



## A Year of Achievements for Boise State Research

It has been a banner year for research at Boise State University.

Since you last saw *Explore*, the momentum of our research agenda has fostered dozens of success stories, too many to highlight in the pages of this issue. Our faculty accomplishments have been nothing less than spectacular.

In fiscal year 2009, Boise State's research funding jumped 32 percent to a university record \$37 million, making this the fastest growing research program in Idaho. That upswing accelerated into the first quarter of fiscal year 2010, when we recorded our highest quarterly total in school history with \$16.1 million in research funding – a 77 percent increase from the \$9.1 million in the first quarter last year.

Last spring, Boise State joined an elite group of colleges and universities involved in NASA's Microgravity University program. The highly competitive program challenges students to conduct research in a reduced gravity environment. We look forward to more opportunities for our students and faculty with NASA in the future.

Boise State's national prominence in geosciences has been recognized through a \$4.9 million U.S. Department of Energy grant. Boise State was selected to coordinate the establishment of a National Geothermal Data System to provide for the first time organized, widespread geothermal information.

The dynamic research stories in this issue of *Explore* exemplify Boise State's place in nationally significant research, and demonstrate our commitment to our mission as a metropolitan research university of distinction.

– BOB KUSTRA, PRESIDENT

## News Briefs on Boise State Research

### American Cancer Society Funds Study

The statistics are sobering: 1 in 8 women will get breast cancer, a devastating disease that can metastasize to the liver, lungs, brain and bone.

Biology professor Cheryl Jorcyk's research could help improve those statistics. She is the recipient of a \$720,000 grant from the American Cancer Society for her project, "Breast Cancer Metastasis to Bone: The Role of Oncostatin M." Jorcyk joins a distinguished group of researchers, including 42 Nobel laureates, to be funded by the ACS over the past 63 years.

The key element of Jorcyk's project is a signaling molecule called Oncostatin M, or OSM, produced by breast cancer cells and tumor-associated cells of the immune system. The molecule plays a role in inflammation and, according to Jorcyk, may contribute to the progression and spread of tumors, including metastasis to bone.

Jorcyk is looking at the possible mechanism of OSM as part of studies that could eventually lead to the design and testing of drugs that inhibit the mechanism. Such a development would have enormous significance in the fight against breast cancer.



Cheryl Jorcyk

JOHN KELLY PHOTO

### Biologists Study Plant Found Only in Idaho

Christ's Indian paintbrush is found in only one place in the world – atop Mount Harrison south of Burley, Idaho. Boise State biologists are studying the rare species to learn the extent to which it is cross-pollinating with other Indian paintbrush species to produce hybrids, information of value to public land managers and others interested in Idaho's native plants.

Biology professor Jim Smith received funding support from the Sawtooth National Forest for the project, which involves studying the physical characteristics of Indian paintbrush species and conducting genetic tests to identify molecular markers that indicate hybridization. Graduate student Danielle Clay is conducting the research under Smith's direction for her master's thesis.

Christ's (*rhymes with fists*) Indian paintbrush is limited to a 200-acre area at about 9,200 feet on the summit of Mount Harrison, near the Pomerelle Ski Area. The showy yellow perennial is one of a number of Indian paintbrush species found in Idaho.



Christ's Indian paintbrush

DANIELLE CLAY PHOTO

## Researcher Helps Businesses Go Green

Most companies get it when it comes to going green. In addition to being good for public relations, environmentally friendly practices can help eliminate waste. And when you eliminate waste, such as excess packaging or unnecessary energy consumption, you save money.

But getting from good intentions to meaningful change is not without its obstacles.

Business professor Tom Gattiker's research identifies barriers to successfully implementing environmental goals in the workplace and ways to break down those barriers, particularly as they relate to a company's supply chain – the organizations, people and activities that transfer a product from company to company, and eventually to the consumer. Companies grapple with who should push for sustainable practices along the supply chain, what rationale for environmental measures resonates with employees, and how to get leadership across the company to buy into the process.

"My research is focused on the micro level," Gattiker said. "A fair amount of research out there looks at the organization level but there's not a lot that gives guidance to individuals about what it really takes to move projects forward in the workplace."

Much of Gattiker's work is funded and published by the Center for Advanced Purchasing Studies at the University of Arizona. Working alongside colleagues from the University of Tennessee and the University of



CARRIE QUINNEY PHOTO

**Business professor Tom Gattiker is an expert in environmental supply chain issues.**

Nevada, Gattiker has visited and surveyed hundreds of ground-level individuals and companies across the country that are striving to go green.

Whether companies are focused on energy savings, transportation-related improvements or reduction in waste or packaging, Gattiker's research has shown that inspirational appeals, consultation and rational persuasion are far more effective than forcing environmental initiatives.

One of a handful of recognized experts in environmental supply chain issues, Gattiker's work is internationally cited. His hope is that it helps champions of environmental initiatives succeed.

"I believe environmental issues are the challenge of our time and our generation," Gattiker said. "Business schools have a big role to play." – **Sherry Squires** ◆



## Literary Journal Marks 10 Years

Boise State is celebrating 10 successful years of *The Idaho Review*, its award-winning journal of original fiction, poetry and creative non-fiction featuring some of the nation's top writers.

From the first nine issues, nine pieces have been reprinted in *The Best American Short Stories*, *Prize Stories: The O. Henry Awards*, *The Pushcart Prize: Best of the Small Presses*, *New Stories from the South* and *Best of the West*. And 15 others have been

shortlisted by these same prize anthologies.

"For a venture run on a shoestring budget, and staffed by dedicated students, our track record has given us a keen sense of accomplishment," said Mitch Wieland, current and founding editor of *The Idaho Review* and a professor in the university's master of fine arts program in creative writing. "The big New York publishing houses have long since turned their backs on short fiction and poetry; small journals like *The Idaho Review* give our country's great writers a place to publish their work."

## Boise State Students ‘Energize’ Idaho Firms

Idaho businesses are scrambling to save money in a challenging economic environment, and teams of specially trained Boise State students are helping them fine-tune and manage their energy consumption.

Experts from the Idaho Small Business Development Center taught university students from a variety of disciplines – business, engineering, construction management and environmental health and science – to analyze utility bills and complete on-site energy evaluations. Utilizing grant funds from the U.S. Small Business Administration, the evaluations were offered free of charge to businesses.

“There’s a big economic factor for small businesses and to have someone come in and do this for us at no cost is highly valuable,” said Matt Thornton, owner of Parks Royal Body Works, a Boise business that participated in the program.

Businesses received a detailed report that explained cur-

rent energy use, recommended ways to reduce energy use, provided calculations for return on investment and paybacks, and identified utility incentive programs and other financing options. The energy evaluations will be extended to other areas of Idaho this fall. – **Sherry Squires** ◆



Students Josh Johnson and Tanya Barkell assess energy usage at Parks Royal Body Works in Boise.

MELISSA HARRIS HARTLEY PHOTO

## Researchers Work to Develop New Vaccine

With a \$797,000 award from the U.S. Department of Defense, an interdisciplinary team of Boise State researchers began work in September to develop a vaccine for West Nile virus, a mosquito-borne disease that poses a serious threat to human health.

Biochemistry professor Ken Cornell is leading a team that also includes biology professors Juliette Tinker, Denise Wingett and Gongxin Yu. The project combines recent advances in biotechnology with emergent nanotechnologies to design and test the vaccines.

According to Cornell, the first-year goal is to assemble three different vaccine platforms for oral or intranasal delivery, and to begin pilot tests using mice to determine whether the vaccines trigger immune responses.

“Since its arrival in the U.S. a decade ago, West Nile virus has infected more than 30,000 people and caused more than a thousand deaths,” said Cornell. “By developing an effective vaccine, we could literally save lives in Idaho and across the country.”

## Anthropologist Awarded Fulbright, NSF Grant for Studies

A Fulbright research award and a National Science Foundation grant have launched anthropology professor John Ziker on an intensive year of research in the circumpolar north.

Ziker was given a Canada-U.S. Fulbright award as Fulbright Visiting Chair in North American Studies at the University of Calgary. He is spending the 2009-2010 academic year at the university and working with colleagues to research indigenous dwellings, movements and demography in the circumpolar north. Ultimately, the research is aimed at broadening understanding of human behavior and sustainable engagement with the environment.

In addition, Ziker was awarded a \$225,335 grant from the National Science Foundation to conduct a capstone conference for the first major international collaborative research program in Arctic social sciences and humanities, held in October at the Arctic Centre of the University of Lapland in Rovaniemi, Finland.

John Ziker wears protective clothing, including mosquito netting, during a research expedition.



PHOTO COURTESY JOHN ZIKER