

The spirit in the science: wild rice conservation through tribal-university partnerships in Minnesota

By Grace C. van Deelen

B.A. Anthropology/B.S. Biology
Tufts University, 2021

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MASTER OF SCIENCE IN SCIENCE WRITING
AT THE
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ABSTRACT

In 2018, an unlikely partnership formed at the University of Minnesota, called the “Kawe Gidaa-naanaagadawendaamin Manoomin” (“First we must consider Manoomin / Psii”) collaboration. The research collaboration, whose express purpose is to protect wild rice, includes both tribal and non-tribal institutions and members. Since 2018, the group has grown to include social scientists, graduate students, and undergraduate researchers. The research partners are now probing scientific and ethical questions about wild rice decline in the upper Midwest and the role of genetic research at the university.

The “First” collaboration is one of a handful of tribal/university research partnerships that have sprung up around the country to include tribal perspectives and traditional knowledge in mainstream ecological research. More than stakeholders, tribal partners involved in these projects share power and governance over research alongside mainstream institutional partners. However, such partnerships are not isolated from the complicated histories of European settler colonialism that persist through US institutions today. Finding a way to reconcile those histories is crucial to the success of the partnerships themselves. In the case of the “First” collaboration, reconciling these histories means deeply investing in relationships — relationships to the land and between people — even if that means putting data collection on hold.

To protect wild rice, relationships are paramount to data

A unique tribal-university research partnership is threatened by a tenuous history. How they choose to proceed impacts the future of wild rice, and could offer a glimpse of a new kind of science.

It is -11 degrees in Lac du Flambeau, Wisconsin. In mid-January, the late afternoon sun reflects on the frozen lake, sending golden rays of light across the landscape. Winter is when wild rice waits under the thick ice, the seeds laying in the muck at the bottom. Come spring, they begin to grow into long-stemmed grasses, and by August, harvesters fill their canoes with the long, dark grains and carry them home to eat.

But wild rice — known as *Zizania palustris* to scientists and manoomin to the Anishinaabe people of Lac du Flambeau — no longer grows in Flambeau Lake. In fact, it no longer grows on many of the lakes or rivers in northern Wisconsin or Minnesota, where it historically thrived. One of the people trying to understand the decline is Joe Graveen, a member of the Lac du Flambeau tribe.

In his fifties and gregarious, Graveen meets me at the Tribal Natural Resources Department on the northeast bank of Flambeau Lake, where he works as a wild rice program manager. We walk through the building and Graveen, dressed in a hunter-orange hoodie, jeans, and tall, camo-print work boots, greets his co-workers with smiles.

He leads me to his desk, where he sits underneath a map stretching to the ceiling. It's a satellite image of the surrounding area, where Graveen grew up hunting, fishing, trapping and "roaming the woods." Pointing to the winding rivers that crisscross the wall, he shows where he would take boats out with his friends and swim in the summer and, most importantly, harvest rice. "We've been on the waters harvesting rice for most of our lives, or all of our lives," he says.

On the map, he's marked where wild rice used to grow, but has vanished, data he amassed from years of sifting through historical documents. Pulling up archival files on his laptop, Graveen explains to me how wild rice's range in the area shrank remarkably after the creation of a logging mill on nearby Long Lake in the early 1900s and a rise in housing development in the area. By incorporating historical events — even a tornado that crossed the lake years ago — into the picture of wild rice decline, Graveen and his colleagues are hoping to understand the wild rice system more holistically. "There are things that happened back then that have an influence on what's going on today," Graveen says.

Wild rice decline is a priority of the natural resources department here. The Lac du Flambeau tribe is part of a broader group of Anishinaabe people who originally migrated west to Wisconsin and Minnesota for the express purpose of following wild rice (the word "manoomin" comes from the Ojibwe language, which members of the Lake Superior Chippewa, to which the Lac du Flambeau tribe belongs, speak). The migration story of the Anishinaabe tells of a prophet, who called the people to move west until they found a place "where food grows on water." In the creation story, wild rice is interdependent with all other things — animals rely on it for food, it relies on the earth to live. In following with this belief, Graveen refers to wild rice as a literal relative, and, therefore, a being for whom he is responsible.

Wild rice, additionally, is the basis upon which many Anishinaabe traditions and practices rely. It is present at all traditional ceremonies, including celebrations, gatherings of mourning, initiations, and

feasts. It is also an important and nutritious food source. To Graveen and his neighbors, wild rice is crucial to their identity as Anishinaabe people. As White Earth Anishinaabe member Joe LaGarde writes, “If we lose our rice, we won’t exist as a people for long.”

Graveen is not alone in his efforts to protect wild rice. In 2018, he began participating in an unlikely partnership: the “Kawe Gidaa-naanaagadawendaamin Manoomin” (“First we must consider Manoomin / Psin”) collaboration. The research collaboration, which includes both tribal and non-tribal institutions such as the University of Minnesota, has grown to include social scientists, graduate students, and undergraduate researchers, and is now probing scientific and ethical questions about wild rice decline in the upper Midwest and the role of genetic research at the university.

The collaboration is one of a handful of tribal/university research partnerships that have sprung up around the country to include tribal perspectives and traditional knowledge in mainstream ecological research. In Washington state, for example, the Yakama Nation and the University of Washington have developed a partnership to train students and faculty in sustainable forestry. In Arizona, Navajo researchers work with the University of Arizona to understand the environmental and health effects of mining.

More than stakeholders, tribal partners involved in these projects share power and governance over research alongside mainstream institutional partners. However, such partnerships are not isolated from the complicated histories of European settler colonialism that persist through US institutions today. Finding a way to reconcile those histories is crucial to the success of the partnerships themselves.

The “First” partnership has already yielded important ecological insights about wild rice — but the long-term viability of the collaboration is haunted by histories of dispossession and struggle between land-grant universities and Native American tribes, the disparate worldviews of Western academic science and Indigenous knowledge, and, most recently, investigations by university researchers into the genetic code of wild rice. The future of wild rice may very well depend on finding common ground between Anishinaabe culture and the culture of academic science itself.

A rocky beginning

Three hours west of Lac du Flambeau, I meet the woman who started the “First” collaboration: Crystal Ng, a professor of hydrogeology at the University of Minnesota in Minneapolis. Ng, a second-generation Chinese American who grew up in Maine, came to the Midwest in 2014, after a PhD at the Massachusetts Institute of Technology.

In 2018, Ng was awarded a \$720,000 Grand Challenges grant from the University of Minnesota to build on research she was already doing: investigating wild rice ecology. Specifically, Ng had been studying the effects of sulfate — a mining by-product — on wild rice. Sulfate causes changes in the sediment at the bottom of the lakes, making certain lakes unfavorable to wild rice growth.

Ng’s proposal was twofold: she wanted to build a database of sulfate levels at different wild rice lakes to understand the problem more deeply, but she also wanted to involve tribal partners in the work. She contacted tribal agencies — the Great Lakes Fish and Wildlife Commission, the 1854 Treaty Authority,

the Lac du Flambeau tribe, and the Minnesota Chippewa Tribes, among others — about the project, asking them to write letters of support for her proposal.

The tribal agencies were initially excited for the proposal and did write letters of support. Once the grant was awarded, though, Ng realized something had changed. She told tribal partners in-person that the money had been awarded, expecting a joyous response. The response she got, though, was lukewarm.

“We had met with them a few times, which I thought was sufficient,” says Ng. “But they pointed out that like, we had three emails — you really call that collaboratively having written the proposal?”

The tribal partners had two frustrations: first, they hadn’t been sufficiently consulted in the drafting of the original proposal, so it was insulting to call the project “collaborative” in the first place. Second, Ng’s focus on sulfates didn’t reflect the needs of tribes — there were numerous wild rice lakes experiencing decline that were not a victim of sulfates, but still needed scrutiny. Plus, plenty of researchers were already studying the mining by-product.

The setback prompted Ng to reconsider her research plans — there was clearly discord between tribes and university researchers that warranted more thoughtfulness about the meaning of partnership.

Instead of using the \$720,000 to study wild rice, she scrapped the research proposal and shifted focus to something quite outside of her wheelhouse: instead of beginning by researching wild rice, she would reorient the project to prioritize building trust between the University of Minnesota and surrounding tribes, as well as understanding the harm done to tribes by the university through wild rice research.

That re-orientation was the seed from which the “First” collaboration grew. The partnership continues to expand — adding more students and growing their research interests. As it expands, though, the partnership has to navigate questions of tribal sovereignty and research ethics in order to maintain their relationships with their non-tribal partners and protect the future of wild rice.

For tribes and natural resource managers in the region, protecting wild rice is also made difficult by a poor understanding among scientists about why, exactly, it is declining. While any number of ecological changes (climate change, human development, habitat loss, mining) are certainly contributors, natural resource departments and tribes simply don’t have the bandwidth to tackle them all, making untangling these factors a priority.

In a world plagued by multiple environmental crises at once, though, solving ecological problems like wild rice decline has never been more difficult. Pooling Western academic science with tribal knowledge and research approaches offers the opportunity to solve such problems more effectively. If the “First” partnership succeeds, it can provide a model to other tribal and non-tribal scientists looking to solve ecological problems through similar cross-cultural knowledge-sharing.

Circling the drain

Untangling the threats to wild rice is an ongoing project that's been taken up by Susan Knight, a biologist at the Trout Lake Research Station. The station sits about 10 miles east of Gravenee's office in Lac du Flambeau, outside of reservation land but in the middle of Wisconsin's wild rice territory.

Walking out onto nearby Allequash Lake with Susan on a January afternoon, one reason for the decline becomes clear. Even though it's bitterly cold — so cold we can barely stand to be out of the car for more than five minutes — this winter has been shorter than usual. Lakes in Wisconsin haven't been freezing over as quickly in the winter, or staying frozen as long, as they did a decade ago, says Knight.

That's a problem: wild rice is often competing with other plants, like pond lilies, for resources. Because the lakes don't get as cold as they used to, the pond lilies don't all die in the winter. The following spring, then, pond lilies come back to the lakes stronger than before. A boom in the pond lily population, says Knight, is bad for rice.

Another likely problem is the swans. Four decades ago, years of overhunting had brought trumpeter swan populations down to nearly zero in Wisconsin, where there had previously lived more than 130,000 swans. In 1989, the Wisconsin DNR attempted to restore the swan population. Biologists flew eggs from the Alaskan wilderness to Milwaukee, then re-introduced swans in the state. There are now upwards of 6,000 trumpeter swans in Wisconsin. They love eating wild rice — which wouldn't be such a problem if rice populations weren't already “circling the drain,” says Knight.

Wild rice is an annual plant, meaning it dies out each year and needs to be replanted. The plants that grow each spring are a mixture of seeds dropped the previous two autumns; for example, a rice bed in 2021 grew from seeds dropped in 2020 and 2019. This double-year sprouting cycle gives rice an insurance plan — if there's a really bad year, there will probably be seeds left over from the year before that will still sprout. But multiple bad years in a row can deprive wild rice populations of that insurance and create a vicious cycle of decline.

“If you have a really bad year, five years in a row, which is what we've seen, what are the chances that there's anything left?” says Knight.

The problem of the swans, the competition with pond lilies, or the strange weather patterns on their own would probably not be enough to create a decline like Knight has seen. But combined, the factors make it difficult for wild rice populations to persist. Mostly, though, Knight and Gerrish feel as though they're just beginning to grasp the problem. The Trout Lake Station researchers have a good handle on the possible causes of decline, but no idea how those causes interact, or which factors are the most concerning.

Knight speaks with a cautious tone common to scientists when she refers to these findings. “That's all theoretical,” she says. “I don't really know.”

A tribal approach to ecological research

Graveen, on the other hand, has a different approach to thinking about these multiple causes. To him and to other tribal scientists, the complexity of wild rice ecology is not an obstacle, but the solution itself. By embracing complexity, he says, wild rice ecologists might have a better chance at a more accurate understanding of wild rice decline.

“It’s real simple, when you look at the complexity of it,” he says.

Graveen’s approach looks deeper into the past and wider across the landscape for clues. His archival work ties historical events in the region to water levels and water quality measurements taken in the present day. Additionally, he’s urged Ng and others to look at wild rice decline on a larger geographical scale — rather than studying specific lakes, he recommends piecing the puzzle together on the level of whole watersheds.

Graveen’s community also possesses generations of observational knowledge of wild rice. As he explains, once one starts seeing the wild rice system as a greater whole — an entity that is born from and gives life to everything else, like the forest, the animals, the water, and even humans — it’s easier to understand what needs to be done to protect it.

Graveen calls this observational knowledge “TEK,” for Traditional Ecological Knowledge. While TEK has many meanings among different groups of people and in different academic circles, he explains it using his own experience growing up in northern Wisconsin. As a result of all that time spent on the land, he and other tribal members can notice small changes over time that researchers who visit one lake three times in three years might not be able to see.

Graveen’s spiritual connection to the landscape is also an important part of that knowledge: for him, understanding the whole landscape, including the spiritual aspect, is critical to understanding its parts. For most university scientists, he says, that way of thinking is “hard for them to grasp... they don’t look at it holistically.”

Indigenous science, though, offers a potentially game-changing perspective to ecological problems because it offers a holistic perspective. “Indigenous communities worldwide have this valuable, valuable information that [scientists] are missing,” says Graveen.

Embracing complexity

While visiting the region, I had a glimpse into what this type of science might mean. After a long discussion of wild rice biology with Peter David, a biologist from a tribal natural resources agency called the Great Lakes Indian Fish and Wildlife Commission, David suggested I stop by Island Lake, a rice lake, on my way to my final destination.

I asked why — it was the middle of winter. “I mean, there isn’t much to look at,” he conceded. “You can’t get a sense of the plant community, or the depths, or anything else this time of year. But you might hear the spirit speaking to you there.”

What I thought was science — collecting samples, entering data, running analyses, writing papers — was only part of the picture, to David. He was serious that the act of investigating wild rice, the act of understanding the ecology of it, required also acknowledging that intangible, other-than-human force that also inhabited the landscape. Being there, on the lake, was inseparable from the research itself.

So, because I, too, was attempting to understand this landscape, I stopped by Island Lake. Dusk was beginning to settle into the trees. The air was so cold it seemed thinner, like I could hear every sound made by every squirrel within the mile. I tried to tap into the spirit. Listening intently, standing there, I was unsure I had succeeded.

I wondered, shifting my weight in the sub-zero temperatures to stay warm, about what Graveen had told me when he said Western science “took the spirit out of science.” What would it mean to bring the spirit back in?

It took some time for Ng to shift her frame of mind and approach to science once she started the partnership. But working with Graveen and other tribal collaborators has changed how she’s conducted her research, and she says she thinks about science quite differently now.

“We’re realizing that a lot of the science that we’re doing is really driven by them,” she says.

Following Graveen’s example, she says that collaborating with tribes has helped her to incorporate, and embrace, the many factors that show up the data she collects. In the past, she’d try to pick study sites that were easier to understand, or that limited the amount of confounding variables that she would have to deal with. For example, in the past, she’s tried to avoid working with wetland sites that are “unusual” — maybe they have a beaver dam, or a particularly high amount of human disturbance.

As scientists, she says, “usually our instinct, our reflex is to cheat a bit and find the unique places where it’s a little bit less messy.” But taking a holistic view of the wild rice problem has helped her realize that every site has an element of messiness. Studying that messiness is key to understanding the larger picture of wild rice decline. And, it’s more accurate, anyway.

Additionally, Ng has learned to incorporate things other than fieldwork and data collection into her scientific method. “I think our usual way of doing this kind of work is just to go out say, here’s our hypothesis, we do the literature review, we take the samples, we analyze them, we model it using computer models, then we have the answer, and we put it out in scientific journal, and then we walk away,” she says.

In order to make the collaboration work, though, her team changed their approach. “This isn’t just helicopter science, where we get our papers, and we leave,” she says. Instead, their research questions are directly informed by the tribal partners, and research proceeds without the singular aim, common in most academic circles, to publish as many papers as possible.

Additionally, university partners are urged to spend as much time on the landscape as possible, and participate in the annual harvest of wild rice. To Graveen and other tribal scientists, part of the science is the relationship to the landscape. Doing research, to him, is not simply collecting and analyzing lakebed samples; it is also canoeing on rice lakes, walking in the shoreline forests, participating in cultural festivals, and being part of his tribal community. Those actions, which might seem external to science for many classically-trained Western scientists, are crucial to his methods.

Because wild rice is connected to everything else on the landscape, says Graveen, responsible research needs to emphasize a relationship between the scientist and the place in which the research occurs. To put the spirit back into the science, says Graveen, “you spend that time on the landscape.”

What that means for Ng, her colleagues, and the graduate and undergraduate students in the collaboration is now to experience the landscape as a relationship. Researchers visit Lac du Flambeau a few times a year, not to collect samples, but to participate in the other aspects of wild rice: paddling rice waters, harvesting rice, eating rice, witnessing tribal wild rice traditions.

That approach to research — of keeping promises, spending time, and honoring expectations — was, ultimately, what led Graveen to join the research partnership in the first place. “We didn’t just jump into it with both feet,” he says, referring to the long, back-and-forth process the tribe went through before agreeing to collaborate with Ng and the university. He says that the university researchers had asked how research should be conducted in Lac du Flambeau. He responded, “You can’t just come here, and cut the sample, and leave. That’s what researchers and scientists do: they collect the sample and go back to the lab.”

Ng, Graveen, and many other members of the collaboration are pleased with their successes; for the most part, they say, the “First” partnership has been beneficial to both tribal groups and university researchers. However, the university’s past tensions with tribes, as well as current genetic research into wild rice, threatens the stability of the partnership moving forward — due to these tensions, some tribal partners have said they might consider leaving the “First” collaboration unless the University of Minnesota takes meaningful steps to improve its relationships with tribes.

Dispossession, past and present

Tensions between tribes and state institutions in Wisconsin and Minnesota stretch back to the very founding of those institutions. Any collaboration between the two groups must grapple with a complex and frictional history. This reality is still ever-present in Graveen’s work with some scientists and state natural resource managers outside of the “First” collaboration: “Some of these things can be challenging at times,” he says. “They discredit that knowledge that we know. It’s like they don’t believe us.”

In fact, land-grant institutions in the United States are in many cases, only able to operate due to the seizure of indigenous land in the 18th and 19th century and subsequent sale of that land to fund new universities as part of President Lincoln’s Morrill Act in 1862. In short, write Tristan Ahtone and Robert Lee in a [High Country News article](#) that lays out the full extent of the Morrill Act, the act “turned Indigenous land into college endowments.”

Much of the land that was sold as part of the Morrill Act is located in the upper Midwest, particularly in Central and northwestern Minnesota; an [1851 treaty](#) relinquished much of the Dakota peoples' territory, which was then sold to fund more land-grant universities than any other treaty or cession. The University of Minnesota's original endowment was, in part, funded by the sale of this land and other parcels — land that was ceded to the United States, coercively, from Ojibwe and Sioux (also known as Lakota and Dakota) people.

Ng, a Chinese American, second-generation immigrant raised in Maine, acknowledges that she's a part of the legacy of this dispossession, too, simply because of her position as a professor at the university. "Even though I wasn't the one to take money from the Morrill Act from illegally stolen and sold land," she says, "I've benefited from that."

Wild rice itself has been a major source of disagreements between the university and tribes moving into the 21st century. Because the University of Minnesota is a land-grant university, it has certain obligations to the agricultural industry in the state, part of which includes Minnesota's commercial paddy rice operations.

In the 1960's, researchers at the university put forth an effort to restructure wild rice production in Ojibwe communities. These researchers had assumed that the purpose of wild rice for tribal people was simply economic, and that ramping up production could bring economic returns to those communities, without seeking meaningful input from tribal groups themselves or considering the cultural importance of the plant.

Thus began the process of domesticating wild rice for commercial purposes; since then, research at the University of Minnesota has continued to support the expansion of paddy rice through further domestication and selective breeding to make the grain more hardy and more resilient to commercial farming and harvesting methods.

In 1971 and 1972, the state legislature funded \$150,000 of paddy rice research at the university, enabling the foundation of the Wild Rice Breeding and Genetics program in UMN's Department of Agronomy. According to the proposal for the program, its express objectives included the development of "superior" varieties of wild rice as well as the investigation of wild rice genetics. As a result of the first objective, ten domestic varieties of paddy rice were developed, and are now cultivated in the state.

The second objective was finally achieved in 1999, when researchers in the Department of Agronomy published a map of the wild rice genome. To the Minnesota Chippewa Tribe, this genomics research was a signal from the university that they had little intention to listen to tribal input when it came to wild rice.

The relationship between the Minnesota Chippewa Tribe only began to repair by 2009, when the College of Food, Agriculture, and Natural Resource Sciences began holding an annual symposium with the White Earth Band of Ojibwe (one of the Minnesota Chippewa Tribe members) to discuss the possibility of tribally-directed research of wild rice.

Eventually, this effort to repair relationships resulted in the university's "Grand Challenges" program, which eventually provided Ng's original grant to study wild rice and sulfates. The improvement in tribal/university relationships, though, was overshadowed by another development on the other side of campus — one lab's continued research into the genetic code of wild rice, as well as attempts to cross-breed wild stands of rice in search of higher-yield varieties.

Genome research and GMO rice

That lab is run by Jennifer Kimball, a professor who was hired in 2017, when the University of Minnesota's College of Food, Agriculture, and Natural Resource Science accepted \$900,000 from the Minnesota state legislature to begin anew the effort to conduct breeding research and develop new varieties of cultivated wild rice.

Kimball's genetic research is widely opposed by tribal groups in Minnesota for two main reasons: first, they worry that the pollen of cross-bred rice plants could intermingle with natural wild rice beds, contaminating the genetic purity of the plant. Second, they worry that, since the lab has recorded the genetic code of wild rice, it is now much easier for scientists or private companies to create a genetically-modified, or GMO, version of wild rice that would then be sold commercially.

Kimball says neither of these concerns hold water; ongoing research by her lab has not indicated that wild rice pollen can travel more than 20 feet. Additionally, she says, it's unlikely that any large company would create a GMO version of wild rice because, in the scheme of things, wild rice really isn't that profitable.

Nevertheless, the Minnesota Chippewa Tribe, comprised of the Bois Forte, Fon Du Lac, Grand Portage, Leech Lake, Mille Lacs, and White Earth bands, released a resolution in April 2021 stating their concerns and calling Kimball's continued research an "abuse" of the university's relationship with tribes, and resolved to consider formally withdrawing from all research partnerships with the university, including the "First" collaboration, if the university did not "immediately cease and desist from conducting or carrying out wild rice genetic research."

The resolution emphasized the importance of manoomin (wild rice) to the "physical, spiritual, and psychological health and wellness" of the Anishinaabe people and re-stated its opposition to all academic, commercial, or other research that could advance genetic engineering of wild rice.

Kimball says she was not aware of the resolution, but that she is opposed to the idea that cultural beliefs held by tribes should be able to dictate her research activities. "Is it opening Pandora's box?" she says. "Are you all of a sudden going to then allow another religion, say, Christianity, to come in and try to put some sort of restrictions on the research that you can do?"

Kimball points to the idea of academic freedom — a form of "free speech" that allows researchers to pursue research questions without religious or cultural restrictions. Of course, she says, there are limits to academic freedom; certain human subjects research and animal research is restricted. Letting tribal requests become one of those limits, to Kimball, is a step too far.

Academic freedom vs tribal sovereignty

Mike Dockry sees the problem differently. Dockry, another member of the “First” collaboration, is a professor of forestry at the University of Minnesota and member of the Citizen Potawatomi Nation. He says Kimball’s research into the wild rice genome is an interesting example of how the university’s research policies themselves are insufficient for upholding their relationship with tribes. He thinks tribal sovereignty should be considered by researchers in the same way human and animal rights are.

“Tribal sovereignty is in this case, butting heads with academic freedom,” he says. “The freedom for a research endeavor around wild rice is still trumping tribal sovereignty, though the tribes have been vociferous against this type of research from before the turn of the century.”

To Anishinaabe people, wild rice is a relative. Therefore, says Ng, research that concerns wild rice must be done with the same care that might be given to one’s human kin. “If I want to do medical tests on your grandmother,” she says, “I can’t just randomly stab her with a needle and be like, “academic freedom, academic freedom,” right?”

Additionally, in some parts of wild rice’s range, the plant itself has been given legal rights — in 2019, the White Earth Band of Ojibwe in Minnesota, along with the 1855 Treaty Authority, declared the “rights of manoomin,” giving wild rice within ceded territory the right to fresh, clean water and a healthy habitat. Dockry and other “First” partners are hoping such laws will help bolster their argument that wild rice should be given special consideration at the university, too.

The Minnesota Chippewa Tribe also makes clear that one of the biggest red flags with Kimball’s research was her disregard of tribal input — Kimball never sought tribal perspectives at any point in the development of her research. Some tribal members in Minnesota have acknowledged the potential benefit of genetic research on wild rice — but that still can’t happen, they say, without including tribes in the research process.” Ng says Kimball’s research might be seen in a whole different light if she had explicitly asked for tribes’ consent.

Kimball does not dispute that she never reached out to tribes for her research, but she says she wishes the university had a more formal process to help researchers incorporate tribal perspectives. “No one knows how to do this,” she says.

A supportive response

The 2021 resolution posed a problem to Ng and the rest of the university partners in the “First” collaboration. Research happening in the Kimball lab, totally outside of the “First” collaboration, was threatening their ability to maintain their relationships with tribes. “Personally, I felt tremendous guilt that this happened,” Ng says.

Unsure of how to proceed, Ng reflected on the actions that had made the partnership successful in the first place: a serious commitment to maintaining relationships, regardless of the status of the research itself.

The resolution offered the university partners an opportunity to stand by that commitment and back up their words with action, even though their research partnership, and perhaps their academic trajectories, were jeopardized.

The collaboration's eventual response to the 2021 Minnesota Chippewa Tribe resolution, which threatened the existence of the partnership itself, was made in the same spirit of relationship-building that had been so important to the formation of the group. While Ng's lab and others in the collaboration have no affiliation or data-sharing with the Kimball lab — they realized that to honor the partnership's commitment to supporting tribal sovereignty, they had to express their support of the resolution, regardless of the potential consequences for the "First" team.

On June 10, 2021, Ng, Dockry, and eight other university collaborators sent a letter to University of Minnesota President Joan Gabel, urging the university administration to engage in meaningful consultation with the Minnesota Chippewa Tribe. In the letter, they wrote: "While our own research and partnerships would be negatively impacted, we would honor any decisions the Minnesota Chippewa Tribe makes around withdrawing from all research with the University of Minnesota."

These words were a powerful statement that the partnership they'd cultivated through the collaboration were more important than the research itself. "As difficult and as unfortunate as it would be [if they pulled out of the partnership]," says Ng, "We absolutely are supportive."

Now, University of Minnesota President Gabel and other members of the administration are in conversation with the Minnesota Chippewa Tribe to find a way forward, which Dockry says is a good first step. In particular, Dockry is working with the administration to develop a set of practices for researchers who hope to work with tribal partners. While those practices won't be mandated, they will be encouraged, says Gabel's Native American Affairs Advisor Karen Diver. The Minnesota Chippewa Tribe has not yet pulled out of research collaborations, says Dockry, because they see that the university administration is beginning to have conversations about respectful research practices.

"The ["First"] project itself highlights the best practices," says Diver.

If the tribes do decide to pull out of the collaboration, says Ng, there are plans being developed to allocate the rest of the grant money currently funding the "First" collaboration towards research into and education about why tribal/university relationships have historically and currently been so harmful to tribes.

While that might be an unusual act for a biophysical scientist like Ng ("This isn't exactly what research looks like in my department," she says), Dockry says that it's a valuable way to think about science, especially science that impacts tribal lands and sovereignty.

Their approach has been fruitful, and Graveen says that valuable understanding about wild rice ecology is coming out of the "First" collaboration. The biophysical data from Western scientists like Ng is backing up a lot of the data and research that tribal scientists like Graveen have done — leading to a clearer picture of wild rice decline and a clearer direction for wild rice stewardship efforts.

A glimpse of a science to come

After all, the process of traditional wild rice harvest is about relationships, as well. It is done with two people in a canoe, traditionally a partnership of people who have gathered rice together for many years. The harvesters paddle through the rice waters, using a knocking stick to knock ripe wild rice into the floor of the boat. In doing so, some of the grains miss the canoe and fall into the water below, re-seeding the lake for the next year's harvest. It is more than just a gathering of food, it's an important community-building event.

No science, says Dockry, is actually operating outside of those relationships, whether or not the scientists pretend they are completely objective or not. "We're human beings, we have relationships with each other, and we have relationships with non-human beings," says Dockry. Relationships in science can't be avoided. The "First," collaboration, he says, "just isn't lying about it."

Ng agrees. "It's impossible to be objective," Ng says. "Let's just call it out. And let's just say where we're coming from."

As part of maintaining those relationships, Graveen and the Lac du Flambeau Tribe invite university researchers — undergraduates, graduates, and faculty — to take part in annual traditional wild rice harvests and paddle the rice lakes and rivers in the area. Undergraduate researcher Abi Bartlett was one of the students who visited Lac du Flambeau, and was struck by the parts of research that had little to do with actually collecting the samples. For Bartlett, it was the passion of the researchers — both tribal and non-tribal — that made the experience so impactful. "That's what makes science really beautiful," she says. "Is if it's connected with humans."

It's gone beyond a research relationship, says Graveen. "It's the experience, showing them our values, the events and ceremonies we've invited them to, showing them how to make ricing sticks," he says. "It's really on a personal level."

Members of the collaboration say it is these relationships, rather than the amount of data or robust research they've done, that has most impacted the future of wild rice in the region. Ng and the university partners are committed to maintaining these relationships — even if that means operating outside of the traditional academic research process. "If we don't get funding, we're still going to work together," says Dockry. "It might not look the same, but we're here together."

The effects of the "First" collaboration have reached beyond wild rice, too, says Ng, and she hopes those effects will continue to grow. A challenge of her position in the collaboration has been to convince her peers that taking tribal input seriously is critical, and not just a "silly outreach thing on the side." Most recently, she says, she's been involved with the university's School of Earth and Environmental Sciences to re-think their approach to a land acknowledgement, which, she says, can be very "hollow" and "performative."

Dockry's department at the University of Minnesota, the School of Forestry, has also begun to integrate related courses into their course requirements. Beginning this fall, all new forestry students will be required to take tribal natural resource management classes before graduating. Ng says she sees the Department of Geology moving in a similar direction.

"We want to make it the norm, rather than the exception, to be doing work this way," Ng says.

Dockry also thinks that the "First" collaboration could be a great model for other universities doing ecological research that affects tribes.

The future of genetic research on wild rice is still undecided at the University of Minnesota. But to Graveen, Ng, Dockry, and many of their collaborators, that doesn't mean the "First" collaboration has failed. "It has really caught the attention of [other] universities," says Graveen. "Today, we have a lot more students that are engaged, and recognizing that we're in trouble as far as the environment. I think that's good."

However, Ng acknowledges that the work to build trust is never done. "We need to still remember to be held accountable" she says. "We still are institutions, making mistakes. And we still benefit from being part of these institutions."

I met with Ng after my visit to Lac du Flambeau. Sitting with her in her office on the University of Minnesota Campus, I told her how Graveen had described their relationship: that he'd said they were "really good friends."

After a pause, she responded, "It almost brings tears to my eyes that you say that he said that. I definitely feel the same way." Her dreams for the research are loftier, and the effort she's willing to put in is higher, she says, because she and Joe have developed such a close friendship.

Ng recently started a research presentation to an all-tribal audience with something she'd never done before: she began with a short introduction of herself, not of her scientific interests or academic credentials, but of her family, her hobbies, and her personal background. She showed pictures of her parents, her sister, and her nieces.

It felt awkward, but it also felt necessary — her personal context was, after all, part of the research itself. Plus, all the things she'd learned about wild rice had been in some part influenced by her tribal partners, and this was a way to show gratitude. After the talk, she says, she got comments from the audience that explaining her background and relationships had been helpful for the audience to understand her better.

Ultimately, Graveen and Ng hope that maintaining the relationships they've built will lead to better outcomes for wild rice, and for species beyond wild rice that also need protection. "I think there's better times coming," Graveen says. "I don't know if it's too late, but I feel that there's going to be a better time for our relatives that can't speak. That's what we're here for, to speak for the ones that can't speak."

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