



## Greenhouse research bears fruit

Two high-tunnel greenhouses at UAF's Fairbanks Experiment Farm hosted an apple harvest last fall.

The crop consisted of red and green apples, some small and others the size of apples sold in grocery stores. It was the second harvest for a research project developed by Cooperative Extension Service forestry specialist Bob Wheeler, who wanted to test the effect of unheated high tunnels on the survival rate and yield of apples, berries and other fruit trees in extreme cold conditions.

Wheeler died last summer, but Kendra Calhoun (pictured), an Extension project manager, and Meriam Karlsson, a horticulture professor with the School of Natural Resources and Agricultural Sciences, are continuing his research.

Calhoun picked, weighed and tested the sugar content of apples grown inside and outside two large, plastic-covered high tunnels in a field opposite the Georgeson Botanical Garden on the Fairbanks campus. Altogether, 39 apple varieties were tested in the high

tunnels, which measure 42 feet by 96 feet. (Unlike standard greenhouses, which are typically built near homes or other buildings and which shelter plants grown in pots or raised beds, high tunnels are built in fields, over plants that are growing in the ground itself.)

Calhoun helped erect the experimental high tunnels in May 2007, and she and two students with the Rural Alaska Honors Institute planted more than 200 trees two months later. The apple varieties tested grow in colder climates, although their names won't be recognizable to most: Arctic Red, Carroll, Ukalskoje and Golden Uralian, among others. The varieties were grafted onto rootstock of the Ranetka crab apple, which is known for its ability to withstand cold winters.

Two weather stations and 10 microstations record environmental conditions hourly, including the soil and air temperatures inside and outside the tunnels, as well as soil moisture, wind speed and solar radiation.

According to Calhoun, Wheeler did not expect much fruit until three years into the project. He was surprised when the trees fruited in their second year and was delighted with the growth last year, she said.

Although the data is not yet complete, Calhoun said it's clear that trees inside the tunnel are blossoming and fruiting more than two weeks earlier than trees outside.

"The tunnels, obviously, are helping," she said. The project is funded by a grant from the Western Sustainable Agriculture Research and Education Program.



Photo by Kendra Calhoun.

Read more about the project at [www.uaf.edu/ces/ah/fruit-tree-trials/](http://www.uaf.edu/ces/ah/fruit-tree-trials/).

# Versatile unmanned aircraft map fires, spot seals

As fire personnel tackled the Crazy Mountain Complex fires north of Fairbanks last summer, they had help from an unlikely source: staff and their unmanned aircraft from Poker Flat Research Range at UAF.

Range manager Greg Walker and optical science manager Don Hampton piloted one of Poker Flat's unmanned aircraft, a 40-pound Insitu ScanEagle. Kathe Rich, the team's operations controller, monitored safety and provided logistical support. The unmanned aircraft is equipped with infrared cameras that collect data fire personnel can use to track the progression of fires and active hot spots. Unmanned aircraft aren't constrained by dense and widespread smoke that can ground or severely limit manned logistical support from the air.

Poker Flat staff worked with the Federal Aviation Administration, the Bureau of Land Management and the Alaska Fire Service on the project. The university's Unmanned Aircraft Program was able to get more flight opportunities while it helped the agencies working to protect Alaskans from fire danger.



Ribbon seal on sea ice photographed by the ScanEagle. Photo courtesy of the UAF Geophysical Institute.

"This is a chance for us to take what we're doing in research and give it back to the community," said Ro Bailey, special projects manager at Poker Flat Research Range. "We're learning valuable things as we're going along, too, so this is a great opportunity for everyone involved."

Another significant project involved helping scientists from the National Oceanic and Atmospheric Administration survey Bering Sea ice floes for bearded, spotted, ringed and ribbon seals.

The ScanEagle flew up to five miles away from NOAA's ship, the *McArthur II*, capturing more than 25,000 high-resolution images with an onboard camera and proving it can operate in snow and light icing conditions.

"We have 42 hours of good flights behind us on this cruise," said Walker. "I think we have proven the technology meets or exceeds the NOAA expectations for performance and the ability to capture the information they're seeking."



Watch video of the ScanEagle at work at [www.uaf.edu/aurora/](http://www.uaf.edu/aurora/).

## CAMPUS BRIEFS

**DAVID D'AMORE, A DOCTORAL CANDIDATE** with the School of Natural Resources and Agricultural Sciences, was named the 2009 National Field Soil Scientist of the Year by the U.S. Forest Service for his work studying the yellow cedar die-off in Southeast Alaska and developing a management strategy.

**KUAC TV RECEIVED** the 2010 National Educational Telecommunications Association's award for best program production for *Mr. Alaska: Bob Bartlett Goes to Washington*, a 60-minute documentary that chronicles Bartlett's political, professional and personal journey as he worked toward Alaska's statehood.

**THE CENTER FOR ALASKA NATIVE HEALTH RESEARCH** is part of a nine-institution consortium that received a \$15 million grant from NIH's National Center for Research Resources to develop a network for researchers to locate valuable resources, such as what scientists are doing on the genetics of complex diseases.

**UAF'S NEW RESEARCH VESSEL** will be named the R/V *Sikuliaq* (see-KOO'-lee-aук), an Inupiaq word meaning "young sea ice." Marinette Marine Corp. of Marinette, Wis., was chosen to build the vessel, expected to be completed in 2013.



## Reindeer industry gears up

Managers with UAF's Reindeer Research Program are trying to boost the Seward Peninsula reindeer industry by providing a mobile slaughter facility and an expert instructor who knows how to use it.

Greg Finstad is head of the reindeer program at UAF and has wrangled reindeer alongside Alaska Natives for 25 years. He ordered a 45-foot self-contained slaughter plant, winterized it, had it barged to Nome and helped design a meat production course at the Northwest Campus there. To run the program, Finstad hired Heikki Muhonen (pictured), of Finland, who will live in Nome for about two years.

"He's the world's expert," Finstad said. "He's set up slaughter facilities all across Russia, Kazakhstan, Finland, Sweden and Norway."

One of Finstad's goals with the U.S. Department of Agriculture-funded project is to teach local people how to process reindeer using the plant, which is approved by the USDA and will result in inspected steaks, backstrap, burger and other cuts of meat.

"[Inspected meat] is worth a lot more money," Finstad said. "It can be sold to restaurants and stores. It's the key to success in the reindeer field."



Photos courtesy of the Reindeer Research Program.

### New energy program in Dillingham



*Bristol Bay Campus in Dillingham has a new sustainable energy program to help residents learn techniques to conserve energy and reduce energy costs. The campus itself has installed 24 solar panels and a small wind-powered unit.*

Photo by Tom Marsik.

## PHILANTHROPY

### Stevens' papers part of history

BP and the North to the Future Foundation donated \$1 million to the Rasmuson Library to catalog, process and house more than 4,500 boxes of papers and media from the congressional career of U.S. Sen. Ted Stevens. Stevens deposited his papers and records at Rasmuson Library in early 2009. They span his four decades in the U.S. Senate and include documents, audio and video recordings, and other media from some of the most pivotal moments in the state's history, such as the passage of the Alaska Native Claims Settlement Act, the construction of the trans-Alaska oil pipeline and the creation of a missile defense system based primarily in Alaska.



Comment on any of these stories at [www.uaf.edu/aurora/](http://www.uaf.edu/aurora/).

Photo by Jason Meyer.

# Winds of change

**T**he Alaska Center for Energy and Power at UAF is leading the Wind for Schools program in Alaska, along with the Renewable Energy Alaska Project and the National Renewable Energy Lab. The program is part of the federal Department of Energy and matches elementary schools with universities. Schools host a small wind generator and follow a corresponding curriculum, while college students provide the technical knowledge and support. The program got its official start in Alaska in November with the installation of a wind turbine at Sherrod Elementary School in Palmer.

"The Wind for Schools program helps students develop a knowledge base and skill set in science and energy, and supports workforce development and community involvement for students in elementary school through college," said Gwen Holdmann, ACEP's director.

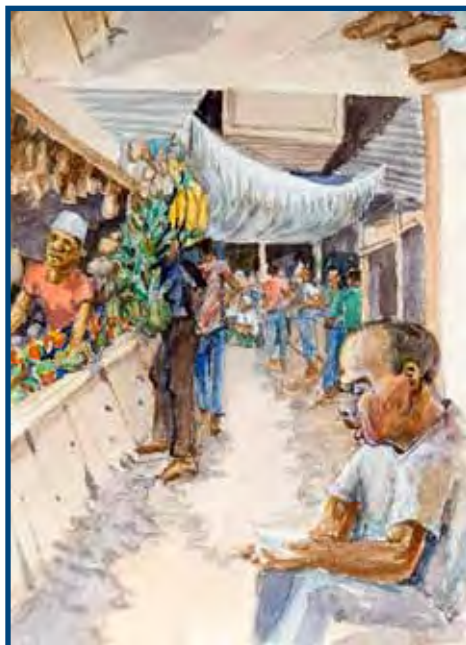
"This program will provide students with a way to explore basic ideas about energy in a hands-on environment," said Mark Hoffman, principal of Sherrod Elementary. "We look forward to what the kids will take home and out into the world from this experience."



Read more about the Wind for Schools program at [www.uaf.edu/aurora/](http://www.uaf.edu/aurora/).

## Summer @ UAF can show you the world

Tanzania and Zanzibar provided some much-needed relief from winter for a group of 13 Alaskans in January. On this international educational tour sponsored by Summer Sessions and Lifelong Learning, participants were exposed to the history and culture of the Maasai people, enjoyed exotically spiced cuisine, and viewed abundant wildlife in their native habitats—elephants, zebras, baboons, warthogs, impalas, giraffes, lions, wildebeests, water buffalos and a myriad of bird life. For information on joining next fall's tour to Machu Picchu and the Amazon rainforest, visit [www.uaf.edu/summer/](http://www.uaf.edu/summer/).



Art by trip participant and professor emeritus Bill Brody.

### By the numbers Power up!

**1964**

Year UAF power plant was built

**3¢**

Approximate cost to generate 1 kwh electricity

**56.7 million**

Kilowatt-hours generated

**9,850 feet**

Utilidor span

**2 (installed 1964)**

Number of coal boilers

**2 (installed 1972 & 1986)**

Number of oil & oil/gas boilers

**1.3 million tons**

Chilled water produced, 2008

**581.6 million lbs.**

Heating steam produced, 2008

**100.4 million gal.**

Drinking water produced, 2008