

THE NEWS

DEPARTMENT OF BIOLOGY

SUMMER
2019



Schooling Fish: Graduate student transforms showcase biology aquariums

Story by Katie Courage

It all started with two pet guppies. Now Porsche Robison, a recent master's graduate in the [Department of Biology](#), is the lead caretaker for the [Biology Building](#)'s three massive lobby aquariums – as well as other tanks throughout the building.

"I've always been interested in fish," said Robison, who obtained undergraduate degrees in music education and jazz studies at Long Island University in New York before coming to Colorado State University to get her [biological science bachelors](#) – which led into a [masters](#).

After studying and caring for fish for more than two decades, she has a large-scale arena in which to help create beautiful and thriving ecosystems for the public that are also instructive – complementing the goals of the [other displays in the new building](#). "I would like people to see natural behaviors of fish," she said. And the building's large tanks are especially well suited to fostering interactions like these, which are often absent from smaller tanks.

Like wild ecosystems, these cultivated environments offer lessons large and small to experts and novices alike. Specifically, Robison is curating the aquariums, which consist of a 1,300-gallon saltwater tank, a 400-gallon saltwater tank and an 850-gallon freshwater tank, to showcase distinct aquatic communities. The largest saltwater tank is built around the theme of a coral reef. The smaller saltwater tank is being groomed as a predator tank. And the freshwater tank features numerous plants and unusual fish, including the department's very own spirited "ram cichlid."

[Read more on SOURCE.](#)

The Biology Building lobby aquariums are funded by the Department of Biology. To donate, visit <https://advancing.colostate.edu/CNS/BIO/GIVE>.



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DISCOVERY BEGINS HERE

Message from the Chair



We are excited to welcome the fall term, and with it the arrival of first year students (a record-sized incoming class!), other students graduating and moving on to professions and adventures, and faculty/researchers continuing to make discoveries. We move the hands of time, but we also move the needle forward.

It's been nearly two years since we moved into our new building, and we are glad that many of you have visited. The building is a draw for students, who crowd our study rooms and spaces before, between, and after classes. Having so many windows brings in the light and connection to the Colorado sky. This year we watched the "bomb cyclone" and blizzard in February, the springtime storms' moisture that brought back life, and the sun that drenches and nourishes all.

One of my favorite aspects of our building is how clear it is that this is a biology building when entering at the main floor, where classrooms and teaching labs are found. The exhibits inspire with beauty, pique curiosity with their themes, and after four years in our hallways, student discover why we show what we do (hint: it's not random). Our architectural/design/building team won several industry awards for this, including Project of Distinction in the 2017 Education Design Showcase from College Planning and Management, and Best Project in

2018 in Higher Education/Research from the Engineering News Record, Mountain States. The building also attained LEED Gold Status for innovative energy savings and sustainability.

One of my favorites, and for visitors too, is the group of 2,000-gallon fish tanks that anchor the displays. Two of these are salt water, and one is a freshwater tank designed to look like a river bottom from the Gulf Coast of the southern U.S. The latter was built as a home for our departmental mascots – Razor Back Musk Turtles that are native to those streams: Clancy, Sparky, and now Grumpy (all of them *Sternotherus carinatus*). The tanks have inspired many, and led to founding of an Aquarium Club. The club is led by advisors Porsche Robison and Jennifer Brady and funded by the [Department of Biology](#).

So, as I like to tell people, we're "living the dream." Thanks for sharing some of your dreams with us. Write to us, follow our social media on Facebook and Twitter, and come visit next time you're in Fort Collins!

And finally, here's something I learned this year: the poet Shel Silverstein wrote "A Boy Named Sue," which won him and Johnny Cash a Grammy Award fifty years ago. And this summer, 50 years ago, Apollo 11 put people on the moon.

A handwritten signature in black ink that reads "Mike Antolin".

Mike Antolin
Professor and chair

Department Highlights

Herbarium gift supports botany at Colorado State University



Last fall, the Colorado State University Herbarium received a naming gift of \$158,000 from Mr. Charles Maurer to endow the [Charles Maurer Herbarium Collection](#). This means big things for the herbarium, which services not only the University, but scientists and botany enthusiasts all over the country.

[Started in 1883](#) by James Cassidy, the Charles Maurer Herbarium Collection is the oldest in Colorado. It is home to over 100,000 species, spanning decades of careful collection and documentation. Anybody can stop by the herbarium to find a plant, or visit the searchable [online database](#).

With specimens dating back to the herbarium's start, these plant specimens not only provide a key to identifying plants, they also tell the genetic and evolutionary history of Colorado's ecosystems.

The [endowment](#) will be used for increasing and improving specimen curation, facilities improvements for users (including students, members of the general public, and online users), support for fieldwork by curators, including undergraduate and graduate students, and support for outreach by students and curators of the [Charles Maurer Herbarium Collection](#).

Biology graduate students named Vice President for Research fellows



Congratulations to Kaytee Ankrom (left), Kimberly Dolphin (middle), and Gretchen Kroh (right), the three Biology graduate students who were awarded Vice President for Research Fellowships after participating in the VPR 3 Minute Challenge. In the challenge, students quickly summarized their research while judges scored the content and comprehension of the presentations, as well as the students' effective engagement and communication skills.

Ankrom's talk was called "[Global Warming](#)" and she discussed the immense benefits that grasslands provide to combatting climate change by absorbing carbon. Ankrom studies how nematodes, soil animals who live in the grasslands, respond to varying levels of precipitation.

Kimberly Dolphin's talk was called "[Why Can't He Take A Hint! The Evolution and Mechanisms of Male Guppy Mating Strategies](#)". She explained how male guppies use previous social experiences to impact their mating strategies. Dolphin studies how predators impact guppy's alternative mating strategies in various contexts.

Gretchen Kroh's talk was called "[Building Better Crops: Tackling Iron Deficiency in Plants](#)". She explained how iron homeostasis can detect iron deficiencies in crops, improving human nutrition. Kroh studies a model plant to explore indicators of iron deficiency before physical symptoms of lowered photosynthesis occur.

As a part of their fellowship, Ankrom, Dolphin, and Kroh will receive scholarships and travel support as well as participate in professional development workshops, mentorship, and leadership opportunities. Congratulations to all three fellows!

Cameron Ghalambor leads new island scrub-jays study



Researchers led by Cameron Ghalambor, professor in the Department of Biology, have launched a National Science Foundation-supported study of what evolutionary biologists term "microgeographic" adaptation strategies of island scrub-jays, North America's only island-endemic bird. Island scrub-jays live exclusively on Santa Cruz Island, one of the Channel Islands off the southern California coast.

The study is aimed at understanding how isolated species like scrub-jays somehow manage to genetically diverge, creating sub-populations that reflect specific, adaptive traits. What the researchers learn could provide new insight into the mechanisms by which individuals in a single population

diverge across habitats, and what that could mean for conservation biology, biodiversity and evolution.

Supported by a three-year, \$850,000 NSF grant, Ghalambor will be joined by longtime collaborator W. Chris Funk, professor in biology and director of the Global Biodiversity Center in the [School of Global Environmental Sustainability](#); and biology graduate student Rebecca Cheek. Ghalambor and Funk are also professors in the [Graduate Degree Program in Ecology](#).

[Read more on SOURCE.](#)

19th annual Thornton-Massa lecture series



The College of Natural Sciences and the College of Agricultural Sciences hosted the 19th Annual Thornton-Massa Lecture on October 28, 2018. Dr. Jo Handelsman, Director of the Wisconsin-Institute for Discovery at the University of Wisconsin-Madison, as well as a Vilas Research Professor and Howard Hughes Medical Institute Professor, was this year's featured speaker. She previously served President Obama for three years as the Associate Directory for Science in the White House Office of Science and Technology.

You can view the lecture, titled "A microbial planet for agriculture," and stay up to date on future lectures by visiting thorntonmassa.colostate.edu.

Dr. Reginald Washington is Proud to Be a CSU Ram



Dr. Reginald Washington believes educators, friends, and colleagues become critical advocates when they see the sparks, skills, and talents that people may not even see in themselves. That was the case when Washington attended Colorado State University, despite skepticism from his high school counselor.

In 1971, Washington graduated from CSU as a first-generation student in zoology. He picked the major having been a kid with four aquariums in his room, fascinated by living things; that fascination evolved into his interest in medicine. In Spring 2019, Washington returned to the College of Natural Sciences commencement ceremony to deliver the keynote address.

[Read more on SOURCE.](#)

Faculty News

Ecologist LeRoy Poff wins Award of Excellence from Society for Freshwater Science



[LeRoy Poff](#), professor in the Department of Biology, received the 2019 Award of Excellence for an outstanding career studying freshwater. With international membership, the [Society for Freshwater Science](#) is the largest organization in the world of scientists focused on understanding and conserving freshwaters, awarding only one of these prestigious career awards per year. The Award of Excellence is for scientists with consistent outstanding contributions to benthic science through research, policy, or management.

[Read more on SOURCE.](#)

Biology welcomes two new faculty members



[Kristen Ruegg](#) joined the department as an assistant professor in August 2018, coming to us from UCLA. Her research focuses on understanding the mechanisms that generate and maintain species diversity in a changing world, and [her lab](#) specializes in the application of genomic and genetic tools to address basic and applied evolutionary and ecological questions.



[Marc Nishimura](#), who previously worked in the Department of Biochemistry and Molecular Biology, joined Biology as an assistant professor in August 2018. His research focuses on the molecular mechanisms determining the outcome of plant-microbe interactions, with particular interest in how plant immune receptors function to limit pathogens and how pathogens seek to subvert host defenses. [His lab](#) explores the mechanistic underpinnings of plant-pathogen interactions.

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For more information on giving, please contact Jill Higham, J.D. Managing Director of Development
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