

THE AGGIE BRICKYARD



assembling the blocks of ecology at UCD



Editorials

WELCOME TO THE
BRICKYARD



RESEARCH
SPOTLIGHT
BERRIED CRABS



STUDENT
PERSPECTIVES
FROM FIRE TO ASHES



COMMUNITY
ODYSSEY
PERSPECTIVES

IT'S ALIVE!



- ◆ COVER: Our front cover was illustrated by **Allison Simler** for a poster presented by Noam Ross at ESA 2014, who built a macroparasite model based on the disease dynamics of Sudden Oak Death.

LETTER FROM THE EDITORS

Welcome to the first edition of The aGGiE Brickyard!

Not so long ago, the students of the Ecology Graduate Group put together a quarterly newsletter known as The Egg. The Egg showcased the scientific, artistic, comedic, and general brilliance of the students and faculty of the Ecology Graduate Group. Beyond just a reflection of the community of ecologists at UC Davis, The Egg provided a forum for student and faculty interaction that helped to strengthen our community. In that spirit, we decided to revive the student publication and bring you The Aggie Brickyard. We hope that this publication can serve an important role in the beautiful, large, (at times) amorphous, force of ecological research and social revelry that is the Graduate Group in Ecology at UC Davis.

Why a newsletter-magazine-journal hybrid? After all, there are blogs, tweets, symposia, conferences, and seminars that provide opportunities for promoting our collective efforts, accomplishments, and interests beyond ecology. However, we felt that there is a need for a more cohesive and permanent venue for debate, discussion, and displaying the many facets of the GGE – something that outlasts the ever-shrinking attention span of the internet.

Why The Aggie Brickyard? Bernard Forscher invokes the brickyard metaphor in his classic essay “Chaos in the Brickyard” (re-printed on pages 4 and 5) 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.

We hope The Aggie Brickyard can serve as a conduit among students and faculty allowing us to bridge knowledge gaps and leverage the diversity of expertise we have here at UC Davis. We hope to feature some of the best in editorials, thought-pieces, research, art, photography, and whatever else the GGE community can throw at us. Please enjoy this first edition of The Aggie Brickyard, and consider contributing your research, stories, or art to future editions. Also, be sure to let us know what you liked, disliked, and how you think we can improve this publication.

Sincerely,

Your Aggie Brickyard Editors

The editors at work...



and we like each other



From left: John Mola, Matt Williamson, Ryan Peek, Madeline Gottlieb

CHAIR-ISHED REFLECTIONS

A Teditorial



Ted (photo: Rob Blenk)

“It is hard to pinpoint a single lapse in judgement that resulted in my agreeing to be GGE Chair.” - Ted Grosholz, GGE Chair

Successful interdisciplinary science. My hope here is to provide a few thoughts and my idiosyncratic views of what makes a successful interdisciplinary scientist. I don’t mean to imply necessarily that I am “successful” or that what I do is a model for students to follow. However, I do contend that I have been involved in interdisciplinary science long enough to have a sense of what makes it work effectively. It’s important to understand that you approach interdisciplinary science from the point of view of bringing your own academic strength to the project. Although your own work might place you at the intersection of different disciplines, and is an advantage in my view, it isn’t possible to be a substantial contributor in many fields. It is important to learn as much as you can about other disciplines, either through targeted coursework, reading across disciplines, attending professional meetings in other areas, etc. The goal is to better understand the language, the approaches and the questions that these other fields use. So from the standpoint of what to do as a GGE student, make sure to be the best in your discipline and don’t spread yourself so thinly that you end up being the master of none. Effective interdisciplinary science comes from productive collaboration among specialists who understand each other’s work and so can creatively work together and identify new directions for research.

GGE publications. I would like to see a GGE publication that is at the least thought provoking, but ideally one that would lead to actual conversations about the topics covered. I would suggest selecting a particular issue and gathering a diversity of viewpoints that can be presented in a way that would challenge the thinking of GGE members. In some cases, it might also result in positive change in the graduate education process and even institutional change in the GGE.

So why did I agree to be GGE Chair? It is hard to pinpoint a single lapse in judgement that resulted in my agreeing to be GGE Chair. Among the many ‘forces’ that crafted my original decision to agree to be Chair, I was lobbied by several of my colleagues including the now retired Kevin Rice. It’s nearly impossible to say no to his ridiculously high energy and humor. But I also felt a responsibility to ‘give back’ to the GGE for the years of support and help with the graduate students in my lab, so I thought this was the right time. However, I do hope to make good on my commitment by achieving some positive change. First, I would like to see the GGE continue to grow in size rather than lose ground. We have some new goalposts that our graduate group needs to reach, but I think we can use these positively to increase our standing in the University. Second, I would also like to see increased diversity in the GGE ranks and hopefully the efforts we are making in the admissions process will help improve this. Third, I will work towards better support from the University and Graduate Studies for international students, which is currently tenuous. Forth, I will work with other GGE faculty to attract new funding for training grant programs for interdisciplinary research such as the NRT program at NSF. Lastly, I will try to make the AOE’s more interactive and more effective as a supporting entity for GGE students.

Dr. Ted Grosholz

CHAOS IN THE BRICKYARD

By Bernard K. Forscher

Once upon a time, among the activities and occupations of man there was an activity called scientific research and the performers of this activity were called scientists. In reality, however, these men were builders who constructed edifices, called explanations or laws, by assembling bricks, called facts. When the bricks were sound and were assembled properly, the edifice was useful and durable and brought pleasure, and sometimes reward, to the builder. If the bricks were faulty or if they were assembled badly, the edifice would crumble, and this kind of disaster could be very dangerous to innocent users of the edifice as well as to the builder who sometimes was destroyed by the collapse. Because the quality of the bricks was so important to the success of the edifice, and because bricks were so scarce, in those days the builders made their own bricks. The making of bricks was a difficult and expensive undertaking and the wise builder avoided waste by making only bricks of the shape and size necessary for the enterprise at hand. The builder was guided in this manufacture by a blueprint, called a theory or hypothesis.

It came to pass that builders realized that they were sorely hampered in their efforts by delays in obtaining bricks. Thus there arose a new skilled trade known as brickmaking, called junior scientist to give

the artisan proper pride in his work. This new arrangement was very efficient and the construction of edifices proceeded with great vigor. Sometimes brickmakers became inspired and progressed to the status of builders. In spite of the separation of duties, bricks still were made with care and usually were produced only on order. Now and then an enterprising brickmaker was able to foresee a demand and would prepare a stock of bricks ahead of time, but, in general, brickmaking was done on a custom basis because it still was a difficult and expensive process.

And then it came to pass that a misunderstanding spread among the brickmakers (there are some who say that this misunderstanding developed as a result of careless training of a new generation of brickmakers). The brickmakers became obsessed with the making of bricks. When reminded that the ultimate goal was edifices, not bricks, they replied that, if enough bricks were available, the builders would be able to select what was necessary and still continue to construct edifices. The flaws in this argument were not readily apparent and so, with the help of the citizens who were waiting to use the edifices yet to be built, amazing things happened. The expense of brickmaking became a minor factor because large sums of money (*cont...*)

CHAOS IN THE BRICKYARD (Forscher 1963)

were made available; the time and effort involved in brickmaking was reduced by ingenious automatic machinery; the ranks of the brickmakers were swelled by augmented training programs and intensive recruitment. It even was suggested that the production of a suitable number of bricks was equivalent to building an edifice and therefore should entitle the industrious brickmaker to assume the title of builder and, with the title, the authority.

And so it happened that the land became flooded with bricks. It became necessary to organize more and more storage places, called journals, and more and more elaborate systems of bookkeeping to record the inventory. In all of this the brickmakers retained their pride and skill and the bricks were of the very best quality. But production was ahead of demand and bricks no longer were made to order. The size and shape was now dictated by changing trends in fashion. In order to compete successfully with other brickmakers, production emphasized those types of brick that were easy to make and only rarely did an adventuresome brickmaker attempt a difficult or unusual design. The influence of tradition in production methods and in types of product became a dominating factor.

Unfortunately, the builders were almost destroyed. It became difficult to find the proper bricks for a task because

one had to hunt among so many. It became difficult to find a suitable plot for construction of an edifice because the ground was covered with loose bricks. It became difficult to complete a useful edifice because, as soon as the foundations were discernible, they were buried under an avalanche of random bricks. And, saddest of all, sometimes no effort was made even to maintain the distinction between a pile of bricks and a true edifice.

Science (1963).
Bernard K. Forscher
Vol. 142, No. 3590. p. 339



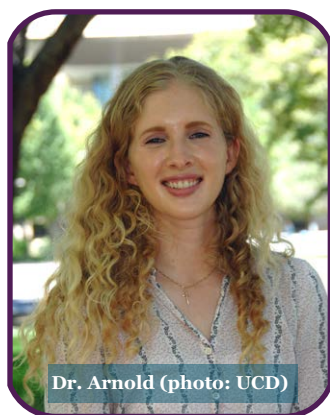
FACULTY Q & A

For this issue, we asked three faculty members for their opinion on the relationship between specialized versus interdisciplinary training. Here are their responses.

Swimming Towards Being Interdisciplinary

Gwen Arnold, Phd, Environmental Science and Policy

For me, doing interdisciplinary work grows naturally from an interest in addressing real-world problems and phenomenon. If you begin with a concern – in my research it was U.S. wetland management, and then high-volume hydraulic fracturing – and allow that concern to motivate your questions, you find yourself going down a number of different paths, reading literature and learning about theories and methods not necessarily widely used in your own home discipline. It's my impression that if you operate the other way – beginning your research with the notion that you are a political scientist, and you want to find political questions that you can answer in ways that advance political science scholarship – your scope will be much smaller and your options more limited. Personally that doesn't seem very satisfying in terms of getting to learn new things or in the broader sense of generating work that helps the world.



Choosing what to study can be quite tricky, though. Ideally you choose an area where your findings can be substantively useful, and where theoretical lessons can be drawn from your work by people who don't care passionately about wetlands, or fracking, but do want to employ your analytical approach in the topic they care about and are investigating. This prevents you from getting so deep into a niche that no other scholars can find you or find the relevance in your work. At least you have to be able to climb back out and explain why they should care about it. I think that the process of diving into that niche and then swimming back to the top and skimming across the surface to make connections to other scholars and areas and interests before diving back down is really what this job is about.

FACULTY Q & A

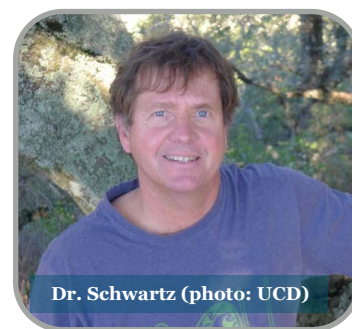
Balancing Breadth and Depth in Graduate Education

Mark Schwartz, PhD, Environmental Science and Policy

Those of you who know me probably see me as someone who emphasizes breadth. I mostly work on policy, decision-making and resource management in the context of conservation and climate change. However, I was not trained in that area. My academic training is in plant ecology. I have acquired breadth along the way as I needed it. I believe that breadth has made me a much better conservation scientist and I truly value what this breadth has afforded me in terms of research opportunities. This does not, however, mean that I think that everyone should strive for interdisciplinary breadth as a graduate student.

In teaching conservation decision making I have found that early on in graduate careers, this breadth (adding policy, decision theory, project planning to depth in ecology) is time consuming and may or may not pay off. Most graduate students gain clarity on career objectives and it is at this point that a hard evaluation of the skills that are needed to propel you down your desired career path is warranted. At the end of the day, you will need to signal strengths in the skills your employer values. For R1's, that is research. For undergraduate colleges those skills broaden to include real demonstrable leadership in teaching. For agencies, consultancies and NGO's, the roof blows off and could be any number of social, fundraising, communication, legal, decision-making, project management skill sets. Critical in this statement is that you need to be able to signal strength in skills; not that you have taken classes in skills.

Thus, how you evaluate what breadth you need and then obtain it is likely to vary broadly. With all of the online training opportunities, it is likely that using your time at UC Davis to demonstrate experiential learning is far more important. Choose those experiences carefully.



FACULTY Q & A

A highly opinionated (yet correct) rant for grad students about specialization versus breadth

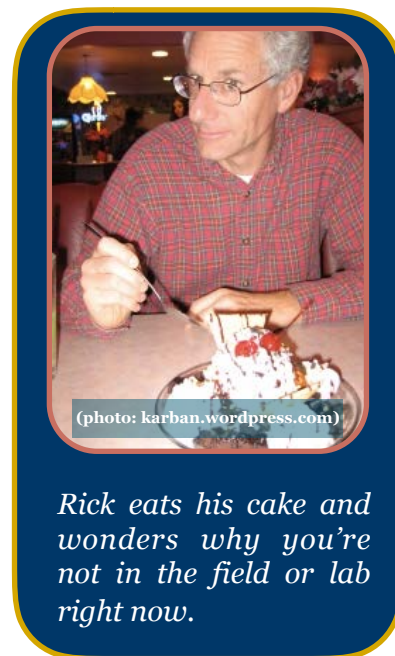
Rick Karban, PhD, Entomology and Nematology
Mikaela Huntzinger

For most grad students, the long-term game is getting a job in ecology that will be satisfying.

Keys to the game:

- You will be judged based on your research and not on things like the breadth of knowledge you can get from courses. Focus on your research and pubs.
- Sure, courses can give you new ideas for your research and prevent you from reinventing the wheel. However, this sophistication is overvalued and won't necessarily make you more productive or creative.
- Yes, breadth is useful. But it's often more efficient to skim broadly and attend seminars rather than take courses. If you want to build an interdisciplinary background, go to all of the GGE seminars. They'll also give you a sense of how science is actually done, which you can't necessarily get in classes. Writing up your own ideas and results will also force you to put them in a broader perspective.
- You are here to complete research. Get the specific background you need to do it better. Having a strong grounding in stats is generally valuable. Other professional development courses and workshops (eg., Sharon's NSF workshop) can be more useful than traditional coursework.

Time and the ability to concentrate are limited resources. Don't squander them on too many classes and studying for orals. Instead, invest them in research. By the time you get into grad school, you are truly a professional student. You have been training almost your entire life to get good grades and high scores. It's a damned shame that those skills won't necessarily help you do good research. The best way to learn to do good science is to start doing it, now!



Rick eats his cake and wonders why you're not in the field or lab right now.

RESEARCH SPOTLIGHT



(photo: Carson Jeffres)

Salmon & Rice

Carson Jeffres

The Nigiri Project is a collaborative effort between state and federal agencies, private landowners, California Trout, and UC Davis to utilize the Yolo Bypass for juvenile salmon habitat during the non-agriculture season. To date, the flooded rice fields provide the highest growth rate ever recorded for juvenile Chinook salmon in California. This project continues to expand and will be increasing the flooded acreage in the upcoming season.

Climate Adaptation for the Humboldt Bay National Wildlife Refuge

Matt Williamson

Last spring, the John Muir Institute of the Environment (JMIE) and the US Geological Survey's Southwest Climate Science Center (SWCSC) convened a group of GGE students to assist in the development of climate adaptation actions for the Humboldt Bay National Wildlife Refuge. Students worked with US Fish and Wildlife Service staff to develop strategies for predicting the effects of climate change on the key refuge objectives and offer possible actions for mitigating those effects deemed to be most detrimental. Students learned about conservation planning and the myriad climate models being used to develop climate adaptation plans while greatly increasing the capacity of the Fish and Wildlife Service to consider the complexity of climate change. Stay tuned as the JMIE and SWCSC are working develop more of these opportunities for students to engage with land managers to cope with climate change.

Report:

Williamson, M. A., Block, G. Dibble, C., Holmes, E., Hollarsmith, J., McDonald, K., Peek, R. A., Powelson, K., Rossi, A., Sadowski, J., Schwartz, M.W., Sur, C., Tiedeman, K. 2015. Assessing climate threats to the Humboldt Bay National Wildlife Refuge: A report to the United States Fish and Wildlife Service. 69p.



(photo: Sam Bashevkin)

A Very Berried Crab

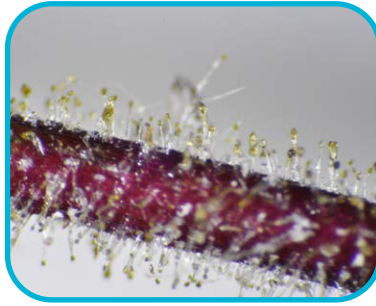
Sam Bashevkin

Have you ever seen a crab walking around carrying what looks like a bunch of caviar? Probably not. But if you did, you would be correct that the crab is carrying around caviar. When crabs reproduce, the female exudes a mass of a few thousand eggs that she carries against her body.

The female, now called gravid or berried (the eggs look like berries), will carry around this egg mass for a few weeks until the embryos

have fully developed into larvae. Then, during high tide she will release her larvae into the ocean. Many species precisely chose the time and day to release larvae based on when there will be the fewest predators around to gobble up their newly released larvae. Since most larvae will likely die in the treacherous plankton community, she will start working on her next egg mass very soon, sometimes exuding one the very next day.





(SOME) RECENT STUDENT PUBLICATIONS

Ahmadia, G. N., L. Glew, **M. Provost**, D. Gill, N.I. Hidayat, S. Mangubhai, & H.E. Fox. 2015. Integrating impact evaluation in the design and implementation of monitoring marine protected areas. *Phil. Trans. R. Soc. B*, 370:1681, 20140275.

Bashevkin S.M., J.A. Pechenik. 2015. The interactive influence of temperature and salinity on larval and juvenile growth in the marine gastropod *Crepidula fornicata* (L). *J. Exp. Mar. Biol. Ecol.* 470:78-91

Crees, J.J., **A.C. Collins**, P.J. Stephenson, H.M.R. Meredith, R.P. Young, C. Howe, M.R.S. Price, and S.T. Turvey. 2015. A comparative approach to assess drivers of success in mammalian conservation recovery programs. *Conservation Biology*. Accepted, Pre-Print. *Featured In Nature Research Highlights*.

Davis, C.R., R.T. Belote, **M. Williamson**, A.J. Larson, and B.E. Esch. 2015. A rapid forest assessment method for multi-party, landscape monitoring. *Journal of Forestry*. <http://dx.doi.org/10.5849/jof.14-118>

Flynn, E.E., B.E. Bjelde, N.A. Miller, and A.E. Todgham. 2015. Ocean acidification exerts negative effects during warming conditions in a developing Antarctic fish. *Conservation Physiology* 3:cov033.

Halstead B.J., **S.M. Skalos**, G.D. Wylie, M.L. Casazza. 2015. Terrestrial ecology of semi-aquatic giant gartersnakes. *Herpetological Conservation and Biology* 10:2, 633–644.

LoPresti, E.F., I.S. Pearse, and G.K. Charles. 2015. The siren song of a sticky plant: Columbines provision mutualist arthropods by attracting and killing passerby insects. *Ecology* 96:2862–2869.

Price S. A., **S.T. Friedman**, P.C. Wainwright. 2015. How predation shaped fish: the impact of fin spines on body form evolution across teleosts. *Proc. R. Soc. B* 2015 282 20151428.

Provost, M., & O.P. Jensen. 2015. The impacts of fishing on hermaphroditic species and treatment of sex change in stock assessments. *Fisheries*, 40:11, 536–545.



(photo: Zack Steel)

Telling the Story of Fire in California

Zack Steel & Allie Weill

Wildfires in the west, especially what are being termed “mega-fires” can be terrifying and destructive events. Terms such as “environmental disaster” and “moonscape” are often heard in media reports discussing the effects of such conflagrations. These terms are symptoms of a collective emotional response to wildfires. Perhaps the most memorable example of this indoctrination is the lovable Smoky Bear who has been scaring children straight about wildfires since the 1940s. Through such portrayals and dramatic images of charred trees and blackened soil, one might expect burned forests to be completely destroyed, essentially converted to desolate wastelands for decades to come. But what do these landscapes actually look like if we continue watching long after the smoke clears? Here we tell the stories of three fires to help highlight the complexity of life after fire and begin a discussion about the choices we must make if we are to manage fire in the future.

Fire is becoming an increasingly important part of life in California. The Rim Fire, the

largest in the history of the Sierra Nevada, left its fingerprints all over the Tuolumne watershed of Yosemite National Park in 2013. Similarly, the 2015 Wragg and Rocky-Jerusalem fires left vast swaths of Lake County charred beyond recognition. Certainly these fires impacted the lives and livelihoods of the humans that call these places home. They also caused widespread mortality of pre-fire vegetation and altered the composition of the wildlife communities that shared that home. Whether we call these fires disasters; however, depends, in part on how we interpret the aftermath.

For the ponderosa pine, recovery from the Rim Fire must start from scratch, from a cone dropped by a scorched adult or gathered from a nearby surviving stand and cached by a forgetful chipmunk. This process can be slow and, in places far from surviving trees, it may not begin for decades. But not all species suffer the same setback and some begin bouncing back shortly after the flames are quenched. For example, species like black oak, white-leaved Manzanita, and (lamentably) poison-oak, are able to utilize unburned resources stored in their roots and resprout within a year. Wood boring beetles arrive almost immediately following the fire to begin feeding on the dead standing wood. Snag forest specialists such as the Black-backed Woodpecker follow close behind feeding on these xylophages and begin excavating nest cavities in the remaining arboreal skeletons. While tree and shrub recruitment may be measured on the scale of years, a newly opened canopy is ideal for many annual plants and



(photo: Zack Steel)



(photo: Zack Steel)

Story of Fire in CA (cont.)

available within months. Spring in a recently burned area can be bursting with the blues, oranges and greens of wildflowers. Hardly the purported moonscape from months before. As the years since fire accumulate, annual plants lose ground to encroaching shrubs and soon the field biologist or mushroom hunter finds himself fighting through waste-high deer brush and scratchy white thorn.

The story of the Wragg Fire is strikingly similar despite the dramatic difference between the foothills of the Northern Coast Range and the Sierra Nevada high country. The Wragg Fire caused little to no damage to infrastructure or human life beyond the temporary closure of a favorite hiking spot and the anxiety caused to graduate students trying to figure out how to salvage their research. Indeed, the steeply sloped chaparral and oak woodlands that dominate this landscape are prone to frequent, high-intensity fires. A fact demonstrated by the ability of many of the species to recover quickly to pre-fire levels. In fact, volunteers with the California Phenology Project are working to develop a protocol to document these changes as they occur. When our

citizen science volunteers head out to explore the reserve post-fire, the atmosphere was largely one of excitement: look at how this place we have been observing has changed! At Stebbins, we are free to think about fire as an ecological force, to enjoy the wildflowers, to use the opportunity to educate people about fire ecology and to think about the resilience of many of these ecosystems.

Despite the similar landscapes, the Rocky and Jerusalem fires were different from the Wragg Fire in important ways: 49 residences were destroyed in the two fires that burned through the McLaughlin Reserve, and the nearby Valley Fire destroyed over a thousand structures. These fires occurred on or quite close to the landscapes where many of the youth from the Kids Into Discovering Science (KIDS) program live. For them, wildfire doesn't mean chamise skeletons and wildflowers. It means danger, evacuation, expensive repairs, and people displaced from their homes. For them, the hyperbole of the media coverage is very real and the luxury of considering the timeline of fire recovery seems non-existent.

The narratives we can pull from descriptions of these fires are the same

Story of Fire in CA (cont.)

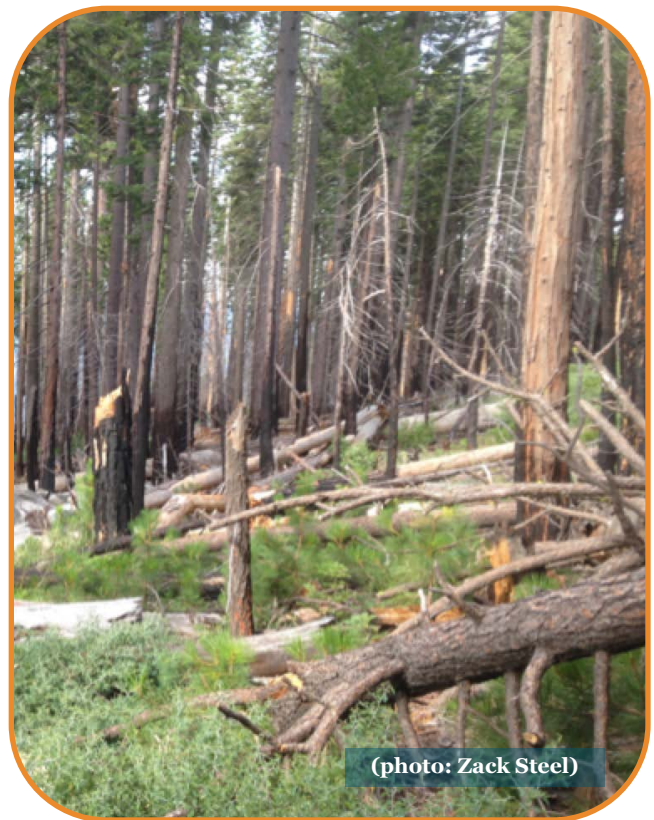
stories that are often told about fire in the media. the danger narrative from the Lake County fires. Numbers dominate the headlines: evacuees, firefighters, structures destroyed. Then, months or years later, we might see a story with the ecology narrative, usually a story about regeneration on the burned landscape. Rarely are these narratives put together. Yet so much of our modern understanding of fire science lies at the junction of the human story and the ecology story—climate change, fire management, invasive species, erosion—these are ecological issues and human issues.

We can certainly manage our landscapes better to encourage fire patterns that result in improved ecological and economic outcomes, but in the meantime let's not resort to hyperbole or fatalism, and consider a more nuanced and far-sighted perspective.

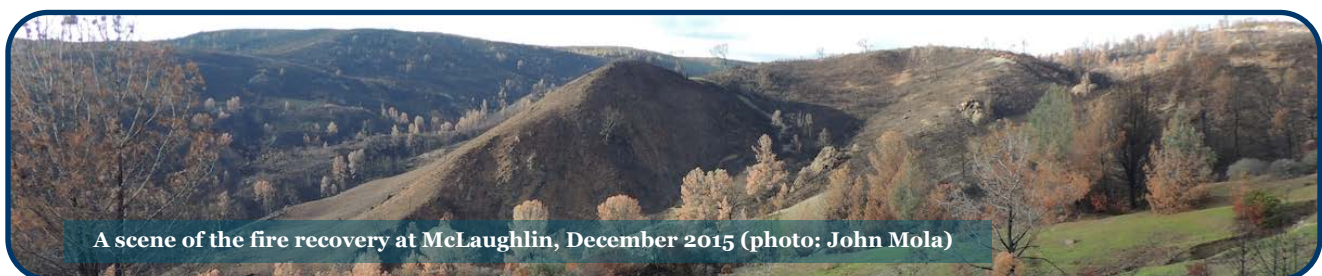
When the fires are different and the audiences are different, should the narratives we provide as teachers be different, too? Or is there a way to bridge the gap, and discuss what it means to live in a fire-prone ecosystem? There are difficult choices ahead. Do we stay the course and try to suppress fires at an increasing cost to taxpayers, at increasing risk to lives, and with decreased success? And what is our role as scientists, educators, and citizens in contributing to that conversation?



(photo: Zack Steel)



(photo: Zack Steel)



A scene of the fire recovery at McLaughlin, December 2015 (photo: John Mola)

COMMUNITY

Graduate Student Peer Mentorship Program *A-peers to be Off to a Great Start*



Matt Savoca

Graduate school affords you the time and freedom to become an expert in subjects that interest you, the opportunity to form exciting collaborations, and the ability to explore different career options--all while producing meaningful research! Being able to do this without the duties of administration and the pressures associated with securing six-figure grants is why professional scientists often cite graduate school as the best time in their career.

Despite the many positive aspects of graduate school, you will also face stressful, overwhelming, and unnerving times. Surprisingly, there is no official peer support system available at UC Davis for graduate students. For this reason, I have decided to start a Graduate Student Peer Mentorship Program (GSPMP), using the Graduate Group in Ecology (GGE) as a pilot group.

I believe the GGE is a good starting point for a peer mentorship program because we are already accustomed to providing quality support and community to our students. This is clear through activities including the White Mountain Odyssey, Mardi Gras, and other EGSA-sponsored events. However, these events may disproportionately benefit certain students, while others may not have the same access or feel the same level of inclusion. Some of us may receive adequate support through our lab groups, but for others, this resource is non-



existent. For example, when I entered the GGE, there were no experienced GGE students in my lab I could turn to for advice or to ask a 'stupid' question.

As a result of my own experiences and those of GGE colleagues, I decided to start GSPMP, which will certify current GGE students to serve as mentors for incoming students. To become certified, participants attend once-quarterly workshops facilitated by experts in Student Health and Counseling Services (SHCS), and the UC Davis Office of Graduate Studies, as well as twice-quarterly group discussion meetings. Thus far, we have had two successful group meetings and one productive workshop led by Mónica Torreiro-Casal, a psychological postdoctoral fellow with SHCS. Two dozen GGE students came to Dr. Torreiro-Casal's workshop, focusing on active listening (see image).

It is my hope that GSPMP participants will receive a broad training in basic mentorship skills, which will prove helpful in graduate school and beyond. As an additional part of the program, we will make a graduate student resources guide to share with all graduate students on campus.

To get involved with GSPMP, email Matt Savoca at mssavoca@ucdavis.edu

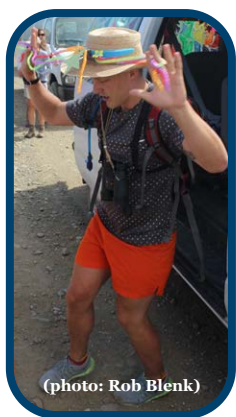
The White Mountain Odyssey:

Two Perspectives

The editors felt that a first issue of any publication produced by and for the Graduate Group in Ecology would be sorely incomplete if it did not contain some sort of feature on The Odyssey. A week-long orientation trip, sure, if you want to be bland about it. We prefer “cosmic science-hiking-van-dancing-celebration of life and the people who study it,” but yeah you could call it an orientation trip if you must. We asked a recent Odyssey participant and a TA to give their opinions on the trip (but without spoiling any of the secrets and surprises!), here’s what they had to offer.

Incoming Student Perspective

Raymond J O’Connor criticizes the progress of ecological research on the grounds that ecology has failed to follow in the footsteps of other more “successful” sciences. Medical research is motivated by a central question of how to improve human health. Physicists solve tangible mechanical problems. Ecology draws from a myriad of disciplines. In ecology, the pertinence of one discipline ebbs and flows. In ecology, we dilate our scope based on our questions. In ecology, we answer questions only to give rise to more that throw wide nets and entrap neurobiologists, phylogeneticists, human ecologists and economists. In ecology, we work to remedy the problems caused by misuse and



misunderstandings. In ecology, we stuff 12 strangers in to a van at the break of dawn and then expect them to cuddle under in aspen grove four days later.

The Odyssey is weird and wild. It is unexpected, yet legendary and hinges on the immediate sense of community of its participants. Ecologists are the perfect model system: we are tied by an invisible thread of our motivation to pursue our research to solve problems through collaboration. In many ways, the Odyssey is a perfect incarnation of ecology. In ecology, we go on Odyssey. - *Eric Tymstra, first-year GGE PhD Student.*

ODYSSEY (CONT.)

A T.A. Perspective

I went on my first Odyssey in 2010, when I had just arrived in Davis. I had just moved cross-country from Virginia and was feeling a little nervous about being in a completely new place, and about going on a week-long trip with strangers. My fears were immediately assuaged. Even though I got picked up on the wrong/grouchy side of 7 AM, seeing the brightly-lit, colorfully decorated "Burning Van" pull up in the parking lot, and the smiling faces inside, made me feel like I had made the right choice. Thus began a week of getting to know California ecosystems, meeting all my fellow incoming students, important members of the group administration, and some very fun and friendly ongoing students. It was truly a bizarre but delightful combination of brilliant scientific minds, outlandish behavior, and real community-building that gave me a unique insight into the culture of the Ecology program. By the time we got back to Davis and were eating dinner at Steve's Pizza, I felt like I had made 40 new friends.

As soon as I got back, I was already talking about how to be a part of the next year's Odyssey: I just knew that I had to TA so that I could see this amazing experience from the other side, and help new students to have the same meaningful trip that I did. As a TA in 2011, 2012, and 2014 (and a crasher in 2013), I can verify that it may be

even more fun the 2nd (or Nth) time around. Getting to share the experience of what it means to be a member of the Ecology Graduate Group with apprehensive incoming students is incredibly rewarding. The GGE is a culture of learning, teaching, sharing, and connection that's unrivaled by any community I've yet been a part of, and the Odyssey does an amazing job of embodying this. - *Rachel Anderson, fifth-year GGE PhD Student, and 3 time Odyssey TA.*



Rachel with frog (photo: Matt Savoca)



Wizard (photo: Alex Webster)

 GROUPS & SOCIETIES

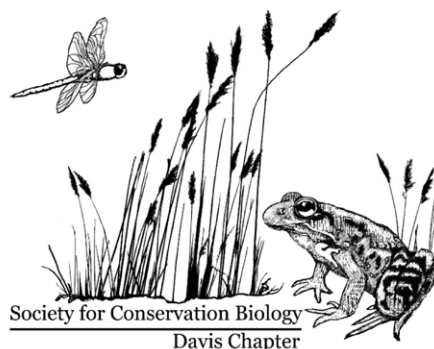
Catching up with the Davis Chapter of the Society for Conservation Biology

Matt Williamson

The next few months are going to be a busy time for the UC Davis Chapter of the Society for Conservation Biology. We'll be screening a few films from last year's Grass Valley Wild and Scenic Film Festival and Wrenched (the story of Edward Abbey). We'll also be leading a trip to Hidden Falls Regional Park in Auburn, with a requisite stop at the Auburn Ale House for some post-hike refreshments.

In addition, we're assembling a panel of conservation practitioners to identify career options for graduating conservation biologists. There's also the potential for hosting a science communication short course to coincide with the national meeting of the Society of Environmental Journalists taking place in Sacramento later this year.

Of course, we'll keep offering great opportunities to get involved with local restoration efforts through the Putah Creek Council, the California Invasive Plant Council, and other local partners. If you have questions or want to get involved email the Rachel Wigginton (President, rdwigginton@ucdavis.edu) or Matt Williamson (Vice President, mwilliamson@ucdavis.edu) and keep



an eye on our calendar (<http://davisscb.wix.com/scbdavis#!events/c130h>). We look forward to seeing you soon!!!



Davis R Users Group: Come Learn, Teach or Work!

The D-RUG generally has an open meeting weekly for anyone who wants to ask questions, work on that code you've been neglecting, or simply bang your head on a desk with someone who may understand (and could potentially help you!). Every two or three weeks we generally have a speaker give a short talk on a R package, problem, or research project. All levels are welcome! Email us: davis-rug@googlegroups.com or visit the website (<http://d-rug.github.io/>).

GROUPS & SOCIETIES

EGSA: The (Student Government) Body You Always Wanted

The Ecology Graduate Student Association (EGSA) is GGE's very own student government body, in charge of organizing all GGE events and liaising with other on-campus committees like the Executive Committee and the campus-wide Graduate Student Association. In addition to carrying on existing GGE events (Mardi Gras Gala, Picnic Day, and Symposium), this year's EGSA has spearheaded several new initiatives: a brown bag student seminar series, a new GGE publication (hint: you're reading it!), and a scientific computing and modeling group.

The weekly brown bag seminar series provides a friendly atmosphere for students to practice their public speaking and receive feedback on in-progress research. Since its inception we have had several fantastic talks attended by students and faculty from across the GGE community. This year's Graduate Student Symposium in Ecology will feature Dr. Erika Zavaleta, of UC Santa Cruz, whose work focuses on the drivers and consequences of biological diversity in conservation and management planning. The symposium will be held on Saturday, February 20th in Giedt Hall. Please stay tuned and get involved!

You can find EGSA at

<http://egsa.ucdavis.edu>

E.c.o.l.o.g.i.s.t.s.

Madeline Gottlieb

Ecologists know that
wherever we go

Channels and lakes and
rivers we'll row

O'er hills and dales, through
grasses we climb

Like real treehuggers always
covered in grime

Onwards we push in
academic pursuits

Growing our plants from
their roots to their shoots

It's no easy feat - getting a
graduate degree

'Specially at Davis, the
intellectual apogee

Together, however, we're an
unflappable bunch

Somehow we'll make it, at
least, that's my hunch...

ALUMNI PERSPECTIVES

We asked alumni for their wisdom on which parts of their time in the GGE have been most useful in their current career, and what they learned in their job search.

NOAM ROSS

PhD, 2015

I'm a Disease Ecologist at EcoHealth Alliance, an NGO focused on the intersection of conservation and human health, especially zoonotic disease. We function mostly as a think-tank. Most of my day-to-day job is straight research in modeling disease outbreaks, with some writing of advisory papers for government agencies and other NGOs doing work on conservation and pandemic prevention. I think the GGE gave me two really helpful things in this work: a broad and strong grounding in ecological theory, and a network of awesome people I can call on to ask questions when I don't know about a topic (that is, often).

The main thing I learned in my job search is that the timing of graduation depends on your job opportunity, not the other way around. If an interesting gig comes up, apply whether you think you are close to finished or not. I changed my plans for what to include in my dissertation so I could finish up in time for this job, and I don't regret it a bit.



KIT BATTEN

PhD, 2004

I'm the Executive Director of the UC Davis Policy Institute for Energy, Environment and the Economy. I spent 11 years working on climate change policy in Washington, DC after graduating with my PhD in Ecology. What I learned about ecosystem and soil ecology in grad school was foundational to all of my work on climate change policy — both in mitigation and adaptation. A strong understanding of carbon and nutrient cycling and how sustainable ecosystem management can lead to carbon sequestration, clean water, and other important ecosystem services has all underpinned my policy work. Examples include including wetlands in cap and trade legislative language (at that date there had only been agriculture and forestry included in previous legislation) to investing in sustainable development practices in developing countries with measurable adaptation and mitigation co-benefits. Additionally, I was fortunate to participate in the Biological Invasions IGERT which funded me to do an invasive species policy internship during my last year or so of my PhD. The policy and people skills I learned during this internship have proved very useful in my career.



ALUMNI PERSPECTIVES

ANGIE DOERR

PhD, 2015



I'm fortunate enough to be writing this from my new office in Monterey, working as a Research Associate for Coupled-Human Natural Systems for the Center for Ocean Solutions. It's a mouthful, I know. But it is also perfectly aligned with my PhD, and I am so, so thrilled to be here. The question, of course, is how I ended up here, and how you can find a job doing what you want to do as well.

I have two primary, and somewhat contradictory, pieces of advice. One, do the research YOU want to do. Not the research your labmate wants you to do, or the research your mother wants you to do, or even necessarily the research your advisor wants you to do (although the input from all of them is important!). As much as possible, fight to do the research you want to do, because it does set the course for your future work. Second, and conversely, if you're halfway through your dissertation and realize this is NOT the work you want to do, don't panic! There are a million different ways to switch courses, or switch gears, or switch foci in the future, while still benefiting from your dissertation or thesis. As much as possible, if you realize that you're less interested in California native grasses or invasive bullfrogs or kelp forest dynamics than you originally thought you would be, try to integrate complementary topics into your research. Despite warnings to the contrary, I have always found being interdisciplinary and well-versed in multiple topics to be a selling point rather than a disqualifier in my job searches. And as you start applying for jobs, don't be afraid to cast a wide net. Every application makes your next application better; every interview builds your network and makes you more comfortable being interviewed.

Finally, start early. Not only does landing a job provide an *excellent* incentive for finishing your degree, but the job search can take a long time (as in, sometimes up to a year for certain positions), and it's better to start before you think you're ready that to realize you're done, and have nothing lined up.



(photo: Gabe Ng)

Photos by Gabe Ng

Above: To create the blurry effect of water movement, I used a slow shutter speed with the camera on a tripod. However, I had to decrease the amount of light hitting the sensor since the slow shutter speed would cause the image to be overexposed. Even with the aperture as small as the lens would allow, the image was still too bright, so I added a neutral density filter in front of the lens. A neutral density filter acts as a tinted window pane and decreases the amount of light a camera would receive. Photo taken at Mussel point, Bodega Marine Lab.

Right: Shag rug nudibranch (*Aeolidia papillosa*)

This photo was taken with a tripod with the nudibranch in a glass fingerbowl. A dissecting scope light box was used for lighting. For macro shots, a small aperture is required to get as much of the subject in focus as possible. A small aperture will decrease the amount of light so I decreased the shutter speed accordingly to brighten up the image. Since this was shot indoors, I could use a tripod to stabilize the camera and add additional lights as needed



(photo: Gabe Ng)



Big Smoky Valley (Top), Mountain Bluebird (bottom) (photos: Frank Fogarty)

ALLISON SIMLER - I spend the summer field season working on the Big Creek Reserve (part of the UC Reserve System) in Big Sur, which includes living in a magical cliff-side cabin with a 50/50 view of the Pacific Ocean and the coast redwood forest. You can watch the whales migrating while drinking your morning coffee, and you can often see the first wild-hatched condor flying overhead because he fledged on the reserve. Like so many west coast structures, the cabin's eaves have become nesting habitat for a colony of cliff swallows. In the afternoon hours, the swallows swoop about the perimeter of the cabin,



occasionally accidentally trapping themselves in your kitchen via an open window (fairly annoying roommate behavior, but they grow on you). Many afternoons this summer, a female pygmy owl would come prowling around the cabin, looking to pick off one of the cliff swallows for a meal (which is particularly impressive because she is barely larger than a cliff swallow herself!). As a sit-and-wait predator, she would lurk in the avocado tree next to the cabin (planted there years ago, by Big Creek's beloved steward Feynner), waiting for the opportune moment to strike. Her arrival would send the colony into an avocado-centric frenzy. The following is an illustration of the mayhem that follows her arrival, with the cliff swallow colony assembling as a manic tangle of feathery, frantic defense.



Hawaiian Green Sea Turtle takes a nap at Punalu'u u Black Sand Beach on the Big Island of Hawaii (photo: Matt Savoca)

New Wildlife Conservation Marketing Strategy Looks Promising

by Ryan Peek

A new federally approved strategy for conservation of biodiversity was approved last week, proponents state it will revolutionize the way scientific research is conducted for endangered and rare species.

"The great thing about this approach," said proponent Bill Melayter, "is it gives researchers a chance to increase public awareness for their species of interest, raise funds for their research, AND allows them the opportunity to learn venture capitalism and actually profit off increasing species abundance and distribution...it's really a win win win."

Branding Wildlife for Profit (& Research)

The strategy permits individuals and corporations to sponsor rare or endangered species in return they get high profile marketing opportunities associated with ecotourism. Details are still being fleshed out, but marketing currently includes, but is not restricted to, stickers, banners, and even large laser-light displays which can be deployed only in the critical habitat areas for the respective species.

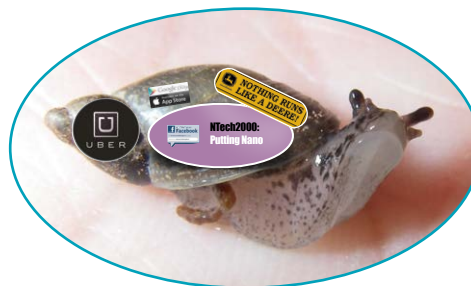
"The really hot organisms are the ones with lots of real estate, you know whales, elephants, etc. We had a run on the rhino species but there were so few of them that companies were concerned they wouldn't be able to really get their brand out there. A few groups are currently vying for the California Condor because they think there's real potential for aerial banners



(photo: Carson Jeffres)

they could attach to the condors legs, sort of like those biplanes that advertise stuff over baseball and football games" said May Kenamoney, a wildlife sponsoring & licensing official with the newly formed US Marketing Information & Sponsorship (MISS) department.

Some proportion of profit generated for each sponsorship will be set aside in a general fund to help cover smaller species, such as the Kanab Amber Snail (*Oxyloma haydeni kanabensis*) which have been hard to market. However Kenamoney did mention even these minuscule species had generated interest from several nanotech companies who had designed several hundred sleek waterproof stickers that could cover the snails shell, ensuring maximize product visibility no matter which angle the public viewed the snail.



STAR GAZING

* “I DON’T KNOW WHERE I’M
GOING FROM HERE, BUT I
PROMISE IT WON’T BE BORING.” *

DAVID BOWIE (1947 - 2016)



Alex “Bowie” Webster (photo: Ryan Peek)

THE AGGIE BRICKYARD



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PLEASE CONTACT US! { : brickyardeditors@gmail.com : }