

Monthly Wetland and Stream Corridor Restoration Update

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Welcome to the *Monthly Wetland and Stream Corridor Restoration Update*. This Web site

- Provides current information on wetland and stream corridor restoration projects
- Recognizes outstanding restoration projects
- Offers a forum for information sharing

We welcome the submission of articles and announcements related to your restoration project or program. Just send your write-up to EPA's contractor at restorationupdate@tetrattech-ffx.com or mail it to Rebecca Schmidt, Monthly Restoration Update Coordinator, Tetra Tech, Inc., 10306 Eaton Place, Suite 340, Fairfax, VA 22030. We will carefully consider your submission for inclusion in a future update. If your submission is selected, please note that it might be edited for length or style before being posted. Because this Web site is meant to be a public forum on restoration information, we cannot post any information that is copyrighted or information that advocates or lobbies for any political, business, or commercial purposes or has the appearance of doing so.

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Feature Article

Restoration Underway on the Manzanita Indian Reservation

California's Manzanita Tribe is using Clean Water Act section 319 funds to help restore streams and wetlands on their reservation. The reservation sits at an average altitude of 4,600 feet along the Tecate Divide, located 75 miles east of San Diego. The Divide serves as the main ecological barrier separating the coastal areas from the Lower Colorado Desert. Runoff from reservation lands either flows toward the coast in the Salton Sea watershed or toward the desert in the Tia Juana watershed.

In 2000 the Manzanita Tribe began to inventory their natural resources to determine the areas in greatest need of restoration. They mapped springs, streams, and wetland areas on tribal land and conducted a biological inventory in three wetland areas. The inventory identified existing flora and fauna and the quality of wildlife habitat. It showed that unmanaged female willow growth and excessive sedimentation were the greatest roadblocks for maintaining healthy watersheds on the reservation.

To help finance restoration projects, the tribe turned to Section 319 funds, which are distributed to states and tribes specifically for projects that work to improve water quality. The 319 funds allowed the Manzanita Tribe to initiate a cattle management program, in which they constructed fences to keep cattle out of streams. They also designed a grazing-management program that limited grazing in some areas, and constructed spring catchment boxes at some of the reservation's springs to provide water for livestock away from riparian areas.

The cattle management project has successfully kept cattle away from easily degraded riparian areas and wetlands. Without the disturbance caused by cattle hooves, native vegetation has begun to reestablish itself along riparian areas, which has helped to reduce the amount of sediment carried by the streams. To further reduce sedimentation, the tribe installed check dam structures in wetland areas. The check dams slow the water flow and allow sediment to settle out before the water enters wetland areas.

The tribe also used Section 319 funds to thin out female willow populations and increase populations of native cottonwoods and male willows. The reduction of the female willow populations, which consume disproportionately large amounts of water, has allowed the water table in wetland areas to recover. In the future, the tribe plans to replant wetland areas with native oaks.

The Manzanita Tribe continues to work with Section 319 funds to determine sources of pollutants and implement corrective measures on the reservation. For more information, contact Keith Adkins or Summer Elliott at the Manzanita Tribal Environmental Protection Agency, 619-766-4851.

If you'd like your project to appear as our next featured article, e-mail a short description to restorationupdate@tetrattech-ffx.com.

Community-Based Restoration Partnerships

Students Battle Invasive Trees at Coastal Reserve

College students recently joined local volunteers in a battle against invasive trees at the Rachel Carson National Estuarine Research Reserve in Beaufort, North Carolina.

As part of an ongoing service project, education majors from the University of North Carolina (UNC)-Greensboro spent 2 days in September working to rid the reserve of French tamarisk trees, an invasive species that out-competes native vegetation for water and nutrients. The project helps students meet professional development requirements while providing the Reserve with extra hands to complete their labor-intensive project.

Mandy Uticone, a parks and recreation management major at UNC-Wilmington and summer intern at Rachel Carson, designed the eradication plan. For 3 years, she tracked the spread of the trees and researched methods to control them. As part of the plan, students work with volunteers Tony Castagna and Bruce McCutcheon to cut down the trees with chain saws and treat the stumps with chemicals to kill them.

The Rachel Carson staff has future plans to tackle another invasive species, phragmite grass. Staff and volunteers will cut the grass and cover the remains with black plastic. "The heat from the plastic should kill the plants," says Amy Sauls, an educator at Rachel Carson.

For more information on the Rachel Carson National Estuarine Research Reserve visit www.ncnerr.org. To read more about the students work to eliminate invasive species, visit <http://dcm2.enr.state.nc.us/CAMAGram/Fall02/trees.htm>.

Volunteers Are Key to Reducing Cost of Habitat Improvement Process

August 2002 marked the completion of construction on a flow-enhancement structure near the confluence of Hatt Slough and the Stillaguamish Old Channel, south of Stanwood, Washington. Three years into a project designed to improve habitat during the downstream migration of juvenile salmon, the Stillaguamish Flood Control District has completed construction of a flow-enhancement tidegate in an 8-mile estuarine channel of the Stillaguamish River. The new gate may be the only structure of its kind, designed to maintain the Old Channel's water quality by exploiting natural, tidally induced cycles in the river's flow. It becomes operational in July 2003 when gates will be added to enhance flows.

Questions on how to restore the salmon-rearing habitat in this stretch of the "Old Stilly" river date back to the 1970s. Until the development of the recently completed tidegate, restoration experts lacked a practical, affordable way to prevent the water stagnation that is harmful to fish. During the summer dry season (July through October) the gate will prevent stagnation by forcing down the channel an average

750 thousand cubic feet (5.6 million gallons) of fresh water per tide. The hatches in the gate will then be removed in October to allow for increased winter water flows.

Teamwork was essential to the success of the project. “This was definitely a group effort,” said Chuck Hazleton, District Commissioner. Local volunteers and personnel from other agencies worked together to overcome permit hurdles, technical problems, and a tight budget. Volunteers labored alongside the contractors to cut costs and accomplish construction within a 9-day window of moderate tides. In the end, the structure was completed for less than half the price estimated by the U.S. Army Corps of Engineers. The entire process, which began in April 1999, was “not for the faint of heart,” according to Max Albert, Project Coordinator.

Since the August 2002 completion of the tidegate structure, project partners planted thousands of trees and shrubs along the Old Channel. The project will need continued maintenance and monitoring over the next few years to prevent damage from beavers, voles, and reed canary grass. For more information, visit www.snohomishcd.org/old_stillaguamish_channel.htm or contact Max Albert at 425-778-6590.

Rutherford Dust Society Launches Campaign to Restore Napa River

Vineyard owners in Rutherford, California in the Napa Valley wine growing region, have begun a stewardship program to restore 4 miles of the Napa River. The Rutherford Dust Society, an association of vintners and growers, is coordinating the public-private partnership to develop a long-range master plan. In November 2002, work began to catalogue existing restoration programs, to measure invasive exotic species, and to map the Napa River’s flow through Rutherford.

Late last year, the Rutherford Dust Society Board of Directors voted unanimously to empower a subcommittee, the Rutherford Dust Restoration Team (RDRT or “our dirt”), to initiate a plan to manage and restore the river. The subcommittee is cochaired by John Williams, president of Frog’s Leap Winery and president of the Rutherford Dust Society, and Davie Pina, owner of Piña Vineyard Management, LLC, also a Rutherford Dust Society Board member.

“To repair the main stem of the Napa River, to restore its habitat, we needed owner commitment, a holistic approach, and supportive government agencies,” said John Williams. “So far, we have all three, which bodes well for expanding the program to the tributaries,” he added.

Vineyard owners are often discouraged from pursuing their own restoration programs by the high cost and time required to coordinate with as many as eight government agencies who oversee such programs. “The Rutherford Dust Society can aggregate all these projects under one umbrella, which allows the group to coordinate work and funding more efficiently and less expensively than any individual land owner could acting independently. It’s just doing the right thing by business and the environment,” said Davie Piña. “Eighty percent of land owners along the river have provided funding and access rights during this first phase, and there’s no reason to believe we won’t get the final 20 percent in the next few weeks,” he added.

“The way this organization has hustled to launch their program has been astonishing,” said Stephen Rae, environmental science consultant to Napa County and owner of Musci Natural Resource Assessment.

“The fact that the land owners have provided signed access agreements and financial commitments in advance is rare. It typically happens the other way around.”

The initial phase of the project commenced in November at an estimated price of \$52,000. The goal is to produce a master plan this spring that is based on a comprehensive analysis of the overall health of the Napa River as it flows through Rutherford. Research includes cataloguing bank erosion, understanding the area’s ecological history, mapping the prevalence of native and nonnative species and Pierce’s Disease (a lethal disease of the grapevine) host species, measuring water flow and flood potential, understanding the scope of existing restoration projects, and initiating the grant application process for this ambitious project.

The Rutherford appellation is both the geographic and historical center of grape growing in the Napa Valley. Approximately 6 square miles, the appellation includes 27 wineries and over 63 grape growers. Vintners and growers founded the Rutherford Dust Society in 1994, whose mission is to encourage and promote the highest quality standards in grape growing and wine making in the Rutherford Viticultural Area, and gain recognition for this quality through education of the membership and public.

For more information about the work of the Rutherford Dust Society, contact Jeremy Benson, Executive Director, at 707-254-1107 or visit the Web site at www.rutherforddust.org. To see the original press release, visit www.rutherforddust.com/watershed.

If you are part of an innovative community-based partnership that is working to restore river corridors or wetlands, we’d like to hear from you. Please send a short description of your partnership to restorationupdate@tetrattech-ffx.com.

Achieving Restoration Results

15 Acres of Critical Habitat Restored as Part of Settlement for Tampa Bay Oil Spill

Almost 10 years after three ships collided and spilled oil into Tampa Bay, citizens have regained 15 acres of wetland and upland habitat at Joe’s Creek along the shores of Boca Ciega Bay, Florida. On April 25, 2003, federal, state, and county officials held a dedication ceremony and officially declared the Joe’s Creek site fully restored. At the ceremony, students from nearby North Side Christian High School conducted a demonstration planting to illustrate how natural vegetation was restored to the area.

The project was designed and cofunded by Pinellas County and the Southwest Florida Water Management District (SWFWMD) and paid for with funds from the Tampa Bay Oil Spill settlement. In addition to the \$132,000 from the Tampa Bay Oil Spill settlement, SWFWMD contributed \$134,000, and Pinellas County provided \$89,000.

The Joe’s Creek restoration project is part of an attempt to compensate for injuries to the water column and sediment caused by the oil spill. To restore the Joe’s Creek site, crews cleared the area of debris and invasive plant species while taking care to preserve a nesting area for a bald eagle and existing stands of slash pine, cabbage palms, and live oaks. The restoration plan also called for soil regrading that flattened

spoil mounds, created additional upland hammocks, and restored natural tidal flow to lowland marsh areas. Volunteers planted native upland and wetland vegetation, and officials expect mangroves to recolonize the area over the next several years. The restoration successfully created additional habitat areas for fish, shellfish, gopher tortoises, and waterfowl.

The Joe's Creek restoration is one of many projects being carried out with funds recovered in 1999 to compensate for environmental harm caused by the 1993 Tampa Bay oil spill. The recovery was part of an \$8 million settlement of public claims arising from the spill. The National Oceanic and Atmospheric Administration, U.S. Fish and Wildlife Service, and Florida Department of Environmental Protection continue to work together with Pinellas County and SWFWMD to implement restoration efforts throughout the Tampa Bay area. For more information about the Joe's Creek restoration project, visit www.publicaffairs.noaa.gov/releases2003/apr03/noaa03r125.html.

If you are part of an innovative restoration project that has had positive results, we'd like to hear from you. Please send a short description of your project to restorationupdate@tetrattech-ffx.com.

Funding for Restoration Projects

Funds for Michigan's Coastal Management Program

Michigan's Coastal Management Program was created to enhance waterfronts and public access to these areas through the redevelopment of urban waterfronts, protection of sand dunes and wetlands, and control of development in flood hazard areas. Projects must be located in the coastal boundary, coastal lake, or Great Lakes connecting channel of Michigan. Qualified coastal cities, counties, villages, townships, regional planning agencies, state agencies, universities, school districts, or tribal governments are encouraged to apply for up to \$50,000 in grant funding. A 50 percent match is required. For more information, visit the Michigan Directory of State Administered Grants at www.house.state.mi.us/hfa/PDFs/grants02.pdf.

Ecosystem Restoration in the Western United States

The General Service Foundation's resources program works to preserve and protect aquatic and riparian ecosystems in rivers and their tributaries in the western United States. Projects of special interest are those that preserve or increase instream flows while balancing the needs of wildlife, agriculture, municipalities, industries, recreational interests, and tribes.

The foundation's interest in water quality is primarily focused on the negative impacts of mining in the West. The foundation will give priority to organizations and projects working in the field that have the potential for national impact through the provision of technical assistance to grassroots groups throughout the region. The deadline to submit proposals is September 1, 2003. For more information about the grant program, visit www.generalservice.org.

One Fly Foundation Grants for On-the-Ground Restoration Projects

The One Fly Foundation was created to generate, manage, and grant funding for projects that environmentally benefit the future of trout and fly fishing. Public, private, and government agencies are encouraged to apply for funds to support projects that preserve, protect, and restore fisheries and their

watersheds. The Stream Improvement Program targets on-the-ground projects, but will also consider research projects. Projects must match funds on a one-to-one basis. Applications are accepted in January and July of each year. For more information, visit www.jhonefly.org/applications.htm.

Please send any news you have on funding mechanisms available to local community organizations to restorationupdate@tetrattech-ffx.com.

News and Announcements

EPA Announces Watershed Organizations for a New Watershed Initiative

On May 5, 2003, EPA announced nearly \$15 million in grants to 20 watershed organizations selected as part of a new Watershed Initiative. The new initiative will support community-driven initiatives that protect habitat, improve water quality, and enhance outdoor recreation.

The winning watersheds cover more than 90,000 square miles of the nation's lakes, rivers, and streams. They represent the country's unique and varied landscape—from the forests of Maine to the tropics of Hawaii. These watersheds reside in urban and rural areas, encompass agricultural land, and are often threatened by suburban sprawl. Funds will go toward restoration and protection projects, such as stream stabilization and habitat enhancement, implementing agricultural best management practices, and working with local governments and homeowners to promote sustainable practices and strategies. The grants range from \$300,000 to \$1 million.

Regional and national experts selected the winners from a highly competitive field of more than 176 nominations. The winners were chosen because they best demonstrated the ability to achieve on-the-ground environmental results in a short time frame. Each of these watershed organizations exhibited strong partnerships with a wide variety of support, showed innovation, and demonstrated compatibility with existing governmental programs.

The 20 winning watersheds are:

- Meduxnekeag River, Maine
- Narragansett Bay, Rhode Island and Massachusetts
- Charles River, Massachusetts
- Raritan River, New Jersey
- Susquehanna Headwaters, New York and Pennsylvania
- Christina River, Pennsylvania and Delaware
- Dunkard Creek, Pennsylvania and West Virginia
- Upper Tennessee River, Virginia, Tennessee, and North Carolina
- Cumberland River, Tennessee and Kentucky
- Great Miami River, Ohio
- Greater Blue Earth Watershed, Minnesota and Iowa
- Manistee River, Michigan
- Rio Puerco Watershed, New Mexico
- Bayou Bartholomew, Arkansas
- Rathbun Lake, Iowa

- Upper White Watershed, Arkansas and Missouri
- Clark Fork-Pend Oreille, Montana, Idaho, and Washington
- Upper South Platte, Colorado
- Hanalei Bay, Hawaii
- Lower Columbia River, Oregon and Washington

For more information on the new Watershed Initiative program, visit www.epa.gov/owow/watershed/initiative.

Connecticut Wetland Restoration Research Published

Appearing in the September 2002 volume of the scientific journal *Restoration Ecology* is an article entitled “Salt Marsh Restoration in Connecticut: 20 Years of Science and Management,” authored by scientists at Connecticut College and Ron Rozsa of the Department of Environmental Protection (DEP) Office of Long Island Sound Programs. The article chronicles DEP’s systematic restoration, begun in 1980, of salt marshes degraded by man’s alteration or elimination of tidal flow. It provides evidence that restoration of tidal exchange through the removal or modification of tide gates and other control structures, and the reopening of restricted tidal channels, has enabled these wetlands to become healthy and self-maintaining ecosystems similar to existing healthy salt marshes.

As described in the article, long-term scientific investigations by Connecticut College scientists have demonstrated the success of the state’s efforts. They have shown that functions such as tidal flooding, aeration of water, availability of spawning habitat, and removal of nonpoint source pollutants do return to restored wetlands, as do native salt marsh vegetation, invertebrates, fish, and birds, albeit at different rates. For example, the nonnative invasive form of common reed (*Phragmites australis*), which occupies low-elevation marshes that are flooded daily, often gives way to native salt marsh vegetation in 5 years, whereas at higher elevations, the restoration process typically takes 10 to 20 years. Similarly, marsh invertebrates, including amphipods like the banded marsh hopper, reestablish in about 5 years, while populations of the salt marsh snail resemble those in adjacent healthy or reference marshes only after approximately 20 years. As wetlands dominated by common reed revert to salt marsh plants and shallow water pools, marsh specialists, such as the saltmarsh sharptailed sparrow, seaside sparrow, and willet, return, as do waterfowl, wading birds, and shorebirds.

The report concludes that, “returning tidal action will set degraded marshes on trajectories that will restore ecological attributes and functions.” For more information on tidal wetlands and the DEP’s wetland restoration programs, contact Ron Rozsa at 860-424-3034 or by e-mail at ron.rozsa@po.state.ct.us.

[This article was featured in the February 2003 issue of the Connecticut Department of Environmental Protection’s *Sound Outlook* Newsletter (Number 12). To view the publication see <http://dep.state.ct.us/olisp/soundout/sofeb03.pdf>].

To post your restoration news and announcements, please send information to restorationupdate@tetrattech-ffx.com.

Upcoming Conferences and Events

New Listings

Coastal Zone 03: Coastal Zone Management Through Time

July 13–17, 2003
Baltimore, Maryland

The Coastal Zone conference series gathers ocean and coastal management professionals to explore this year's theme: coastal zone management through time. Discussions will focus on four main topic areas: port and harbor management, regional land management, management responses to coastal hazards, and management of aquatic resources. Sessions will address tidal marsh restoration, large-scale salt marsh planting, multistate restoration efforts, and other topics that would benefit those interested in coastal zone restoration planning. For more information, visit www.csc.noaa.gov/cz2003 or contact Gale Peek, Coastal Zone 03 conference manager, at Gale.Peek@noaa.gov or 843-740-1231.

Soil and Water Conservation Society 2003 Annual Conference: The Columbia, Conserving a Legacy of Life

July 26–30, 2003
Spokane, Washington

The 2003 annual conference of the Soil and Water Conservation Society will be an opportunity for integrated learning and sharing across key natural resource topic areas. The conference will focus on how conservation of natural resources is linked to local, regional, national, and global concerns. Discussions will focus on four main topic areas: integrated watershed and basin management, water supplies for ecology and economy, grazing health for sustainable production, and air quality for public health. For more information, visit www.swcs.org or contact Nancy Herselius at nancyh@swcs.org or 515-289-2331, extension 17.

Riparian and Aquatic Ecosystem Monitoring Workshop

August 4–8, 2003
Forest Grove, Oregon

This 5-day workshop is designed to provide participants the programmatic and technical methodologies to teach and conduct stream and watershed monitoring. It is designed for anyone with a reasonable science background interested in technical aquatic and riparian ecosystem monitoring programs including educators (junior high, high school, or college), agency resource professionals, volunteer monitoring coordinators, watershed council representatives, and representatives from environmental organizations. Topics covered will include ecosystem monitoring methods, data management and communications strategies, watershed connections, and program design and assessment. For more information, visit www.swrp.org or contact Stacy Renfro at renfro@pdx.edu.

To post your restoration news and announcements, please send information to restorationupdate@tetrattech-ffx.com.

Restoration-Related Web Sites

http://www.state.ma.us/dfwele/RIVER/riv_toc.htm

Riverways Programs. The Commonwealth of Massachusetts' Riverways Programs promotes the restoration and protection of the ecological integrity of the Commonwealth's watersheds, rivers, streams, and adjacent lands. The primary activity of the Riverways Programs is to provide technical assistance and outreach to communities, citizens groups, and others on various aspects of river, stream, and watershed protection, restoration, and stewardship. This site provides river-related information, describes publications and videos, and offers restoration links. *This site would be useful for anyone interested in river restoration, particularly in the northeastern United States.*

<http://www.greenworks.tv/delawareestuary/minigrants.htm>

The Partnership for the Delaware Estuary, Inc. The partnership is a regional, nonprofit organization, based in Wilmington, Delaware, that is dedicated to the promotion and conservation of the Delaware Estuary. The Web site provides information on their corporate environmental stewardship program, volunteer opportunities, educational resources, events, and materials available through the partnership. *This Web site has many ideas for how to get a wide variety of community members involved in a restoration effort.*

www.stroudcenter.com/index.htm

The Stroud Water Research Center. The center is a nonprofit institution near Avondale, Pennsylvania, that seeks to advance the knowledge of freshwater ecosystems through interdisciplinary research into all aspects of streams, rivers, and their watersheds. The Web site provides information on sponsored restoration programs, ongoing research, and available educational materials. *This Web site provides a wealth of information on new stream restoration research.*

www.coastalconservancy.ca.gov/scwrp

The Southern California Wetlands Recovery Project. This project is a partnership of public agencies working cooperatively to acquire, restore, and enhance coastal wetlands and watersheds between California's Point Conception and the international border with Mexico. The goal of the project is to accelerate the pace, extent, and effectiveness of coastal wetland restoration. *This project is a good example of a regional effort including multiple partners to improve wetlands and watersheds using a watershed approach.*

www.weedcenter.org

Center For Invasive Plant Management. The center represents a coalition of agencies, organizations, and individuals interested in managing invasive plants and maintaining healthy ecosystems in western North America. The center's goals are to enhance land manager and public education, coordinate regional research, facilitate partnerships, increase multidisciplinary communication, and implement

practical management programs. *This site would be useful for anyone undertaking an invasive species removal project.*

www.partnershipresourcecenter.org

Partnership Resource Center. The goal of the center is to provide tools that help people work together to build strong communities and healthy ecosystems. The Web site features a story of the restoration of Karnosky Creek in Oregon, and also offers links to training programs, funding opportunities, volunteer recruitment methods, publications, and similar Web sites that are designed to help organizations work together. *This Web site would be useful to anyone trying to strengthen partnerships within their restoration program.*

www.watershed.cboss.com/agencylinks.htm

Alliance for Watershed Action and Riparian Easements (AWARE). The AWARE Web site provides basic information on watersheds and tips on how homeowners can protect their watershed. It also provides more in-depth information on the need to protect and restore watershed and stream areas and common threats to the health of local streams. *This Web site would be useful for someone looking for materials to help increase watershed awareness and encourage citizens to get involved in local restoration projects.*

Let us know about your restoration-related Web site. Please send relevant URLs to restorationupdate@tetrattech-ffx.com.

Information Resources

Restoring Stream Banks With Willows

by the Missouri Department of Conservation

Using willows along a stream has many benefits, including providing shade and cover for stream life and improving water quality by absorbing and storing chemicals. This document details various ways to restore stream banks with this natural vegetation. For more information, see www.conservation.state.mo.us/fish/streams.

Tree Revetments For Streambank Stabilization

by the Missouri Department of Conservation

Available on-line at www.conservation.state.mo.us/fish/streams/revetmen, this fact sheet describes how to use tree revetments as an inexpensive, effective way of stopping streambank erosion. Diagrams are included.

***Tools for Addressing Riverbank Erosion:
Guidelines for Communities and Landowners along the Upper Missouri***

by U. S. Environmental Protection Agency Region 8

This small guidebook contains a great deal of easy-to-reference technical information. It describes natural processes of large rivers, and lists tools landowners and local governments can use to protect riverbank lands and maintain natural river processes. It reviews bank erosion issues, then describes available options and resources to address these issues. Copies are available free from EPA Region 8 in Denver. Contact John DiPentino at 303-312-6594 or e-mail at dipentino@epa.gov.

Riparian Restoration Field Guide

by the U.S. Forest Service

Management and Techniques for Riparian Restoration and Roads Field Guide, Volumes I and Volume II, address practical issues involved with road design and building in relation to riparian areas. Topics discussed include retaining walls, slope rounding and revegetation, soil bioengineering, invasive species, ditch treatments, low water crossings, culverts, fish passage, and many more. To order both documents, send an e-mail to rschneider@fs.fed.gov, call 970-498-1392, or write to Rocky Mountain Research Station, 240 West Prospect Road, Fort Collins, CO 80526. Mention that the publication number is General Technical Report GTR-102.

If you'd like to publicize the availability of relevant information resources, please send information to restorationupdate@tetrattech-ffx.com.