

# NewsLetter

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## Not for the birds

*Some birds species fall prey to West Nile virus while others are resistant. Finding out why may help humans combat their own diseases.*

Photo by LeRoy N. Sanchez, Records Management/Media Services and Operations



**Lucas Bare, an experienced bird handler, holds a raven captured at the Los Alamos landfill. Ravens are susceptible to West Nile virus and often succumb to the disease.** Photo courtesy of the Bioscience Division

*by Eileen Patterson, Communication, Arts, and Services; and Jay Schecker, Science and Technology Base Program Office*

**L**ate afternoon at the Los Alamos landfill—that’s the best time and place to catch ravens. When the facility closes, the ravens show up to pick through the day’s refuse. Wednesdays are ideal. That’s when the restaurant garbage arrives.

Jeanne Fair knows all about the ravens’ scrounging habits. Fair, an ornithologist (a scientist who studies birds) in the Earth and Environmental Sciences (EES) Division, makes regular trips to the county landfill in search of the big black birds. She’s working on a study of the immune systems of several Northern New Mexico bird species. Fair and Babetta (Babs) Marrone, a molecular biologist from the Bioscience (B) Division, are principal investigators for the Laboratory project. The study combines Fair’s work in the field and Marrone’s expertise with an advanced analytical technique called flow cytometry, with which she examines blood samples taken from the captured birds.

Fair and Marrone are seeking evidence of the birds’ response to West Nile virus, a mosquito-borne pathogen that appeared in the United States in 1999. It was first seen around New York City but has now traveled to all 48 contiguous states. It also has been found in Canada and Mexico.

West Nile infects mostly birds but is a zoonotic (pronounced zo-oh-not-ic) disease, one that can move from species to species and, in particular, from animals to humans. It already has affected small mammals and horses. In 2003, the Centers for Disease Control and Prevention documented more than 9,800 human cases in the continental United States. In severe cases the virus causes meningitis and encephalitis, diseases characterized by inflammation of the brain and surrounding tissues. Among the birds, those in the family Corvidae (the corvids), which includes magpies, ravens, crows, and jays, are the most susceptible and have the highest mortality rate. The virus has killed 95 percent of the magpies around the Northern New Mexico towns of Española, Pojoaque, Nambé, and Chimayo, making the birds’ once-familiar flashes of black and white quite scarce. It also has caused a significant die-off of crows and ravens across the country.

Strangely, while the corvids are susceptible to the virus, other bird species are resistant, meaning they may harbor the virus without getting sick. Domestic chickens, for example, are resistant to the virus, much to the relief of the poultry industry. In the wild, pigeons and the western bluebird are resistant as well.

Fair and Marrone are trying to understand how the immune system of one bird species can resist the virus, while another succumbs to it. If that difference can be understood, that knowledge may lead to intervention methods that could halt West Nile’s spread through bird populations.

But there’s a larger picture in the recognition that birds are a reservoir for diseases that can affect humans. Says Fair, “West Nile virus is a model system for understanding zoonotic diseases in general. The big fear is that something like the avian flu will become zoonotic, and we need to prepare for that. If we focus only on humans, we’ll never get at the root cause.”

Marrone and Fair are in the process of developing the means to culture avian lymphocytes in the laboratory, thereby making them readily available for further

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## Stay focused; drive safely

by Ed Kellum

Eating a bowl of cereal, shaving, putting on eye-liner, and combing hair are all activities that people do in the morning to get ready for their day. These morning rituals have become so nuanced that some people don't even consciously remember doing them.

Generally, these activities are relatively harmless. A lack of focus when doing them may result in nothing more than a small cut on the chin or a little spilt milk. But what happens when we lose focus while driving to work because of eating or grooming? Nine times out of ten maybe nothing, but the tenth time could be devastating or maybe even fatal.

Driving takes focus. Without being engaged with one's surroundings, it is impossible to truly be in control. Couple distraction with a mass of metal, glass, and rubber that can go up to 110 mph, and the potential for loss and devastation is not a pretty picture. Even an out-of-control car traveling 50 mph is dangerous.

And in today's culture, there can't be a message about driver safety without the mention of cell phones. As most drivers know, it isn't the cell phone that is dangerous, it is the lack of focus due to the use of the cell phone that leads to so many accidents.

Avoid using a cell phone when driving. Focusing on a conversation can take your mind off the task at hand, driving safely.

Take one activity at a time and avoid distractions. Be courteous to other drivers and enjoy the ride.

For more information about driving safety, go to the National Highway Traffic Safety Administration web site [www.nhtsa.dot.gov/](http://www.nhtsa.dot.gov/).

Driving safely is important when behind the wheel, so stay focused out there.

# Director highlights one-year anniversary successes

by Steve Sandoval



Laboratory Director Michael Anastasio

Laboratory employees should be proud of the Lab's accomplishments and "significant" successes in the past year. That's the message Director Michael Anastasio gave to employees at a talk in the National Security Sciences Building Auditorium.

Anastasio called the talk more of a celebration. "I want to celebrate with you the many excellent things we have done to remind us how good this Laboratory really is," said Anastasio.

"I think it's a real testament to the quality of this Laboratory and its employees," Anastasio said to the audience. "Events like this are for me, always a time for reflection ... On reflection, I'm convinced that because of all of you, we've accomplished some really significant things in the last year," he said.

The director noted that the Laboratory should be particularly proud of its safety record for the year, reducing the number of recordable injuries by 30 percent. "We've driven down the accident and injury rates, and again, that's all because of you. If you

think about it in real terms, there are 50 fewer people injured this year than in the past. That's an accomplishment," Anastasio said.

And he asked employees to continue improving the Lab's safety performance. "We've got to keep driving forward," he said, adding that the new Worker Safety and Security Teams are involving employees in coming up with solutions to safety and security issues.

Anastasio acknowledged the new LINKS communications tool, calling it a "more effective and efficient communications tool. "He also said the Lab is reducing the amount of costly square footage this year, with the hope of reducing its footprint by 400,000 square feet by the end of the year. "If we can get out of old space, we can become more efficient," he said.

Focusing on the Lab's non-scientific successes over the past year, Anastasio noted that the Lab put new financial controls in place to control costs while also tightening its fiscal belt. The Lab also transferred the work planning and control process from KSL Services to the Lab, and improved its expense reports process.

Anastasio said the Lab has reduced security risks by having fewer pieces of accountable CREM, building super vault-type rooms, and reducing the number of classified documents. "Having classified material is a burden," said Anastasio. "We should keep it and use it if we really need it. But if we don't need it, let's do away with it."

With regard to the environment, the director noted that the Lab demonstrated it cares about the environment by accelerating shipments to the Waste Isolation Pilot Plant. He also said the Lab is meeting the New Mexico Environment Department Consent Order agreement, having completed 103 or 104 Consent Order milestones on time.

The Lab also received seven NNSA Pollution Prevention awards, the most across the Department of Energy/National Nuclear Security Administration complex, said Anastasio.

He reminded employees that first and foremost, this is a national security science laboratory. He explained that during the year, Lab scientists published more than 1,900 peer reviewed articles, with more than 40 of these in Science and Nature.

He highlighted two discoveries in particular, work that has found a low-cost alternative to precious metal catalysts in hydrogen fuel cells and another study that has determined that HIV mutation is driven not only by the immune system of the infected person but also by the evolution of the virus.

The director also spoke of the accomplishments at LANSCE, particularly the Isotope Production Facility; the progress at the Center for Integrated Nanotechnologies; and the work accomplished for the Global Nuclear Energy Partnership. He explained that the Laboratory has a path forward on the Los Alamos Science Complex project and expects to issue a Request for Proposals to identify potential developers soon.

Anastasio spoke about the success in the Lab's core mission, the Lab's work with the B 61-11 and -7 weapons, the W-76 life extension program, and the recent milestone of completing the nation's first war reserve plutonium pit since 1989.

"It will be in the stockpile by the end of the year, and we'll have nine more by the end of year. That's a great achievement for this Laboratory," the director said.

Anastasio also congratulated the Dual Axis Radiographic Hydrodynamics Test team for the successful four pulse second axis test firing. He explained that Axis 2 is about to enter its commissioning phase, a major accomplishment. While continuing to use the first axis, DARHT recently fired the Laboratory's first fully contained hydrotest.

And the director said phase one of the Lab's new Roadrunner supercomputer is done. "We have the first phase on site. It's up and running. It's already started to be productive for us at above 80 Teraflops and is on schedule to reach for the Petaflop in 2008," he said.

Turning to the community, Anastasio said the Lab is partnering with the state's universities on several initiatives, and the Lab's Community Commitment Plan is providing economic development and educational outreach assistance to local communities. The Lab and Los Alamos National Security, LLC, also assisted United Way provider agencies with financial assistance to the tune of \$750,000, he said.

For more information about the Laboratory's one-year achievements, go to <http://int.lanl.gov/goals/achievements/> online.

## Los Alamos National Laboratory NewsLetter

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### Editor:

Jacqueline Paris-Chitanvis, 5-7779

### Associate editor:

Steve Sandoval, 5-9206

### Production editor:

Denise Bjarke, 7-3565

### Graphic designer:

Edwin Vigil, 5-9205

Los Alamos National Laboratory is a multidisciplinary research institution engaged in strategic science on behalf of national security. The Laboratory is operated by a team composed of Bechtel National, the University of California, BWX Technologies and Washington Group International for the Department of Energy's National Nuclear Security Administration.

Los Alamos enhances national security by ensuring the safety and reliability of the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction, and solving problems related to energy, environment, infrastructure, health and global security concerns.



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# So...what do you think?

**Q:** June is National Safety Month in the United States, which reinforces the Laboratory's message that safety vigilance is essential at home, at work and in everything we do. What two or three things have you done or will you do to make your workplace and home safer and why?



**David Ufferfilge of Industrial Safety and Health Operations Support (IHS-OS)**

I purchased a new ergonomic keyboard for home and stopped falling off my mountain bike.



**Patricia Rael of Tritium Science and Engineering (AET-3)**

Both at home and at work I cleaned up the clutter to reduce obstacles. I also work in our group office to encourage workers to keep things in order and to work safely.



**Hari Viswanathan of Hydrology, Geochemistry, and Geology (EES-6)**

At work I had an ergonomic evaluation done to make sure my chair, keyboard, etc., are appropriate. Because I only do computer work, there aren't too many other safety considerations.



**Krista Wilde of the Research Library (STBPO-RL)**

I recently completed an ergonomics training online, so I will make sure I have the proper furniture set-up.



**Evelyn Martinez of the Human Resources (HR-DO) Division**

I will continue to drive safely and follow the speed limit, and continue to be cognizant of my environment.



**Tim McEvoy of Quality Assurance (QA-DO)**

I use handrails when climbing stairs. I also wait a couple of seconds before proceeding when a light turns green.



Go to <http://int.lanl.gov/news/links/> online.

## PEOPLE



### Lillian Montoya-Rael recognized by United Way of Santa Fe County



*Lillian Montoya-Rael*

**C**ommunity Programs Office Director **Lillian Montoya-Rael** received the Not-For-Profit-Professional-of-the-Year award from the United Way of Santa Fe County. The award honors individuals with innovative leadership, initiative, and creativity.

Montoya-Rael was honored for her work on behalf of the Laboratory with regards to the Community Commitment Plan and Los Alamos National Security, LLC's community investments in regional education, economic

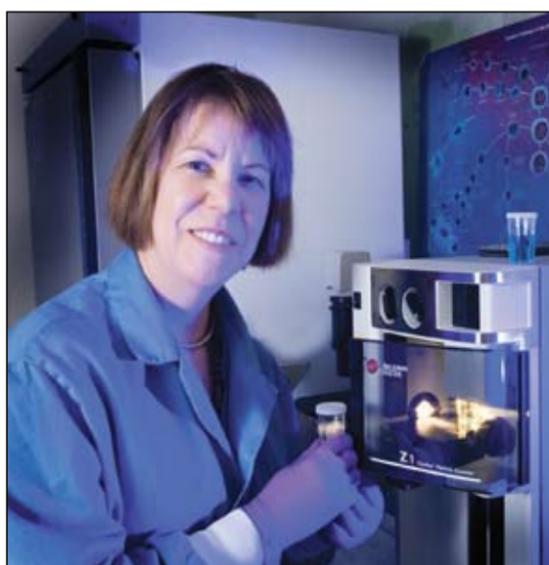
development, and community giving.

As a native Northern New Mexican, she was one of the first economic development leaders to espouse a "regional approach" to economic diversification and development, said the United Way of Santa Fe County.

Montoya-Rael also was recognized for her philanthropic spirit and her continued support of the United Way.

"I like being active in my community, and I enjoy meeting new people, learning new ideas, and working with others to solve tough issues. I believe strongly in organizations like the United Way of Santa Fe County, and I am especially proud to be recognized by them for my nonprofit advocacy and leadership," said Montoya-Rael.

Montoya-Rael serves on boards and committees of several organizations, including the Santa Fe Business Incubator, Santa Fe Economic Development Inc., City of Santa Fe Economic Development advisory committee, and the Santa Fe Community College Training Center corporation board.



*(Left) Babs Marrone's expertise in flow cytometry supports her studies of how birds' immune systems respond to West Nile virus. (Right) Jeanne Fair, an ornithologist and expert on bird diseases, hopes to close the gap in knowledge concerning bird/human disease interactions. She oversees Los Alamos's Avian Nest Box Monitoring Network, a system of about 800 nesting boxes situated around the Laboratory. Researchers use the system to check for the birds' possible exposure to contaminants from Laboratory projects.* Photos by LeRoy N. Sanchez, Records Management/Media Services and Operations



### Not for the birds ...

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studies. The two already have established procedures to directly detect West Nile virus from a bird's blood sample and to determine whether a bird's immune system is making antibodies to the virus. They also are looking at developing ways to measure immune response that are less species specific than their previous efforts were.

The Los Alamos researchers hope that what they learn about birds' immune

systems will someday lead to vaccines against the new diseases. In the meantime, their procedures that allow them to reliably test for immune responses to West Nile virus can be used to help predict where and how quickly the disease may spread through host bird populations and, by extension, through human populations. So their work isn't just for the birds. It's for all of us.

**Editor's note:** This article is excerpted from an article that appeared in the May 2007 edition of the Laboratory's science publication, 1663.

### In Memoriam

#### **Bengt Carlson**

Laboratory retiree Bengt Carlson died May 14. He was 91.

In 1943, Carlson joined the British Mission in Canada, where he worked on Atomic research in connection with the Manhattan Project. In 1945, he was transferred to Los Alamos where he did mathematical calculations on the bomb for the Manhattan Project. He continued working at Los Alamos as a mathematician/numerical analyst in the Theoretical (T) Division until his retirement in 1976.

Carlson became a member of the American Mathematical Society in 1940. In 1951, he became a member, later a fellow, of the American Nuclear Society.

Carlson is survived by his son David and numerous grandchildren.

#### **James Howard Havens**

Laboratory retiree James Howard Havens died May 6. He was 66.

Havens began working at the Laboratory in 1967 as a design draftsman in the former Reactor Development (K) Division. He retired in 1993 as a draft/design technician in the former Accelerator Technology (AT) Division.

He is survived by his wife, Darlene; sister Doris McGlone of Arizona and brother Richard Havens of Ohio; and three daughters Tammy Gentry, Terri, and Tracie Payne.

## Process improvement tool

# Lean Six Sigma implemented at the Lab

by Krista D. Wilde

The Laboratory wants to improve its performance so it can meet its institutional goals. That's why Lean Six Sigma is being implemented Labwide.

"Lean Six Sigma gives employees a modern, efficient way of getting things done so they can spend less time fighting fires," said Jan Van Prooyen, acting deputy Laboratory director.

Lean Six Sigma is designed to eliminate waste and defects by improving process time, quality, and cost, according to Christa Wingfield of Process Management and Continuous Improvement (CAO-PMCI). Lean Six Sigma also uses metrics to monitor and sustain performance and alert the Lab to potential problems before they occur, said Wingfield.

The program operates on the premise that variation leads to defects and waste. Sigma symbolizes the standard deviation of a population. The higher the Sigma Level, the closer the organization is to the customer's specifications. At a Six Sigma level, which is considered to be nearly perfect, there are only 3.4 defects per one million products.

Lean Six Sigma programs train employees who achieve the designation of Champion, Black, Green, and Yellow Belt. Champions are managers who remove barriers and support the team. Black Belts are senior practitioners of the process who work on cross-functional challenges, while Green Belts work on departmental improvements. Yellow Belts are the experts in a specific process area. Process Management and Continuous Improvement also conducts Lean Six Sigma awareness training.

### Getting started

A Lab manager who thinks a process can be improved can ask that Lean Six Sigma be implemented. A non-management employee can make a request for LSS to a manager.

When a process is identified for improve-



*Mig Owens of Communication, Arts, and Services, left, speaks with Gail Toddings of Information Resources Management and Jan Van Prooyen, acting deputy Laboratory director, before a recent certification of Yellow Belt and Champion employees. Photo by Mike O'Keefe, Records Management/Media Services and Operations*

ment, Yellow Belts and a Champion are assigned to map the process and identify areas for improvement. Data related to these metrics are collected and, if warranted, Green or Black Belts analyze the data and lead teams to identify and implement improvements.

The Lean Six Sigma program supports the Laboratory's recently announced Goals and Commitments. "Black Belts will only work on processes that are tied to the Goals and Commitments," said Wingfield.

The Contractor Assurance Office is interviewing candidates for eight Black Belt positions. Some of the skills required of a Black Belt can be found at [http://lanl.gov/](http://lanl.gov/organization/performance/docs/bb_char_and_comp.pdf)

[http://lanl.gov/organization/performance/docs/bb\\_char\\_and\\_comp.pdf](http://lanl.gov/organization/performance/docs/bb_char_and_comp.pdf).

Currently, the Laboratory has more than 200 trained Yellow Belts. Champion, Black Belt and Green Belt training also are scheduled. For information on Yellow Belt training, go to <http://www.hr.lanl.gov/TIOCourses/TIOSession.asp?CourseSession=397350014&CalledBy=http://int.lanl.gov/training/workforce.shtml> online.

More information about Lean Six Sigma is available at <http://lanl.gov/organization/performance/process.shtml> online.

For more information, contact the Process Management and Continuous Improvement Office at [improve@lanl.gov](mailto:improve@lanl.gov) by e-mail.



## Warmer weather, dry conditions increase fire danger

*This photo was taken last year from above the Anderson Memorial facing the Jemez Mountains. The smoke is from the Bear Paw Fire north of Cuba, near Gallina, in the Santa Fe National Forest. The fire burned more than 3,000 acres. With the dry conditions and warmer temperatures, employees are encouraged to check the fire danger rating daily and adhere to the restrictions that accompany it. The fire danger rating is published every day in the Daily NewsBulletin and on the Laboratory's home page. Photo by Dan Comstock, Records Management/Media Services and Operations*