FALCON 2014
Celebrating 20 Years of Land-Grant Status

November 8-11, 2014
Minneapolis, MN
FALCON thanks the American Indian College Fund for providing travel scholarships to support 1994 Land Grant students’ participation at the FALCON conference. The American Indian College Fund provides Native American student scholarships and programmatic support for the nation’s 34 accredited tribal colleges and universities located on or near Indian reservations to provide access to an affordable, quality higher education.

The American Indian College Fund’s mission is to transform Indian higher education by funding and creating awareness of the unique, community-based accredited tribal colleges and universities, offering students access to knowledge, skills, and cultural values which enhance their communities and the country as a whole.

FALCON recognizes the talents of United Tribes Technical College art department student Paulie Summers in the design of the front cover. Photos courtesy of UTTC.
# Agenda

## Day One—Saturday, November 8

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<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00–9:00 am</td>
<td>Registration</td>
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<tr>
<td>9:00 –9:15 am</td>
<td>Welcome and Opening Remarks</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>9:15–10:30 am</td>
<td>Student Presentation Panel 1</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>10:30–10:45 am</td>
<td>Break</td>
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<tr>
<td>10:45 am–12:00 pm</td>
<td>Student Presentation Panel 2</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>12:00–1:30 pm</td>
<td>Lunch—On Your Own</td>
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<tr>
<td>1:30–2:45 pm</td>
<td>Student Presentation Panel 3</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>3:15–5:00 pm</td>
<td>Poster Session and Reception</td>
<td>Denmark Commons</td>
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## Day Two—Sunday, November 9

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<td>8:45–9:15 am</td>
<td>TCU President’s Address: Phil Baird</td>
<td>Scandinavian Ballroom 3</td>
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<td>United Tribes Technical College</td>
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<tr>
<td>9:15–9:30 am</td>
<td>Break</td>
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<th>Time</th>
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<tbody>
<tr>
<td>9:30–11:30 am</td>
<td>Training Workshop 1: Coordinating Extension at the Tribal, State and Regional Levels</td>
<td>Scandinavian Ballroom 1&amp;2</td>
</tr>
<tr>
<td>9:30–11:30 am</td>
<td>Training Workshop 2: Foundations of Community Food Sovereignty Work</td>
<td>Norway 1&amp;2</td>
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<tr>
<td>9:30–11:30 am</td>
<td>Training Workshop 3: Land-Grant Strategic Planning</td>
<td>Norway 3</td>
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### Day Three—Monday, November 10

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<tr>
<th>Time</th>
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<tr>
<td>8:00–8:30 am</td>
<td>Registration</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
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<td>Welcome and Opening Remarks</td>
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<tr>
<td>8:45–9:30 am</td>
<td><strong>Keynote Presentation:</strong> Joe McDonald, President Emeritus, Salish Kootenai College</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>9:30–9:45 am</td>
<td>Break</td>
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<tr>
<td>9:45–10:15 am</td>
<td><strong>Growth of a 1994 Land Grant:</strong> Wanda Agnew, United Tribes Technical College</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>10:15–11:15 am</td>
<td>Panel Discussion—The Next 20 Years</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>11:15–11:45 am</td>
<td><strong>The Farm Bill, the 1994s, and NIFA:</strong> Erin Daly, Senior Policy Specialist - NIFA</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>11:45 am–1:15 pm</td>
<td>Lunch—On Your Own</td>
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<tr>
<td>1:15–2:00 pm</td>
<td><strong>NIFA Recap of 2014, Looking Forward to 2015, and the RFA; Stakeholder Feedback &amp; Quarterly Review:</strong> Jill Lee, NIFA</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>2:00–2:30 pm</td>
<td><strong>Introduction of the new 1994s:</strong> College of the Muscogee Nation, President Robert Bible; and Keweenaw Bay Ojibwa Community College, President Debra Parrish</td>
<td>Scandinavian Ballroom 3</td>
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<td>2:30–3:00 pm</td>
<td>Break</td>
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<td>Time</td>
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<td>3:00–4:00 pm</td>
<td><strong>NIFA Video Conference from Washington, DC</strong>&lt;br&gt;Awards and Post Award Grant Management – Susan Bowman, NIFA Branch Chief&lt;br&gt;Expanded NIFA Grant Opportunities – Effie Baldwin, AFRI Program Manager</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>4:00–4:30 pm</td>
<td><strong>Q &amp; A with NIFA:</strong> The NIFA Team</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>6:30–8:30 pm</td>
<td><strong>New Grant Award Program Director (PDs) Get Together</strong></td>
<td>FireLake Grill House &amp; Cocktail Bar</td>
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**Day Four—Tuesday, November 11**

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<tr>
<td>8:30–11:30 am</td>
<td><strong>Building Research Capacity Workshop:</strong> Erin Riley, Southwestern Indian Polytechnic Institute, and Amy Ganguli, New Mexico State University</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>11:30 am–1:00 pm</td>
<td><strong>Lunch—On Your Own</strong></td>
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<tr>
<td>1:00–4:00 pm</td>
<td><strong>Authentic Community Engagement- Applying the Principles of Community-based Participatory Research to Your Research:</strong>&lt;br&gt;Cathy Jordon, University of Minnesota</td>
<td>Scandinavian Ballroom 3</td>
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<tr>
<td>4:00 pm</td>
<td><strong>Conference Close</strong></td>
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Day 1
Student Day

Welcome and Opening Remarks
Scandinavian Ballroom 3
9:00 – 9:15 am

Student Panel 1
Hannah Smith, White Earth Tribal & Community College
Anne Vanderburg, Salish Kootenai College
Sarah Zavala & Rose Buffalo Chief, Nebraska Indian Community College
Scandinavian Ballroom 3
9:15 – 10:30 am

Student Panel 2
Kukunaokala Begay, Diné College
Lyander Begay, Diné College
Tasha Nez, Diné College
Dedrick Tolino, Navajo Technical University
Scandinavian Ballroom 3
10:45 am – 12:00 pm

Student Panel 3
Eric Schneider, Keith Kinepoway, R. Elder & C. Caldwell, College of Menominee Nation
Reynaldo Morales, University of Wisconsin-Madison
Travis James Miller, Institute of American Indian Arts
Scandinavian Ballroom 3
1:30 – 2:45 pm

Poster Session and Reception
Denmark Commons
3:15 – 5:00 pm
**FALCON Panel Presentations**  
**Saturday, November 8, 2014**  
**9:15–10:30 am**  
**Scandinavian Ballroom 3**

**Student Panel 1**

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<tr>
<td>1</td>
<td>Land Use Impacts on Water Quality On White Earth Nation</td>
<td>Hannah Smith</td>
<td>White Earth Tribal &amp; Community College</td>
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**ABSTRACT**

For the White Earth Nation (WEN), located in northwestern Minnesota, waterways play a very important part of life. It is the growing place of Wild Rice (*Zizania palustris*) —which is an economic backbone of the community. Water also holds a cultural and spiritual importance. We started with compiling water quality data for the region and identifying waterway areas that would benefit from testing. The goal is to continue water quality monitoring program, utilizing a database of historical and current water quality data, and create difference maps to benefit White Earth Nation, local agencies, and landowners; as well as keeping the integrity of the traditional relationship between *nibi* (water) and the White Earth community.

| 2    | Estimates of Logging Slash from Flathead Reservation Forest Harvests | Anne Vanderburg   | Salish Kootenai College                          |

**ABSTRACT**

The overarching goal of this project is to predict the supply of woody biomass (i.e. logging slash 'waste') from Flathead Reservation Tribal Forestry operations. In many areas of the US, a growing industry is beginning to turn this 'waste' into a product. Woody Biomass could be used on the Flathead Reservation to heat buildings, as a raw material for a wood pellet mill, or other alternative energy sources. An estimate of supply would encourage the local utilization of woody biomass. This presentation covers a piece of the biomass project -- analyzing empirical slash estimates from several harvest areas, and creating a predictive volume model, accounting for forest structure, and basal area of harvested trees.
ABSTRACT

Climate Change has forced communities around the world to adapt to changing environmental conditions. This includes Indian Country. The purpose of this research project is to provide climate science information that will help our Tribal communities adapt to these changes. This research project compares State and National historical temperature and precipitation data to our own local historical temperature and precipitation data to determine correlations and future trends. This research adds to the knowledge base of climate change and how climate change affects local communities.
**Acuaponics Research**

**Presenters**: Kukunaokala Begay  
**Institution/Organization**: Diné College

**ABSTRACT**

Aquaponics is the equilibrium of fish and plants where they live in a symbiotic system that feeds the fish and gives nutrients to the plants. As part of the development in Navajo Nation, we must learn to adapt to new changes and progress that has come upon our people by learning and practicing various methods of sustainability. Although we may have the worst living conditions on Navajo land and reservations, we must discover ways to adapt a method that will work for us to thrive upon. Much of this takes patients, timing, and money but in the end, it all pays off for future generations to utilize these knowledge’s and techniques. With the changing weather and environment, we learn to utilize our resources wisely with these techniques and implement them to ourselves for use. For that we must research what exactly will work with our environment and conditions that we live in, whether it being a poor income or lack of electricity. With aquaponics, we teach ourselves and our youth to understand the plants, fish, and water by being closer to them every day in these systems. It brings us closer to the functions of life and helps us re-learn what our ancestors understood. We then regain our heritage through agriculture and its practices.

Here at Land Grant Office of Dine College, with the aquaponics system in place, we are going to see what hardships, accomplishments, do’s, don’ts, pros and cons are for a set up here on the Navajo Nation. Although most some would argue that as Navajos are not allowed to eat fish, we are going to see just how much it takes to have an aquaponics system for anyone willing to try in our environment and culture for fresh organic fish, organic produce, for pleasure or for profit. These findings and research will be shared with the general public.

**2014 Native American Environmental Youth Camp & Agriculture Youth Camp**

**Presenters**: Lyander Begay  
**Institution/Organization**: Diné College

**ABSTRACT**

The main purpose the Dine College Land Grant Office puts up the Agriculture and The Native American Environmental youth camps during the summer is to reach out to the youth and give them hands on experience in what Agriculture and environmental science is. It is also to show them the importance of what they can benefit from it, and to have them get more involved in their own communities. What it also does is it helps the youth build this sense of community
amongst one another; it shows them how to work together in groups and pushes them out of their comfort zone. It also teaches them different skills that they may use later on in life. The Agriculture camp is based around farming, produce, livestock management and a wide range of other stuff pertaining to agriculture. Throughout the week the students received hands-on training through field labs, workshops, and field activities. College students mentored and participated alongside the students in both camps and helped them begin and learn about the exciting wonders of the surrounding natural environment around them.

The Native American Environmental Youth camp was based on the environment and how it can tell you a lot about the condition it’s in by simply applying the concept of science. The primary purpose of the camp was to educate the youth about the dynamics of the land and water through hands-on learning. Throughout the week the students camped out and explored different ways of evaluating the health of a watershed through collecting basic ecology data at local streams and lakes, classifying plant vegetation, identifying sources of pollution and the human impact on the environment. The Land Grant Office offered field tours and outdoor classrooms at the designated community campsite.

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<tbody>
<tr>
<td>3</td>
<td>Establishing agribusiness opportunities on the Navajo Nation through research and analysis of diversified forage crops</td>
<td>Tasha Nez</td>
<td>Diné College</td>
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**ABSTRACT**

The objectives of this research project are to educate and implement diverse knowledge of alternative forage crops to Navajo communities and farmers. These different locations provide strategies under Diné College’s Land Grant Office staff to develop workshops, collect field data, and have field data days to involve local farmers, members of the communities, student interns, and university collaborators.

The research plots are located in Tsaile, Upper and Lower Wheatfields, Teec Nos Pos, and Many Farms, Arizona. Twelve forage crops were planted at the sites and include cool and warm season crops. Along with the plant establishment information, soil samples have been collected, along with rainfall measurements, irrigation application, and harvest data from the forage crop variety trials. Additionally, marketing of plant products (such as seeds) will help broaden agribusiness income to farmers and ranchers.

Results from average forage crop species seedlings emergence at the five locations across the Northeastern portion of the Navajo Nation in early June, 2013, were concluded. The results conclude Lower Wheatfields produced between 0 and 4.8 seedlings per square feet, for seven out of the twelve species. Tsaile and Teec Nos Pos, also produced seedlings ranging from 0 to 10.3 seedlings per square feet. Upper Wheatfields and Many Farms were two locations that did not produce any seedlings.

From an environmental standpoint these crops can protect the environment by providing plant cover, improve soils nutrients and reduce soil erosion. From the agribusiness standpoint, there are sufficient results indicating these alternative crops can be produced on the
Northeastern Navajo Nation, for livestock consumption and alternative food storages which can project diversified forage crops and agribusiness development.

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<tr>
<td>4</td>
<td>NTU Solar Projects</td>
<td>Dedrick Tolino</td>
<td>Navajo Technical University</td>
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**ABSTRACT**

We receive advanced training in the technical aspects of PV systems, which includes Solar Air Collectors, and their installation. The ongoing research will better prepare us in understanding issues related to photovoltaic durability and reliability. As well as, the effects of the type of installations & equipment being used on the systems. Also, discovering technologies that are used at National Research Facilities, can now be used at NTU campus. Year one, we installed a 48volt PV system to power an electronic sign on campus. Year two, we gathered data on the system including temperature, insolation levels (irradiation), wind velocity, voltage, amperage, wattage and other measured quantities. The research data is used to compare the variables with Arizona State University. As interns, we are required to install a complete PV system, and understand each components in the installation. The data collection was done by physically going out to the PV array. Year three, we plan to employ and commission electronic measuring equipment that has the capabilities to remotely extract data, and project real-time data on to the school website. So, that students can learn how analyze, measure and evaluate Photovoltaic Systems on tribal lands.

NTU, Energy Systems program is broadening this research project. We are now, integrating other fields of study, into the research. To see, how we can implement renewable energy into what they do. The need for the specialized equipment and engineering services is on the rise, it will continue to grow. Technological advances in renewable energy is now going to allow us to remotely monitor the performance of PV systems. Also, be able to get a PV system into a computer program, where it can be 3D modeled and be subjected to simulations to get irradiance levels, or to do a shadow study.
FALCON Panel Presentations
Saturday, November 8, 2014
1:30–2:45 pm
Scandinavian Ballroom 3

Student Panel 3

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<th>Title</th>
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<tr>
<td></td>
<td>A Partnership in Forest Stewardship Education</td>
<td>Eric Schneider, Keith Kinepoway, R. Elder &amp; C. Caldwell</td>
<td>College of Menominee Nation</td>
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**ABSTRACT**

Indigenous peoples who rely on forests for subsistence, sustainable land-based economies and cultural identity are particularly vulnerable to the effect of accelerating climate change impacts. The College of Menominee Nation (CMN), State University of New York (SUNY) - College of Environmental Science and Forestry (ESF), and a tribal forest management agency (Menominee Tribal Enterprise) have a unique partnership to address this issue.

Our presentation will provide a brief overview of the partnership and describe the potential this project has to significantly advance Native American higher education through forest ecology courses, field practicum, and research exchange. In addition, students will present an undergraduate research project that was developed, in part, as a “bridge to the baccalaureate” from tribal college to ESF.

The research project, “American Beech and the Threat of Beech Bark Disease” brought together students from multiple stages along the educational pathway at the Associate, Baccalaureate and Master’s Degree Level to explore this issue. The research took place in both the Adirondacks and the Menominee Forest, and combined Western Scientific knowledge with Traditional Ecology knowledge. The next step of this project is to collaboratively develop a new cross-cultural Forest Ecology course using key elements of what was learned through the partnership experience.
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<td>2</td>
<td>Digital Technologies in the POSOH Project: Tools for Reflection and Building Capacity Through Leadership Development in American Indian Communities of Northeast Wisconsin</td>
<td>Reynaldo Morales</td>
<td>University of Wisconsin-Madison</td>
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**ABSTRACT**

The POSOH Project (Place-based Opportunities for Sustainable Outcomes and High-hopes) is a five-year USDA-funded project awarded to the University of Wisconsin- Madison and College of Menominee Nation. The POSOH Project’s mission is to develop community-wide and cross-institutional collaborations that co-construct approaches to formal and informal science education, valuing and infusing Indigenous contributions to scientific knowledge and culturally diverse ways of knowing into science teaching and learning. Digital media technologies are employed in the POSOH Project using video as a method of inquiry to both transform science teaching and learning directly and to build local capacity by supporting reflective leadership development.

The approach taken by the POSOH project is multifaceted and systemic, working across public and tribal schools, colleges, universities, and involving communities and culture-keepers. This presentation introduces several of POSOH’s innovative uses of digital media as educational communication tools for both teachers and students, with examples of how these tools are used in overarching inquiry processes, including: a) facing and resolving deep contradictions between teachers’ practices and students’ performance in science; b) fostering American Indian students’ interest and participation in science learning and academics in general; and c) supporting transformative pedagogical practices and learning experiences for K-16 educators.

This presentation showcases excerpts from a documentary film, *Decolonizing Local Capacity: Participatory Curriculum Development in Culturally Relevant STEM Education for Tribal and Public Schools in Northeast Wisconsin* to both describe the curriculum development aspects of POSOH’s work and demonstrate how digital media can be used as a reflective tool in support of leadership development. Presented by Reynaldo Morales--a UW-Madison doctoral student who studies and has broad international experience using digital media as a social justice and educational tool--this session offers innovative ideas for making the processes associated with digital media use as valuable as the products that are produced.

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<tr>
<td>3</td>
<td>An Examination of Health Benefits Associated with Traditional Native American Agricultural Practices</td>
<td>Travis James Miller</td>
<td>Institute of American Indian Arts</td>
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**ABSTRACT**

The research student will provide an oral presentation sponsored by the Center for Lifelong Education at the Institute of American Indian Arts. The objectives of this study examined a potential relationship between health benefits associated with traditional Native American agricultural practices. Research factors such as eating habits, land usage and accessibility, food...
sovereignty, and agricultural methods were examined under field and greenhouse conditions. Research methodology included a questionnaire dispersed among a study population, and personal interviews with practitioners of Native American agriculture. The study design is best described as a retrospective-perspective design. Past, present, and future applications to address the research question was considered during the analysis of study data. Analysis of the study expressed strong correlations of numerous variables effecting Native American health; land accessibility, education, and food sovereignty issues creating the most detrimental impacts upon health and well-being. Preliminary results built a conceptual foundation and framework for further expansion of this particular research focus.
### Student Section

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<tr>
<td>1</td>
<td>Evaluating Cattle Introgression in Bison on the Pine Ridge Reservation through Genetic Analysis</td>
<td>Tada Vargas</td>
<td>Oglala Lakota College</td>
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**ABSTRACT**

North American buffalo (*Bison bison*) exhibit a range of genetic purities depending on the history and management of individual herds. We undertook a large-scale study to evaluate the introgression of cattle (*Bos taurus*) genes present in Pine Ridge Reservation herds. Maternally inherited introgression was determined by screening 900 individuals using a PCR-based mitochondrial DNA assay. No evidence of maternally inherited cattle introgression was detected. To further screen for cattle introgression, DNA from a subset of 336 individuals are being PCR amplified with a panel of 18 nuclear DNA markers. The product is then genotyped to determine levels of paternally inherited cattle introgression. The assay is based on the size of the amplicons or lack thereof in the case of the null alleles. Some of the markers are diagnostic and some are confirming based off the fragment size. The next step is to analyze an additional 38 nuclear markers to screen select individuals for genetic diversity in the nuclear genome among the herd. This research was funded by a USDA NIFA Tribal College Research grant to A. Higa.

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**ABSTRACT**

The overarching goal of this project is to predict the supply of woody biomass (i.e. logging slash 'waste') from Flathead Reservation Tribal Forestry operations. In many areas of the US, a growing industry is beginning turn this 'waste' into a product. Woody Biomass could be used on the Flathead Reservation to heat buildings, as a raw material for a wood pellet mill, or other alternative energy sources. An estimate of supply would encourage the local utilization of woody biomass. This presentation covers a piece of the biomass project -- analyzing empirical slash estimates from several harvest areas, and creating a predictive volume model, accounting for forest structure, and basal area of harvested trees.
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<tr>
<td>Ecological Data Collection</td>
<td>Ken LaTender and Brenda Miller</td>
<td>College of Menominee Nation</td>
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**ABSTRACT**

The basis of all research is data. There are 2 means to produce research data. The first, depending on the type of research being conducted, is to use data from previous studies. The second is to gather new data as a component of the research project. The goal of the ecological data collection internship is to provide an opportunity to learn field data collection using an advanced tree census protocol developed by Dr. Richard Condit through the Smithsonian Institute. Through the procedures described below, the students have learned how to apply the protocol to collect field data, and to a lesser extent, how to record, download, manage, archive, and manipulate the data for analysis. The keys emphasized throughout are precision and consistency to establish and maintain data integrity so future studies and/or analysis are based on a credible foundation.

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<td>College of Menominee Nation</td>
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**ABSTRACT**

In 2014, I participated in the Learning from the Land internship. I traveled to Upstate New York in the Adirondack Mountains where I hiked in the mountains and learned how acid rain is being monitored. In addition, I was able to learn how to identify numerous plants and various tree types, and researched for mushrooms in 20 meter x 20 meter plots. In the plots we also measured tree diameter at breast height (dbh). When returning to Wisconsin, we continued data collection in the Menominee Forest using the methods learned in New York.

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**ABSTRACT**

For the White Earth Nation (WEN), located in northwestern Minnesota, waterways play a very important part of life. It is the growing place of Wild Rice (Zizania palustris L)—which is an economic backbone of the community. Water also holds a cultural and spiritual importance. We started with compiling water quality data for the region and identifying waterway areas that would benefit from testing. The goal is to continue water quality monitoring program, utilizing a database of historical and current water quality data, and create difference maps to benefit White Earth Nation, local agencies, and landowners; as well as keeping the integrity of the traditional relationship between nibi (water) and the White Earth community.
ABSTRACT

My name is Stanton Alexander and I am an enrolled member of the White Earth Nation. Currently a student attending White Earth Tribal and Community College (WETCC), I am seeking an Environmental Science degree. As internship is part of the core requirements, I am working as a Bean Research Assistant with the WETCC Extension Service as part of our USDA Tribal College Research Grants Project. My faculty advisor is Dr. Steven Dahlberg, e-mail address: sdahlberg@wetcc.edu.

The objectives of this research are to identify at-risk indigenous crops vital to Native American cultures. Collaborating in this research are individual Native seed keepers: Dream of Wild Health, the Science Museum of Minnesota, Native Seed Search, USDA Germplasm Resources Information Network, and North Dakota State University’s Carrington Research Extension Center.

My presentation will identify some preliminary results on which varieties are best suited to be grown in our plant hardiness zone. I will also show the nutritional values, along with Native oral traditions regarding these food sources. By working with university researchers, I hope to gain experience and insight in doing community research.

ABSTRACT

Climate Change has forced communities around the world to adapt to changing environmental conditions. This includes Indian Country. The purpose of this research project is to provide climate science information that will help our Tribal communities adapt to these changes. This research project compares State and National historical temperature and precipitation data to our own local historical temperature and precipitation data to determine correlations and future trends. This research adds to the knowledge base of climate change and how climate change affects local communities.
The Spiritfire dancer: Jackpine ecological and cultural keystone species.

Sheila Northbird 
Leech Lake Tribal College

ABSTRACT

The Leech Lake Band of Ojibwe and the Chippewa National Forest (CNF) are on the edge of the great northern boreal biome. The CNF contains a few old growth pine stands within a laurentain mixed boreal forest of 1.6 million acres. The Leech Lake Reservation, home to the Ojibwe of the Anishinaabeg, resides within the boundaries of the CNF. Logging and climate change have impacted the forest and an Ojibwe’s traditional way of life. There are still a few families who hunt and gather resources from the forest like birch bark, animal hides, jack pine roots, and many other plants for cultural traditions. The Ojbwe continue to practice one of their greatest original teachings which draws upon the very essence of the boreal forest for their continued sustainability. Consistent climate patterns and respectable cultural ecological management of keystone species have maintained a sustainable environment for the Ojibwe for thousands of years. This knowledge is known as gekinamowa, original teachings, or Anishinaabeg sciences. Jack Pine (*Pinus banksiana*) is the unsung hero of the boreal forest and a cultural and ecological necessity in a pine forests achievement of homeostasis. While the forest developed independently prior to the migration of Ojibwe tribes, their presence in the forest helped to increase productivity of biodiversity without losing whole sections of forests to slash and burn. Management practices by Ojbwe tribes are recorded within the *P.banksiana* chronological history, the General Office of Land Survey pre-settlement.

Radon Exposure in Residential and Commercial Building in Crownpoint, New Mexico (Navajo Nation)

Malanie Begay 
Navajo Technical University

ABSTRACT

The community of Crownpoint, NM is located within the Grants Mineral Belt. This mineral deposit, found in the Morrison Formation, is the major source for uranium mining in New Mexico. The presence of uranium ultimately leads to the presence of Radon (Rn) gas through radioactive decay. The EPA has estimated that 1 out of every 15 homes has radon gas and is the cause for roughly 21,000 lung cancer deaths per year; second to smoking. Preliminary data (via a radon detector) has disclosed radon gas is present in buildings at Navajo Technical University, and surrounding homes in Crownpoint, NM; located in the Eastern Agency of the Navajo Nation. The EPA guideline for radon is to not exceed 4.0 pCi/L; values above this are considered to pose a health hazard. I am in the process of gathering more data from more sites on and off campus to determine if radon gas concentrations are higher or lower on campus.
ABSTRACT

We receive advanced training in the technical aspects of PV systems, which includes Solar Air Collectors, and their installation. The ongoing research will better prepare us in understanding issues related to photovoltaic durability and reliability. As well as, the effects of the type of installations & equipment being used on the systems. Also, discovering technologies that are used at National Research Facilities, can now be used at NTU campus. Year one, we installed a 48volt PV system to power an electronic sign on campus. Year two, we gathered data on the system including temperature, insolation levels (irradiation), wind velocity, voltage, amperage, wattage and other measured quantities. The research data is used to compare the variables with Arizona State University. As interns, we are required to install a complete PV system, and understand each components in the installation. The data collection was done by physically going out to the PV array. Year three, we plan to employ and commission electronic measuring equipment that has the capabilities to remotely extract data, and project real-time data on to the school website. So, that students can learn how analyze, measure and evaluate and Photovoltaic Systems on tribal lands.

NTU, Energy Systems program is broadening this research project. We are now, integrating other fields of study, into the research. To see, how we can implement renewable energy into what they do. The need for the specialized equipment and engineering services is on the rise, it will continue to grow. Technological advances in renewable energy is now going to allow us to remotely monitor the performance of PV systems. Also, be able to get a PV system into a computer program, where it can be 3D modeled and be subjected to simulations to get irradiance levels, or to do a shadow study.

ABSTRACT

In recent years the Tohono O’odham Nation Environmental Protection Office (TO-EPO) has received complaints about decreased visibility and more cases of airborne illnesses such as asthma in communities on the Tohono O’odham Nation. The Tohono O’odham Nation is located in the Sonoran Desert in southern Arizona 60 miles west of Tucson. The Tohono O’odham Nation has the second largest American Indian reservation in Arizona in both population and geographical size with a land base of 4,460 square miles approximately the size of the state of Connecticut. The objective of my project was to identify the point sources for Particulate Matter 10 (PM-10) on the Tohono O’odham Nation, by collecting way-points using a GPS receiver, and creating maps showing these points using ArcGIS 10.2.2. With help from the Tohono O’odham Office of Emergency Management (TO-OEM) I obtained shapefiles of the Nations’ villages, roads,
and districts to add to the map. After all the data was collected I used the buffer tool in ArcMap, and manuals to show how far PM-10 could potentially travel from gas stations, agriculture fields, and various roads all of which are considered point sources for PM-10 because they are heavily trafficked roads, fallow fields, and emit hazardous amounts of nitrous oxide.

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<tr>
<td>12</td>
<td>Establishing agribusiness opportunities on the Navajo Nation through research and analysis of diversified forage crops</td>
<td>Tasha Nez</td>
<td>Diné College</td>
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ABSTRACT

The objectives of this research project are to educate and implement diverse knowledge of alternative forage crops to Navajo communities and farmers. These different locations provide strategies under Diné College’s Land Grant Office staff to develop workshops, collect field data, and have field data days to involve local farmers, members of the communities, student interns, and university collaborators.

The research plots are located in Tsaile, Upper and Lower Wheatfields, Teec Nos Pos, and Many Farms, Arizona. Twelve forage crops were planted at the sites and include cool and warm season crops. Along with the plant establishment information, soil samples have been collected, along with rainfall measurements, irrigation application, and harvest data from the forage crop variety trials. Additionally, marketing of plant products (such as seeds) will help broaden agribusiness income to farmers and ranchers.

Results from average forage crop species seedlings emergence at the five locations across the Northeastern portion of the Navajo Nation in early June, 2013, were concluded. The results conclude Lower Wheatfields produced between 0 and 4.8 seedlings per square feet, for seven out of the twelve species. Tsaile and Teec Nos Pos, also produced seedlings ranging from 0 to 10.3 seedlings per square feet. Upper Wheatfields and Many Farms were two locations that did not produce any seedlings.

From an environmental standpoint these crops can protect the environment by providing plant cover, improve soils nutrients and reduce soil erosion. From the agribusiness standpoint, there are sufficient results indicating these alternative crops can be produced on the Northeastern Navajo Nation, for livestock consumption and alternative food storages which can project diversified forage crops and agribusiness development.
Aquaponics Research
Kukunaokala Begay
Diné College

**ABSTRACT**

Aquaponics is the equilibrium of fish and plants where they live in a symbiotic system that feeds the fish and gives nutrients to the plants. As part of the development in Navajo Nation, we must learn to adapt to new changes and progress that has come upon our people by learning and practicing various methods of sustainability. Although we may have the worst living conditions on Navajo land and reservations, we must discover ways to adapt a method that will work for us to thrive upon. Much of this takes patients, timing, and money but in the end, it all pays off for future generations to utilize these knowledge’s and techniques. With the changing weather and environment, we learn to utilize our resources wisely with these techniques and implement them to ourselves for use. For that we must research what exactly will work with our environment and conditions that we live in, whether it being a poor income or lack of electricity. With aquaponics, we teach ourselves and our youth to understand the plants, fish, and water by being closer to them every day in these systems. It brings us closer to the functions of life and helps us re-learn what our ancestors understood. We then regain our heritage through agriculture and its practices.

Here at Land Grant Office of Dine College, with the aquaponics system in place, we are going to see what hardships, accomplishments, do’s, don’ts, pros and cons are for a set up here on the Navajo Nation. Although most some would argue that as Navajos are not allowed to eat fish, we are going to see just how much it takes to have an aquaponics system for anyone willing to try in our environment and culture for fresh organic fish, organic produce, for pleasure or for profit. These findings and research will be shared with the general public.

2014 Native American Environmental Youth Camp & Agriculture Youth Camp
Lyander Begay
Diné College

**ABSTRACT**

The main purpose the Dine College Land Grant Office puts up the Agriculture and The Native American Environmental youth camps during the summer is to reach out to the youth and give them hands on experience in what Agriculture and environmental science is. It is also to show them the importance of what they can benefit from it, and to have them get more involved in their own communities. What it also does is it helps the youth build this sense of community amongst one another; it shows them how to work together in groups and pushes them out of their comfort zone. It also teaches them different skills that they may use later on in life. The Agriculture camp is based around farming, produce, livestock management and a wide range of other stuff pertaining to agriculture. Throughout the week the students received hands-on training through field labs, workshops, and field activities. College students mentored and participated alongside the students in both camps and helped them begin and learn about the exciting wonders of the surrounding natural environment around them.
The Native American Environmental Youth camp was based on the environment and how it can tell you a lot about the condition it’s in by simply applying the concept of science. The primary purpose of the camp was to educate the youth about the dynamics of the land and water through hands-on learning. Throughout the week the students camped out and explored different ways of evaluating the health of a watershed through collecting basic ecology data at local streams and lakes, classifying plant vegetation, identifying sources of pollution and the human impact on the environment. The Land Grant Office offered field tours and outdoor classrooms at the designated community campsite.

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<td>Historical Impact on the Kwina Woods: Telling the Story of the Land</td>
<td>Paul K. Cline</td>
<td>Northwest Indian College</td>
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ABSTRACT

A botanical survey of the Kwina property history, pre-reservation, post-day-school, and current, was performed to better understand the historical impacts of botanical change with a focus to revitalize traditional plant knowledge. I performed a literature review, conducted a plant survey, and researched historical archives. My findings include the history of the establishment of the reservation, further reduction of forest for NWIC, and future options for restoration of certain areas. Historical documentation provided limited ethnobotanical roles known by the Lummi people.

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<tr>
<td>A Contemporary View Towards Food Forestry of Indigenous Practices</td>
<td>Na’ta’ne Morning-Song Miles</td>
<td>Northwest Indian College</td>
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ABSTRACT

In my internship project I examined aspects of forest ecology in the Pacific Northwest, indigenous knowledge of traditional ecological systems and Hügelkultur (a German gardening technique which translates to mound cultivation). My approach focuses on a disturbed area which was remnant of a much larger forest before the campus expansion took place at Northwest Indian College (NWIC). I’m looking at a novel approach between synergistic practices and theories within the broader context of forest gardening. My research integrates indigenous perceptions with an emphasis on sustainability, food sovereignty and the potential application of a forest garden on Northwest Indian College’s tribal landscape.
**ABSTRACT**

Bat species in the central region of North Dakota rely heavily on dilapidated structures such as old bridges or long-standing buildings as a main roosting location. United Tribes Technical College has a large bat population that inhabits the historical structures on campus. It is critical that these building go through renovation every few years to rid the attics of bat guano which may be a culprit of a serious respiratory infection, *Histoplasmosis capsulatum*, which is a fungus that can be found in bird and bat droppings. Although these bat dropping are a nuisance and have a potential health risk, they can also serve as a natural fertilizer for the many campus community gardens. Guano is an excellent source of nitrogen and can serve as a soil conditioner and a natural fungicide in gardens. In order to ensure safety while utilizing this guano in gardens across the campus, we proposed testing guano from various buildings for *Histoplasmosis*. *Histoplasmosis* can be detected through DNA analysis of dried guano using Zimofecal Kits. Sequences will be matched with genomes in BLAST, an online genome database. The purpose of this study is to identify whether there are health concerns related to utilizing local guano for community gardens. The study results will help educate the public on the benefits of bat.

**ABSTRACT**

Bat species throughout the United States are usually associated with negative attitudes and misrepresentations. They are known to infest building, leave large amounts of droppings, and cause chilling nightmares. Although they carry a negative stigma, bats provide irreplaceable environmental services for entire ecosystem; Bats serve as key pollinators and can act as a biological control agents against agricultural pests. In recent years, researchers have noticed a decline in bat populations around the US due to an emerging fungal disease, White Nose Syndrome (WNS). This disease has devastated bat populations throughout the eastern United States and is slowly making its way to the west. North Dakota is home to eleven different bat species that have been undisturbed by WNS. United Tribes Technical College monitored the difference between bat populations in urban and rural locations around the central part of North Dakota using acoustic detectors. Petterson acoustic detectors were used to record echolocation calls from various bat species. Detected bat calls were run through Sonobat, an analysis software program specifically designed for bat acoustics, to determine species presence and habitat use. Developing baseline data for these species now may help in aiding species conservation programs for these.
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<tr>
<td>An Examination of Health Benefits Associated with Traditional Native American Agricultural Practices</td>
<td>Travis James Miller</td>
<td>Institute of American Indian Arts</td>
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**ABSTRACT**

The research student will provide a poster presentation sponsored by the Center for Lifelong Education at the Institute of American Indian Arts. The objectives of this study examined a potential relationship between health benefits associated with traditional Native American agricultural practices. Research factors such as eating habits, land usage and accessibility, food sovereignty, and agricultural methods were examined under field and greenhouse conditions. Research methodology included a questionnaire dispersed among a study population, and personal interviews with practitioners of Native American agriculture. The study design is best described as a retrospective-perspective design. Past, present, and future applications to address the research question was considered during the analysis of study data. Analysis of the study expressed strong correlations of numerous variables effecting Native American health; land accessibility, education, and food sovereignty issues creating the most detrimental impacts upon health and well-being. Preliminary results built a conceptual foundation and framework for further expansion of this particular research focus.

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<tr>
<td>The Relationship Between Juniper Trees and Piñon Saplings</td>
<td>Nicole Mitchell</td>
<td>Institute of American Indian Arts</td>
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**ABSTRACT**

The research student will provide a poster presentation sponsored by the Center for Lifelong Education at the Institute of American Indian Arts. This project seeks to examine the potential relationship between Juniper trees and Piñon saplings with regard to Juniper trees serving as “nurse” trees to Piñon saplings – that is, full-grown Juniper trees providing nutrients to Piñon saplings and hence sustaining the development of those saplings. The question of whether such an interdependent relationship consistently exists is explored through assessment and survey of such trees in the Piñon-Juniper Woodlands in the area of Santa Fe, New Mexico. This assessment and survey consists of GPS plotting, recording distance between potentially interdependent trees, slope measurements, and measurement of soil moisture levels. In addition, visual representations will be created with this data to further assess ecological correlations. Identification of an interdependent relationship between Juniper and Piñon has the potential to serve as a body of work for various academic disciplines and land management.
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<tr>
<td>21</td>
<td>Developing an Interactive Research Archive</td>
<td>Arlo Werito</td>
<td>Southwestern Indian Polytechnic Institute</td>
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**ABSTRACT**

The Natural Resources and Engineering Program of Southwestern Indian Polytechnic Institute will be focusing on building a Research Archive Database for our college. The project has goals that we wish to accomplish. This can be anything from education and developed of the project, outreach sessions and presentations, the roles students, administration, and faculty play in the project, and handing out on what Southwestern Indian Polytechnic Institute needs for the future. Natural Resources and Engineering Programs will partner with Southwestern Indian Polytechnic Institute to make awareness of the Research Archive Database. The project objective and methods will be designed for research on the SIPI campus. Research will accomplish this through formulation of educational information on the research to present to our SIPI community. The information that I will gather will be organized and handed out to anyone who is interested in our Archive Database for the future.

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<td>22</td>
<td>A project based on Native American naming of plant species throughout the southwest</td>
<td>Cheyenne Randolph</td>
<td>Southwestern Indian Polytechnic Institute</td>
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**ABSTRACT**

Plant names were researched using publications from different tribes across the southwest to increase the native names included on herbarium specimens at SIPI. Currently the common name and Latin name are listed. This project was conducted in one summer as an internship for a NIFA/USDA Research grant. Included in the project were understanding native languages, plant species, and culturally appropriate methods of acquiring these. A letter to the Governor and Tribal council will be sent requesting the use of names of Santa Domingo, Navajo and White Mountain Apache requesting names of certain plant species in the herbarium and if the pueblos and reservations would be willing to be part of this project. The other portion of this project was working on a publication from 1800’s and updating the plant species identification in Latin names. The project significantly improved the herbarium collection organization as well as increased student knowledge of language.
## ABSTRACT

Bay Mills Indian Community, an Anishinaabe Nation, is located at the junction of the Lake Superior and the St. Marys River. Commercial fishing is the second largest industry on local tribal lands and has culturally been a significant part of the traditional lifestyle. Regionally, an estimated 420,000 lbs. of fish (round weight) were captured by tribal fisherman annually. On average, 30-40 percent of the total weight of a fish is unusable for human consumption. Anaerobic digestion is being used in other regions to recapture fish waste via the creation of biogas and fertilizer. However, this technology has not yet been adapted for local use. Information on the viability of anaerobic digestion of freshwater fish species in a Northern climate is lacking. This project seeks to fill this knowledge gap and introduce the technology to the local community. To achieve this, the project has been divided into three phases. In phase one, bench-scale anaerobic digesters (500mL) were employed to investigate the necessary ratio between fish and other (local restaurant) waste streams to provide the highest biomethane potential. A ratio of 50:50 fish waste to restaurant waste yielded the largest average volume of biogas (935mL), compared to 924mL biogas created from a 25:75 fish to restaurant waste digestion. These values were 3-fold larger than the average volume of biogas produced through digestion of fish waste alone (368mL; p<0.001). This data is being used in phase two of the project: two outdoor (55 gallon) batch digestion processes, in which the biogas production of the previously mentioned fish to restaurant waste ratios will be compared and deployed during winter months. This will test the seasonal viability of anaerobic digestion of commercial fish waste on the Bay Mills Indian Reservation.

## ABSTRACT

The Place-Based Opportunities for Sustainable Outcomes and High Hopes (POSOH) project seeks to develop strategies for preparing all learners—including typically underserved youth from non-mainstream cultures—to pursue bioenergy- and sustainability-related studies and careers, while exploring the contributions of traditional and scientific ways of knowing to our understanding of ecosystems and sustainability.

The project serves the Northeastern WI bioregion, which includes three nearby reservations, Menominee, Oneida, and Stockbridge-Munsee; the College of Menominee Nation, an accredited tribally controlled community college; and surrounding rural communities.

This collaborative project involved primary partnerships between College of Menominee...
Nation and its Sustainable Development Institute, University of Wisconsin – Madison, CESA 8 School District, Michigan State University, and the Great Lakes Bioenergy Research Center. It also included many other partners, and participating educators from area tribal and public schools.

We will provide an overview of the project and detail more specifically our experiences with bringing together faculty, students of all levels, and community members, to discuss our learning process and the successes and gaps we have discovered along the way. This will include discussion on the development of; (a) collaborative curriculum design and development, (b) high school sustainability engagement activities, (c) undergraduate internship opportunities, and (d) faculty engagement activities.

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<td>California Tribes Fish Use and Threats</td>
<td>April Negrette</td>
<td>American Indian College Fund</td>
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**ABSTRACT**

The research was conducted with the purpose of getting water quality standards in California better protected by the EPA and California State Water Resources Control Board. California is in a severe drought and many stakeholders' voices have been heard, but never the voices of the tribes statewide. Over 20 of California's tribes and California tribal members of over 40 different tribes participated in the study to give traditional fishing information and current consumption rates. The results showed that 64% of California tribal elders were eating fish at least one a day when there was access to fish and traditional fishing areas. Historically, Native people of California ate on average between 1 and 2 lbs of fish a day. The results showed current rates of consumption significantly lower due to ecological, health, regulatory, financial and cultural reasons. Currently, over 60% of people reported only being able to eat fish once or twice a week. In most every case, tribal members reported wanting to be able to eat an amount of fish that more closely resembled the traditional and historical amount their grandparents and ancestors used to eat, but due to factors that were not within their control they could not. The 3 largest responses when asked what the issues were are: decline of abundance of fish, concerns about quality of the water and health risk of eating fish, and rivers, lakes and streams drying up. There were also several barriers for tribes even when healthy waterways were present. Access to traditional fishing areas, ability to fish using traditional communal methods, limits on catch, and loss of native species were all reported by tribal members. These findings will hopefully influence policy to better protect tribal fishing rights, better protect California’s waterways for everyone, and influence other states of follow suit.
ABSTRACT

The American Indian College Fund conducted listening sessions with Tribal Colleges and Universities in North Dakota, South Dakota, Wisconsin and Minnesota in 2013. Several principles that are viewed as foundational to programming with tribal nation communities emerged from this study including, preservation and restoration of Native life ways, intergenerational knowledge transfer, and place-based capacity building. This presentation will provide a snapshot of TCU programming in environmental sciences and sustainability fields and how students are targeting sustainability issues right in their tribal communities.

ABSTRACT

Providing outreach to rural communities to engage students in health careers does not have a one-size-fits-all approach; and, Area Health Education Centers (AHEC) are experts at identifying the needs of their unique populations. The Northwest AHEC program in Alaska is hosted by Ilisagvik College and works in collaboration with the Allied Health program to promote health career pathways in schools, to increase health profession students in clinical training programs, and support continuing education programming for health professionals in Alaska. Their service region spans 154,592 miles – which is almost equivalent to the size of the state of California. In their region, communities range in size from 107 to 4,346 with a total population of only 24,165. This session will discuss how the Northwest AHEC and Allied Health programs designed their health outreach through a series of videos including footage from outreach visits, interviews with students, and a presentation of data demonstrating the impact on the region. Conference participants will have an “eye witness account” of what it means to do health outreach in rural Alaska and the impact of Northwest AHEC and Allied Health programs in underserved rural communities despite extreme geographic and cultural challenges. Self-determination through the recruitment of a local and passionate healthcare workforce is essential to sustainable quality primary care and a thriving relationship between local clinics, the greater healthcare community, and rural Alaskans – Northwest AHEC and Allied Health with financial support from Ilisagvik College, NIFA, HRSA, and the North Slope Borough provides the way to achieve this on the North Slope.

Participants will be able identify 3 successful activities programs conducted by Northwest AHEC and Allied Health to understand the impact of their outreach on rural students and its role working towards a local and diverse healthcare workforce in Alaska. We will understand the unique circumstances and challenges of outreach in rural underserved Alaskan villages, and
identify key differences between Lower 48 “rural” and Alaskan “rural/frontier” communities.

The effect or results of outreach work, how it influenced or altered a condition or practice will include: Addressing Critical Health Workforce Shortages and Health career pathways.

Our future plan is to “grow our own” health workforce especially in rural communities here in Alaska where a shortage of health care professional is evident. In order to do this we need to promote and engage students in health career pathways in local schools, increase health profession students in clinical training programs, recruit health profession students into health careers in Alaska upon completion, and support continuing education programming for health professionals.

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<td>Circus on the Slope: A Collaborative Project to get Kids and Communities Moving</td>
<td>Diana Solenberger</td>
<td>Ilisagvik College</td>
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**ABSTRACT**

Ilisagvik serves the community of Barrow and the seven remote villages that comprise the North Slope Borough (NSB), an 89,000 square mile region situated entirely above the Arctic Circle. Ilisagvik’s Cooperative Extension office provides programming that seeks to encourage an environment of life-long learning and educational inquiry in the communities of the North Slope through a variety of non-classroom, hands on workshops specifically focused on topics that enhance health, wellness and family.

The largest and most successful program offered through Cooperative Extension is ‘Circus on the Slope’. This program brings professional circus artists into our communities to teach activities as varied as trapeze, silk, juggling, manipulation, balancing, stilt walking, partner acrobatics, and circus art to kids ages 5 and up and including young adults (in age-group classes). It is aimed at introducing new and amusing physical activities to help combat obesity and diabetes in adults and youth.

Circus on the Slope is a program accomplished in partnership with ASNA’s Diabetes Prevention Program, and the City of Barrow. Over the previous three years Circus on the Slope has visited all eight communities at least once. Village programs last a week, while the Barrow camp is two weeks in length. Equivalent camps offered in the contiguous United States have been priced at $250 per week, per child. However, our community partnerships allow these camps to be offered to North Slope children for free. In this way there is no economic barrier to attending the program.

This program is a huge undertaking, because it means a staff of 3-4 must fly to each of the villages and remain there for a week at a time. For summer 2014 we took the program to 4 communities: Barrow, Anaktuvuk Pass, Pt. Lay, and Wainwright, and had over 300 children and young adults participate!
ABSTRACT

This two-year project involves the preliminary examination of aspects of botany, ethnobotany, forest gardening, and related topics within a Coast Salish, specifically Lummi, context. The project was designed to determine the potential for revitalizing traditional plant knowledge and harvest practices related to Pacific lowland forests and the Indigenous peoples whose traditional homelands encompass those forests. Native Environmental Science student interns worked with faculty from Northwest Indian College and Washington State University to conduct research on several topics within the broader scope of the project. Research findings include results of botanical surveys and ethnobotanical research regarding vascular plants on and near Northwest Indian College as well as a proposed site for a forest garden. Individual student topics also focused on historical impacts on native vegetation in the area, as well as traditional and novel practices regarding the management and harvest of plants for food, materials, and other applications for possible implementation at the college campus in the future.
Day 2
FALCON Day

Welcome and Opening Remarks

TCU President’s Address
Phil Baird, President, United Tribes Technical College

Training Workshop 1 – Coordinating Extension at the Tribal, State and Regional Levels
Emily Proctor, Michigan State University & Dawn Newman, University of Minnesota

Training Workshop 2 – Foundations of Community Food Sovereignty Work
Vicky Karhu, Mvskoke Food Sovereignty Initiative

Training Workshop 3 – Land-Grant Strategic Planning
John Phillips, FALCON

Luncheon—Tribal College VISTA Program Panel
Lavinia Panizo, USDA

FALCON Membership Meeting

Faculty Panels 4 & 5

Faculty Panels 6 & 7

Faculty Panels 8 & 9
Phil Baird is the Interim President and Vice President of Academic, Career & Technical Education at United Tribes Technical College (UTTC) in Bismarck, N.D. An enrolled member of the Rosebud Sioux Tribe (Sicangu Lakota), he has professional experiences working in agriculture, education, economic development, and Tribal gaming. He earned his B.S. degree in animal science/pre-veterinary medicine from South Dakota State University and a masters degree (agricultural education) from Iowa State University. Phil was named an SDSU Distinguished Alumni (Service to Education) in 1997. He received an honorary doctorate degree from Sinte Gleska University in 2005.

His national leadership experience comes from working with a variety of organizations including the American Indian Higher Education Consortium (AIHEC), the National Congress of American Indians (NCAI), and the Native American Rights Fund (NARF). He is a past president and board member of both the National Indian Education Association (NIEA) and the South Dakota Indian Education Association (SDIEA). He served as a vice president with Sinte Gleska University and was the former general operations manager of the Rosebud Casino & Quality Inn on South Dakota’s Rosebud Sioux Reservation. Phil is a past executive director of the N.D. Association of Tribal Colleges.

In 2003-2004, he was selected for the inaugural cohort group of the AIHEC/W.K. Kellogg Foundation MSI Leadership Fellows program. An outcome of this experience was the publication of his most recent research paper, “The Succession of the Tribal College Presidency,” in the book, Tradition and Culture in the Millennium: Tribal Colleges and Universities (2009). Other research work has been focused on projects with 1862 and 1994 land grant institutions. His last USDA research project was completed in 2003, the “Northern Plains 1862/1994 Land Grant Institutions Bison Research Project.” He was the principal investigator of a National Science Foundation project, “United Tribes – Pathways to Student Success” – that led to the establishment of a new Tribal Environmental Science degree program at UTTC.

Phil currently serves as a governor-appointed member of the North Dakota Indian Affairs Commission. Phil continues to be active with the Southwest Workforce Train N.D. board. In May 2009, he was selected to the board of directors of the Farmers Legal Action Group, Inc. He is a past policy director of the Board of Agricultural Assembly for the Association of Public Land-grant Universities.

In other leadership positions, he’s been active in promoting multi-cultural education, community and workplace diversity, leadership development, Tribal voter education, bison restoration, western heritage preservation, and rodeo. He is the current president and co-founder of the North Dakota Cowboy Hall of Fame, an award-winning $5.0 million western heritage interpretive center located in Medora, N.D. The organization was named the 2007 N.D. Tourist Attraction of the Year and the 2010 recipient of the National American Cowboy Culture & Heritage Museum award.
Emily Proctor  
**Tribal Extension Educator**  
**Greening Michigan Institute**  
**Health and Nutrition Institute**  
**Michigan State University Extension**

Emily Proctor, MSW, BASW, earned her degrees from the Michigan State University-School of Social Work. She is a citizen of the Little Traverse Bay Bands of Odawa Indians, Harbor Springs, MI, and serves as a Tribal Extension Educator, Greening Michigan Institute for Michigan Tribal Communities, with her home office located in Emmet County, Michigan State University Extension. As the Tribal Extension Educator her projects include the development and delivery of educational programs in the areas of Tribal Governance, Gerontology, Diversity, and youth leadership. She currently is a board member of the Michigan Indian Education Council. She has also worked as a Child Protective Services Worker and as an associate Child welfare commissioner for her Tribal Nation.

Dawn Newman  
**Educator, American Indian Community Economics**  
**Community Vitality Center**  
**University of Minnesota Extension**

Dawn Newman, MA, BS, joined University of Minnesota Extension as the regional director serving Northwest Minnesota in 2004. As a liaison for American Indian and Tribal Partnerships and Co-Chair of the American Indian Task Force, Dawn has helped to bring Extension’s youth, water quality, volunteer and family programs to Minnesota’s American Indian Tribes. A trained facilitator, Dawn has convened community groups to identify needs for underserved audiences through listening sessions, focus groups, appreciative inquiry, focused conversations and dialogues. Dawn joined the Center for Community Vitality in 2013, with the goal of bringing community and economic development programming to more tribal communities. She has also worked for two 1994 Tribal Colleges, Indian Health Services and the Ho-Chunk Nation. Newman, is an enrolled member of the Ho-Chunk Nation, WI.
Vicky Karhu has dedicated her life to preservation of farmlands, including Southeastern Indigenous cultural sites, and advocating for the rights, protection and preservation of land-based cultures and the lands that sustain them. She is Founding Director of the Mvskoke Food Sovereignty Initiative in Okmulgee, Oklahoma and has worked with Indigenous Peoples for over 30 years. She serves on the Leadership Team of the International Institute of Indigenous Sciences and is an independent consultant with experience in grassroots community organizing, grant writing, food sovereignty work and program management strategies. She is currently sharing her knowledge and experience with community-based, non-profit organizations working to achieve food sovereignty in rural and low-income communities. She earned her living as an organic farmer/market and estate gardener while raising four children in Chattanooga, Tennessee. Now living near Taos, NM, she enjoys growing organic vegetables, seed saving, traveling and spending time with her children and grandchildren. She balances many hours spent on the computer with regular practice of Tai Chi.

John Phillips is Executive Director of First Americans Land Grant Consortium (FALCON), a non-profit association of tribal land grant administrators, directors, faculty and staff. He also serves as the Land-Grant Director at the American Indian Higher Education Consortium (AIHEC). John is the principal of John Phillips Consulting, which provides teaching, extension, and research services in community development, with an emphasis on rural and Native American populations. Dr. Phillips also holds an adjunct graduate faculty appointment at South Dakota State University.

From 2000-2005, Dr. Phillips was the first 1994 Land-Grant Institutions (Tribal Colleges and Universities) liaison with the U.S. Department of Agriculture (USDA). Dr. Phillips directed the Cooperative Extension Program at Si Tanka College on the Cheyenne River Reservation, South Dakota, from 1997 to 1999, for which he was awarded a USDA Secretary’s Honors Award and a USDA CSREES Administrator’s Recognition.

John earned his Ph.D. in Rural Sociology at the University of Missouri-Columbia, a M.S. degree in Environmental Systems from Humboldt State University, California, and a B.S. degree in Computer Science from California State University, Sacramento. He has worked as a systems engineer for IBM Corporation, and has served as a Peace Corps volunteer in southern Africa.
FALCON Membership Meeting

November 9, 2014
1:00 – 2:30 p.m.
Radisson Blu, Minneapolis, Minnesota

Agenda

Welcome and Call to Order

Approval of Minutes from 2013 meeting

Executive Director’s Report
• Highlights from 2013/2014
• FY 2015 Budget Update
• NIFA National Extension and Research Administrative Officers Conference (NERAOC)
• IPM Working Group
• GP-IDEA
• Lead21
• AIHEC Outreach to Native American Farmers & Ranchers
• Annual Conferences for 2015, 2016 and 2017

Treasurer’s Report

Officer Nominations
• President, Vice-President, and Secretary

Partnership Reports
• American Indian College Fund
• NACDEP – National Association of Community Development Extension Professionals
• AgrAbility
• USDA 1994 Programs

Other Business
• Items from the Floor

Adjourn
FALCON Membership Meeting
USDA NIFA Waterfront Centre
Washington, DC
November 3, 2013
DRAFT MINUTES

Call to Order
Benita Liston called the meeting to order at 9:41 am, November 3, 2013.

Approve Agenda
The business meeting agenda was reviewed. A motion to approve the agenda was made by Leslie Henry and seconded by Ron Solimon. The agenda was approved by unanimous voice vote.

Approve Minutes
The draft minutes from the October 27, 2012 FALCON membership meeting were reviewed. A motion to approve the minutes was made by Susan Given-Seymour and seconded by Sam Orozco. The minutes were approved by unanimous voice vote.

Executive Director’s Report
John Phillips, FALCON Executive Director, presented the report. His Powerpoint presentation is available on the FALCON Web portal.

The major highlights from 2012/2013 were reported as follows:

- The FALCON 2012 Conference in Albuquerque had the highest attendance ever (about 150); almost all 1994s represented.
- FALCON assisted the USDA 1994 Program in developing and delivering its Tribal Fellows Program in Washington, DC.
- FALCON facilitated a series of conference calls and e-mail discussions related to proposal development for the NIFA Research Leadership Grant program.
- FALCON announced an annual FALCON-sponsored 50% tuition scholarship (worth about $5,000) for one 1994 applicant to participate in the LEAD21 Leadership Development Program each year.

The federal budgets for FY 2014 are currently under a CR (continuing resolution) and are thus set at FY 2013 funding levels. The CR expires on January 15, 2014. Current FY 2014 funding levels restore cuts from FY 2013 and, if passed, would be beneficial for the 1994s. For FY 2015, the AIHEC funding priorities for land-grant programs remain as before: growth in Extension and Research programs, and no reductions in any other programs.
A one-year Farm Bill extension is currently in effect, but will expire by the end of the year. There is much uncertainty in what may happen. Key 1994 amendments are as follows:

- Open research partnerships to include non-land grant institutions, schools of forestry, and ARS.
- Add two new TCUs to the land grant system; Muscogee Nation (Okmulgee OK) and Keweenaw Bay Ojibwa Community College (Baraga, MI).
- Add TCUs to eligible institutions to apply for two Smith-Lever competitive programs: the Federally Recognized Tribes Extension Program (FRTEP) (formerly Extension Indian Reservation Program) and Children Youth and Families at Risk (CYFAR).

The National Extension and Research Administrative Officers’ Conference (NERAOC) is a conference for land grant institutions administrators and project directors, and will be held in Indianapolis, IN; April 27-30, 2014. John Phillips (FALCON) is on the planning committee and there will be three sessions focused on the 1994 land-grant institutions. There will be a limited number of $550 full registration scholarships for 1994 participants.

The venues for the FALCON annual conferences for the next three years were presented, as follows:

- 2014, Nov. 8-11, in Minneapolis, MN
- 2015, Nov. 7-10, in Denver, CO
- 2016, in Albuquerque, NM

Treasurer’s Report
The Treasurer’s Report was presented by John Phillips, as Carrie Sue Schumacher was unable to attend.

Income from December, 2012 through October, 2013 were as follows:

2012 Conference (reg fees, NIFA): $48,241
Subcontracts (Ag-biz, Leadership): $41,443

Total: $105,913

Expenses (Dec. 2012 – Oct. 2013) were as follows:

2012 Conference: $16,743
Subcontracts (Ag-biz): $28,942
Student Scholarships: $20,149
ED travel: $5,992

Total: $72,059

As of October, 2013, FALCON bank balances at Wells Fargo were as follows:

Checking Balance: $92,597
Savings: $33,400
Total: $125,997

**Officer Nominations**

The FALCON Board of Directors recommended the nomination of a list of candidates for the positions of Treasurer. The current Treasurer, Carrie Sue Schumacher, cannot complete her term. An e-mail vote will take place in about two weeks. Nominations for Treasurer were accepted for the following individuals:

- Pat Aune, United Tribes Technical College
- Shawn Bordeaux, Sinte Gleska University
- Kim Boy, Blackfeet Community College
- Ron Solimon, Institute for American Indian Arts

_Sam Orozco moved that nominations cease, and Gary Halvorson seconded the motion. The motion to cease nominations was approved by unanimous voice vote._

**By-law Amendments**

FALCON by-laws require amending to stay current with technology and standard operating practices. The following by-law amendments were presented for discussion. A referendum vote on the by-law amendments will take place in several weeks. Each 1994 president will be contacted to reaffirm their institution’s FALCON voting member.

- **Section Five(2a) states:** “Newly elected FALCON Board of Directors' terms of office shall commence at the first membership or Board of Directors meeting after the election, at which time they must be present. Should an Board member-elect not be present at the first membership or Board of Directors meeting after the election, then a special election will be held with due speed to nominate and elect a replacement Board member."

  **Action:** Amend Section Five(2a) as follows, "Newly elected FALCON Board of Directors' terms of office shall commence immediately upon election. Should a newly elected Board member not be present at the first Board of Directors meeting after the election, then the first runner-up to the election shall be appointed to the Board. If there is no runner-up, or if the runner-up fails to be present at the next scheduled Board of Directors meeting, then a special election will be held with due speed to nominate and elect a replacement Board member."

  **Rationale:** Newly elected Board members need to address FALCON business matters immediately upon election and waiting for infrequent Board of Directors meetings can delay important Board decisions.

- **Section Five(2d) states:** “The Ex-officio and the FALCON President will appoint two unbiased individuals to count all ballots. One person shall be designated to open election ballot envelopes and the second person shall be designated to count said ballots. The FALCON Board of Directors shall decide any ties between candidates by vote.”
Action: Amend Section Five(2d) as follows: “The Ex-officio and the FALCON President will appoint two unbiased individuals to count all ballots. The FALCON Board of Directors shall decide any ties between candidates by vote.”

Rationale: Ballots are now cast via e-mail, and so no ballot envelopes are opened and counted.

✓ Section Five(5a) states: “All such proposed amendments, together with the FALCON Board of Directors comments, shall be mailed to the voting membership in good standing with a ballot, by September 15 of that year. It is the obligation of the voting membership to return their ballot to the FALCON executive director, postmarked not later than October 30 of that year.”

Action: Amend Section Five(5a) as follows: “All such proposed amendments, together with the FALCON Board of Directors comments, shall be presented at the annual FALCON Membership Meeting. Voting shall be conducted by secret ballot. Ballots will be sent to all FALCON voting members in good standing, e-mailed by the FALCON Executive Director within 30 days of the annual FALCON Membership Meeting. It shall be the obligation of the voting membership to return the ballots to the FALCON Executive Director within a two-week voting period.”

Rationale: Voting by e-mail/Web is the most efficient manner to conduct elections, and ensures the most participation of FALCON voting members.

✓ Section Five(5b) states: “Any by-law amendments, which are approved by a majority vote of the eligible voters, and for which all voting procedures were complete on the second Tuesday of December of any given year shall be effective on January 1 of the following year. All vote results shall be made available to the membership.”

Action: Amend Section Five(5b) as follows: “Any by-law amendments, which are approved by a majority vote of the eligible voters, and for which all voting procedures were completed shall be effective immediately. All vote results shall be made available to the membership.”

Rationale: Votes are no longer conducted according to specific calendar dates, and this amendment makes by-laws effective immediately upon a proper election.

✓ Section Five(5c) states: “The FALCON Board of Directors may propose a by-law amendment at any time with the approval of a majority vote of the FALCON Board of Directors, which shall then be mailed to the voting membership as described herein. Such amendment if approved by a majority member vote, shall become effective in the same manner as stated herein.”

Action: Amend Section Five(5c) as follows: “The FALCON Board of Directors may propose a by-law amendment at any time with the approval of a majority vote of the FALCON Board of Directors, which shall then be presented at the annual FALCON Membership Meeting as described herein. Such amendment if approved by a majority member vote, shall become effective in the same manner as stated herein.”

Rationale: By-law amendments should be presented for discussion at the annual FALCON membership meeting before a vote. This ensures that the FALCON membership has an opportunity to provide feedback on any proposed by-law amendments.
Partnership Reports

- Michael Darger, President of NACDEP (National Association of Community Development Extension Professionals) provided an overview of his organization. They currently have an open Board position for a 1994 representative. There are several opportunities for NACDEP and FALCON to collaborate, including participation in the respective annual conferences and memberships. FALCON and NACDEP will continue to explore ways to develop a relationship.

- Lawrence Shorty, Program Director of the 1994 Office of Advocacy and Outreach, USDA, provided a brief introduction. Lavinia Panizo introduced the 1994 Tribal Fellows program and invited a panel of 2013 Fellows to share their experiences. The program was held on June 1-8, 2013, in Washington, DC, with 12 1994 institutions participating. It included land-grant planning, and discussions with agency heads from the various USDA mission areas. The Tribal Fellows panel included Colette Wolf (United Tribes Technical College), Ron Solimon (Institute of American Indian Arts), Virgil Dupuis (Salish Kootenai College), James Hafer (Chief Dull Knife College), Amber Marlow (Lac Courte Oreilles Ojibwa Community College), Dan Kinsey (Aanaiiih Nakoda College), Leslie Henry (Oglala Lakota College), and Mary Pelcher (Saginaw Chippewa College).

  Lavinia also described a VISTA volunteer partnership with USDA that will place VISTA volunteers at tribal colleges for up to three years. Lawrence Shorty provided an update on the Tribal Scholars program.

Other Business

There was no other business.

A motion to adjourn was made by Virgil Dupuis, and seconded by Sam Orozco. Adjournment was approved by unanimous voice vote.

Meeting adjourned 11:53 a.m.
FALCON Panel Presentations
Sunday, November 9, 2014
3:00–4:00 pm
Scandinavian Ballroom 1 & 2

Faculty Panel 4

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<tr>
<td>1</td>
<td>Integrating technology into the Natural Resources classroom using APPS</td>
<td>Erin Thais Riley¹ and Amy Ganguli²</td>
<td>¹Southwestern Indian Polytechnic Institute and ²New Mexico State University</td>
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ABSTRACT

SIPI and NMSU acquired a grant from USDA/NIFA to build institutional research capacity in tribal colleges. This presentation will introduce people to the use of phone applications that can be used in the field of natural resources and land management to help collect accurate data in an easy and reliable method. These APPS can be used in the classroom and to collect long term data.

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<th>Title</th>
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<tr>
<td>2</td>
<td>Sustainable Organic Agriculture-A Menominee Legacy</td>
<td>David F. Overstreet</td>
<td>College of Menominee Nation</td>
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ABSTRACT

The prehistory of the Menominee Tribe of Indians of Wisconsin generally and that of the Menominee Reservation specifically, are poorly known. Research over the course of the past decade has served to update vintage syntheses that relied on sketchy information collected shortly after the turn of the 20th Century. Among the major revisions is the recognition of a strong and sophisticated agricultural base during the late prehistoric era, from approximately 800-1450 A.D., a time during which the Menominee have been characterized as hunter-gatherers with wild rice as the keystone of subsistence. New data demonstrates that the ancestral Menominee constructed raised agricultural fields and managed very poor quality soils. Analyses of plant macrofossils, plant phytoliths, and pollen demonstrate that these late prehistoric era people were growing maize, squash, sunflower, and perhaps Chenopodium (Goose-foot). In addition to documenting the significant modifications to the landscape, several of which include raised fields in excess of 20 acres, primary settlements during this era, owing to the adaptation to agroforestry, have eluded archaeological recognition. Applications of oral histories, traditional archaeological survey, and geographic information systems (GIS) technologies have provided a model of these late prehistoric agricultural settlements for future testing and evaluation.
ABSTRACT

A common perception of ancestral Menominee peoples is that they were hunter-gatherers who practiced little, if any, agriculture in northeastern Wisconsin. Many view the Menominee heartland along the central Wolf River valley as marginal for maize agriculture; given the short growing seasons, infertile sandy soils, and the “inhospitable terrain” there.

During the summers of 2013 and 2014, our USDA NIFA-funded program through the College of the Menominee Nation worked with Menominee high school and college students to map, excavate, and analyze soils from relict agricultural fields. Our results show that ancestral Menominee peoples built raised fields over 1,000 years ago. Oftentimes, they elevated planting surfaces above the natural level of the ground to capture overland flow that originated up slope, to enhance soil moisture regimes, and to limit soil losses from the planting surfaces. Sometimes, such as for one early plot of raised fields at the Sepaxticum site, the field pattern facilitated the drainage of floodwaters to the Wolf River. The furrows at all sites produced nutrient-rich deposits that were used to refurbish the planting surfaces. Ancestral Menominee peoples also developed a sophisticated set of agricultural practices to farm marginal environments. They amended some agricultural soils with a mix of ash, charcoal, silt, and plant discard. Stratigraphy at the Joe Dick Road West site suggests rotational fallow.

Ancestral Menominee peoples were some of the earliest sustainable and organic farmers in Wisconsin. We hope to continue working with Menominee high school and college students to investigate additional ancestral Menominee raised field sites along the Wolf River. We also hope to build heritage and community gardens, as well as to establish a seed bank, on the Menominee reservation based on the results of our research.
Circus on the Slope: A Collaborative Project to get Kids and Communities Moving

Diana Solenberger
Ilisagvik College

Ilisagvik serves the community of Barrow and the seven remote villages that comprise the North Slope Borough (NSB), an 89,000 square mile region situated entirely above the Arctic Circle. Ilisagvik’s Cooperative Extension office provides programming that seeks to encourage an environment of life-long learning and educational inquiry in the communities of the North Slope through a variety of non-classroom, hands on workshops specifically focused on topics that enhance health, wellness and family.

The largest and most successful program offered through Cooperative Extension is ‘Circus on the Slope’. This program brings professional circus artists into our communities to teach activities as varied as trapeze, silk, juggling, manipulation, balancing, stilt walking, partner acrobatics, and circus art to kids ages 5 and up and including young adults (in age-group classes). It is aimed at introducing new and amusing physical activities to help combat obesity and diabetes in adults and youth.

Circus on the Slope is a program accomplished in partnership with ASNA’s Diabetes Prevention Program, and the City of Barrow. Over the previous three years Circus on the Slope has visited all eight communities at least once. Village programs last a week, while the Barrow camp is two weeks in length. Equivalent camps offered in the contiguous United States have been priced at $250 per week, per child. However, our community partnerships allow these camps to be offered to North Slope children for free. In this way there is no economic barrier to attending the program.

This program is a huge undertaking, because it means a staff of 3-4 must fly to each of the villages and remain there for a week at a time. For summer 2014 we took the program to 4 communities: Barrow, Anaktuvuk Pass, Pt. Lay, and Wainwright, and had over 300 children and young adults participate!
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<tr>
<td>Fond du Lac Tribal College Extension Programming; Creating a Bridge between Communities</td>
<td>Nikki Crowe and Courtney Kowalczak</td>
<td>Fond du Lac Tribal and Community College</td>
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**ABSTRACT**

The missions of the FDLTC Extension programs are to promote the education and cultural growth of the community in natural resources and the environment. Our Extension programs support and coordinates education, research, and outreach that serve our greater community. Our programming connects our college students and greater community with empowering opportunities and partnerships through Ojibwe culturally relevant research and programming.

This presentation will highlight the Ashi Niswi Giizisoog (13 Moons) program, the St. Louis River-River Watch program, and the Bimaaji’idiwin Ojibwe Garden program, and the Increasing the Capacity in STEM program. Our program successes include combining Ojibwe language and traditional ecological knowledge with western science research and knowledge to build capacity in the Fond Du Lac tribal community, Fond Du Lac Resource Management Division and Fond Du Lac Tribal and Community College.

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<td>Training the trainer to improve agricultural production for Navajo Farmers and Rancher on the Navajo Nation</td>
<td>Audre Etsitty</td>
<td>Diné College</td>
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**ABSTRACT**

In 2011 the Dine College Land Grand office was awarded a USDA National institute of Food, Agriculture, and Extension Grant. Increase the leadership capacity of the Dine College Land Grant Staff to educate the Navajo Nation Stakeholders in livestock, rangeland, and farming management by developing and participating in hands-on demonstrations and intensive short courses training by a team of experts from New Mexico State University in the past two years. Immediately following the conclusion of the trainings the Ram Project was born. This program leases out a total of 6 Merino rams with the intention of improving the wool, meat, as well as overall genetics of a Navajo Ranchers sheep herd. When opportunity arose in 2014 the Dine College Land Grant Office applied for the Improving Agricultural Production for Navajo Farmers and Ranchers through Effective Tribal Extension Service. This grant will enable the Land Grant Staff to work and assist farmers on a one-on-one basis with the goal of improving a farmer/ranchers yield and ultimately increase their return on investment.
### Title: Place-Based Opportunities for Sustainable Outcomes and High Hopes (POSOH)

**Presenters:** Christopher Caldwell  
**Institution/Organization:** College of Menominee Nation

#### ABSTRACT

The Place-Based Opportunities for Sustainable Outcomes and High Hopes (POSOH) project seeks to develop strategies for preparing all learners—including typically underserved youth from non-mainstream cultures—to pursue bioenergy- and sustainability-related studies and careers, while exploring the contributions of traditional and scientific ways of knowing to our understanding of ecosystems and sustainability.

The project serves the Northeastern WI bioregion, which includes three nearby reservations, Menominee, Oneida, and Stockbridge-Munsee; the College of Menominee Nation, an accredited tribally controlled community college; and surrounding rural communities.

This collaborative project involved primary partnerships between College of Menominee Nation and its Sustainable Development Institute, University of Wisconsin – Madison, CESA 8 School District, Michigan State University, and the Great Lakes Bioenergy Research Center. It also included many other partners, and participating educators from area tribal and public schools.

We will provide an overview of the project and detail more specifically our experiences with bringing together faculty, students of all levels, and community members, to discuss our learning process and the successes and gaps we have discovered along the way. This will include discussion on the development of; (a) collaborative curriculum design and development, (b) high school sustainability engagement activities, (c) undergraduate internship opportunities, and (d) faculty engagement activities.

### Title: TCUs Building Sustainability Pathways

**Presenters:** April Negrette and Dorothy Aguilara-Black Bear  
**Institution/Organization:** American Indian College Fund

#### ABSTRACT

The American Indian College Fund conducted listening sessions with Tribal Colleges and Universities in North Dakota, South Dakota, Wisconsin and Minnesota in 2013. Several principles that are viewed as foundational to programming with tribal nation communities emerged from this study including, preservation and restoration of Native life ways, intergenerational knowledge transfer, and place-based capacity building. This presentation will provide a snapshot...
of TCU programming in environmental sciences and sustainability fields and how students are targeting sustainability issues right in their tribal communities.

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<td>3</td>
<td>A Glimpse into Health Outreach Efforts in Rural Alaska</td>
<td>Amanda Sialofi</td>
<td>Ilisagvik College</td>
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**ABSTRACT**

Providing outreach to rural communities to engage students in health careers does not have a one-size-fits-all approach; and, Area Health Education Centers (AHEC) are experts at identifying the needs of their unique populations. The Northwest AHEC program in Alaska is hosted by Ilisagvik College and works in collaboration with the Allied Health program to promote health career pathways in schools, to increase health profession students in clinical training programs, and support continuing education programming for health professionals in Alaska. Their service region spans 154,592 miles – which is almost equivalent to the size of the state of California. In their region, communities range in size from 107 to 4,346 with a total population of only 24,165. This session will discuss how the Northwest AHEC and Allied Health programs designed their health outreach through a series of videos including footage from outreach visits, interviews with students, and a presentation of data demonstrating the impact on the region. Conference participants will have an “eye witness account” of what it means to do health outreach in rural Alaska and the impact of Northwest AHEC and Allied Health programs in underserved rural communities despite extreme geographic and cultural challenges. Self-determination through the recruitment of a local and passionate healthcare workforce is essential to sustainable quality primary care and a thriving relationship between local clinics, the greater healthcare community, and rural Alaskans – Northwest AHEC and Allied Health with financial support from Ilisagvik College, NIFA, HRSA, and the North Slope Borough provides the way to achieve this on the North Slope.

Participants will be able identify 3 successful activities programs conducted by Northwest AHEC and Allied Health to understand the impact of their outreach on rural students and its role working towards a local and diverse healthcare workforce in Alaska. We will understand the unique circumstances and challenges of outreach in rural underserved Alaskan villages, and identify key differences between Lower 48 “rural” and Alaskan “rural/frontier” communities.

The effect or results of outreach work, how it influenced or altered a condition or practice will include: Addressing Critical Health Workforce Shortages and Health career pathways.

Our future plan is to “grow our own” health workforce especially in rural communities here in Alaska where a shortage of health care professional is evident. In order to do this we need to promote and engage students in health career pathways in local schools, increase health profession students in clinical training programs, recruit health profession students into health careers in Alaska upon completion, and support continuing education programming for health professionals.
# FALCON Panel Presentations

**Sunday, November 9, 2014**  
**4:00–5:00 pm**  
**Norway 1 & 2**

**Faculty Panel 7**

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<tr>
<td>1</td>
<td>Rainwater Harvesting</td>
<td>Brian Neztsosie</td>
<td>Diné College</td>
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**ABSTRACT**

The Land Grant Office (LGO) has developed rainwater harvesting at Tsaile, AZ. In 2013, the Land Grant Office began to research Succulent; but encounter a difficulty irrigating the plants in the study. The LGO setup the first harvesting rainwater tank in the summer 2013 with two 2,825-gallon tanks. With the seasonal rains in late that summer LGO reached its full capacity within a month. As a result, we have doubled our storage tanks capability. Our first objective, is to supply reliable water to the Succulent Species Research for the control study. The second objective, is to utilize water stored to irrigation the heirloom crops on the field and additional student or staff projects at LGO. The third objective is to monitor the storage tanks throughout the year. Especially, during the winter month to prevent the storage tanks from freeze. Also some creative methods to preventing stored water from freezing. In my presentation I will discuss the principles of rainwater harvesting and a variety of methods to collect rainwater or snow melt. To date, we have collected over 20,000 gallons of rainwater and snowmelt.

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<tr>
<td>2</td>
<td>Anaerobic Digestion on Bay Mills Indian Community</td>
<td>Diana Cryderman</td>
<td>Bay Mills Community College</td>
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**ABSTRACT**

Bay Mills Indian Community, an Anishinaabe Nation, is located at the junction of the Lake Superior and the St. Marys River. Commercial fishing is the second largest industry on local tribal lands and has culturally been a significant part of the traditional lifestyle. Regionally, an estimated 420,000 lbs. of fish (round weight) were captured by tribal fisherman annually. On average, 30-40 percent of the total weight of a fish is unusable for human consumption. Anaerobic digestion is being used in other regions to recapture fish waste via the creation of biogas and fertilizer. However, this technology has not yet been adapted for local use. Information on the viability of anaerobic digestion of freshwater fish species in a Northern climate is lacking. This project seeks to fill this knowledge gap and introduce the technology to the local community. To achieve this, the project has been divided into three phases. In phase one, bench-scale anaerobic digesters (500mL) were employed to investigate the necessary ratio between fish and other (local restaurant) waste streams to provide the highest biomethane
potential. A ratio of 50:50 fish waste to restaurant waste yielded the largest average volume of biogas (935mL), compared to 924mL biogas create from a 25:75 fish to restaurant waste digestion. These values were 3-fold larger than the average volume of biogas produced through digestion of fish waste alone (368mL; p<0.001). This data is being used in phase two of the project: two outdoor (55 gallon) batch digestion processors, in which the biogas production of the previously mentioned fish to restaurant waste ratios will be compared and deployed during winter months. This will test the seasonal viability of anaerobic digestion of commercial fish waste on the Bay Mills Indian Reservation.

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<tr>
<td>California Tribes Fish Use and Threats</td>
<td>April Negrette</td>
<td>American Indian College Fund</td>
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**ABSTRACT**

The research was conducted with the purpose of getting water quality standards in California better protected by the EPA and California State Water Resources Control Board. California is in a severe drought and many stakeholders' voices have been heard, but never the voices of the tribes statewide. Over 20 of California's tribes and California tribal members of over 40 different tribes participated in the study to give traditional fishing information and current consumption rates. The results showed that 64% of California tribal elders were eating fish at least one a day when there was access to fish and traditional fishing areas. Historically, Native people of California ate on average between 1 and 2 lbs of fish a day. The results showed current rates of consumption significantly lower due to ecological, health, regulatory, financial and cultural reasons. Currently, over 60% of people reported only being able to eat fish once or twice a week. In most every case, tribal members reported wanting to be able to eat an amount of fish that more closely resembled the traditional and historical amount their grandparents and ancestors used to eat, but due to factors that were not within their control they could not. The 3 largest responses when asked what the issues were are: decline of abundance of fish, concerns about quality of the water and health risk of eating fish, and rivers, lakes and streams drying up. There were also several barriers for tribes even when healthy waterways were present. Access to traditional fishing areas, ability to fish using traditional communal methods, limits on catch, and loss of native species were all reported by tribal members. These findings will hopefully influence policy to better protect tribal fishing rights, better protect California’s waterways for everyone, and influence other states of follow suit.
ABSTRACT

Background: The purpose of the Land Grant Office for Sustainability (LGOS) at the Tohono O’odham Community College (TOCC) is to ensure that the principles of sustainability, both modern and those rooted in Tohono O’odham Himdag, are committed to by TOCC and are integrated into the academic life and all activities within the college.

Objectives: To advance sustainable ways through: a) Learning from elders on aspects of Tohono O’odham Himdag that allow the people to live sustainably; b) Applying these aspects of Tohono O’odham Himdag in sustainability planning; c) Educating TOCC students and local communities about sustainable ways of life; d) Organizing sustainability colloquia and presentations on campus and in the communities; e) Examining on sound and sustainable institutional practices; f) Fostering collaboration within the TOCC, the Tohono O’odham Nation, and external partners in sustainability

Current activities: The LGOS is working with TOCC faculty members to incorporate the principles of sustainability into their curricula particularly on the Life Sciences and Agriculture and Natural Resources (ANR) programs. The LGOS is also fostering the diversification of the ANR program by supporting the hiring of an Agroecology specialist. Currently the LGOS enjoy the participation of TOCC faculty in the fields of Plant Biology, Ethnobotany, Agroecology & , Soil Science, and Wildlife Conservation & Management. Other activities of this team include the development of grants proposals to support the educational objectives of the LGOS and TOCC.

Future directions: The LGOS is establishing partnerships with other universities and sustainable stakeholder organizations such as the University of Arizona and the Tohono O’odham Community Action (TOCA) to plan for the implementation of food and natural resources educational strategies. Currently, the equity funding cycle consultation has received positive feedback for the sustainable and culturally appropriate design of the Life Sciences building planned at the TOCC Main Campus.
ABSTRACT

In 2008 Oglala Lakota College’s Department of Math, Science, & Technology (OLC MST) adopted a constructivist andragogy built around undergraduate research. This was in response to tribal agencies’ needs for highly skilled, independent, research-capable BS in Natural Science graduates. In order to accomplish these goals, OLC MST began an extensive faculty development, which culminated in the acquisition of grant funding earmarked for tribal colleges from USDA-NIFA, NSF-TCUP, NSF-PEEC, NSF-EPSCoR, and NIH-BRIN. These funds enable us to provide our students with meaningful, placed-based, basic and applied research projects that fulfill tribal agency and community needs. We currently support undergraduate research in Bison ecology, landscape genetic analysis, geologic mapping, freshwater invertebrate ecology, box turtle ecology and conservation, swift fox reintroduction, radionuclide contamination...
pathways, volcaniclastic mineralogy and geochemistry, Paleogene and Neogene stratigraphy, pharmacology of native plants, and biofuels. Participating students have presented this work and received awards at local, regional, and national conferences and have successfully matriculated to graduate programs. We have been successful by opportunistically selecting partner institutions that value our constructivist research-based approach. As part of the USDA-NIFA/Bison Project (award #2011-38424-30914), our partner institutions have provided extensive training to our faculty and students. In addition, Black Hills State University is providing molecular analysis and laboratory facilities, the University Nebraska-Lincoln is conducting the nutritional analysis and Hofstra University is conducting the behavior assessment, with the overall goal of improving low reproductive efficiency of the Oglala Sioux Tribe Bison herd.
### FALCON Panel Presentations

**Sunday, November 9, 2014**

4:00–5:00 pm  
Norway 3

**Faculty Panel 9**

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<td>1</td>
<td><strong>Constructivism at Oglala Lakota College III:</strong> Bison Project</td>
<td>Tada Vargas</td>
<td>Oglala Lakota College</td>
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**ABSTRACT**

North American bison (Bison bison) exhibit a range of genetic purity depending on the history and management of individual herds. A large-scale study has been undertaken to assess the introgression of cattle (Bos taurus) genes present in the Pine Ridge Reservation bison herd.

Maternally inherited introgression was determined by screening 900 individuals using a PCR based mitochondrial DNA assay. No evidence of maternally inherited cattle introgression was detected in these assays. To further screen for cattle introgression, DNA from a subset of 336 individuals are being PCR amplified with a panel of 18 nuclear DNA markers. The product is then genotyped to determine levels of paternally inherited cattle introgression. The assay is based off the size of the amplicons or lack thereof in the case of the null alleles. Some of the markers are diagnostic and some are confirming based off the fragment size.

The next step is to analyze an additional 38 nuclear markers to screen select individuals for genetic diversity in the nuclear genome among the herd.

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<td>2</td>
<td><strong>Constructivism at Oglala Lakota College IV:</strong> Infrastructure</td>
<td>Requaw West</td>
<td>Oglala Lakota College</td>
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**ABSTRACT**

During January 2012, the Oglala Lakota College’s (OLC) Archive and Tribal Repository was opened. These collections are located at the Oglala Lakota College Center for Science and Technology at Piya Wiconi. The Tribal and Archival Repository is a climate controlled area for curated collections. These collections include archeological, avian, botanical, entomological, geological, herpetological, ichyological, invertebrate, mammalogical, paleontological (both invertebrates and vertebrates), scatological, and teaching specimens. Students and Repository staff work to carefully curate artifacts and specimens for educational research, Tribal land and resource management. For each sample, the following fields were entered into the REDISCOVERY™ database: 1) accession number, 2) field number, 3) sample identifier, 4) sample description, 5) sample location, 6) collector (or donor) and date, and 7) curator and date. This database will be used to track and manage the processing and storage of the samples during the present study.
and subsequent residence in the collections and repository. Funding has been received to make
elements of these data available to segments of the government, public, and research
communities no later than 2019. This research was conducted in partnership with the OST
Natural Resources Regulation Agency, the Tribal Historical Preservation Office, and the Oglala
Sioux Parks and Recreation Agency, and was funded in part by the USDA NIFA TCEP (H.E. LaGarry)
and NSF TCUP Yuowanca and PEEC (C.J. Tinant and H. E. LaGarry) grants.

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<td></td>
<td><strong>Supporting Resilience in the Salish Sea</strong></td>
<td>Marco Hatch</td>
<td>Northwest Indian College</td>
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**ABSTRACT**

Tribal communities have an interconnected relationship with nature and long-term view
of ecological change. This perspective is vital to maintaining ecosystem endurance in the face of
anthropogenic impacts and climate change. Northwest Indian College’s new Salish Sea Research
Center (SSRC) brings the tools and technologies to our students, on the reservation, to ask the
questions they find most compelling in a supportive, scientific environment. Through the SSRC,
Tribal people can ask the questions that matter most in their lives using a mixture of traditional
and non-traditional methods. Generally, this research can be described under two umbrellas:
environmental health and the history of human interaction in this area. To understand the
human footprint on Salish Sea, we acknowledge that people have always been here and in this
center we ask what lessons can be learned about how they promoted sustainability and how
they interacted with the Salish Sea in a respectful manner. Examples of our research include
multiple projects to explore the natural and cultural context of traditional mariculture practices.
Specifically, we are focusing on clam gardens, hand constructed rock walls built expanded
suitable bivalve (clams and cockles) habitat seaward by increasing the sedimentation rate of
suspended silt particles at low intertidal elevations. Two NIFA funded research project will also
be discussed, both focused on eelgrass in the Salish Sea. One project is looking at the spatial and
temporal variability of eelgrass associated algicidal bacteria as a possible mechanism to reduce
harmful algal blooms. The other NIFA supported project supports a course at NWIC, lead by an
international eelgrass expert, where the students are comparing multiple ways of remotely
detecting eelgrass. This project is also testing a land scale model, which seeks to quantify natural
and human impacts on eelgrass.
Day 3
NIFA Day

Welcome and Opening Remarks
Scandinavian Ballroom 3
8:30 – 8:45 am

Keynote Presentation
Scandinavian Ballroom 3
8:45 – 9:30 am
Joe McDonald, President Emeritus, Salish Kootenai College

Growth of a 1994 Land Grant
Scandinavian Ballroom 3
9:45 – 10:15 am
Wanda Agnew, United Tribes Technical College

Panel Discussion—The Next 20 Years
Scandinavian Ballroom 3
10:15 – 11:15 am
Casey Thornbrugh, Tohono O’Odham Community College
Charlene Carr, Institute of American Indian Arts
Lane Azure, Cankdeska Cikana Community College

The Farm Bill, the 1994s, and NIFA
Scandinavian Ballroom 3
11:15 – 11:45 am
Erin Daly, Senior Policy Specialist, NIFA

NIFA Recap of 2014, Looking Forward to 2015, and the RFA; Stakeholder Feedback & Quarterly Review
Scandinavian Ballroom 3
1:15 – 2:00 pm
Jill Lee, NIFA

Introduction of the new 1994s
Scandinavian Ballroom 3
2:00 – 2:30 pm
College of the Muscogee, President Robert Bible
Keweenaw Bay Ojibwa Community College, President Debra Parrish

NIFA Video Conference from Washington, DC
Scandinavian Ballroom 3
3:00 – 4:00 pm
Awards and Post Award Grant Management – Susan Bowman,
NIFA Branch Chief
Expanded NIFA Grant Opportunities – Effie Baldwin,
AFRI Program Manager

Q & A with NIFA
Scandinavian Ballroom 3
4:00 – 4:30 pm
The NIFA Team

New Grant Award Program Director (PDs) Get Together
FireLake Grill House & Cocktail Bar
6:30 – 8:30 pm
Dr. Joseph F. McDonald is the founder and President Emeritus of Salish Kootenai College. He began his long career as a smoke jumper for the U.S. Forest Service and Yellowstone Park, then went on to be a teacher and coach at several Montana High Schools before becoming a Physical Education Teacher and Coach at the University of Montana and Northern Montana College.

Dr. McDonald currently serves on the Federal Reserve Bank of Minneapolis, Helena Branch Board of Directors; CARET Representative for the American Indian Higher Education Consortium; the Board of the American Indian Business Leaders; serves on the Minority Advisory Council for USA Funds; and also Chairman of the Board for the Fort Connah Restoration Society. He is active in tribal cultural events and environmental concerns. His hobbies include attending sporting events, golf, camping and fishing in the back country and traveling.
Day 4
Training Day

Building Research Capacity Workshop
Erin Riley, Instructor of Natural Resources, Southwestern Indian Polytechnic Institute
Amy Ganguli, New Mexico State University

Authentic Community Engagement- Applying the Principles of Community-based Participatory Research to Your Research
Cathy Jordon, University of Minnesota

Scandinavian Ballroom 3
8:30 – 11:30 am

Scandinavian Ballroom 3
1:00 – 4:00 pm
Erin Riley
Instructor of Natural Resources
Southwestern Indian Polytechnic Institute

Erin Riley is an Instructor of Natural Resources at Southwestern Indian Polytechnic Institute. She has an undergraduate degree from the University of Illinois in Forestry, a Master’s degree from Montana State in Plant Sciences (Botany and Molecular Biology) and a Master’s degree in Range Science. Erin has been teaching for the past 7 years in the field of biology, evolution, environmental science, ecology and natural resources. Erin has done research on conifer encroachment in the intermountain west and is currently working on building the research program at SIPI.

Cathy Jordan
Associate Professor, Pediatrics
Extension Specialist
University of Minnesota Extension Center for Community Vitality
Editor, CES4Health.info

Cathy Jordan, PhD, LP, is Extension Faculty in the Center for Community Vitality and Associate Professor of Pediatrics at the University of Minnesota. Through several community-based participatory research projects, Cathy became intensely interested in models of research that aim to address community-defined needs and contribute to social and political change yet enhance scientific methodology and contribute valid information to our knowledge base. Cathy’s CBPR experiences and interest in creating institutional support for community engagement at her University led to her involvement in Community-Campus Partnerships for Health’s FIPSE-funded project, the Community-engaged Scholarship for Health Collaborative. She chaired the Collaborative’s Peer Review Work Group, which produced a package of materials intended to assist community-engaged faculty in documenting their engaged scholarship and assist promotion and tenure committee members in recognizing rigorous engaged scholarship in dossiers. She was co-director of CCPH’s second FIPSE funded project, Faculty for the Engaged Campus. As part of Faculty for the Engaged Campus, she is the founding editor of www.CES4Health.info, a mechanism for the rigorous peer review and online publication of innovative products of community-engaged scholarship that are in forms other than journal manuscripts.
FALCON Annual Conference 2014
Minneapolis, MN

Evaluation

Please write down two or three things that you liked best about the FALCON Annual Conference.

Please write down two or three things that you would like to have changed about the FALCON Annual Conference.