



WILLOW NEWSLETTER - HAPPY SPRING!

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The Willow Alliance for Graduate Education and the Professoriate (AGEP) is a collaboration between University of Montana in Missoula and Salish Kootenai College in Pablo, Montana, to develop, implement, and study a Model for the professional success of faculty and instructional staff in science, engineering, technology, and mathematics (STEM), who are enrolled in, and/or descendants of, Native American tribes. The WILLOW Alliance aims to increase success of Native American STEM faculty (NAF-STEM) and advance knowledge about issues impacting their career progression in STEM fields. The project has three intervention components: 1. Indigenous Mentoring Program (IMP), 2. Research Publication and Grant Preparation program (RPGP) and, 3. Institutional Support Program (ISP). All components of the project are supported by a mixed-methods Social Science Research (SSR) approach, using Indigenous Research Methodologies (IRM) and an Indigenous Evaluation Framework (IEF). *See IRM and IEF descriptions below.* *

WILLOW TEAM MEMBER PROFILE: DR. DIANA DOAN-CRIDER

Dr. Diana Doan-Crider is an alumnus of the University of Montana's School of Forestry, arriving in 1984 to work with bears through Dr. Charles Jonkel's Border Grizzly Project. Diana's grandfather, a Tepehuan (Odam) native of Durango, México, loved wildlife and inspired her to pursue her education in the U.S. so that she could return to México to start her research on black bears to prevent them from going down the same path as the grizzly bear, which was extirpated in México in the 1960s.

Diana continued her education in wildlife, range, and landscape ecology through Texas A&M University-Kingsville, and Texas A&M due to their proximity to her study area in northern Mexico. After capturing and handling these beautiful animals year after year, Diana focused on studying the important cycles of acorn production, which directly affected the bear's survival, mortality, and movements in arid environments. Interestingly, the acorn is also sacred to the Odam people because the tiny nuts are a critical food source for them as well.

Diana was able to use local knowledge to learn about bears, help with the overall recovery of the species, and understand their expansion back into their historic ranges after colonization. Her experiences also helped her explore beyond the westernized academic model and carve out a career path that suited her personal beliefs and goals to apply it to the needs of local communities and different cultures.

Diana now works closely with land-based and indigenous communities to help develop culture and place-based educational and capacity building models that are better suited for those cultures, land uses, and landscapes for effective learning and problem-solving. Diana is a Willow-AGEP Principal Investigator (PI) for UM's partner Salish Kootenai College. She also coordinates the Native American Rangelands Partnership. Diana is a citizen of the U.S. and México.

***Indigenous Research Methodologies (IRM)** are, “*The approaches and methods, rules and postulates employed by Indigenous research aimed to ensure that indigenous research be carried out in a more respectful, ethical, correct, sympathetic, useful, and beneficial fashion.*” - (Pretty Paint, Feb. 2020).

****Indigenous Evaluation Framework (IEF)** includes, “*Indigenous knowledge creation in context; respect for place-based programs and connections to family and community; consideration of the whole person in assessment and recognition of their gifts, and sovereignty, which supports ownership and builds capacity.*” - (AIHEC 2009)

WILLOW'S RECENT DISSEMINATION EFFORTS

The Willow article, *A Research Publication and Grant Preparation Program (RPGP) for Native American Faculty in STEM: Implementation of the Six R's Indigenous Research Guiding Principles*, has been published by the **Frontiers in Psychology** journal for a special edition, “*Diversifying the STEM Fields: From Individual to Structural Approach.*” (A. Grant et al., Feb. 2022. <https://doi.org/10.3389/fpsyg.2021.734290>) The RPGP article under Curriculum, Instruction and Pedagogy shares the design and implementation of an effective professional development program that is centered on the Six Rs Indigenous framework: respect, relationship, relevance, reciprocity, representation and responsibility. Mutual engagement and shared responsibility of the participants shaped the program.

Willow coauthors collaborated on *The Six Rs of Indigenous Research*, published in the Summer 2022 Tribal College Journal (R. Tsosie et al., Vol. 33, No. 4). The article proposes a conceptual framework based on respect, representation, relevance, responsibility, relationship and reciprocity. These concepts built on Indigenous scholars' work can be a powerful tool to inform and apply in studies using Indigenous Research Methodologies. The authors continue to work on a second manuscript focusing on strengths and successes of NAF-STEM, followed by the unique challenges many NAF-STEM face in academia. They plan to submit this paper to the peer-reviewed journal, *ALTERNative: An International Journal of Indigenous Peoples*, published by New Zealand's Indigenous Centre of Research Excellence, featuring scholarly research and Native Indigenous perspectives from around the world.

Willow's Qualitative Data Analysis (QDA) team is working on a manuscript addressing several research aims using the Hermeneutics approach in their analyses of qualitative data. This manuscript intends to share the stories told in the Willow Talking Circles using participants' lived experiences on what can be done to improve representation of Native American Faculty in Science, Technology, Engineering, and Math (NAF-STEM) (J. Harrington et al., 2022).

The Willow paper “*Exploring personal, relational, and collective experiences and mentorship connections that enhance or inhibit professional development and career advancement of Native American faculty in STEM fields: A qualitative study,*” was published in the January 2022 issue of the Journal of Diversity in Higher Education (B. Brown et al., 2022, January 13). The article describes a study that explored personal, relational, and collective experiences, and mentoring involvement that enhance or inhibit professional development and career advancement of Native American faculty and instructors in STEM fields. These data helped informed the content and configuration of an Indigenous Mentoring Program (IMP) for Native American faculty and instructors in STEM. The article is available as an *online-first* publication ahead of print at <https://doi.org/10.1037/dhe0000376>. The second manuscript about implementing and evaluating the initial Willow IMP is now in the works.

Willow's collaborative writing project led by Willow Fellows, *Lived Experiences of Native American STEM Faculty in Academia: Navigating Respect, Relationship, Reciprocity, & Responsibility* (A. Thomas et al., March 2022) is currently under review by the Journal of American Indian Education. A group of eight Native scholars and a scholar of color from three institutions collaborated on this culturally-grounded project to explore Native American faculty responses to questions about their professional satisfaction and success, ranging from their inspiration for joining the professoriate to unique challenges and transitions; their research and teaching approaches, and advice or strategies they use to sustain themselves and thrive in positions within academia.

ADDITIONAL ACTIVITIES AND WILLOW HAPPENINGS

Willow's **Institutional Support Program** has been working on the development of an interview guide for discussions with administrators at Tribal Colleges and Universities (TCUs) and non-Native institutions. The guide explores institutional policies and recommendations to support Native American Faculty in STEM.

Willow PI Ke Wu, along with co-PI Michael Patterson and Research Specialist, Jennifer Harrington recently took a tribal road tour to visit the 5 TCUs and middle/high Schools on or near eastern/middle MT reservations. The TCUs visited include Little Big Horn College, Chief Dull Knife College, Fort Peck Community College, and Aaniih Nakota College, and Stone Child College.

Willow received results from their **National Climate Survey**, focused on 5 constructs to understand institutional climates: Equity, Cultural Congruity, Research value & support, Professional Growth and Development, and the General University Environment.

This past April, Willow PI, Ke Wu attended the American Educational Research Association (AERA) annual meeting in San Diego, CA. The meeting was held in collaboration with the World Education Research Association 2022 Focal meeting. AERA provides education researchers with a host of networking opportunities and professional advancement. This year's designated charity was the Kumeyaay Community College and presentations included Culturally Affirming Methodologies and ideal mentoring.

Both Willow-AGEP institutions, University of Montana (UM) and Salish Kootenai College (SKC) have applied for an additional no-cost extension year to July 2023. Both have been approved by the National Science Foundation (NSF). Project progress was impacted by the Covid-19 pandemic. The no-cost extension will allow the team to complete the projects as outlined in the application narrative and project outcomes, which include the following: 1. Completion of analysis of national survey and development of dissemination product. 2. Completion of institutional support interviews, and development/submission of dissemination product. 3. Willow model finalization. 4. Completion and submission of dissemination products: NAF-STEM success definition; authorship protocol manuscript; Six R's second manuscript; hermeneutics manuscript; RPGP project guidebook; IMP second manuscript; and Willow model product. 5. NAF-STEM Fellows' support and continuation of interviews. 6. Travel to conferences/meetings to disseminate/present results and for professional development.

The **Native FEWS** (Food, Energy, and Water Systems) Alliance 1st Annual Meeting wrapped up in April at University of California (UC) Berkley. Willow PI Ruth Plenty Sweetgrass-She Kills attended the meeting. The following poster reflects the words for “thankyou” in some of the many languages represented at the Alliance gathering.



The Native FEWS Alliance is a collaboration working to build a highly skilled Native American Science, Technology, Engineering, and Mathematics (STEM) workforce in the areas of Food, Energy, and Water and to address the insufficient access to food, energy, and water (FEW) in Indigenous communities. They strive to become a transformative force in education, bringing into being innovative pathways to STEM careers, are based on Indigenous ways of living and learning and that engage local communities.

Among the partners in the Native FEWS Alliance are the UC Berkeley as the lead, the University of Arizona as a collaborating lead, and the American Indian Higher Education Consortium (AIHEC) will operate as the backbone of the Alliance. Other

Alliance partners that provide critical pathways to success include the Willow-AGEP Alliance, Tribal colleges and universities (TCUs), community college and undergraduate, graduate, faculty career, postdoctoral, FEWS career, community partnerships and indigenous knowledge programs, pre-college programs, and Indigenous data sovereignty networks.

Willow SKC PI Diana Doan-Crider and Willow Social Research Specialist Jennifer Harrington attended the 39th Annual Native American Fish and Wildlife Society conference. While there, they met with Florida Gulf Coast University (FGCU) President, Mike Martin, NAFWS founders, Native American staff and students, et al., and consulted on Willow findings regarding Willow Social Science Research (SSR) aims and questions on successes and barriers for the recruitment and retention of NAF in Science, Technology, Engineering and Mathematics (NAF-STEM).

While at the NAFWS conference, they interacted with undergraduate and graduate students, faculty from various institutions, and wildlife professionals and discussed inclusion, representation, access, mentorship and barriers of NAF-STEM.

Willow SKC PI Crider gave a talk on Indigenizing education and career opportunities with students, professionals, and educators and how to incorporate a holistic education into research.

During the conference poster session, Crider and Harrington met with students and talked with them about their research and their experiences in higher education. They met with faculty from United Tribal Technical College (UTTC) and discussed work that had been done with the Native Science Institute. This work focused on National Science Foundation Tribal Colleges and Universities Program (TCUP) institutions and their successes. UTTC faculty shared a website they created to gain feedback on working with NSF.

The group met with FGCU President to discuss opportunities to build relationships with Florida's local Tribal communities. The President shared the work he had done with New Mexico State University and in Louisiana.

Harrington shared highlights and lessons learned from the Willow work, including identifying supports (Indigenous mentoring programs, cluster hires, research publication and grant writing professional development, etc.), and noted that the FGCU campus has "sacred trails" markers in the conservation areas, but they have no signs, art, or anything that represents the Tribal Nations of their campus community.

WILLOW QUOTE OF THE MONTH

“The opposite of racist isn't 'not racist.' It is 'anti-racist.' What's the difference? One endorses either the idea of a racial hierarchy as a racist, or racial equality as an anti-racist. One either believes problems are rooted in groups of people, as a racist, or locates the roots of problems in power and policies, as an anti-racist. One either allows racial inequities to persevere, as a racist, or confronts racial inequities, as an anti-racist. There is no in-between safe space of 'not racist.’”

— Ibram X. Kendi
How To Be An Antiracist

WILLOW FELLOW HIGHLIGHT - Dr. Aaron Thomas

Willow Fellow, Aaron Thomas is a Professor in Chemistry and Biochemistry, at the University of Montana (UM) and Director of Indigenous Research and STEM Education (IRSE) at UM.

Dr. Thomas works closely with Native undergraduate and graduate students while establishing relationships with the tribal colleges and reservation communities in working towards better Native STEM education and STEM research collaborations. He has also established the Montana American Indians in Math and Science Program which engages Native middle and high school students in STEM.

His current projects include:

MT AIMS: Middle and high school students from the Flathead, Blackfeet, Crow, and Northern Cheyenne reservations. Thomas hopes to have over 100 students in STEM programming this summer on the UM campus.

NSF CIRCLES Alliance: Collaboration with 5 other EPSCoR states examining Native STEM Education. The states include Montana, Idaho, Wyoming, North Dakota, South Dakota, and New Mexico. They have done a large number of interviews of tribal members on STEM and Indigenous science and math.

Howard Hughes Medical Institute Direct Change: UM is a finalist in examining diversity, equity, and inclusion on our campus. The focus of our work is on Native American students in STEM disciplines and the efforts UM can make for the recruitment and retention of students but also institutionalizing sustainable change through cultural humility and understanding.



The primary sponsor for the Willow Alliance for Graduate Education and the Professoriate (AGEP): A Model to Advance Native American Faculty in Science, Technology, Engineering, and Math (NAF-STEM) is the National Science Foundation (NSF), Directorate for Education and Human Resources (EHR), Division of Human Resource Development (HRD). This is an AGEP-T: Alliances for Graduate Education and the Professoriate - Transformation under these HRD grant numbers: #1723248 - University of Montana (UM), #1723006 and Salish Kootenai College (SKC). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.