolution mass spectrometry. *Journal of Veterinary Diagnostic Investigation*, 1-9.
- Graves, E.E.**, K.A. Jelks, J.E. Foley, M.S. Filigenzi, R.H. Poppenga, H.B. Ernest, R. Melnicoe, L.A. Tell. 2019. Analysis of insecticide exposure in California hummingbirds using liquid chromatography-mass spectrometry. *Environmental Science & Pollution Research*.
- Iverson, A. R.** 2019. The United States requires effective federal policy to reduce marine plastic pollution. *Conservation Science and Practice*.
- Pesapane, R.**, Clifford, D., Lam, J., Allan, N., Roy, A., Bellini, N., Rivett, O. & Foley, J.E. (2018) The Biology and Ecology of the Amargosa Vole (*Microtus californicus scirpensis*). *Western Wildlife*, 5, 43–52.
- Pesapane, R.**, Foley, J.E., Thomas, R. & Castro, L.R. (2019) Molecular detection and characterization of *Anaplasma platys* and *Ehrlichia canis* in dogs from northern Colombia. *Veterinary Microbiology*, In Press.

*Pesapane et al. discusses data on sexual dimorphism, molt patterns, morphometrics, dietary habits, and behavior of the endangered Amargosa Vole (*Microtus californicus scirpensis*). - Risa Pesapane*





Easter flowers at North Table Mountain Ecological Reserve. - Sarah Gaffney

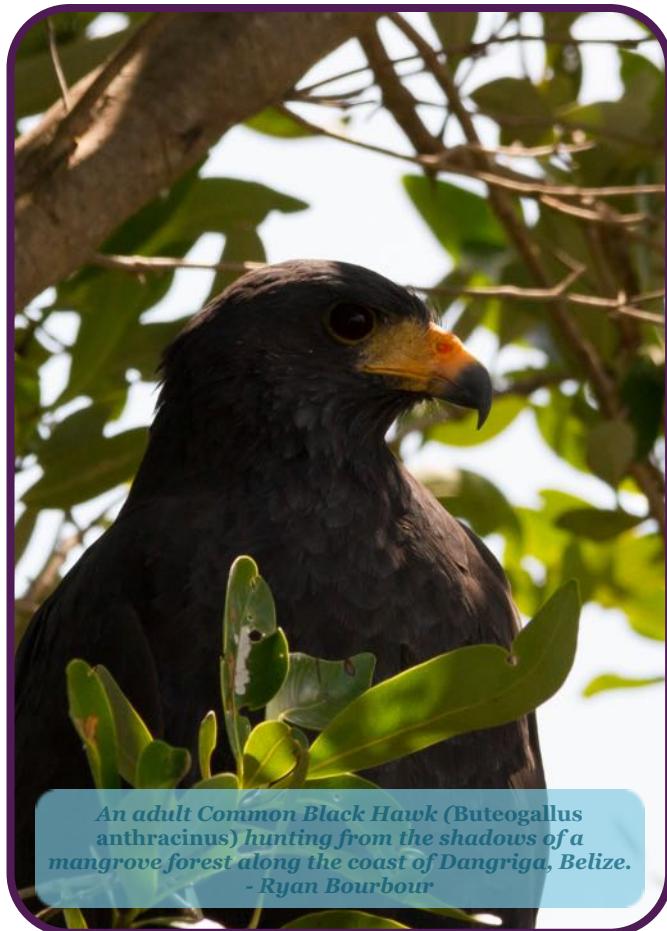
Demystifying the GGE Qualifying Exam

Ann Holmes

The following is a reflection on my experience and incorporates advice from Mike Koontz, Caity Peterson, Jess Rudnick, a compilation by Mary Clapp, and other GGE students, lab mates, mentors, and friends who kindly offered their perspectives over the last two years or so. Open Lab Meeting was also a valuable forum for understanding the nature of the exam.



The Qualifying Exam (QE; also Quals or Orals) is a major milestone. However, many students have questions beyond the general "QE Instructions" on the GGE website (read these!). I don't believe there is a single "right" way to approach the exam; my intent is to convey information in a way that helps students prepare for success in the manner that suits them best. It's also important to know that QE formats vary by university and department.



An adult Common Black Hawk (*Buteogallus anthracinus*) hunting from the shadows of a mangrove forest along the coast of Dangriga, Belize.
- Ryan Bourbour

How do I pick a committee?

I chose committee members who I enjoyed talking science with and who I thought would offer useful feedback. It's very helpful to talk to other students about their QE committees. Caity Peterson recommends choosing accessible and approachable faculty; personal connection is more important than prestige. I first emailed potential committee members describing my research interests and then met with each person. You can ask what they consider fundamental knowledge in their exam topic and how they select appropriate readings. The Chair serves as a guiding hand through the process and will not examine you. The Chair is usually a senior faculty member and is also the easiest person to replace if you have difficulty scheduling a date.

How far ahead of the exam should I contact potential committee members?

Wrangling a QE committee has often been compared to herding cats. I contacted potential committee members about four months ahead of time. After initial meetings with each person individually, I used a poll to schedule the exam. You may decide that a particular date is more important than having a specific person on your QE committee. QE paperwork must be filed no less than 60 days prior to the exam, so I'd recommend nailing down the date at least 2.5 months ahead of time. Confirm the date and location with your committee often. Mike Koontz suggests creating an email signature with all the relevant information for all QE correspondence. Reserve a room for the 3 hour exam (plus buffer time) and check that the A/V works.

How often should I meet with committee members?

I felt that at least three meetings with each examiner was necessary to get into enough detail on each topic and understand different examination styles. I think that meeting more than four times is probably excessive unless special circumstances arise. I was surprised by how much variation in exam preparation there was within my committee. Some members of my committee set out a very structured schedule for meetings, while others left it up to me. It is really helpful to meet with your committee regularly. Some examiners will provide you with a reading list early, while others will add more papers to your list each time you meet. Organize your reading list; I included class notes, text books, and readings.

How long should I spend studying?

I think that approximately two months is about right, but of course the "right" amount of time varies. Many students study part time for a couple weeks



before they start studying full time. You may also want to consider how much time you will spend writing your proposal (writing mine took longer than I thought it would) and how many other responsibilities (school-related and personal) you will have while studying. Get good at saying "no" and try to reduce other responsibilities as much as possible.

When should I turn in my QE proposal and how long should it be?

The proposal must be sent to the committee two weeks prior to the exam; some examiners ask for the proposal 4-6 weeks ahead of time. Jess Rudnick used feedback on her proposal to tailor how she studied and prepared for exam questions. Even with prodding, you may not get written feedback from everyone on your committee. The QE Instructions say the proposal should be 5-20 pages (double spaced), but the consensus seems to be that shorter is better. Check in with the Chair of your committee about proposal length. Ask a friend or lab mate to share their QE proposal with you.

What about the QE presentation?

The QE Instructions suggest a presentation of about 15 minutes. Talk to your Chair about presentation length. My final presentation was 25 slides; during the exam I think it went about an hour with questions. My QE committee was focused on testable hypotheses and expected results, rather than research that had been completed. You don't need to include every detail in the presentation; lead your committee to ask the questions you want to answer. It's important to practice your QE with an audience at least once. The audience should include students who have passed the QE and faculty (e.g. your PI) who will pose QE questions. Prepare a

short introduction of yourself and your career goals. Remember that the direction you intend to take with your research and career guides your committee in evaluating your proposal and presentation.

What happens during the exam?

First, they kick you out of the room for a few minutes, which can be disconcerting. During the presentation, the committee generally wants to ask questions along the way, so being well-practiced will help keep you on track. Even with the best preparation, you may encounter unexpected situations; confidence in what you already know will help you keep your cool. In my exam, we all took a short break halfway through. The second half of the exam is dedicated to the four exam topics. Students can choose the order of examiners if they wish. I decided to start and end with the two topics I found most challenging. Since the purpose of the exam is to probe the limits of a student's knowledge, you may get questions that you haven't studied for; just do your best to answer with the knowledge that you have. It can be helpful to debrief with each committee member after the exam.

The QE is an opportunity to get valuable feedback on your research. Truman Young wants me to remind everyone that a "No Pass" is conditional pass, not a failure. He says, "The committee wants the students to be as prepared as possible, and sometimes they feel that follow-up in a topic (or two) is appropriate." Usually this means taking a class or revising the written proposal. Finally, sustained focus on the QE can be intense; be sure to take care of your mental health while studying and maintain your confidence during the exam itself!

Everyday Actions to Up Your Inclusivity Game

Ellie Bolas, Helen Killeen, Mikaela Provost

With contributors: Kristin Dobbin, Ann Holmes, Jan Ng, Priya Shukla, and the GGE Diversity Committee

“How can I up my inclusion game to support diversity in ecology?” That’s a question often on our minds these days. It’s no secret that science as a whole, and ecology specifically, struggles with recruiting, welcoming, and including diverse participants¹. Think of diversity and inclusion as two sides of the same coin: Diversity simply means different—different kinds of people with different stories, expertise, and ideas, and inclusion is “the fuel that animates diversity²,” the culture that a community creates to celebrate difference. As ecologists, we don’t have to be convinced that diversity is important both in the natural world and for the science community; creating a culture of human diversity simply means enhancing the excellence of our science^{1,2}.

There are a variety of ways to promote human diversity and inclusion in the sciences: creating grants and professional opportunities that target underrepresented students; establishing and enforcing codes of conduct and diversity committees for professional societies and conferences; developing and implementing trainings on implicit bias, systemic oppression, and inclusive language and dialogue; evaluating applications for graduate school, post-docs, faculty positions, tenure promotions, and funding holistically, rather than relying solely on performance metrics; the list goes on. However, many of these actions are beyond the reach and power of the average graduate student, and despite a drive to improve diversity and inclusion in our program and field, it can be difficult for many of us to feel as though we are making a difference.

Fortunately, there are many everyday actions that we can take to up our inclusivity game, and the list below suggests ways we can each make a significant impact in improving diversity and a culture of inclusion in our beloved GGE and the sciences at large. The awesome thing is that many of us are already doing some of these things without realizing it, which is part of what makes this graduate group so special!

Teaching

- Include images, citations, biographical information, and reading assignments on/from diverse scientists in teaching materials.
- Set an opt-in culture of using gender pronouns (<https://blog.cultureamp.com/sharing-gender-pronouns-at-work>) by providing our pronouns during introductions at the beginning of the quarter and giving students the option to provide theirs.

Mentoring

- Re-evaluate what “qualified” means for internship positions. Consider an undergraduate’s background and potential to learn, not just a specific skill set they possess.
- Pay interns. Opportunities for undergraduate and early career research increase diversity in science³, but unpaid internships, while common in our field, create barriers to participation⁴.
- Provide education for mentees on professionalism and career-building, and pass along internship opportunities.
- Make time for small mentoring interactions (email, brief meetings) with undergraduate and early career researchers to discuss career opportunities or edit essays/application materials.

Professional Representation

- Invite diverse speakers for seminars and lab meetings. A great starting place to find potential speakers is: <https://diversifyeeb.com/>



- Pass along speaking opportunities to someone who might be less well-connected than us but knowledgeable on a topic.
- Recognize who is “in the room with us.” Are there perspectives and experiences that are missing? For example, when invited to speak as part of a panel, ask about and advocate for a diverse speaker group, even if it means giving up our seat.

Colleague Relationships

- Develop a code of conduct and/or community norms for lab group or student committees. See the Davis R-Users Group Code of Conduct (<https://d-rug.github.io/code-of-conduct.html>) as an excellent example.
- Share opportunities such as grants or invitations to events outside of our day-to-day network.
- Consider how social activities may include or exclude people in our community. Going for beers after work often leads to development of research ideas and collaborations, but may exclude people who don’t drink, or who care for family at the end of the day.
- Acknowledge where ideas come from in meetings and help others remember if they forget or misattribute.
- Acknowledge and ensure equal participation in service or community-building tasks such as providing snacks or taking notes in meetings, maintaining equipment and supplies, etc. Check out the *Inside Higher Ed* article “Relying on Women, Not Rewarding Them” for more on faculty service work and gender dynamics.
- Talk with each other about impostor syndrome and toxicity in the workplace, both of which can be especially damaging to marginalized students.
- Think about intent vs. impact of actions and words (and see the Scientific American blog, “But I Didn’t Mean It!” to learn more).
- Talk to people, and listen. Talk to people we spend time with regularly with the intent to hold each other accountable for creating an inclusive community. Talk to people we don’t normally spend time with and find common ground. While often challenging, one-on-one conversations about diversity and inclusion are the glue that holds our community together. This work may be the most important work we can do.

Personal Education:

- Online Resources & In-person Trainings
- UCD Diversity Resources about diversity in higher education: <https://diversity.ucdavis.edu/read>.
- <https://smallpondscience.com/> and @smallpondscience diversity discuss issues in higher education and science specifically
- “5 Tips for Being an Ally,” a 3-minute video by

Franchesca Ramsey (available on YouTube).

- Racial Equity Tools, a set of online trainings and resources for those working toward racial equity: <https://www.racialequitytools.org/home>
- At UCD: The GGE Diversity Committee, UCD Cultural Centers, the UndocuAlly Program, the Graduate Diversity Office, the Environmental Justice Speaker Series, the Office of Campus Dialogue and Deliberation.

Podcasts:

- “Still Processing” Podcast from *The New York Times* about pop culture with emphasis on racial and queer identity.
- “Code Switch” Podcast from NPR about race and identity.
- “All My Relations,” an indigenous feminist podcast that talk about academia

Books:

- “Between the World and Me” by Ta-Nehisi Coates. A memoir by a well-known writer for *The Atlantic* describing “the terrible history of the subjugation of black people” (Shelley Diaz of the School Library Journal).
- “Why Are All the Black Kids Sitting Together in the Cafeteria” by Beverly Daniel Tatum, PhD. A classic for understanding racism and social identity in the modern world and education.
- “Color Blind: The Rise of Post-Racial Politics and the Retreat from Racial Equity” by Tim Wise. About contemporary “invisible” racism.
- “Just Mercy” by Brian Stevenson. Racial injustice in the criminal justice system in America.
- “Fading Scars: My Queer Disability History” by Corbett Joan O’Toole. A memoir and history of disability rights.
- “Persistent Inequality: Contemporary Realities in the Education of Undocumented Latina/o Students” by María Pabón López and Gerardo R. López. How law, policy, and the public education system trap undocumented migrant students.
- “Farewell to Manzanar” by Jeanne Wakatsuki Houston. A memoir of life for Japanese Americans forced into internment camps during World War II.
- “Covering, The Hidden Assault Against Our Civil Rights” by Kenji Yoshino. A memoir on how the pressure to conform threatens civil rights.

¹ Ha, G. 2016. When we talk of [human] diversity. *The Aggie Brickyard*, 3, 17–18.

² Crawford, C. 2016. Diversity 3.0: At the Core of Excellence. American Academy of Family Physicians, AAFP News webpage. <<https://www.aafp.org/news/inside-aafp/20160506ncc-nivetplenary.html>>. Accessed 1 May 2019.

³Russell, S. H., Hancock, M. P., & McCullough, J. 2007. Benefits of Undergraduate Research Experiences. *Science*, 316, 548–550.

⁴Fournier, AMV., & Bond, AL. 2015. Volunteer field technicians are bad for wildlife ecology. *Wildlife Society Bulletin*, 39(4), 819–821.

GGE Executive Committee

Helen Killeen, Jess Rudnick, and Aviva Rossi

Update: Results from quantitative training needs survey

Ecology is an enormously diverse discipline. As ecologists, our systems, study species, methodologies, and conferences differ. But we have at least one thing in common: the need to conduct rigorous quantitative analyses to explain the patterns and processes we are interested in. During the fall of 2018, we conducted a survey to examine how well prepared GGE students are to design and conduct quantitative studies. Strong quantitative skills, particularly in statistics, are critical for success in graduate school and in the job market beyond. However, despite the importance of these skills, the GGE does not currently offer a course or series of courses in quantitative skills for ecology. The survey was designed to answer the following questions: (1) Are GGE students acquiring the quantitative skills they need to be successful? (2) What additional coursework or resources would best support quantitative skills acquisition?

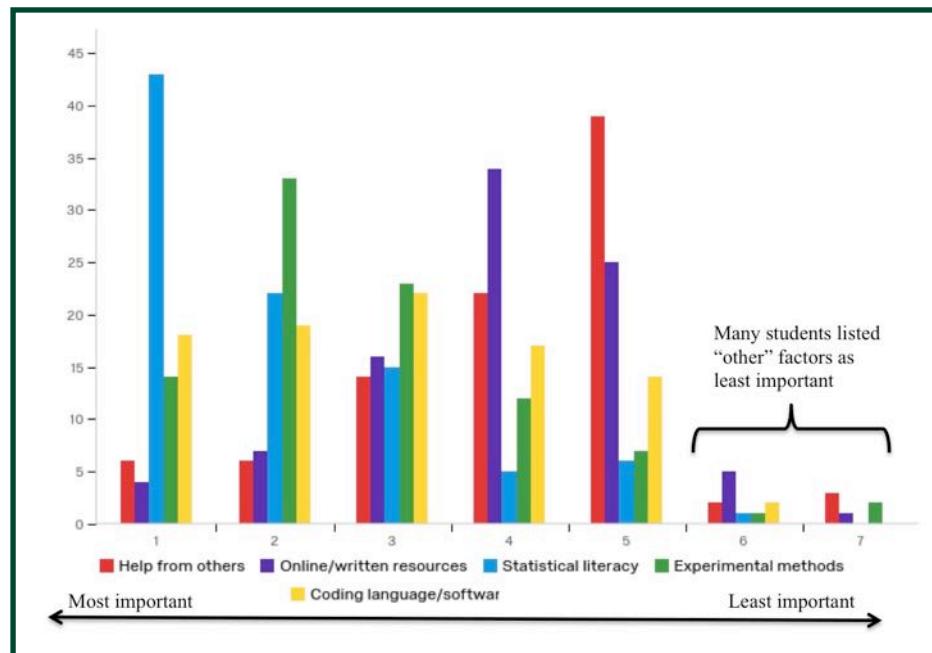
One hundred and thirteen GGE students (64% of those currently enrolled) responded to the survey with strong representation from 1st through 5th year cohorts,

and limited responses from 6+ year cohorts. Students provided information on courses they have taken, how useful those courses have been, self-perceived levels of quantitative competency, and suggestions on what elements are most lacking from current quantitative training opportunities. One major success of the survey is that it generated a list of currently available quantitative courses: 23 courses from 11 departments. This list will soon be developed into a standalone resource for GGE students wishing to plan their quantitative coursework. In addition, the survey helped to identify several major trends in student perceptions of quantitative training in the GGE.

Key Takeaways:

Existing coursework does **not** prepare students to confidently conduct statistical analyses

Students were asked to evaluate their level of confidence in their ability to design statistical analyses. We were particularly interested in how students who had already completed all of their coursework responded to this question. Most students who have completed their coursework reported being “fairly confident”. However, 32% of students who had completed coursework responded that they feel either “somewhat unconfident” or “very unconfident” in designing their own analyses. This is particularly troubling given that these students are more likely to have begun conducting their research and are less likely to seek out further coursework.



Bar chart showing student opinions of what is most lacking from current GGE quantitative training. One to seven (horizontal axis) are student rankings, in order of importance, of what aspects of quantitative training are currently missing. Colored bars show how many students (vertical axis) selected each category. For example, 43 students believe “statistical literacy” to be the most important factor missing from current training. Students also had the option to list their own “other” factors, but this data is not displayed here. - Helen Killeen, Jess Rudnick, Aviva Rossi

GGE students self-teach

Students were asked to evaluate whether or not they had received sufficient quantitative training for their dissertation or Master's thesis. Excluding those students who undertook a Master's degree in other graduate programs prior to starting in the GGE, 54% of respondents indicated that they were "unsure" and "relying on self-teaching" rather than coursework. In addition, the survey also found that students turn to online resources for statistical questions, but turn to advisors and lab mates for experimental design questions. About one quarter of GGE students make use of the UC Davis Data Science Initiative (DSI) training classes or Statistics Department consulting.

Basic statistical literacy is key

When asked to identify what is most lacking from current GGE quantitative training opportunities, the most common response, by far, was basic statistical literacy (Figure 1). This was also borne out in narrative responses from students despairing of the lack of basic statistical training to inform experimental design decisions and prepare students for Qualifying Examinations. In terms of what is most lacking from GGE training, basic statistical literacy is trailed by experimental methods and programming.

R-Davis has been an extremely valuable addition to GGE curriculum

Across ecology programs, the GGE ranks highly on the number of required courses. Understandably, GGE students are concerned about the addition of new course requirements. This was certainly the case this year as R-Davis became required for new GGE students (though with proof of sufficient programming experience may opt out of this course).

However, R-Davis has proven to be very useful, particularly for early-stage graduate students. 86% of students who have taken R-Davis described themselves as "very or fairly confident" in their programming skills, compared to 59% of students who have not taken the course. R-Davis is a good example of how coursework responsive to the particular needs of GGE students can make a difference in student preparedness to succeed in graduate school.



Next Steps:

As the student representatives to the GGE Executive Committee, Jess and I will be presenting the results of this survey at the Spring 2019 Executive Committee (EC) meeting. We will also be recommending the EC take the following actions:

1. The GGE should continue to financially and administratively support R-Davis.
2. The EC should develop recommendations for quantitative course sequences, perhaps specified for different AOEs, based upon existing courses across multiple departments.
3. The GGE should establish an additional core course, covering ecological quantitative training to meet the needs of GGE students and cover current deficits not available through other courses in our related departments.

We welcome any questions or comments about the survey results and recommendations, you can reach us at hjkilleen@ucdavis.edu (Helen Killeen) and jrudnick@ucdavis.edu (Jess Rudnick). Thanks to everyone who took the survey!

Easter flowers at North Table Mountain Ecological Reserve. - Sarah Gaffney





Diversity Committee

Spring 2019 Update

Diversity Committee Mission: *The Diversity Committee will work to foster an appreciation for the value of diversity in the GGE, to create and sustain a supportive and inclusive environment for all members, and to diversify our membership.*

This spring the Diversity Committee (DC) has been working on a variety of new and ongoing efforts. We also welcomed our newly elected vice-chair, Maria Ospina! The DC will present on all of its efforts during the 2018-2019 year at the GGE Annual Meeting later this quarter. In the meantime, here is a quick summary of what our subcommittees have been up to this spring:

Outreach

- DC Chair, Deniss Martinez, and Outreach Subcommittee Chair, Fred Nelson, spoke at this year's GGE Student Symposium. Their talk, entitled *Building Common Language for Equity & Inclusion*, gave GGE community members insight on how to make academic spaces more diverse and inclusive through conversation. The DC also hosted a short breakout session on *Promoting Leadership by Building Self-Awareness*.

- The DC will co-host the upcoming **GGE Friends, Family, and Pets Potluck Picnic in the Park** May 19th. This annual event, now in its second year, is a way to build the GGE community outside of weekly Happy Hour events and more academic settings.

Trainings & Workshops

- The DC collaborated with the Davis Subunit of the American Fisheries Society to host a panel discussion and workshop entitled *Navigating Challenges in Academic Spaces*. This workshop was the second in the #MovingBeyondDiversity101 series and took place on May 6 in the Coastal and Marine Science Institute. The panel discussion included Brooke Penaluna, of the US Forest Service; Ivan Arismendi, OSU; and Devin Horton, UCD Graduate Diversity Officer for STEM.

- The GGE Peer Mentorship Program, which welcomes new GGE members by pairing them with more senior students, will now be housed within the DC. We look forward to continuing the important work of this program and welcome any suggestions on how it could be improved.

Admissions & Awards

- The DC worked with the GGE Admissions Committee and campus diversity officers to develop and offer training on implicit bias, the collection of attitudes and stereotypes that unconsciously affect our thoughts and actions, for admissions reviewers for the 2019 application review cycle.

- Assisted Admissions Chair with implementation of holistic admissions process, which included working with 85+ reviewers (faculty and students) to read nearly 300 applications for prospective students

If you are interested in getting involved with the GGE Diversity Committee please join us at one of our quarterly meetings, advertised on the [ggestudents](#) listserv, or contact DC Chair Deniss Martinez (djmartinez@ucdavis.edu) or NEW Vice-Chair Maria Ospina (mcospina@ucdavis.edu).

Political Ecology Lab

Kristin Dobbin

In May, the UC Davis' Political Ecology Lab held its first ever research and writing retreat at Bodega Marine Lab. The Political Ecology Lab was founded in Spring 2018 after 13+ UC Davis graduate students and postdocs attended a Left Coast Political Ecology convening at UC Berkeley. Davis already had a vibrant, interdisciplinary group of scholars engaging in political ecology research, but because we were coming from many departments and graduate groups, many of us met each other for the first time in Berkeley. Since that convening, we have worked to create a space for political ecology conversations and research here at Davis.

Political ecology can broadly be considered as the study of the relationship between political, economic and social factors and environmental issues or change. At Davis, our approach to political ecology involves a community of practice or praxis on interrelated issues of power and the environment. Our graduate-student led lab brings students, postdocs and faculty from various

departments and graduate groups (including but not limited to Ecology, Geography, Horticulture and Agronomy, Cultural Studies, the Data Science Initiative, Anthropology, and Education) to create a transdisciplinary intellectual space for examining how political ecology can generate deeper socio-ecological diversity, equity, and inclusion. In our bi-weekly lab meetings, we get feedback on lab members' works-in-progress, read and discuss emerging and ongoing topics relevant to the field.

The aim of the 2019 spring retreat was to continue cementing our intercampus network by bringing together graduate students and faculty from across campus to think, write, organize and develop new projects around intersecting topics in political ecology. The retreat featured a facilitated discussion on our converging and diverging definitions of political ecology, a panel on interdisciplinary perspectives and approaches to political ecology, and graduate student breakouts on topics of shared interest, as well as individual writing time and planning for next year. More of this work will continue in the future, providing Davis political ecologists with opportunities to share resources, ideas, and inspiration.





Society for Conservation Biology

Amy Collins

SCB-D strives to engage the Davis community with local and global conservation issues, provide opportunities for its members to develop professional skills needed in the field of conservation, and encourage interdisciplinary approaches to conservation.

The Society for Conservation Biology-Davis chapter has had an exciting quarter! Our new stewardship committee member, Alison Ke initiated the Davis Nestbox Network program in collaboration with the UC Davis Museum of Wildlife and Fish Biology and the City of Davis. The program has seen 15 bluebird nest boxes placed along the greenbelt, from Community Park to Northstar Park. Alison and her team of ten undergraduate interns monitor these nest boxes weekly, and currently, three of the fifteen boxes have eggs in them from bluebirds and tree swallows!

Once the nestlings hatch, Alison and her team will be banding them, and working collaboratively with the Yolo Audubon Society to encourage people to put up more nest boxes throughout Davis. To check out Alison's latest blog posts, visit <https://mwfbsongbirdnestbox.wordpress.com/>.

SCB-D's social committee member, Amy Collins, organized a trip this February to the California Academy of Sciences Nightlife Spotlight: Darwin! Eighteen Darwin enthusiasts enjoyed a night of amazing planetarium shows, an earthquake simulator, and of course, Galápagos island artefacts. If you missed this social event, don't worry! We'll be hosting a spring quarterly event May 21st to celebrate our policy, stewardship, education and outreach, and sustainability committees' achievements of the year. For more information on SCB-D, or to find out ways for you to get involved, visit <https://davisscb.wixsite.com/scbdavis>.



*An unbanded male bluebird checking in on his eggs.
- Alison Ke*

WHAT'S ON YOUR MIND?

Grad Lib: An Ad-Libbed Graduate Student Life

Alex Gulachenski and Her Roommates

I woke up in the morning and drank a cup of [noun _____. Wow, I thought, that was [adjective _____. Today's the most [adjective _____. day of the week because it's Coffee Bagel Donut Day, or as some call it CBDD. So I hopped on my [noun _____.] and rushed to school. "Where the [exclamation _____.] is this place again?" Oh, I think it's inside of [place _____.] After some time, I finally make my way to the [adjective _____.] food. I was [adjective _____.] to see so many options. I took [number _____.] donuts and [number _____.] bagels. The bagel monitor was [adjective, feeling _____.]. After, getting [verb, past tense _____.] from CBDD, I went back to my [office/lab/ corner/you choose _____.], and [adverb _____.] ate my [number _____.] [plural noun _____.]. At which point I broke a [expensive lab equipment _____.]. I emailed my advisor with great [emotion _____.]. However, he didn't email me back, so it's probably [adjective _____.].

In the meantime, I looked at my [noun _____.] [exclamation _____.]!! I was late for [graduate school obligation _____.]. Upon my arrival, I found out that I had been [verb, past tense _____.] to present, as my [adjective _____.] lab mate had a [noun _____.]. Doing what every grad student does [adverb _____.], I pulled out my most recent presentation, chock-full of [noun, plural _____.], channeled my [emotion _____.] and [verb, past tense _____.] my audience.

After the [emotion _____.] of the morning, I found myself staring at a [grad student dilemma _____.]. I was [adjective _____.]. After calling [supportive role model _____.], I went for a walk around [place in Davis _____.]. At that point it was already [time of day _____.]. I headed to my [grad student hobby _____.]. Picked up a free [unusual noun _____.] advertised on Eco-Social, what a bargain! At that point, I headed home feeling pretty [adjective _____.], all in the day of a grad student.



WHAT'S ON YOUR MIND?

What Keeps You Up at Night?

Anna Steel

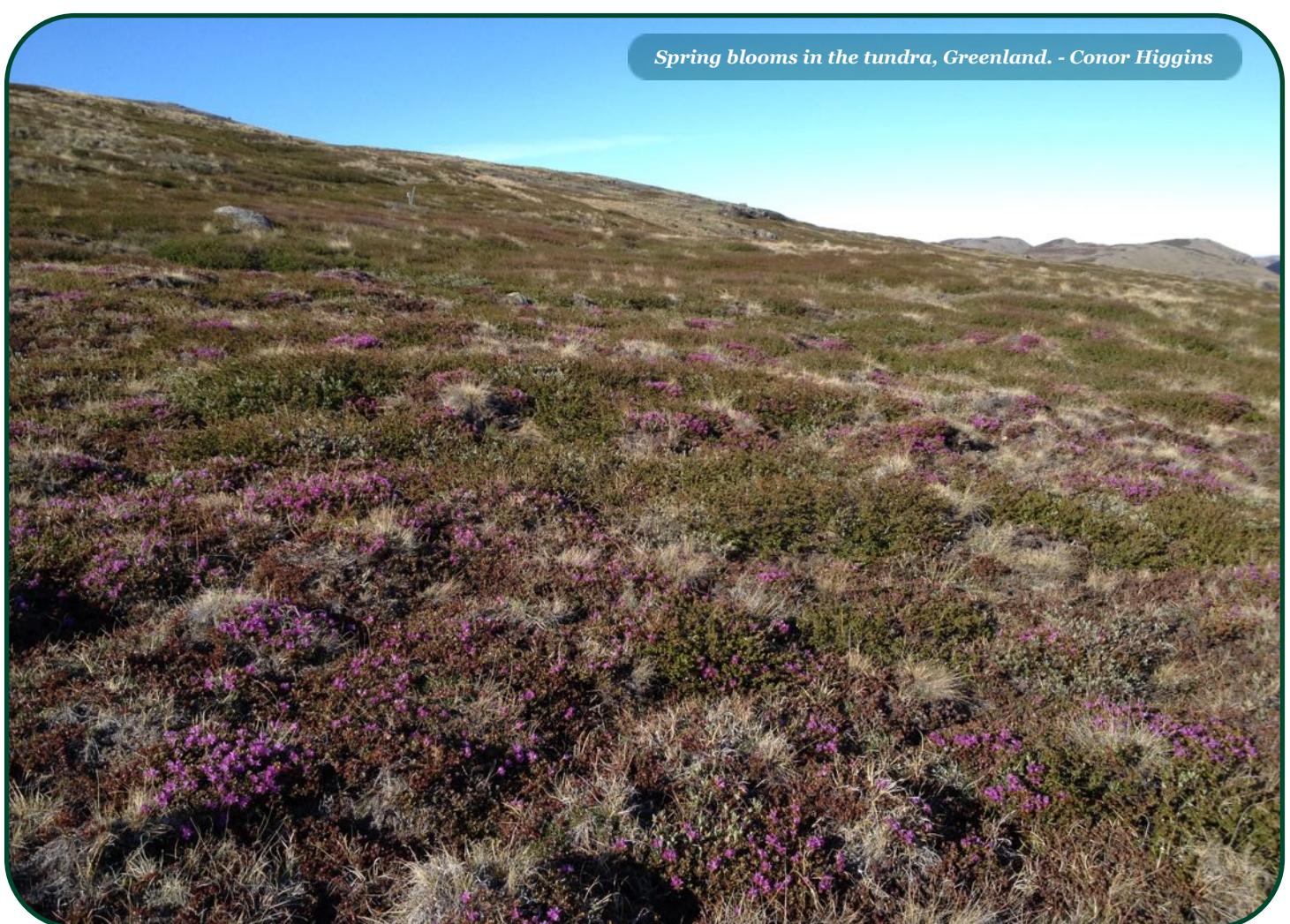
Our toddler, of course. This answer was immediate for both me and my husband, because she literally does keep us awake when she doesn't want to (or can't) fall asleep. But our three-year-old also stirs deeper worries that nag my thoughts as I try to coax her—and myself—back to sleep. I worry about how we'll balance a desire for family stability and sanity with our goal of two PhD-level careers. And more profoundly, I worry about the socio-ecological problems that our daughter will face due to climate change. I wonder what I can do to prepare her for it. Many of my thoughts are protective: Should I limit the scope of my career search to more climate-secure

states so she'll have more time to prepare? Should I simply make as much money as possible, so she'll have an economic cushion to buy her way out of the inevitable challenges of the future (as jaded and selfish as that is)? When I'm in a more positive frame of mind, I wonder what skills I can foster in her so she can be a force of change, or a leader as her generation copes with a new climate and world.

As I write this, I realize it sounds rather dark. But I suppose the things that keep us up at night are often dark—except maybe for those lucky few enveloped so thoroughly in their research that they spend sleepless hours mulling over the best model structure for their dataset. To them, I'm envious. But in the meantime, I'll try to get back to sleep.



Spring blooms in the tundra, Greenland. - Conor Higgins



WHAT'S ON YOUR MIND?

What Keeps You Up at Night?

Angie Korabik

Gradients, gradients everywhere.

Salinity gradients, temperature gradients, color gradients representing density on a plot I created in R.

Gradients seem to be everywhere recently...

Starting to turn my focus towards estuarine systems and thinking about the gradients that dominate that environment –

How does salinity change over distance?
How do communities shift?
How many dimensions define these gradients?

Working on my dive certifications and physically experiencing a number of gradients –

The feel of thermoclines and temperature gradients on my skin as I descend,
A change in pressure in my ears and sinuses as I try to maintain my buoyancy an even meter from the ocean floor as I kick along the benthos,
A visible gradient of light and color as I ascend from the dark azure waters at 30 feet to the clear sunlit surface.

And in my own life... I'm searching for less of a gradient – or a more even one, maybe.

Less veering towards extremes and more finding a central balance. Trying to stop fluctuating between the extremes of no motivation to work at all and so much motivation that I over-commit myself. Trying to achieve that elusive work-life balance. Finally taking ownership of my mental health and getting the help I need. Starting to realize that sometimes things don't always have to be "good" or "bad" and sometimes "just okay" is a perfectly fine place to be.

Maybe "just okay" is actually the best place to be – you have more wiggle room to move along the gradient that way.





Lasthenia californica, *California goldfields*. - Sarah Gaffney



Prehistoric

Maria Ospina

We are something of dinosaurs.
Idealized, I can imagine
their size, strength, speed.
Like Birds
but less evasive. Dominant.

Big Boom.

A meteor marked the end of the era
of the only creatures we are
almost
as obsessed with
as ourselves.
Those that gave rise to this.

Maybe, we are paving
the long, concrete road
for the next-best
“Us.”

THE AGGIE BRICKYARD



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