UC Irvine consortium redefining approach to climate change solutions

The group aims to empower local Native American tribes as it fundamentally reimagines how science happens.

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A UC Irvine-led team tries something that's never been done before at the nearby San Joaquin Marsh natural reserve. From left to right: UC Irvine Ph.D. student Stephanie Martinez, UC Irvine undergraduate alumna Gabriella Lassos, UC Irvine graduate alumna Christina Marsh and UC Irvine postdoctoral fellow Thi Truong.

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Professor Steven Allison, an ecologist in the UC Irvine Department of Earth System Science (ESS) and the Department of Ecology and Evolutionary Biology, does fieldwork at the UC Irvine-administered Loma Ridge Global Change Experiment in the Santa Ana Mountain foothills.

At Loma Ridge, Allison works to understand climate impacts on local ecosystems, while other UC Irvine faculty members, including Michael Goulden and Sarah Kimball, use the site to perform experiments on everything from soil hydrology to plant evolution.

Allison started working at Loma Ridge when he was an assistant professor, and he and his lab have spent 18 years publishing research results retrieved from field work at the site. But then, in 2020, the Silverado wildfire severely damaged the research infrastructure at Loma Ridge.

There was funding available to help rebuild the site, but Allison knew he did not want to build a repeat of what had been there before. The site, Allison knew, is not just a place of scientific significance but also one of cultural importance: it's part of the ancestral lands of the Tongva and Acjachemen Native American tribes, and Allison wanted to better honor Tribal connections to the land as UC Irvine planned Loma Ridge’s future.

Changing how universities administer sites like Loma Ridge is part of a new school of thought surrounding how scientists conduct research and how humanity needs to address the climate change crisis. “We’ve got all these great scientific solutions in academia for climate change problems,” said Allison. “But we need more than just science to solve climate change.”

Allison added that the science on climate change and what needs to happen is clear. “We know what needs to change on a global level,” he said. “But local-scale communities are where change actually happens.”

In 2022, Allison, Professor of Earth System Science Kathleen Johnson and groups including the Laguna Canyon Foundation, Orange County Environmental Justice (OCEJ), the Irvine Ranch Conservancy as well as UC Riverside and UC San Diego gathered at UC Irvine to try to reimagine how sites like Loma Ridge are

administered – and, by extension, any university endeavor that involves land caretaking.

The 2022 workshops laid the foundation for what would eventually become the Wildland-Urban Interface Climate Action Network (WUICAN). Based out of UC Irvine, WUICAN is a consortium that seeks to devise solutions to things like climate change-related problems by placing decisions about land stewardship in the hands of those most affected, especially Tribal communities.

WUICAN formed after Johnson, Allison and a diverse multi-disciplinary team applied for and received funding from a new University of California Office of the President program called the Climate Action Initiative. WUICAN is a partnership among several schools at UC Irvine (Biological Sciences, Humanities, Law, Social Ecology, Social Sciences and Physical Sciences), the UC Humanities Research Institute, UC Riverside, UC San Diego and over 10 community-based organizations.

Funding from WUICAN has already helped partner organizations dive into climate justice research and policy work. For example, Southern California's Sacred Places Institute for Indigenous Peoples (SPI) was able to promote one of its staff members, Tongva tribal member and UC Irvine political science alumna Gabriella Lassos, to Director of Research & Policy. In this role, Lassos works closely with UC Irvine partners, including graduate student fellows in the UC Irvine Climate Justice Initiative (CJI) – an NSF-funded initiative led by Professor Johnson and supported by Dr. Connie McGuire, Director of Community Relationships for the UC Irvine Research Justice Shop that seeks to reimagine the way scientists conduct research.

Angela Mooney D'Arcy - Acjachemen tribal community member, Executive Director and Founder of SPI - explained that such reimagining work requires a complete overhaul of the way research typically takes place in academic institutions. "We need to slow people down and ask: 'Why are we doing things this way?'" Mooney D'Arcy said.

One of CJI's collaborations with SPI involves revisiting access rights to lands held by the university, including the nearby San Joaquin Marsh natural reserve. In a research project called Building an Audit of the San Joaquin Marsh, a team that included Lassos as well as UC Irvine and former CJI fellow Stephanie Martinez – a UC Irvine doctoral student studying urban and environmental planning and policy – sought to deepen working relationships between UC Irvine and Orange County tribal members.

“I really wanted folks to understand how important the good relationship aspect was,” said Martinez. “It was really the cornerstone of how we approached the first year of this project.”

The emphasis on building community and relationships, Martinez added, is taking precedence over a results-oriented approach to the research.

“There were times where, as someone who was trained in western science, I asked ‘are we making enough progress? Are we producing enough?’” Martinez said. “But I think it was important to remember our tenets of community-centered, community-partnered research. At the end of the day, what’s most important, especially in these beginning stages, is making sure everyone is coming fully to the same place, and that we’re in good relationship with one another before diving into the science part of it or the research part of it.”

For their project, Lassos, Martinez, CJI fellow Christina Marsh and postdoctoral scholar Thi Truong revisited how the UC Natural Reserve System decides who receives access to places like Loma Ridge and the San Joaquin Marsh natural reserve, which sits right next to UC Irvine. Their work, the team hopes, will make it easier for tribal communities to gain access to ancestral lands administered by the University of California.

It’s foundational work that Lassos hopes will help redefine how scientists include Indigenous peoples in their work not just at UC Irvine, but at any institution of higher learning. “I hope that through this work UC Irvine can start to prioritize Indigenous peoples,” she said.

“Our priority in all of our work is to support Native Nations and Indigenous Peoples,” said Mooney D’Arcy. “We’re excited about partnerships developing through WUICAN and CJI that are committed to supporting Indigenous-led and centered climate justice research projects."

According to Allison, there’s a shift happening in the way in the way Western scientists or Western academics conduct their work, exemplified by projects like the San Joaquin Marsh project. Soon, Allison hopes to see the same research ethos emerge at Loma Ridge.

“We don’t want to perpetrate the extractive model,” said Allison, referring to the way in which scientists can conduct research in a particular place while not

involving people and communities as equal partners in research.

The most important ingredient, Allison added, is time. It will take time to build strong and reciprocal relationships between groups, and for a reimagining of research conduct to take hold.

Land acknowledgement:

WUICAN acknowledges its presence on the ancestral and unceded territory of the Acjachemen and Tongva Peoples, who still hold strong cultural, spiritual and physical ties to this region.

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