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SCHOOL OF NATURAL RESOURCES AND EXTENSION

University of Alaska Fairbanks

A note FROM THE VICE PROVOST

As the university moves through difficult financial times, the School of Natural Resources and Extension continues its focus on teaching, research and outreach in our great state. The strength and the quality of our faculty continue to shine.

On the academic side, the school provides relevant, handson natural resources instruction and research opportunities for undergraduate and graduate students. Over the last five years, our enrollment has been increasing and we added a minor in sustainable agriculture this past year.

SNRE researchers are leaders in natural resources management, studying the impact of how a changing arctic climate affects Alaska's forests, soils and agriculture. As the University of Alaska begins its centennial celebration, it's important to remember that the Fairbanks Experiment Station, which was founded in 1906, became the nucleus around which the Alaska Agricultural College and School of Mines and later the university would grow.

Our agents continue Extension's 86-year history of taking research-based practical information and disseminating it to Alaskan communities. Even though the size of our organization may shrink, we are still relevant in delivering science-based curricula through our youth programs, encouraging food and production agriculture and helping families with food preservation, food safety, energy and health programs.

I thank the faculty and staff for their hard work and dedication to our land-grant mission. I also thank our many stakeholders who continuously advocate for our school.

Sincerely,

sud Schlutt

Fred Schlutt Vice Provost, School of Natural Resources and Extension









ALPINE STUDIES AND CLIMATE CHANGE

PROFESSOR DAVE VERBYLA is working with a team of scientists trying to find out why Dall sheep populations in Alaska and western Canada have declined by more than 20 percent since 1990. The decline is most pronounced in the western Brooks Range, where the population has dropped 70 percent. Declining populations have led to emergency harvest closures and a contentious wildlife management issue that affects sport and subsistence hunters and wildlife viewers.

Verbyla, along with UAF Assistant Professor Todd Brinkman, is participating in a four-year study funded by NASA that will look at the changing habitat of Dall sheep in Alaska, the Northwest Territories, northern British Columbia and the Yukon Territory. The study will consider how vegetation and snow conditions are changing in alpine ecosystems and how those changes affect Dall sheep.

"We know shrubs are expanding in the Arctic tundra but we don't know if they are expanding in the alpine area," said Verbyla.

Shrubs provide cover for the sheep's chief predators, coyotes and wolves. If shrubs encroach on the alpine area or if the snowline is at a lower elevation during cold spring weather, sheep may be more susceptible to predators.

Verbyla will use remote sensing to investigate expansion of the alpine shrub zone over time and the dynamics of the snowpack from 2000 to present during critical points in the sheep's lives, such as spring lambing in mid-May and the upper limits of snowpack on July 1, which correlate to sheep survival rates. This past year, Verbyla used MODIS satellite data to estimate snowline elevation during the lambing period in 28 mountain areas.

Brinkman, a wildlife ecologist, is comparing harvest data to habitat and population dynamics to try and determine how changing conditions will affect hunting and wildlife viewing. Three Pacific Northwest scientists will study the characteristics of snowpack, population dynamics and potential changes in alpine hydrology.



As a professor of geographic information systems (GIS), Verbyla's research interests include use of GIS technology for resource inventory and climate change studies, integrating remote sensing and GIS for regional analysis, and support for spatial analysis using GIS. He teaches Introduction to GIS, GIS Analysis, GIS programming and a remote sensing course.

outreach

GETTING INFORMATION TO RURAL ALASKANS

WHEN HEIDI RADER STARTED working as a tribes Extension educator, she already knew a lot about gardening and farming; since then, she has added food preservation, blogging, teaching and technology to her list of skills.

Rader delivers workshops in villages and communities throughout Alaska, including Arctic Village in the foothills of the Brooks Range, Holy Cross on the lower Yukon River and Dot Lake near Tok. She teaches whatever a community requests from a list of workshops she has developed. They include topics like cooking fresh foods from the garden, seed starting, composting with worms, extending the growing season and even applying for grants.

Although she likes teaching hands-on workshops, she has also found different ways to reach far-flung audiences. Shortly after she joined Extension, she developed an online version of the Alaska Master Gardener Program to reach individuals around the state who couldn't attend regularly scheduled sessions, and she has also developed a series of weekly webinars and teleconferences for the Alaska Growers School, an agricultural training she developed in 2011 that teaches the basics of farming and ranching.

Rader started the Alaska Master Gardener Blog so people could share information about what they were growing. When a gardener in Tok posted an item about the garlic she grew, she realized that others were interested in growing garlic. She has since developed a publication, "Growing Garlic in Alaska," and a YouTube video on the subject.

Rader recently developed a mobile app called Grow & Tell, which allows individuals in Alaska and other parts of North America to note where they are growing a particular variety of vegetable and see what varieties others are growing and how well they have done.

"It's basically citizen science agricultural variety trials," she said.

Some 30 to 50 Alaska volunteers beta tested the app, which will be available to the public this spring.



Rader is an accomplished outdoorswoman who enjoys biking, climbing, skiing, kayaking and just about any activity outdoors, including gardening. She climbed Denali in 2009 and has attempted Mount Logan, the highest peak in Canada. She has also skied several long crosscountry traverses in Alaska and has rafted in the Grand Canyon. For several years, Rader coordinated a skiing opportunity for youths in several villages and got donations of skis.





TEACHING HOME FOOD PRESERVERS

SARAH LEWIS is what you might call a renaissance Extension agent. Based in Juneau, Lewis became the Southeast Alaska family and community development agent after working as an architect for 20 years and receiving a master's degree in social work.

Lewis already had a strong interest in food security and emergency planning before she joined Extension, and she had trained as a Master Gardener and served on local foods groups for several years. She also wrote a freelance column for the Juneau Empire called Main Street Homesteader with articles about cooking, urban homesteading, food security, sustainable architecture and other topics.

Although her food preservation skills were definitely at the hobby level, other Extension agents and a food focus group in Juneau helped improve her skills, her knowledge of food safety and her ability to teach educational programs.

The agent has offered a variety of programs since then, including food preservation and cooking classes, emergency and disaster planning, and sessions on starting a small food business. With travel support from the Southeast Alaska Regional Health Consortium, she traveled to 12 Southeast communities to test pressure canner gauges, teach food preservation and talk about establishing a food business and the state's requirements.

However, since continuing travel funds are limited, Lewis developed a program aimed at training community members to teach safe food preservation classes on their own. Participants in the Safe Home Food Preservation Certification class must complete six online food preservation lessons on canning, dehydrating and freezing foods, attend a two-day workshop and take an exam to be certified as a home food preserver. Certified food preservers can then teach people in their communities how to safely preserve Southeast Alaska's local food resources. She is also working on videos and other distance-education methods to deliver programming.

Extension agents taught 85 food preservation and food safety workshops to more than 1,100 Alaskans in 25 communities and two military installations in 2016. Lewis has worked to build up the local foods network in Southeast Alaska by offering classes in Sitka, Haines and Ketchikan, as well as a string of smaller communities — Skagway, Klukwan, Tenakee Springs, Thorne Bay, Hoonah, Craig, Klawock, Hollis and Hydaburg. Classes ranged from Canning 101 to Making Pickles and What to Do When Your Freezer Fails.



academics

SUSTAINABLE AGRICULTURE FOR ALASKANS

UAF STUDENTS may now earn a minor in sustainable agriculture through the School of Natural Resources and Extension.

Horticulture Professor Meriam Karlsson, who heads the SNRE Agriculture and Horticulture Department, said the university approved the new minor last May. "It's a good addition," she said. "There are a lot of concerns and interest in food security, local production and the use of sustainable production methods. This is a trend nationwide, although the remoteness and environmentally challenging conditions make sustainable agriculture especially relevant to Alaska."

SNRE already offers several agricultural classes as part of its natural resources management degree. Karlsson said the multidisciplinary nature of sustainable agriculture has broad appeal and is expected to attract students from other areas, such as biology, geography, anthropology, northern studies and business.

The sustainable agriculture courses teach an understanding of sustainability science in global and U.S. agriculture. Students learn concepts and techniques that are environmentally and socially sound, as well as profitable, for agriculture and food production.

Students who wish to receive the sustainable agriculture minor must complete a minimum of 18 credits. The required classes are Natural Resources Conservation and Policy, Principles of Sustainable Agriculture and Introduction to Natural Resource Economics. Students also need to complete three additional classes from a list that includes introductory plant and animal science, soils and the environment, environmental ethics and environmental decision making.

The school used to offer concentrations in agriculture and forestry within the Bachelor of Science degree in natural resources management. In 2014, the degree was revamped, eliminating the concentrations. A minor in forest management was approved and available in 2015.

Agriculture was one of five fields of study offered at the Alaska Agricultural College and School of Mines (now University of Alaska Fairbanks) when it opened in 1922.



SNRE also offers a minors in natural resources management and forest science. These minors complement many other programs at the university, such as business, environmental science, geology and international studies, and prepare students for future careers with a solid grounding in the management of natural resources or the spatial organization of society.





- More than 11,000 Alaska youth are engaged in fun, hands-on, experiential learning through 4-H clubs and afterschool programs in their communities both rural and urban and on military installations. Approximately 1,100 adults volunteer their time and talents in mentoring and learning alongside 4-H youth across the state.
- The Reindeer Research Program is teaching tribal entities on St. Lawrence and St. Paul islands how to hygienically field slaughter and process meat into cuts that can be sold through the local store and helping them apply for state certification for processing operations.
- Six college students and recent graduates surveyed 3,043 visitors to public lands in Southeast, Southcentral and the Interior last summer. An outdoor recreation management professor coordinated the on-site survey for the Bureau of Land Management and other agencies, which will use the results for planning.
- "Between Earth and Sky: Climate Change on the Last Frontier," a documentary that highlights the work of Emeritus Soils Professor Chien-Lu Ping, has been shown at international climate change meetings and several film festivals. The film documents the effects of climate change on arctic soils and Alaska ecosystems.
- Extension agents trained 146 Master Gardeners in Anchorage, Big Lake, Fairbanks, Juneau and online. Master Gardeners agree to volunteer 40 hours in their communities and some of them have continued volunteering for 20 years or more.
- The research and outreach of the School of Natural Resources and Extension was supported by 154 active grants and special funds.
- Nutrition educators in Fairbanks, Anchorage, Bethel, Soldotna, Palmer and Tok taught nutrition programs to 4,500 low-income adults and youth.

Staff and volunteers with the OneTree Alaska program tapped birch trees and collected 2,200 gallons of sap to study different methods of processing the sap and assessing the quality of the product. UAF photo by Todd Paris

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July 1, 2015 - June 30, 2016 (State FY16) SNRE Expenditures by Category Total \$16,291,848



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