

Engineers fortify wash for battle against erosion



series of small dams and bank-stabilization projects along the Las Vegas Wash are reining in the once-unchecked erosion that has plagued the waterway for more than two decades.

Engineers such as Gerry Hester, a Southern Nevada Water Authority staff member assigned to the Las Vegas Wash Coordination Committee's (LWCC) project team, are using a combination of natural and manmade materials to armor the wash against erosion. Over the last 25 years, increasing daily flows and periodic floods have radically altered the wash channel, reducing once-abundant wetlands by about 90 percent.

"There's no question that bringing the channel under control is the key to managing the Las Vegas Wash," Hester said. "All of the other things we are trying to achieve—restoring wetlands vegetation, increasing wildlife habitat—can't be accomplished until we stabilize the wash. You can't build a house without a solid foundation: Erosion-control structures are that foundation."

Decades ago, water entering the Las Vegas Wash would slowly spread out as it entered the 12-mile stretch, nourishing nearly 2,000 acres of plants.

As flows increased, the water began to carve a deep channel through the sandy soil. Eventually, the channel became so deep that, even along the wash's banks, plants withered and died because they could no longer reach the water. Complicating matters, storms sent billions of gallons of water down the channel, scouring large areas clean of vegetation.

To combat these challenges, LWCC member agencies have installed four small dams—or weirs—along the wash using more than

600 million pounds of concrete. In addition to reducing erosion, these structures have decreased the amount of sediment carried into Las Vegas Bay.

The project team devised a different plan of attack against the meandering wash channel, reinforcing more than a mile of its banks with materials ranging from deep-rooting trees to massive chunks of concrete salvaged from imploded resorts.

"From an engineering perspective, the Las Vegas Wash is a great place to test new stabilization methods," Hester explained. "In one place, we'll use netting and small plants to shore up the banks. In another, we'll reinforce the curves with recycled concrete."

Under the Comprehensive Adaptive Management Plan created by the committee, 22 erosion-control structures are planned for the waterway. Four are currently in design; construction on the next structure is scheduled to begin in February 2002.



The Pabco Road erosion-control structure, constructed by Clark County, has significantly reduced erosion along that stretch of the Las Vegas Wash.

Wave of plantings scheduled for upcoming year

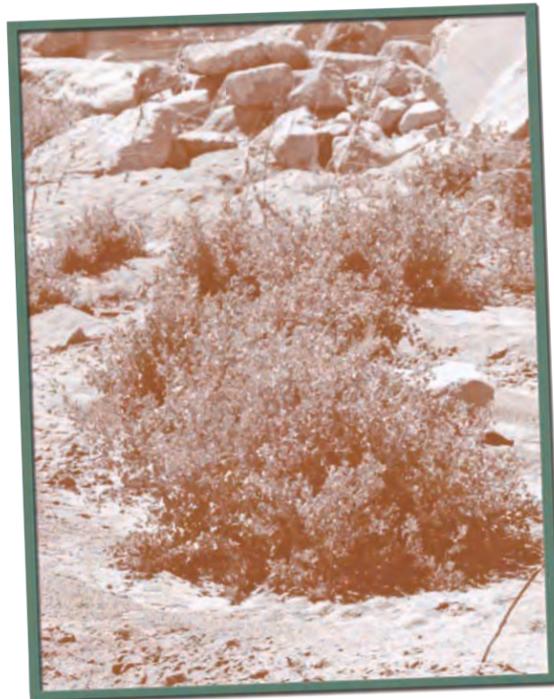
Last April, more than 500 local residents participated in the Las Vegas Wash Green-up, planting some 10,000 trees and shrubs in a single morning. That, according to Las Vegas Wash Project Team Environmental Biologist Keiba Crear, was only the beginning.

"It was a great effort, but the Green-up was really just the kick-off event," Crear said. "Volunteers revegetated about seven acres, and we learned some valuable lessons about what works in this environment. Now we're looking to apply that knowledge and build on the Green-up's success."

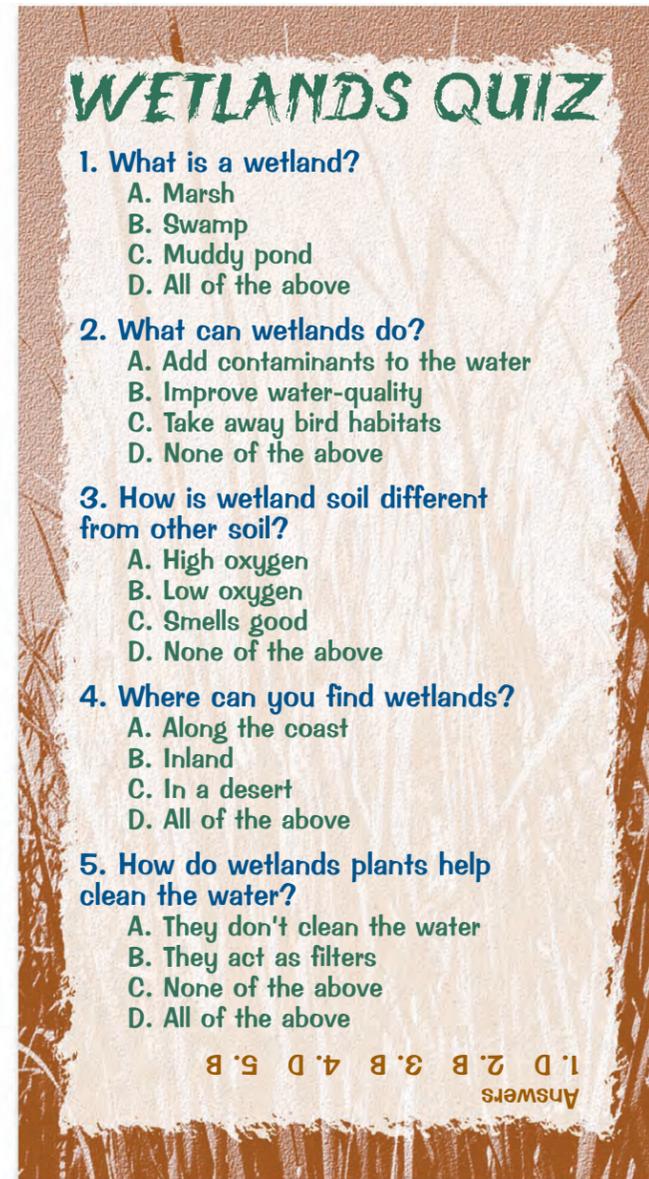
Since October, crews from various Las Vegas Wash Coordination Committee member agencies have been working with the project team to clear and revegetate an additional 15 acres adjacent to the wash. Much of the work, Crear said, involves preparing the sites for planting.

"Before we can plant, we have to clear the land of invasive species like tamarisk," she explained. "If the tamarisk is firmly entrenched, new plants just can't compete. The other issue is water: It may take more than a year for a new tree's roots to reach the water beneath it, so we have to irrigate until they're well-established."

To secure the necessary trees and shrubs, the project team has partnered with the Bureau of



Native species such as quailbush provide wildlife habitat and help stabilize the soil along the banks of the Las Vegas Wash.



Reclamation and nurseries at the National Park Service and Nevada Division of Forestry to provide native, locally grown plants. Mabel Hoggard Elementary School is developing a nursery through a grant from Reclamation that will supply not only plants but eager volunteers as well. Planting activities are conducted by volunteers, Nevada Division of Forestry crews and Native Resources, a private revegetation company.

This round of planting projects will culminate with the second annual Las Vegas Wash Green-up, tentatively scheduled for February 2002. Anyone interested in participating in the Green-up may call the project office at 822-3300 or visit www.lvwash.org.

PROJECT UPDATES

“Wash-friendly” plants and trees replace invasive species

The Las Vegas Wash project team is helping to change the landscape of the Las Vegas Wash from one comprised primarily of invasive species to one with a variety of native, habitat-friendly plants.

“Planting trees and other native plants is very effective in helping this ecosystem to thrive,” said Liz Bickmore, environmental biologist for the project team. “But another important component of our efforts is ridding the wash of invasive plants that hinder native growth in the area and challenge restoration efforts.”

Invasive, non-native tamarisk plants, for instance, comprise nearly 80 percent of all plant growth in the wash today.

“Because there is so much tamarisk in the wash, we will never be able to completely get rid of it,” Bickmore said. “But we are taking steps to control it as much as possible.”

Although controlling the tamarisk is no easy task, Bickmore said tamarisk clearing efforts conducted several days a week rid the wash of about one acre per month. The wash project team has coordinated efforts with

Nevada Division of Forestry work crews to conduct the grueling work.

In many cases, volunteers are replacing the tamarisk and several other invasive species with native plants and trees. During the 2001 Wash Green-Up event, volunteers planted about 10,000 plants and trees at several wash locations.

“This will be a difficult, ongoing battle against the tamarisk and other invasive plants,” said Bickmore. “But in the long run, it will clear the way for plants and trees that are more ‘friendly’ to the wash environment.”



A Nevada Division of Forestry representative holds an uprooted tamarisk plant.

How does the tamarisk threaten other plant species?

The tamarisk may “drink” much water, sometimes leaving little for other plants. The tamarisk seeds “fast and furious.” Its seeds are blown throughout the wash area and grow quickly after landing. As tamarisks grow and spread, they push other species right out of their homes.

Other “non-native” threats

Tamarisk is not the only non-native, invasive species found living in the wash. Others include:

Fountain Grass: Spreads quickly, removing native species and growing rapidly in their place. It is also a fire hazard.

Tall Whitetop: A noxious weed of particular concern in the Lake Mead Area. It seeds readily and also produces underground rhizomes—subterranean, thick plant stems that produce shoots above and roots below.

Arundo Donax: This fast-growing weed has little habitat value and “starves” shallow-rooted neighbors by drawing moisture to its deep roots.

Bugs reveal health of the wash

Brecky Blasius enjoyed collecting bugs as a child, but she never imagined one day she would actually make a career of it. Today, as a microbiologist for the Southern Nevada Water Authority, her scientific expertise in aquatic entomology has become a valuable tool in Las Vegas Wash restoration efforts. Her job is to collect and analyze bugs, which she refers to as macroinvertebrates.

Simply stated, macroinvertebrates are insects that live in water. And because they live in water, they are of scientific value to Blasius' macroinvertebrate study in the wash. Some examples include midges, beetles, caddisflies and mayflies.

"Because aquatic insects spend a good portion of their lives in water, they can reveal extremely accurate information about the health of the environment they live in," said Blasius. "They are an integral part of any ecosystem that contains water. Chemical samples are another tool for testing, but they only reveal a snapshot in time."

According to Blasius, her macroinvertebrate study began with baseline testing. Now, it compares baseline research results by focusing on the number of bugs as well as their diversity in the wash. She conducts tests and compiles information once a month on selected areas in the wash.

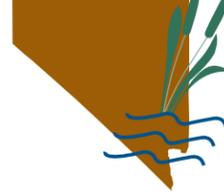
These tests are good indicators that help to measure the success of other efforts in the wash, such as increasing wetlands and erosion control, noted Blasius.

More about macroinvertebrates

-  This group of animals has no defined backbone.
-  Crustaceans, mollusks, worms, gastropods and insects are macroinvertebrates.
-  Wash scientists study macroinvertebrates because they are excellent biological indicators of stream health.
-  Wash sampling began in July 2000 and will be ongoing monthly.

Las Vegas Wash

Coordination
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For more information, visit our
Web site at www.lvwash.org or
call the project office at **822-3300**.

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