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*The Corps.*

# Environment

**ARMY  
EARTH  
DAY  
2007**

**SUSTAINING THE ENVIRONMENT FOR A SECURE FUTURE**

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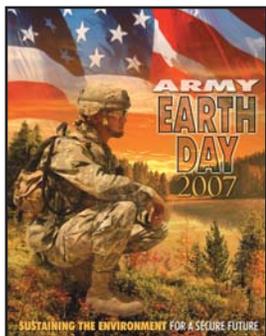
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Cover photo courtesy of Army Environmental Command

# Corps celebrates Earth Day

As we observe Earth Day once again on April 22, we need to give some thought to further embedding and applying our Environmental Operating Principles and the sustainability ethic in everything we do, across the full spectrum of our operations, from warfighting to water resources.

And as we have throughout our history, the U.S. Army Corps of Engineers stands ready, willing, and able to provide both leadership and partnership in this important arena. We join the Army in embracing its Earth Day theme of “Sustaining the Environment for a Secure Future.” Sustainability equals security. Sustainability enhances readiness. The Army must stay engaged and continue to move toward increased sustainability — focusing on our mission, the environment and our communities.

The Honorable Pete Geren, Acting Secretary of the Army, notes that “On this Earth Day, we remind ourselves that, while we remain Army Strong to ensure the defense of this great nation, we must also remain good stewards of our environment to preserve it for future generations.

“Ours is a strong, sustainable Army with the vision to address uncertainties at home and on the battlefield, to coexist with local communities, and to enhance the environment that sustains their well-being. On this Earth Day, we as an Army reaffirm our commitment to sustainability,” Geren stated in his message.

One of the ways the Corps is doing even more is through Action Six of our 12 Actions for Change, Focus on Sustainability, which dovetails with the first of the Corps’ Environmental Operating Principles — “Strive to achieve Environmental Sustainability. An environment maintained in a healthy, diverse and sustainable condition is necessary to support life.”

Are we doing that? Sometimes. Seattle District issued its “Sustainability in Agency Projects and Business Practices” policy memo last summer. It sets out the district’s long-term goals, performance objectives and

measures for behaving consistently with the Environmental Operating Principles and complements the *Focus on Sustainability* action. The policy lays out nine goals, including specific targets such as supporting the sustainability goals of the district’s



Lt. Gen. Carl A. Strock  
Commander of the U.S. Army Corps of Engineers and  
Chief of Engineers

customers, creating zero waste and providing regenerative design and construction products.

Some of the actions Seattle District employees are taking may seem like common sense: using rechargeable batteries, taking advantage of teleconference facilities and capabilities instead of driving to a meeting or going on temporary duty, or using the Environmental Attribute Code when shopping for supplies. Others require a little more work, such as looking for ways to recycle old buildings to divert the materials from landfills or working to accelerate hazardous waste disposal in base camps used by warfighters.

I hope all of you are aware of my standing charge to do everything Better, Faster, Cheaper, Greener, Safer. Please take time on Earth Day to especially think about and celebrate the “Greener” part of that charge. We continue to seek ways to make the principles and the sustainability ethic tangible and real for all Corps employees in their daily work. We are becoming a “greener” Corps because it will make us a stronger Corps and keep us “Army Strong.”

I want to thank you very much for your commitment to the Corps and to the environment. Keep up the great work!

Essayons!

CARL A. STROCK  
Lieutenant General, USA  
Commanding



US Army Corps  
of Engineers ®

*The Corps*  
**Environment**

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## Submissions

*The Corps Environment* welcomes submissions. Please send your articles, photos, events, letters or questions via e-mail to: [andrea.m.takash2@usace.army.mil](mailto:andrea.m.takash2@usace.army.mil).

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# New manual explains environmental statistics

## Engineer manual explains statistics for Hazardous, Toxic and Radioactive Waste sites

By Thomas Georgian, Ph.D.  
*Hazardous, Toxic and Radioactive Waste Center of Expertise*

Statistics are applicable to environmental projects throughout their entire life cycle and yield defensible, cost-effective solutions to environmental questions. Statistics can be used to guide the selection of sampling locations, analyze large data sets and verify that project objectives have been met.

Since it is not possible to collect and analyze every portion of an environmental medium, such as all the soil, sediment, groundwater or surface water in a study area, a sample must be used to characterize the environmental medium as a whole. As environmental media are typically heterogeneous in nature, statistical evaluations of sample data are often needed to describe the distribution of a contaminant in a medium and to make scientifically defensible inferences about the portion of the medium that was not sampled.

Engineer Manual 1110-1-4014, Environmental Statistics, was written to facilitate the understanding and implementation of statistical evaluations of environmental data.

The U.S. Army Corps of Engineers developed the document within the broader scope of technical project planning (TPP), recognizing that understanding statistical evaluations can improve project planning, implementation, and decision-making for

hazardous, toxic and radioactive waste (HTRW) sites. This manual is intended to serve as a guide to TPP team members and for the subsequent review and interpretation of data. It explains basic statistical concepts and their application to environmental projects by providing an overview of statistical procedures that are typically useful for the various phases of a typical environmental project.

The manual may be used as a desktop reference because it provides step-by-step instructions for conducting a variety of commonly used statistical tests.

The document is not intended to replace statistical textbooks or statistical software. It does not develop statistical formulas or present a comprehensive list of potential statistical tests, but serves as a first step in explaining and applying statistics to HTRW sites.

Though Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) projects are used to discuss statistical approaches for environmental projects, the material is also applicable to projects under the Resource Conservation and Recovery Act (RCRA), as the steps involved in the two programs are similar except for the use of different terminology and regulatory drivers.

The manual is available at the Corps' publication Web site: <http://www.usace.army.mil/publications/eng-manuals/em.htm>.

## More stories available online

The Internet exclusive stories for the April issue are: *Corps' innovative methods save Vermont recreation area, New England District engineers travel to Alaska for Hubbard Glacier work, Hit television show visits Hurricane Barrier during dewatering, Wilmington District leads multi-agency effort to*

*restore Currituck Sound, Joint team travels to China and 'Long Water' returns.*

These articles are located at [https://eko.usace.army.mil/usacecop/pub/ecop/corps\\_environment/](https://eko.usace.army.mil/usacecop/pub/ecop/corps_environment/).

Keep those great environmental stories coming!

# Project brings new life to historical buildings

By Elizabeth Chien  
Seattle District,  
Brendalyn Carpenter  
Fort Lewis, and  
Nathan Mowry  
Engineer Research and Development Center

**A**s new buildings sprout throughout the landscapes of Army installations, old buildings must come down to make room for the new and improved structures, per the Army's policy to dispose of one square foot of facilities to offset each square foot of new construction.

The Army's Construction and Demolition — C&D — Waste Diversion policy requires that facility removal be accomplished in such a fashion as to reduce the negative impact on the environment. The policy requires that 50 percent by weight of all C&D debris be diverted from landfills. A Fort Lewis, Wash., project team fully expects to exceed the standard.

The project team at Fort Lewis, which includes the Directorate of Public Works, the U.S. Army Corps of Engineers Seattle District and MCS Environmental, Inc., is removing 24 of Fort Lewis' World War II-era wooden buildings. The project team will salvage or recycle the majority of the material generated from the demolition.

On Feb. 5, the Secretary of the Army recognized the Fort Lewis team for its outstanding work. The team won the 2006 Secretary of the Army Environmental Award in the category of Pollution Prevention, Non-industrial Installation.

"The contractor for this project accomplished 100 percent diversion of non-hazardous construction and demolition waste resulting from the removal of the buildings," said Elizabeth Chien, environmental engineer for Seattle District.

The contract called for a minimum 50 percent diversion rate, with additional financial benefits to the contractor for achieving increasing diversion ranges.

"The concept, 15 years ago, was to look at an old building as something nobody wants, smash it to the ground and send it to the landfill," said Matt Schultz, project manager for MCS Environmental, Inc. "Thankfully, the Army and the Corps of Engineers have recognized that, first of all, it costs us money to dispose of things in the landfill. Second, we are running out of real estate (for) landfills; and finally, we are sitting on a lot of (reusable) wood and other products that came from our old growth forests, so let's try to do deconstruction rather than demolition."

To be completely accurate, the work being done on North Fort Lewis is neither deconstruction nor demolition.

"The work is a hybrid method developed by the contractor. One hundred percent deconstruction (maximum salvage)

... pulling things apart board by board, nail by nail ... is very expensive labor wise, but the other side is traditional demolition where you don't save anything," Chien said. "A more balanced approach is to blend mechanical demolition with hand deconstruction. You want to find that sweet spot where you get maximum recovery without significant increase in cost."

Markets for the majority of material already have been identified. Porcelain bathroom fixtures, aluminum, steel, clean wood, concrete, brick and painted wood are all segregated on-site for future transport to reuse markets. Additional items such as roofing material, plastic, carpet and window glass will go to recycling. The remaining materials are distributed to alternative markets.

One way to find alternative uses for some of the materials comes from people just driving by the site and seeing something different from typical demolition.

Sgt. Brett Miller, 82<sup>nd</sup> Cavalry, Oregon Army National Guard, was looking for salvageable building materials when he approached the contractor with his request. Miller was at nearby Madigan Army Medical Center for treatment of injuries sustained while serving in Iraq. He wanted to find meaningful work for other Soldiers and himself to do as they recovered.

Miller worked with the contractor to develop a program under which the recovering Soldiers could come to the site and take materials for small beautification projects around the

See Fort Lewis page 5



The contractor removes fir tongue-and-groove siding painted with lead-based paint. The siding is sold "as is" at a building materials reuse store. (Photo by Rebekah Barker, Seattle District)

# Integrated teams pull together after disasters

By Patricia A. Rivers, P.E.  
Chief, Environmental Community of Practice

## Commentary

When Hurricanes Katrina, Rita and Wilma hit, the U.S. Army Corps of Engineer's response leveraged an immensely diverse range of functional experts to achieve the common goal of responding to the hurricane disasters. Every facet of the Corps was touched by the response. We were not from "this or that" community of practice, and we did not worry about titles. We were simply Corps members responsible for and committed to serving in an emergency. And we were blessed with scores of people who stepped up to serve.

We quickly learned that the most successful teams were the functionally integrated ones that knew, almost intuitively, how to leverage each other's knowledge and skills. It was this higher form

of collaboration that improved our situational awareness, information flow and our response operations' ability to deal with a broad range of crises.

Everyone pitched in — emergency managers worked hard and fast in support of a wide range of tasks. Water quality experts helped answer concerns about the pollution levels of flood waters. Microbiologists answered questions about the results of the U.S. Environmental Protection Agency's sediment samples. Ecosystem experts advised on the wetlands. Corps members trained in the Army's solid waste reduction and recycling efforts helped address questions about how to possibly reduce and recycle some of the debris. Contract experts stepped up to guide the torrent of private

sector inquiries about opportunities for sustainable alternatives to traditional debris handling. And there was support from the labs, real estate, counsel, safety and health, small business, public affairs and many more.

Nineteen months after the unprecedented 2005 hurricane season, this integrated multi-functional approach continues today so we can build more "depth to the bench" to better prepare us for the complex challenges the future will certainly bring. Those challenges will require heightened awareness of all of the Corps' functions and expertise; imaginative thinking about ways they can be applied; new, expanded partnerships, with improved ideas about how to synergize these.

To this end, the Corps has embarked on a handful

of new initiatives that we hope will add to our toolkit. We are participating in a Federal Woody Biomass Working Group, led by the Department of Interior, to better coordinate, plan and encourage the use of woody biomass debris resulting from a natural disaster. We are expanding that idea by establishing a Federal Deconstruction Working Group that seeks to identify economically and environmentally sustainable debris management practices. Participation in both groups will sharpen and expand our collaboration with external partners and stakeholders.

The team of the future is a seamless and functionally diverse body; it reaches deep within the Corps and expands to other agencies. We need to be part of this evolution if the sum of our parts is to be greater than the whole. It's a challenge we eagerly embrace.

## Fort Lewis

Continued from page 4

installation. Some of their projects included picnic tables, barbecue pits, patios and storage shelves. They also transplanted shrubbery from around the old buildings being demolished to new areas, such as into gardens and green space areas. This not only kept the Soldiers active while recovering but also improved the installation's appearance.

To deconstruct these buildings, the project team devised a system that was both cost effective and provided a high

yield of reusable materials. They determined the best way to remove the framing lumber was to cut large panels off the building and lower them to the ground with a long-reach forklift, which proved to be a safe and very effective means of deconstruction.

With the contractor's hybrid system, it usually takes a crew of seven about two days working 10 hours a day to remove one-story barracks. The two-story buildings take a little longer at four days for a crew of eight at 10 hours a day.

Each building requires the use of a

forklift and an excavator. It takes about two times longer than in traditional demolition.

Still, through innovative deconstruction techniques and the availability of materials outlets on the installation as well as commercial outlets, the team has been successful.

"The success of this project is based on a joint effort between Fort Lewis, the Seattle District and the contractors who all support a vision of recycling and reuse rather than disposal — in other words, sustainable building removal," Chien said.

# Wayne Drop makes a splash in Florida schools

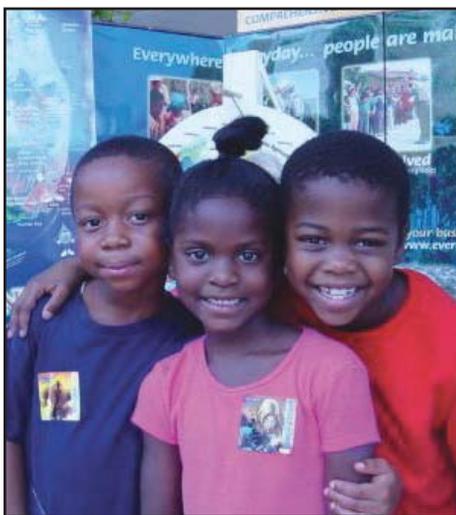
By Jean Pavlov  
Jacksonville District

Elementary school children across the country are studying the Everglades and learning environmental principles without even leaving their classrooms, thanks to the environmental education program, *The Journey of Wayne Drop to the Everglades*.

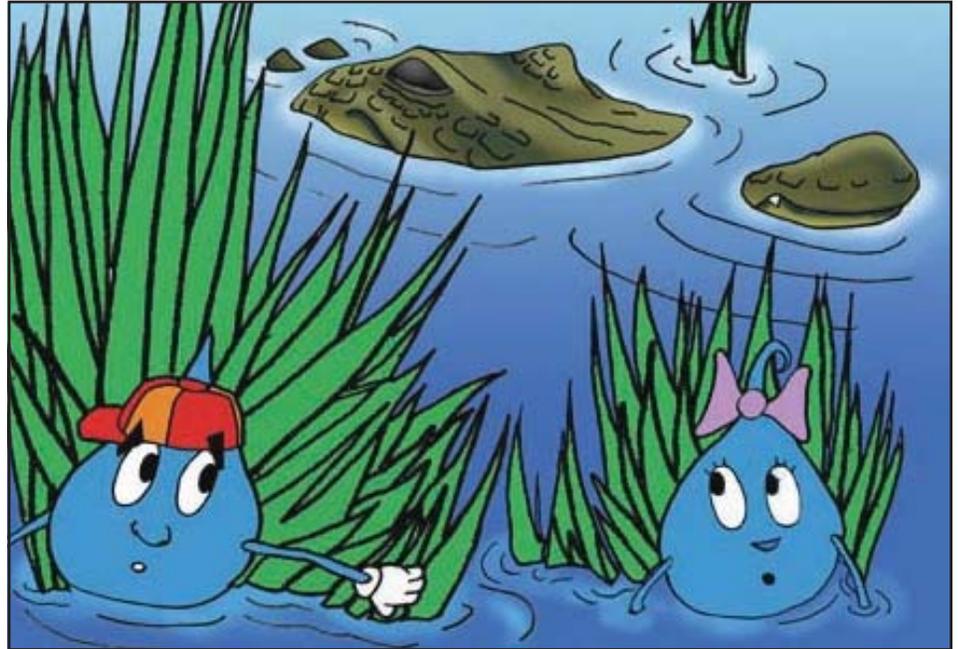
The program was developed under a partnership between the U.S. Army Corps of Engineers, Everglades National Park and a group of south Florida science teachers. It is making a splash with teachers and students throughout Florida and as far away as California.

Originally developed for fourth-grade students in the 16-county area of the South Florida Water Management District, *The Journey of Wayne Drop through the Everglades* follows Wayne Drop, an animated rain drop, and his friends on a trip from the Kissimmee Chain of Lakes, down the Kissimmee River to Lake Okeechobee, through the Everglades and to Florida Bay. The kit serves as a tool for teaching students about the watershed.

The focus of the Wayne Drop



Children at a recent festival played a game based on Wayne Drop's adventures and received Wayne Drop tattoos. (Courtesy photo)



Wayne Drop characters teach students about the Everglades ecosystem. (Courtesy photo)

program is to teach young students about the Comprehensive Everglades Restoration Plan (CERP) and the south Florida ecosystem on a level they can understand. The kit includes a teachers' guide, lesson plans, interactive CD-ROM and a storybook. Characters, colorful illustrations, youthful language, photographs, maps and games help students appreciate and understand this fragile ecosystem.

The story touches on important concepts including the water cycle, wetland habitats, endangered species, water resources and water conservation and introduces the agencies responsible for their protection. All of the Wayne Drop characters were hand-drawn and created for use by the Corps.

Wayne Drop debuted in the 2005 school year to public schools in the 16-county CERP area. Teachers in the remaining Florida counties received the curriculum at the annual conference of the Florida Association of Science Teachers (FAST) in November 2005. The curriculum, in both English and Spanish, made an even bigger splash at the 54th National Conference on

Science Education in April 2006.

At the 2006 FAST Conference, the Spanish version of Wayne Drop, *El Viaje de Wayne Drop a los Everglades*, and the Creole version of Wayne Drop, *Vwayaj Wayne Drop nan Everglades la*, were provided to meet the needs of Florida's diverse student population.

"I knew from my own experience as a classroom teacher in south Florida that there is a need for material in Spanish and Creole for students who are new to the English language," said Erica Robbins, outreach specialist in the Corporate Communication Office of the U.S. Army Corps of Engineers Jacksonville District. "The feedback I have received from teachers is all positive — they tell me, 'We love Wayne Drop, and we want more!'"

For more information about Wayne Drop, visit <http://www.evergladesplan.org/education/index.cfm>.

To experience Wayne Drop's interactive journey through the Everglades, visit <http://www.evergladesplan.org/education/learning.cfm>.

# Mock environmental exercise teaches students valuable Earth Day lessons

By Andrea Takash  
U.S. Army Engineering and Support Center, Huntsville

**F**ourth- and fifth-grade students donned personal protective clothing in preparation for a mock environmental exercise, where they learned first-hand how to complete an environmental field investigation.

The U.S. Army Engineering Support Center, Huntsville teamed up with University Place Elementary School, Huntsville, Ala., to celebrate Earth Day 2006, by walking through the whole process, from the sampling of the mock chemicals to a personal wash-down.

“Each student played a role. Some students sampled the soil, some participated in the wash-down and others acted as public affairs specialists by handling the mock media and public,” said Steve Willoughby, technical manager for Huntsville Center’s Electronic Security Center.

Willoughby attended University Place Elementary School and said he had fond memories of the school.

“It was great to be back at my elementary school and participate in such a fun exercise,” Willoughby said. “I think children retain more from a hands-on activity.”

Before the children started, Huntsville Center volunteers described the Corps’ role in environmental investigations and gave them the scenario for the exercise.

“We explained that our research led us to believe that the ground had been contaminated with ‘Methyl Ethyl Sue Goo.’ We told them that we were sending in teams to take soil samples of this very dangerous contaminant of concern,” said Audrey Nore, Huntsville Center environmental engineer.



Sherene Opichka, Huntsville Center, looks on while three students collect soil samples during the mock environmental cleanup exercise. (Photos by Becky Proaps)



Anna Griggs and Chris King, Huntsville Center, assist students as they rinse off the “contamination.”

More than 100 students participated in the event. Each grade was divided into six groups. The volunteers set up three work zones for the scenario.

“We gave the students spoons to collect the soil. They mixed the soil in the bowls to get a good representative sample,” Nore said. “Our work zones included the hot zone where the contaminated soil was located; the decontamination zone where the students were rinsed and scrubbed and removed their personal protection clothing to prevent spreading the contaminant; and the support zone where the emergency responders and safety specialist stood-by in case of an accident.”

The teachers from both grades stayed to watch their students learn about environmental field work and participate in the activities.

“This was a great hands-on experience for the children to get to role play with a hazardous toxic waste situation,” said Melissa Thomison, fourth-grade teacher at University Place Elementary School. “They have never had the chance to participate in such a fun and educational event for Earth Day.”

Huntsville Center plans to hold this event again for Earth Day 2007.

# River navigators serve as amb

By Chuck Minsker  
Huntington District  
Nicole Dalrymple  
St. Louis District, and  
John Hall  
New Orleans District

A river navigator, as designated through the American Heritage Rivers Initiative, is not a river navigator in the sense of Mark Twain or present-day river boat captains. Rather, it is an ambassador of sorts for rivers around the country, designated as American Heritage Rivers.

The navigator's mission is to aid associated river communities and help guide the American Heritage Rivers Initiative (AHRI).

The initiative was established in 1997 to recognize and support local efforts to restore and protect America's rivers and revitalize river communities and waterfronts. The initiative streamlined access to federal resources for projects that are created, planned and implemented by local communities.

A call went out for communities to submit rivers for nomination. If selected, the river would be assigned a navigator. One hundred and twenty-six communities submitted nominations. Fourteen rivers were selected.

The 14 rivers are found throughout the United States, although a majority of them are east of the Mississippi River. Some are in cities and others are in rural areas. Some were selected for their historical significance and others for their cultural importance.

For three of the Heritage Rivers, that job is managed by Corps employees at Huntington, St. Louis and New Orleans Districts.

## Huntington District

"It's been the most rewarding experience that I've had in my career with the U.S. Army Corps of Engi-

neers," said Ben Borda, Huntington District's assistant chief for the Planning Branch and New River navigator.

Rolling across three states, the New River is a study in contrasts. It goes from tiny stream to impounded lake to large reservoir to whitewater rapids. Despite its name, it is believed to be the oldest river in North America, and may be second in age only to the Nile River.

"The American Heritage River Initiative is based on three objectives — economic revitalization, historic and cultural resource preservation and natural resource protection and preservation," Borda said.

In the beginning, Borda was an adviser representing the Huntington District — the New River flows through its southeastern corner — but was subsequently selected as the New River navigator in 1999.

Borda said the plan has been ambitious from the start. "In the early years we came up with a New River Watershed Work Plan that at the time had 335 projects in it. We actually pursued many of those projects, and we are now in the process of updating that plan."

Of course, the group was not able to advance all 335 projects, for a simple reason: the AHRI was created without funding. One of the biggest misconcep-



Responsibilities for the Mississippi River are divided up between two river navigators. (Courtesy photo)

tions when the initiative was first introduced was that it came with money.

"The idea has always been that these projects belong to the community, and our charge is to help by 'navigating' through all of the bureaucratic red tape to assist in advancing these projects, short of having the capability to provide funding. We will network with the community and help them determine who to contact, where to locate sources of potential funding and how to pursue that funding. Sometimes that means helping to research, support and apply for grants," Borda said.

The group's key role is opening doors and solving problems.

"We do a lot of consensus building. As long as a project is worthy, and it meets the objectives of environmental revitalization or natural resource protection or cultural resource protection — we will help our community partners in pursuing it," he said.

As a result of the efforts of the initiative, a considerable amount of money has been leveraged to the communities along the New River,

# Assadors for America's rivers

including more than \$45 million in federal, state, local and private funds.

As gratifying as these efforts have been, there's no end in sight — and that's the way Borda likes it.

"In the course of my working throughout the watershed, I've worked in some areas where they had no idea about the capabilities of the Corps. Some of the proudest moments for me have just been being able to tell the Corps story and educate them on the kinds of things we do and the ways we can help them," he said. "I've actually had people come up to me and say, 'I had no idea that the Corps of Engineers was involved in so many different kinds of projects, and I had a negative opinion of the Corps until I met you — and now I have a new positive appreciation for the Corps.'"

## St. Louis District

Owen Dutt, recently retired chief of St. Louis District's Environmental Analysis Branch, was designated river navigator in 1999. He was only the second U.S. Army Corps of Engineers navigator assigned for the program and has been the only Upper Mississippi River navigator until now. Dutt passed on river navigator duties to Deanne Strauser, St. Louis District's strategic initiatives coordinator.

During initial visits following his appointment, Dutt explained to the communities that he didn't have a magic wand or a pot of money. He could provide them assistance in finding programs and champion them in getting technical assistance.

"The picture I would paint for the communities was if you tell me of a need, I will go out and try to find something. It is up to you whether you follow it through," Dutt said. "I'm just turning over rocks and linking you up with resource providers that may help you."

One of the referrals Dutt recalls was the city of Little Falls, Minn. The city had an old paper mill that went bankrupt and the owners walked away, leaving it as an eye sore and environmental issue for the community. Dutt got the community linked up with the Environmental Protection Agency's Brownfields program, and the program played a significant role in removing the plant.

"Navigators are really facilitators," Dutt said. "If I have been successful in introducing communities to a program, they are the ones who have moved forward with the initiative and they get all of the credit."

The Upper Mississippi program encompasses five states and 1,200 river miles. As navigator, Dutt has had visibility on what the communities were doing and saw opportunities to leverage everyone's efforts.

"It is important for communities to know what each other is doing," he said. "There are a lot of hard working, well intentioned people in these communities trying to do good things for the river, their community and the watershed."

Strauser said she is looking forward

to her new role.

"Owen did a great job with the program on the Upper Mississippi River, and I'm looking forward to carrying on his legacy and helping the program grow. This is definitely an exciting time to be working on the river and with river communities," she said.

## New Orleans District

In June of 2006, Joan Exnicios, chief of New Orleans District's Cultural Resources Section, was named river navigator to the Lower Mississippi River. She was familiar with the initiative since she had been serving as the district representative to the program shortly after the initiative was announced.

"I am committed to helping our community partners accomplish their projects. I want the quality of life to be better in this area where I have lived and worked, particularly on the Lower Mississippi River," Exnicios said.

As an archaeologist charged with preserving heritage in an area with a rich history, Exnicios said she feels she is well equipped for the river navigator assignment.

"I have had extensive involvement in the communities on the river. The lower Mississippi River is an area rich in culture," she said.

New Orleans was founded in 1718, and the Lower Mississippi was settled up to Natchez and just beyond before settlers from the east coast began moving in significant numbers over the Appalachian Mountains from the Atlantic Coast.

"There has been a hiatus since 9-11 and Hurricane Katrina, and now I am trying to learn and do a lot to begin to contribute to helping our community partners find needed resources from federal agencies as well as other public and private sources," she said. "We are in the baby stages."



Owen Dutt and Deanne Strauser look over paperwork for the transfer of river navigator duties. (Photo by Nicole Dalrymple)

# Joint project improves environment

By Mark Kane  
Rock Island District

**T**he Mississippi River Pool 11 Islands Habitat Rehabilitation and Enhancement Project (HREP) is already making a positive impact on the environment and the wildlife impacted in its area.

The project, located on the Mississippi River in Dubuque, Iowa, is a cooperative effort among the U.S. Army Corps of Engineers Rock Island District, U.S. Fish and Wildlife Service and the Departments of Natural Resources in Iowa and Wisconsin.

The project was created to benefit migratory waterfowl and fish by encouraging aquatic vegetation growth, providing habitat, and reducing wind fetch and sedimentation.

It was completed in two stages: Sunfish Lake, stage 1, completed in 2004 and located in Grant County, Wis., and Mud Lake, stage 2, completed this year and located in Dubuque County, Iowa. Both “lakes” are actually backwaters formed by the completed Pool 11 Islands.

Backwater dredging in these areas has and will continue to increase diversity and fish habitat. This will improve the environment for animals and also citizens who enjoy fishing, hunting or visiting the river.

While improving things for wildlife is one of the most visual, the positive impact of the project goes even further.

“There’s a lot of benefits beyond fish and wildlife, there’s carbon storage that’s occurring on this floodplain,” said Tim Yager, ecosystem biologist for the U.S. Fish and Wildlife Service. “The trees are actually capturing carbon dioxide and storing it. There are improvements in water quality that are occurring out here. This backwater is probably capturing nutrients that would otherwise end up down in the Gulf of Mexico creating a large dead zone



Marv Hubbell speaks with Tim Yager before driving on to see more of the Mud Lake project during the day’s media tour. (Photo by Mark Kane)

down there ... there are all kinds of benefits to this ecosystem if you want to call it that. We tend to focus on the fish and wildlife benefits because that’s what the public enjoys.”

The Pool 11 Islands HREP is part of the Environmental Management Program (EMP). Under the EMP, the Corps is planning, designing and building environmental enhancement projects that restore and create spawning and feeding habitats for fish and wildlife in backwaters and side channels of the Mississippi and Illinois rivers.

“From a program standpoint this represents one of many projects up and down the river that have had a total impact of around 80,000 acres of habitat that we’ve helped to improve as a result of many projects just like this,” said Marv Hubbell, the district’s EMP manager. “This is a great example, the latest example, of one of those program projects that are happening in both the lower part of the river, as well as the upper part of the river.”

“Each project in and of itself doesn’t have a big picture change to the

river environment, but cumulatively these projects up and down the river are making a difference,” said Jeff Janvrin, Mississippi River habitat specialist for the Wisconsin Department of Natural Resources. “You’re seeing a return of waterfowl, fisheries, turtles, deer, mink, anything you want to look at, to these areas that once weren’t there or increased numbers.”

“The partnership is really the key to seeing these projects come to a successful conclusion,” Yager said. “Certainly our agencies could not accomplish what we can accomplish together.”

“This is a balanced project, we’re balancing as many species as we can in here, and if we designed it solely for fisheries we could compromise our waterfowl objective,” Janvrin said. “We try to get as big of a bang for the buck as we can and that means we have to balance them.”

“Another nice feature about this project is that it’s fairly self-managing,” Hubbell said. “It doesn’t take a huge amount of cost as far as maintaining it.”

# 'Patriot' soars again at Dale Hollow Lake

By Dave Treadway  
Nashville District

An American bald eagle, that was grounded in a pasture in east Tennessee, once again sails above the mountains around Dale Hollow Lake, a U.S. Army Corps of Engineers lake, thanks to a number of friends who came to its rescue.

Doug Neatherly, of Alpine, Tenn., in Overton County, first spotted the mature eagle in January "just standing in my pasture." He called the Tennessee Wildlife Resources Agency, and wildlife officer Andy Barlow responded.

As Barlow approached the female bald eagle, it flew a short distance with difficulty and landed near a patch of woods. A short time later Barlow said he was able to catch the bird of prey, while wearing thick leather gloves, in a patch of woods and immediately transported it to the Ragland-Riley Veterinary Clinic in Livingston, Tenn.

Dr. Donald Ragland examined the eagle and could find no visible wounds or broken bones in his initial checkup. He said the eagle appeared to be "addled, calm and tame,"

unusual traits for such a bird of prey.

Ragland fed the bird with a tube, kept it overnight and then released it to the care of Lee Barclay, director of the Upper Cumberland Wildlife Rehabilitation Center and U.S. Fish and Wildlife Service employee in Cookeville, Tenn.

Over the course of a day and half, Barclay offered the bird raw chicken gizzards and lean beef which, after initially refusing, it ate readily. It then ate a second helping that also included a large mouse. Barclay then transported the eagle to the American Eagle Foundation (AEF) center in Pigeon Forge, Tenn., at Dollywood.

With facilities designed to house and care for eagles, the AEF staff was able to complete the rehabilitation process. In cooperation with Dr. Mike Jones of the University of Tennessee Veterinary School, the bird was re-examined and diagnosed as having a serious concussion. Initially the bird refused to eat and the AEF staff had to force feed it. But after a couple of weeks, it began to eat on its own again, and eventually began to recover from the concussion and exhibit the wild tendencies for which it is known.

The bald eagle, named "Patriot" in honor of the men and women of the U.S. Armed Forces, was in a 150-foot flight cage at the AEF facility for several months.

"The release of this majestic bird is yet another reminder of the importance of eagle conservation in the U.S. and all those Americans who have died in the name of freedom," said Al Cecere, AEF president. "The efforts of the American Eagle Foundation, U.S. Fish and Wildlife Service and Tennessee Wildlife Resources Agency continue to ensure that future generations will have the opportunity to see and enjoy the majestic eagle as it flies across America's heartland."

The fourth- and fifth-grade classes from Hilham Elementary School, Hilham, Tenn., were on hand to witness the release. Teacher Michelle Nivens, whose husband is Dale Hollow ranger Gregg Nivens, brought her students to Lillydale Campground for the event.

"My students are so excited to witness this release, and I am happy for them. They are so looking forward to it," said Nivens when her class arrived at Lillydale.

Each year rangers at Dale Hollow host an Eagle Watch in mid-January and pick up guests at Lillydale, Nashville District's only campground listed in ReserveAmerica's top 10 campgrounds from across the nation.



Members of the American Eagle Foundation released "Patriot" back into the wild. (Courtesy photo)

# Geophysical surveys used to save time, money on archaeological site selections

By Dr. Michael Hargrave  
U.S. Army Engineer Research  
and Development Center —  
Construction Engineering Research  
Laboratory

**G**eophysical surveys provide useful images of subsurface archaeological features such as houses, pits and graves, without excavation. Not all sites are good candidates for this type of survey and some techniques work well, while others may not, given local conditions.

To help installations avoid spending time and money on geophysical surveys that are not likely to succeed, the U.S. Army Corps of Engineers has published guidance for selecting sites and survey methods. Public Works Technical Bulletin (PWTB) 200-4-42, "Selecting Archaeological Sites for Geophysical Survey," is available at [http://www.wbdg.org/ccb/browse\\_cat.php?o=31&c=215](http://www.wbdg.org/ccb/browse_cat.php?o=31&c=215).

The National Historic Preservation Act of 1966 requires federal agencies to take into account the effect of

proposed activities on any district, site, building, structure or object that is included in or eligible for inclusion in the National Register of Historic Places (NRHP).

Compliance typically requires the agency to identify historic properties within an area that may be impacted by an activity and to evaluate those properties' eligibility for nomination to the NRHP. In the case of archaeological sites, this evaluation often includes excavations designed to define a site's boundaries and to assess its integrity and historical and cultural significance relative to one or more historic contexts.

Evaluations of a site's NRHP eligibility based on hand excavation are highly invasive, expensive and — because only a tiny portion of each site is excavated — potentially unreliable. In the eastern United States, for example, many prehistoric sites that have been plowed have no intact cultural stratum, but the preserved lower portions of pit features may contain scientifically

important deposits. A site assessment program based on a grid of shovel tests and a small number of hand-excavated test units can easily fail to discover any of the pits. In many cases, such a failure could lead to an incorrect recommendation that the site is not eligible for the NRHP.

Geophysical techniques can be used to search for subsurface features across a large portion of a site. Excavation units can then be targeted directly on possible features, thereby improving the likelihood of detecting intact, culturally and historically significant archaeological deposits. This targeted excavation can reduce the volume of excavation required to evaluate a site's NRHP status and may reduce costs associated with fieldwork, analysis and curation.

The PWTB provides guidance for choosing good sites and appropriate equipment to conduct geophysical surveys. It is intended for cultural resources managers, land managers and archaeologists with limited experience using geophysical techniques.

## Deadline for abstracts for upcoming conference draws near

**T**he Environmental and Natural Resources Management Communities of Practice are encouraging U.S. Army Corps of Engineers employees to submit abstracts for presentations at the upcoming Environmental and Natural Resources Conference Oct. 29 through Nov. 2 in San Antonio.

"This is an opportunity for you to highlight your environmental work and share your experiences by making presentations and actively participating in workshops targeted at new and innovative strategies, methods and techniques," said Dave Jaros, head of

the agenda committee and branch chief for the Hazardous, Toxic and Radioactive Waste Center of Expertise.

"Presentations should focus on environmental remediation/restoration/compliance, recreation management or natural resources topics, as well as crosscutting topics common to both these resource communities," he said.

Presentation proposals should include a summary/abstract not to exceed 200 words, a brief biographical statement about the presenter and the time required. Presentations will be given in concurrent sessions of 20-minute presentations with five minutes

allocated for discussion. Presentations requiring additional time, in 20-minute increments, will be considered on a case-by-case basis. Written papers supporting the presentation are not required. Presentation proposals should be submitted via e-mail to [ENR2007@usace.army.mil](mailto:ENR2007@usace.army.mil) and should include the words "2007 ENR Conference Presentation" in the message header. Deadline for submitting proposals is close of business April 15.

Applicants will be contacted no later than June 15 regarding the status of their proposals.

# Project creates habitat for endangered species

By San Francisco District  
Public Affairs Office

Together, three agencies are working to restore the Hamilton Airfield in Novato, Calif., to its former wetland state and create valuable endangered species habitat in the San Francisco Bay region.

Jay Kinberger, U.S. Army Corps of Engineers project manager, said the Hamilton Wetlands Restoration Project “represents an unprecedented opportunity to contribute to the restoration of the San Francisco Bay, which has lost more than 85 percent of its natural wetlands since the 1880s.”

The Hamilton Wetlands Restoration Project is a joint venture between two public agencies — the U.S. Army Corps of Engineers San Francisco District as the lead federal agency and California State Coastal Conservancy as the local sponsoring agency. In addition, the San Francisco Bay Conservation and Development Commission serves as a collaborating partner.

Dredged sediment — or sediment removed from the bed of a body of water — is often used to restore and re-establish wetlands across the country. Each year, an average of 3.6 million cubic yards of sediment is dredged in and around the San Francisco Bay. This is called maintenance dredging.

Today’s modern dredges excavate channels using large



San Francisco District awarded a contract to a joint venture between two dredging companies, the Manson Construction Company and The Dutra Group. This contract will complete the larger harbor-deepening project at the Port of Oakland. (Courtesy photo)

machinery guided by satellite information and computers to remove sediment from bays, rivers and harbors.

About a quarter of the 10.5 million cubic yards of dredged sediment required to construct the Hamilton Wetlands Restoration Project will come from the deepening of the Port of Oakland navigation channels. Other local maintenance dredging projects will provide the remaining 8 million cubic yards of dredged sediment. Once the sediment is dredged, it will be loaded onto a large barge and towed to a barge off-loader located in the San Pablo Bay, approximately five miles

offshore of the Hamilton Wetlands Restoration Project site.

Each barge will carry between 3,000 to 8,000 cubic yards of sediment. Water will be pumped from the San Pablo Bay by the off-loader and mixed with the sediment from the barges. The resulting slurry mixture will then be pumped through a pipeline to the project site.

Flexible pipelines and pumps will move sediment across the site and place it into various habitat areas. After the sediment is placed, the excess water will return to the bay by pumps.

Because the existing tidal wetlands are home to a

number of unique plants and “special status” species, including the endangered California Clapper Rail and the endangered Salt Marsh Harvest Mouse, the pipeline’s location, design and construction across the tidal wetlands adjacent to the site were carefully considered, using best engineering practices.

The final pipeline route will be the least disruptive to the environment and provide adequate access for project personnel.

To learn more about the process, visit the Hamilton Wetlands Restoration Project Web site:

[www.hamiltonwetlands.org](http://www.hamiltonwetlands.org)

# New process means savings for restoration work

## Louisville District finds first-time opportunity to use remediation contract on a project

By **Monica Miller**  
*Louisville District*

**W**hen seepage needed to be fixed in Woodlawn Landfill at Fort Campbell, Ky., Louisville District saw an opportunity to use a multiple awards remediation contract (MARC) with a restoration project.

Unlike previous sole-source restoration projects, MARCs lower costs to the district by creating competition among contractors.

“Upon realizing the significant cost savings that could be gained by using a MARC, we decided that this was the best way to go,” said Martin Lockard, Louisville District environmental project manager.

The district has five contractors in both big business and small business categories that can compete for a MARC. After the district establishes the scope of work and decides on the design, it will put out a request for proposals. The contractors will submit bids, and there are three selection methods. The Louisville District can either decide on the lowest bid, the lowest bid that is technically acceptable or the best value bid. Performance objectives, milestones and standards are all defined.

“The MARC is a very flexible tool,” Lockard said. “As much or as little design as needed can be decided upon by Louisville District and the customer.”

After reviewing the requirements for the project, the project delivery team decided that a big business with the best value bid would be the most likely to succeed due to time constraints. On Aug. 4, 2006, Louisville District awarded the contract to URS Inc.

Woodlawn Landfill, on the Tennessee side of the post, is used strictly for demolition waste. A certain area of the landfill covered with a cap and various grasses had developed four leachate pops. A leachate pop occurs when water infiltrates the cap to buried waste in a landfill, then is tainted by that waste and seeps out of the debris. If the leachate continues to seep without hindrance, it could adversely degrade surface water and ground water quality.

The first leachate pop was corrected with the installation of a riprap chimney drain that directs flow down into the landfill. The second and third leachate pops were temporarily fixed with additional compacted clay that eliminated the flow. Upon trying to correct the fourth leachate pop with the installation of a riprap chimney, heavy flow was encountered, and the mitigation attempt was terminated.

The site was backfilled and capped with clay soil to

prevent further outflow.

The Tennessee Department of Environment and Conservation, Division of Solid Waste Management (TDEC DSWM) issued a citation to Fort Campbell for excessive leachate and surface pooling at the leachate pops. The Fort Campbell Environmental Division was given 60 days to submit a work plan. In response, a new plan to install a well to pump leachate into a holding tank developed.

The plan called for the construction of an extraction well to remove the leachate, the installation of a 2-inch high density polyethylene underground conveyance line connecting the well to the holding tank, possibly installing two additional 10,500-gallon holding tanks if necessary for the existing leachate, obtaining a pump truck to transport the tanks to the Fort Campbell Wastewater Treatment Plant and reconstruction of the landfill cap in order to reduce the potential for leachate production. This construction included the removal of the existing top soil and addition of low permeability soil.

After receiving the citation, Fort Campbell Environmental Division began immediately working on the documents to obtain funding from the Compliance Deficiency Resolution process, which expedites the receipt of funds for resolving environmental compliance issues to avoid enforcement actions. It took less than two months for Fort Campbell to receive the funds to implement the plan to correct the fourth leachate pop.

“Over the last 10 years, Fort Campbell’s environmental program initiatives met statutory and regulatory requirements, and in many cases exceeded them,” said Loan Harris, Fort Campbell Environmental Division Solid Waste program manager. “Hence, the citation from TDEC DSWM was dealt with in a proactive and collaborative manner to maintain progressive environmental stewardship.”



**Leachate is pumped into this holding tank on the landfill.** (Photo by Richard Huser, contractor with Fort Campbell’s Solid Waste/Recycling Program)

# Corps designs 'green' firehouse

By Chris Gardner  
U.S. Army Engineering and Support  
Center, Huntsville

**T**he public wants environmentally friendly, or "green," buildings and the number crunchers want budget friendly buildings.

Engineers and architects at the U.S. Army Engineering and Support Center, Huntsville, a center of standardization, are working on marrying the two ideals as they come up with new guidelines for the construction of emergency services buildings for military installations throughout the United States.

Huntsville Center got involved in the project after being contacted by Manette Messenger from the Installation Management Command. Judy Milton at the Savannah District and Annette Stumpf at the Construction Engineering Research Laboratory in Champaign-Urbana, Ill., also are key players in the project. The customer for the project is Bruce Park, director of Army Fire and Emergency Services at the office of the Assistant Chief of Staff for Installation Management.

They are working on designs and new standards for installation Emergency Services Stations (ESS), which will act as a combined fire, police and emergency medical service station.

Chris Shepherd, an architect with the Huntsville Center, said the agencies will likely share space for things like administration, 911 answering, showers and eating areas. Sharing these spaces should significantly cut overhead costs incurred by having separate buildings around an installation.

A prototype ESS building should be designed, based largely on current fire station standards, in this fiscal year

and then built at Fort Bragg, N.C., in fiscal year 2008. Once operational, the new ESS building will be closely monitored for a year. Its costs and environmental impact will be compared to an existing fire station that was built on Fort Bragg in 2003.

Richard Grulich, chief of Huntsville Center's Architectural Branch, said the goal of the project is formulating new design standards that will eventu-



**The team is discussing the use of a fire pole in the design.** (Courtesy photo)

ally be used for all new ESS buildings.

He said that the target is to design standards that will satisfy Leadership in Energy and Environmental Design (LEED) requirements and have enough sustainable design components to earn a gold rating for this new ESS building.

LEED certified "green" buildings are leaders in environmentally friendly construction. Platinum is the highest rating a building can receive and gold is the next highest and is considered the highest practical standard in LEED certification. There are only about 15 LEED platinum certified buildings in the country.

Grulich said that once the first ESS

building is constructed, the team is working to cut energy usage by 20 percent and water usage by 35 percent.

Shepherd said that he hopes the project will be environmentally friendly from start to finish, from using eco-friendly building materials to waste management.

"Some of the neat features might be how we're going to have to deal with the waste coming from the building," Shepherd said. "We're trying to develop new techniques to get rid of that in a more healthy way."

Grulich said that an outside firm that specializes in doing environmentally friendly construction will be the Architect-Engineer as they try to make new "greener" standards for the ESS buildings.

A normal fire station costs about \$2.1 million and the estimated cost for a multipurpose "green" ESS building is approximately \$2.7 million. That combines the benefit of housing different agencies under one roof as well as the environmentally friendly and cost reducing factors, Grulich said.

The project is still in the early design stages, so it is yet to be decided whether the new ESS buildings will feature a "fire pole" for emergency personnel to slide down.

Shepherd, who recently visited Fort Benning, Ga., to look at a satellite fire station there, said there have been discussions of a fire pole, but it's not clear yet how practical it would be.

Grulich added that hopefully, once the sustainable design components are first applied to the new ESS buildings, they can be used as a guide for reworking the standards of other military construction plans, such as child care centers, fitness centers, Army Community Service centers and youth activity centers.

# California, Corps set FUDS priorities

The U.S. Army Corps of Engineers and state of California reached a landmark agreement that provides California with the opportunity to participate in prioritizing the Corps' work on formerly used defense sites.

"This agreement gives the Corps and the EPA a common understanding of California's priorities," said Vince Del Greco, U.S. Army Corps of Engineers program manager for formerly used defense sites in California.

"Since we don't have enough funds to do all the things we ought to do at the same time, the action plan gives us the state's priorities for decid-

ing what the Corps should work on first," he said.

Formerly used defense sites are military sites used by the Department of Defense or its predecessor agencies and then transferred out of DoD hands prior to October 1986. DoD investigates the sites to identify potential hazards and pays for the cleanup, although the requirements far exceed the annual federal funding available.

"It is imperative that our state has the ability to decide which sites will be worked on first," said Maureen Gorsen, director of the Department of Toxic Substances Control. "We have provided the Army Corp of Engineers and the federal EPA with a road map to

address these sites. This agreement serves as assurance that the map will be followed."

Under the agreement, California selected 50 sites as priorities through 2013. This listing will be updated every two years. Sites were selected based on the relative risk of toxicity and hazards to nearby communities.

"The Corps received approximately \$15 million in 2006 to work on cleaning up formerly used defense sites in California," Del Greco said. "Funding for 2007 is estimated at \$18 million and includes funds for 40 site inspections to investigate potential risk at military munitions sites — a top priority for the state."

## Ten best national parks for wildlife viewing



### 1) Channel Islands National Park, Calif.

Sea lions, seals, gray whales and humpback whales

### 2) Glacier Bay National Park, Alaska

Humpback whales, sea lions, black bears and moose

### 3) Denali National Park, Alaska

Dall sheep, caribou, grizzlies and wolves

### 4) Glacier National Park, Mont.

Grizzlies, mountain goats, elk and deer

### 5) Yellowstone National Park, Wyo.

Elk, wolves, bison and deer

### 6) Rocky Mountain National Park, Colo.

Bighorn sheep, mountain goats, elk and marmots

### 7) Theodore Roosevelt National Park, N.D.

Bison, wild horses, deer and elk

### 8) Big Bend National Park, Texas

Rare whitetail deer, mountain lions, beavers and turtles

### 9) Isle Royale National Park, Mich.

Moose and wolves

### 10) Everglades National Park, Fla.

Alligators, crocodiles, manatees and turtles

Information courtesy of the Great Outdoors Recreation Pages Web site at [www.GORP.com](http://www.GORP.com)

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