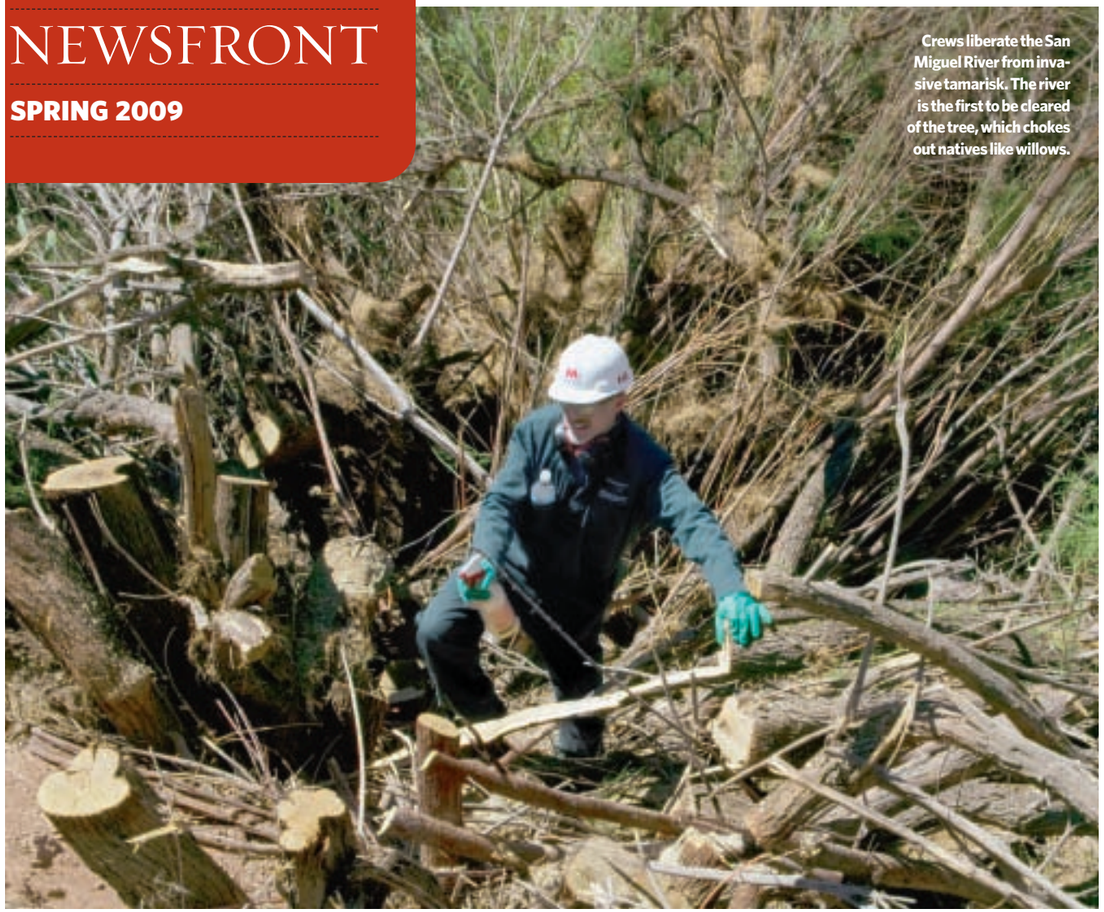
NEWSFRONT

SPRING 2009



Crews liberate the San Miguel River from invasive tamarisk. The river is the first to be cleared of the tree, which chokes out natives like willows.

Weed Warriors

An Epic Effort Frees a Colorado River From a Leafy Pest

THE DIN OF CHAINSAWS AND DIESEL-powered wood chippers drowns out the serene sounds of the San Miguel River a few dozen miles away from where the river spills from the mountains above the Colorado ski town of Telluride. But the ruckus created by the crew of more than 30 volunteers is welcome on this crisp autumn day, as The Nature Conservancy and its partners complete an eight-year effort to liberate the banks of the San Miguel from one of the West's most pernicious invasives: the tamarisk tree. This day marks the first time that a river's banks have been entirely freed from the weed's chokehold.

Since being introduced as an ornamental plant and windbreak in the mid-1800s, tamarisk has spread to cover 1.6 million acres across the West, mostly along streams. The plant, also known as salt cedar, collects salt in its leaves; when they fall to the ground, they increase the acidity of the soil and water to levels inhospitable to native cottonwood and willow trees. Tamarisk also has the ability to suck water supplies dry: An acre's worth of tamarisk can reduce river levels or groundwater by 4 feet a year.

Tamarisk "takes away the building block of life on the river itself," says Peter Mueller, director of the Conservancy's North San Juan Mountain Project. He is referring to the loss of organic leaf matter from native trees, which then deprives river crustaceans of a food source. That, in turn, affects other wildlife, including trout.

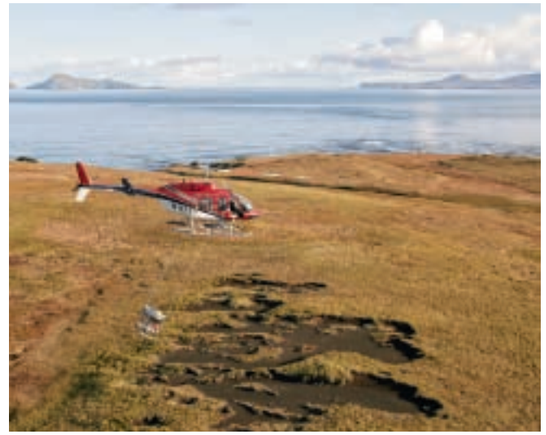
Since launching the eradication effort in 2001, the Conservancy, the Bureau of Land Management, the Colorado Department of Transportation and other partners have scoured 120 miles of the San Miguel and its feeder streams, cutting the bushy trees and applying herbicide to the stumps. The effort cost $1.3 million, drawing on local, state, federal and private funds, including a grant from Marathon Oil.

"I can't even count the volunteers and different companies that have helped," says Sheila Grother, the county weed control manager. "But when you look back and see the cottonwoods and willows and native grasses, you can see it's worth the effort."

Grother cannot fathom how many trees were cut and treated, but Mueller estimates more than 17,000 hours of labor went into the project.

The effort will receive ongoing help from the tamarisk leaf beetle. After years of research on the potential for igniting a beetle invasion, government scientists have released tens of thousands of the insects, which are native to Asia, along rivers throughout the West. The goal is to beat back the invasive plant, which is often too dense to eradicate by hand. "Over the long term," Mueller says, "the hope is that as the beetle settles in, it will be a natural check on the plant and prevent further deterioration of the watershed." —*Joshua Zaffos*

ONLINE: Learn more about efforts to repel invasive species at nature.org/magazine



Alaska's Rat Island was overrun by rats after a shipwreck in the 1700s. Crews are working to eliminate the rodents to restore the island for puffins and other native birds.

Rat Race

Liberating Rat Island for the Birds

THE 2,500 ISLANDS WITHIN the Alaska Maritime National Wildlife Refuge are renowned for their cacophony of petrels, gulls, murrelets and puffins. But on aptly named Rat Island, the sounds of the seabirds are gone, their numbers decimated by descendants of Norway rats shipwrecked there in the 1780s. In fact, says biologist Stacey Buckelew of the California-based environmental group Island Conservation, "One of the more common sounds is the noise of rats rustling around in the vegetation."

Omnivorous and wildly prolific, non-native rats are responsible for an astounding half of all bird extinctions worldwide. Rats take a full-meal-deal approach to birds, eating eggs as well as adults and chicks.

Now Rat Island's rat race may finally be nearing an end. In October 2008, The Nature Conservancy, Island Conservation, and the U.S. Department of Fish and Wildlife teamed up on a multimillion-dollar, no-holds-barred effort to rid the island of rats.

Similar rat-eradication efforts have succeeded on about 300 islands around the world. But Rat Island is much more remote and northerly than those targeted in previous efforts, making planning a logistical feat, says Buckelew. It took a week to move 17 people, two support ships, two Bell helicopters, and several weeks' worth of fuel and supplies to the island, which is more than 1,400 storm-tossed miles from Homer, Alaska.

The crew spread poisoned bait over the entire 6,800-acre island. Two helicopters dropped 50 tons of poisoned pellets in one week, and the group monitored progress with satellite tracking, ensuring no spot was missed. To minimize impact on migratory birds, the project was launched in October after most birds had already headed southward. (Although some birds may be accidental victims, few are able to live on Rat Island anyway.) Two years of monitoring will confirm whether any rats remain, as just one pair could rekindle an infestation.

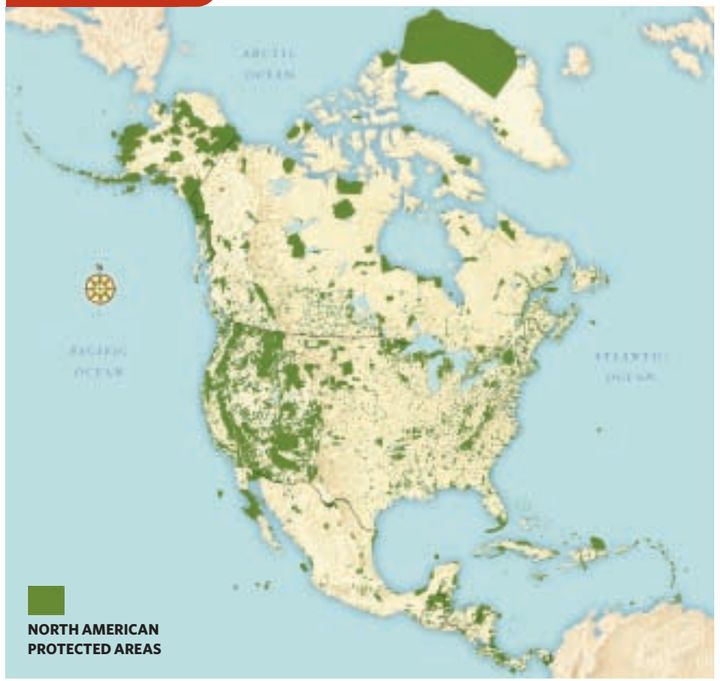
"We see [this effort] as a seabird-habitat restoration program, rather than a stand-alone project," says Steve MacLean, who directs the Conservancy's Bering Sea program. —BETH GEIGER

FIRE RECORD Nature Conservancy crews working across the United States burned more than 119,000 acres in 2007, setting an organizational record for the area treated with prescribed fires. Many ecosystems and species throughout the country depend on occasional fire. After a century of fire suppression, the Conservancy and other agencies are working to safely reduce built-up fuels and restore ecological balance. Here's what they accomplished in 2007, according to the latest available data:

The Nature Conservancy
119,341 acres

The National Park Service
111,879 acres

The U.S. Forest Service
1,291,712 acres



NORTH AMERICAN PROTECTED AREAS

Conservation Gains

Protected Areas Reach New Milestone

MORE THAN 7.3 MILLION SQUARE MILES—almost 13 percent of Earth's land surface—is now protected, according to *The World's Protected Areas*, a new book co-edited by Nature Conservancy scientist Mark Spalding.

More than 100 experts contributed to the book, which finds the number of protected areas has reached more than 114,000 and that every country in the world has set aside at least some amount of land as protected. "Amidst the many very real problems facing the planet," says Spalding, "it's great to step back and see what we've achieved."

The book notes that not all areas receive the same degree of protection. Some areas are set aside as wilderness, while others are for tourism or sustainable resource harvesting.

Despite recent gains, however, the book warns that many crucial habitat types and thousands of species remain unprotected. And progress could be lost: Protected areas face threats from climate shifts, invasive species and other disruptions. —CURTIS RUNYAN

Marine Priority
Marine biodiversity equals that on land. Yet less than 1 percent of the ocean's area has been protected, say experts.

Tropical Forests
Nearly 19 percent of land in biologically rich Southeast Asia is protected, including Hin Namno park in Laos (left).

ONLINE: Learn more about protected areas at nature.org/magazine

MAP: © XNR PRODUCTIONS. MAP SOURCE: UNEP-WCMC, *THE WORLD'S PROTECTED AREAS*, U. OF CALIFORNIA PRESS, 2008. PHOTOS: © STUART CHAPE (2); JONATHAN BIRD/SEAPICS.COM

LEXICON

Redefining Conservation

Echolocation

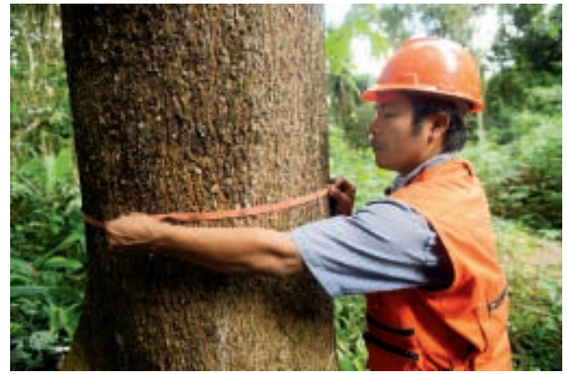
(ekō-lō-kā'shen) *n.*
1. The ability of an animal, such as a bat or a dolphin, to orient itself by the reflection of the sound it has produced.

WHILE PEOPLE LARGELY perceive their surroundings through reflected light waves, hundreds of species of mammals and birds are capable of "seeing" their world through reflected sound waves.

Using sound to navigate has allowed echolocating animals, such as shrews and dolphins, to succeed in ecological niches where sight is often of limited value—underground or underwater. Bats and some birds, for example, evolved to feed under the cover of darkness, avoiding daytime predators.

Protecting species that occupy oceans, caves and other parts of the world at the edge of our perception is likely to require new and innovative conservation strategies.

Dolphins use echolocation to "see" small prey hiding in the sand.



In Bolivia, communities are being trained to harvest their forests sustainably, providing an economic incentive to keep the vast majority of trees standing.

© AMI VITALI (3)

Logging for the Trees

In Bolivia, Fighting Deforestation With Forestry

BEFORE 2003, WHEN Nature Conservancy biologist Steffen Reichle found himself charged with helping to protect Bolivia's forests, he never expected that logging might be the answer. But in a country where swaths of forest the size of Yosemite are cleared each year to make way for crops and plantations, Reichle found himself working with a team that was charting a new kind of conservation—one in which selective logging by local communities could actually save the forests.

About one-third of Bolivia's 118 million forested acres are owned by traditional and indigenous communities, which have often had no choice but to sell to farmers or timber companies to raise money. With more than 75 percent of these communities living below the poverty line, Reichle knew that if the people had incentives, they might choose to protect their forests in the future. "We had to make those forests financially valuable to the communities so that they would fight to preserve them, rather than sell them off," he says.

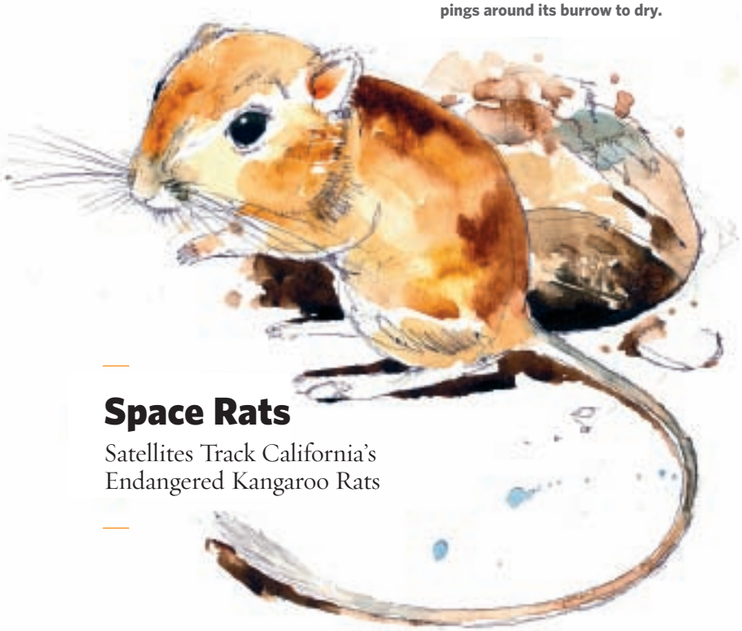
Reichle and his colleagues at the Bolivian Institute for Forest Research began studying the local habitat to determine whether selective logging would adversely affect wildlife. He has helped monitor about 50 species of reptiles, birds and amphibians in carefully logged plots. Now the team has found their answer: "We've seen no significant loss of biodiversity," says Reichle.

As part of this effort, the Conservancy partnered with the U.S. Agency for International Development and the Bolivian government to train local communities in sustainable forestry. The Bolivia Sustainable Forest Management Project, or BOLFOR II, trains community members to identify and harvest commercially valuable trees and to negotiate sales contracts with timber buyers. The project even helps Bolivian manufacturers get financing for timber purchases, and it facilitates negotiations for exporting timber. With the project's help, Bolivia has designated 13 million acres of forest for sustainable uses.

As a result, the communities netted nearly $1 million in sales contracts in 2007, and participating families have seen an increase of 23 percent in their forestry-related incomes.

While demand for trees is up, Reichle says he sees few negative impacts from sustainable harvests. "Even if a community removes a few more trees each year than ecologists recommend," he says, "the increased impact is considerably less than reducing that forest to a soy field." —*Cara Goodman*

ONLINE: Read more about sustainable forestry efforts at nature.org/sustainableforestry



Each summer the endangered giant kangaroo rat trims the grass at California's Carrizo Plain National Monument, carefully arranging the clippings around its burrow to dry.

Space Rats

Satellites Track California's Endangered Kangaroo Rats

NATURE CONSERVANCY scientists and their partners in California are turning swords into plowshares, using Cold War spy technology to track endangered animals.

Their first target: the giant kangaroo rat.

The size of an orange with a 7-inch-long tail, kangaroo rats emerge at night from burrows to snip seed-laden grasses—piling the clippings in near-perfect circles around their entryways, where the sun will cure the seeds. From space, the circular clipped areas resemble measles dotting the arid plain.

Tracking this rat, says Conservancy ecoregional director Tom Maloney, will help scientists protect the Carrizo Plain, a 390-square-mile remnant of the grasslands that once blanketed California's heavily agricultural San Joaquin Valley.

The experiment holds promise as a simple way to understand the dynamics of endangered ecosystems, says project adviser Justin Brashares, an environmental scientist at the University of California, Berkeley. His team of scientists is comparing satellite images of the plain taken in spring, before the rats begin harvesting grass, with images taken in the summer, when their harvest encircles their burrows.

By monitoring changes in the kangaroo rat population, says Maloney, scientists can estimate the health of several other endangered species in the area that depend on the rats, including the San Joaquin kit fox (which eats the rats) and the blunt-nosed leopard lizard (which shelters in the rats' burrows).

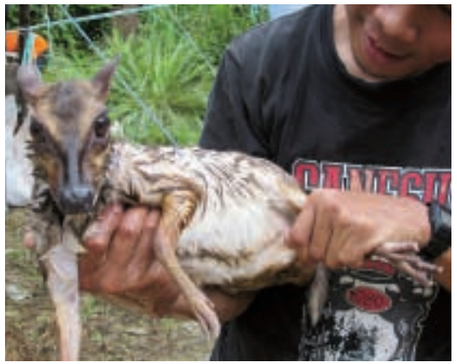
Scientists hope the technology will help them learn how the rat's lawn-mowing mania influences the rest of the plant community. Besides, Maloney adds, counting rats from space beats sleepless nights counting them on foot. —JANE BRAXTON LITTLE

IN THE NEWS

"We need a president who will help the American people understand that investment in the environment is necessary and not a burden."

—Mark Tercek, president and chief executive officer of The Nature Conservancy, discussing priorities for a new American presidency in the November 3, 2008, issue of *Time* magazine.

ONLINE: Learn more about the Conservancy's policy priorities at nature.org/policy



Researchers discover a mouse deer that hides underwater.

Underwater Deer

Researchers Observe a New Behavior in Borneo

A TEAM OF RESEARCHERS surveying forests in Indonesian Borneo last July made a startling observation after they startled a mouse deer—a small, tropical species of deer with short legs and sharp teeth.

Instead of fleeing into the forest, the mouse deer plunged into a nearby creek, hiding underwater with only short breaks for air for most of 30 minutes. The team, fearing the animal would drown, plunged in and scooped it up. They treated it for a scrape and later released it. "We have the first scientific evidence for underwater flight behavior in an Asian species of deer," says Nature Conservancy scientist and mouse-deer expert Erik Meijaard, who helped coordinate the surveys.

Scientists are looking into the ramifications of the finding, says one of the researchers, Rona Dennis: "There is still so much to find out about species ecology in Borneo—even more of a reason to ensure that species and habitats are given a chance to survive." —CURTIS RUNYAN

ILLUSTRATION: © STAN FELLOWS. PHOTO: © UMILAELA

Green Pay

Is Conservation a Cure for Economic Hard Times?

A new analysis of World Bank projects finds that adding environmental goals to antipoverty projects is a win-win.

GROWING THE ECONOMY and protecting the environment may not be at odds after all, finds Nature Conservancy Chief Scientist Peter Kareiva in a new report in the journal *Science*. Kareiva and researchers Amy Chang and Michelle Marvier examined assessments of 316 World Bank-funded development projects and found that devoting time and money to environmental goals does *not* undermine the success of antipoverty projects in the developing world. Their results show that projects with environmental goals—such as cleaning up water supplies, protecting biodiversity or controlling invasive species—fared as well as, or slightly better than, those without green initiatives.

We asked Kareiva if this is the beginning of an environmental awakening in poor countries looking to grow their economies.

What led you to look at this question? For the past 10 or 20 years, the big question has been, Do conservation projects help human beings? But there's been no real conclusion because there wasn't rigorous scientific analysis. You can always find one conservation project to write about where you accomplish goals and help people, and one where you harm people. But the World Bank has 11,000 projects in their database and standard reporting about them. If you have enough data points, we figured you might get a real clear signal.

We were surprised that you don't lose anything when you add environmental goals.

This is a shift from the gloomy reviews of the 1980s and 1990s, when joint development and environment projects were panned. People just said that these integrated conservation and development projects failed. Well, if you have a group of 90-year-old men, and you give them a fountain-of-youth treatment, and, lo and behold, a lot of them die in five years, you can also conclude you failed. It turns out that it's really hard to do development projects, just as it's hard to help 90-year-old men. [Less than 20 percent of the studied World Bank projects were deemed highly satisfactory.] But we found the joint conservation and economic projects don't fail at a higher rate than others.

With a global economic crisis upon us, imagine you're Robert Zoellick, head of the World Bank. How to take this information and go forward? In hard times, people tend to focus just on their own special interests. But the point is, in hard times, the solution has to include all sectors. Nature is often the foundation of economic development, whether it's good soil or clean water or protection from storms. The Conservancy should be lobbying the World Bank to do biodiversity work anytime they do economic development. And any time you're doing conservation work, you should pay attention to livelihoods. That may mean we need to change practices a little.

But we're hearing from world leaders that, during the downturn, conservation goals may have to be set aside. Underlying those comments is the belief that there's a trade-off between the environment and the economy. And we've shown there's no evidence for that whatsoever. —*Oakley Brooks*