DU Team Partners with Indigenous Community on $1.6M Climate Study Grant

By Evanne Seelig
Communications Intern, NSM

March 21, 2023

When Dr. Diego Pons came to the University of Denver as a PhD student in Geography, he felt right at home in Colorado.

“I love the mountains; they resemble a little bit my home country of Guatemala,” he said. The mountains in Guatemala, like those in Colorado, face environmental threats including pine beetle and the impacts of a changing climate. In fact, it was a conversation with a local mayor in Totonicapán—a city in the highlands of Guatemala—about their forests that turned into his current project.

Pons, who after graduating from DU pursued a postdoctoral research fellowship at Columbia University’s International Research Institute for Climate and Society and spent time as a professor at CSU, has returned to DU as a research associate scientist. When the idea for his current project arose, Diego was working with Dr. Matthew Taylor, a professor in DU’s Department of Geography and the Environment. Seeing the devastation pine beetles had wreaked on the forest outside the window, they asked the mayor how the community was dealing with such a big infestation of pine beetles.

“And they said, ‘you know, these forests have always healed themselves. And that’s our traditional way of seeing this, and they will this time, too,” Pons said.

This response raised questions for him.

“Traditional indigenous knowledge has been informed by a set of variables in the past, that have a maximum and minimum. And what we’re seeing now with climate change is unprecedented for these communities,” Pons said.

As the conversation continued, it turned to the idea of bringing together indigenous and scientific knowledge, Taylor remembered.

“They said ‘we see that climate is changing; we want to understand our forests and how we interact with our forests in a better way, in a deeper way,’” Taylor said. “And we were like, ‘Wow, this is exciting to get that feedback and their willingness to continue to collaborate with us, to work with us in more of a participatory way.’”

That conversation, built on the trust established through over a decade of working with indigenous community leaders in the region, became a proposal for an NSF “Dynamics of Integrated Socio-Environmental Systems” (DISES) Grant. After two previous attempts, a team lead by Pons as primary investigator won a $1.6 million DISES grant for their project entitled “Indigenous forest management in a non-stationary climate.”

The team involves collaboration between Pons and Taylor at the DU Department of Geography and the Environment as the lead institution, with sub awards to colleagues at University of Arizona and Utah State University. More importantly, the grant was co-imagined and co-produced with a fourth group that will receive funding to participate in the work of the grant, the indigenous community in Guatemala.

“It's a very first structural step to be more inclusive in grants like this, and to truly commence a co-production of climate information where indigenous communities are considered equal,” Pons said.

Building a foundation for coproduction

Both Pons and Taylor admit that coproduction is a term that has different meanings for different people.

“There's a lot of talk in science and in social sciences about coproduction, but often what happens is just more of a convenient collaboration,” Taylor said. “We go down and we extract what we need, and we just so happen to work with local collaborators.”

Taylor’s own definition of coproduction has been evolving over time, in part influenced by his work with DU’s Center for Community Engagement to Advance Scholarship and Learning (CCESL) and their public good fund. He brought this evolving understanding to his work with Pons, and describes Pons as having taken to heart the idea of the sincere coproduction of science. Pons is working to break the model of exploitative and extractive practices by North American scientists going to work in other parts of the world.

“I noticed that creating the climate reconstruction we were creating using tree rings was pretty much the easy part of this,” Pons said of his work with Taylor using tree ring samples to construct historical climate data for the region. “The hardest part was making sure communities that we were taking information from—the people who were protecting this forest where we got our records—these communities actually got access to that data and that they were participants of the process.”

Pons continued to explore the concept during postdoctoral fellowship at Columbia University working with ACToday Columbia World Project.

“We built the next generation of seasonal climate forecasts,” Pons said. In order to get that information to the people who needed it, for example those working in agriculture in

Guatemala, they held *mesas técnicas agroclimáticas* (MTAs), or agroclimatic roundtables.

“MTAs are a base to start to share climate information and make it actionable,” Pons said. They provide a venue for those most affected by climate shifts and information to be presented with the forecasts and discuss together with their communities how they will use that information to adapt.

Pons opened several MTAs in Guatemala during his fellowship, establishing ways for Guatemalan farmers and agricultural workers to gain access to climate information.

Last May, when Pons returned to the University of Denver, he took on the role of Primary Investigator preparing the grant application for this project. He worked to increase the involvement of the indigenous community in the grant-writing process, translating each draft of the grant into Spanish and sharing it with his local partners for feedback.

He notes that the intention of involving the indigenous community is not enough. For this project, the trust he and Taylor have built with the community over 10 years has been critical.

“The trust we formed opens doors to formulate projects together to get excited about them,” Pons said. “It multiplies our ability to reach out and to generate knowledge that is more inclusive.”

Beyond the grant-making process, the local community is built into the plan for research, with roles to play in the work of the grant, and importantly, fair compensation for their involvement.

“There’s this tradition of showing up to communities and starting surveys and thinking people are going to just take their time off,” said Pons. He notes that because those asked to participate in surveys are often agriculturalists, taking time away can be incredibly costly for them. Their project seeks to be respectful of participants’ time and knowledge.

“They have their own budget,” Pons said. “They're going to present the products that they said they're going to present, and we're going to work together at the same level.”

Project Impact in Guatemala, Denver and beyond

Taylor sees contributing to a recognition of different forms of understanding natural systems and humans’ interactions with those systems as one of the goals of this project. This will involve bringing indigenous knowledge and Western scientific knowledge together, “to see where we can perhaps better understand human interaction with the environment, use of the environment and management of the environment so that we can continue to use it in a sustainable way,” Taylor said.

This is increasingly important as Guatemala is sensitive to the effects of climate change, and its communities that rely on agriculture are especially at risk.

“We know that in these parts of Central America, all the global circulation models coincide in the fact that in the next 40 years, it's going to be at least 20% drier and warmer too,” Taylor said.

Pons said he hopes their project and the way they are going about opens doors for others to do this kind of research.

“The idea here is set the path for new research to be more inclusive first, to incorporate coproduction of climate information, climate mitigation, climate adaptation, considering other types of knowledge. And doing it now when it's critical, with the people that are suffering the most,” Pons said.

In addition to the impact they hope the research will have on their indigenous partners and the influence they hope it will be on the research community, Pons and Taylor are excited to include students in the work and learning.

They plan to hire both undergraduate and graduate students at DU through the grant to be a part of the research. In addition, they will also continue partnerships with universities in Guatemala and work with students currently pursuing degrees there.

“The grant is reproducing this cycle of allowing other students, like me in the past, to grow, and to be exposed to this type of science and equality of view, and to keep doing the research and keep pursuing their dreams,” Pons said.

And it’s not just students’ dreams in the picture. This fall, Pons was interacting with a community leader in the mountains of Totonicapán, when she spoke about “Diego’s Dreams.”

“And I was like, ‘it’s our dream,’” Pons said. “These projects have become a reality because we have had a chance to dream together.”

This article originally appeared on science.du.edu:
https://science.du.edu/geography/news/du-team-partners-indigenous-community-16m-climate-study-grant