

Greater Blue Earth River Watershed

The Greater Blue Earth river watershed encompasses 2.3 million acres (3,594 square miles) in south central Minnesota and north central Iowa. The Watonwan and Le Sueur rivers join the Blue Earth just before the Blue Earth joins the Minnesota River at Mankato. The greater Blue Earth watershed makes up only 20% of the geographical area of the Minnesota River watershed, yet provides over one half of the flow to the Minnesota River at Mankato and contributes over one half of the pollution [sediment, nitrates, phosphorous] loading to the Minnesota River system. The watershed is dominated by annual row crops with approximately 87% of the land in annual tillage.



Since 1993 there has been a focus on accelerated implementation of conservation and restoration practices to improve water quality in this region. Efforts have been led by the Blue Earth River Basin Initiative [BERBI] and its member SWCDs from 1993 through 2006, using \$4.5 million in funds received for that purpose. BERBI and its partners were able to reduce the pollution loading from the Blue Earth River system to the Minnesota River system by an estimated 9% over that time period. Conservation practices typically applied included traditional cost-shared practices through SWCD and NRCS programs; and some innovative practices such as buffers around open tile intakes and streambank restoration initiatives.

Local and state water quality goals for the Blue Earth and Minnesota River were set at a 40% pollution load reduction from these systems. It took 13 years to get a 9% pollution reduction from the Blue Earth system. Achieving the 40% local and state reduction goals would take almost 50 years using this method. This is too long of a time period for public tolerance and the focus began to change toward more effective conservation practices.

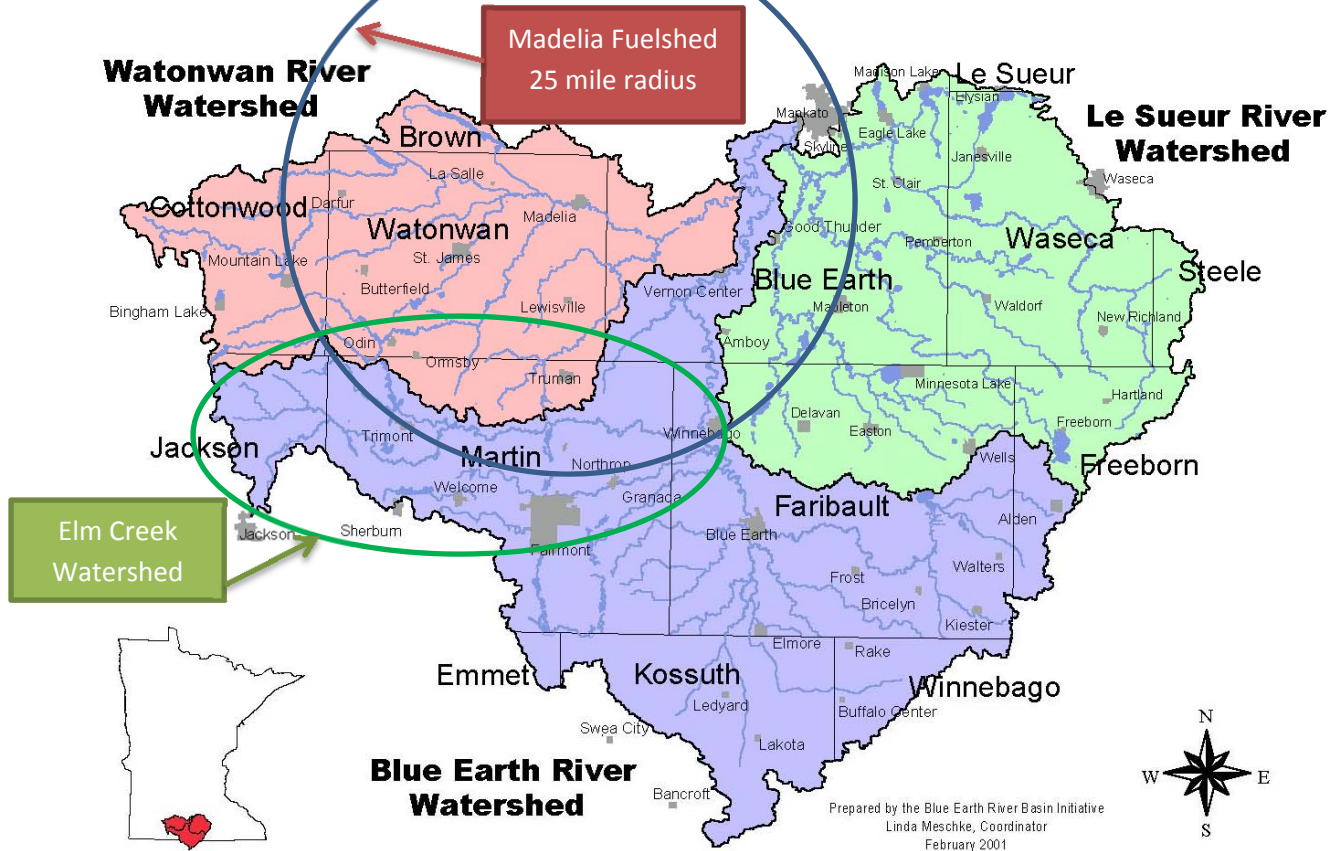
BERBI dissolved at the end of 2006. Rural Advantage, a new non-profit, was formed at that time to focus on accelerating the adoption of practices that were more effective at reducing agricultural nonpoint source pollution. This new work would focus on 3rd crops, especially crops that provided continuous living cover which could be strategically placed in the landscape to mitigate nonpoint source pollution from agricultural lands.

Also during this time, the Greater Blue Earth River Basin Alliance [GBERBA] was formed that brought county government and their ability to regulate land use together with the SWCD's and their technical skills with conservation practice implementation. This alliance has brought significant people and financial resources to the region in support of improved water quality.

University of Minnesota researchers worked with Rural Advantage and local SWCD's to establish five different research projects, all relating to perennial plantings, in the Elm Creek watershed starting in 2004. A local meeting in 2010 brought together the University researchers and the cooperating

landowners to learn about the various research efforts going on in the area. Led by landowners and farmers in the Elm Creek area, this meeting led to the formation of the Elm Creek Advisory Committee.

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The committee is made up of landowners and farmers who will advise University researchers on research needs, assist in identifying project sites and disseminate information between parties and the broader public.

Three strategies have been identified to increase the effectiveness and adoption of conservation practices: 1) diversify the existing cropping system; 2) target 3rd crops to key landscape positions; and 3)

identify or develop markets for crops from those acres. These areas need to be 'production' areas that provide economic return to the farm family, not land retirement. Production will probably not be measured in bushels, but rather in tons or ecological uplift. As Rural Advantage and their partners were developing these concepts, interest in locally grown renewable energy became significant and led to the opportunity to utilize perennial crops for bio-energy. One facility could help drive thousands of acres of perennials on the landscape. This renewable energy opportunity led to the development of the Madelia Model.



The premise of the Madelia Model is that from a 25 mile radius around your community you can grow, or collect from natural or industrial sources, enough biomass to fuel your community and provide feedstock for bio-based processing. The model points toward growing a market for perennial crops [3rd crops] and resulting in job creation in rural areas. Perennial crops supported include native grasses, short rotation willow, alfalfa, miscanthus and other woody species. These crops would provide ecological benefits such as clean water, carbon sequestration and improved wildlife habitat and diversity in addition to biofuels. Prairie Skies Biomass Co-op is pursuing owning the facility and supplying the feedstocks. A feasibility study for a 300 ton torrefaction facility to begin operation in 2016 has just been completed and is being analyzed.

In addition, Rural Advantage has collaborated with the Practical Farmers of Iowa under a North Central SARE grant to demonstrate cover crops on 400 acres in Minnesota. Working with interested landowners we were able to establish demonstrations, conduct outreach and education and promote cover crop usage.

Project Partners in the Greater Blue Earth River Watershed

Rural Advantage

Greater Blue Earth River Basin Alliance

- Blue Earth County & SWCD
- Cottonwood County & SWCD
- Faribault County & SWCD
- Freeborn County & SWCD
- Jackson County & SWCD
- Le Sueur County & SWCD
- Martin County & SWCD
- Waseca County & SWCD
- Watonwan County & SWCD

Landowners and Farmers

Institute for Agriculture and Trade Policy

Three Rivers RC&D

Natural Resources Conservation Service

MN Board of Water and Soil Resources

MN Department of Natural Resources

MN Department of Agriculture

MN Pollution Control Agency- Sustainable Development Strategic Initiatives

MN River Board

MN State University Mankato- Water Resources Center

University of Minnesota

- Center for Integrated Natural Resources & Agricultural Management

- Forestry

- Agronomy and Plant Genetics

- Bioproducts and Biosystems Engineering

- Chemical Engineering & Materials Science

- Applied Economics

- Southern Research & Outreach Center

- Extension

6 Solutions

Gradient

SynGas Technologies

Madelia Chamber of Commerce

City of Madelia

Madelia Light and Power

Downs Food Group

AgriDrain

Strategic Initiatives

Practical Farmers of Iowa