



Seafha Ramos, PhD Candidate

Yurok/Karuk/Chicana

Hometown: Crescent City, Calif.

Reported by Amanda Bahe / Photographed by Gilbert Lujan Rivera Jr. and Amanda Bahe

Ramos is a doctoral candidate in the School of Natural Resources and the Environment at the UA. She earned her Bachelor of Science degree from Missouri Southern State University with a major in biology and her Master of Science degree in wildlife conservation and management from the UA. Ramos works part time for the National Park Service (NPS) and is a UA/Sloan Indigenous Graduate Partnership Scholar. She grew up in northwest California and credits her mom as being her catalyst into the sciences. Ramos recognizes the value of fostering relationships with others – from tribal council members to lab mates – in order to achieve success. In her dissertation, Ramos highlights traditional knowledge as a way to show that cultural values and beliefs are valid ways of thinking about the environment alongside Western science. Ramos hopes to eventually return to her home state to share her findings and experiences with her community as a teacher.

Q: How is your field of study important to your community?

I'm working with the Yurok tribe and using both our traditional knowledge and science in wildlife research. I conducted interviews with Yurok people and asked them questions regarding their beliefs and values toward wildlife. The other part is a wildlife survey where another tribal member and I collected wildlife scats from Yurok ancestral lands. Two lab technicians and I are analyzing those in the lab. Scats are fecal matter.

The actual data itself – all of the raw data and the analyses – will all be

given to the tribe. They already have access to all of the GPS locations of all the scats. I will also be giving them the data and interviews that are able to be donated to the tribe, through the **institutional review board (IRB)**. All researchers who

are working with people must go through the IRB process.

IRB: a group of experts who review and approve research that involves humans – they make sure researchers are following ethical guidelines

So far we've been doing the species identification of all the scats – basically, what

species the scat came from. And then we're also exploring the diet of **mesocarnivores**

and are exploring the protocols for how to do the diet analysis – we want to make sure we have the protocol correct before we do all of them. Karla, who works with me in the lab, analyzed the first

Mesocarnivores: a medium-sized animal that eats between 50 and 70 percent meat

kwech

This is the Yurok word for SCAT, pronounced "KW-ach."

Scat is a common term used in Seafha's lab (and by other wildlife biologists) and is simply referring to fecal matter - that's right, poop!

sample and found it to be a Humboldt marten (who-pey-roks in the Yurok language), which is really, really important environmentally because that species was recently petitioned for the endangered species list. Just that one sample shed some light on what's going on with the wildlife community. It's pretty cool!

Q: Is there a cultural aspect to the type of work you do?

One goal that I had from the beginning was to conduct a wildlife study that does take our culture into account. I didn't want to just pursue a scientific study. So, in that way, I think that my study's really important for our community. I've made a goal to show and demonstrate that our cultural beliefs and values are equally as valid as science. I asked the tribal council before I even applied [to graduate school] if they would allow me to conduct a study with the community. Thankfully, they said yes. I actually asked a couple other committees too so, with their and my family's blessings and permission, I went ahead. In the interviews, participants discuss the importance of wildlife to Yurok culture. The wildlife part of my study is important for Yurok culture because we have an important relationship with animals, for food and ceremony.

Q: What are some things that you did to prepare for life as a graduate student?

When I was in high school, I really tried hard to get good grades because I knew that I wanted to go to college. Fortunately, I ended up being accepted to an honor's program for undergrad and because I made such good grades and I did really well. They covered my tuition for all four years and that was huge, I mean, huge! I probably could've still gone to college but I would've taken out loans. Also, just really tried to be open to opportunities –

internships or volunteer work. I think I completed two internships in undergrad and I know those helped me get into graduate school. In terms of preparing for my PhD, I really have focused a lot on the spiritual component – making emotional health a goal.

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GIVING FORWARD

Perspective from a high school summer intern

by Maya Begay

Begay, Diné, is a 2014 participant in the UA's Keep Engaging Youth in Science (KEYS) summer internship program. She is currently a senior in high school and is from Tuba City, Ariz. Begay was mentioned in the lab by Seafha Ramos during her time as a KEYS intern.

Maya hopes to attend the UA and her experience as a first-time intern has encouraged her to pursue a science-related major in college. Maya wrote about her KEYS experience in hopes that it might encourage other high school students to participate in enrichment programs and is grateful for the opportunity to learn from Ramos and her lab team.

Find KEYS eligibility requirements and deadlines on page 26!

Before my summer as an intern in the KEYS program, I had never worked in an actual lab like the ones at the University of Arizona. I had only worked in my high school lab settings, so working in a lab in a college setting was such a great experience.

During my time at the UA, I spent time with and worked alongside my mentor Seafha Ramos. Her research is a project that involves Traditional Ecological Knowledge (TEK) and Western science. TEK is included in her research because the scat samples she is working with were collected noninvasively on the Yurok tribal lands. When working with TEK, there are certain cultural protocols that must be followed, whereas Western science refers to anything related to lab work.

I worked with 37 scat samples, collecting the epithelial cells and then running a polymerase chain reaction (PCR) which would help me to find out the species.

PCR:
a technique used in laboratories to make copies of DNA

Out of the 37 samples in my research project, 11 were found to be from *Lynx rufus*, while three were *Ursus americanus*, and one was *Bos taurus*. An additional 22 *Canis latrans* were found in our results but they were inconclusive.

I learned many new things in my lab – things like extracting DNA from epithelial cells in the mucous layer of scats, analyzing clean DNA sequences for each scat, and identifying the species who deposited each scat. It was more than a great experience and I had fun in my lab. I enjoyed working there every day and this is an experience that I will never forget. I'm glad KEYS gave me that opportunity to gain much knowledge as I am now continuing with my own research project.



KEYS intern, Maya Begay, uses a pipette to do research in the lab. // Courtesy photo