

REGAINING LOST GROUND

# ECOLOGICAL RESTORATION

SUMMER 2001

NEWS

## Researchers and Llamas Leave Peaks for the Summer

Forest researchers, who were chased off the San Francisco Peaks by smoke from the Leroux Fire, will not be returning to their high elevation, mixed conifer site until the fall. Ironically, they were investigating the fire history of the mountain when the wildfire started.

"We are studying fire and forest structure from ponderosa pine through all the vegetative communities on the Peaks—the aspen, the spruce-fir, the pine," says Assistant Professor Pete Fulé from Northern Arizona University's Ecological Restoration Institute. "We're trying to understand the history of fire across the elevational gradient. At the bottom we used to have frequent, low-intensity fires in the ponderosa pine, but in the sub-alpine, fir, spruce and aspen forests we had entire stand-replacing fires. The transition between surface and stand-replacing fires is poorly understood."

Since May, crews have been hiking the Weatherford Trail into the Kachina Peaks Wilderness to conduct their research. Helping to pack in research tools, water, food and camping gear are llamas.



Researchers studying fire history across an elevational gradient of 7,000 to 12,000 feet had to abandon their research plots because of wildfire.

see "Peaks"



# Forest Restoration Practitioners Urged to Save the Patient

If fire season 2000 had been a campaign promoting awareness for the consequences of unhealthy forests in the urban interface, the New Mexican city of Los Alamos would have been its poster child.

Today, a year after the Cerro Grande Fire raged across 47,650 acres and claimed 239 homes, Los Alamos Fire Chief Douglas "Mac" MacDonald has plenty to say about forest treatments in the "I" (interface) Zone. "If we had had [prescribed] burning projects we would not have lost 37 million trees."

With images of the devastation and audio recordings of the people who witnessed the blaze, MacDonald shared the tragic story of what happened to his community and the surrounding forest with researchers, scientists, and students who had gathered in Flagstaff in April for a national ecological restoration conference.

MacDonald said firefighters had a hard time believing their efforts were successful because of the property losses. "When we lose one house, we think we lost. But our efforts were successful. Less than 10 percent of our community was lost. Projected losses were at 60 percent."

The Cerro Grande Fire began May 4, and was not declared officially out until Sept. 25. Three firefighters were injured. No lives were lost.

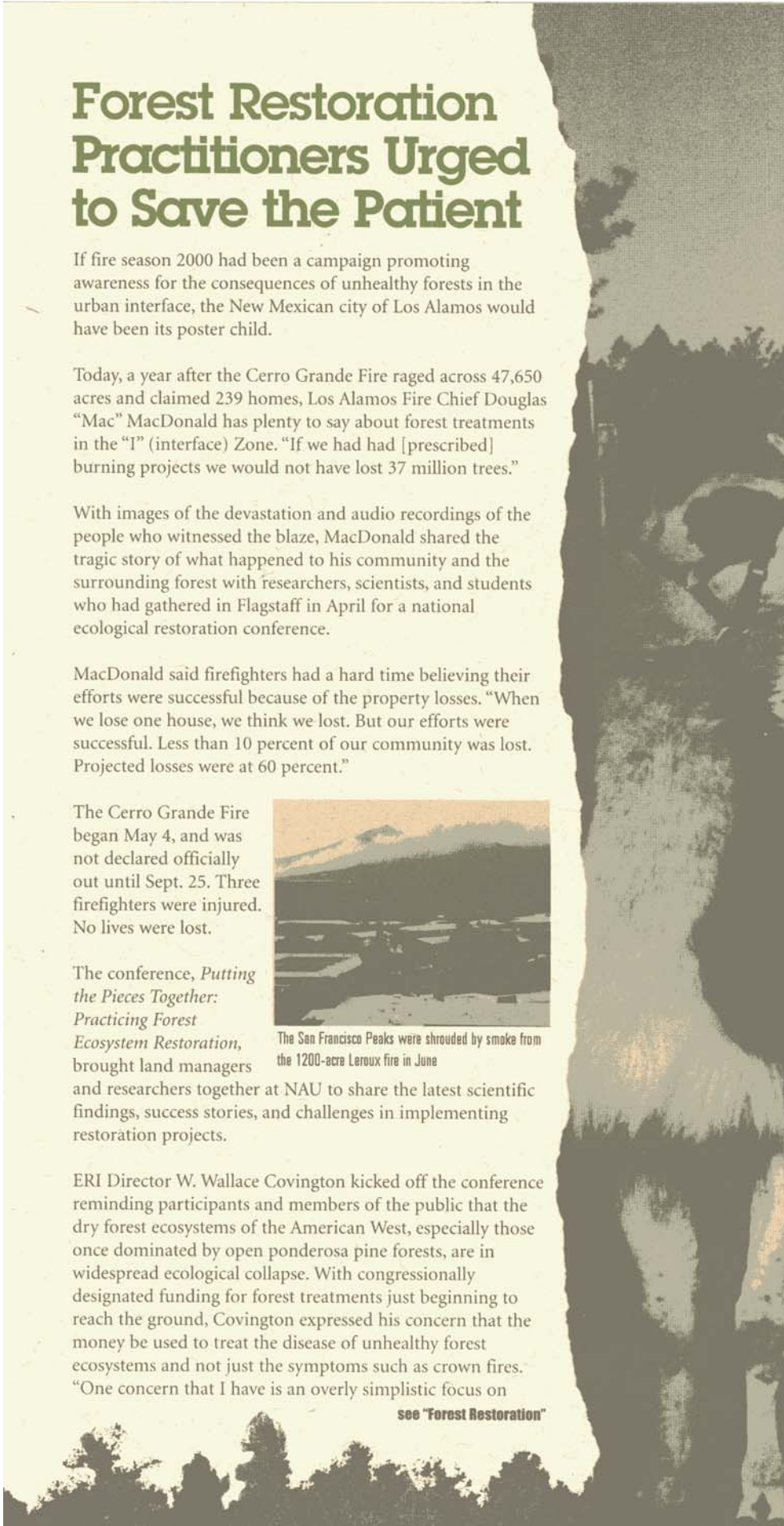



The San Francisco Peaks were shrouded by smoke from the 1200-acre Leroux fire in June

The conference, *Putting the Pieces Together: Practicing Forest Ecosystem Restoration*, brought land managers and researchers together at NAU to share the latest scientific findings, success stories, and challenges in implementing restoration projects.

ERI Director W. Wallace Covington kicked off the conference reminding participants and members of the public that the dry forest ecosystems of the American West, especially those once dominated by open ponderosa pine forests, are in widespread ecological collapse. With congressionally designated funding for forest treatments just beginning to reach the ground, Covington expressed his concern that the money be used to treat the disease of unhealthy forest ecosystems and not just the symptoms such as crown fires. "One concern that I have is an overly simplistic focus on

see "Forest Restoration"





## Goshawks, Grasses, Lizards and Ponderosas To Receive Special Attention

Northern goshawks, native grasses, creekside lizards and small diameter ponderosas are a few of the subjects being explored in forest research projects this summer through funding made available by Congress.

Following last summer's fire season that exhausted the nation's wildland firefighting units and required international relief, lawmakers, led by Ariz. Sen. Jon Kyl, allocated some \$8.8 million to restore forest health and prevent crown fires.

Nearly one-and-a-half million of the funding is supporting twenty-two research projects covering a broad spectrum of disciplines.

School of Forestry Associate Professor Paul Beier specializes in wildlife ecology and research involving the rare northern goshawk. He has been awarded a grant to study how these aggressive birds, usually found in relatively dense forests, are affected by areas restored to a more open, park-like condition. "The money will allow us to conduct a forest inventory in sixteen goshawk territories for which we have eight years of data on productivity and adult survival. We'll be able to see how close or far known goshawk territories are from restored conditions and determine if stand conditions have any positive or negative impact on productivity and the adult survival rate." This project is being conducted in partnership with the Arizona Game and Fish Department.

Associate Professor of Forestry Laura DeWald specializes in genetics and conservation biology. She has received a grant to study native grasses. "There's a whole native plant industry that's growing rapidly, but there aren't any checks and balances in place to ensure that native seed is not being contaminated. This can happen when seeds or plants are transferred to ecosystems beyond their natural seed zones. Cross pollination occurs and the results include severe maladaptations of the plant and a contamination of the genetic material," DeWald says.

Department of Biology Assistant Professor Jane Marks has received funding to study the interaction of land and water ecosystems at Oak Creek, Beaver Creek and Fossil Creek. "We're concerned about maintaining fresh water biodiversity and making sure we don't lose the lizards, birds, bats and insects that rely on these streams when we apply treatments such as thinning projects to the forest."

Indigenous Community Enterprises Executive Director Brett KenCairn is working with Ron Trosper, director of the Native American Forestry Program, to create traditional Navajo hogans from small roundwood ponderosa pines. "We are developing new uses for the small diameter thinnings coming from restoration treatments. We are also really a research project in a community-based, community-driven community development in which we are trying to use the resources from the forest as a way of generating opportunities in Cameron, a community that's in real need of

see "Goshawks"

Llamas are used to pack research tools, water, food and camping gear into the Kachina Peaks Wilderness.

# New Radio Program Is Earth Note-Worthy

For those who enjoy public radio's *Stardate* or *Earth and Sky*, there's a new KNAU program riding the airwaves that captures the same storytelling style in positive news about the environment. *Earth Notes*, delivered by KNAU's Tristan Clum, is making its debut across northern Arizona.

"Our objective is to stimulate and inform listeners about diverse local environmental topics—exploring and exposing how the environment is integrated with and fundamental to our daily lives," says Karan English, associate director of NAU's Center for Sustainable Environments. "Based on science, we hope to pique the interest, foster hope and engage action with these two-minute highly focused audio moments. We have a responsibility as individuals to participate in the health of our environment and community."

The action that English helped energize is now powered by the CSE and KNAU's 100,000 watts, and supported by organizations such as Arizona Raft Adventures, the ERI, the Arizona Community Foundation and the Grand Canyon Trust.

Modeled after such popular public radio programs as *Stardate* and *Earth and Sky*, the goal of *Earth Notes* is to tell a story in two minutes, says KNAU Program Director and Executive Producer Erik Nycklemoe. "It's already generated a lot of interest, which is really unusual for a new program."

*Earth Notes* airs on KNAU (88.7 and 91.7 FM) at 6:33 a.m., 8:33 a.m., 3:33 p.m. and 5:33 p.m. on Wednesdays and 8:04 a.m. and 5:04 p.m. on Saturdays. Programs cover such topics as the connection between natural springs and pines, the comeback of the once-endangered bald eagle, and the concept of new urbanism.

NAU's ERI staff sees *Earth Notes* as a vehicle through which to share research findings of the ERI scientists. "One of the objectives we have as an institute is to communicate what's working and what's not working on the ground," says ERI Coordinator Gina Vance. "It's a great opportunity to talk about how things like bats, butterflies and grasses are responding to forest areas that have been thinned and burned, or creative uses of small-diameter ponderosa pine trees that are overabundant in the forests of the Southwest."

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## ECOLOGICAL RESTORATION NEWS Regaining Lost Ground

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



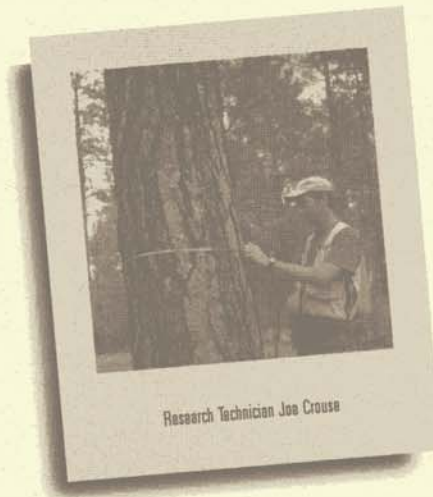
## Peaks continued

"Llamas are the perfect pack animals because they can carry about 100 pounds and they are light on the environment. Their feet actually have less of an impact on the ground than the Vibram sole of a hiker's boot," says Vern Zarlingo, who owns the llamas. Llamas are considered to be very surefooted with their two-toed feet and leathery pads. They have been compared to large deer because of their feet and the fact that they browse on forest plants.

Among the ERI researchers studying how natural fire fits in with the ecological processes of the mountain is Research Technician Joe Crouse. "We're trying to learn the fire history and how it relates to stand size and structure. We have a lot of research going on in the ponderosa pine, but this, along with work on the North Rim, is the first extensive research we've done in the mixed conifer forest."

Crouse is working toward his master's degree in forestry. He specializes in geographic information systems and remote sensing. Using this technology, he is able to produce vegetation maps from aerial photos and satellite imagery. The vegetation maps will be used to model past, present and future fire behavior on the San Francisco Peaks.

The research under way on the Peaks is in the data collection phase. Crouse says he enjoys the cooperation and coordination



Research Technician Joe Crouse

among the many students, staff and faculty members involved in the project.

Information gathered from the Peaks through soil samples, fire scars and current and historic photos is expected to help forest managers determine how fire should be managed in the future. "If a big fire burns, we'll understand whether or not that kind of fire occurred naturally in that specific forest type," says Fulé.

Crouse and other researchers have not been able to return to their plots this summer because of hot spots burning on the Leroux Fire and the potential threat of lightning strikes with the monsoon season.

Both researchers and llamas are expected to be back in the mixed conifer this fall.

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## Goshawks continued



More than a million dollars in congressional funding is supporting research projects that study the effects of restoration treatments on forest creatures such as the rare northern goshawk.

economic development."

Other research projects receiving funding are being conducted by NAU's Center for Environmental Sciences and Education, the Center for Sustainable Environments, the Center for Excellence in Education, the College of Ecosystem Science and Management, the College of Arts and Sciences and the College of Engineering and Technology.

A formal workshop to discuss research findings of the funded projects will be held next spring.



## Forest Restoration continued

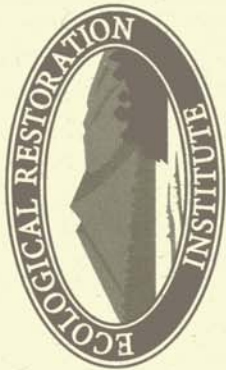
fires. That won't address the underlying problem of degraded forests. An extreme example of the cure being worse than the disease would be to decide to eliminate old growth and create regionwide clearcuts to catch a wildfire. That would stop crown fires but would not restore biological conditions. We'll still lose diversity." Covington urged conference participants to promote what they know, engage the community, implement multiple approaches, and continuously test and adapt restoration treatments.

"Today's wildfires are so extreme in their behavior and effects that critical habitat for threatened and endangered species is destroyed, watershed function is disrupted, and human habitat value is reduced for centuries. And such wildfires are a clear and present threat to human lives and property," he said. "To act now is to save the patient. To act now means a healthy, biologically diverse forest that is an asset, not a threat, to future generations."

*Putting the Pieces Together: Practicing Forest Ecosystem Restoration* was sponsored by the ERI.

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