

LOS ALAMOS NATIONAL LABORATORY
CURRENTS

JULY 2009

Employees take steps to ensure the stability of watersheds



LANL Star passionate about the environment

Scientists help military deal with homemade explosives

Protecting the Mexican spotted owl



Leading the way in environmental management

Since its creation in 1943, Los Alamos National Laboratory has made essential contributions to the world of science in physics, chemistry, energy research, and other fields.

Now, we're leading the way in environmental management, monitoring, and remediation.

We've learned a lot about protecting the environment since the days of the Manhattan Project and the Cold War. In fact, we've reduced our generation of hazardous waste by 95 percent and low-level radioactive waste by 64 percent since 1993.

In 2009, we won eight NNSA national pollution prevention awards, including two best-in-class awards. We practice what we preach.

The Lab has multiple safety nets in place, including monitoring of air, soil, groundwater, stormwater, and wildlife. We've drilled 20 groundwater monitoring wells since the summer of 2008.

We're now one of the best-monitored Department of Energy sites, but the challenge of cleaning up legacy waste continues.

At one time, we were tracking more than 2,100 sites where contamination was suspected or confirmed. We've reduced that number to about 860.

Work continues at our material disposal areas—including the Lab's first designated landfill, Material Disposal Area B on DP Road, used from 1944 through 1948. There may be an entire truck from the Trinity Site buried there. We'll remove all of that material and make the land available for transfer to Los Alamos County.

At Material Disposal Area G in Technical Area 54, we've safely shipped more than 1,300 containers to the Waste Isolation Pilot Plant in fiscal year 2009 alone, including the Lab's first shipment of remote-handled transuranic waste.

We've planted 10,000 willow trees in Pueblo Canyon—helping a thriving wetlands, preventing erosion, and dramatically slowing the movement of sediments. And at Technical Area 21, plans are in place to demolish 168,000 square feet of unused Lab buildings and structures.

Our work is formalized in the *New Mexico Consent Order*. Signed in 2005 by New Mexico, DOE, and the Lab, the Consent Order is an agreement on environmental investigations and cleanup that must be completed by the end of 2015.

I hope you enjoy this edition of *Currents*, which profiles only a few of the hundreds of Lab scientists, engineers, and professionals dedicated to protecting people and the environment.

— **Michael Graham**, associate director for Environmental Programs



LeRoy N. Sanchez

About the cover: Steve Veenis (left) and Danny Katzman stand on gabions that are part of a structure designed to trap sediment in the lower portion of Los Alamos Canyon. See page 4 for story. Photo by Sandra Valdez

Ethridge to lead LANS office

Jerry Ethridge is the new Los Alamos National Security, LLC executive staff director.



The LANS, LLC office supports the Laboratory director and the Board of Governors in executing the Laboratory governance

model required by the LANS prime contract with NNSA. In his new role, Ethridge works with the LANS parent organizations to fulfill the commitment to support the leadership team in the management of the Laboratory.

Ethridge joined the Lab in 2006. As associate director for the former Infrastructure and Site Services Directorate, he managed operations and maintenance of all non-nuclear facilities and infrastructure at Los Alamos.

Ethridge holds a doctorate in ceramic engineering and a master's degree in nuclear engineering, both from the University of Washington, as well as a bachelor's degree in mechanical and nuclear engineering from the University of California, Berkeley.

Buckley inducted into school district Hall of Fame

Jocelyn Buckley of Water Quality and RCRA, a 1984 graduate of Petal High School in Petal, Mississippi, is the first African-American woman to be inducted into the Petal School District Academic Hall of Fame. Buckley is a certified hazardous materials manager and certified environmental, safety, and health trainer. She has a master's degree in environmental engineering from Howard University in Washington, D.C. and bachelor's degrees in

mathematics from William Carey College in Hattiesburg, Mississippi, and chemical engineering from Howard University.

After having worked in environmental programs at various National Nuclear Security Administration and Department of Energy sites, Buckley provides environmental compliance support to the Lab's Water Stewardship Program. She started her environmental career when she interned at the National Renewable Energy Laboratory in Golden, Colorado, as a recipient of the DOE-sponsored Environmental Management and Career Opportunities for Minorities Fellowship.

Four researchers named SIAM Fellows

Laboratory scientists James "Mac" Hyman, Alan Perelson, David Sharp, and Burt Wendroff are new Fellows of the Society for Industrial and Applied Mathematics (SIAM).

The Fellows program honors SIAM members who are recognized by their peers as having made outstanding contributions to fields served by SIAM.

Hyman of Applied Mathematics and Plasma Physics was recognized for his contributions to the numerical solution of partial differential equations and modeling of biological systems.

Perelson of Theoretical Biology and Biophysics was named a Fellow for his contributions to viral dynamics and other problems of mathematical biology.

Sharp of the Theory, Simulation, and Computation Directorate was recognized for his research in dynamical systems, turbulence theory, and biology.

Wendroff of Applied Mathematics and Plasma Physics was named a Fellow for his contributions to the numerical solution of partial differential equations.

Miller nominated as DOE Assistant Secretary

Former Laboratory researcher and administrator Warren "Pete" Miller was nominated by President Obama to become director of the Office of Civilian Radioactive Waste Management for the Department of Energy.

In this post, Miller would be responsible for DOE's nuclear technology research and development, management of the department's nuclear technology infrastructure, and support to nuclear education in the United States.

Miller graduated from the U.S. Military Academy at West Point in 1964 and served in Vietnam. He earned a doctorate in nuclear engineering from Northwestern University in 1972 and worked at the Lab from 1974 to 2001. He is a Fellow of the American Nuclear Society and was elected to the National Academy of Engineering in 1996.

Tom Harper receives cyber security award

Chief Information Officer Tom Harper received the Department of Energy's highest cyber security honor. The Charlene Douglass Memorial Award recognizes an individual's expertise, dedication, and significant contributions to information security. Recipients also are advocates for information security initiatives in their organizations, across DOE, and in other federal forums.

Harper developed a counterintelligence cyber program and established the Inquiry Management and Analysis Capability for DOE's Office of Counterintelligence. At the Lab, he manages an integrated risk-based information security program that protects the Laboratory's electronic information assets.

Lab employees restore and protect local watersheds

Laboratory Water Stewardship Program managers Danny Katzman and Steve Veenis know well the challenges posed by stormwater runoff.

Nine years after the Cerro Grande fire destroyed 232 homes in Los Alamos and burned about 48,000 acres of Los Alamos, San Ildefonso Pueblo, and Santa Clara Pueblo land, the Laboratory, together with other organizations and volunteer groups, is still mitigating its effects on local watersheds.

In its wake, the fire left scorched landscapes and damaged watersheds. Hillside erosion spiked as precipitation from summer storms ran off the burned areas, instead of soaking into the ground. Water was able to run off and generate flash floods because the thick organic deposits on the forest floor that previously had absorbed the rainfall had burned and were washed away, Katzman said.

In the first two years after the fire, the Laboratory and others conducted assessments to evaluate the risk associated with potential exposure to contaminants contained in the runoff. The studies all showed that no unacceptable risk existed, said Katzman, who holds a master's degree in geology from the University of New Mexico and a bachelor's degree, also in geology, from the University of Texas, Austin.

Although the increased runoff caused by the fire has largely stopped, the Laboratory continues to take steps to ensure the long-term stability of the watersheds in Los Alamos and Pueblo canyons, to slow erosion, and to reduce the transport of contaminated sediment.

Under a program managed by Veenis, the Lab has put in place tried-and-tested "best management practices" (BMP), such as constructing basins to catch sediment, building berms to divert surface-water runoff,

Steve Veenis poses in front of the last in a series of log dams designed to reduce stormwater sediment transport from eroding the canyon wall in Los Alamos Canyon.

and strategically planting vegetation to help stabilize mesa slopes. "These BMPs help reduce sediment and contaminant transport from historical contaminant sites," said Veenis, who holds a bachelor's degree in geology from Fort Lewis College in Durango, Colorado.

The Laboratory also is constructing structures in Los Alamos and Pueblo canyons. These include "cross-vanes," or arrays of large boulders arranged across a channel in a V shape pointing upstream. Cross-vanes serve to reduce some of the energy in the runoff, thereby decreasing the potential for flood erosion, said Katzman, who is heading the project.



Sandra Valdez

Sandra Valdez



Danny Katzman stands among willows planted in Pueblo Canyon in 2008 by Lab employees to stabilize banks and trap sediment.

“The high nutrient content of the treatment plant’s effluent is ideal for vigorous growth of the willows.”

Further down in Pueblo Canyon, below the effluent release point for the Los Alamos County Wastewater Treatment Plant, Lab employees and volunteers have planted more than 10,000 willows to stabilize channel banks and slow flood water that spills over the banks, Veenis said. The willows, obtained from Los Lunas, New Mexico, and planted from 2006 to 2009, are growing quickly. “The high nutrient content of the treatment plant’s effluent is ideal for vigorous growth of the willows,” Veenis said.

Additional structures are planned, he said. A “wing” ditch will be dug this summer in Pueblo Canyon to reduce the energy of water flowing down the canyon. The ditch will divert floodwater out of the main channel and onto a now-dry floodplain.

In addition, two “grade-control” structures will be constructed this fall, one in lower Pueblo Canyon and the other in DP Canyon, Katzman said. By far the most significant endeavor from an engineering perspective, the Pueblo

Canyon structure will anchor the terminus of an existing wetland, thereby preventing erosion and reestablishing wetland that was eroded after the Cerro Grande fire.

Similar structures already exist, such as the one visible from the parking area along State Road 4 across from the Tsankawi unit of Bandelier National Monument, and have been proven to be effective, he said.

All these measures will support Santa Fe’s Buckman Direct Diversion Project. “The city of Santa Fe and Santa Fe County will be diverting surface water from the Rio Grande at a location downstream of the confluence of Los Alamos Canyon,” Katzman said. “The measures implemented in the Los Alamos and Pueblo Canyon watershed will substantially reduce sediment transport into the Rio Grande.”

— Tatjana K. Rosev

Creating cleaner power

Lab researchers reduce greenhouse gas emissions

Fossil fuels likely will supply much of the world's energy needs for decades to come, though the associated carbon dioxide produced continues to pollute our air and cause climate-change concerns.

Laboratory researchers have developed a low-temperature way of controlling greenhouse gas emissions from power plants that traps 65 to 90 percent of the CO₂ in tiny molecular cages made of water.

Called the SIMTECHE CO₂ Capture Process, the method pulls CO₂ out of a flowing mixture of gases and captures it in an ice-like compound called CO₂ hydrate. Once separated from the gas stream, the CO₂ hydrate can be decomposed to regenerate CO₂ gas at elevated pressures for sequestration or sale on the emerging CO₂ market.

"In addition, the 3 to 5 percent of hydrogen sulfide typical in shifted synthesis gas can be separated simultaneously with the CO₂," explained Robert Carrier of Physical Chemistry and Applied Spectroscopy (C-PCS).

The innovative work is a collaborative effort with industrial partners SIMTECHE, Bechtel National, and Nexant Inc., a Bechtel spinoff company. Carrier, the Laboratory principal investigator, was initially approached by SIMTECHE to develop and test the concept.

"As the project focus shifted from basic thermodynamics and kinetics associated with proof-of-concept to engineering-scale demonstration of an integrated process, the Lab team evolved," Carrier said.

The team includes Carrier, Dali Yang of Polymers and Coatings (MST-7), Ron Martinez and Loan Le of C-PCS, and Steve Obrey of Inorganic Isotope and Actinide Chemistry, with contributions from Graydon Anderson and Gary Baca of C-PCS, Jennifer Young of Navy II, Bob Barbero of Actinide Process Chemistry, David Devlin of MST-7, and former employee Michael Sedillo.

Now proven, the SIMTECHE CO₂ Capture Process is poised to reduce CO₂ emissions at industrial scales. To date, 13 patents on the process have been granted and another is pending, and the technology was recently submitted for an R&D 100 award.

"The SIMTECHE CO₂ Capture Process is an example of essential technology to address greenhouse gases and represents the role of LANL's basic science effectively teaming with industry to deliver solutions to the nation's challenges," said Terry Wallace, principal associate director for Science, Technology, and Engineering.

— Mig Owens

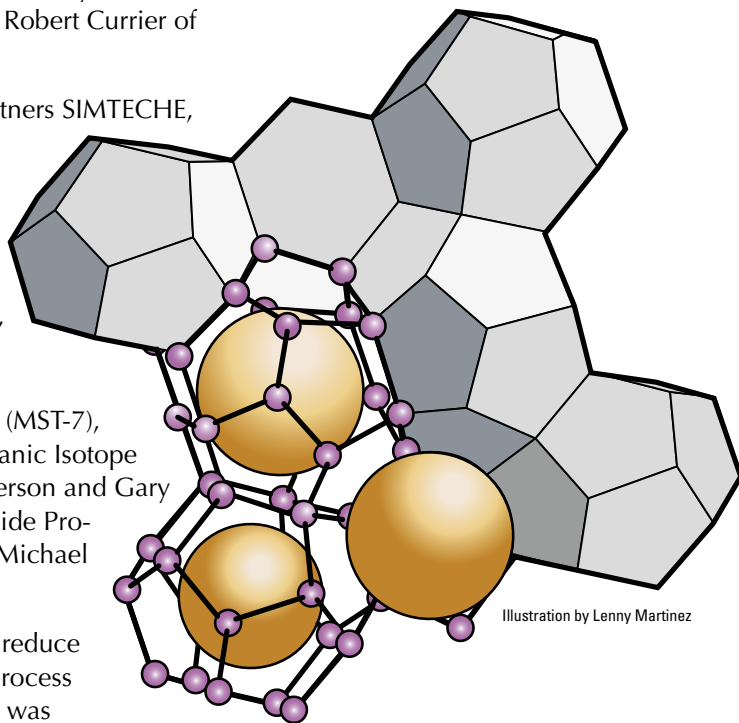


Illustration by Lenny Martinez

The molecular structure illustrates the SIMTECHE CO₂ Capture Process, which results in an ice-like compound, a crystalline solid called CO₂ hydrate.

A passion for the environment sparks a LANL Star

Patricia Vardaro-Charles' love for the environment translates readily from her job at the Laboratory as an environmental generalist for the Environmental Protection Division (ENV) to her home life, where she routinely practices pro-environment habits, such as recycling.

"I feel passionate about the environment for the obvious reason of needing to lessen our impact for the betterment of future generations, which include my beautiful son," said Vardaro-Charles. "I find natural processes to be fascinating, and enjoy thinking about and helping to solve problems related to our impact. I believe my job affects the environment in a positive way since environmental laws and regulations and compliance with these laws and regulations center on reducing the Lab's environmental impact."

Recently, this 12-year Lab veteran was named a 2009 LANL Star for her efforts in leading environmental programs for the Los Alamos Neutron Science Center (LANSCE), where she is now deployed. "My Environment, Safety, Health, and Quality Directorate manager, in conjunction with my home organization group leader, nominated me. I had no idea, and I still am extremely flattered," said Vardaro-Charles.

While deployed at LANSCE, Vardaro-Charles has taken the lead on a compliance project dealing with clean-water requirements, which is something she worked on while in graduate school. "This research is near and dear to my heart," she said.

Vardaro-Charles said she enjoys being deployed because of the diversity of work and the many interactions she gets to experience. She also noted that management in ENV Division views its deployed staff as ambassadors. "I feel this to be absolutely true," she said. "My peers and I have daily contact with facility and programmatic personnel who need help in meeting environmental requirements. This help might require me to perform field work, provide answers for my customers on how to meet requirements, develop and assist with implementing environmental plans and programs, and help address or suggest alternative approaches to meet compliance problems."

Vardaro-Charles believes her role as an ambassador contributed to being nominated as a LANL Star. She said she hopes this honor will convey her leadership ability to current and future coworkers. And Vardaro-Charles stressed how fortunate she feels to work with "excellent people at an excellent facility."

— Erika L. Martinez



LeRoy N. Sanchez

Patricia Vardaro-Charles was named a 2009 LANL Star for her work with environmental programs at LANSCE.

Explosives school helps soldiers overseas

Scientists at the Laboratory are using their expertise in a variety of disciplines to prepare U.S. military personnel to deal with homemade explosives that they might encounter while deployed in Afghanistan.

Personnel selected by the military attend an intensive three-day course at the Laboratory to learn how to detect, identify, and characterize a wide variety of improvised explosive compounds and their ingredients from an “Afghanistan-centric” point of view.

“We’re teaching these young men and women what to look for in order to help them separate the good guys from the bad guys,” said Becky Olinger of High Explosive Science and Technology (DE-1). “Our troops are seeing a lot of improvised explosives in Afghanistan, so we’re teaching them how to use all their senses, coupled with state-of-the-art technology, to enhance their awareness of colors, textures, and odors typical of explosive materials or ingredients, as well as how to recognize human indicators common to bad guys who have handled these materials or ingredients.”

One of the key tools used overseas is the LANL-developed Emergency Response Explosives Field Guide (ERFEG) that catalogs the spectrum of energetic materials and compounds and has been in use by the Department of Defense and other customers for years. In addition to classroom and laboratory settings, participants get hands-on training in the field, where they witness a variety of improvised and conventional explosive detonations and deal with realistic mock scenarios set up by the Lab’s Hazardous Devices Team.

The training started this year with a pilot course for senior military officers and has progressed into its second session, recently completed with 32 Marine infantry and Army Explosive Ordnance Disposal (EOD) and reconnaissance personnel across the ranks, from private to captain. The program is funded by the Department of Defense and is scheduled to provide six more training

sessions. Classes will be held through the end of 2010. The program eventually may expand to offer an advanced training level designed for EOD specialists.

In addition to Moore and Olinger, the course is organized and taught by David Chavez of DE-1, Jeff Golden of Nuclear Counterterrorism Response, Scott Kinkead and Stephanie Hagelberg of Focused Experiments, Brad Lounsbury, Bob Clark, Chris Ory, and Chris Rittner of the Hazardous Devices Team, Lloyd Davis and Bryce Tappan of Explosive Applications and Special Projects, Jackie Veauthier of Inorganic Isotope and Actinide Chemistry, and Margo Greenfield, a Shock and Detonation Physics post-doc.

“We learn a lot from many of the students, too,” said Olinger. “The students provide valuable information to assist with our developing scenarios for future training and in helping us add even more valuable information to the EREFG database.”

— Kevin N. Roark

About two pounds of potassium-based homemade explosive is detonated on the TA-49 observation pad as part of the Lab’s “homemade explosives school” held recently for members of the U.S. military.



Kevin Roark

New recycling and composting program helps reduce green waste

Did you know that about 30 percent of what goes into city landfills is “green waste”? Also called yard waste, green waste consists of leaves, tree trimmings, weeds, grass, and other organic materials.

Many communities are discovering that green waste is a valuable resource that can be recycled for a variety of uses. In May, the Lab’s Roads and Grounds group started a recycling and composting program for grass clippings produced by the Lab’s mowing operations. Acting on an idea by Dan Humbles of Field Work Execution, the group’s four employees collect grass clippings using burlap sheets instead of plastic bags.

“This is a great idea,” said Richard Gonzales of Heavy Equipment, Roads & Grounds. “Instead of going through 200 to 300 nondegradable plastic bags per week, we now use 60-by-60-inch landscape burlap sheets to transport the grass clippings. The burlap can be used over and over, and it’s biodegradable.”

With the help of the burlap, the grass is placed in a roll-off bin, which Gonzales said takes about a month to fill during the summer. When the bin is full, the grass clippings are sent to the Los Alamos County Eco Station for its compost pile. This easy and environmentally friendly technique augments the eco station’s program to compost tree trimming and leaf debris, reduces the amount of waste being sent to the landfill, and maximizes the Lab’s green waste.

In the desert Southwest, with its sandy soils and low rainfall, the market for compost and mulch is limitless. These products enhance soil nutrient value, conserve water, and control soil erosion, noted Gonzales, adding that the products also are in high demand.

— Tatjana K. Rosev



Richard F. Gonzales

Carlos Maestas of Heavy Equipment, Roads & Grounds lifts a landscape burlap square filled with grass clippings into a roll-off bin.



PerformM update

Laboratory employees now have until July 17 to provide comments on their work performance through the PerformM workbench.

The National Nuclear Security Administration recently moved the annual merit increase process from October to after January 1. As a result, the Laboratory can provide managers and employees with additional time to complete the year-end performance assessment.

The review period is from October 1, 2008 to June 30, 2009. The Performance Management Web page has a revised timeline for employee comments and managers' year-end assessment of employees.

After July 17, employees won't have access to their year-end assessment until it has been finalized by their manager.

The Performance Management Web page is <http://int.lanl.gov/orgs/hr/pmp/08-09timeline.shtml> online.

WSST safety talk series continues

The Institutional Worker Safety and Security Team speaker series continues this month with talks by Christopher Hart and Earl Carnes on July 28.

Talks are tentatively scheduled for 10 a.m. in the National Security Sciences Building and 2 p.m. in the

Physics Building Auditorium. The talks are 90 minutes and open to all Lab employees.

Their talk, "When Things Go Wrong: Human Performance Factors in High Reliability Organizations," acknowledges that humans make mistakes, and that organizations can design safety systems that may help prevent or lessen the incidence of safety occurrences. Human Performance Improvement within a DOE organization also is discussed in the presentations.

Hart is deputy director of Air Traffic Safety Oversight at the Federal Aviation Administration. Carnes is program manager for human performance and liaison to the Institute of Nuclear Power Operations for the Department of Energy.

More information about the WSST safety talk series is at http://int.lanl.gov/esh/wsst/wsst_series.shtml online.

The 2009 Sustainability Challenge

The 2009 Sustainability Challenge encourages students to implement pollution prevention techniques in the workplace that minimize the Laboratory's environmental impact.

Seminars, events, and tours in July:

July 9: Annual Student Picnic, 11 a.m. to 1 p.m., Urban Park.

July 11: Greening LANL seminar, 9 to 11:30 a.m., Materials Science Laboratory Auditorium at Technical Area 3.

July 13: Tour of the Valles Caldera, 7 a.m to 4 p.m. Registration required.

July 29: Eco Film Festival: The American Southwest: Are We Running Dry? 10 a.m. to noon, Physics Building Auditorium. Registration required.

For more information and to register, go to the Student Sustainability Challenge Web page at http://int.lanl.gov/environment/challenge/lanl_only/show_energy/index.shtml online.

E-mail about new federal security badge is legitimate

Laboratory employees eligible to receive the new federal security badge will receive e-mails from hspd12admin@identitymsp.com. These e-mails are legitimate and should not be deleted. Write to badge@lanl.gov with questions or for more information.

July service anniversaries

Find the July service anniversaries online at <http://www.lanl.gov/news/currents/2009/july/anniversaries.shtml>.

In Memoriam

- Bobby Craig, 80, died February 18
- Ernestine Vigil Stewart, 84, died April 5
- Melvin T. Thieme, 83, died April 22
- Tom Ruiz, 68, died April 28
- Michael Lynch, 58, died May 11
- John "J.W." Isern, 59, died May 21



Establish excellence in environmental stewardship

NNSA Pollution Prevention Award for alternative lighting

*Innovation improves worker safety,
reduces waste, cuts costs*

The Laboratory won eight Pollution Prevention (P2) awards this year from the National Nuclear Security Administration. The awards are based on an NNSA-wide competition and recognize major contributions in the areas of pollution prevention, recycling, and procurement.

Among the award-winning projects was an initiative by Technical Area 55 Environmental and Waste Services and electrical crafts staff to replace hundreds of fluorescent lights at TA-55 with light-emitting diodes (LEDs).

“Installing alternative lighting in glove boxes and overhead light fixtures not only reduces waste and cuts costs, it increases worker safety,” said Denny Hjeresen of the Risk Reduction Office. He added that the Stockpile Manufacturing and Stewardship Directorate sponsored the project with support from the Environment, Safety, Health, and Quality and the Environmental Programs directorates.

LEDs are seven to eight times more energy efficient, last about eight times longer, are cooler, and cost less than fluorescent fixtures, said project team member Harvey Decker of Ecology and Air Quality. They’re also much less costly to dispose of. Fluorescent light bulbs contain mercury and must be discarded as mixed low-level waste, at a cost of about \$363,000 per cubic meter, while LEDs are considered low-level waste and cost only about \$2,600 per cubic meter, Hjeresen said. “Additionally, the manufacturer of the LEDs will take back uncontaminated LEDs when they need to be replaced, pay for shipping costs, and later rebuild them,” Decker noted.

Because LEDs last longer, workers enter radiologically controlled areas less frequently to replace them, Hjeresen said. “That significantly improves worker safety while reducing labor and materials costs.”

In addition to the NNSA P2 awards, the Lab also presented its own P2 awards to 41 projects Labwide.

— Tatjana K. Rosev



Harvey Decker

Hundreds of LEDs, which are more efficient and less costly than fluorescent lights, have been installed at TA-55.

Or Current Resident

Protecting threatened owls: This job's a hoot

It must be a strange sight: Dave Keller of Ecology and Air Quality (ENV-EAQ) under a night sky, tromping through the rocky canyons around the Laboratory, while a recording of owl hoots plays on a loudspeaker.

When he gets an answer from a real owl, things start to get interesting.

"We used tape players until a few years ago," Keller said. "But now we use a wildlife electronic caller to play the call. We go through each of the Lab's canyons with owl habitat and play the call and listen for 15 minutes every half-mile."

The Mexican spotted owl has been listed as "threatened" under the *Endangered Species Act* since 1993. The Laboratory takes special measures to protect the owls and track their progress, closing off access or limiting work in owl habitat during nesting season.

Ecology and Air Quality has found that the owls like remote, quiet canyons that do not have roads running through them.

"It is interesting that the owls are out in our areas of explosive testing," said Keller. "The buffer areas mean that many of these sites are wildlife friendly and are left relatively undisturbed."

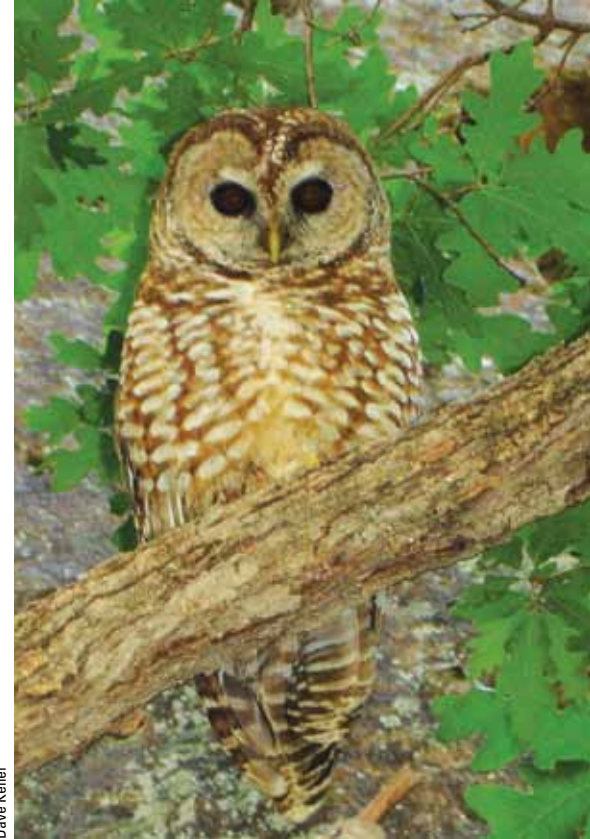
This year, Keller and his cohorts have discovered two breeding pairs of owls. During the summer, Keller will do the critical search for any chicks. Typically, the owls have one to three chicks and come back to the same nesting areas year after year.

"They're very faithful to their nesting sites," said Leslie Hansen of ENV-EAQ, who works with Keller. "Everybody's jealous about my job. It feels really great to do something good for the Lab, but I'm also helping the wildlife and being a better citizen."

Keller agrees, despite his nocturnal work hours—he searches for owls only between dusk and dawn.

"Yesterday while we were out looking for the owls, we saw a black bear, and he ran alongside the car," Keller said. "Just seeing the wildlife around the Lab reminds me of what a unique and fascinating place the Lab is."

— Fred deSousa



Dave Keller

The Mexican spotted owl, which has been listed as "threatened," likes remote, quiet canyons like those found around the Lab.

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