

REGAINING LOST GROUND

ECOLOGICAL

RESTORATION

SUMMER 2002

NEWS

Arizona Governor Looks to Citizens to Protect Communities and Restore Forest Ecosystems

It was another warm, dry, spring day when Arizona Governor Jane Hull and Ecological Restoration Institute Director Wally Covington, Ph.D., took to the air over the crowded ponderosa pine forests.

"We took off at Show Low and flew over all of the development on the Mogollon Rim and Flagstaff," says Covington. "We saw, up close, new and existing homes located in very dense forests. We flew over some of the fires that had burned during the last 15 years and observed the lack of regrowth. If one of those fires had been four-and-a-half miles one way or the other, we would have burned a lot of homes."

Burning a lot of homes has been a continuous concern of leaders in the Southwest since the devastating wildfire seasons of 1996 and 2000, and particularly in the wake of one of the region's driest winters on record. But as Covington points out, "What we have is not just a structural fire problem but a greater ecosystem health problem. Instead of just focusing on houses burning up we need to focus on

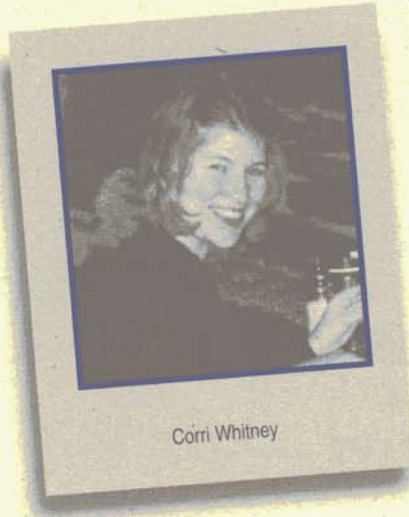


At an April gathering in Kachina Village, Governor Jane Hull, shown here with ERI Director Dr. Wally Covington, left, and State Land Commissioner Mike Anable, announced the release of \$1 million to the state Fire Suppression Revolving Fund for pre-positioning fire personnel and resources.

see "Forest Ecosystems"



Remote Kaibab Paiute Villages Serve as Training Ground



For NAU's 2002 Outstanding Elementary Education Major Corri Whitney, trips to the remote Kaibab Paiute Reservation on the Arizona/Utah border have strengthened her interest in teaching and underscored her quest to bring meaningful science lessons to the classroom.

Whitney is one of ten students working with Center for Excellence in Education Associate Professor Sally Oran on a research project that

intertwines teaching with ecological restoration. The project is called KEEN, Kaibab Environmental Education Network, and the objective is to bring ERI and education students together to build an interdisciplinary and collaborative network for ecological restoration education in a culturally complex environment.

During the two-year project, the students will have made ten trips to the reservation—each lasting three to four days—to engage the rural villages in environmental education and restoration activities such as data collection, community meetings, monitoring research plots and ecology lessons for elementary students.

Oran says the major thrust of the project is to train ERI students to teach restoration issues to diverse audiences and to train education students how to include ecological restoration in the classroom curriculum wherever the school is located. "If they can't do their science lessons out the door of their classroom, they can't do science, as far as I'm concerned."

Whitney describes the juniper/shrub landscape of the Kaibab Paiute Reservation as a peaceful place that brings out nature. "It's breathtaking and so beautiful in such a different way than Flagstaff, and the people are just amazing. My hope is to gain the trust of the tribe, learn from the ERI students and build a curriculum that is appropriate and helpful for the teachers and students of Fredonia."

The KEEN project is funded through an ERI research grant.





Living with Fire: 25 Years After the Mount Elden Burn

Newspaper reports of the time said it glowed "like a terrible Christmas tree." Yet, 25 years later, the devastation from the Mount Elden Radio Fire is still glaringly evident.


"Mount Elden is one of those mountains that took thousands of years to establish," says Coconino National Forest Peaks and Mormon Lake Environmental Analysis Coordinator Alvin Brown. "It will take hundreds to revegetate, thousands to return it to the condition that it was."

A special newspaper tabloid, *Living With Fire: 25 Years After the Mount Elden Burn*, features stories about the blaze itself, the soil damage and loss of wildlife habitat.


"After a fire of that intensity and the erosion that follows, you're almost going back to a primary succession state, like you'd have after a volcanic eruption or a landslide, where you've lost the biological legacy," says Rocky Mountain Research Station Soil Scientist Steve Overby.

Living with Fire also reveals the devastating effects of unnatural crown fires in the ponderosa pine forest and restoration efforts under way to regain forest health and diminish the chances for these large, catastrophic events. In addition, the tabloid offers tips for protecting your family, home and property from wildfire.

The ERI, the Coconino National Forest, the Ponderosa Fire Advisory Council, the Flagstaff Fire Department, the School of Forestry and other members of the Greater Flagstaff Forests Partnership urge mountain communities to take steps now to prepare for what they fear will be intense fire seasons for years to come.

Living with Fire can be picked up at Flagstaff fire stations, the ERI and Forest Service offices. 

◀ On June 17, 1977, a runaway teen's campfire turned into a tremendous blaze that forever changed Flagstaff's backdrop. Today, 25 years later, hikers walk through the skeletal remains of what was once a thick forest.



The Fruits of Restoration

When ERI Research Specialist David Huffman first began looking for buckbrush (*Ceanothus fendleri*) in the ponderosa pine forest around Flagstaff, what he found were four-inch sprigs, hardly what you'd expect for a plant nicknamed mountain lilac.

"Many appeared to be old plants, perhaps older than 30 years. They had very short stems because of heavy browsing. They looked as if they might have been bigger plants at one time and were dying back."

The shrubs Huffman found were growing in a forest thick with small ponderosa pine trees. He wondered what effects restoration treatments might have on buckbrush and how the plants would do in a more open forest.

To take the pressure off the plants from herbivores such as deer and elk, Huffman constructed cages around

buckbrush shrubs in Fort Valley experimental plots that had been thinned. He also established plots around buckbrush in untreated areas.



Within two years, the plants in the cages didn't just grow, they spread out, they flowered, they produced seeds. "I'd never seen flowers on the plants in the experimental plots before," he says.

Seed production is an important part of the plant's regeneration process. Although existing buckbrush plants do resprout after low-intensity fire, seeds lie dormant in the soil until heated. After a fire, the seeds germinate and a new generation of the plant emerges. "This process demonstrates the importance of low-intensity fire in the plant's life cycle."

Thinning in the treated areas allowed buckbrush plants to produce more new growth than plants in the untreated forest. But, even in this improved environment, browsing of the plants limited flowering and seed production.

The flowering plants protected from deer and elk produced seeds, but they also did something else. They began attracting pollinating insects, and insects that feed on the flowers, and insects that eat those insects.

Huffman observed how the seeds were important to the life cycle of a tiny wasp. The adult wasp lays an egg in an immature seed, the wasp larva eats the seed embryo, then after developing into an adult, the wasp chews its way out of the seed and flies away to begin the cycle all over again. "This wasp hadn't been reported to exist in Arizona before, nor had it been reported to use this plant."

see "Fruits"

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.



Forest Ecosystems continued

entire ecosystems, and forest restoration treatments should be the fundamental approach.”

Covington heads up the Governor's Forest Health/Fire Plan Advisory Committee created as a result of the National Fire Plan to help guide and implement strategies and actions to solve the wildfire problem. The committee has taken on the unique responsibility of assuring that Arizona residents have the opportunity to be involved in how federal government dollars are spent and how the National Fire Plan is coordinated to reduce wildfire and restore forest health to the ailing ponderosa pine ecosystems of their state.

In mid-May, as wildfires delivered an early entrance and raged in New Mexico and Arizona tearing through thousands of unnaturally dense acres and, yes, homes in the woods, Covington and other committee members delivered to Governor Hull the Southwest Regional Plan for Reducing Unwanted Wildfire Risk and Restoring Ecosystems.

“It's time for a healthy dose of preventative medicine. We need to thin out trees, protect old growth trees and reintroduce fire into the ecosystem,” says Covington.

The committee has identified two major goals for wildfire risk reduction. The first is to reduce risk to communities, noting that communities and forests are inextricably linked. The second is to manage for sustainable forest and wildland ecosystems.

Topping the list of how to achieve these goals is the recommendation to reduce the wildfire threat to Arizona communities identified as “at risk.” There are 90 of them.

The committee also recommends more cost-share incentives to encourage private property owners to treat their property, and community plans to treat the wildland/urban interface. 🌲

Grand Canyon Forests Festival Brings Hands-on Ecology Lessons to Teachers

The Grand Canyon Forests Festival 2002 offered eight days of activities designed to reconnect people with the forest. ERI K-12 Instructional Specialist Julie Blake coordinated the Fire Ecology Educator Workshop “FireWorks!” as a festival event to help teachers incorporate fire ecology lessons into their curriculum.



“The most rewarding part of the workshop was getting the teachers excited about hands-on forest ecology projects that they could do with their students,” says Blake.

Brenda Strohmeier, research specialist with the Rocky Mountain Research Station and Karen Malis-Clark, public affairs specialist with the Coconino National Forest helped plan and conduct the workshop. 🌲



ERI Offers New Publications About Uinkarets

The ERI has published three new publications that present findings from its research on ponderosa pine forest restoration in the Southwest. The publications are available to land managers and the general public.

Restoring the Uinkaret Mountains is a brochure that profiles the large-scale forest restoration project under way in the Grand Canyon-Parashant National Monument on the Arizona Strip.

Restoring the Uinkaret Mountains: Operational Lessons and Adaptive Management Practices and Understory Plant Community Restoration in the Uinkaret Mountains, Arizona are the first two publications in the ERI's "Working Papers in Southwestern Ponderosa Pine Forest Restoration" series. The Working Papers series provides land managers with practical research results that can be used in the planning and implementing of restoration projects. For a copy, call the ERI at (928) 523-7182.

Fruits continued

Huffman says studying plants such as buckbrush can teach us a lot about the ecosystem as a whole. "It's likely that what's going on with this plant is similar to responses and interactions of other plants in the forest. The ponderosa pine ecosystem is complex and there's a lot of research that needs to be done."

This summer marks Huffman's fourth field season studying buckbrush.



David Huffman studies the effect of restoration treatments, such as prescribed burning, on buckbrush in Fort Valley.

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Ecological Restoration Institute
PO Box 15017
Flagstaff AZ 86011-5017

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