



TRIBAL ecoAmbassadors

A partnership of the Environmental Protection Agency and the American Indian Higher Education Consortium, the Tribal ecoAmbassadors Program links Tribal College and University professors and students with EPA scientists to solve environmental problems most important to their tribal communities.

"We're doing projects that are relevant and important to our local community."

Robert Kenning, Salish Kootenai College EPA Tribal ecoAmbassador

AIHEC-EPA SUMMARY



ecoAmbassadors

—putting tribal college students in the driver's seat



Salish Kootenai College students collecting project data. *Photo courtesy of SKC.*

AT FIRST GLANCE, a program from the U.S. Environmental Protection Agency (EPA) doesn't seem revolutionary. Each year, the regulatory agency sets aside a small amount of money to help college professors and students carry out its mission to "protect human health and the environment."

And yet, the EPA's Tribal ecoAmbassadors Program, open to the nation's 37 Tribal Colleges and Universities (TCUs), does something unlike any other federal grant program: it empowers tribal communities to identify and address their own environmental needs while building relationships with federal scientists and offering students hands-on field and laboratory experience. Further, the program meets the mission of all TCUs by incorporating traditional cultural knowledge with the Western scientific method.

"It's a small amount of funding, relatively speaking, but you have a lot of flexibility with what you can do with it," says Marissa McInnis in the EPA's American Indian Environmental Office. "That has led us to a lot of really, really cool crosscutting projects and results that I don't think could have happened if we had it done through a traditional, prescriptive program."

Due to the nature of the EPA's work, their grants and scholarships do tend to be prescriptive. That is, they

often focus on specific issues, laws, or partnerships and are geared toward specific results. That's not the case with ecoAmbassadors. "It's a program where they can really be the driver of the topic," says McInnis. "And that's something new for EPA."

Tribal ecoAmbassadors grew out of a 2011 executive order signed by President Obama directing federal agencies to better support and strengthen TCUs. Over the past four academic years, the EPA has provided funding and support for more than a dozen tribal colleges.

The American Indian Higher Education Consortium (AIHEC) has worked with the EPA to strengthen ecoAmbassadors from the initial project year, hosting regular meetings, disseminating materials, and nurturing communication between the EPA and TCUs. "We are working to help create opportunities for TCUs to share their research projects in different capacities, and with each other to support collaborations across the TCU network," AIHEC's Erica Newland attests. "This project has brought together current and former Tribal ecoAmbassadors lending to further collaboration and information sharing opportunities."

Cover: (graphic) Indian camas depiction from Salish Kootenai College forestry faculty Patricia Hurley's scarf painting, *photo courtesy of SKC*. (photos top to bottom) College of Menominee Nation ecoAmbassadors securing infrastructure for solar panels, *photo courtesy of D. Kakkak, CMN*; Little Big Horn College ecoAmbassador student interns collecting water samples to test for *E. coli*, *photo courtesy of LBHC*; Fort Berthold Community College ecoAmbassador student interns with Kerry Hartman, Ph.D., testing groundwater samples, *photo courtesy of FBCC*; Turtle Mountain Community College ecoAmbassador student interns Roxanne Allery and Ethan Martell collecting water samples, *photo courtesy of TMCC*.

Little Big Horn College student intern collecting a water sample on the Little Big Horn River. Photo courtesy of LBHC.

Tribal Colleges and Universities that participated in the EPA Tribal ecoAmbassadors Program

TCUs	Focus of Projects
Cankdeska Cikana Community College, ND	Campus Recycling
College of Menominee Nation, WI	Energy Conservation
Diné College, AZ	Air Quality Research
Fond du Lac Tribal and Community College, MN	Mercury Accumulation Research
Fort Berthold Community College, ND	Water Quality Research
Fort Peck Community College, MT	Epigenetics: High Fructose Corn Syrup, Mercury Bioaccumulation and Diabetes
Institute of American Indian Arts, NM	Campus Climate Adaptation and Mitigation
Little Big Horn College, MT	Water Quality Research
Northwest Indian College, WA	Biotoxins in Shellfish, Native Plant Education and Foodscaping a Tribal College Campus
Salish Kootenai College, MT	Camas Restoration on the Flathead Reservation
Turtle Mountain Community College, ND	Water Quality Research
Tohono O'odham Community College, AZ	Developing Carbon-Negative Building Material using Recycled Glass
United Tribes Technical College, ND	Reducing Carbon Footprints and Energy Conservation

For Sara Plaggemeyer, a biology professor at Little Big Horn College, working with the EPA and AIHEC proved greatly rewarding. “It’s a small group, and you also work with other tribal colleges,” she notes, pointing out that some projects translate well from one school to another and that alumni from years past offer insight and advice to new cohorts. Unlike with some large grants, TCU professors and students working in the Tribal ecoAmbassadors Program don’t feel isolated or like an afterthought, says Plaggemeyer.

When applying to the EPA, TCUs develop their own ideas for projects, which are based on each institution’s capacity and the community’s needs. Over the past four academic years, projects have included everything from recycling and developing traditional gardens to improving water quality and understanding how mercury accumulates in plant and animal tissue. Once accepted,

TCU professors and students are matched with federal scientists who are working in the same field on similar projects and who can offer expertise, connections, or training.

“We can leverage some of the knowledge that the EPA or other federal scientists have and at the same time, we’re making a new connection for both the government employee and the tribal college professor,” explains McInnis. “And then, the students get to interact with someone in their field at the federal level—and that’s a really good way to expose them to a broader view of environmental science.”

Other federal agencies would do well to look at the EPA’s work with tribal colleges, says Renee Dufault, who worked with Fort Peck Community College on ecoAmbassadors during the first two years of the EPA’s program. Having worked in the past for federal

agencies and tribal colleges, Dufault observes that the EPA has always encouraged tribes to develop their own programs. That goes back to 1984, when the agency established its American Indian Environmental Office to support tribal governments in creating environmental programs.

Dufault says that the EPA’s Tribal ecoAmbassadors Program is a great model for other agencies that could better utilize the expertise of TCUs—and give students the chance to do hands-on work. The program has also been good for the EPA’s McInnis. “It’s really probably the most fun part of my job because I’m working with students who are working on environmental issues,” she relates. “These students are so super creative—with how they collect the data, market it, and reach out to their communities—that it’s been such a learning experience for me personally and also for our EPA science partners.”



restoring our lands and ourselves

KICKING OFF THE FOURTH year of its Tribal ecoAmbassadors Program, the EPA's most recent round of participants include Fond du Lac Tribal and Community College, the Institute of American Indian Arts, Northwest Indian College, and Salish Kootenai College.

At Fond du Lac, Environmental Institute Director Courtney Kowalczak is looking at how dragonflies might be a "sentinel species" for mercury in the local watershed. The St. Louis River Watershed, which feeds into Lake Superior, borders the Fond du Lac Indian Reservation. Iron mines have operated there since the 1890s—and the Mesabi Iron Range is predicted to yield deposits for another century.



With help from faculty at the University of Minnesota Duluth, Fond Du Lac Tribal and Community College students analyze samples of dragonfly larvae for mercury. *Photo courtesy of FDLTCC.*

One major health concern for the Fond du Lac Ojibwe people is the discharge of sulfates from the mines. Sulfates help convert mercury into methylated mercury, which is absorbed by biological organisms including humans, fish, and dragonflies. Through the Tribal ecoAmbassadors Program, Fond du Lac students and Fond du Lac Reservation Resources

Management researchers have designed a pilot research project using dragonfly larvae as sentinel species for mercury. The project will also give researchers more information about how humans absorb mercury.

Participating students pulled on their waders and headed to the water. With input from the tribal Resource Management Department, they sampled sites and collected larvae at three creeks downstream from the mining sites. The next stage—once the Minnesota temperatures dropped, laughs Kowalczak—was identifying the samples, weighing, and measuring them. With help from faculty at the University of Minnesota Duluth, Fond du Lac students and faculty freeze-dry and analyze the samples for mercury and methylated mercury.

"It's very exciting for a lot of different reasons," Kowalczak says, noting that the tribal college doesn't have the necessary specialized sample-testing equipment. "It's a cool piece of equipment we'll all get trained in using, and we'll have that institutional knowledge among our faculty." And not only will students learn how to follow scientific protocols and use the equipment, they're making strong connections with the tribal Resource Management Department and university professors.

"We have one student who kind of kicked this off, who was the reason we wrote the grant," says Kowalczak. Spring Aubol had been involved with a bridges program, connecting Fond du Lac students with the University of Minnesota Duluth, and was looking for a project. Students Cole Lekander and Erica Whitebird were also working in similar areas and excited to work on projects that would mean something to them and their community.



Solar-powered pump conveys water from underground storage tank to above ground tank to irrigate surrounding gardens and orchards. *Photo courtesy of IAIA.*

The tribal college's environmental science students will also be involved in the project—as will other local students. "We're also working with a local high school that has some students who want to do a science fair project on dragonflies and mercury," explains Kowalczak. "Our three students will be mentoring those three boys from the high school."

Meanwhile, in Santa Fe, New Mexico, Institute of American Indian Arts (IAIA) students will be developing a living map of sustainability projects on campus. Led by Annie McDonnell, who started the TCU's Student Sustainability Leadership Program, they will inventory campus sustainability projects.

The program will build on other efforts across the high desert campus, including solar and water-harvesting projects, a nature trail, gardens, and an orchard. One student, a basket maker, is creating a basketry garden while others are growing pollinator plants for bees, butterflies, and bats.

To develop a native seed story project, IAIA students will network and gather stories about native seeds that are important within their tribal communities. They'll build a website, archive the stories, and include links to other educational resources about seed sovereignty and native seeds. During the project's second semester, students will learn how to create a geographic information system



Field of blue camas (*Camassia quamash*). Photo courtesy of SKC.

(GIS) map with baseline ecological data, locations of the campus's current sustainability projects, and links to climate adaptation and mitigation projects in other American Indian communities.

"I think it's exciting because IAIA has something unique to offer in terms of sustainability and climate education from an arts perspective," says McDonnell. "We're integrating science into our proposal, but there is also art in the proposal—and how art can speak to what needs to change as the climate changes."

In partnership with AmeriCorps, Northwest Indian College (NWIC) will deepen its model of on-campus foodscapes and food sovereignty. Student interns will focus on traditional food plants within the cultural calendar on the



Thistle root system found in the Northwest Indian College Healing Garden. Photo courtesy of NWIC.

college landscape. Under the direction of Ane Berrett, director of NWIC's Service Learning, students will cooperate with science faculty, Indigenous Service Learning, Northwest Indian College Cooperative Extension, Lummi Natural Resources, and Commodity Foods.

This program arose from one student's desire to create a food, nut, and berry forest, says Berrett. With the help of Brian Compton, Ph.D., NWIC's ethnobotanist, student interns will research what types of foods people traditionally gleaned and relied upon from the landscape. They will devise a nut and berry species list native to the Coast Salish Lummi and then create a model garden. Along the way, the Lummi community and Lummi High School students will be involved with the NWIC student interns through experimental education activities and "Science Saturdays."

One of the long-term goals of the project, Berrett maintains, is to create a model that could be replicated in homes across the reservation. "Where we've built stuff, we've taken out the native flora. We want to put it back and show the resilience of the native ecosystem," she says. "That's a long-term goal, but if we don't model it, how can it be done?"

In Montana, at Salish Kootenai College (SKC), Robert Kenning is heading up an ecoAmbassadors project focused on blue camas, a plant with an edible bulb similar in taste and consistency to sweet potatoes. Relied upon by Indigenous people for centuries, blue camas used to be common from the northern Rockies to the Pacific Northwest, and was widely traded among people historically.

"The traditional method was to make these large pit ovens, then dig a hole

to start a fire and you put in wet plant material, like leaves, and the camas, then bury it, and it bakes over the course of two or three days," he explains. "That turns the substance in the bulb into a digestible sugar."

Competing land uses on the Flathead Indian Reservation have led to a decline in blue camas: farming and grazing practices replaced the native grasses with introduced plants. But now the Confederated Salish and Kootenai Tribes' Natural Resources Department manages thousands of acres for wildlife habitat. "A lot of these lands are abandoned ag lands," says Kenning, "and one question they had while wanting to do habitat restoration was 'can we take abandoned ag land and restore camas on it?'"

Under the Tribal ecoAmbassadors Program, SKC student interns are trying to help answer that very question. First, they're comparing soil moisture in existing camas patches and in areas where camas doesn't grow well. "Personally, I really enjoy this project and one of the reasons is we get to partner with the tribal Natural Resources Department," declares Kenning. "I think that has a lot of mutual benefits for the tribes and the college."

Students work directly with tribal wildlife biologists, earning valuable field experience, and tribal department benefits, too. "If they can invest time in us, it pays off later when they're able to hire our students as employees," he asserts. "It also benefits us, the faculty, because we get to make sure that we're doing projects that are locally relevant and important to our local community."



using what we have, saving what we need

TRIBAL COMMUNITIES HAVE always been good at using what they have and saving what they need—and in today's world, issues like energy efficiency, recycling, and reducing carbon footprints are all the more important as natural resources are over-exploited and the planet's climate is changing.

At Cankdeska Cikana Community College (CCCC), the Tribal ecoAmbassadors project was designed to help students enhance sustainability on campus by boosting its recycling program. CCCC's "Green Team," which included students and faculty, led efforts to create a sustainable recycling infrastructure on campus.

Many of the nation's TCUs are working on issues related to climate change and reducing people's carbon footprints. A Tribal ecoAmbassadors project at United Tribes Technical College, for example, helps students in married or family housing reduce energy use. As part of the TCU's participation in Tribal ecoAmbassadors, Jennifer Janecek-Hartman, Ph.D., and her students competed to retrofit six homes to reduce their carbon footprints through new appliances and other sustainable changes. As part of the "Green Fit" competition, students also took workshops on energy-saving tactics.



Solar panel installation at College of Menominee Nation.
Photo courtesy of D. Kakkak, CMN.

And through participation in the Tribal ecoAmbassadors Program, students at the College of Menominee Nation learned how to compare and contrast energy investment strategies. Under the direction of Lisa Bosman, Ph.D., students in four different lab modules learned energy analysis techniques that gave them the skills and knowledge to measure appliance electricity use and estimate electricity generation of a photovoltaic system. The project helped students determine rates of return on solar investments and how those vary depending on where the systems are located and what the local electricity costs are.

Oftentimes, the Tribal ecoAmbassadors Program not only connects students, community members, and scientists, but also has far-reaching consequences. At Tohono O'odham Community College (TOCC), an infusion of cash and support from ecoAmbassadors helped students and apprentices gain valuable experience in science and alternative building, and it has led to larger discussions about everything from alcoholism and the treatment of sacred lands to climate change and future business models.

Under the direction of David Stone, Ph.D., and Casey Kahn-Thornbrugh, Ph.D., the TOCC project involved developing an innovative, sustainable building material made from glass, steel dust waste, carbon dioxide, and adobe. Called "ferrock," the material is stronger than concrete and is more ecologically sustainable. Ferrock can be used to make durable building blocks, poured for sidewalks and ramps, and even used for artwork.

When seeking the raw materials for ferrock, TOCC's ecoAmbassadors turned to the land. Rather than mining the





"Everything we did out there was because of the ecoAmbassadors project. That's what started it, that's what maintained it, that's what kept it going and brought it to fruition."

David Stone, Ph.D., Tohono O'odham
Community College EPA Tribal
ecoAmbassador

desert, however, they began cleaning it. Over the course of three academic years, participants and partners gathered and recycled glass dumped on the Tohono O'odham reservation in southern Arizona.

Student interns and apprentices pulverized the bottles and then bound the glass particles with an iron carbonite mineral matrix. Steel dust binds the glass particles, which in the presence of water, reacts with carbon dioxide and is trapped in the carbonate material. Unlike concrete production, which releases carbon dioxide, this process, honed at TOCC, traps it. That drew the interest of—and a visit from—former EPA administrator Lisa Jackson.

"It is truly carbon negative because (the mixture) won't harden without being exposed to CO₂; it effuses into the mixture, mixes with the iron, and hardens," says Stone, pointing out that the gas transforms into a solid, which is the opposite of what



Tohono O'odham Community College ecoAmbassador project assistant Richard Pablo feeding crusher. *Photo courtesy TOCC.*

Throughout the course of three academic years, TOCC's ecoAmbassadors project also helped forge community partnerships. Collaboration with Tohono O'odham Solid Waste Management has led to cleanup trips and new recycling awareness efforts on the reservation. And a partnership with the tribe's Environmental Protection Office

"I'm interested in recycling broken dreams."

Richard Pablo, TOCC Tribal ecoAmbassador project assistant

Combined ingredients, including pulverized glass and steel dust waste, create building materials.
Photo courtesy TOCC.

happens when fossil fuels are burned and the solid is transformed into a gas—one of the greenhouse gases responsible for climate change. "It's a promotion of green technology, showing you can be carbon negative and provide jobs," he adds, pointing out that naysayers often say cutting carbon emissions will lead to job losses. "Our little project, as small as it is, is an example of what could potentially be the opposite."

improved awareness of environmental issues facing the Tohono O'odham Nation and established volunteer opportunities.

Stone credits Richard Pablo, who became the project assistant after working as a student intern for two years, for taking on the crucial community aspect of the program. "At one point he said to me: 'You're interested in recycling broken glass, I'm interested in recycling broken dreams.' That became a theme of the whole project."



Production of building blocks made from recycled glass, steel dust, and CO₂. Photo courtesy of TOCC.

Pablo says he'd been sober for about a year when he enrolled at TOCC. After being introduced to Stone, the project director asked him to drive to Tucson to get glass from the city landfill. Instead, Pablo showed Stone all the glass in the community and throughout the desert. "After a while of picking up glass, I started thinking about a lot of things," recalls Pablo, who today is in his mid-40s. He thought about alcohol abuse, intergenerational trauma, all the things that had been taken from his people, and all the things they've had to learn in the past century: a new language, new laws, a new economic system and government.

He also thought about how Indigenous people lived in and learned from the desert—and about the science, history, and skills he was learning at TOCC. "It was making me think we have to clean up all this glass. Identity is important and we have to clean this up in in order to embrace our identity," he reflects. "And to use that to fight to have good families, have good foundations, learn science, learn writing, art, and whatever you want to be—but at the same time first embracing that identity and embracing your culture and knowing who you are in order to protect your lands, your water."

As a community, people scoured the desert, removing the thousands of brown bottles discarded on the reservation. And then the project team was able to

put the bottles to good use. "In the act of cleaning the desert of the bottles and crushing them into aggregate to be used for something positive, you were able to clean and transform yourself," relates Stone. "That's what became the most powerful part of our entire project."

None of this—the cleanup, the partnerships, or the innovative project itself—would have happened without the

EPA's support. "Everything we did out there was because of the ecoAmbassadors project," asserts Stone. "That's what started it, that's what maintained it, that's what kept it going and brought it to fruition." Although it's still too early to say what will happen, Stone believes the venture could be developed on a worldwide scale. "Even if we try to think small," he says, "it's almost no longer possible."



With ecoAmbassador student interns and project assistant Richard Pablo, Tohono O'odham Community College successfully transformed what is often viewed as a mundane chore—recycling—into an inspiring and culturally meaningful activity. Photo courtesy TOCC.



sustaining our air and waters

AT TCUS THROUGHOUT the United States, faculty and students are helping American Indian governments and communities tackle water and air quality issues. With help from the Tribal ecoAmbassadors Program, many have received funding, training, and access to new partnerships and relationships that help improve the health and well-being of communities and families.

Within 20 miles of Diné College's campus in Shiprock, New Mexico, there are two coal-fired power plants and tens of thousands of natural gas wells, each with a diesel engine. During winter, in particular, air pollution is so thick it's visible. That's a problem exacerbated by coal and wood stoves in people's homes.

At Diné College's Environmental Institute (DEI), Mark Bauer, Ph.D., designed a Tribal ecoAmbassadors project allowing students to wear portable air quality monitors—a project which combined the best of professional cooperation and community communication. It led to a second project year of air quality monitoring at Diné College guided by faculty Margaret Mayer. The “m-Pod” portable monitors were designed and provided by engineers from the University of Colorado–Boulder and the National Center for Atmospheric Research. With the results they gleaned from their work, students met with their family members, community members, and local residents to talk about how to improve air quality and public health.

Two years ago, the Turtle Mountain Indian Reservation in North Dakota ranked near the bottom in the state's health outcomes survey—in large part because of poor drinking water quality. As part of their participation in ecoAmbassadors, students at Turtle Mountain Community College tested a selection of private wells that supply drinking water to people living on the reservation, sharing the results with community members and the EPA.

Under the guidance of ecoAmbassador Deborah Hunter, Ph.D., and Audrey LeVallie, students collected water at 40 wells on the Turtle Mountain reservation and nearby tribal lands. They tested each sample for pH, conductivity, biological oxygen demand, nitrates, chlorine, organic chemicals, fluorine, iron, lead, calcium, orthophosphates, aluminum, turbidity, and coliforms. In addition, students used an atomic absorption spectrophotometer to test water samples for lead, sodium, cadmium, silver, iron, and nickel, as well as other metals. Students found that many of the wells have higher levels of sodium and iron than the EPA recommends as safe for drinking water. They educated community members about the need for testing across the reservation.

At Fort Berthold Community College, Tribal ecoAmbassador Kerry Hartman, Ph.D., designed a project to train students to sample rural well systems. Students collected groundwater samples from wells across the Fort Berthold reservation and then learned how to transfer them properly to a laboratory for chemical analysis. The project helped students develop strategies for choosing wells, procedures for sampling the wells and preparing those samples for analysis, and methods for the evaluation of data from the laboratory.

At Little Big Horn College (LBHC) in Montana, students wanted to learn more about the presence of *E. coli* (*Escherichia coli*) in the Little Big Horn River near Crow Agency, which is used for drinking and recreation. As project coordinator Sara Plaggemeyer explains it, during the slower flows of summer, sediment particles suspended in the water column are deposited on the riverbed. Those particles can be found to carry *E. coli*. They are often stirred up when people are swimming and wading.



DEI interns and staff hike to a high-tech stationary CO₂ monitor to collect air quality data. *Photo courtesy of DC.*

While undertaking the project, the team thought the *E. coli* might be more abundant in disturbed sediment. More than 30 students participated in collecting and analyzing samples from different areas along the river. The team also identified water parameters and characteristics.

Not only were LBHC students exposed to fieldwork, laboratories, and EPA standards of testing, they also learned why developing and testing hypotheses is so critical to good science. What they found through their studies, says Plaggemeyer, was the opposite of their hypothesis. “You can be wrong, and that’s okay,” she says. When they analyzed the samples, students found that *E. coli* colonies were more abundant in the undisturbed samples than in the disturbed ones. In fact, statistical analysis suggested that as sediment increased, the number of bacteria decreased.

Student engagement with community-relevant science projects, like the one at LBHC, really helps build student confidence, says Plaggemeyer. “If you get the right research project, it really does benefit (students’) long-term goals,” she says, adding, “I’ve had students, some who were not even science students, and seen they were more confident going to a four-year college. Even if (the science project is) not relevant to their degree, it still helps them.”



forging healthy lifestyles

ACROSS THE UNITED STATES, TCUs are uniquely invested in leading the way on food sovereignty and healthy lifestyles. As diabetes, heart disease, and other health issues affect tribal peoples disproportionately, TCUs are poised to lead the effort to change food environments on reservations across North America.

At Fork Peck Community College (FPCC), which participated in the Tribal ecoAmbassadors Program over the course of two academic years, students learned about how some processed foods can affect their lives. During the program's first year, adjunct professor Renee Dufault and FPCC's Zara Berg modified the Food Ingredient and Health Research Institute's introductory Macroepigenetics Nutrition Course to make it more tribally relevant. They also created the college's first online course.

Over the semester, FPCC students learned how environmental factors, including food types and exposure to toxins, regulate genes that protect health or cause disease. They surveyed students before and after the course to determine how much they learned over the semester about the relationship between diet and disease. The surveys revealed that students in the course made significant dietary changes—changes that also resulted in a reduction of the class's mean waist-to-hip ratio.

Dufault hoped that by learning more about refined sugar and food additives, and the potentially negative impacts they can have, students would consciously decrease their consumption of potentially harmful foods. "And we found during that first year that yes, this course was effective in helping people," she maintains.

That means similar online courses could effectively reach many other people at other TCUs and in rural areas with access to

computers and Internet services. Dufault hopes that the effort will help students and community members make dietary changes that reduce the risk of diabetes.

During the second year of FPCC's grant, ecoAmbassadors drew blood samples at the beginning and conclusion of the online course, analyzing them for glucose, insulin, and mercury. Although it was hard for students to eliminate corn sweeteners (which are linked to obesity), those who did, along with other processed foods, lost weight. Further, their blood samples revealed a reduction of glucose and inorganic mercury.

The project at FPCC provided students with opportunities to conduct their own research, to correctly interpret their findings, and apply what they learned about nutrition to their own lives.

(Tribal ecoAmbassadors 2011–2012 Program)

The program at FPCC not only affected the lives of students there, but also has the potential to educate and help American Indian communities across the nation. And it wouldn't have happened without support from the EPA. "The ecoAmbassadors program allows for innovation and it does allow TCUs to go outside the box," states Dufault. "That's what makes it special."

Over the past three years, students and faculty at NWIC have been connecting students directly with healthy food choices on campus, while also replacing or protecting the native plants that had been disappearing from the landscape. Currently, there are five gardens across the campus, each serving a unique need. Some gardens allow students to plant and harvest vegetables, herbs, fruits, and berries, while



Northwest Indian College student tending healing plants in the Moon Garden. *Photo courtesy of LaBelle Urbanec, NWIC.*

others grow traditional medicines or plants used for weaving.

Because many different tribal communities are represented on the NWIC campus, it's not always possible for students to share the cultural specifics of their foods, says LaBelle Urbanec, a former ecoAmbassador who is helping out with the program this year. "But, they can share the techniques of working together in how a garden is planted and what makes it a healthy one."

The EPA's Tribal ecoAmbassadors Program is also special for the impact it can have on individual students, and the inspiration it gives them to reach out to even more tribal college students. Urbanec, who is Lummi, travelled the world before coming home and attending NWIC. Although she grew up off the reservation, her mother always instilled in her stories and traditional tribal teachings.

"I love teaching our Native students, where we've combined our traditional tribal teachings with science," exclaims Urbanec, who is now a grandmother. "Some folks find that to be a little difficult, but it's easy."

In 2009, NWIC conferred its very first bachelor's degree on Urbanec, who then went on to work at the tribal college. "I was working three part-time jobs here on campus—in the library, doing a water quality run, and tutoring and mentoring



Institute of American Indian Arts students dig a berm along a campus nature trail to help control erosion and restore degraded land. *Photo courtesy of IAIA.*

science students,” she says. “There were three little grants that needed someone to fill those slots.” Then Marco Hatch, Ph.D., (Samish), a former ecoAmbassador himself, encouraged her to apply for the EPA grant.

“On campus, we have cleared so much of our land that used to be forest here, where a lot of our elders would harvest their traditional plants—this is what they ate, how they made their medicine, made their tea,” she says. “They would come across here to get it, but a lot of it is gone because we cut it down for buildings.” With Hatch’s encouragement, she applied for the grant: “I read the parameters, and I thought, ‘If my ideas don’t fit in this grant’s parameters, then I’m thinking wrong about this,’ ” she recalls. “But I was awarded the grant!”

During the 2013–2014 academic year, Urbanec worked toward turning the tribal college into its own foodscape. “I would love for our students to walk to class, and when they get a sudden case of the nibbles, I want them to go grab a handful of berries, or an apple, or pull up some sprouts and nibble on sprouts,” she says.

NWIC’s campus hosts five gardens that serve different purposes and are in various stages of growth. For instance, the Sun Garden was started by a student who planted edible crops, like garlic and kale, near the dormitories. Another plot of land nurtures native cedar and maple trees, thimbleberry, and even bats and bees.

Whatever her role at NWIC, Urbanec likes being a role model for students on campus. “I think our students need to see an educated old lady,” she laughs. “I want our Natives to feel good about what they’re doing, feel good about themselves and to have the ultimate conviction that what they’re doing is a good thing.”

For TCUs that have participated—and hope to participate—in ecoAmbassadors, the EPA program offers funding, training, and networking opportunities. But for the students who participate, it provides something even greater: the chance to fulfill dreams and inspire new generations of Native students.



The Salish Kootenai College ecoAmbassadors project focused on introducing the blue camas, a plant with an edible bulb. *Photo courtesy of SKC.*



TRIBAL ecoAmbassadors

AIHEC and EPA aim to provide ongoing project support, promote environmental education, and find solutions to environmental problems in tribal communities.

"Building stronger tribal partnerships and increasing our support for tribal communities is one of our top priorities."

Jane Nishida, EPA Principal Deputy Assistant Administrator

