University of California Riverside

Department of Evolution, Ecology, and Organismal Biology

Spring 2024

Flora and fauna of the Boyd Deep Canyon Research Center, photographed during a UCR Herpetology field trip to the reserve in Winter 2024. Left panel: *Opuntia basilaris* in flower. Right top panel: A female *Anaxyrus punctatus* in a water-conservation position. Right bottom panel: A tranquil *Coleonyx variegatus* hanging out with undergraduates. Photo Credits: Daniel Moen

In this newsletter, you will find department announcements, recent awards and publications, and a pictorial summary of a few of our department's extracurricular activities. Thank you for taking the time to read UCR EEOB's spring newsletter!

Awards and Accomplishments

First and foremost, congratulations to our most recent cohort of doctors who successfully defended their dissertations in Winter and Spring 2024:

- **Chris Cosma** (Rafferty Lab)
- **German Lagunas-Robles** (Brelsford Lab)
- **Daniel Pierce** (Brelsford Lab)
- **Philip Sternes** (Higham Lab)

Awards and Accomplishments (cont.)

Patricia Sanchez, recent Biology graduate – two award-winning poster presentations on the aggressive interactions between *Forelius pruinosus* (the high noon ant) and invasive *Linepithema humile* (the Argentine ant) and the chemical cues mediating these behaviors:

- **2023 SACNAS Student Presentation Award,** 2023 SACNAS National Diversity in STEM Conference, November 2023
- **Pacific Branch Undergraduate Student Poster Competition, Second Place,** Pacific Branch of the Entomological Society of America, April 2024

Brennan Silva, Ostevik Lab – recipient of the **Greg Lewontin Award** from the Society for the Study of Evolution for his work on *Clarkia* chromosome evolution.

Gangothri Sivaraj, Ostevik Lab:

- **Finalist, UCR GradSlam 2024**
- **Recipient of 3 research grants** for her work on hybrid speciation in *Penstemon.*

Mikhail Plaza, Samuk Lab – recipient of the 2024 Graduate Research Excellence Grant **R. C. Lewontin Award** from the Society for the Study of Evolution.

Miranda Buckley, Santiago Lab – accepted to the **Stable Isotope Ecology Course at the University of New Mexico** this coming June.

Juliana Base, Garland Lab – recipient of a scholarship for her accomplishments as a Division 1 Track and Field javelin thrower:

- Overcame her previous personal best record to attain the **#2 all-time record in UCR history** at 43.63 meters
- Placed **7th at the Big West Championship** this year

Philip Sternes, Higham Lab – has been featured in several news articles this year, including:

- "How sharks survived a drastic spike in global temperatures" – earth.com
- "Sharks more fierce since huge underwater eruptions: Scientists" - Newsweek

Clara Woodie, Anderson Lab – recipient of the **Elton Prize Early Career Researcher Award** for her paper in the Journal of Animal Ecology entitled "Long transients and dendritic network structure affect spatial predator-prey dynamics in experimental microcosms".

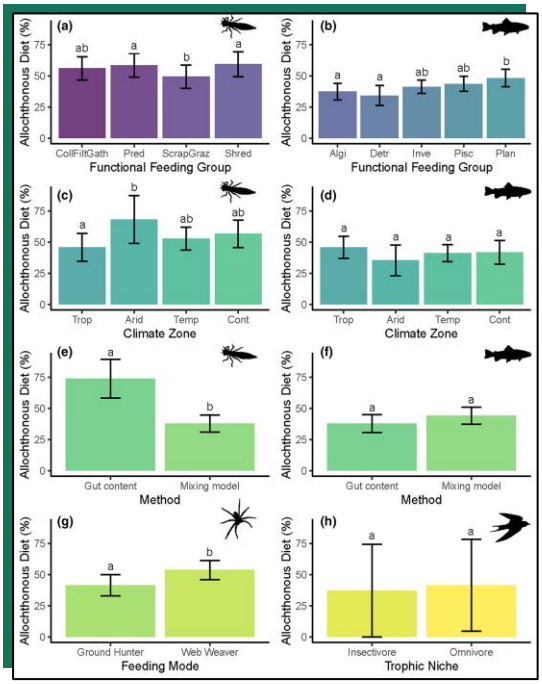
Tesa Madsen-Hepp, Spasojevic Lab – recipient of the **Robert P. McIntosh Award** for the published version of her first dissertation chapter. This is awarded by the Vegetation Section of the Ecological Society of America for the best paper in vegetation ecology published in the previous year that represents an excellent, creative, and rigorous work that clearly advances the theory, methods, or applications of vegetation ecology.

Marcell Cadney, PhD – currently a postdoc at UC Santa Barbara, will begin a tenure-track position as an **Assistant Professor at California State University, Long Beach** this summer.

Jessica Tingle, PhD – currently a postdoc at Ohio University, will begin a tenure-track position as an **Assistant Professor at Brown University** in summer 2025.

Our department was well-represented at the **Southern California Evolutionary Genetics and Genomics (SCalE) 2024 Meeting**, held on May 31st at Caltech. The many talks and poster presentations are summarized on the SCalE website, and some photographs from the event are included later in this newsletter.

Recent Publications



Allen *et al*. 2024 – Figure 3

Allen, D. C., J. Larson, C. A. Murphy, E. A. Garcia, K. E. Anderson, M. H. Busch, A. Argerich, A. M. Belskis, K. T. Higgins, B. E. Penaluna, V. Seanz, J. Jones, and M. R. Whiles. 2024. *Global patterns of allochthony in stream–riparian meta-ecosystems.* Ecology Letters

Ávila-Lovera, E., R. Haro, M. Choudhary, A. Acosta-Rangel, R. B. Pratt, and L. S. Santiago. 2024. *The benefits of woody plant stem photosynthesis extend to hydraulic function and drought survival in* Parkinsonia florida. Tree Physiology

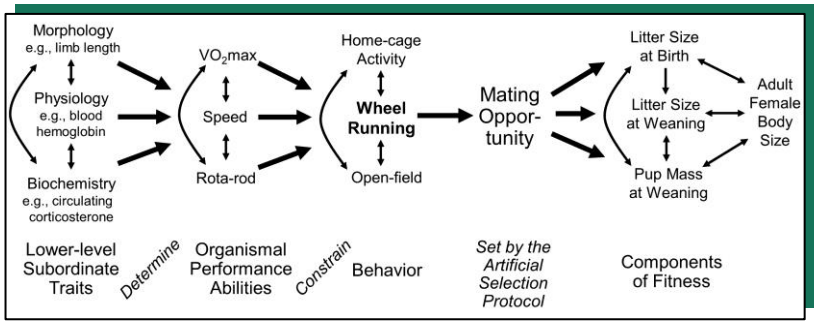
Bougie, T., A. Brelsford, and M. Hedin. 2024. *High sexual display trait diversity without measured genetic divergence in a montane hybrid zone involving young species (*Habronattus americanus *subgroup, Araneae: Salticidae).* Insect Systematics and Diversity

Gayford, J. H. and P. C. Sternes. 2024. *The origins and drivers of sexual size dimorphism in sharks*. Ecology and Evolution

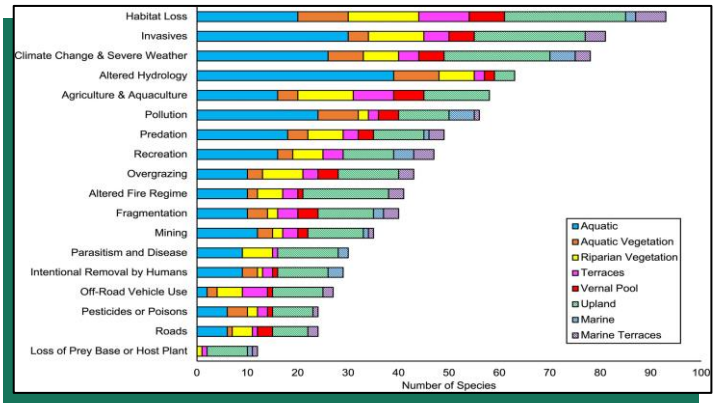
Hults, C. M., R. C. Francis, E. K. Clint, W. Smith, E. R. Sober, T. Garland, Jr., and J. S. Rhodes. 2024. *Still little evidence sex differences in spatial navigation are evolutionary adaptations.* Royal Society Open Science

Khan, R. H., J. S. Rhodes, I. A. Girard, N. E. Schwartz, and T. Garland, Jr. 2024. *Does behavior evolve first? Correlated responses to selection for voluntary wheel-running behavior in house mice.* Ecological and Evolutionary Physiology

Levell, S., J. Travis, and D. Reznick. 2024. *Can females differentially allocate resources to offspring sired by different males?* Biological Journal of the Linneal Society, in press.



Khan *et al*. 2024 – Figure 1



Qin *et al*. 2023 – Figure 2

Qin, G., K. E. Anderson, A. Cassady, L. Rodriguez, E. Syed, and H. M. Regan. 2024. *An analysis of threats to endangered animal taxa in California's freshwater systems.* Aquatic Conservation: Marine and Freshwater Ecosystems

Rose-Person, A., L. S. Santiago, and N. E. Rafferty. 2024. *Drought stress influences foraging preference of a solitary bee on two wildflowers.* Annals of Botany

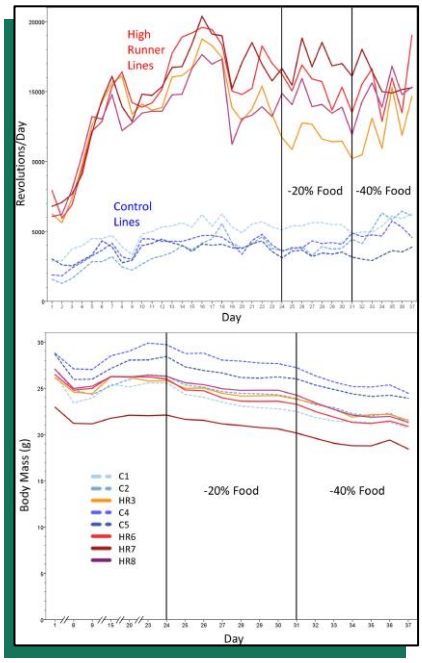
Scarparo, G., M. Palanchon, A. Brelsford, and J. Purcell. 2024. *Social antagonism facilitates supergene expansion in ants*. Current Biology

Recent Publications

Seamone, S. G., P. C. Sternes, T. M. McCaffrey, N. K. Tsao, and D. A. Syme. 2024. *Growing out of the fins: Implications of isometric and allometric scaling of morphology relative to increasing mass in blue sharks (*Prionace glauca*).* Zoology

Sebastianelli, M., S. M. Lukhele, S. Secomandi, S. G. de Souza, B. Haase, M. Moysi, C. Nikiforou, A. Hutfluss, J. Mountcastle, J. Balacco, S. Pelan, W. Chow, O. Fedgrigo, C. T. Down, A. Monadjem, N. J. Dingemanse, E. D. Jarvis, A. Brelsford, B. M. vonHoldt, and A. N. G. Kirschel. 2024. *A genomic basis of vocal rhythm in birds.* Nature Communications

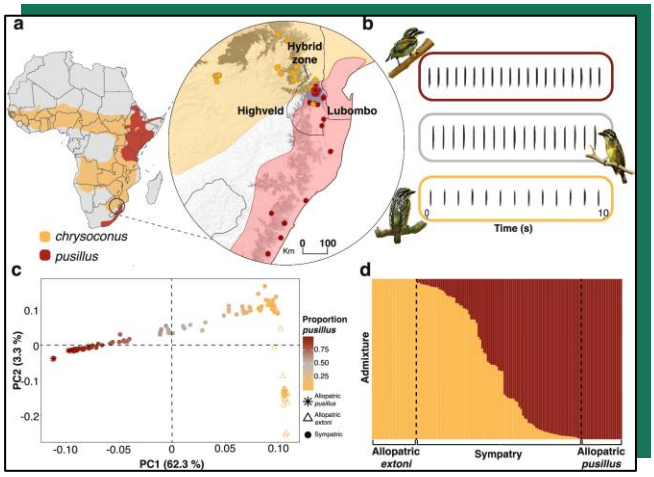
Sternes, P. C., L. Schmitz, and T. E. Higham. 2024. *The rise of pelagic sharks and adaptive evolution of pectoral fin morphology during the Cretaceous.* Current Biology



Thompson *et al.* 2024 – Figure 2

Whitehead, N. N., S. A. Kelly, J. S. Demes, N. E. Schwartz, and T. Garland, Jr. 2023. *Locomotor play behavior evolves by random genetic drift but not as a correlated response to selective breeding for high voluntary wheel-running behavior.* Behavioural Processes

Woodie, C. A. and K. E. Anderson. 2024. *Preferential cannibalism as a key stabilizing mechanism of intraguild predation systems with trophic polymorphic predators.* Theoretical Ecology



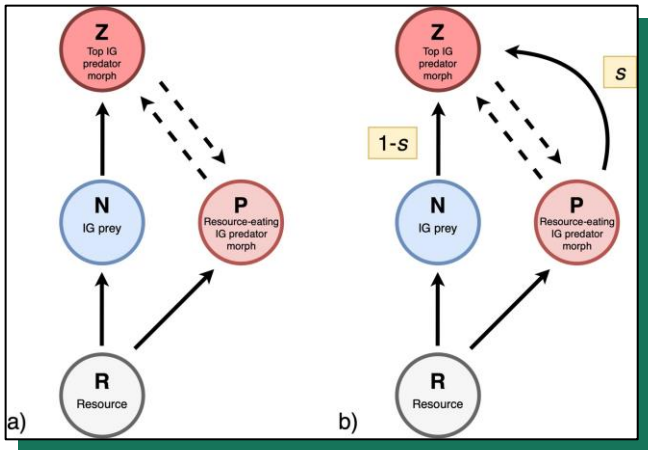
Sebastianelli *et al.* 2024 – Figure 1

Tan, B. B., N. E. Schwartz, L. E. Copes, and T. Garland, Jr. 2024. *Effects of long-term voluntary wheel running and selective breeding for wheel running on femoral nutrient canals.* Journal of Anatomy

Thompson, Z., I. A. T. Fonseca, W. Acosta, L. Idarraga, and T. Garland, Jr. 2024. *Effects of food restriction on voluntary wheel-running behavior and body mass in selectively bred High Runner lines of mice*. Physiology & Behavior

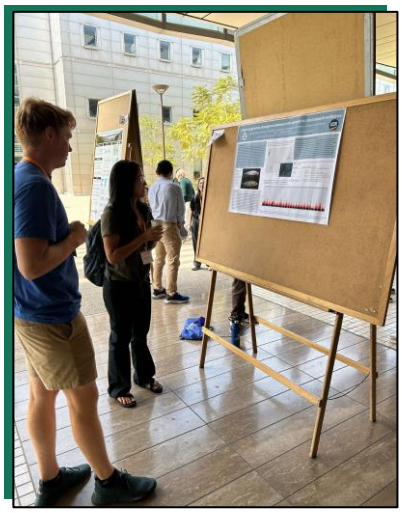
Tingle, J. L., B. M. Sherman, and T. Garland, Jr. 2023. *Locomotor kinematics on sand vs. vinyl flooring in the sidewinder rattlesnake* Crotalus cerastes. Biology Open

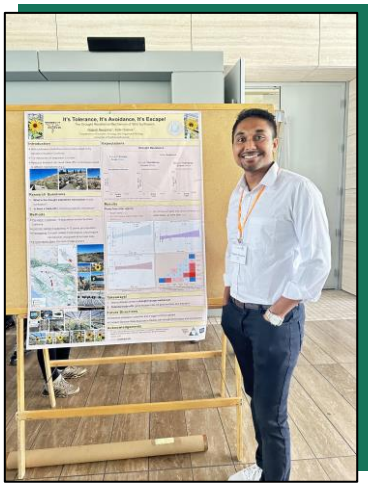
Wang, X., R. Traband, Y. Hiraoka, S. P. Ferrante, L. Yu, Q. Jia, S. Wang, Z. Wang, A. Acosta-Rangel, T. O. Vieira, T. L. Kahn, M. L. Roose, L. Santiago, and Z. Jia. 2024. *Revealing genetic determinants of photosynthesis-related traits in citrus via genome-wide association studies.* Fruit Research

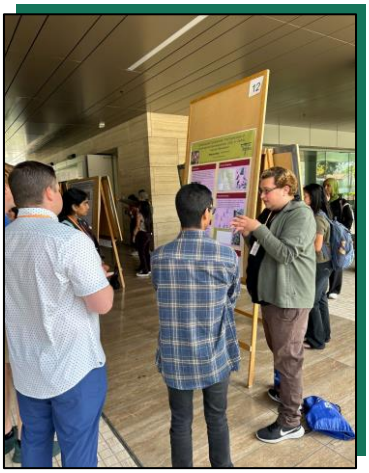


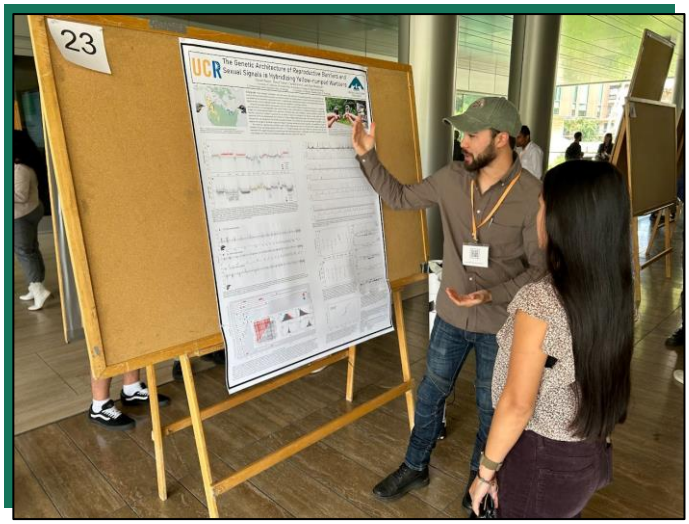
Woodie and Anderson 2024 – Figure 1

EEOB, Out and About (SCalE 2024)



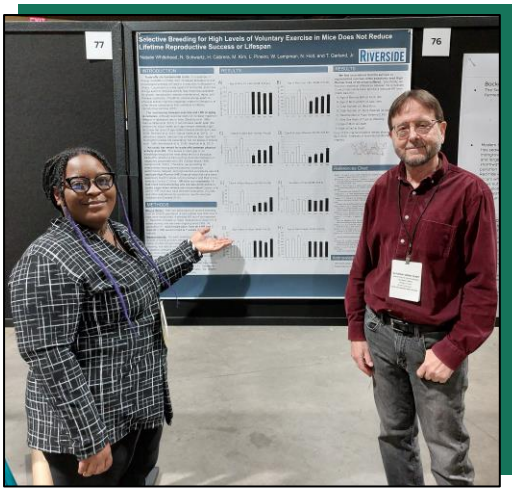






EEOB, Out and About

The EEOB GSA continues to represent our department at outreach events. Shown here, several of our graduate students are tabling at Brain Awareness Day, an event that promotes higher education in science to local middle school and high school students who are typically underrepresented in the sciences.



Natalie Whitehead presented a poster on aging and lifetime reproductive success in mice at the APS Summit in Long Beach on 17 April 2024; shown with her advisor Ted Garland.

Kurt recently visited collaborators in southern Brazil to explore their field sites. These sites are part of a joint NSF/FAPESP funded study examining potential climate change effects on community assembly in streams.

Call for submissions – Fall 2024

Do you have announcements to share with the department?
Upcoming events, resources, new publications, grants, awards, stories, photos, etc.?
Please send them to me to be included in the next newsletter!

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Sam Louden, Ph.D. Student, UCR EEOB

Have a great summer, EEOB!