Brown County Conservation Tour

Thursday, June 17, 2004

Welcome to this year's Conservation Tour. The purpose of this tour is to give policy makers a first hand view of recent conservation efforts to help protect and enhance soil and water quality. This tour will consist of about 10 stops ranging from a dairy farm to recently restored wetlands and prairies. Thanks for attending and enjoy the tour.

BROWN

SOIL and WATER CONSERVATION DISTRICT

BNC Water Quality Board

Sponsored by:

BNC Water Quality Board-Little Cottonwood River Clean Water Partnership

Brown County Soil and Water Conservation District

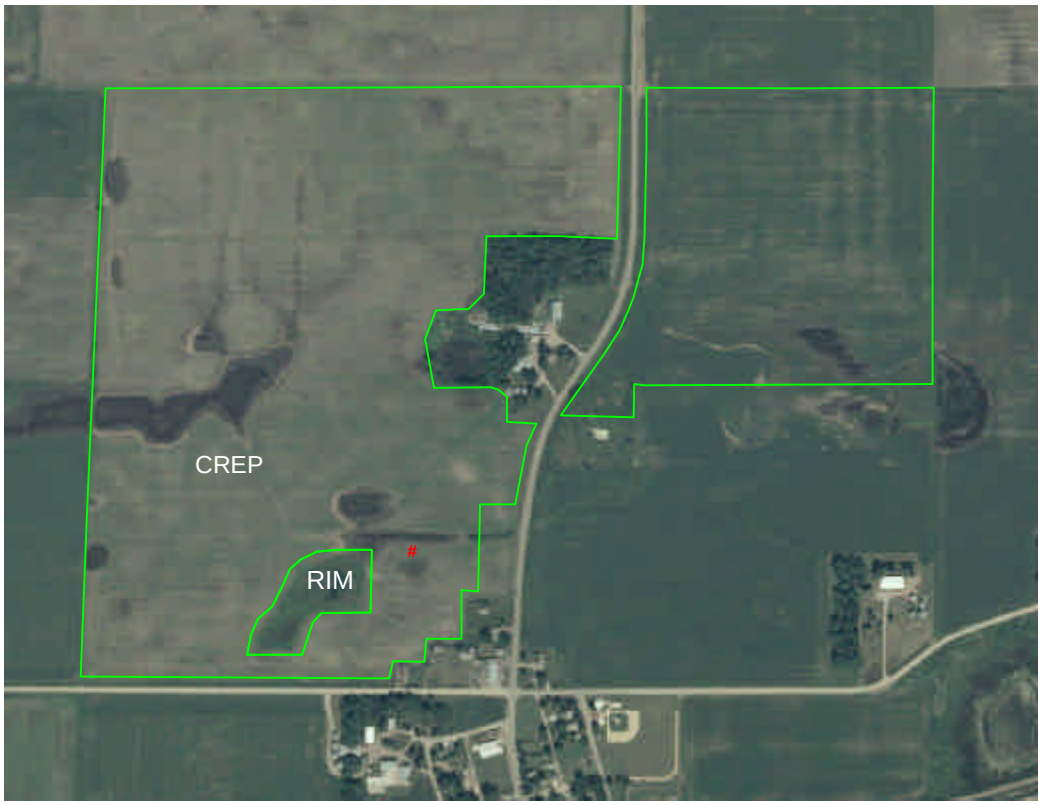
Brown County Natural Resources Conservation Service

Brown County Farm Services Agency

Stop 1A

Verne Radloff CREP Wetland Restoration

Time permitting, we will stop at this wetland restoration site on our way to New Ulm. This site was enrolled into the state's Conservation Reserve Enhancement Program (CREP) in 2002. The site is located in Milford Township, Section 18. About 146 acres were enrolled into the program. Three acres were already enrolled into the Reinvest in Minnesota Program (RIM). Seeding of native warm season grasses was completed in the fall of 2002 and the wetland restoration was completed in May of 2004. Wetland areas are expected to store about 25 acre-feet of water.



Cost-Share Assistance		**Before**	**After**	**Total Saved/Year**
• State CREP program	Soil Conservation			
	Soil Loss	2 tons/acre	< 1 ton/acre	146 tons
Technical Assistance	Water Conservation			
• Brown SWCD	Nitrate	22 lbs./acre	2 lbs./acre	2,920 lbs
• Brown NRCS	Phosphorus			33 lbs.
• BWSR				

Stop 3

Steve and Kerry Hoffman Dairy Farm- Lime Flocculator Treatment

The newly revised Minnesota Feedlot Rules (7020) clarify requirements for properly treating and handling milkhouse wastes to prevent water pollution. As part of this water quality project, a state of the art milk house wastewater treatment system (flocculator) was installed on the Steve and Kerry Hoffman Dairy Farm in Cottonwood Township Section 21 to treat water pollutants before being discharged into the Little Cottonwood River. Water tests from the milkhouse wastewater treatment system have shown 82% or greater removal of pollutants.

How it works: Lime flocculator treatment of milkhouse water was adapted from the wastewater treatment industry. First, wastewater from the washing process is pumped into a tank, where a flocculent is added to concentrate the pollutants into a sludge that can be separated from the liquids. Lime is then added to help neutralize the pH. About two pounds of lime are added to 185 gallons of wastewater, mixed for about 20 minutes, and allowed to settle for two hours. In the second step, the solid materials are disposed of with the manure or used as a soil amendment. The liquid portion is sent to an infiltration field under the ground for final treatment.

Total Cost = $20,000

Cost-Share Assistance
- EQIP (50%)
- LCR Watershed Clean Water Partnership (25%)

Technical Assistance
- Brown NRCS
- Brown SWCD
- St. Peter Area NRCS
- PremierTech

	Before	After	% Removal
Water Conservation			
BOD	1191 mg/l	213 mg/l	82 %
Solids	390 mg/l	17 mg/l	96%
Phosphorus	52 mg/l	1 mg/l	98%

Stop 4

Ron Olson CREP Wetland Restorations

At stop 4 we will visit the Ron Olson Farm. This was one of the first wetland restorations through CREP in Brown County. The CREP easement consists of 103 acres and was last cropped in 1999. A sheet pile weir is used on the western boundary to control the water level. Several dikes and emergency spillways were also constructed to manage water levels. Water storage at this site is estimated to be about 30 acre-feet of water or about 10 million U.S. gallons at full capacity.

Cost-Share Assistance		Before	After	Total Saved/Year
• State CREP program	Soil Conservation			
	Soil Loss	2.5 tons/acre	< 1 ton/acre	155 tons
Technical Assistance				
• Brown SWCD	Water Conservation			
• Brown NRCS	Nitrate	22 lbs./acre	2 lbs./acre	2,060 lbs
• BWSR	Phosphorus			35 lbs

Stop 6 and 7

Aspelund Farm- -Rock Inlet, and CRP Filter Strip

After lunch, we will briefly stop to view a few examples of soil conservation practices in the Lake Hanska watershed. Special emphasis has been placed within this watershed to help protect and enhance the 1,800-acre lake. We will look at two practices that have been popular within the watershed: rock inlets and filter strips. At this site two open tile intakes were replaced with rock inlets in the year 2000. When compared to open tile intakes, rock inlets deliver up to 40% less sediment and particulate phosphorus. In 2002, a 40-foot filter strip through the Continuous CRP program was also installed along Judicial Ditch 5. A total of 145 acres of cropland has been enrolled into the CRP filter strip program within the watershed. An astounding 47% (15 of 32 miles) of the eligible cropland has a filter strip along a drainage ditch within this watershed.

Cost-Share Assistance
- Lake Hanska Watershed Project
- NRCS
- BWSR Challenge Grant

Technical and Admin. Assistance
- Brown SWCD
- Brown NRCS
- Brown FSA
- BNC WQ BRD

	Before	After	Total Saved/Year
40 feet of Filter Strip			
Soil Conservation			
Soil Loss	1.5 tons/acre	0.7 ton/acre	12 tons
Water Conservation			
Phosphorus			18 lbs
2 Rock Inlets			
Soil Conservation	1.5 tons/acre	0.25 tons/acre	0.5 tons
Water Conservation			
Phosphorus			0.75 pounds

Lakeshore Protection

The next stop will be a shoreline protection project that was recently completed along the south boat access to Lake Hanska. About 650 feet of shoreline was protected using sioux quartzite riprap at a cost of $23,000, or about $35/linear foot. Funding was utilized from various sources including the Watonwan Watershed Clean Water Partnership, Brown SWCD, Albin Township and DNR.

Total Cost = $23,000

Cost-Share Assistance
- Watonwan CWP 51%
- Brown SWCD 22%
- Albin Township 25%
- MN DNR 2%

Technical Assistance
- Brown NRCS
- Brown SWCD

Stop 9

Gary Rathman Prairie Restorations

This site is unique because it is one of the largest and most diverse private prairie restorations in the area. In a typical restoration about 10-20 native grass species and forbs are planted. However, at this site over 400 species have been planted.

Gary Rathman, landowner in Mulligan Township, enrolled some of his land into the CREP program to increase the bio-diversity on his farm through a prairie restoration. When it comes to prairie restoration and wildflowers Gary Rathman has done his homework. "I wanted to restore what was once on my land," states Gary. "I felt the CREP program was intended to help restore what was once part of the original landscape. In the case of my land it was prairie." In just one year Gary has turned part of his farm from a corn/soybean field into a very diverse ecosystem. Through the help of Tom, Kathy, and Greg of the SWCD/NRCS, the DNR, prairie seed dealers, and some studying Gary enrolled part of his farm into the CREP program. On other acres he has enrolled his land into the CRP program.

Cost-Share Assistance
- CREP
- CRP

Technical and Admin. Assistance
- Brown SWCD
- Brown NRCS
- Brown FSA
- MDNR

	Before	After	Total Saved/Year
Soil Conservation			
Soil Loss	4 tons/acre	< 1 ton/acre	1950 tons
Water Conservation			
Nitrate	22 lbs./acre	2 lbs./acre	13,000 lbs
Phosphorus			440 lbs

Soil Erosion Exercise

Time permitting we will stop at this site on our way back to Sleepy Eye. Most Brown County soils begin to lose their ability to support plants when they erode more than 5 tons of soil per acre each year. This usually occurs through a process called sheet erosion, the gradual wearing away of a thin layer or "sheet" of soil. Since about 5 tons of soil lost per acre equals the thickness of a dime (1mm), sheet erosion can be very hard to see. Site 10 is an example where the tolerable soil loss has been exceeded.

This 10-acre field was in CRP just a few years ago and also contained large grassed waterways to help protect the field from erosion. The hillside is highly erodible and consists of Dickinson sandy loams at 2-6% slopes and Storden-Clarion Loams at 12-18% slopes. This site has since been converted from CRP to cropland, and the grassed waterways removed. The current crop management system on these slopes will produce on average about 21 tons/acre of soil loss per year. The soil loss seen in this picture after recent heavy rains is estimated to be more like 50-60 tons/acre. In addition, this field is within 300 feet of a stream. Assuming about 80% of the soil erosion is delivered to the stream it is estimated that 17 tons/acre/year or a total of 170 tons of soil and 255 pounds of phosphorus could be delivered to the Cottonwood River from this site alone. Erosion at this rate greatly reduces the sustainability of the soil to produce crops, degrades soil and water quality, and can also result in expensive ditch and culvert maintenance. The table below shows potential reductions as a result of implementing BMPs like conservation tillage or grass cover.

	Potential Total Saved/Year
Conservation Tillage	Reduced from 21 tons to 10 tons (52% reduction)
CRP	Reduced from 21 tons to 2 tons (90% reduction)

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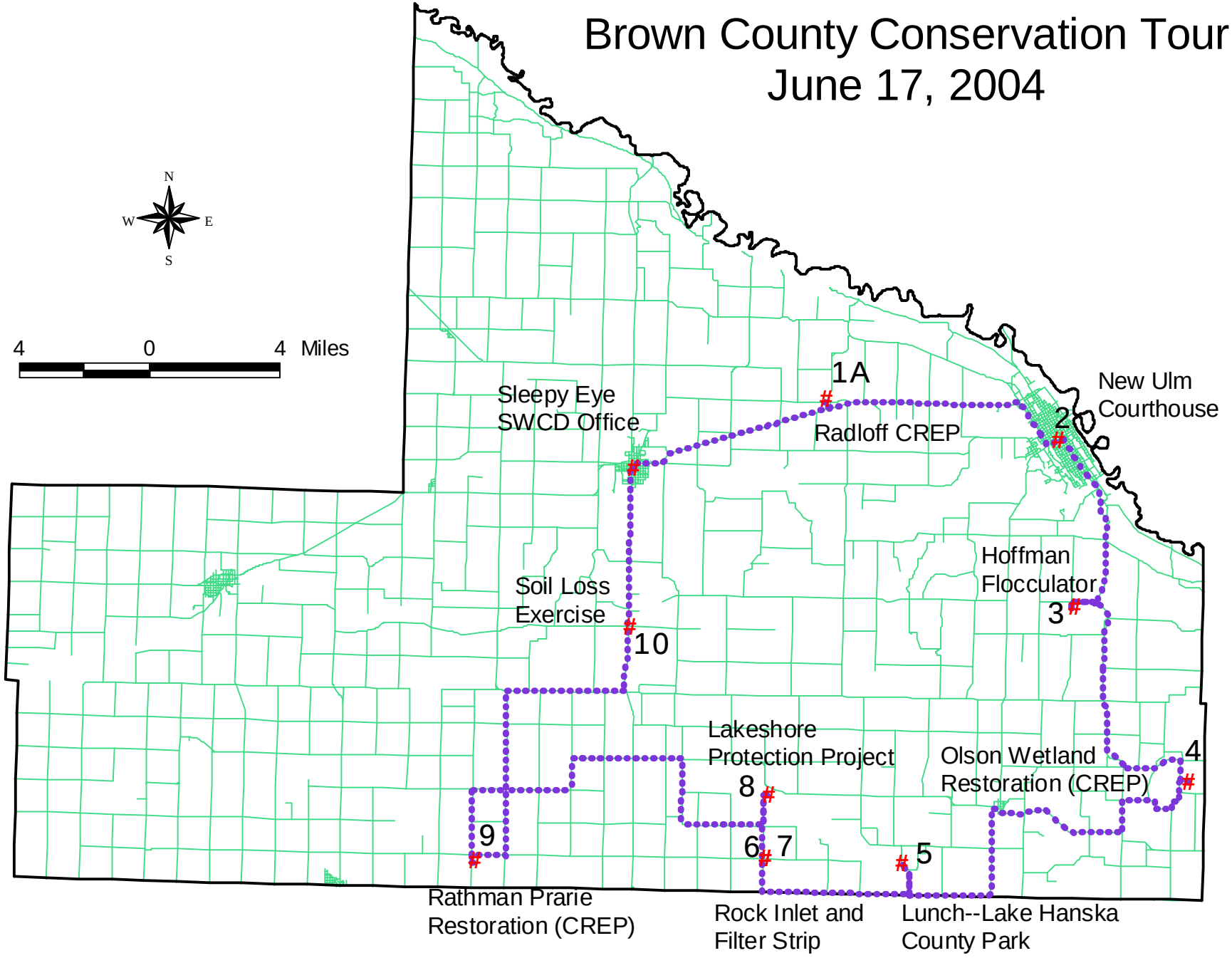

Did you know?

In Brown County there are:

- 326,135 acres of cropland
- 14,545 acres or 4.4% of the cropland is now under some kind of conservation easement. 56% of the easements are temporary and 44% are perpetual.
    - 1,081 acres in RIM
    - 541 acres in WRP
    - 4,756 acres of CREP
    - 2,032 acres of CRP filter strips
    - 279 acres of CRP Farmable Wetlands

Little Cottonwood River Watershed

- The watershed is 108,757 acres of which 96,670 or 89% is cultivated.

- 5,192 acres are under a conservation easement. This represents 5.4 % of the eligible cropland.

- Flooding has been the main concern within this watershed. In 2000 efforts began to help accelerate the adoption of conservation programs by providing additional cost-share and technical assistance through the Clean Water Partnership Program.

- One of the main programs emphasized in this watershed was the CREP program within the 100-year floodplain.

- A total of 2,321 acres of marginal or environmentally sensitive land was enrolled into CREP. This accounts for 2.4 % of the cultivated land in the watershed.

- About 54% or 1,253 acres of the CREP easements are located within the 100-year active floodplain of the Little Cottonwood River. On the remaining land, 1,068 acres of easements are located on frequently flooded soils (wetlands) or along riparian corridors like streams and drainage ditches.

- Currently, special efforts have been focused on the CRP filter strip and farmable wetlands program.
    - A total of 651 acres of cropland have been enrolled into the CRP filter strip program and a total of 34 acres have been enrolled into the FWP program.
    - 153 miles of 397 miles or 40% of the eligible streams in the watershed are adequately buffered.