

WATERSHED NEWS

August 2001

South Branch of the Root River Watershed Project

What's Next for the South Branch of the Root River Watershed?

BY LEE GANSKE

Over the past four years, a great deal of effort has been put forth in an attempt to answer some basic questions about the South Branch Root River watershed. How is the water quality of the river and its tributaries? Is there room for improvement? What is the relationship between "chemical" measures of water quality, and the fish, insect, and mussels that inhabit the stream? How do different land use conditions in the watershed impact water quality? Is it safe to swim? How do groundwater and surface water interact in the watershed?

Over the next couple months, agency staff and project steering committee members will be working to complete a report addressing these and other questions. In the Clean Water Partnership program, this report is known as a Diagnostic Study. Given the highly complex nature of watersheds in general, and this karst watershed in particular, the answers in the report will not, in most cases, be highly definitive. Nevertheless, the report will provide a degree of scientific basis for a second phase of the project. This second phase will involve launching a series of projects and activities to make desired changes in the watershed. These could include educational efforts, cost-share programs tailored to this specific watershed, and the hiring local watershed staff to provide project coordination and promote existing conservation programs.

A Phase II Clean Water Partnership project for the

watershed is by no means a done deal. The state and federal funding sources for these projects are limited, and there is competition for these funds from other parts of the state. On the other hand, the South Branch Root River project should compete quite well. The efforts to integrate chemical, physical, biological, and groundwater components have been outstanding. Citizen involvement in water monitoring and other aspects of the project have been excellent. Additionally, there will be up to \$5 million in grant funds available for the upcoming application period. This represents full state funding of the Clean Water Partnership program even though the legislature had considered cuts. Low-interest loan funds for things such as septic system upgrades are also available. Grant and loan funding could be sought for a period lasting three to eight years. For a watershed of this size, a project with a total budget of several hundred thousand dollars is not unreasonable.

The deadline for the Phase II application is October 16th. Along with the completed Diagnostic Study, a plan and budget must be submitted. The projects and activities included in the plan will need to reflect what has been learned about the watershed over the past four years. The plan will also need to reflect input from watershed residents about what is feasible and acceptable. Many efforts have been made to gather such input from residents, including several open houses and recent meetings with township officials. More suggestions are welcome, however, and can be directed to local project coordinator Donna Rasmussen at 507-765-3878.

Not everybody can live upstream!

Fish, Bugs, Clams... and Canaries?

BY DONNA RASMUSSEN

What do these organisms have in common? All of them can serve as indicators of conditions in the environment. In 1998 and 1999, researchers conducted surveys on the South Branch of the Root River to determine numbers and kinds of fish, aquatic insects and freshwater mussels (clams) living in the main stem of the river and its tributaries. Just like the canaries used in the coal mines, these aquatic critters can tell us about the long term health of a stream and its watershed. Unlike water chemistry testing, which only represents a snapshot of conditions, the types of organisms that live in the stream reveal day-to-day conditions. Some species are tolerant of pollutants and adverse conditions while others have a narrow tolerance for extremes in conditions.

During the summers of 1998 and 1999, Winona State University students and staff from the biology department surveyed 14 sites for fish and aquatic macroinvertebrates (critters without backbones and big enough to see without a microscope), e.g. insects and crayfish. They also evaluated the habitat conditions at each site.



The South Branch begins as a warm-water stream in the flat areas of Mower County, but changes to a cold-water stream as it approaches the karst landscape near Mystery Cave. Different criteria are used to evaluate fish habitat conditions in warm-water and cold-water streams. Most sites were rated as fair or good fish habitat and displayed good bank stability, a good mix of pool and riffle habitats, and silt-free substrates. However, several sites received fair or poor ratings due to disturbed streambank areas, wide and shallow water

conditions, too much silt in the substrate, or lack of cover for large game fish. Of the six cold-water sites, one rated good, four rated fair, and one rated poor. Ratings for all the sites were the same as 1998, except Forestville Creek, which declined from good to fair. Of the eight warm-water sites, five were rated as fair and three were rated as good. Overall, cold- and warm-water streams averaged a fair rating.

Of the 23 species of fish collected from 14 sites in 1999, no single species was found at all 14 sites, but white sucker was found at 13 sites. Cold-water sites averaged six fewer species than warm-water sites. Compared to the 12 sites surveyed in 1998, there were 37% more fish collected per site in 1999. The 1998 survey occurred after a major flooding event, while the 1999 surveys were done just prior to flooding.

The invertebrate ratings were best on the main stem of the South Branch Root River in Fillmore County. Tributaries and the South Branch in Mower County rated lower. The best invertebrate populations were found in shallow streams with few pools and many riffles, stable (but disturbed) banks, silt-free substrates, and reduced fish cover. Those sites that showed reduced quality of invertebrates lacked mayfly, stonefly, and caddisfly species, as well as long-lived and pollution intolerant species.

Freshwater mussels were surveyed in 1998. Of the 124 sites that were surveyed, nine species of living or dead mussels were found at 23 sites. Ten sites had living specimens representing six species. One Minnesota threatened species, *Venustaconcha ellipsiformis*, ellipse shell, was found living at three sites. It was the second most abundant living mussel in the South Branch. Most of the living mussels were found in the South Branch Root River east of Highway 63 downstream to Mystery Cave in the warm-water section of stream which mussels prefer over cold-water conditions.

Canfield Creek Fish Habitat Improvement Project

BY MARK WHITE

Canfield (South Branch) Creek has long been recognized as one of the top trout streams in Minnesota. The stream originates in Beaver and York townships as a warm water stream. It sinks dramatically at York Blind Valley. Much of its volume reemerges at Odessa Springs on the Upper Iowa River. Other water resurfaces at the Big Spring in Forestville/ Mystery Cave State Park. After traveling underground for several miles, this cold water creates conditions ideal for trout and related aquatic life. From the Big Spring, Canfield flows north 1.5 miles through a steep and narrow valley where it joins the South Branch Root River.

Surveyors in the 1850's observed abundant brook trout in local streams. But early farming practices ravaged the watersheds of Southeast Minnesota. A 1973 study documented post-settlement soil transfer near Forestville. One valley is under eight feet of post-1850 eroded soil. Conditions for trout in Canfield certainly deteriorated before soil conservation practices began in the mid-20th century.



Placement of large riprap to hold log crib in place.

In the mid-1950's when the Minnesota Conservation Department first became interested in protecting the valley, it was seriously degraded. The valley floor was heavily pastured and the tree canopy along the stream had been reduced. Due to the frequent flooding and siltation, many stream banks were abnormally unstable. The Department embarked on a vigorous effort to purchase the steep erodible valley slopes and to restore Canfield Creek back to high quality coldwater habitat.

In 1955, the first efforts to improve the stream began. In 1969 a major project stabilized 1,500 feet of stream bank. Since that time, various restoration projects have been done. Riprap, log cribs, and current deflectors have been used in several locations to reduce erosion, create pools, create faster water, and provide hiding places for fish.

In the 1960's, much of the steep valley near Canfield Creek was acquired as state forest. Combined with stream restoration and improved cropping in the watershed, the valley made a remarkable recovery. Besides the recovery of trout and stream organisms, other plants and animals also flourished including rare plant species and nesting birds. Because the project had

potential to disrupt plant and animal communities near project sites, and due to intense interest by angling, birding, and other environmental interests, the Department of Natural Resources used an extensive review process. Previous plant and animal surveys were reviewed and a careful inspection of potential project sites was done. Input was also gathered from interested stakeholders.

In 1995, state forest lands along Canfield Creek were transferred to Forestville State Park. In 1998, planning started for a substantial repair of previous project areas and additional bank stabilization where serious erosion still occurred. Though fish numbers were high, few really large fish were present. A major project goal was to create overhead cover for large fish using log cribs and wooden bank cavities called lunger structures.

In 2000, as a result of good planning, and as a result of a skillful and caring Fisheries project crew, a very successful project was completed. Fish habitat work was confined to those sites with the highest potential for fish production. At the same time those sites with the greatest potential for nesting birds such as Louisiana Waterthrush were avoided. Adjacent backwater sites needed by frogs and salamanders were also preserved. In one case, bank repairs helped protect a population of Nodding Wild Onion, a protected plant. Considerable woody vegetation was left in place which will provide habitat for both fish and birds. Disturbed ground was seeded with native grasses such as wild rye.

Just over 2,500 feet of stream bank habitat work was done, which is about fifteen percent of the total bank area of the coldwater stream. Much of this work was repair or replacement of the 1969 project work. Along with log crib construction, large riprap was installed to reduce bank erosion. Some large rocks were also placed directly into the stream channel to provide in-stream cover for fish.

Although some compromise was required to address competing resource values, the final project was successful in minimizing harmful disturbances and maximizing benefits to the coldwater resource. The valley will continue to enjoy protection of its rare features while producing more large trout.



Finished stream bank. Lumber structures buried at edge of stream bank provide cavities for fish to hide in. Trees over stream have been left for habitat, benefitting birds and fish.

FILLMORE COUNTY OFFERS ASSISTANCE WITH MANURE MANAGEMENT PLANS

BY DONNA RASMUSSEN

Fillmore County livestock producers who have operations with 100 animal units (A.U.) or more can receive financial assistance for the preparation of a manure management plan.

In order to receive the \$300 assistance payment, the producer will need to provide:

- * Soil sample results,
- * Manure sample results (if required), and
- * A completed manure management plan.

Payment will be made on a reimbursement basis. Cooperators will be required to begin the feedlot permitting process with the County Feedlot Officer to be eligible.



Participants in the program may write their own manure management plan or hire a consultant to prepare the plan using approved formats from U of M Extension or the Natural Resources Conservation Service (NRCS). Plans may also be prepared by SWCD (100 - 299 A.U.) or Extension staff (300 - 999 A.U.).

Kevin Rugaard, Crop Production Specialist at the LeRoy-Ostrander Ag Center, says that the county's assistance program is a "common sense approach" to encouraging the preparation of ma-

nure management plans which offers flexibility to farmers in how they can have their plans prepared. Rugaard has been preparing manure management plans using software developed by the NRCS and U of M Extension called the Manure Application Planner (MAP). He likes the software, but would like to see the program expanded to include ag chemical applications in the calculations.

To sign up for the Manure Management Assistance Program, contact the Fillmore SWCD office at (507) 765-3305.

TGAL - Think Globally - Act Locally

Other financial assistance programs for feedlots

In both Mower and Fillmore counties, Ag Best Management Practices (BMP) low-interest loans are available for feedlot related projects and equipment. The interest rate is 3% with a half percent origination fee. The maximum loan amount is \$50,000 with a payback period of up to ten years.

In Fillmore County, low-cost measures that reduce feedlot runoff can receive 50% cost-share up to a maximum of \$1000. Roof gutters, grass filter strips and other non-engineered practices are examples of eligible practices.

Contact your county SWCD office or the feedlot officer for more information about these programs.

We don't inherit the earth from our ancestors, we borrow it from our children.

- Chief Seattle

CONTINUOUS CRP BUFFERS BENEFIT WATER QUALITY

BY DONNA RASMUSSEN

Wet conditions and flooding the past couple of years and this past spring caused losses in production in some fields in the watershed. The continuous buffer sign up for the Conservation Reserve Program (CRP) may offer a profitable alternative to struggling with flooded or wet areas. In addition to alleviating some erosion problems during floods, buffers reduce the impacts of runoff from adjacent fields. On average, buffers prevent 40 percent of sediments and phosphorus from reaching surface waters, and that number can be as high as 80 percent. Buffers also increase infiltration of water allowing soil treatment of many pollutants.

The sign up for Continuous CRP is non-competitive and year round. Rental rates are based on soil types, and installation of practices can be cost-shared up to 90 percent. There may also be incentives based on the type of buffer installed. Contracts are from 10 to 15 years. To be eligible for the program, the land must have been planted for 2 of the past 5 crop years. Marginal pasture land suitable for use as a riparian (streamside) buffer is also eligible if it is planted to trees.

As an example, a landowner in the South Branch Root River watershed signed up 6.2 acres of a row-crop field adjacent to the river which had been flooded the past two summers. Alluvial soils receive a rental rate of \$96.96 per acre for a total payment of \$601.01 per year. The landowner also received an upfront sign up bonus of \$140 based on \$10 per acre times the number of years in the contract (14, in this case). The 100-foot wide buffer (which is the maximum allowed for planting cool-season grasses) was planted with a mix of brome and red clover with an oats cover. Total cost of the seeding is estimated at \$780. Fifty percent of the seeding will be cost-shared, plus

the landowner will receive an additional 40 percent practice incentive payment leaving an out-of-pocket cost to the landowner of about \$78. The landowner's share can include their labor and materials for the seeding. If the buffer had been planted to natives, the maximum width allowed would be 120 feet.

For more information about signing up for this program, contact the Mower SWCD office at (507) 434-2603 or the Fillmore SWCD office at (507) 765-3878, ext. 3.

Would your group or organization like to learn more about the South Branch Root River Project?

For information about speakers and presentations, contact:

Donna Rasmussen
Fillmore County Water Plan
Coordinator
(507)765-3878, ext. 3

Bev Nordby
Mower SWCD
(507)434-2603

or a committee member
Diane Hafner
Johannah Vreeman
Sue Schrage

The optimist thinks this is the best of all possible worlds. the pessimist fears it is true.
- Robert Oppenheimer

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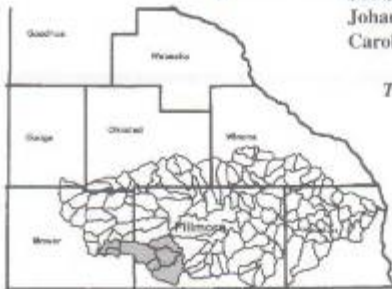
Local Residents Serve On Steering Committee & Assist With Grant Process

As the South Branch Watershed Project has progressed, several local people have played a role in guiding that progress by serving on the steering committee.

Diane Hafner	Farmer & CSMP Volunteer
Dan Terbeest	Farmer, Bloomfield Township Board & CSMP Volunteer
Sue Schrage	Fillmore SWCD Supervisor
Johannah Vreeman	Farmer & CSMP Volunteer
Carol Kohn	Farmer & CSMP Volunteer

Technical Staff Assisting Watershed Project:

Donna Rasmussen	Fillmore County Water Plan Coordinator
Lee Ganske	MN Pollution Control Agency
Bev Nordby	Mower SWCD
Kevin Scheldecker	Fillmore SWCD
Jeff Green	Regional Groundwater Specialist, DNR
Bob Moody	Fisheries Biologist, DNR
Mark White	Forestville/Mystery Cave State Park
Warren Netherton	



South Branch Root River
Watershed Project Area

This watershed project has been funded by the Clean Water Partnership Grant, Fillmore County Water Planning Grant, and by the SWCD. As work continues on this project, there will be opportunities for other people to become involved in volunteer water quality monitoring efforts, education and informational meetings, surveying, etc. If you would like to know more about the watershed project, please contact Bev Nordby in Austin at (507)434-2603 or Donna Rasmussen in Preston at (507)765-3878, ext. 3.