Biweekly Wetland and Stream Corridor Restoration Update

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Welcome to the *Biweekly 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. Just send your write-up to EPA's contractor at restorationupdate@tetratech-ffx.com or mail it to Rebecca Schmidt, Biweekly 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

Conservation District Completes Stony Creek Improvement Project
From an article by Jeremy Trexel published in *Earthtones*, Winter 2002–2003

The Dauphin County Conservation District (DCCD) has completed a stream improvement project near Ellendale Forge in Middle Paxton Township that will result in reduced erosion and sedimentation in Stony Creek. The project will also benefit fish and other aquatic life downstream and will eliminate a dangerous, unstable bank on the creek's north side. The project involved removing the remnants of an abandoned railroad bridge over Stony Creek, removing of the rail bed, and rebuilding a severely eroded stream bank.

Although these structures were harmless under normal water level conditions, high-water conditions created a different situation. The creek naturally transports fallen logs and other debris with high water, but the three bridge piers acted as a strainer and gradually collected more and more debris. One of the piers had fallen onto its side in the creek, further exacerbating the problem. This accumulation of debris created a partial dam and redirected the main channel of Stony Creek at the north bank. In addition, the elevated rail bed on the south side acted as a partial dam during high-water conditions by stopping the creek from flowing across its natural floodplain. As a result, all floodwaters were "funneled" through the stream channel. During high-water level conditions, constraining the water to one side of the creek resulted in more water moving at a higher speed than the channel could accommodate. This caused an incredible amount of erosion along the north bank of Stony Creek and was beginning to threaten Stony Creek Road.

Upon examining the site, DCCD staff noticed several eroding gullies on the north side of the creek resulting from poorly controlled runoff from Stony Creek Road. The gullies were cutting into the already severely eroded north bank and adding more sediment pollution to Stony Creek.

The effort to solve this problem began several years ago when the landowner on the south side of the creek, Harold "Hank" Snyder, brought the issue to the attention of DCCD staff. After exploring several potential sources for funding, DCCD obtained a grant from the Pennsylvania Fish and Boat Commission for the project. After DCCD obtained the necessary permits and clearances, the selected contractor, Gleim Environmental, began work on October 9, 2002. Gleim removed the accumulated debris and bridge piers from the creek's channel. Logs and other woody debris were piled nearby to provide habitat for wildlife. The piers were broken into several pieces and used to provide support at the base of the eroding north bank. Next, the contractor excavated fill material from the rail bed on the south side of the creek, loaded it into dump trucks, and trucked it around to the north bank where the material was used to

backfill eroded areas. Finally, Gleim constructed a diversion channel to collect the runoff from Stony Creek Road and carry it down over the rebuilt slope to protect the newly seeded and mulched site.

This project has been successful in restoring Stony Creek and its floodplain to their natural condition. Floodwaters now have access to a broad floodplain to the south of the creek, and the north bank has been rebuilt. When Stony Creek's water level is very high, water spreads out over the south floodplain and erosion along the north bank is minimized.

If you have questions about the Stony Creek Improvement Project or would like more information on this project, contact the DCCD office at 717-921-8100 or jtrexel@dccd.pa.net.

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

Community-Based Restoration Partnerships

One-Woman Wetland Project Restores Tiny Oasis

Cathy Beauregard-Covit has introduced her San Pedro, California, neighbors and other community members to the presence of a well-hidden freshwater wetland. Every day, area residents walk, bike, and drive by this tiny oasis nestled between industry and homes just below an east-facing slope and a bikeway on a vacant lot overlooking the Los Angeles harbor.

Beauregard-Covit, a neighborhood council representative in San Pedro, discovered the wetland while looking for a beautification project for her council to undertake. She found the wetland on a strip of vacant property skirting the west edge of the Port of Los Angeles. Access to the area was made possible by a bikeway that had recently been installed by the Port of Los Angeles. Among the dirt lot strewn with litter and weeds, Beaureagard-Covit discovered her oasis.

Further exploration of the small freshwater wetland revealed reeds growing in a corner of the large vacant lot. Despite the wetland's small size, pairs of red-winged blackbirds had made the area their residence. Beauregard-Covit, who also has seen killdeer, observed birds nesting and has found some small, recently hatched egg shells. This little wetland was clearly doing its share to help sustain a small community of wildlife.

Beauregard-Covit explored the possibility of obtaining city grant money for the restoration project. As a result of her work, the Harbor Vision Task Force of the Angeles Chapter of the Sierra Club passed a resolution in support of the efforts to maintain this freshwater habitat and spruce up the adjacent bike path.

Beauregard-Covit started her work by tackling one of the site's biggest problems—garbage. She organized a lot cleanup day on June 1, 2002. Thirty volunteers, including several area Girl Scouts, solved the litter problem by picking up all the trash in just a few hours.

The next steps in the restoration project were to increase the size of the marsh slightly—just enough to fill one odd-shaped corner of the lot—and replant the area with native vegetation. This step met with some early opposition from the L.A. Harbor Department, which runs the port and had initially installed the bikeway. The Department had planned to plant the lot with grass, but after soil engineers reported that the soil was loose fill dirt and that the irrigation for a lawn might trigger a slide, the Department became receptive to the idea of native vegetation.

Upon approval of her vegetation project, Beauregard-Covit joined forces with Cabrillo Aquarium and Museum. The restoration of the freshwater wetland complemented the work the aquarium was doing to maintain a 3.25-acre saltwater marsh for educational purposes. The two wetlands are now joined by a walkway.

Beauregard-Covit continues to replace invasive species on the vacant lot with native wetland species. The California Native Plant society provides recommendations on which native species should be planted. As the restoration continues, Beauregard-Covit hopes that the new plants will encourage wetland animals and insects to make the small plot their home. For more information, visit www.politeo.net/harbor/SoSn200207-story4.html.

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@tetratech-ffx.com.

Achieving Restoration Results

Cosmo Park Streambank Stabilization Demonstration Project

Harmony Creek watershed drains a portion of Columbia, Missouri, and contains approximately 83 acres of commercially developed land, park land, and highway right-of-way. The increased runoff from the developed watershed had taken its toll on the natural structure of the stream. In many places, the stream banks had lost their vegetative cover, and most of the channel itself was bare earth. Without rock or plant roots to protect it against the erosive force of storm water, notches, called head cuts, began to form in the streambed. Once started, the head cuts slowly worked upstream, contributing to a cycle of erosion and silt deposition that was harming water quality and threatening utilities and sidewalks.

The City of Columbia Stormwater Utility developed the Cosmo Park Streambank Stabilization Demonstration Project with three goals in mind: (1) to stabilize the channel, (2) to learn more about bioengineering and stabilization, and (3) to demonstrate the process and techniques for the public.

The channel was stabilized using two basic methods. First, were possible, steep banks were regraded to make them less steep. Regrading reduces the chance of slope failure (embankments caving in). It also allows storm water to spread out in the channel, and helps to slow the water and reduce the depth, both of which make the flow less erosive.

Second, a series of pools and riffles were designed for the channel. The riffles (also known as grade control structures) allow the water to flow more rapidly without damaging the strea bed or banks. Riffles also add oxygen to water, making it possible to support more aquatic life. Pools are areas where water moves much more slowly and is therefore less erosive. (Natural streams in this part of the country are typically made up of a series of pools and riffles.)

In areas where erosive forces were particularly high, a rock lining across the bottom of the channel was designed. The height to which this lining was extended up the sides of the channel was determined by analyzing the force that the water from a 100-year storm would exers on the bank. Where that force was such that vegetation alone could withstand it, rock was stopped and vegetation was used to protect the banks.

All along the channel, plants were specified to provide structural support to the stream banks. Willows were chosen for the sides of the channels because they are inexpensive, are easy to install, and root quickly and deeply. They will also provide shade for the channel, which is necessary for many creek-dwelling bugs and other insects and wildlife. Prairie grasses were chosen for the stream banks above the willows because of their ability to grow deep root systems in difficult conditions. These plants will help provide deep slope stability to the stream banks at a reasonably low cost. Some wildflowers were included in the prairie grass seed mix to improve the aesthetics of the stabilization and to attract birds and butterflies as well as other wildlife.

The grasses planted include sideoats grama, Canada wild rye, little bluestem, big bluestem, fowl mannagrass, switchgrass, and prairie cordgrass. Interspersed among the grasses, observers can expect to see lance-leaved coreopsis, purple coneflower, spiked grayfeather, showy goldeneye, and black-eyed Susan.

The first two goals for this project, stabilizing the channel and learning more about the biostabilization process, have been met to a degree. Although more work is still required, the channel is now stable. The cost of the stabilization work alone, leaving aside educational costs, has been competitive with other methods of accomplishing the same goals. The project will continue to be observed, and particular attention will be paid to aesthetic and water quality benefits and maintenance costs. For more information, visit www.ci.columbia.mo.us/PublicWorks/StormWater/cosmo_stream_bank.html.

Health Care Company Steps Forward to Restore Oregon Stream

An Oregon Health Care company has joined forces with a nonprofit group to restore Johnson Creek, a 26-mile-long degraded urban stream in Milwaukie, Oregon. Last year ODS Health Plans decided to begin restoring a portion of Johnson Creek that runs through its property. Not knowing where to begin, the company turned to the Johnson Creek Watershed Council for assistance. The Council helped ODS

develop and implement restoration plans for a publicly visible site near the creek's confluence with the Willamette River.

In December 2001 a small work crew removed almost 4 acres of tangled Himalayan blackberry bushes in the creek's riparian area. The crew returned in January 2002 and planted 4,000 trees and shrubs, including Western red cedar, Oregon ash, and Pacific ninebark. The project is intended to improve water quality, restore riparian and aquatic wildlife habitat, and serve as a public demonstration project. For more information, see www.jcwc.org or www.pdxstreams.org/JohnsonCreekrestoration.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@tetratech-ffx.com.

Funding for Restoration Projects

Section 206 Aquatic Ecosystem Restoration Program
Section 206 of the Water Resources Development Act of 1996 provides authority for the US Army Corps of Engineers to construct aquatic ecosystem restoration and protection projects. Such projects usually include manipulation of the hydrology in and along bodies of water, including wetlands and riparian areas. A project is adopted for construction only after a detailed investigation determines that the project will improve the quality of the environment, is in the best interest of the public, and clearly shows the engineering feasibility and environmental justification of the improvement. Applications for this program are accepted throughout the year and require a 35 percent cost share match.

For more information on these projects, contact the nearest district US Army Corps of Engineers office, or visit www.usace.army.mil/divdistmap.html to find the nearest district office.

Oregon Watershed Enhancement Board's Small Grant Program

The Oregon Watershed Enhancement Board provides small grants to sponsor on-the-ground watershed restoration and enhancement projects on forest, agricultural, range, urban, and rural residential lands. Projects must be based on sound principles of watershed management, address sources of watershed health problems, and be consistent with the *Oregon Aquatic Habitat Restoration and Enhancement Guide*. Any person, tribe, watershed council, soil and water conservation district (SWCD), community college, state institution of higher education, independent not-for-profit institution of higher education, or political subdivision of the state of Oregon is eligible to apply. State or federal agencies may apply with an eligible coapplicant. Grants are awarded for up to $10,000. For more information, visit www.oweb.state.or.us/SmallGrant/Rules/rules.shtml or contact Melissa Leoni at 503-986-0179 (Central and Eastern Oregon) or Wendy Hudson at 503-986-0061 (West of the Cascades).

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

News and Announcements

Patuxent River Oil Spill Restoration Plans Announced

In December 2002 the Commerce Department's National Oceanic and Atmospheric Administration (NOAA) and other federal and state agencies announced plans for $2.7 million in restoration efforts aimed at renewing natural resources damaged by an April 2000 oil pipeline spill into the Patuxent River in southern Maryland. Eleven separate restoration efforts will address the natural resource damage caused by the ruptured pipeline, which spilled approximately 140,000 gallons of oil at the Potomac Electric Power Company (Pepco) Chalk Point generating facility in Aquasco, Maryland. Under the federal Oil Pollution Act, NOAA, the US Fish and Wildlife Service, Maryland Department of Natural Resources, and Maryland Department of Environment are responsible for assessing and restoring natural resources injured by the spill. Companies responsible for the spilled oil will fund restoration efforts beginning in spring 2003.

The agencies conducted a natural resource damage assessment to determine the nature and extent of injuries to resources and the restoration needed to reverse the losses. It is estimated that the spill oiled over 80 acres of wetlands and shoreline, killing more than 1,000 birds and animals such as waterfowl, diamondback turtles, and muskrats. The spill also harmed fish and shellfish and hampered an estimated 125,000 river trips by fishermen and recreational boaters. For more information see www.darp.noaa.gov/neregion/chalkpdf/cppr1213.pdf.

Fire-Damaged Riparian Areas Slated for Restoration

In December 2002 Colorado Governor Bill Owens announced grants totaling more than $720,000 to help rehabilitate two Colorado watersheds heavily damaged by wildfire earlier in the year. "We are working to reverse the effects of devastating wildfires. Revegetating the damaged areas will help protect municipal water supplies as well as the aquatic environment. Preserving Colorado's water quality in the aftermath of the fires has to be one of our highest priorities," Owens said.

Grant funds are being provided by the Nonpoint Source Program of the Colorado Department of Public Health and Environment's Water Quality Control Division.

The Denver Water Board received $500,000 for reseeding and mulching around Cheesman Reservoir on the Douglas/Jefferson County line. The Reservoir is a major water impoundment on the South Platte River and is located in the Hayman Fire burn area. Approximately 56 percent of the burned areas drain into either Cheesman Reservoir or the South Platte River upstream from the reservoir.

"Cheesman Reservoir and the South Platte River are major sources of drinking water for Denver, serving more than one million people," said Douglas H. Benevento, director of environmental programs for the Colorado Department of Public Health and Environment. "Sediment from the burn area can wash into the reservoir and the South Platte River, severely taxing the water treatment processes, threatening drinking water and habitats including gold medal trout streams. Seeding and mulching will help to revegetate the burn area and prevent erosion, runoff, and sediment loads."

The Florida Water Conservancy District in southwestern Colorado received $220,000 to help rehabilitate two smaller watersheds in their service area and protect the raw drinking water supply for Durango. The watersheds had been damaged earlier this year by the Missionary Ridge Fire. The focus of this rehabilitation work is to reduce sediment and debris in the Florida River resulting from post-fire storm water runoff.

The Hayman Fire was the largest wildfire in recorded Colorado history, scorching more than 137,000 acres. The Missionary Ridge Fire burned more than 70,000 acres. Throughout Colorado, nearly 500,000 acres burned during the 2002 wildfire season. More than 7 million acres burned nationally. For more information see www.cdphe.state.co.us/release/2002/121002.html.

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

Upcoming Conferences and Events

New Listings

May is American Wetlands Month

This May, the Environmental Protection Agency is proud to partner with the Izaak Walton League of America and its other partners in federal, state, tribal, and local governments, and in private and nonprofit organizations, to join thousands of Americans celebrating American Wetlands Month. Events are scheduled across the country to better educate Americans on and involve them in the protection of one of Earth's most important ecosystems. This year's theme is Bogs, Playas and Pools: Protect America's Unique Wetlands.

The National Wetlands Awards are a highlight of each year's celebration. The awards honor individuals from across the country who demonstrate extraordinary effort, innovation, and excellence in wetland conservation. The American Wetlands Conference is now held biennially in partnership with the Izaak Walton League of America. We are looking forward to the 2003 conference, May 1–5 in Minneapolis, Minnesota, which will focus on our theme, "Bogs, Playas and Pools: Protect America's Unique Wetlands." Conference information, American Wetlands Month project ideas, and a calendar of wetland events in your state can be found on the Izaak Walton League website at www.iwla.org/sos/awm. Additional information about the history of American Wetlands Month can be found at www.epa.gov/owow/wetlands/awm.

Urban and Rural Streams Symposium

June 23–26, 2003
Philadelphia, Pennsylvania

The Urban Water Resources Research Council and the River Restoration Committee are sponsoring this symposium in conjunction with the World Water and Environmental Resources Congress. The symposium will focus on the restoration and protection of urban and rural streams. More information on the World Water and Environmental Resources Congress can be found on-line at www.asce.org/conferences/eventsmore.cfm.

Billings Land Reclamation Symposium 2003

June 3–6, 2003
Billings, Montana

This symposium is a joint conference of the Billings Land Reclamation Symposium and the Annual Meeting of the American Society of Mining and Reclamation. The conference will focus on land reclamation and rehabilitation issues relevant to the Northern Great Plains and the Intermountain West. Several sessions on stream channel design will be held. In addition, workshops will address topics like wetland and riparian health assessment, stream channel design, and invasive species management. For more information, visit www.billingslandreclamationsymposium.org.

Master the 10 Tools to Beat the Muddy Water Blues

May 8–9, 2003
Memphis, Tennessee

The International Erosion Control Association is sponsoring this 2-day workshop, which will focus on reducing sediment in streams. The first day will consist of two training courses. In the morning the discussion will focus on biotechnical soil stabilization for streambanks; in the afternoon the focus will be on construction site sediment control practices. The second day will focus on 10 tools—construction site entrances, seeding and mulching, ri rap, check dams, sediment basins, silt fence, storm drain inlet protection, turf reinforcement mats, berms, and erosion control blankets. On the second day, outdoor field demonstrations and exhibits will be open from 9:00 a.m. to 3:00 p.m. For more information, visit www.ieca.org/public/articles/details.cfm?id=875.

Previous Listings

Inaugural National Conference on Coastal and Estuarine Habitat Restoration
April 13–16, 2003
Baltimore, Maryland

The National Conference on Coastal and Estuarine Habitat Restoration, hosted by the nonprofit group Restore America's Estuaries, is intended to mobilize the coastal and estuarine habitat restoration community to advance knowledge, practice, pace, and success in habitat restoration. The conference will draw participants from the government, corporate, nonprofit, and academic sectors. For more information see www.estuaries.org/nationalconference.php or contact Restore America's Estuaries by phone at 703-524-0248.

Hydrology Days 2003
March 31–April 2, 2003
Fort Collins, Colorado

Hydrology Days has been held on the campus of Colorado State University each year since 1981. It is a unique celebration of multidisciplinary hydrologic science and its relationship with other disciplines. The Hydrology Days vision is to provide an annual forum for outstanding scientists, professionals, and students involved in basic and applied research on all aspects of water to share ideas, problems, analyses, and solutions. The focus includes the water cycle and its interactions with the land surface and atmospheric, ecosystem, economic, and political processes, as well as all aspects of water resources engineering, management, and policy. One of this year's special sessions focuses on advances in river restoration. More information is available at http://hydrologydays.colostate.edu/callforpapers.htm.

Symposium on Landscape Ecology and Wildlife Habitat Evaluation: Critical Information for Ecological Risk Assessment, Land-Use Management Activities, and Biodiversity Enhancement Practices
April 7–9, 2003
Kansas City, Missouri

The symposium was organized (1) to stimulate exchanges among risk assessors, wildlife managers, and landscape ecologists regarding better approaches to evaluating environmental conditions and assessing risk to ecological resources and (2) to explore existing standards and determine whether new approaches and new standards to characterize and quantify ecological resource conditions and to assess risk to those resources are warranted. For more information, contact Hannah Sparks at 610-832-9677; fax: 610-832-9667, e-mail hsparks@astm.org.

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Restoration-Related Web Sites

http://erosion.coafes.umn.edu

University of Minnesota's Erosion and Sediment Management and Control Program. The Minnesota Department of Transportation (Mn/DOT), in partnership with the Biosystems and Agricultural Engineering Department at the University of Minnesota, is launching an Erosion and Sediment Control certification program. The certification training is designed to increase compliance with erosion and sediment control provisions on Mn/DOT projects and to provide comprehensive training of inspectors, project managers, contractors, and designers. *This is an example of a training program that could prevent sediment problems in streams.*

www.wcu.edu/crd/wnct/psas/sediment.htm

South Carolina's Sediment and Erosion Control Page. This Web page provides information on the problems caused by accelerated erosion. The page also provides examples of best management practices that can be used to control sediment, the legal requirements for sediment and erosion control practices, and suggestions for using native vegetation in combination with riprap to restore streambanks. Links to additional Web resources are also provided. *This Web site would be useful for anyone looking for information on preventing sedimentation problems and slowing accelerated erosion along streambanks.*

www.wes.army.mil/el/dots/budm

US Army Corps of Engineers Beneficial Uses of Dredged Material Web Page. This page provides information on the uses of dredged material and a list of past projects involving the use of dredged material for wetland restoration. *This Web site would be useful for anyone interested in successful wetland and habitat restoration projects that have involved the use of dredged materials.*

www.gulfofmexicofoundation.com/restoration.htm

Gulf of Mexico Foundation Restoration Projects. The Gulf of Mexico Foundation coordinates a grant program aimed at funding citizen-driven habitat restoration projects that benefit living marine resources and foster local stewardship throughout the Gulf of Mexico region. This site features information about restoration projects completed during the program's first year, and it provides information about the program for interested applicants. *This site would be useful for anyone considering implementing a restoration project in the Gulf of Mexico region.*

www.pcef.org

Pinellas County Environmental Foundation. The Foundation's mission is to preserve, restore, and enhance the natural resources of the Tampa Bay Area. The foundation hosts events promoting conservation of the area's many water resources and also funds wetland and shoreline restoration projects. *This Web site would be useful for anyone looking for information about innovative funding and education programs that focus on wetland and shoreline restoration.*

www.river-management.org

River Management Society. The River Management Society is a national nonprofit professional society dedicated to the protection and management of North America's river resources. The organization exists mainly as a forum to promote the exchange of information regarding river management to promote

sustainable use of natural resources. *This Web site would be useful for anyone seeking information on river management or riparian health issues.*

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

Information Resources

Impacts of Urbanization on Aquatic Systems
by the Center for Watershed Protection

This report includes a comprehensive exploration of more than 225 multidisciplinary studies documenting the hydrological, physical, water quality, and biological impacts of urbanization and impervious cover on aquatic systems. The report also has sections on management of non-supporting streams, urban stream classification, and planning for small watersheds. This report can be ordered from the Center for Watershed Protection's Web site www.cwp.org.

A Regional Guidebook for Applying the Hydrogeomorphic Approach to Assessing Wetland Functions of Low-Gradient, Blackwater Riverine Wetlands in Peninsular Florida
Published by the US Army Corps of Engineers

This new publication is a collection of concepts and methods for developing the functional indices used to assess the capacity of a wetland to perform designated functions. The approach was initially designed to be used to consider alternatives, minimize impacts, assess unavoidable project impacts, determine mitigation requirements, and monitor the success of mitigation projects. However, other potential applications include determining minimal effects under the Food Security Act, designing mitigation projects, and managing wetlands. The guide can be downloaded from http://libweb.wes.army.mil/uhtbin/hyperion/EL-TR-03-3.pdf.

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