

REGAINING LOST GROUND

ECOLOGICAL

RESTORATION

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NEWS

## Senator Kyl's visit encourages future caretakers

When Arizona Senator Jon Kyl visited Flagstaff in December, his purpose was to get a first-hand look at ecosystem restoration in the ponderosa pine forest. What he didn't realize was the impact he made on tomorrow's wildland caretakers.

"Senator Kyl's visit gave me a sense of the importance of our work and the future of our research," says environmental science major Julie Blake. "I am very thankful for this incredible opportunity and proud that our efforts are being recognized. Given the current conditions of our forest, ecological restoration should really be a priority for everyone."

During the visit, hosted by the Ecological Restoration Program at the Southwest Forest Science Complex on the NAU campus, Kyl met with a dozen agencies and groups, along with forestry students and others active in ecosystem restoration.

"Before meeting Senator Kyl, it was hard to see the big picture or how everything fit together," says environmental science major Janelle Clark. "The meeting really placed things in perspective for me."

After taking a look at the problems, progress, and results from the various projects in northern Arizona, Kyl says he would like to see all of Arizona's forest land returned to its natural open, park-like condition. "Restoration of Arizona's forests can help reduce the occurrence and effects of disastrous wildfires while improving the overall health of the forest."

The visit included a discussion period followed by a field trip to a restoration site near the NAU campus. The field trip showcased an area already treated by the Flagstaff Fire Department.

"We were very pleased to have Senator Kyl express his interest in forest restoration," says Wally Covington, director of the Ecological Restoration Program. "Furthermore, this provided an opportunity for concerned agencies and organizations to interact and exchange views and for students to understand the relevance of their work."



## Life on the Edge

Cecilia Meyer, a 22-year-old student of environmental sciences, is spending much of her senior year studying life on the edge.

“Basically I’m looking at microclimates—temperature, relative humidity, light intensity—across the edge of non-restored and restored areas and how it varies,” she says.

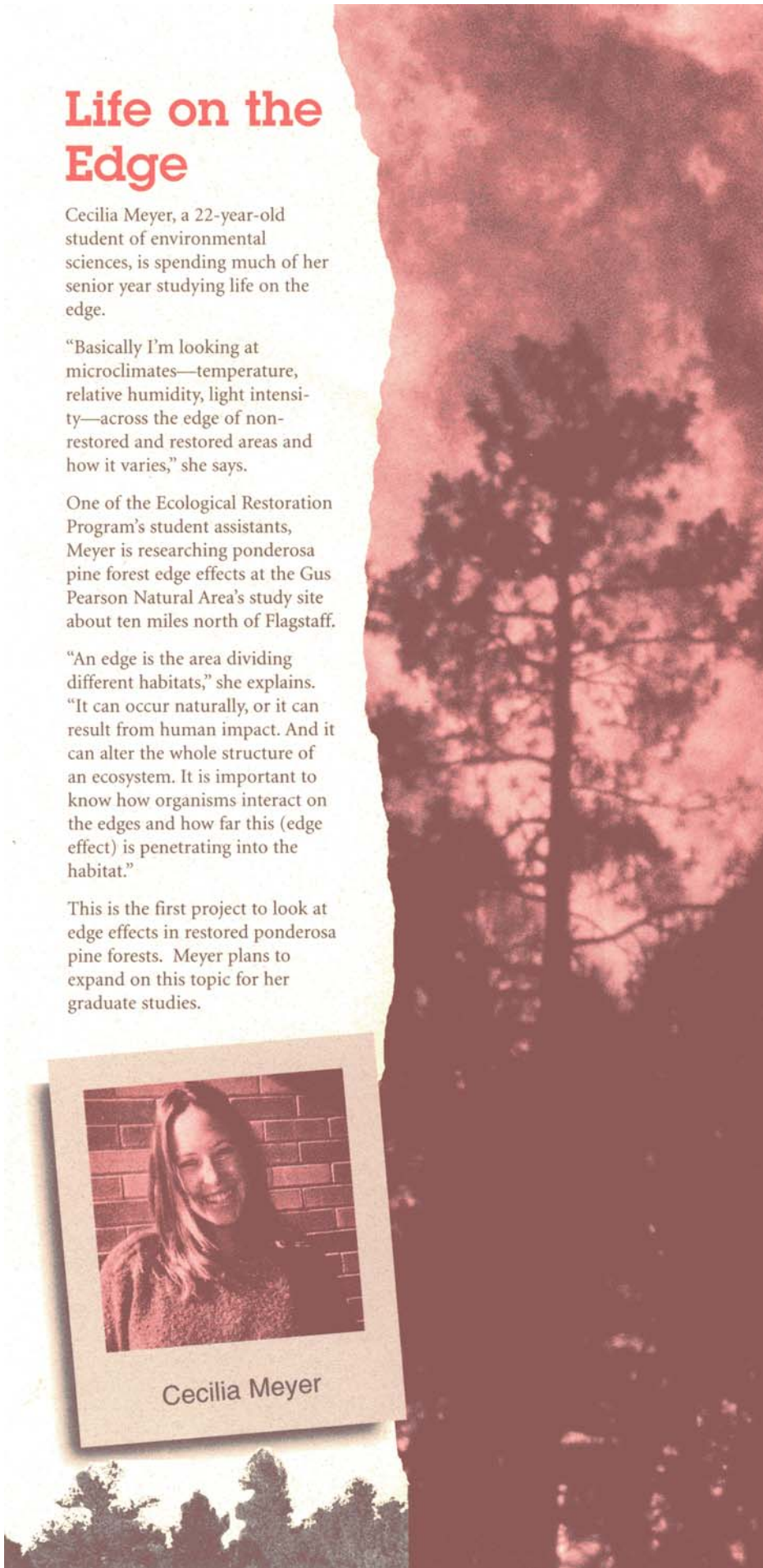
One of the Ecological Restoration Program’s student assistants, Meyer is researching ponderosa pine forest edge effects at the Gus Pearson Natural Area’s study site about ten miles north of Flagstaff.

“An edge is the area dividing different habitats,” she explains. “It can occur naturally, or it can result from human impact. And it can alter the whole structure of an ecosystem. It is important to know how organisms interact on the edges and how far this (edge effect) is penetrating into the habitat.”

This is the first project to look at edge effects in restored ponderosa pine forests. Meyer plans to expand on this topic for her graduate studies.



Cecilia Meyer





## Tapping Native Knowledge

The knowledge of indigenous peoples may play a big role in restoring the ponderosa pine forests in the future.

Thom Alcoze, associate NAU forestry professor of restoration and wildlife ecology, is bringing traditional knowledge into the Ecological Restoration Program and examining how it can contribute to a more holistic approach.

"In restoration, we're looking at degraded ecosystems and how we can reverse it to get a healthy ecosystem, characteristic of presettlement conditions," Alcoze says. "Traditional knowledge can be applied to maintaining the restored state once we define and establish it."

Alcoze is researching strategies practiced by native people in the context of a modern, industrial society. Currently he is exploring the use of fire by local tribes.

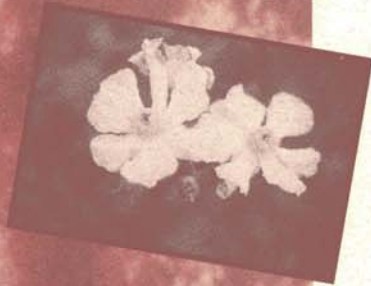
"Fire has a high level of significance for all indigenous people," he says. "In many cases native nations developed sophisticated techniques to use fire as a tool to manage resources, enhance biodiversity, and sustain resource abundance for future generations."

Alcoze is currently researching these areas and developing testing methods. He is also initiating contacts with the Paiute, Hualapai, Hopi, Navajo, and Apache tribes.

"We're going to work with and get the cooperation of native nations in the Colorado Plateau area to identify specific, traditional, sustainable practices and then develop appropriate experimental designs that will test their validity," Alcoze says.

If tribal permission is granted, some restoration projects may take place on the reservations. Alcoze also plans to have projects in other areas and to incorporate the traditional practices of the inhabiting tribes. For example, Paiute techniques might be appropriate on the Grand Canyon's North Rim and Hualapai on the South Rim. By combining indigenous knowledge and conventional science, Alcoze says he believes the restoration projects will be successful.

"I operate on the belief that if degraded ecosystems were magically restored overnight—without humans changing how they relate to nature—in a hundred years we will have degraded ecosystems again," Alcoze says. "Human judgment could really benefit from incorporating traditional knowledge."





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**ECOLOGICAL RESTORATION NEWS Regaining Lost Ground**

is a newsletter from NAU's new Ecological Restoration Program. The intent of this publication is to share information, discoveries, and successes in the work being done to restore the Southwestern forests.





# Restoration program blazes healthy trail

Amy Waltz and Mike Elson spend much of their time in the thickly forested darkness of Mount Trumbull. Waltz is studying butterflies; Elson is watching for traces of chipmunks and squirrels.

Both are part of a team of researchers from Northern Arizona University's School of Forestry examining plots on a 3,600-acre area of the mountain near the Grand Canyon.

"Butterflies can tell us a lot about the health of a forest," says Waltz, a research specialist. "They indicate what kind of grasses and wildflowers exist. A diverse and large population of butterflies usually means there's a healthy herbaceous community."

Meanwhile, Elson, a graduate student and research assistant, looks for how the rock squirrels and chipmunks will respond to the restoration treatment.

The efforts at Mount Trumbull offer the first large-scale investigation of the natural response to ecological restoration work, such as thinning and burning. They also mark the beginning of a new era in research made possible through NAU's Ecological Restoration Program—a program whose goals are aimed at restoring millions of acres in the Southwest to more naturally functioning ecosystems.

"NAU has recognized the need to advance the science and practice of ecological restoration to help reverse the trend of ecosystems becoming more homogeneous, more vulnerable, and more fragile," says Wally Covington, director of the Ecological Restoration Program.

**"We now have the opportunity to regain lost ground and reconnect humans with the wildlands."**

**Wally Covington**

"Researchers have argued for years over what should be done to promote health on our Southwestern wildlands. We now have the opportunity to apply what we know over large landscapes, monitor the results, and adjust the applications based upon what we learn," he adds. "We now have the opportunity to regain lost ground and reconnect humans with the wildlands."

Funded by the Arizona Legislature and other state, federal, and foundation sources, the program is designed to support ecological restoration through education, research, and forums.

In initiating the program, the Arizona Legislature noted: "The creation of this program gives Arizona the opportunity to lead the nation in resolving conflicts in the conservation/preservation debate over management and use of natural resources, with an emphasis on forest environments." State Senator John Wettaw says the Ecological Restoration Program offers a good alternative to past efforts. "I think the university and the regents are very interested in it because it offers others a way to accomplish the balance we look for in our ecological system."

"We've only just started to restore small pieces of Mount Trumbull," says research specialist Tom Heinlein. "Basically it's an area with impressive old trees—300 to 500 years old—being overtaken by a lot of younger trees. The old trees are being crowded out, and they're dying. The thing is, the other trees are so thick and dense, very few of them will grow to replace the ancient trees over time. And because of the amount of thin, sickly trees, the stage is set for a catastrophic fire to take out everything."

**Continued on back panel, see Restoration.**



## Restoration continued

The Mount Trumbull project is a cooperative effort of the Bureau of Land Management, the Arizona Game and Fish Department, and NAU's Ecological Restoration Program. It is the largest of several such projects under way in Arizona and New Mexico. Other partners include the Arizona Army National Guard, Grand Canyon National Park, and the U.S. Forest Service.

Like millions of other acres in the Southwest, Mount Trumbull represents unnatural tree composition and densities, loss of habitats, and increasing threats of large-scale catastrophic wildfires. However, it holds great promise for new forestry knowledge—knowledge that may well blaze the trail to restoring our nation's wildlands and reconnecting humans with nature.

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