

Conservation Marketplace of Minnesota, a Regional Approach to Ecosystem Service Markets

Susan Carlin
Minnesota River Board



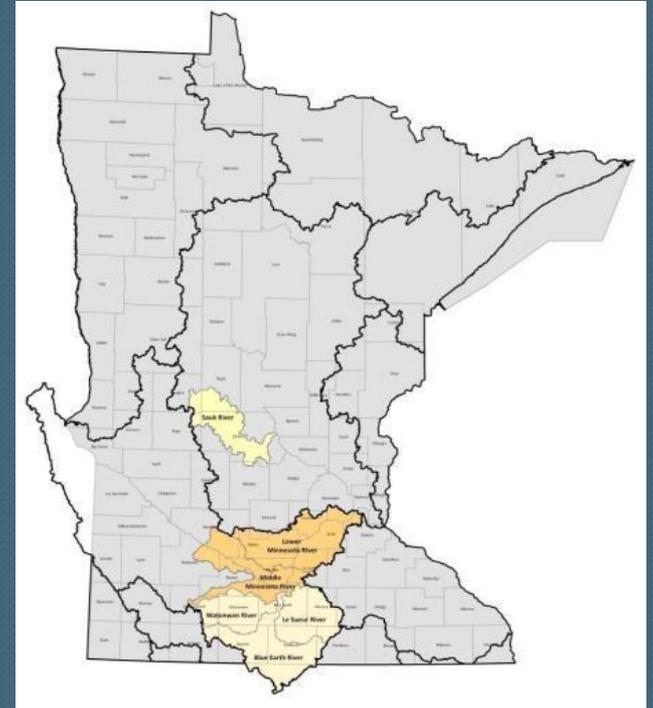
Our Partners



CMM's Founding Concept

To support the emerging ecosystem service market opportunities in Minnesota, CMM will provide:

- uniform, easy-to-use measurement tools
- reporting forms
- 3rd-party verification



“Ecosystem Services”

What are “Ecosystem Services?”



Conservation Marketplace
OF MINNESOTA

“Ecosystem Services”

What are “Ecosystem Services?”

the benefits people obtain from nature



Conservation Marketplace
OF MINNESOTA

What are “Ecosystem Services?”

Some basic ecosystem services are very obvious:



Fuel

Fiber

Food



What are “Ecosystem Services?”

Recreation



Pollination



Carbon Sequestration

How does a market transaction work?

- Credit generators increase the ecological value of their land.
- Credit buyers pay for specific ecosystem services provided by the enhanced BMPs.
- Conservation Marketplace of Minnesota introduces buyers to sellers.



Why would someone buy credits?

- Non-profit organizations have a conservation mission
- Municipalities may find it cheaper to invest in root causes rather than pay for treatment
- Corporations may wish to offset their ecological impact or prove to consumers that they invest in conservation



What are CMM's Goals?

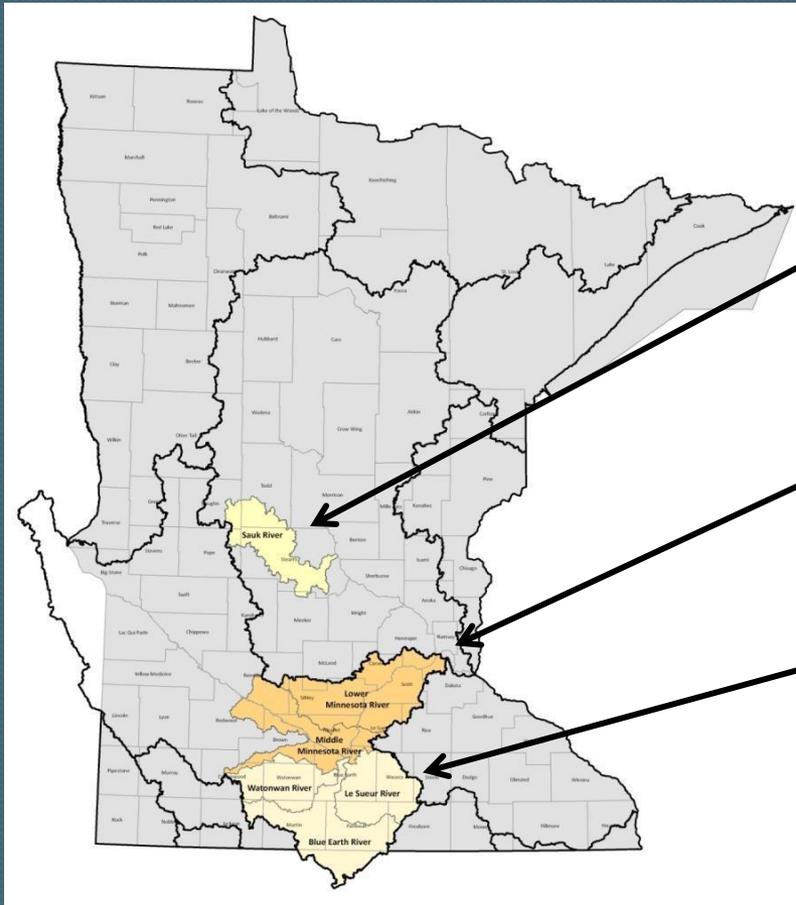
- Increase conservation adoption in rural and agricultural lands (BMPs)
- Increase the ecological value of the region
- Work alongside current conservation efforts

History of CMM

- Established through a USDA-NRCS *Conservation Innovation Grant* in August 2008
- Minnesota River Board is fiscal agent on CIG
- Three watershed service areas



CMM's Watershed Service Areas

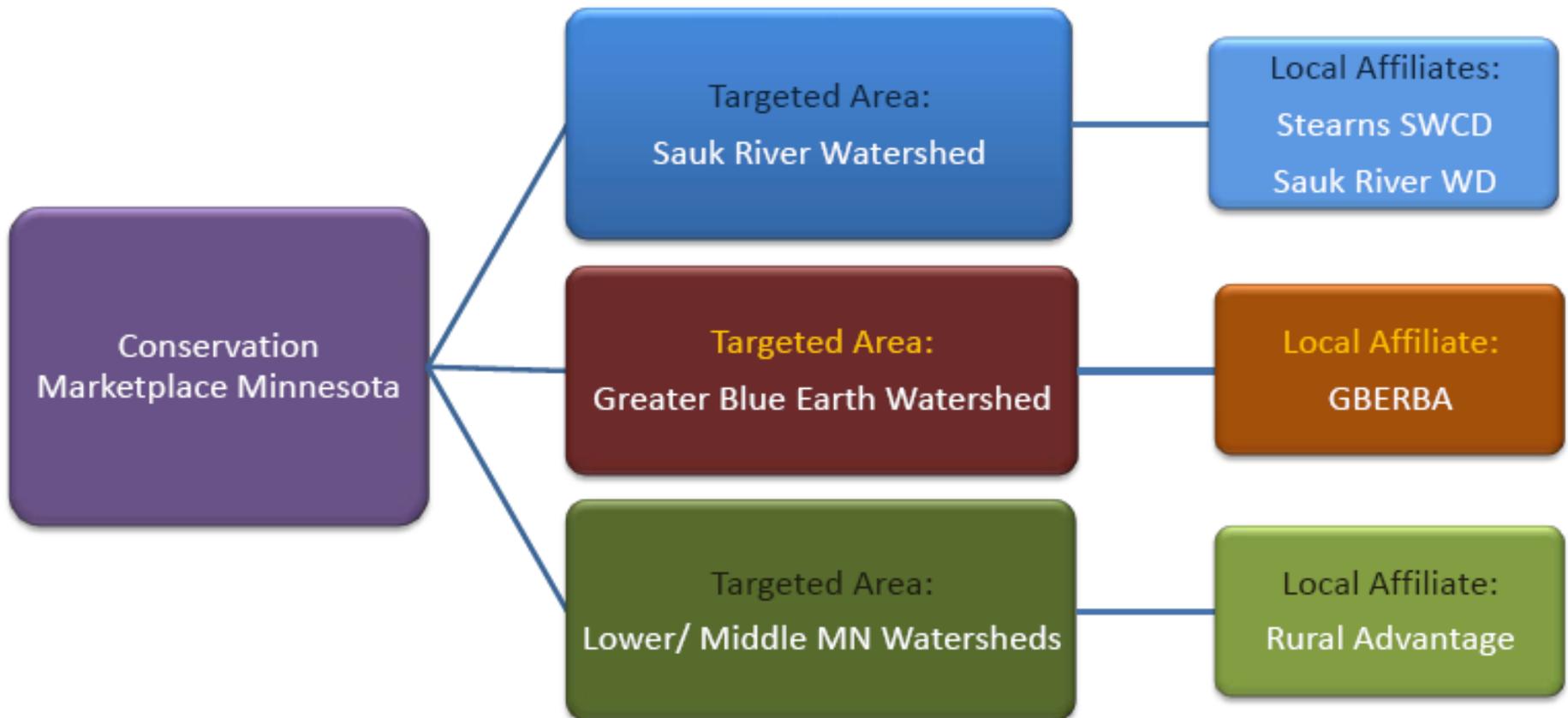


Sauk River Watershed

Lower/Middle Minnesota
River Watersheds

Greater Blue Earth River
Watershed

Local Affiliates



How is CMM different from other conservation programs?

- ◉ Identifies new sources of funding for conservation
 - Corporations who wish to support their internal sustainability initiatives
 - Municipalities who are looking for alternatives to expensive new facilities



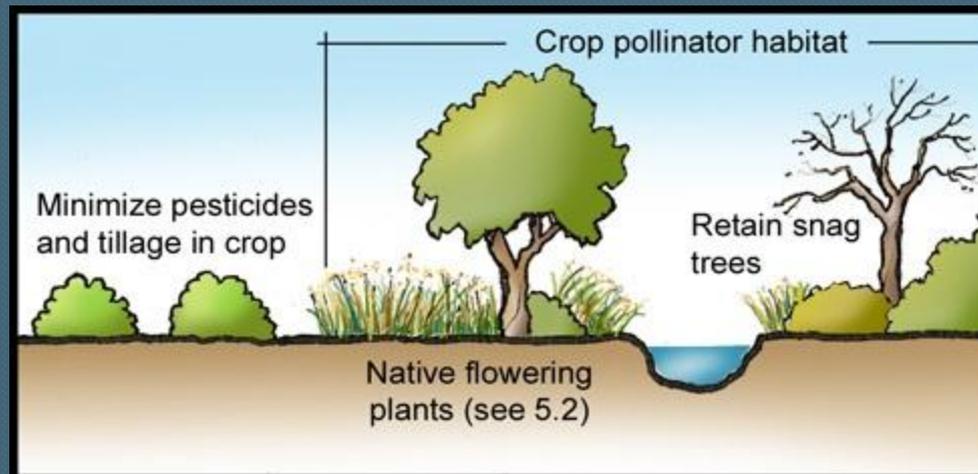
How is CMM different from other conservation programs?

- CMM appeals to landowners who avoid conservation programs that are “tied to the government”
 - Landowners can directly enter an agreement and receive funds from a private credit buyer—no government involvement

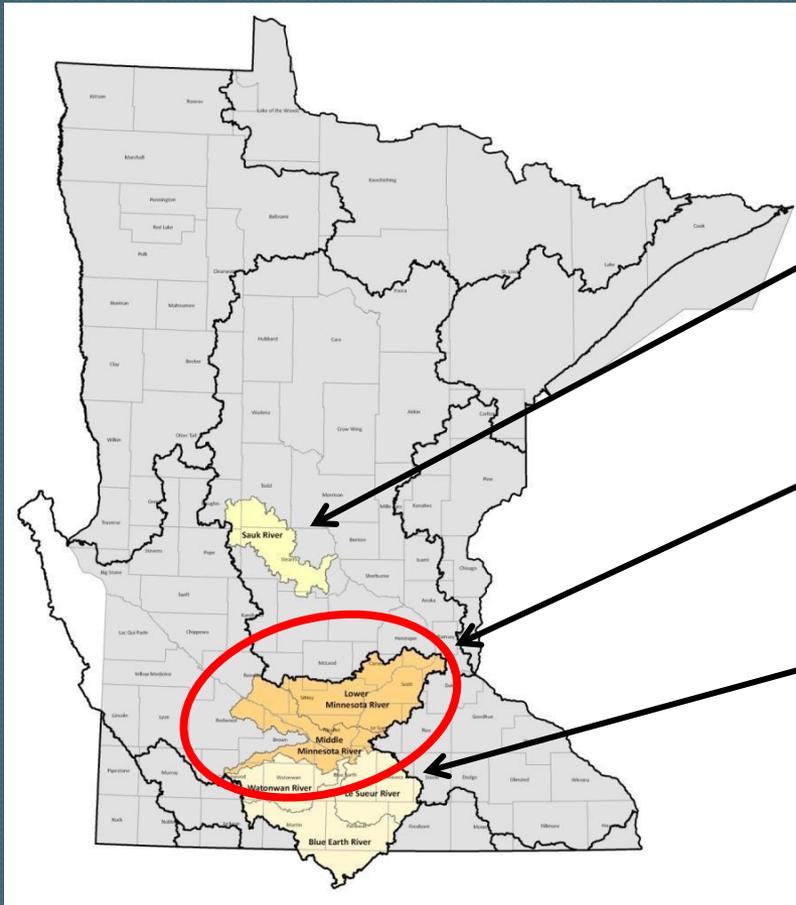
How is CMM different from other conservation programs?

◉ Focus on “ecological uplift”

- What added benefits can we introduce to conservation practices?
- Example: implement a standard buffer, but CMM might provide an additional payment for using native seed mixes in that buffer.



Overview of the Lower & Middle Minnesota River Project



Sauk River Watershed

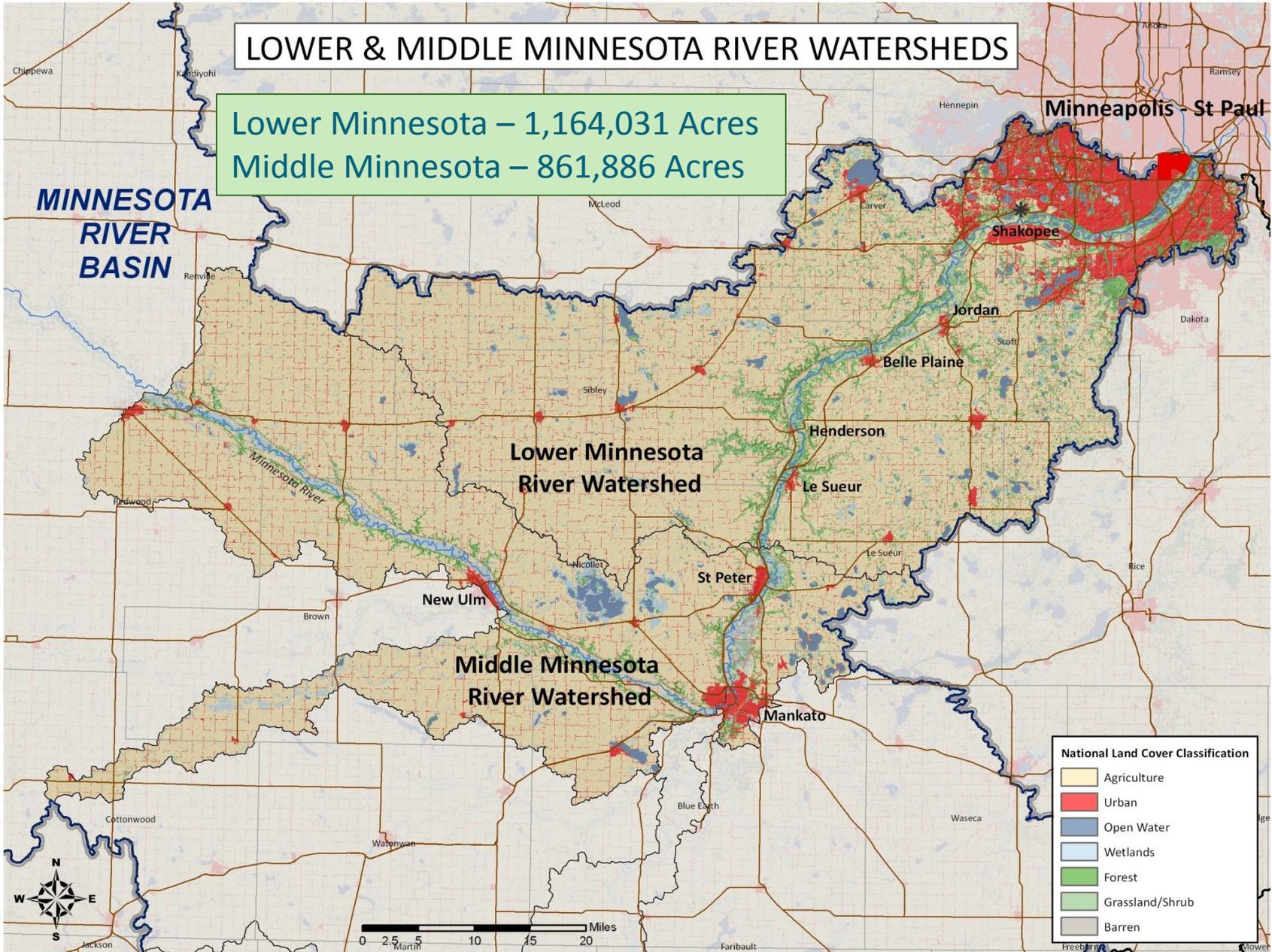
Lower/Middle Minnesota River Watersheds

Greater Blue Earth River Watershed

LOWER & MIDDLE MINNESOTA RIVER WATERSHEDS

Lower Minnesota – 1,164,031 Acres
Middle Minnesota – 861,886 Acres

**MINNESOTA
RIVER
BASIN**



Lower & Middle Minnesota Watersheds

- Contains the mouth and over ½ of the river miles of the main stem of the MN River
- Intense row crop (corn/soybean/sugar beets) in western portion of watershed
- Majority of acres artificially drained
- “Hobby” farms in rural to urban transition
- Livestock operations are primarily swine

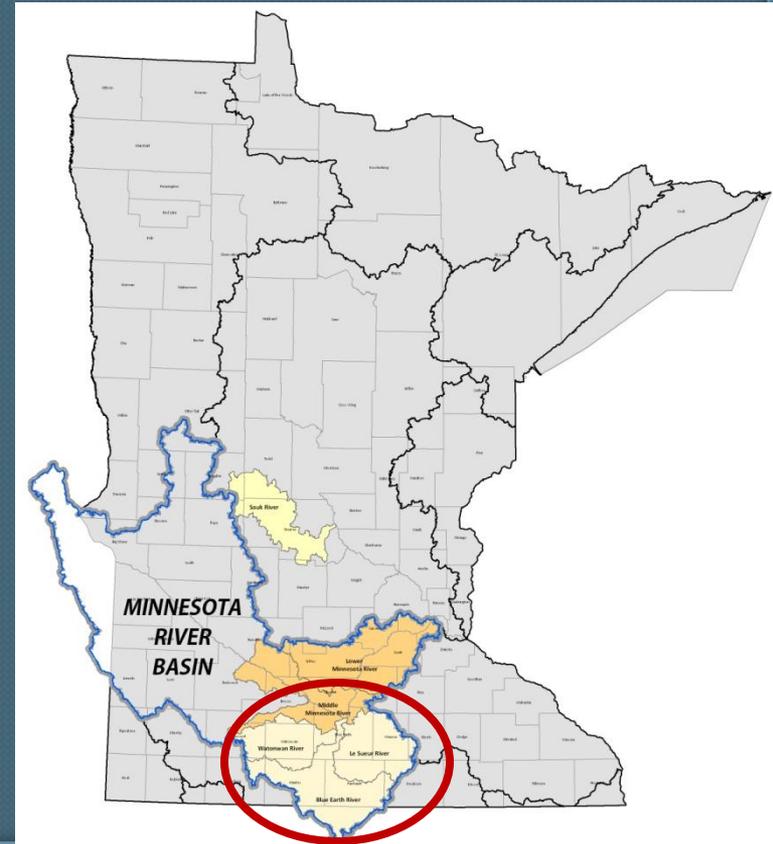
Local CMM Affiliate



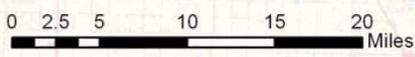
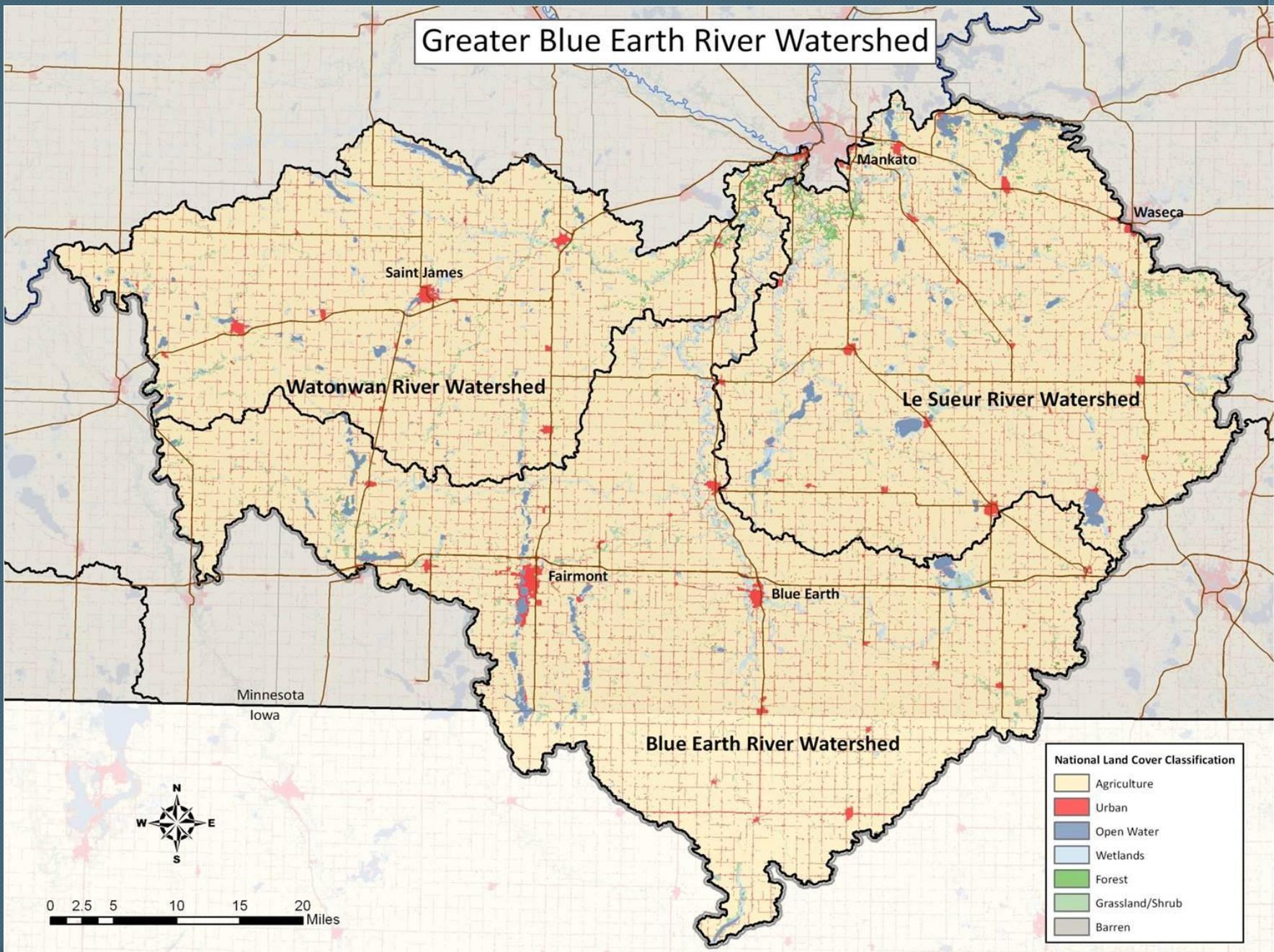
- Rural Advantage, under guidance of Linda Meschke
- Illustrates how an independent non-profit organization can introduce credit buyers and credit generators.

Overview of the Greater Blue Earth

- Located in Western Corn Belt Plains Ecoregion
- Extensive drainage systems
- Impaired Waters
- Nutrient & Sediment Issues
- Deeply eroded channels and ravines in northern reach
- Land Use
 - 2.26 Million Acres
 - 85% Cultivated Agriculture
 - Corn and Soybeans Dominate

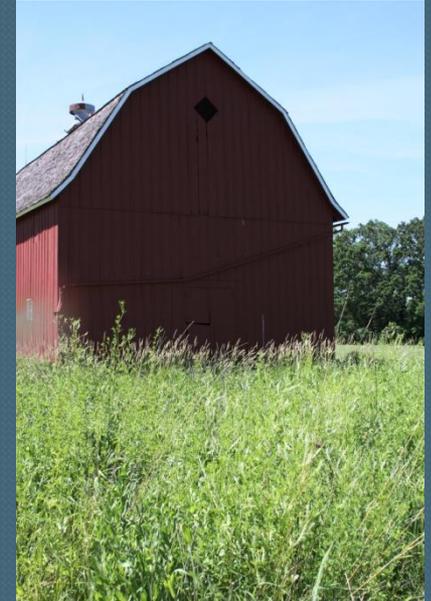


Greater Blue Earth River Watershed



Sociopolitical Factors

- Intensive agricultural land use
- Rural population
 - City of Fairmont is largest (pop. 11,000)
- TMDLs and nutrient criteria potentially a stronger driver for future water markets



Greater Blue Earth Market Structure

- Providing local units of government with a standardized process to participate in markets
 - 9 Counties affiliated with Greater Blue Earth River Basin Alliance
 - Centered in SWCD offices

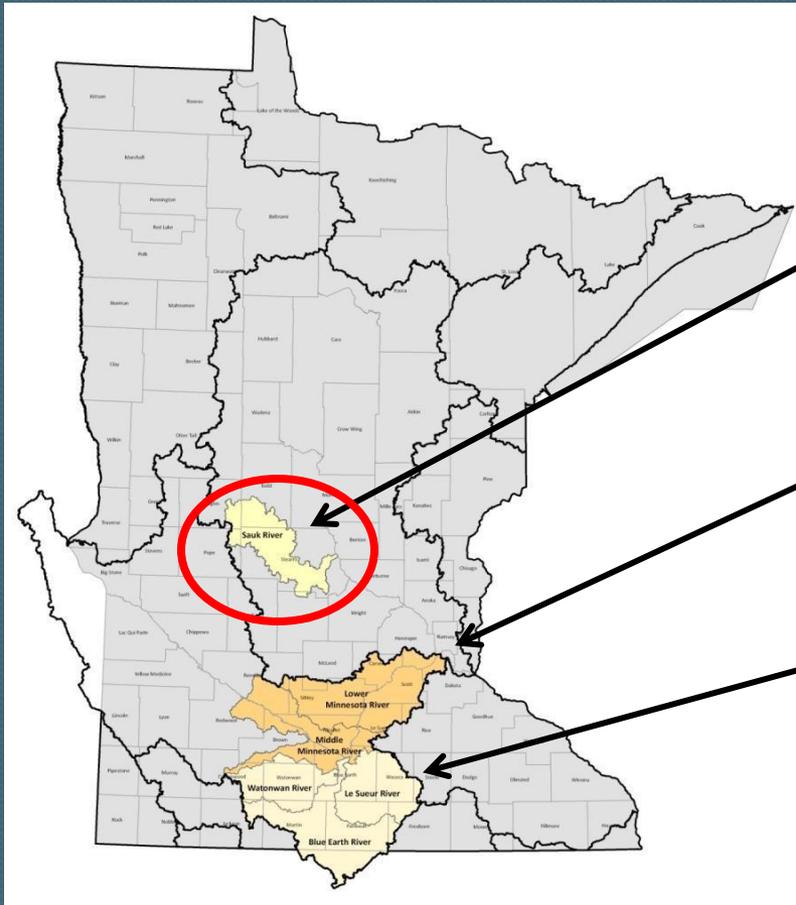


What we've learned so far...

- ⦿ Must be a ***working lands initiative***
 - More than 85% tillable land in Greater Blue Earth
 - Keep productive lands in production to meet future demands
- ⦿ Need for simplified tools and resources
 - SWCDs are faced with limited resources and tight budgets
 - Must demonstrate successful projects, measureable outcomes, and financial gains
- ⦿ Provide a system with integrity



Overview of the Sauk River Project



Sauk River Watershed

Lower/Middle Minnesota
River Watersheds

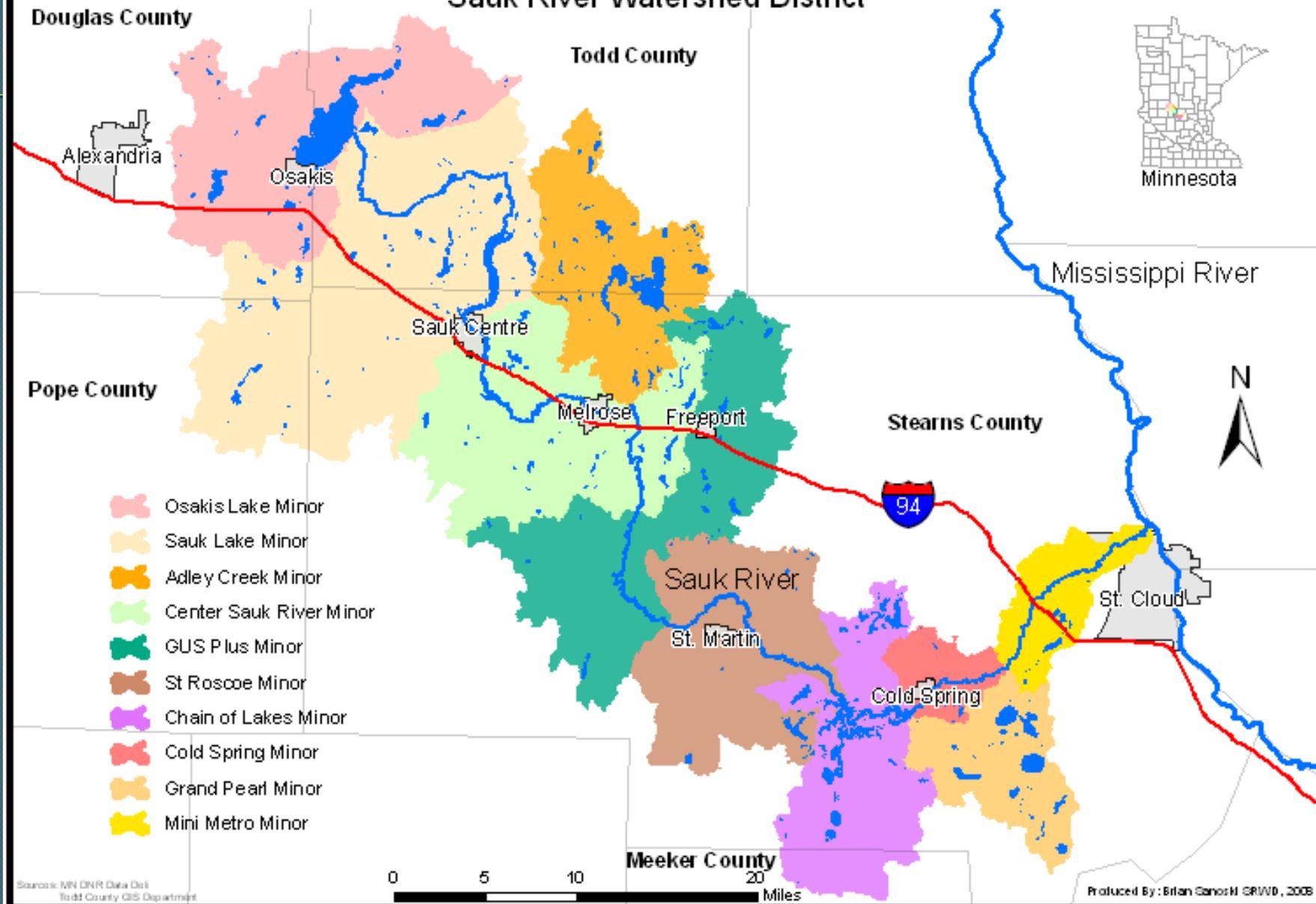
Greater Blue Earth River
Watershed

About the Sauk River Watershed

- Sauk River 8-digit HUC sub-basin in the North Central Hardwood Forest Ecoregion
- Watershed is 75 miles in length and 20-30 miles wide
- Sauk River meanders for 120 miles
- Sauk River Watershed covers parts of five counties including: Douglas, Todd, Meeker, Pope and Stearns

Water Management Districts

Sauk River Watershed District



Source: MN DNR Data Del
Todd County GIS Department

Produced By: Brian Ganoth GRW/D, 2008

About the Sauk River Watershed

- Watershed is defined by ten management districts determined by the hydrologic boundaries, water quality trends, monitoring sites, and socio-economic and land use patterns
- The Sauk River Watershed District has been in existence since 1986 and has a history of providing monitoring data on the lakes, streams and tributaries within the watershed.



About the Sauk River Watershed

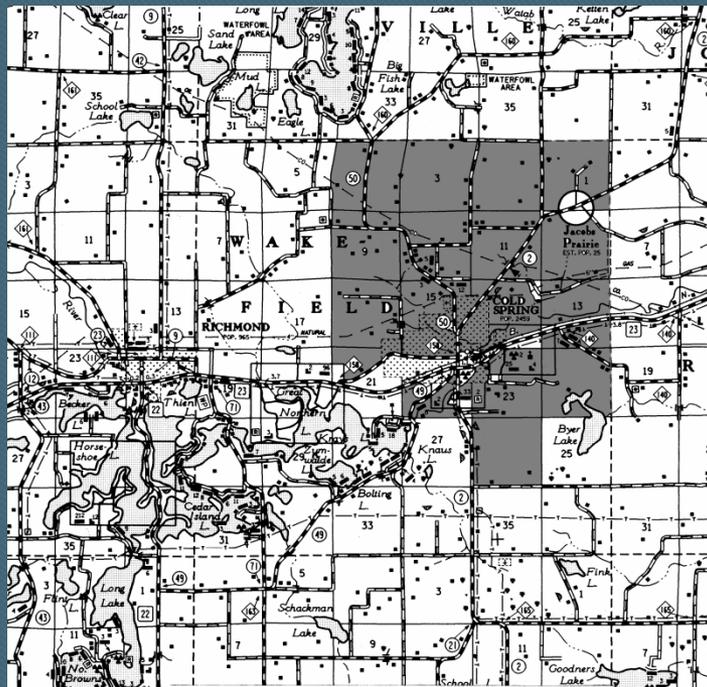
- Comprised primarily of agricultural lands
- 97% of the land is privately owned
- Land use includes:
 - 50% row crop
 - 27% grass/hay/pasture
 - 9% forest
 - 6% residential/commercial Development
- Encompasses 667,214 acres or about 1,000 square miles
- Diversified livestock operations

Overview of the Sauk River Watershed Project

- Efforts led to develop the Sauk River Watershed Ecosystem Services market by:
 - Sauk River Watershed District
 - Stearns County Soil and Water Conservation District
- Led by two local units of government
- The watershed district and SWCD have a history of partnering for implementation of projects



Case Study: Source Water Protection



Case Study:

Source Water Protection Credits

- In municipalities where drinking water is supplied by wells, a protection area is defined and an assessment is done to determine risks to water quality.
- Certain cities have identified concerns with elevated nitrates.
- In response, they have developed incentives to change practices in the identified protection area to protect water quality.

Wellhead Protection Credits

Example BMPs (Not intended to be a comprehensive list)	Specified Environmental Uplift
<ul style="list-style-type: none"> Nutrient management 	Reduced nitrate applications
<ul style="list-style-type: none"> BMP Challenge Plus (applications below agronomic rates with payments made to compensate for yield losses) 	Reduced nitrate applications
<ul style="list-style-type: none"> Crediting nitrates in irrigation water 	Reduced nitrate applications
<ul style="list-style-type: none"> Perennial vegetation establishment 	Reduce nitrate applications and increased nitrogen uptake
<ul style="list-style-type: none"> Cover crops 	Reduce nitrate availability in deeper groundwater
<ul style="list-style-type: none"> Nitrogen inhibitors 	Reduce nitrate applications and availability
<ul style="list-style-type: none"> Biofilters 	Conversion of total nitrogen into N ₂ gasses



Background

- The City of Cold Spring has 6 municipal wells
- Federal Drinking Water Standard for Nitrate-Nitrogen is 10 mg/L
- Once a public water supply well reaches 10.4 mg/L of N-N it is permanently taken off-line
- 3 of 6 municipal wells exceed 9 mg/L of N-N

Issues

- Lack of understanding of the City's intentions
- Producers want information to remain confidential when/if participating
- City needs to record a measureable quantity when purchasing credits to satisfy audit requirements

**Source Water Protection (SWP) credits
satisfy all of these issues**



Source Water Protection Credits

- BMP challenge (agronomic rates)
- BMP challenge plus (below agronomic rates)
- Nitrogen release inhibitors
- Crediting nitrogen in irrigation water
- Application practices like side dressing



Wellhead protection

- City required at least an 8% reduction from past practices (determined by previous records)
- Many dry-land farmers already below agronomic rates; this further lowered their application

Cold Spring WHP Project Credit Application | A-14

Provided by Sauk River Ecosystem Services in Cooperation with the City of Cold Spring, WI, WI

Date: _____

Project ID: Example: Johnson-10-01 _____
(Applicant Last Name - yy - BMP #)

Check appropriate title of Applicant: Owner Operator

Name: _____

Street Address: _____

City, State, Zip: _____

Telephone number: _____

Email: _____

Fertilizer Dealership Certifying Application Rates:
Dealership Name: _____

Name of Individual Working with Producer: _____

Phone #: _____ Email: _____

Estimated Number of Acres to be treated with Nitrogen Inhibitor: _____

Projected Cost: _____

Producer Signature: _____ Date: _____
Print signature: _____

Fertilizer Dealership Signature: _____ Date: _____
Print signature: _____

1 Sauk River Watershed Ecosystem Services Project
V 1.0, Revised June 28, 2010



2010 Program Results

- 3 producers participated in pilot
- 277 dry land acres @ \$10/acre for Instinct®

4076 lbs of nitrogen removed in the City of Cold Spring's drinking water supply management area!

- Conservation technicians hope to see a ~0.5 mg/l N reduction from this pilot



Case Study: Pollinator Credits



What are Pollinators?

- Pollinators are the bees, butterflies, and other animals that pollinate flowers
- More than 2/3 of the world's crop species rely on pollinators



What are Pollinators?

- More than 100 crops in the U.S. either need or benefit from pollinators
- Economic value of these native pollinators is estimated at \$3 billion per year in the U.S. (Additional \$15 by managed honey bees)

What are the Concerns?

- Over 1/3 of managed honey bee colonies have died in past 3 years
- Some native bumblebee species are on brink of extinction
- Colony Collapse Disorder likely results from a combination of causes:
 - pesticides
 - environmental stresses
 - pests such as the varroa mite
 - viruses
 - global warming

Key Pollinator Needs



- High plant biodiversity
- Blooming plants during the entire growing season
- Minimum of 3 flowering plants each season
 - Early (April – June)
 - Mid (June – August)
 - Late (August – October)



Performance Standards

NRCS Practice Standard 645

Native Habitat Development for Pollinators

- > ½ acre in size
- Diversity of native grasses, wild flowers & shrubs
- Plantings include each flowering group (early, mid, late)
- At least one forb is a legume
- 25 foot insecticide-free buffer
- Plants must remain undisturbed throughout the growing season
- At least 15 native species
- Seeding mixture that results in a 50:50 grass:forb ratio

Site Documentation

- Completed application
- Aerial photo showing site location
- Diagram of site with measurements & buffer identified
- List of all species planted, pollinator species identified, blooming seasons
- Operation & maintenance plan



Annual Inspection

- Review Operation & Maintenance Plan
- Review log of management activities
- View site & record species
- Determine plant density
- Determine grass: forb
- Identify invasive plant issues
- Evaluate pollinator activity



Pilot Pollinator Credit

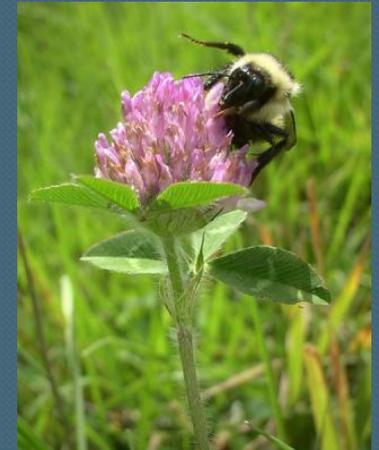
- Each ½ acre of pollinator habitat equals one credit
- Engaged landowner
- Use Rural Advantage Funds for this Pilot



- 5-year commitment
- Funds for establishment
- Annual payment

Pollinator Credit Status

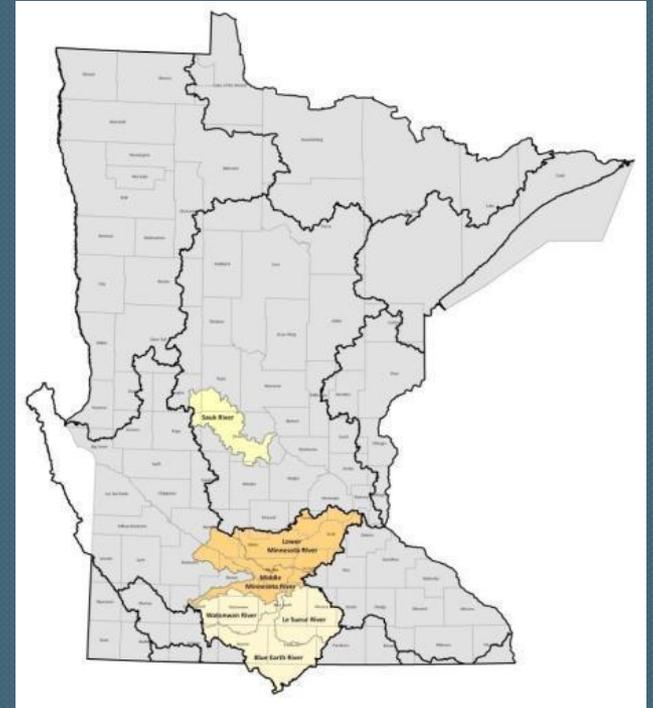
- Landowner signed on
- Forms in development
- Site Established
- Discussing Pollinator Credit Value
- Advisory Team Review
 - Xerces Society
 - University of Minnesota
 - Landowners
 - Ecologist
 - Others



CMM's Founding Concept

To support the emerging ecosystem service market opportunities in Minnesota, CMM will provide:

- uniform, easy-to-use measurement tools
- reporting forms
- 3rd-party verification



Uniform measurement tools



- Nutrient Tracking Tool (NTT)
 - Compares ag management systems to assess changes in nitrogen, phosphorous, sediment loss, crop yield



- NRCS Practice Standards

Reporting Forms



- Developed by Aggregator Committee & Technical Committee
- Approved by Policy Committee



- Developed by Technical Committee
- Approved by Policy Committee & Minnesota River Board



Third-Party Verification



- CMM provides verification so that:
 - Cities have proof of expenditures
 - Individual farmers remain anonymous to city & each other



- Certified field representatives
 - University of Minnesota?
 - Crop consultants



CMM's Current Tasks



- ◉ Develop monitoring program
- ◉ Market to credit buyers
- ◉ Develop application forms
- ◉ Train Certified Field Representatives
 - Local land managers: crop consultants, WD staff, SWCD staff

Recruiting Buyers

- Buyers want to know:
 - What is an “ecosystem service market?”
 - How can this help me?
 - How will I know my money was well-spent?



Conservation Marketplace of MN
Bringing Environmental Markets to the Upper Midwest

www.conservationmarketplaceofmn.org



What are “Ecosystem Services”?

Ecosystem Services are measurable environmental benefits valued by society. Examples include clean water, flood control, and recreation. Ecosystem service markets exist where someone is willing to pay for an environmental benefit, such as drinking water improvements or habitat creation.

The **Sauk River Ecosystem Services Market**, an affiliate of the Conservation Marketplace of Minnesota (CMM), is establishing a voluntary marketplace to connect buyers and sellers of environmental benefits.

Benefits Gained by Participating in Environmental Markets

Reputation is one of a company’s strongest and best assets. When a company is able to effectively help promote community awareness with one or more issues and identifies closely with the public, this creates a significant competitive advantage.

CMM will work with you to tailor a program that is aligned with your company goals and community objectives. Your investment in CMM will provide you with the following benefits:

- Promote the environmental label of your product line
- Permission to use the CMM label
- Your business promoted on the CMM website
- CMM news release honoring your contribution
- CMM award plaque recognizing your support

To learn how you can partner with CMM, please contact: Dennis Fuchs, Stearns Co. Soil & Water Conservation District, at (320)251-7800 ext. 132 or dennis.fuchs@mn.nacdn.net

All programs & services are available without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Project Partners:



Sharing Our Experiences

- Goal: to make this process available to other conservation implementers
- Help integrate it into existing conservation practices



Transferring the Lessons Learned

- ◉ Brian Brandt, bbrandt@farmland.org
- ◉ Susan Carlin, susan.carlin@mnsu.edu
- ◉ Dennis Fuchs, dennis.fuchs@mn.nacdnet.net
- ◉ Brooke Hacker, brooke.hacker@mnsu.edu
- ◉ Jim Klang, jklang@kieser-associates.com
- ◉ Holly Kovarik, holly@srwdmn.org
- ◉ Linda Meschke, linda@ruraladvantage.org
- ◉ Carrie Raber, carrie.raber@mn.nacdnet.net