IN THE HEART OF THE
AMAZON

For thousands of years, the Maijuna have lived in one of the most biologically rich and ecologically diverse regions of the world. Threatened by unregulated and unsustainable logging, the Maijuna are working to protect, conserve, and restore their corner of the Amazon rainforest— with some success. Science teachers Amanda Benedict and Michael McAloon traveled to northeastern Peru to learn from the Maijuna, and to bring those lessons back to Taft.

There are no roads or highways carrying travelers to Iquitos, Peru. It is, in fact, the largest city in the world that can only be reached by boat or air. Long inhabited by the indigenous people of the region and later colonized by early conquistadors, Iquitos is an island city steeped in history, yet central to the future of the Amazon rainforest. It is a gateway to some of the most biologically diverse ecosystems in the world, and it is where science teachers Amanda Benedict and Michael McAloon boarded a boat and began their 10-day journey into a remote region of northeastern Peru. Low-slung, pontoon-like boats ferry passengers up and down the vast Amazon River and its tributaries. The experience is one that awakens all of the senses: pink dolphins splash in the river alongside the boats; songs of the more than 1,500 species of birds in the Amazon Basin fill the air; monkeys, insects, and a plethora of plant species—some waiting to be discovered—provide visual, olfactory, and auditory wonder. Benedict and McAloon traveled nearly 100 miles by boat, though the rainforest, up the Amazon, north to the Rio Napo, then deeper still into the Peruvian forest along the Sucusari River. Their destination: the ancestral homeland of the region’s indigenous people, the Maijuna, who would teach them about conservation in one of the most biologically diverse ecosystems in the world through a course developed specifically for independent school teachers. Inquiry, Conservation, and Sustainability in the Amazon Field Course is a pilot

“Loggers came in and took over their area of the forest. The deforestation altered the ecological systems in the area; the loggers killed their fish and hunted their animals. The Maijuna have really done an amazing job pushing back and requiring the government to acknowledge their needs in this area.”

—Amanda Benedict
The inaugural Amazon program for independent school educators welcomed teaching faculty from Taft, Millbrook, and the Asheville School.

Dillbaugh worked with Hill and Millbrook School’s Ava Goodale to build a curriculum that would meet the specific needs of independent school teachers working at the secondary level. McAloon joined Hill, along with a dozen faculty members from the Asheville and Millbrook schools, to start a new program in March just for independent school teachers.

“Workshop program in July 2017. After attending an Amazon Rainforest program was proposed by Dr. Mike Hill (ecoteach.com) and the nonprofit OnePlanet (oneplanet-npo.org). The program was proposed by Dr. Mike Hill from North Carolina’s Asheville School after attending an Amazon Rainforest Workshops program in July 2017.

“I was wowed by the people and the place,” Hill explains. “Before I left, I begged Amazon Rainforest Workshops director Christa Dillabaugh to let us try doing a new program in March just for independent school teachers.”

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course sponsored by Amazon Rainforest Workshops LLC (amazonworkshops.com), and its travel partner EcoTeach (ecoteach.com) and the nonprofit OnePlanet (oneplanet-npo.org). The program was proposed by Dr. Mike Hill from North Carolina’s Asheville School after attending an Amazon Rainforest Workshop program in July 2017.

“The government is still pushing for the road,” says McAloon, “which would be disastrous. It creates a disruption of the corridor, destroying communities and wildlife. Still, protection of the area is something the Maijuna have had to defend.”

Their conservation efforts are notable for both their innovative methods and their measurable impact: in 2015, the government of Peru granted protected status to 977,600 acres of Amazon rainforest, establishing the Maijuna-Kichwa Regional Conservation Area (RCA). It is an area 22 percent larger than California’s Yosemite National Park. All four villages are continuing their efforts to conserve their forests and to conserve their community, notes McAloon, “They were so welcoming and so able to serve us while we were in Peru.”

“The Sucusari village works most closely with outside groups—those are the people we worked with. We spent a lot of time asking questions, letting them answer, listening to translation, trying to bridge connection. We did many different things with them, just learning how they are able to live in this environment and sustain it, and how they are protecting it from the Peruvian people who don’t fully understand its value.”

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—Mike McAloon

For Benedict, evening dinners with members of the Maijuna community were among the best parts of her time in Peru. “We had really amazing conversations...it felt like we made real connections.” Adds McAloon, “They were so welcoming and so kind to us. I have a high level of admiration and respect for the Maijuna, the people living in the region who call themselves mestizo, and all the people that helped and served us while we were in Peru.”
Benedict and McAloon visited agricultural areas within the forest—spots where yucca, bananas, and pineapples are grown and harvested.

“We spent time with a woman named Luceli who is actually grafting cacao from native cacao to produce a hybrid species that is more robust,” says Benedict. “They are able to sell that in Iquitos, and also keep some as a kind of candy for themselves. They also use sustainable methods to harvest chambira palm, which they use to craft and sell as art.”

The Maijuna have begun using biosand filters to convert water containing biological contaminants into safe drinking water, are cultivating stingless bees through sustainable apiculture to both revive the bee population and produce medicines and sweeteners from their honey, and have adopted more sustainable fishing practices.

“One of the more common fishing methods among indigenous groups used to be the use of rotenone, which is a very toxic compound that occurs naturally in some tropical plants,” Benedict explains. “They would basically just poison all the fish, then collect them. Now they use fishing line and are conscious of where they are fishing and what they catch to avoid overfishing in any one area.”

They are also bringing technology into their conservation efforts.

“Maijuna hunters are using a GPS tracking feature on their rifles that allows them to monitor where they find and capture different animals,” McAloon says. “It is a tool that helps them avoid overhunting and also track the return of some animals to specific areas. Hunters share that information with one another in an effort to help sustain the resurgence of some animal populations that were driven deeper into the forest by the loggers, and to prevent overhunting in areas commonly hunted by different groups.”

“There’s so much for discovery,” says McAloon, an entomologist. “And that’s around every single corner in the rainforest. At every turn, you’re going to be stepping on something or touching something that has an incredible story to it.”
Perhaps one of the most meaningful initiatives undertaken by the Maijuna is participatory mapping. The inclusive, collaborative, and ongoing project brings communities together to create hand-drawn maps of their land and resources. Pictorial icons mark bountiful fishing sites, set boundaries, identify hunting areas, and pinpoint culturally significant locations. The project is both important and empowering.

“The Maijuna are still working to gain legitimacy—to prove that they use their ancestral lands for sustenance, and that is also a historic and culturally important area for them,” explains Benedict. “Participatory mapping was one of the tools that gave credence to their ability to ask that their land be designated a protected conservation area.”

Ethnobiologist and George Mason University Professor Dr. Michael Gilmore has worked extensively with the Maijuna and took the mapping project to the next level, visiting the sites on the map and fixing their locations using handheld GPS units.

“Having these types of data to show the government was very important to the Maijuna petition that ultimately established the Maijuna-Kichwa conservation area,” notes McAloon.

In their final days in Peru, Benedict and McAloon journeyed deeper into the forest to continue their scientific inquiry at the Amazon Conservatory for Tropical Studies (ACTS), an open laboratory for scientific research, education initiatives, and sustainability projects. It is also home to one of the largest canopy walkway systems in the world, running more than 500 yards though the treetops and rising to a height of nearly 120 feet at its peak.

“We spent a lot of time up in the canopy—we were up and down maybe four times a day—early in the morning, late at night in the dark, two or three times in the afternoon,” says Benedict. “It offers a completely different view of the forest and is a place where we engaged in more in-depth research and discovery.”

Research and discovery included biological sampling, identifying birds, and trapping insects. They also laid the groundwork for additional scientific study in the region by setting camera traps. More camera than trap, the devices use sensors and cameras to capture images of animals as they move through the forest. Most shoot both still images and video throughout the day and night.

“Mammal observation through camera trapping is something new there,” says McAloon. “The presence of certain animals in an area is an important indicator. We set cameras in the colpa for the first time, in a mineral lick. Animals visit the lick for its nutrients. But no
“Part of the science was practicing techniques for ecological studies so that we can inform our students,” says Benedict. “We talk about surveying plant diversity. We actually did that.” McAlloon explains. “We went 75 feet off the trail in a direct line, then collected samples in a one-meter square from that measure. Excluding ferns and palms there were 87 species of plants—and that’s a lot, but it’s also not perfect, because there are so many things that can’t be identified to species unless you look at their DNA. You can also do that with insects, you can do that with birds, then extrapolate populations from there.”

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Both teachers have also altered their assessment strategies to include collaborative student experiences, while Benedict has also incorporated a flipped classroom model into her teaching.

“We’re learning about plants and fungi in Accelerated Biology, so I took students outside to find some and tell me what they’re like,” says McAlloon. “They identified structures, they found mites living inside little tiny snail shells that were in the moss—they got excited. I just think they look at everything and do observations like we did in the canopy.”

Both Benedict and McAlloon are eager to see how the pilot program grows in the coming years, and look forward to having a hand in its development. They also hope more Taft teachers will consider participating in the course.

“We had a lot of pedagogy sessions and a lot of time to think and collaborate as teachers about how we can integrate everything we experienced into the classroom,” says Benedict. “To me, the power of this trip was getting a bunch of teachers together to have a meaningful experience and think deeply about the content they’re teaching. A lot of teachers can benefit from that—I could see Spanish teachers, Human Geography teachers, other disciplines going and benefiting from this trip. The way that Taft supports teachers in doing these kinds of things is really powerful. This is what keeps teachers passionate about their subject—being able to go and do the things that they teach about. It is something that Mike and I are both very grateful for.”

BENEDICT’S TRAVEL was funded by the Davis Fellowship. Established in 1997 by Mr. and Mrs. Jeffrey O. Davis and their daughter, Whitney J. Davis, Class of 1997, the Davis Fellowship promotes excellence in teaching by encouraging faculty members to pursue cultural and scholarly experiences through international travel and study in order to broaden and deepen their capacity as classroom teachers.

MCALOON’S TRAVEL was funded with sponsorship from the Won Family Endowment for Service and Cultural Knowledge, established to provide faculty an opportunity to enhance their knowledge of international culture with preference for projects in South Korea or Nepal.

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—Amanda Benedict