

The Ripple Effect

The best way to sum up Montana NSF EPSCoR is through the simple concept of a ripple effect: objects dropped in a pool of liquid, resulting waves spreading out, commingling with other waves, and propelling forces out to existing boundaries.

The ripple effect of the National Science Foundation (NSF) Experimental Program to Stimulate Competitive Research (EPSCoR) reaches far and wide, stimulating growth in science and technology (S&T). Montana is that pool.

In 1978, Congress authorized NSF to establish an assistance program for jurisdictions (states) that historically had received less NSF and/or other Federal research and development funding. With goals to strengthen research infrastructure, S&T productivity and economic growth, EPSCoR was created. Montana was awarded one of the first EPSCoR grants in 1980.

After 26 years of continual funding, the current three-year \$9.0M NSF EPSCoR award, matched with the Montana Board of Research and Commercialization Technology's \$4.5M award, is producing significant ripples across Montana.

Montana NSF EPSCoR invites you to get excited and informed about our contributions to further your efforts toward promoting math and science in Montana.



MAKING WAVES

The largest portions of the Montana NSF EPSCoR awards are invested in higher learning institutions: recruiting and supporting highly qualified research faculty, purchasing state-of-the-art equipment, enrolling high-caliber graduate students and supporting eager undergraduates.



Elizabeth Crone came to the Montana University System in 2002 as one of the 76 new faculty hires supported by Montana NSF EPSCoR since 2001. Her primary focus, fundamental ecological processes, explores population dynamics, research that will contribute toward conservation and restoration efforts.

Rebecca Wahl is a graduate student in Dr. Crone's lab, studying population dynamics of amphibians, specifically examining factors in amphibian population decline, investigating whether this is a natural phenomenon.

With a need for more students to shoulder field and lab workloads, EPSCoR provides stipends for both graduate and undergraduate researchers. These students are exposed to cutting-edge research, preparing them for S&T careers, graduate studies and post-doctoral positions.



Including Rebecca Wahl, 165 graduate students have received stipends

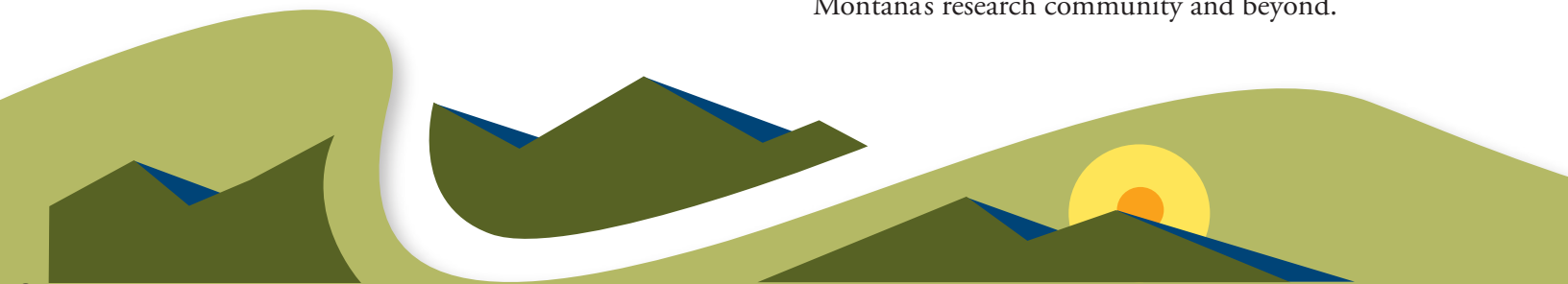


Josh Nowak is one of 972 undergraduate researchers who have received awards from Montana NSF EPSCoR

Contributing towards the broader studies of his faculty mentor, Dr. Crone, undergraduate James "Josh" Nowak's research project examines the germination of berry seeds after ingestion by bears. Josh made the following comments regarding his experience:

"Participation in this project has greatly enhanced my undergraduate education in several ways. First, the interaction with faculty and graduate students has allowed me to network, challenge my ideals and has generally elevated my understanding of research and the natural sciences. Second, the project has given me the opportunity to test my assumptions about what graduate studies might be like and has confirmed that the sciences are my vocation. Third, this project has opened doors. As previously mentioned, working on this project has led to increased interaction with faculty, which led to job opportunities, a diversified skills set and experiences."

A faculty member, a grad student, an undergraduate — all are advancing the study of ecology — making waves in Montana's research community and beyond.



Tossing Coins: Ripples Through the Economy

Q: What do the following things have in common: bees who can detect land mines, geospatial software, antibiotics and gluten-free flour milled from a native Montanan grass?

A: They are all products from newly formed Montana technology companies that have recently received SBIR/STTR awards from Montana NSF EPSCoR.

To further assist start-up research and development companies, a program sponsored by Montana NSF EPSCoR, in collaboration with the State of Montana Department of Commerce Small Business Innovation Research (SBIR) program, award funding designed to build business potential and advance research. SBIR awards aid enterprising inventors, researchers and entrepreneurs, enabling them to become more competitive for Federal SBIR awards, boost the S&T components in Montana's economy and entice more researchers to remain in the state.



Amazing Grains, based in Ronan, is a farmer-owned cooperative, formed in 2003 to market their trademarked, Montana™ brand of gluten-free flour products milled from Indian ricegrass. Native to Montana and North American prairies, Indian ricegrass is well adapted to the climate and soil conditions, making it an attractive choice for the 56 current cooperative growers.

Another SBIR Phase 0 award recipient, **BeeAlert Technologies**, performs research

on honeybees. Part of their research involves conditioning bees to be attracted to the chemicals used in explosives. Using laser technology, these bees can then be tracked to locate buried landmines. Besides environmental hazard applications, other innovations developed, such as remotely monitored smart hives, will make the apiary (beekeeping) industry in Montana (\$24.0M/yearly) more profitable. *At right: a beekeeper holds bees near two unfused antitank mines.*



This publication promotes the development of Montana science and technology resources through partnerships involving Montana universities, industry and state research and development enterprises. EPSCoR operates on the principle that aiding researchers and institutions in securing federal funding will develop Montana's research infrastructure and advance economic growth. EPSCoR's goal is to maximize the potential inherent in Montana's science and technology resources and use those resources as a foundation for economic growth.

Montana NSF EPSCoR Partners

The University of Montana - Missoula
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PROPELLING FUTURE SCIENTISTS



At the heart of its largest informal science initiative, Montana NSF EPSCoR is spearheading the creation of an interactive, hands-on science complex. It will utilize exploration and inquiry to inspire science learning and curiosity in all ages with interactive exhibits, inquiry activities and live demonstrations by scientists, artists, educators and scholars. The complex will support a dynamic distance learning program that will bring hands-on science to every Montanan, regardless if they live in an urban hub or tribal community.



In preparation for the 2007 opening, the *Science Learning Tent* was launched, traveling the state, visiting festivals, powwows and the Western Montana Fair. The Tent's educators (aka the Super Science Squad) use science activities and play to promote scientific curiosity, inspire learning, and, are now touring local classrooms and after-school programs.

Science is Cool is a program airing every other week on Montana Public Radio promoting scientific exploration for kids through experiments easily performed at home while adults are available for discussion and assistance. Producer and host Katie George (pictured at right), an assistant research

professor, invites Saturday morning listeners to perform scientific experiments at home along with her young "lab assistants" in the studios.

Please see the enclosed Compact Disc set sent to all of Montana's public libraries and elementary schools for enjoyment at home or in the classroom. A second volume of CDs is planned for distribution in 2007.

