

Medaling in London

Not saying they won medals because they went to UAF.



But they went to UAF. And they won medals.

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Alaska rifle alumna Jamie (Beyerle) Gray broke two Olympic records en route to a gold medal in women's 50-meter three-position rifle. Gray clinched gold on her final shot with a near-perfect 10.8. Gray shot for the Nanooks from 2002 – 2006, during which time she won two individual NCAA National Championships and was a part of three of Alaska's NCAA Championship teams (2003, 2004, 2006). Matt Emmons, '03, added a bronze medal to his Olympic collection for his performance in men's three-position rifle. Emmons won a gold medal in the 2004 Olympic Games and a silver in the 2008 Olympics, both in men's 50-meter prone. While at UAF, Emmons won four NCAA individual titles and helped the Nanooks to four straight NCAA Championship teams (2000 – 2003).

Students take first with zero

Zero emissions, that is. Student engineers in the UAF chapter of the Society of Automotive Engineers designed and built an electric snowmachine that won first place in the zero emissions category at the 2012 Society of Automobile Engineers Clean Snowmobile Challenge, held at Michigan Tech last spring. In its best finish ever, the UAF team won first place for the best design, most improved snowmachine, draw bar pull, cold start and for its design paper. The team included co-captains Isaac Thompson and Michael Golub, Adam Burnette, Russell Carroll, Christin Davis, Craig McKenzie, Amanda Mertes, Ben Neubauer and Karlin Swearingen.

Now that's Italian!



Eduard Zilberkant, chair of the Music Department, traveled to Italy in January 2012 where he conducted the Orchestra del Teatro di San Carlo in the Teatro di San Carlo opera house. It is the oldest opera house in Europe, built in 1737. Scottish virtuoso percussionist Evelyn Glennie performed with him.



Photo courtesy of UAF Music Department.

EXPORTING PEONIES



Eleven years ago, Pat Holloway, horticulture professor and director of Georgeson Botanical Garden, learned that Alaska might have a market advantage with peonies sold as cut flowers because Alaska's peonies blossom when those in the rest of the world are all done. She began a research project that demonstrated that Alaska growers can produce high-quality, fresh-cut peonies starting in Fairbanks in July and ending in Homer in September; such a time frame supplements the October through June availability from New Zealand, Chile, Israel, China, Europe and the Lower 48 states.

In 2011, more than 20,000 fresh-cut peonies were exported from Alaska to markets in the contiguous United States, Hawaii and Japan. Seven Alaskans have commercial-scale cut flower farms, and more than 150 growers are planning future acreage to fulfill an annual demand for one million stems. Holloway is currently researching other flowers with similar timing differences to diversify Alaska's blooming market.

Award for Heroism recipient heads polar security center

Harry Bader counted trees in Afghanistan, no small task in a land of tangled topography and treacherous politics. Counting trees was part of his job as co-leader of a joint military/civilian program that used natural resources management (yes, really) to weaken the strength and influence of insurgents. Among other things, Bader's counterinsurgency cell in Afghanistan cataloged valuable natural resources like timber and gems the Taliban sells to raise money for arms and recruiting soldiers.

His innovative project and personal risk won the 2011 Award for Heroism from the U.S. Agency for International Development.

Bader is now at UAF to develop a program that integrates academic, civilian and military entities, and promotes science in security planning and operations. The program will focus specifically on the Arctic and Antarctic, and on the natural resources there that provide essential ecological, social and economic services.

COLD STUDY EARNS HOT AWARD

Margaret Darrow wants to know how frozen ground reacts to temperature changes in the environment.

What would happen if a gas line were buried in the Arctic's permafrost-laden soils? How would the soils react? How would climate change affect the ground around the pipe? How would it affect the ground under roads and infrastructure throughout cold regions of the world?

With an award from the National Science Foundation's Faculty Early Career Development Program, also known as CAREER, Assistant Professor Darrow has embarked on a five-year study of water that remains liquid at subfreezing temperatures in frozen ground. She hopes her work will lead to better predictions of frost heaving and permafrost's response to climate change. The research could have many applications to construction and planning in Alaska and other circumpolar regions.

"If we can understand this, there are so many directions I could take it," Darrow said, listing things like frost heaving, landslides in frozen soils, building pipelines and bridges and other infrastructure, and planning for roads. "It plays into all different elements of frozen-ground engineering. It is like the nexus."

The CAREER award is one of NSF's most prestigious honors. It recognizes early-career faculty members who exemplify the role of teacher-scholar and show strong potential to be leaders in integrating education and research in their fields. Other UAF researchers who have received CAREER awards include Anna Berge, Bert Boyer, Hong Liang, Zhongguo John Ma, Marvin Schulte, William Simpson and Kristin O'Brien. (Read more about O'Brien and her work on page 18.)

Every day closer to completion.

The new Life Sciences Facility gleams in the August sunshine on Troth Yeddha'.



History moving in

The Western History Association has settled in at UAF. In a nationally competitive process, the WHA selected UAF as its institutional sponsor and the new location for its office. Under the terms of the five-year renewable agreement, which began July 1 of this year, History Department Chair and Associate Professor John Heaton will serve as the association's executive director. Founded in 1961, the nonprofit organization is composed of 1,400 scholars and teachers devoted to the study of the history of the North American West.



Are invasive plants threatening Alaska's native berries?



Photo by Katie Villano Spellman, UAF graduate student

That's what UAF ecologist Christa Mulder wants to find out. She suspects climate warming is allowing invasive plants to take hold in Alaska, possibly luring pollinators away from native berries.

Blueberries and cranberries are a major part of many Alaskans' lifestyle, both directly, by providing berries for eating, and indirectly, by providing forage for animals that people eat. But Alaska's native berries share similar habitats and pollinators with invasive plants such as sweet clover.

"If bees and other pollinators abandon native berries for invasive plants like sweet clover, we could see a lot fewer fruits on these plants," says Mulder, a research professor at the Institute of Arctic Biology. She leads a project studying whether the presence of sweet clover can alter the production of bog blueberries and mountain cranberries.

Above: Mulder measures and records the growth and fruit production of blueberry and cranberry plants in a boreal forest near Fairbanks as part of her research project, Are Alaskan Pollinators Abandoning Native Berries for Exotic Clover?



Learn more about Mulder's project at www.bit.ly/UAFIABMulder.



UAF adds sustainable village to housing options

There's a new dorm in town.

In partnership with the Cold Climate Housing Research Center, UAF built a sustainable village this past summer on campus property near the CCHRC in Fairbanks.

The development features innovations in cold climate construction — with super-insulated building envelopes to minimize heat demand — as well as experimental approaches to energy, ventilation and wastewater treatment. The four homes will serve not just as student residences but also as housing prototypes, building-science labs and teaching tools.

Students helped CCHRC develop the concept for the homes through a design contest. They also helped with construction and will conduct research on the village.

"The thing that's unique about this project is it's engaging students for the first time in the development of sustainable housing," says Michele Hébert, who heads the Office of Sustainability. "Our hope is that this will lead to more young people learning how to live sustainably and be future leaders in sustainability."

The 1,500-square-foot homes have an R-50-60 envelope and use a mix of solar power, biomass and conventional fuel. A 14-kilowatt photovoltaic array was funded by a university sustainability grant.

The project will demonstrate that a highly energy efficient, four-bedroom home can be built in Fairbanks without breaking the bank. The budget is approximately \$200,000 per home. Rent will be similar to the mortgage of an equivalent new home in the Fairbanks area and be competitive with dorm rates.



Watch the Sustainable Village's progress at www.bit.ly/UAFSustainableVillage.



Room to grow in Bethel

The Center for Alaska Native Health Research opened its new clinical research facility at the Kuskokwim Campus in Bethel last May. The 1,378-square-foot research space includes rooms for long-distance teleconferencing, physical activity measurements and nutritional data collection. The Bethel facility has a second site on the Fairbanks campus, also operated by CANHR.

The National Institutes of Health gave UAF a \$7.5 million grant to create the new spaces. About \$3.8 million was used to build the Bethel facility.

CANHR is part of UAF's Institute of Arctic Biology. Its investigators study obesity, cancer, substance abuse, nutrient and contaminant levels in subsistence foods, stress and coping, suicide intervention and prevention, among other things. Over the past 10 years, much of CANHR's research has focused on the people in the Yukon-Kuskokwim Delta.

"The new facility will provide a physical space where Alaska Native people may go to help find solutions to many of the health problems our people face," says Mary Pete, director of the Kuskokwim Campus. "This means so much to our people."

Longtime botanist honored on the trail

A nature trail on the Fairbanks campus was dedicated to Les Viereck this past summer. The half-mile walking/running trail, located north of the Georgeson Botanical Garden, has signage identifying trees, shrubs and other plants typical of the northern boreal forest

biome. Viereck was a respected Fairbanks botanist and forest ecologist who died in 2008. He was an affiliate professor with the School of Natural Resources and Agricultural Sciences, worked for the USDA Forest Service and was the first president of the Alaska Conservation Society. He founded the Bonanza Creek Experimental Forest research program in the mid-1980s and retired as principal plant ecologist from the Forest Service's Institute of Northern Forestry in Fairbanks in 1996, but continued as an emeritus scientist.

Austin Post glacier photos document change

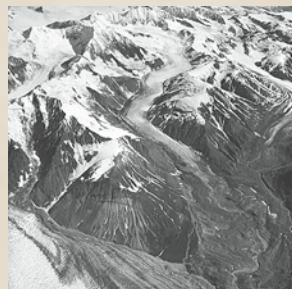
Science magazine celebrated the launch of a new project led by the Institute of Northern Engineering's Matt Nolan. Data Rescue of the Austin Post Air Photo Collection, a project funded by the National Science Foundation, will digitize, preserve and extend scientific access to a collection of large-format photographs that document the size and topography of glaciers in Alaska, Canada and Washington from 1960 to 1995.

"Photographs are data in disguise," says Nolan. Post's photography can show the rate, mechanisms and evolution of glacier change and its effect on sea-level rise during an important and largely undocumented time. There is no more effective glaciological data set than a pair of repeat photographs to demonstrate an unambiguous change, Nolan says. Through this project, the Post photos and new photo comparisons will be available online through several scientific archive sites and several publicly accessible sites.

Nolan, a research professor in INE's Water and Environmental Research Center, studies glacier-climate interactions and the impacts of shrinking glaciers on downstream ecosystems. He spends several months a year in the field, collecting digital images, making photogrammetric and laser measurements, extrapolating ground measurements to the broader arctic landscape, and laying down baseline transects to assess future change.



Learn more about Nolan's research at <http://ine.uaf.edu/werc/people/matt-nolan/>.



This pair of photographs, taken by Post, document the advance of the Variegated Glacier in Southeast Alaska during a surge in 1965. Post's annual photo flights captured the state of hundreds of glaciers in Alaska from the early 1960s through the mid-1990s, giving glaciologists at that time an excellent source of information, exceeding that provided by satellites.