

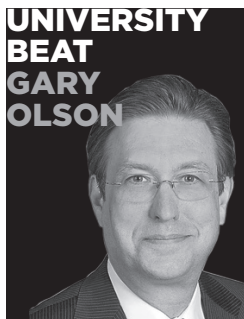
ISU biologists break new ground

Faculty in national research universities like ISU are constantly creating new knowledge in their disciplines, and that knowledge often has far-reaching benefits, from how we deliver health care to how we manage our environment.

Take, for example, the work of our faculty in the Department of Biological Sciences. Researchers there are making discoveries that could make radiation treatment more effective, while others are learning more about how to manage wildlife populations in the West.

In her laboratory, Dr. Linda DeVeaux works with graduate and undergraduate students to study radiation resistance in microbes. The researchers are working with two different types of microbes—Halobacterium, a microbe found in the Great Salt Lake, and Deinococcus radiodurans, a soil bacterium originally isolated from cans of irradiated meat.

Through testing at ISU's Idaho Accelerator Center, Professor DeVeaux and her team verified that both organisms can survive extremely high levels of radiation delivered from accelerators. They found that they were able to make the cells of Halobacterium more radiation-resistant through repeated exposure to radiation. Now, with this insight into how this resistance occurs, the team



hopes to manipulate radiation resistance of certain cells.

In a collaborative effort among professor DeVeaux, the Armed Forces Radiobiology Research Institute, and the University of Maryland, researchers hope someday to know how to do the same in mammalian cells. It could make

a difference in how we use radiation treatment in cancer patients. Someday, DeVeaux says, it might be possible to make healthy cells in cancer patients more resistant to radiation, and even to make cancerous cells more susceptible to it. This development could result in a safer, more effective form of radiation treatment for cancer.

Professor DeVeaux's colleague, Terry Bowyer, is making a difference in the way we understand our environment.

In a study to be published in September's issue of the scholarly journal, *Oecologia*, Bowyer and a team of researchers discovered that low-level grazing activity by elk actually stimulates plant production and increases plant biodiversity. Plants fed upon by elk were more productive than those in areas where there was no grazing and in areas where there was heavy grazing.

These surprising results came from a study conducted by researchers from several universities and the U.S. Forest Service on a five-square mile enclosed area in

Oregon. Before the study, it was assumed that, because large animals such as elk and cattle graze on plants and trample vegetation, stopping grazing would increase plant biodiversity.

Researchers learned, however, that the indirect effect of low-level grazing actually stimulates plant productivity and biodiversity. Plant biodiversity was lower after both heavy grazing and no grazing. Bowyer notes that no one has previously completed a study of this magnitude on the relationship between large grazing animals and plant biodiversity.

The work of Bowyer and his fellow researchers hasn't gone unnoticed in the scientific community, either. The Wildlife Society recently honored Bowyer and scientist and professor John Kie for their research on how population dynamics for large herbivores (such as elk and the animals that prey on them) can affect biodiversity in an ecosystem. The two researchers have often collaborated on projects, and the result has been several discoveries that now help wildlife professionals manage different ecosystems.

From studying the wildlife that contributes to an important part of our way of life in Southeast Idaho to making discoveries that could change the way we treat cancer, Idaho State University researchers are making a difference in the world around them.

Gary Olson is provost and vice president at Idaho State University.