



volume 3 number 6

# the laboratory connection

your community's link to information, opportunities, and people at Los Alamos National Laboratory

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word from the Community Relations Office

## Many lives in Los Alamos

were dramatically altered by the Cerro Grande Wildfire of 2000. Not only were homes and other property lost during the disaster, but our sense of security was compromised in ways we are only now beginning to comprehend.

But like the Chinese symbol that means both danger and opportunity, we have managed to turn a catastrophe into the basis for a safer, more secure future. A renewed focus on taking personal responsibility has replaced the earlier view that others, particularly government officials and bureaucracies, will intervene to keep us safe. Plans have been formulated by many organizations and families outlining strategies for prevention of calamities and steps to follow when disaster strikes.

This year, conditions are even drier than before the Cerro Grande fire. But although the danger is great, both the Lab and the community are more aware and better prepared to deal with what nature has in store. Lab personnel have carefully examined their facilities' vulnerabilities and designed controls to deal with them. Employees have become more vigilant about possible hazards and are familiar with their safety plans and procedures. Individuals, families and businesses in Los Alamos have become well versed in evacuation checklists and protocol.

To assist in the effort to prepare for the worst, this issue of Lab Connection contains useful information and tips for dealing with the threat.

## Extreme Fire Conditions Lead to Restrictions and Cooperation

On June 3, when the Laboratory issued a "Red Flag – Stop Work in Restricted Areas" policy, it was the latest warning in an already long list. The Laboratory, Los Alamos county, and the U.S. Forest and National Park services are working together to reduce the potential for wild fire in Los Alamos and all the surrounding communities.

The new policy will also reduce the potential for Laboratory employees who work in the field being trapped in forested areas during a fire.

The extreme wild land fire conditions have caused the Forest and Park Services to close access to 43 trails, waterways, state parks, and other forested recreational areas in the Los Alamos region. And, until it rains, conditions aren't likely to improve any time soon.

A couple of Interagency Wildfire Management Team members summed the situation up best by saying, "The bad news is that it's the worst fire season we've ever seen. It's even drier than the season that led to the Cerro Grande fire. The good news is that we're really well prepared."

continued on page 2



An American Eurocopter A-Star leaves the helipad at Technical Area 49 in April. The U.S. Forest Service has prestaged the helicopter on Laboratory property for the summer to support potential fire-suppression missions. Two different helicopters will rotate flying duties in and out of TA-49. Both aircraft have similar red and white paint schemes. No overflights of Laboratory property have been authorized.



A familiar blockade and sign notifying the public of the fire danger and closed trails.

Extreme Fire  
continued from page 1

Team members also said that all of the local agencies and the Laboratory are working together to alleviate the fire risk.

“We’re really working very hard and people need to continue to be very cautious and continue to take the fire restrictions very seriously and not become complacent,” team member Randy Balice said. Balice is also a Laboratory ecologist with a PhD in Forestry Wildlife and Range Sciences.

Access to the Laboratory’s undeveloped, wild land areas for activities such as walking, hiking, jogging, biking and similar recreational activities is prohibited in parallel with the federal restrictions. Closure of the Laboratory’s undeveloped, wild land areas to the south and west of State Route 4, enacted on May 13, will remain in effect parallel to the federal restrictions.

In Los Alamos County, recreation areas are open to day use that includes activities like hiking, walking, jogging, and bicycling, but open fires including all campfires and other open fires used for cooking are prohibited. Also, liquefied gas grill and charcoal fires are prohibited within Los Alamos County except at private residences. Cooking is also permitted on charcoal grills located on concrete or similar surfaces at regularly maintained county parks like Urban and Overlook Parks.

So far, water restrictions, like those imposed in Santa Fe County, have not been enacted in Los Alamos, Rio Arriba, or Sandoval counties. However, local emergency managers are urging continued caution and common sense in water use.

In Los Alamos County, forested areas to the west of 48<sup>th</sup> street by the golf course are also being thinned. All

trees on county land within 50 feet of private property will be removed. Subsequently, inside the boundary between county land and Forest Service land, all trees will be removed except wildlife trees. Plans for later this summer include the Volunteer Task Force planting 40,000 seedlings in this treated area.

The Laboratory has collected information from a variety of sources including lessons learned exercises and has taken the following actions:

- Completed fire analysis and mitigation action plans;
- Developed procedures for assessing and monitoring potential impacts to its floodplains and wetlands;
- Completed environmental assessments for and development of a Wildfire Hazard Reduction Program; and
- Completed thinning out 1,900 acres of forested land to fuel break density and have cleared much of it to defensible space.
- Used a system of permanent plots to monitor forests and woodlands for fuels and wildfire hazards.
- Developed and tested the Wildfire Behavior Modeling System and installed it in the Laboratory’s Emergency Operations Center (EOC).

Steve Mee, the Laboratory’s Cerro Grande Rehabilitation Project (CGRP) Leader, said that the Laboratory has activated an additional water truck as a precautionary measure. Also, forested areas that have been thinned during the day are scanned for potential ignitions at the end of each shift.



Extreme Fire  
continued from page 2

Mee has also made arrangements for a local wood products company to obtain some of the small diameter timber produced during the thinning operations.

“The Cerro Grande Rehabilitation Project goal is to thin 10,000 acres of forest area by the end of September of 2003. We’ve taken a proactive approach to do this work safely and to involve the northern New Mexico community. Currently, we’re at 1,900 acres,” Mee said.

Several small businesses have been hired to help with the rehabilitation effort including Allied Tree Service and the TC Company from Espanola, Jemez Pueblo, and the Hurd Brothers from Chama.

“We’ve had a great deal of assistance from many agencies and organizations, including the Los Alamos Fire Department, the U.S. Forest Service, the National Park Service, our own Laboratory Emergency Management and Response group, and facility managers throughout the Laboratory. Our contractors from the Pueblos and northern New Mexico have really teamed with us and gotten the work done. Together we’re actively reducing the risk posed by these extreme fire conditions,” Mee said.

Mike Shepard, Director of Community Relations/Property Management for Johnson Controls Northern New Mexico, and Mee have coordinated the sale of the wood, at a reduced price, to several small wood mills in northern New Mexico. Any interested small mill that would like to participate in this program should contact the CGRP project office at 665-8024.

Logs that are smaller than 8 inches in diameter are generally being split into firewood, which is free to the public on a weekly basis. The CGRP has contracted Jemez Pueblo to generate the split firewood. To add your name to the distribution list for free firewood, send an e-mail to [firewood@lanl.gov](mailto:firewood@lanl.gov). There are several hundred names on the list, so it may be a few weeks or months before you are contacted.

Balice, a Laboratory ecologist, and Laboratory Geographic Information Systems expert Steve Koch developed and tested a wildfire behavior modeling system based on the FARSITE system developed by the U.S. Forest Service. Balice and Koch have collected field data since 1997 and have used the data to parameterize the wildfire behavior model. The model, recently installed in the Laboratory’s EOC, is one of the many tools used to evaluate wildfire hazards by assessing forest fuel levels and assessing the effectiveness of ongoing thinning activities. In the future, the model will be continuously updated as the forests and woodlands at the Laboratory continue to recover from the Cerro Grande Fire.

Although Balice and Koch’s wildfire behavior modeling system is not a panacea, it fits into the preparedness toolkit by acting as a real-time predictor and will be used to help predict a fire’s direction, distance and speed.

Balice confirmed the statement that everyone is working very well together saying that this is a collaborative project with emergency managers from Bandelier National Monument, Los Alamos

County, the Valles Caldera National Preserve, the Forest Service’s Española Ranger Station, and the Laboratory.

“My project funding comes from the Laboratory’s Biological Resources Management Program, the CGRP Office, and the U.S. Forest Service Rocky Mountain Research Station in Flagstaff, Arizona,” he said. “It’s a nice example of the different agencies coming together toward a common goal. The foundation is laid for managing the risk and managing any future emergencies.”

Lastly, the Laboratory is progressing on construction of the new joint Lab/County EOC, which should be completed in September of 2003.

## What Can You Do?

- Use common sense and don’t become complacent!
- Follow all fire restrictions and stress their importance to your children.
- Create a safety zone or firebreak around your home.
- Sweep the gutters, eaves, and roof of your home regularly.
- Stack firewood well away from your home and any outbuildings.
- Do not use outdoor incinerators for household trash.
- Install smoke detectors.
- Plan and review safety exits from your home in case of a fire.
- Don’t make assumptions. If you have questions, use the telephone numbers provided in this issue to contact the appropriate people.
- Follow our tips to create an evacuation plan and an evacuation kit.

## Teaching New Generations About Renewal After Fire

***“An early morning walk along trails once familiar. Trees, dark shadows before the breaking dawn. They stand like ghostly sentinels to what was and will be. The sun rises, sprinkling early morning light on blackened landscapes. Dark ash, sunlit sprouts, emerald grass, flowers adding color. Breathless awe and wonder. For out of the blackened landscape new life arises.”***

**From “Out of the Ashes, A Story of Natural Recovery” by Teralene Foxx**

Fire Ecologist Teralene “Terry” Foxx recently retired from the Laboratory but still does special projects for the Ecology group in the Risk Reduction and Environmental Stewardship Division. She has authored several books about the environment and nature. One of her books about fire, “Out of the Ashes, A Story of Natural Recovery,” won an Award for Excellence in Technical Art and an Award for Excellence in Technical Publications from the Society for Technical Communication in 2001.

“I really like working with children because they’re our future,” she said. “I want to get them enthusiastic about the environment because they will be and are the keepers of the environment and lots of times they have misconceptions about organisms like bats and processes like fire.”

Foxx completed a four-year apprenticeship with Robert Bella Wilhelm, a master storyteller from Maryland.

“I had to complete course work and a master’s thesis style project,” she said. “Storytelling is a fantastic way to get kids to listen. I think one of the things we’re lacking in our electronic world is the ability to listen. If we don’t listen to the environment, we become abusers rather than conservers. Listening fosters caring, whether it is for a person or the earth.”



Terry Foxx holding up a proof of her new children’s book “The Forest Log.” Also pictured are a children’s book “The Forest and the Fire,” and her award-winning “Out of the Ashes.”

In the last couple of years, Foxx has worked with students at Piñon, Chamisa, Barranca Mesa, and Mountain Elementary Schools, as well as the Los Alamos Middle School. When she was a full-time employee, she participated in outreach programs to northern New Mexico schools, including Dulce, Chama, Tierra Amarilla, and the Santa Fe Indian School. At Pojoaque Elementary School, she presented a program on storytelling and literacy. She uses puppets and other storytelling tools to get the children involved.

Foxx uses storytelling not only to entertain, but also to help kids understand that they are part of the environment. Every organism has its place, and without it, the ecosystem starts to change.

“Storytelling and science have a lot in common because they both begin with observations. Combining the two, we can teach about our world and show how all is interconnected,” she explained.

“Some cultures call fire ‘Grandfather,’ which is a name of respect,” she said. “If we better understand fire and recovery, I believe that

we will better understand a healthy relationship with fire. But most of all, we will be amazed at how nature has adapted to fire, which is both friend and foe.”

Foxx has received stacks of letters from students thanking her for visiting their schools. She has received praise from others as well.

“We’ve worked together on efforts that have been focused on cross-curricular elementary and middle school field sessions combining public service with hands-on forest ecology and fire history,” said John T. Hogan, a member of the community-based Volunteer Task Force. “Terry’s sessions always explore the human experience at the wildland/urban interface, balancing the science with art, guided observation, and journal writing. She is firmly committed to the idea that a better-informed, more engaged public will facilitate better understanding and management of our forest ecosystems — and that process begins with the children.”

Foxx has been invited to speak at the National Conference of the American Psychotherapy Association in Florida in October. She’ll talk about people’s perception of fire from a personal experience and recovery of the environment.

“When fire happens, there’s a tremendous sense of loss. But if you look beyond the burned trees, you’ll see new growth emerging from the blackened soil,” Foxx explained. “I have a deep sense of awe about our world and I want to get kids excited about it. I was lucky to be able to work as a Lab ecologist and participate in the Laboratory outreach programs. As an ecologist, I believe it is important to share my knowledge and love of the environment, especially with children.”

## Preparing for Wildfire

- Assemble an evacuation supplies kit (See sidebar "Evacuation Kit Supplies".)
- Ensure that all insurance policies are current and provide adequate coverage.
- Use a camcorder or camera to inventory your household items (collect receipts for them too) to speed settling insurance claims due to burglary or disaster.
- Collect mortgage or lease papers, insurance policies, financial papers, marriage licenses, birth certificates, passports, wills, and prescriptions in a separate envelope or lock box for easy transport in case of evacuation.
- Ensure that essential medical equipment (O<sub>2</sub> bottles, walkers, and wheelchairs) and medications are ready to transport in case of evacuation.
- Collect irreplaceable items and mementos and have them ready to transport.
- Arrange in advance to stay in an alternate location with friends or relatives outside the immediate area.
- If your pets cannot join you in your alternate location, arrange to have them boarded and taken care of elsewhere.
- Ensure that your car is well maintained and that your fuel tank is full. You may wish to park on the street to allow for quick exit or to back your car into your garage.
- Plan a location with your family to reunite if disaster occurs while everyone is at work or at school. Ask a friend or relative outside the immediate area to serve as a contact with whom all family members can call to leave messages and receive information about other family members. Ensure that all family members know the contact's number.
- Make sure your home is locked and secured before you leave.
- Don't turn off gas or electricity to your home — if necessary for public safety, the Utilities Department will turn them off.
- Take all pets with you!
- Check in with family members and your employer when you've arrived at your destination to let them know that you are OK.
- Listen to local media or check the Laboratory and County websites to see when it is safe to return and for telephone numbers. In case of a major incident, a Public Information Center that you can contact by telephone to get current information, will be activated.

*For information on emergency preparedness and evacuation planning, call the local Red Cross chapter at 662-7165 or the Office of Emergency Management at 662-8285.*

## In Business

The University of California is reviewing its health-care programs — both in California and for the Lab — in light of the relentless increase in health-care costs happening nationwide. As part of its review process, Lab and UC staff has initiated an information-gathering process that will be ongoing as events unfold.

UC and Lab officials attended the Los Alamos County Coordinating Meeting and the Community Health Care Roundtable in May to present information on the current financial pressures on health care plans nationwide. Information about UC-Lab plans to solicit input from all affected parties before making changes to LANL health care plans was also presented.

The UC and Lab officials also had an informal meeting with community leaders from Española and Rio Arriba and Los Alamos counties. Focus groups for

employees, retirees, providers, and community representatives took place in late May.

According to information gathered by benefits specialists from UC and the Lab, health-care costs and premiums are increasing at double-digit rates nationally. In response, UC is preparing for changes in plan options and shared costs to the benefit programs it offers at its campuses and laboratories.

Changes to the LANL health care plan are expected to take effect in 2003 and, to a greater degree, in 2004.

Bob Van Ness, assistant vice president for Laboratory administration at the UC Office of the President, and Rich Marquez, the Lab's associate director for administration, conducted the community meetings. They said the intent of the meetings was to share information with local and regional community members about the financial pressures

on health-care plans and discuss the UC-Lab effort to manage upcoming changes.

"UC is committed to providing a health-care program that provides employees, their dependents, and retirees cost-effective, accessible, and quality health care," Van Ness said. "We are also very mindful of potential effects of any changes we implement on providers and communities. We intend to share information and solicit comment and cooperation so there is clear understanding all around of how we proceed."

Marquez added, "We recognize that with the current financial pressures on health-care plans there will undoubtedly be changes ahead. It is imperative that the UC, the Lab, our employees and retirees, and other affected parties work together to identify workable solutions. There will be impacts, and the solutions we develop will likely require that all parties share some of the burden."

## Citizens' Advisory Board Keeps an Eye on Lab Cleanup Dollars

Throughout the Department of Energy (DOE) complex, Citizens' Advisory Boards (CABs) provide site-specific public input on environmental management issues, particularly cleanup proposals, alternatives, and procedures. The northern New Mexico CAB also tries to wed good science to good public policy.

The group meets bimonthly to receive community input in areas including waste management, environmental restoration, and groundwater surveillance. During the past year, the 18-member board has made 10 recommendations to DOE on issues including environmental covenants, perchlorate management, environmental management education and outreach, waste transportation issues, and groundwater quality. Ted Taylor serves as DOE liaison to the group.

"Groundwater quality is the number-one issue facing DOE facilities nationwide and these issues are a good case in point," Taylor said. "Science and public policy don't always connect. Our science is good enough to detect certain chemicals in groundwater, but policy hasn't always determined what levels are acceptable. The board also would like the Lab to protect human health and the environment in a cost-effective way. We have suggested that the Lab use seismic studies to locate and recommend the best number of groundwater wells. If you can get the information you need with five, why drill ten? We'd like to see the money go as far as it can stretch."

Four board members recently attended a groundwater workshop at the Savannah River DOE facility. In the area of education and outreach, the CAB has recommended better coordination, additional internal guidance, and adequate financial support for existing programs.

Representatives from the board recently visited the Waste Isolation Pilot Project (WIPP) in Carlsbad to get a sense of the challenges involved in expediting the shipment of transuranic radioactive wastes from the Lab.

"It's good to see that people are thinking smart about these projects," said Richard Gale, chairman of the CAB's Waste Management Committee. "The accelerated shipment project is exactly the kind of thing our committee has been looking for."

The CAB has existed in its present form since late 1995, when it was reorganized and solicited new members. Members are selected through a formal process following national guidelines. Twenty-one members are authorized, and 18 very diverse members presently serve on the CAB. They include an apple grower from Dixon, a state employee from Albuquerque, a retailer from Santa Fe, a medical doctor from Las Vegas, and other community members from Taos to Cochiti Lake. Only a few are Lab employees.

For more information about this group and its extended community interests, contact the CAB office in Santa Fe at 989-1662 or visit the Web site at [www.nnmcab.org](http://www.nnmcab.org).

### Evacuation Kit Supplies

Flashlight and radio with extra batteries

First aid kit

Medications with copies of prescriptions

Extra eyeglasses and contact lenses

Bottled water (at least 1 gallon per person)

Supply of nonperishable snacks

Special items for infants and seniors

Change of clothing for each family member

Sleeping bag or bedroll and pillow for each family member

Checkbook, credit cards, and cash

Map or road atlas of the area

### Useful Phone Numbers

Los Alamos Fire Department Administration  
505-662-8301

U.S. Forest Service  
505-667-5120

American Red Cross  
505-662-7165

Office of Emergency Management  
505-662-8285

Los Alamos Police Department  
Nonemergency  
505-662-8222

KRSN AM 1490  
505-661-2490

LANL Community Relations Office  
505-665-4400  
1-800-508-4400

LANL Emergency Management and Response  
505-667-6211

## Wetlands Can be a Classroom for Water Quality Studies

Behind the fire station next to the Los Alamos Research Park lies a small wetland pond with lush cattail growth, teeming with tiger salamanders and chorus frog tadpoles. A partnership between the Lab and Los Alamos County has resulted in a rehabilitation and enhancement plan for the pond that will provide area teachers the opportunity to teach students about water quality issues and the ability of wetlands plants and soils to eliminate any excess nutrients being deposited.

On Earth Day, 28 volunteers from the Lab and the community created a new segment of trail tying the pond to the county trails network so users could stop and enjoy this unique habitat. The volunteers also began the process of scooping out the "delta" in the pond, building a deck structure for a viewing platform and planting native species around the pond. In May, volunteers spent a Saturday planting 2,325 wetland plants — more than 20 different species — provided by a Tijeras company. Plantings included marsh aster, water sedge, Nebraska sedge, tufted hair grass, creeping spike rush, marsh sunflower, inland rush, rush species, Torry's rush, marsh buttercup, arrowhead-duck or potato, three square rush, alkali bulrush, small fruited bulrush, cloaked bulrush, common three-square, softstem bulrush, New Mexico cherkermallow, broadfruited

burreed and riparian Vervain.

Jeff Heikoop, a Lab biogeochemist, has an interest in nutrient reduction in wetlands and has been a key player in the project.

"Wetlands have an amazing ability to reduce water pollution," he said. "Constructed and natural wetlands are utilized around the world to treat wastewater from homes, farms, factories, and small communities."

While studying the Lab's Sandia Canyon wetlands, Heikoop observed that nitrate discharged from the Lab's sewage treatment plant was nearly eliminated by the wetland plants.

"Nitrogen is taken up by the cattails as the water flows through the wetland, and is eliminated as nitrogen gas in the oxygen-depleted sediments," he said. Heikoop, with the help of summer student Natalie Strub, has been collecting cattail clippings from the pond at the Research Park to relate their isotopic composition to the nutrient sources affecting the pond and to processes responsible for removing nutrients from the water. A technique he has devised will also allow him to look at organic material preserved in the sediments of the pond to reconstruct the history of nutrient input through time.



Jeff Heikoop and Natalie Strub collect cattail clippings.

The origins of the pond are uncertain. Some have suggested that it was a stock pond associated with the Duran homestead that was once nearby. Others feel it was more likely associated with the construction of the fire station. Heikoop has begun to address the age of the wetlands using past aerial photos and coring and dating of pond sediments. Some available photographs suggest that there has been a pond-like feature there since at least 1935. The team will examine the sediments immediately above the Bandelier tuff in the core.

"If the sediments contain exotic materials, such as granite or quartzite that are not naturally found on the Pajarito Plateau, then a post-Laboratory age for the sediments is suggested, because these materials were used during construction of the Lab," Heikoop said. "We will also analyze wood fragments, found at the very bottom of the core, by carbon-14. If these fragments do not contain "bomb" carbon resulting from atmospheric testing in the 1950s, then the oldest core material is likely pre-Laboratory."

The project will be completed by next fall, and the results will be incorporated into an interpretive display.



Laura Swartz, from the Wildlife Center in Espanola, holds Inshallah, a 12-year-old red-tailed hawk. The Wildlife Center was participating in the annual "Community Safety and Security Day" event. Swartz explained that when Inshallah, puffs her feathers out it's the equivalent of brushing her hair for the camera.

## GIS Exhibit at the Bradbury Museum



Nine-year-old Matthias Calis tries out the touch screen on the Cerro Grande Geographic Information System kiosk exhibit at the Bradbury Science Museum. Matthias and his family were visiting Los Alamos from Holland.

The Bradbury Science Museum has installed a new exhibit that shows how Geographic Information Systems (GIS) are being used to understand the May 2000 Cerro Grande Fire.

The new exhibit features a kiosk with a computer touch screen that allows a visitor to view Cerro Grande Fire information and showcases a new GIS that was created last year by researchers in the GISLab, a Laboratory cartography facility. The Cerro Grande GIS was created with funding from the Cerro Grande Rehabilitation Project Office and provides a clearinghouse where important data about the fire can be stored and shared. The GIS includes visual information such as changes to vegetation and watersheds that

occurred after the fire. Emergency managers and forest managers could use this information for long-term decision-making processes.

Also, the public has shown an active interest in the long-term effects of the fire during the past two years. The Cerro Grande GIS will be updated continually as new information becomes available. The Cerro Grande GIS has a storage potential of 2.3 trillion bytes of information. The Cerro Grande GIS and its associated information resources can be found at <http://www.cgrp-gis.lanl.gov> online.

### Inside

**Extreme Fire Conditions Lead to Restrictions and Cooperation**

**Teaching New Generations About Renewal After Fire**

**Preparing for Wild Fire**

**In Business**

**Evacuation Kit Supplies**

**Useful Phone Numbers**

**Citizens' Advisory Board Keeps an Eye on Lab Cleanup Dollars**

**Wetlands Can Be a Classroom for Water Quality Studies**

**GIS Exhibit at the Bradbury Museum**

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The staff can be reached by e-mail at [community@lanl.gov](mailto:community@lanl.gov), by telephone at 1-800-508-4400, by fax at (505) 665-4411, or by Laboratory interoffice mail at Mail Stop A117.

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