

Bi-weekly Wetland and Stream Corridor Restoration Update
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Welcome to the Bi-weekly Wetland and Stream Corridor Restoration Update. This Web site

Provides current information on wetland and river 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, Bi-weekly 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

New Campus Incorporates Wetlands

The University of Washington–Bothell and Cascadia Community College are making way for wetlands as they build a new, co-located campus on 127 acres within the city limits of Bothell, Washington. Before construction began, North Creek, which flows through the property north to south before it joins the Sammamish River, was straight, channelized, and confined within artificial levees. Despite being largely cut off from floodwaters, some degraded wetlands did exist throughout the floodplain area. Soil analysis indicated, however, that before modification of North Creek, the site had supported a complex marsh to mixed marsh-forested wetland environment, depending on the annual precipitation. As part of the construction plan, this wetland ecosystem became the focus of a major restoration effort.

Although the campus construction planning team tried to avoid and minimize impacts on waters and wetlands by locating the campus on the hillslope, development of the campus still required the filling of about 6 acres of wetlands in the floodplain of North Creek. Mitigation was therefore necessary for the project to occur. Although it would have been possible to meet the mitigation requirements on the site without restoring the entire floodplain and channel, the state of Washington made a commitment to environmental enhancement of the site that went beyond what was necessary under existing regulations. With environmental enhancement as one of the stated goals of the project, the most logical and consistent approach to meeting the regulatory requirements was to restore the structure and functioning of the North Creek riverine ecosystem on the site.

Restoring the Ecosystem

The planning team proposed that North Creek be reconnected to portions of its historical floodplain by creating new primary and secondary channels and restoring some 58 acres of riverine and floodplain ecosystem. The regulatory agencies recognized the proposed restoration as more than mitigating for the acres of wetlands lost to campus construction, and conditional permits were issued in 1996. Final project approval was granted in June 1998.

The riverine ecosystem restoration design was based on detailed information from reference sites, studies of the current hydrologic conditions of the North Creek basin, hydrologic modeling, channel constraints, and the ecological potential of the North Creek site. The restored North Creek ecosystem is designed to

develop over decades. Particularly with respect to the new channel system, the restoration is designed to occur with minimal risk; that is, slowly and in logical stages.

Channel and wetland design targets included (1) maximizing channel length, (2) maximizing contact time between water and wetlands, (3) creating secondary high-flow channels, (4) placing large wood in the channel to guide channel alignment and morphology, (5) providing for increased peak flows as a result of urbanization of the North Creek watershed, (6) allowing lateral channel movement within design parameters, and (7) providing visual access from both the campus and highway corridors.

The planning team decided that natural stream channel morphology would be returned to North Creek by constructing a new channel system that reflected characteristics found at reference sites in the Puget Sound Lowlands. That is, the new stream channel system would be constructed to allow overbank flow to occur approximately once a year. This approach would restore the linkage between the channel and floodplain components of the North Creek ecosystem. The new main channel was designed with bed and bank features, meanders, and a variety of in-channel habitats, including pools, riffles, and large wood. Secondary channels were designed to engage at different flow volumes.

Restoring Vegetation

The planting plan for the restoration site is a mosaic of at least 20 plant community types, each representing communities found at reference sites in the Puget Sound Lowlands. The different communities are positioned on the restoration landscape according to site water balance, frequency of flooding, proximity to the channel, substrata condition, and overall aesthetics.

The team planted in phases to accommodate the requirements of establishing the new channel, as well as to incorporate a sequence of plantings that will increase the overall establishment rate of plants in the restoration. For example, many of the species typical of reference standard sites are sun-intolerant plants that require shade for survival and reproduction. Therefore, initial planting was focused on establishing species that will grow rapidly on the open site, creating shaded and suitable conditions for plants installed during later phases. Final planting was completed in summer 2002. Ongoing weed control will rely on shading from native plants, hand or small mechanical weeding, and spot application of chemical controls (using EPA-approved aquatic herbicides).

Looking to the Future

Restoring natural ecosystems takes a long time. The native forests of the Puget Sound required hundreds of years to reach maturity. Initially the restoration at the new campus will look much like a clear-cut. Canopy closure of trees will not happen for about 10 years. At the end of 10 years, the site should begin to look like an immature forest. It will take another 20 or 30 years before the restoration site really begins to function fully as a self-sustaining ecosystem. While the restoration is maturing, it will be necessary to actively manage the site. Management requirements at the site will be highest during the first 3 to 5 years and then gradually taper off. Eventually, routine maintenance is all that will be required.

The federal Clean Water Act section 404 permit requires monitoring of the site for 10 years following completion of the restoration. This monitoring is designed to ensure that the restoration is indeed

progressing toward specified project targets as articulated in the permit. If the restoration is not progressing as required, contingency measures are triggered. For instance, if a severe drought or flood causes significant mortality of planted stock, replanting may be required. If project targets have been met at the end of 10 years, the permit conditions will be satisfied.

In addition to monitoring, routine maintenance will be required to ensure the success of the restoration. For the first several years, maintenance will include irrigation of newly planted areas and active weed control. Additional plantings may also be required. Longer-term maintenance includes ongoing weed and pest control, cleanup of trash, trail maintenance, and possibly thinning. For more information, including pictures of the site, see www.bothell.washington.edu/fpdc/wetlands/wetlands.html.

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

Five-Star Restoration Projects Update

The goal of EPA's Five-Star Restoration Program is to bring together citizen groups, corporations, youth conservation corps, students, landowners, and government agencies to undertake projects that restore streambanks and wetlands. The program provides challenge grants, technical support, and peer information exchange to enable community-based restoration projects. A few Five-Star Restoration projects are being revisited to see if the modest amount of funding (between \$5,000 and \$20,000) has helped the local restoration partners achieve their goals.

Project Title: BMP Education Project
Five-Star Grant: \$10,000
Grant to: Casco Bay Estuary Project
Location: Portland, Maine
Grant Year: 1999

Original Project Description:

The Casco Bay Estuary Project, in partnership with the Maine Conservation Corps (MCC), the Maine Department of Environmental Protection, the City of Portland, and the Cumberland County Soil and Water Conservation District, will create an educational site demonstrating the use of vegetation and best management practices (BMPs) to reduce storm water runoff. The MCC will plant a buffer strip to treat parking lot storm water runoff before it enters Casco Bay. An interpretive educational sign will be posted at the site to explain the benefits of the project and provide bay stewardship tips for the community. Benefits of this project include reducing untreated storm water entering the bay, increasing wildlife habitat, increasing awareness of and community stewardship for the bay and its watershed, and engaging local youth in conservation activities.

Project Update:

The project is complete, and the project partners were able to accomplish everything they set out to do. They were able to develop an educational site that demonstrates the use of vegetation and BMPs to reduce storm water runoff. The MCC planted a buffer strip to treat parking lot storm water runoff. At

the site, an educational sign was posted explaining the benefits of the project and providing bay stewardship tips for the community. Everyone involved walked away with a better understanding of the watershed in which they live. [Updated May 2002.]

Project Title: Winchester Lake and Upper Lapwai Creek Watershed Restoration
Five-Star Grant: \$11,243
Grant to: Nez Perce Tribe
Project Location: Winchester, Idaho
Project Year: 2000

Original Project Description:

The Nez Perce Tribe, with assistance from Winchester State Park, Palouse Audubon, and others, will restore 11 acres of a wetland meadow on tribal land in the Winchester Lake and Upper Lapwai Creek watershed. Project partners will enhance wildlife habitat by reintroducing native herbs and shrubs, removing invasive grasses, creating vegetated buffers, and constructing bird nesting boxes for migratory songbirds. The partners will also educate members of the local community about ongoing watershed restoration efforts by erecting interpretive signs on an old tribal trail along the creek. A volunteer monitoring effort involving the tribe's Water Resources Division and local landowners will begin after the restoration work is completed.

Project Update:

The Nez Perce Tribe's Water Resources Division has successfully completed enhancement and restoration activities on 11 acres of a wetland meadow on tribal land in the Winchester Lake and Upper Lapwai Creek watershed. The meadow restoration project augmented the tribe's involvement in a larger, ongoing restoration effort in the Upper Lapwai Creek watershed.

In November 2000 a demonstration project in the use of bioengineering techniques for riparian restoration was performed along Upper Lapwai Creek in the wet meadow. The workshop focused on the use of bioengineering techniques (the use of plant materials in restoration) to restore function and structure to the stream bank along Upper Lapwai Creek. Participants constructed and installed a revetment, a brush mattress, fascines, vertical bundles, and pole plantings in and along the stream. The demonstration project partially fulfilled the project objective to shade the stream and stabilize the bank along the creek, thereby enhancing salmonid habitat. The workshop also provided an opportunity to educate participants about the ongoing community restoration efforts in the creek and Winchester Lake watershed.

Additional efforts included the installation of 10 bluebird nesting boxes in the meadow in June 2001. It is hoped that science classes from a local high school will continually monitor the boxes.

In October 2001 approximately 300 linear meters along Upper Lapwai Creek adjacent to the meadow were planted with native species to address temperature and sediment loading concerns. A total of 2,250 native shrubs, providing a variety of ecological functions, were planted. Before the riparian areas were planted, all grasses along the stream were cut to a height of less than half an inch. This method has

proven effective in controlling invasive grasses. The effectiveness at this site will be monitored in spring 2003.

A poster describing the efforts of the Water Resources Division and its partners was created to educate the public about ongoing watershed restoration activities. Upon approval by the Nez Perce Tribal Executive Committee, the poster will be mounted on a signboard located where an old Nez Perce trail enters the wet meadow. **[Updated April 2002.]**

For more information on EPA's Five-Star grant program, visit www.epa.gov/owow/wetlands/restore/5star.

Community-Based Restoration Partnerships

Riley Slough Being Restored

Riley Slough is making a comeback. The slough harbors 6 miles of potential rearing and overwintering habitat for several salmonid species, including coho, chinook, and bull trout. Historically, Riley Slough was fed from Haskell Slough, which is connected to the Skykomish River. But the connection between Riley Slough and Haskell Slough no longer exists. Riley is fed mainly by several hillside tributaries and surface and groundwater runoff. The water quality in the slough is adversely affected by the presence of culverts, a lack of shading, erosion, and the proliferation of reed canary grass, an invasive plant.

Throughout 1999 and 2000, Washington's Snohomish Conservation District (SCD) worked with landowners to increase their awareness of the poor health of Riley Slough and recommended actions they could take to improve it. During that time, landowners and Washington Conservation Corps crews planted more than 2,000 native trees and shrubs and maintained over 7,000 linear feet of the slough. Many volunteer groups helped with the planting efforts, including the Everett YMCA, Monroe High School Earth Service Club, Oscar Cullums' community service crew, and Northwest Women Flyfishers, as well as many individual volunteers. Since March 1999 two Americorps interns, in cooperation with the Stilly Snohomish Fisheries Enhancement Task Force and the SCD, have monitored the water quality of six sites monthly.

Other Riley Slough restoration efforts began in early 2001, when the SCD received a Centennial Clean Water Grant to address erosion and other problems related to culverts. With a budget of \$80,000, the District replaced two undersized culverts with two bridges made of recycled concrete slabs in the fall of 2001. The Adopt-A-Stream Foundation assisted with the in-stream work and bridge placement; Chinook Engineering assisted with the bridge designs; and local contractors provided gravel, crane service, and metal fabrication. This project cost \$21,000. The Centennial Clean Water Grant enabled the District to continue the revegetation focus of the first grant, address maintenance needs, and continue water quality monitoring.

The SCD continues to work with the landowners along the slough. Twice a year the landowners receive mailings and updates on the project. The District has held a community meeting and a field trip to restoration sites to answer questions and address concerns. For more information visit the following web sites: www.snohomishcd.org/riley_slough.htm and www.ecy.wa.gov/programs/wq/nonpoint/success/success-riley.html.

Friends of Baxter Creek Push Onward

Baxter Creek in Richmond, California, is getting a facelift. In June 2000 Friends of Baxter Creek's (FOBC) mother organization, the Berkeley-based Urban Creeks Council, received several grants to plan, design, and restore 800 feet of Baxter Creek, including a \$45,000 grant from the California Coastal Conservancy and a \$92,000 grant from the State Department of Water Resources. The group also received a \$15,000 grant from the San Francisco Foundation for community outreach activities related to this project. Since then, FOBC has celebrated Earth Day at work parties, followed by free lunches, at the newly restored section of Baxter Creek, which runs through Richmond's Booker T. Anderson, Jr., Park. Volunteers from Community Impact, Richmond's John F. Kennedy High School, and neighborhood residents have all participated in restoration efforts.

As part of park "improvement" efforts in the 1970s and 1980s, Baxter Creek was widened, straightened, lined with concrete in places, and fortified with boulders. By the time restoration began in 2000, little or no vegetation existed on the banks, boulders had tumbled from their original locations, concrete was undercut, and denuded banks were eroding.

In mid-August 2000, FOBC reshaped the creek's channel to restore pools, riffles, and meanders. They also removed boulders and riprap, unsuccessfully installed decades ago to stabilize the creek's banks, and rebuilt the banks with plant material. As vegetation planted during the restoration gradually grows leaves, branches out, and fills the now-empty spaces along the banks of the creek, the character of Baxter Creek will change over time. When fully grown, the new trees and shrubs will help prevent erosion of the creek's banks and provide shade, habitat, and forage for wildlife. This vegetation will filter pollution that would otherwise enter the creek and, ultimately, San Francisco Bay.

At the time of the restoration, Gary Hernandez, chair of the California Coastal Conservancy, said "The Baxter Creek restoration will significantly improve Richmond's Booker T. Anderson, Jr., Park for use of the community, while creating wildlife habitat and helping to purify water that flows to the bay. It will demonstrate that urban streams have uses well beyond the conveyance of storm waters."

Teachers at nearby Stege Elementary School have "adopted" the creek and are conducting a variety of creek-related educational activities. Several project partners have already produced a study of water flows and a revegetation plan necessary for the creek's restoration. Urban Creeks Council is working with and training city park and landscaping staff in constructing and maintaining the project. For more information see www.creativedifferences.com/baxtercreek/Gateway.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@tetrattech-ffx.com.

Achieving Restoration Results

Researchers Are Restoring Indianapolis' White River

A team of researchers in Indianapolis is leading the way in riparian restoration research. In 2000 scientists from Indiana University–Purdue University Indianapolis (IUPUI) initiated an ecological program, the Lilly ARBOR (Answers for Restoring the Bank of the River) Project. The project is restoring a kilometer-long strip of the eastern bank of the White River in downtown Indianapolis. “We’re building an urban forest,” said Dr. Lenore Tedesco, director of IUPUI’s Center for Earth and Environmental Science. “Our hope is that the ARBOR research outcomes will improve the success of future wetland restoration projects here in Indiana and throughout the United States.”

In 2001 and 2002 teams of scientists, students, and community volunteers planted and now will monitor nearly 1,300 native trees in an effort to discover the best way to restore river-margin forests. Each planted tree is numbered and will be monitored for at least 5 years, testing three commonly used methods of riverbank restoration. The 5-year experiment is recreating the natural forest that existed in this area during the 1820s. At the end of the 5 years, the Lilly ARBOR Project will have long-term data on the survival of riverbank reforestation, something that doesn’t exist anywhere today.

The massive outdoor laboratory project is under the direction of the Center for Earth and Environmental Science (CEES) at IUPUI, an interdisciplinary academic center that promotes environmental research, education, and public service. Faculty from at least four IUPUI schools (schools of Science, Education, Liberal Arts, and Public and Environmental Affairs) are using the Lilly ARBOR Project site for teaching and research. Eli Lilly and Company was named the project’s anchor sponsor in October 2000. For more information see the Lilly ARBOR Web page at <http://www.cees.iupui.edu/research/wrerp/index.htm>.

Army Corps Restores More Mississippi Wetlands

The U.S. Army Corps of Engineers’ Rock Island District office recently completed two wetland restoration projects along the Mississippi River. The first, the Milan Bottoms Restoration Project, restored 3,500 acres of wetlands, sloughs, and bottomland forest. Milan Bottoms is on the Mississippi River between Milan and Andalusia, Illinois. Previous development in the area and increased beaver populations had negatively altered this environmentally important area. This forest is an important area for red-shouldered hawks, bald eagles, and several heron species listed as endangered in the state of Illinois. It also contains a diversity of wetlands important to migratory waterfowl and wildlife species. Sixty-eight species of birds live in the area. Improvements made to the area include restoring Turkey Hollow Creek to its original channel, modifying the power line road to allow for water movement, planting 500 trees to revitalize the forest, and installing Clemson levelers to allow water to pass through

beaver dams. Project sponsors include the U.S. Army Corps of Engineers, the Illinois Department of Natural Resources, and RiverAction.

The second site, the Oquawka Refuge Restoration Project, improved 430 acres of wetland habitat. The Oquawka Refuge Restoration Project is adjacent to Lock and Dam No. 18, just downstream of Oquawka, Illinois. Previous development had negatively altered this portion of the refuge. This area contains a diversity of wetlands important to migratory waterfowl and wildlife species. The refuge is the only marsh ecosystem within a 50-mile stretch of the Mississippi River that has not been drained or silted in. The project will provide a high-quality mid-migration season habitat for waterfowl, rather than just a resting area, through improved water level control and improved water quality. Improvements made to the area (at a minimum cost) include constructing a rock trench, inserting a pipe through the levee, creating a berm, cleaning out the ditch and shaping it, and installing a stop-log structure to control water levels within the wetlands. This water control system now gives managers the ability to change the water level in the refuge throughout the year as necessary. Project sponsors include the U.S. Army Corps of Engineers and the Illinois Department of Natural Resources.

For more information about these projects contact Justine Barati, Public Affairs Office, at 309-794-5204. For more information about the Army Corps of Engineers' efforts to restore the Illinois River Ecosystem, see www.mvr.usace.army.mil/ILRiverEco/default.htm.

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

Small Grants Offered for Wetlands Conservation

The U.S. Fish and Wildlife Service and the North American Wetlands Conservation Council (NAWCA) are currently accepting proposals that request match funding for wetland and wetland-associated upland conservation projects under the Small Grants program. The principal conservation actions supported by NAWCA are acquisition, enhancement, and restoration of wetlands and wetlands-associated uplands habitat. To be considered for funding in the 2003 cycle, proposals must have a grant request no greater than \$50,000 and represent on-the-ground projects. Visit <http://birdhabitat.fws.gov> for instructions on submitting a Small Grant application, as well as Standard Form 424. For more information, call 703-358-1784 or send an e-mail to R9ARW--DBHC@FWS.GOV. Proposals must be postmarked no later than Friday, November 29, 2002.

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

News and Announcements

Louisiana's West Bay Sediment Diversion Project to Begin in 2003

On September 16, 2002, the Louisiana Department of Natural Resources announced that it plans to begin construction in spring 2003 on the West Bay Sediment Diversion Project, a first-of-its-kind wetlands restoration in coastal Louisiana featuring uncontrolled sediment diversion from the Mississippi River. The U.S. Army Corps of Engineers and Louisiana Department of Natural Resources set the stage for construction by signing a cost-sharing agreement. The \$22.3 million cost will be shared by the federal government (85 percent) and the state (15 percent).

A dredge will cut a channel through the river's low, narrow bank 6 miles below the offshore-oil and fishing port of Venice, the terminus of the mainline Mississippi River levee, which stretches about 1,000 miles upriver. "We expect to be doing more sediment diversions," said the Corps's Col. Peter J. Rowan, district engineer, New Orleans District. "Meanwhile, we will learn a lot from this one."

The idea is to create almost 10,000 acres of marsh from Grand Pass at Venice down to Southwest Pass, the Mississippi River's portal for ocean ships, Rowan said. "As a result, we will reap environmental benefits, with new wetlands to nurture crab, shrimp, finfish, ducks, wading birds, and other species," said Jack Caldwell, the secretary of Natural Resources. "In addition, Venice will be protected by the marsh, which will act as a buffer to tropical storm surges," Caldwell added.

The project will be built under the federal Coastal Wetlands, Planning, Protection and Restoration Act, also known as the Breaux Act. After lessons are learned from West Bay, a second uncontrolled sediment diversion will be directed into Benney's Bay, across the river from West Bay.

Louisiana's wetland loss, estimated at more than 25 square miles a year, has particularly ravaged the Mississippi River delta region. Uncontrolled diversion means that there will be no concrete structure and big gates to control the diversion flow. Such structures were built for the freshwater diversion projects now in service upriver at Davis Pond and Caernarvon. Though these structures also pass sediment, their primary benefit is the movement of fresh water and nutrients through river levees to the wetlands.

The project will thrust river water and sediment into West Bay, which is now a shallow arm of the Gulf of Mexico, the wetlands having been lost to coastal erosion. The project will be conducted in two phases:

- (1) Construction of an interim channel that will divert 20,000 cubic feet per second (cfs) of water and sediment at the average river stage.
- (2) Enlargement of the channel for full-scale diversion of 50,000 cfs at the average river stage.

In each case, less water will be diverted at lower stages and more at higher stages. The interim diversion will be closely monitored before the larger channel is cut. A relatively small portion of riverbank and adjacent wetlands will be excavated to build the diversion channels.

For more information, contact John W. Hall at 225-342-0560 or Phyllis Darensbourg at 225-342-8955. To view the original press release see www.dnr.state.la.us/SEC/EXECDIV/PUBINFO/NEWSR/2002/09crm-westbay.htm.

Bogs in Massachusetts Wildlife Management Area Dedicated

On September 6, 2002, Massachusetts dedicated its newly acquired 1,638-acre Burrage Pond Wildlife Management Area in the towns of Halifax and Hanson. The property is evenly divided between the two towns and provides much-needed open space for both public enjoyment and wildlife conservation in a part of the state feeling development pressure. Some 272 acres are actual bogs, 103 acres of which were actively used by the Northland Cranberry Company. The remaining property is made up of Upper and Lower Burrage Ponds, which provide 200 acres of fishable waters, extensive uplands, cedar swamps, and a well-maintained network of roads and dikes providing excellent pedestrian access. Both the recreation and wildlife management potential for the property is considerable given the extensive wetlands, grasslands, and overall size of the area. Birders voiced their particular approval of the diversity of habitats protected.

Funding for the acquisition was provided by an environmental bond and the sportsman-sponsored Wildlands Fund. MassWildlife will be partially reimbursed under the Federal Aid in Wildlife Restoration Act of 1937, better known as the Pittman-Robertson Act after its principal sponsors. Funding is derived from an 11 percent federal excise tax on sporting arms, ammunition, and archery equipment and a 10 percent tax on handguns. The act provides funding through a cost-reimbursement program to states for the selection, restoration, rehabilitation, and improvement of wildlife habitat, wildlife management research, hunter education, and the distribution of information produced by the projects. For more information contact MassWildlife's Southeast District office in Bourne at 508-759-3406 or see www.state.ma.us/dfwele/press/prs0209.htm.

Washington's King County Council Acts to Protect Open Space

With an eye toward the future, the Metropolitan King County Council is working with the city of Seattle and suburban cities to ensure the protection of open space through the use of King County's Conservation Futures Fund (CFF). On September 30, 2002, the Council approved the distribution of \$6.5 million in grants to 35 projects as part of the CFF program, which is dedicated to the purchase of wetlands, parks, and other open spaces. The funds will be used to acquire more than 1,700 acres of property.

"Partnerships with Seattle, Shoreline, Bellevue, Issaquah, and other suburban cities enable us to provide open space for our citizens to enjoy," said Councilmember Larry Phillips, Chair of the Budget and Fiscal Management Committee. "King County is helping to purchase these open-space sites and, in most cases, cities will maintain the land. Voter-approved funding for these projects does not come from the County's general fund, where we are facing unprecedented shortfalls, but from dedicated open-space funding that cannot be spent for any other purpose."

The Conservation Futures Fund is supported by a countywide property tax. The annual allocation is based on the recommendation of a citizen oversight committee. King County government and incorporated city governments are the primary applicants for these funds, but citizen groups and individual citizens may apply after demonstrating that the local jurisdiction is committed to helping acquire the open space.

“The action today will preserve salmon and wildlife habitat in rural King County,” said Councilmember Carolyn Edmonds, Chair of the Council’s Natural Resources, Parks and Open Space Committee. “It also provides passive recreation and outdoor education opportunities in our suburban areas. This is a significant effort to protect undeveloped shoreline in Puget Sound and reclaim green spaces in Seattle. I would like to commend the Conservation Futures Citizens Committee, of which all members are volunteers, who have contributed much of their time working with local jurisdictions around the county, visiting all of the project sites.” For more information contact Larry Phillips at 206-296-1004 or see www.metrokc.gov/mkcc/News/2002/0902/open_space.htm.

Upcoming Conferences and Events

New Listings

Purple Loosestrife Biocontrol Workshop

November 9, 2002
Ashland, Wisconsin

Participants will learn in the morning session how to help Cella (pronounced CHEL-luh) the *Galerucella* beetle eat more purple loosestrife by raising these beetles and releasing them into infested wetlands. The afternoon session will cover the use of purple loosestrife biocontrol as a teaching tool for grade school students. Participants will receive biocontrol equipment, and educators will receive *See Cella Chow: A Purple Loosestrife Biocontrol Manual for Teachers*. For more information on the event, e-mail see.cella.chow@wiscwetlands.org or visit www.wiscwetlands.org.

Sixth National Mitigation Banking Conference

April 23–25, 2003
San Diego, California

Conference participants will meet and learn with the nation’s wetlands mitigation and conservation bankers, regulators, users, and suppliers. Sessions will range from a primer for newcomers to banking to presentations on emerging markets, technical banking issues, and the newest information on legislation and current events in the industry. Sessions will include field trips, an opening general session featuring a key player in the industry, and interactive concurrent sessions and plenaries. Abstracts for presenters and applications for exhibitors and poster presenters are being accepted. For more information call 800-726-4853 or visit www.mitigationbankingconference.com/Initial_Announcement.pdf.

Previous Listings

2002 American Water Resources Association's Annual Conference

November 3–7, 2002

Philadelphia, Pennsylvania

The American Water Resources Association's 2002 Annual Water Resources Conference is a forum for all participants of the water resources community, and it will provide discussion of the science, technology, and policy dimensions of water. The conference will offer 75 sessions of technical presentations that include four "forums" highlighting emerging developments in key issues. These sessions will address topics such as integrated watershed management, community-based watershed stewardship, management of riparian buffers, design and evaluation of stream restoration, and wetland restoration. Several field trips will also be offered, including a trip exploring the preservation and restoration of an urban watershed. For more information about the conference, visit www.awra.org and click on the "Annual Conference Preliminary Program" link.

Stream, Floodplain, and Wetland Restoration Workshop: Stream Stability and Natural Channel Design Concepts in Watershed and Source Water Management

November 12–14, 2002

Bear Mountain, New York

This workshop is designed to promote and build the capabilities of local governments, states, federal agencies, nonprofits, and others in the Mid-Atlantic and Northeast to use stream stability and natural channel design concepts in the management and restoration of streams, riverine wetlands, floodplains, and watersheds. Specific workshop goals include the following:

- Helping attendees understand river stability and natural channel design concepts and how these concepts can be integrated into stream, wetland, floodplain, source water, and watershed protection and restoration projects. Providing guidance on fluvial geomorphological concepts and natural channel design in the context of watershed problem prevention and problem solving.
- Helping attendees understand how to initiate, plan, fund, and implement a stream, floodplain, or riverine wetland restoration project.
- Developing a Mid-Atlantic/Northeastern network of federal, state, and local agency staff, nonprofit groups, academics, consultants, and others interested in stream stability and natural channel design.

Workshop sponsors include EPA, USDA Natural Resources Conservation Service, and U.S. Fish and Wildlife Service. For more information, visit www.aswm.org/calendar/midatlantic02/index.htm.

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

Restoration-Related Web Sites

www.coastalconservancy.ca.gov/scwrp/index.html

Southern California Wetlands Recovery Project (WRP) 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. This site features maps and photos depicting 29 different wetlands and offers information about the partnership's ongoing projects, wetland resources, and wetland-related documents. The site includes a link to the WRP Information Station, a watershed-based interactive data and mapping system. *This site provides useful information for anyone interested in Southern California wetlands.*

www.southsloughestuary.com

South Slough National Estuarine Research Reserve. This site describes the research, education, and stewardship efforts taking place at this 4,700-acre natural area, which encompasses 600 acres of tidal marshes, mudflats, and open water channels near Charleston, Oregon. The site features maps of the reserve and surrounding area, and it offers South Slough-related reports and publications for download. *This site would be useful for anyone interested in coastal wetlands in the Pacific Northwest.*

www.northstar.k12.ak.us/schools/awe/noyes/noyesmain.html

Noyes Slough Project. Anne Wien School students in Fairbanks, Alaska, have developed this Web site to feature ongoing efforts to restore Noyes Slough. The site features pictures of the slough, provides background information about the slough, and offers information about annual cleanup days and the students' contributions to the restoration effort. *This site is an example of how a wetland can be incorporated into a school's science curriculum.*

www.chesapeake.org/stac

Scientific and Technical Advisory Committee (STAC). STAC was created to provide scientific and technical guidance to the Chesapeake Bay Program on measures to restore and protect the Chesapeake Bay. The committee works to enhance scientific communication and outreach throughout the Chesapeake Bay watershed and beyond. STAC provides scientific and technical advice in the form of technical reports and papers, discussion groups, and technical conferences and workshops. *This site provides links to publications and papers written by STAC on wetland and watershed restoration.*

www.nal.usda.gov/wqic/wqdb/eseach.html

National Agricultural Library. This library contains an updated, searchable database of 1,100 on-line documents related to water and agriculture. Numerous articles on wetland and watershed restoration are available through the database, and most can be downloaded in pdf form. *This site is a good resource for researching restoration projects and practices.*

www.saugusriver.org/srwc.htm

Saugus River Watershed Council. The council is a nonprofit organization founded in 1991 to protect the natural resources of the Saugus River watershed in Massachusetts. The group works to restore water quality, expand public access, restore habitat for anadromous fish and other wildlife, and protect critical resources, including Rumney Marsh and Reedy Meadows. This group uses a variety of innovative ideas

to get the community involved in protecting the watershed, including canoe trips, a raffle of river paintings, and an illegal dumping hotline. *This Web site provides ideas on how a community group can work together to protect and restore watershed resources.*

www.glhabitat.org/mwac

Great Lakes Aquatic Habitat Network and Fund. The Great Lakes Aquatic Habitat Network and Fund was developed in 1996 to provide information and financial support to grassroots citizen initiatives working to protect and restore Great Lakes shorelines, inland lakes, rivers, wetlands, and other aquatic habitats in the Great Lakes Basin. This Web site provides numerous networking contacts, as well as a database of environmental information related to the Great Lakes Basin, including listings for more than 1,000 environmental organizations. *This Web site would be useful for anyone seeking restoration-related resources, especially resources related to the Great Lakes.*

www.state.ak.us/dec/dawq/nps/wetlands.htm

Alaska Department of Environmental Conservation (ADEC) Wetlands Program. This Web page contains a description of ADEC's wetlands program. It includes information on identified wetlands in Alaska, the state's Comprehensive Wetlands Plan, and wetland regulations in Alaska. *This Web page would be useful for anyone seeking information about wetlands in Alaska, including the steps the state is taking to conserve them.*

<http://coastal.er.usgs.gov/wetlands>

U.S. Geological Survey (USGS) Gulf of Mexico and Southeast Tidal Wetlands Project. This project is investigating the loss of coastal wetlands and adjacent uplands along the Gulf of Mexico in order to determine long-term change in wetlands and to provide a model for determining areas that are most vulnerable to loss because of combinations of human and natural impacts. The site contains a photo gallery of Gulf wetlands, a history of tidal marshes in the Gulf, and a report on sea level rise along the Gulf of Mexico. *This Web site contains current information on USGS research regarding Gulf of Mexico wetlands.*

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

Information Resources

Ecological Restoration

By the University of Wisconsin–Madison Arboretum

This newsletter (www.ecologicalrestoration.info) is published quarterly (on-line and in print) by the University of Wisconsin–Madison Arboretum in association with the Society for Ecological Restoration. *Ecological Restoration* offers original feature articles, short notes, and book reviews as well as abstracts of related work from other environmental and ecological publications. In addition to coverage of the technical and scientific aspects of ecological restoration, *Ecological Restoration* publishes original

articles about ecological restoration and its implications for reestablishing the link between post-modern humans and the environment. An annual subscription to *Ecological Restoration* includes the print version and electronic access to the on-line version and costs \$115 for institutions and \$38 for individuals.

Instream Flows for Riverine Resource Stewardship

by the Instream Flow Council

The Instream Flow Council recently released *Instream Flows for Riverine Resource Stewardship*, the first book ever to embrace the entire field of instream flow administration and application. Nearly 3 years in the making, the book was written by 16 state and provincial fishery and wildlife agency experts from across the United States and Canada. The book is intended to help agency managers and other instream flow practitioners to better fulfill their legal natural resource stewardship and public trust responsibilities in the challenging field of instream flow management. For more information see www.instreamflowcouncil.org/justreleased.htm.

Why Watersheds?

by the Center for Watershed Protection

The Center for Watershed Protection just released a new slide show on CD called *Why Watersheds?*. This presentation introduces watershed protection by explaining what a watershed is, explaining how development affects water resources, and presenting steps community members can take to protect local watersheds. The presentation comes with extensive speaker notes, and you can run it as is or cut and paste slides to tailor the information to your needs. The CD is compatible with both PC and Mac systems. You may view the slide show on-line at www.cwp.org/water.htm or order it on CD for \$25 from the CWP store at <http://centerforwatershedprotection.gomerchant7.com>.

The Do-It-Yourself Watershed Planning Kit

by the Center for Watershed Protection

The Center for Watershed Protection recently released the second kit in its Do-It-Yourself series. This kit pulls together everything you need to begin crafting your own local watershed protection plan. Included are two CD-ROMs (a Resources CD and The Practice of Watershed Protection/Eight Tools), an explanation of the basic concepts behind watershed planning, an outline of the watershed planning process, a subwatershed planning exercise, and a series of watershed planning activities that include subwatershed delineation, calculating impervious cover, conducting a storm water retrofit survey, and identifying and prioritizing conservation areas. You may order the kit for \$75 from the CWP store at <http://centerforwatershedprotection.gomerchant7.com>.

The Watershed Project Management Guide

by Thomas E. Davenport

This book presents an approach to watershed management based on a collaborative process that responds to common needs and goals. This recommended process consists of a series of four basic phases: assessment, planning, implementation, and evaluation. The four-phase approach helps watershed practitioners develop a plan consistent with the recently released USDA-EPA *Watershed Management*

Planning and Implementation Process guide. The process can be used to implement a management strategy to meet the load allocations required by an approved TMDL, the goals of a Source Water Protection Plan, USDA programs such as EQIP, or Section 319 projects. To order, visit www.crcpress.com or call 1-800-272-7737. Cost: \$119.95.

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