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Sand Hills Biocomplexity Project 2005

Monica Sanford

This summer the University of Nebraska School of Natural Resources is looking for four K-12 teachers to participate in a unique research experience. Teachers will be paired with University scientists and students to carry out research in the Nebraska Sand Hills.Teachers will have the opportunity to actively assist and shape the course of the investigation, learn methods of scientific inquiry and research, and develop an inquiry based curriculum which can be used to transmit scientific methods and information to their students through an interactive approach.

For the six week research experience, each teacher will receive an $1800 stipend and travel expenses will be covered. Two graduate credits will also be available. Teachers will also have the opportunity to canoe on the Dismal River and visit two existing research sites for a brief introduction to scientific methods relevant to the Sand Hills projects.

Stripped to its essence, this project is about sand, grass, and water, their interactions, and the stability of the 58,000 square km Nebraska Sand Hills over the last few thousand years. The stability of the Sand Hills affects not only hundreds of cattle ranches, but also the recharge of the High Plains Aquifer, which extends into eight High Plains states. Due to the high water table, interdunal valleys in portions of the Sand Hills contain extensive complexes of lakes, wetlands, and naturally sub-irrigated wet meadows, which together cover about 10% of the landscape. This beautiful area will be the setting for these research projects.

Anyone interested in participating may log onto www.sandhills-biocomplexity.com for more information or to fill out an application. For a hard copy brochure and application to be mailed to you, please call Dave Gosselin at 402-472-8919 or email dgosselin2@unl.edu.

The Sand Hills Biocomplexity Project: An Interview with Dr. Dave Wedin

Monica Sanford

I was recently able to sit down with Dr. Dave Wedin, a professor of plant and ecosystem ecology in the School of Natural Resources at UNL. Dr. Wedin is the lead investigator on the Sand Hills Biocomplexity Project. This project has operated under a grant from the National Science Foundation over the year, which has funded research by professors and students in the Nebraska Sand Hills. This year a new element has been added with the invitation to K-12 educators to participate.

Dr. Wedin explained that over the last year the team spent time setting up GDEX, the Grassland Destabilization Experiment at the Barta Brothers Ranch (BBR) in Rock and Brown Counties. “Last summer was a lot of baseline measurements and hole digging and fence set up. Now the

experiments are up and running so it will be less manual labor. This summer is a more conscious effort to make it an educational experience."

This summer's six week research experience will kick off in mid-June with a week of orientation, probably in Lincoln, to reintroduce students and educators to scientific inquiry and research methods. It will be followed by a week of research and sampling before the Independence Day break. After the break will be the real highlight of the experience. Scientists, students, and educators will spend several days in the Sand Hills visiting various sites and canoeing on the Dismal River. Last year team members visited a working Sand Hills cattle ranch as well as the UNL research facilities at the Gudmundsen Ranch and the Barta Brothers Ranch.

The University of Nebraska owns over 20,000 acres in the Sand Hills. This is where most of the research will take place. Most of these facilities have good lodging, kitchen, and laboratories. "This year will be the first year a new headquarters is open at the BB ranch with a kitchen and housing on site along with a small lab to accommodate a crew of 8 people for several weeks of intensive sampling," Dr. Wedin told me.

"Undergraduate students and teachers will be paired up and working with the faculty on a single project for most of the time, but people may be rearranged as workflow changes. It will be a balance of group learning, some fieldwork with the entire crew, sometime individuals or subgroups working on tasks, and some time spent by the interns [undergraduate students and educators] working on their own research projects.

"Last summer one of the interns worked for most of the summer with a GIS remote sensing faculty member on collecting field data and processing the data on campus. One intern worked on a soils lab on campus analyzing soil samples. One worked on hydrological samples out in the Sand Hills for a few weeks with other faculty, sampling lakes and groundwater from wells. There is also a good chance one group could work with geoscientists collecting samples from dunes to date the age of the sand dunes with related fieldwork and processing on campus.

"That's a theme in most research: collecting samples out in the Sand Hills and processing them in the lab back at UNL, entering the data, and analyzing. Opportunities for research in plant ecology, climate, meteorology, GIS, dune morphology, hydrology, and lake ecology exist. This is the first time working with K-12 teachers. This summer is a more conscious effort to make it an educational experience, less manual labor. The field trip is the icing on the cake."

Science: Think Outside the Box
Monica Sanford

When most people think of a career in science, they think of the 'Big Three' everyone had to take in high school: Biology, Chemistry, and Physics. Earth sciences, which most people learned in junior high (now middle school) or elementary school, come in a distant fourth. However, the human population continues to grow and our demands on the environment increase. Earth and environmental sciences will become increasingly important in managing natural resources and reducing the degradation of the natural world

To this end, the services of scientists who study such topics as water science, soil science, fisheries and wildlife, environmental studies, natural resources and environmental economics, and rangeland ecosystems will become invaluable. It is these scientists who will conduct the field work necessary to provide data which will show not only where we have been, but where we are going. They will perform such valuable services as water testing, to determine the safety of our water supplies, assess sources of contamination, evaluate the impact of humans on a wide

range of ecosystems, and help find solutions to a range of environmental issues. These scientists will also evaluate the current and potential future impact of global environmental change on the cattle ranchers and corn growers of Nebraska, and help our ranchers and farmers adapt to remain economically successful. They also teach everyone, children and adults, basic science concepts through direct observation of the world around them on a daily basis.

Everyone can benefit from this knowledge, be they scientists, teachers, economists, community planners, politicians, business people, farmers, or doctors. It is vitally important that we support children and young adults who take interest in science to consider careers in earth, natural resource, and environmental sciences. These individuals should be encouraged to see the entire planet as their laboratory, not just a sealed room full of equipment.

New UNL Web Site Sells Everything from Maps to Rocks

Publications, maps and other products from the University of Nebraska-Lincoln School of Natural Resources are now available for sale via a new Web site. The online sales site is at http://snr.unl.edu/products.

"This service will allow our clientele to order publications and maps or other products such as our box of Nebraska's Common Rocks," said Mark Kuzila, director of the School of Natural Resources. In addition, those registering for school-sponsored conferences will be able to do so through the site.

The site features more than 3,500 titles, including about 700 titles from the Conservation and Survey Division, the state geological survey, U.S. Geological Survey topographic maps, many other USGS maps and reprints of scholarly articles written by faculty in the school and published in refereed journals. Nebraska Cooperative Extension publications authored by school faculty will be available from extension through a link on this site.

As the repository designated by the U.S. Geological Survey for all map-based data on Nebraska, the division and school also will sell those products. The site accepts VISA or MasterCard, Kuzila said.

Geographic Educators of Nebraska Sponsors Summer Workshops

The Wetland Education Workshop, a WETMAAP/GEON sponsored program focusing on the Chimney Rock Area, Chadron, and Scottsbluff, is the first of three GEON sponsored summer workshops. The workshop will be at Chadron State College June 9 and 10. The purpose is to explore changes in the habitats of the Platte River, near Bayard, Nebraska. This is a complete, field, earth science workshop. Attendance for Nebraska, K-12 teachers is limited to 20 teachers. Apply by May 20 to Catherine Lockwood, clockwood@csc1.edu, or 308-432-6275. GEON will pay for all expenses except travel. Graduate coarse credit is also available for an additional cost.

The second GEON sponsored programs, Sandhills K-12 Teacher Workshop, will take place June 12-16 on a working ranch in western Nebraska. This workshop includes five days of crossing the Nebraska Sandhills and learning how to photograph geographical landscapes. Participants will develop standards-based lessons on the physical or cultural diversity of the region. A $250 stipend will be awarded upon completion of the requirements. Three Graduate Credits are available through UNO for an additional cost. This workshop is also restricted to 20 teachers. For information, please contact Cathy Larson at 308-569-2477, or clarson@esu11.org.

Finally, the Middle East Virtual Institute is offering an online workshop for understanding landscape, culture and politics of South West Asia. The program will take place June 27 – July 12. It includes two weeks of online work and three days of onsite work and study. Participants will participate in on-line lesson and discussion through an online forum, and develop a lesson on Middle Eastern Geography. Field Studies will be at UNO with speakers on the region, Islam, Judaism, Christianity, and on the economic, political and cultural issues of the area. Participants will have 60 days after July 12 to submit their lesson plan for earning a $300 stipend. UNO is also offering graduate credit for an additional cost. This program is restricted to 20, K-12, Nebraska teachers. For information and enrollment details contact Eric Enholm, 308-385-5990, or eenholm@gips.org. You may also contact Chuck Gildersleeve at 402-554-4803, or charles_gildersleeve@mail.unomaha.edu.

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