

Annual Report April 2003
NSF Undergraduate Minorities in Environmental Biology Program
Recruiting Native Americans into the Environmental Sciences
NSF Proposal Number 0203404

Project Summary

Despite a long tradition of knowledge about ecological and environmental phenomena, Native Americans are one of the most under-represented groups among undergraduate science majors, graduate students, and science faculty. In 1993 the PI and the University of Kansas (KU) initiated a collaborative program with Haskell Indian Nations University (HINU) to create opportunities for Native American students interested in environmental science careers to develop research skills at HINU while completing their Associates degree, then transfer to KU in order to complete their Bachelor's degree in science. This program, funded by the NSF Division of Environmental Biology (DEB93-17582) through its original UMEB program, lasted for a four-year period until 1998, during which time 11 of 22 student participants graduated. Additional support was obtained from the All Nations Alliance for Minority Participation (ANAMP), which allowed us to continue to support the other eleven and add four additional students to this program. In all, 23 or 26 participants graduated by Spring 2001. All 23 graduates are currently either employed in science oriented careers or enrolled in graduate school. The PI on the grant (Pierotti) was named Tribal College/University Mentor of the year in 1998 by the Society for the Advancement of Chicanos and Native Americans in Science for accomplishments resulting from this initial program.

In 1999, HINU initiated a four-year Baccalaureate granting degree program in

Environmental Science. Around the same time, KU opened a Masters program in Indigenous Nations Studies (INSP), increasing opportunities for advanced students to specialize in work on environmental issues of importance in Indian Country. The relationship between the Hazardous Substance Research Center (HSRC) at Kansas State University (KSU), which helped to create the Haskell Environmental Research Studies Center (HERS), and degree granting programs at both KU and HINU has also expanded to include opportunities for students to move between institutions to obtain specialized training in chemical engineering and environmental remediation.

Over the same time period, faculty from the collaborating programs at KU, KSU, and HINU, formed a consortium to create the first international program for Native American students at HINU. This program involves exchanges between HINU and Gorno Altaisk State University (GASU), a university serving indigenous peoples in Siberia. Emphasis in this program is on providing opportunities for students to conduct studies on water quality and environmentally related health issues that reflect shared concerns between indigenous peoples in North America and Siberia.

With our current funding obtained from NSF-UMEB, which began in fall 2002, we are creating additional opportunities for students to take advantage of these programs to enrich their undergraduate environmental science curricula and to gain experience with international exchanges.

Activities September 2002-April 2003

1. We have presented a number of seminars and lectures on science and Traditional Knowledge in order to recruit students

Ray Pierotti, University of Minnesota, Department of Ecology Evolution and Behavior

- Fitness Consequences of Diet and Habitat Choice
- Indigenous Rights and Scientific Ethics
- Traditional Knowledge and the Western Scientific Tradition

Ray Pierotti, Arizona State University, Department of Zoology

- Fitness Consequences of Diet and Habitat Choice
- Traditional Knowledge and The Environmental Tradition

Ray Pierotti, University of New Mexico, Sponsored by Program American Indian Studies and Department of Biology

- Traditional Knowledge and the Western Scientific Tradition

Ray Pierotti, Northern Arizona University

- Fitness Consequences of Diet and Habitat Choice (Department of Biology),
- Traditional Knowledge and the Western Scientific Tradition (Applied Indigenous Studies)

Ray Pierotti, Kansas State University Department of Biology and the Hazardous Substance Research Center

- Traditional Knowledge and the Western Scientific Tradition: Similarities and Convergences in Ecology and Evolutionary Biology

Cynthia Annett from K-State and Dan Wildcat, HINU project director, presented a lecture on the Haskell-Siberia exchange program that had been sponsored by USAID/ALO and EPA in the joint KU/HINU course “Native and Western Views of Nature”. Drs. Annett, Pierotti and Wildcat led a discussion with students about the upcoming UMEB exchange activities in Siberia.

Dan Wildcat, Cynthia Annett, and student participant Dustina Edmo (HINU) presented a seminar on the Haskell-Siberia exchange and led a discussion of the UMEB sponsored exchange activities as part of a seminar series sponsored by the Haskell Environmental Research Studies Center (HINU).

K-State mentors Drs. Marie Steichen, Jim Steichen, and Larry Davis joined KU project director Ray Pierotti for the KU First Nations Student Association Pow-wow and met with students participating in the UMEB.

2. Project website

- We have created a project website: <http://www.engg.ksu.edu/HSRC/UMEB/>
- We have created a website to disseminate information on our activities in the international exchange program:

<http://www.engg.ksu.edu/HSRC/international/altai.html>

3. We have been involved in planning for the May/June 2003 visit by the GASU faculty and students participating in the UMEB exchange.

Activities planned for summer 2003

A delegation from GASU will visit Kansas in May/June 2003 funded by our NSF/UMEB program which will allow us to continue the work on rangeland management beyond the end of the USDA/SCRIP project (Project Number: 58-3148-1-042, "Assessing the impact of traditional grazing techniques on drinking water quality: A cooperative program between Haskell Indian Nations University and Gorno-Altai State University, Russia" Dan Wildcat and Nikolai Malkov co-PIs).

The data from the USDA/SCRIP project on pasture management will be used as a case study for our new USAID/ALO grant ("Media relations for science reporting and environmental advocacy: facilitating higher education leadership and administrative transformation at GASU" Larry Erickson, Victor Lukyanenko, and Mike Cuenca co-PIs. Partnering with Higher Education for International Development 2002 Special Request for Applications.) A student participant on the UMEB grant will help to film and edit the video documentary of the work. We plan to use the activities funded by the new ALO media grant to facilitate dissemination of information about water quality and rangeland management in the Altai.

Draft itinerary - summer 2003

Group A: Water Chemistry

This project will be headed by Dan Wildcat of Haskell Indian Nations University, Larry Erickson of KSU, and Dr. Vera Aleinikova, environmental chemistry professor and head of the water quality-monitoring program at GASU. Dr. Aleinikova's group will be traveling with funds from our NSF/UMEB grant. Dr. Aleinikova and her student Victor Mamrashev will work with two UMEB students at K-State to analyze the data collected from the USAID/ALO funded water-quality monitoring program during their visit to Kansas in May and June 2003. Drs. Larry Erickson and Mikhail Korenman will work with Dr. Aleinikova and the students to create an online database. They will also make plans for a visit by Drs. Erickson and Davis with their UMEB students during summer 2004 to continue the project on water quality and stream remediation.

Dr. Aleinikova will present the scientific results of the water quality-monitoring program during the International Forum of Analytics and Analysts in Voronezh, Russia, June 2-6, 2003 (<http://www.vgta.vrn.ru/forum/inf-engl.htm>). Drs. Aleinikova and Korenman will co-author a paper on results of the water quality work conducted in May 2002. This paper will be submitted to the *Ecological Congress International Journal* for publication.

June 1 Sunday	Depart: Altai and Barnaul
June 2-6	Attend International Forum of Analytics and Analysts to present results on water quality-monitoring program Voronezh, Russia
June 7 Saturday	Depart Voronezh Arrive Moscow
June 8	Depart Moscow, SVO

Sunday	Arrive Kansas
June 9 Monday	Rest day Haskell
June 10-15	Bethany College Water sample testing, data base construction, data analysis
June 16 Monday	KSU Work at Hazardous Substance Research Center
June 17 Tuesday	KSU Work at Hazardous Substance Research Center
June 18 Wednesday	Travel to KC Lodge: KC Hotel
June 19 Thursday	Kansas City Day
June 20 Friday	Depart KCI
June 21 Saturday	Arrive Moscow
June 22 Sunday	Depart Moscow
June 23 Monday	Arrive Barnaul Drive to Altai

Group B: Traditional Herding and Pastureland Management

This project will be headed by Dr. Ray Pierotti, NSF UMEB PI, who is an expert in Vertebrate Ecology and Population Biology and Traditional Knowledge of indigenous peoples from the University of Kansas Indigenous Nations Studies Program and Department of Ecology and Evolutionary Biology, and Dr. Nikolai Malkov, GASU project director and professor of Ecology. GASU students Yulia Mekechinova, David Khaydarov, and Alexander Yanyshkin, HINU students Dustina Edmo and Myron Dewey, and NAU student Allen Long will participate in this project. Activities will include comparison of grazing issues, water quality, and predator control between indigenous peoples from the Altai and members of Indigenous Nations of the Americas, including

Navajo and Hopi. All participants in this project will be indigenous peoples from either Siberia or the U.S. We will discuss these issues in hands on situations with Navajo herders and on sites on the Navajo and Hopi reservations where specific environmental problems have arisen.

Our draft itinerary for the visit to Indian Country in Arizona and New Mexico is presented below. The group will visit Window Rock and the tribal EPA offices, Dine College and its faculty, and Tuba City as well as the Hopi village. The group will also travel to the Grand Canyon and Flagstaff area, where the visitors will meet with Northern Arizona University faculty affiliated with the Institute for Tribal Environmental Professionals and the Applied Indigenous Studies Program.

May 28 Wednesday	Depart: Altai and Barnaul
May 29 Thursday	Depart Moscow, SVO Arrive Kansas, KCI
May 30 Friday	Rest Day
May 31 Saturday	Tour Haskell and KU campuses
June 1 Sunday	Canoe trip on Kansas River with local environmentalists
June 2 Monday	Depart for Arizona
June 3 Tuesday	Arrive <u><i>Arizona/ Window Rock</i></u>
June 4 Wednesday	<u><i>Window Rock/ Navajo EPA Offices</i></u>
June 5 Thursday	Travel to Dine Community College/Tsaile AZ Camp at Wheatfield's Lake ; 15 mi. east of Dine College
June 6 Friday	Dine Community College/ meet w/ Faculty
June 7	Travel to Tuba City

Saturday	Camp at Moenave (10 mi west of Tuba City)
June 8 Sunday	Tuba City/ traditional sweat / butcher sheep Camp at Moenave
June 9 Monday	Travel to Navajo Generating Station/Page/ Lee's Ferry/Marble Canyon Camp at Lee Ferry
June 10 Tuesday	Travel to Tuba City/ meet w/ Hopi village family
June 11 Wednesday	Travel to Grand Canyon /Flagstaff/ San Francisco Peaks
June 12 Thursday	Flagstaff meet w/ Applied Indigenous Studies faculty and Indian Tribal Environmental Professionals
June 13 Friday	Flagstaff; meet with Black Mesa Water Coalition
June 14 Saturday	Depart Arizona - Travel to Kansas
June 15 Sunday	Arrive Manhattan, Kansas
June 16 Monday	KSU day
June 17 Tuesday	KSU day
June 18 Wednesday	Travel to KC
June 19 Thursday	Kansas City Day
June 20 Friday	Depart KCI
June 21 Saturday	Arrive Moscow
June 22 Sunday	Depart Moscow
June 23 Monday	Arrive Barnaul

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