



Sand County Foundation

West Branch Milwaukee River Watershed Project

Sand County Foundation is currently operating a watershed-scale nutrient management project in the West Branch of the Milwaukee River. The purpose of the project is to document, with tangible data, the relationship between changes in agricultural land management and changes in the water quality in a sub-watershed of the Milwaukee River system.

The West Branch Milwaukee River watershed is located in southeast Fond du Lac County, northeast Dodge County and northern Washington County. The watershed is approximately 37,015 acres of land in size, roughly 75% of which is in agricultural use. The remaining 25% of the land is mostly wetlands and forest. The watershed includes the villages of Ashford and Elmore and small parts of the towns of Lomira and Campbellsport. Urban/developed areas comprise less than 10% of the overall land use in the watershed.

The project began in May of 2010 with efforts to engage producers in the West Branch and collect data on agricultural activities in the watershed. The main avenue used to accomplish these goals was to offer incentives for nutrient management planning. This process allowed us to have good discussions with the producers and to get data on agricultural activities from multiple farms in a consistent format through the nutrient management plans.

As part of this project, three in-stream monitoring sites have been installed in the West Branch sub-watershed to collect baseline, future flow, and chemical data to assess the effect of land management changes on water quality in the West Branch. The in-stream sites were installed at places where the West Branch of the Milwaukee River and County Highways intersect in Fond du Lac County (see map below). These sites were installed in early 2011, starting at the headwaters and ending one mile from the outfall into the Milwaukee River system. The two upper watershed sites have automated flow data and water sample collection equipment that is remotely/automatically triggered to collect samples during normal flow and climactic events. The outfall site has automated flow data collection equipment and a structured, time-based schedule set for even width interval hand sample collection of water for chemical analysis.

Two edge of field monitoring sites were installed in late 2011 to collect baseline and post management change flow and chemical data on field runoff. These sites are located in the upper regions of the watershed and are on a small daily hauler dairy and a cash-grain operation on



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extremely steep slopes. These sites have automated flow data and water sample collection equipment that is remotely/automatically triggered to collect samples during normal flow and climactic events. These sites are currently collecting data on the existing land management on these fields and discussions with the farmers have begun on the management changes/practices that will be implemented during the project. Another edge of field site and a tile line monitoring site are being discussed for possible installation in spring 2012.

The West Branch project has five main stages. There will be considerable overlap among them during the anticipated five-year life of the project. They are as follows:

- ***Building relationships with landowners and farm operators in the watershed, and the crop consultants who work with them.*** One way we are building these relationships is through incentives for nutrient management plans (NMPs). Farmers' knowledge of their own land is an asset on which this project will attempt to draw. The project represents an effort to discover the extent of water quality problems related to nutrients used in agriculture – an attempt to find out what is happening in the watershed (beginning with a baseline inventory of how land is being used now), rather than a prelude to regulation of farmers.
- ***Siting and installation of water quality monitoring stations.*** Sand County Foundation is establishing a means to demonstrate that money spent on conservation programs delivers conservation. Specifically, if we are spending money to reduce runoff of nitrogen and phosphorus, we need to find out whether it is effective. This means monitoring, both in the West Branch itself (three sites) and at the edge of selected fields (two sites, probably more).
- ***Identification of critical sites.*** Some farm fields are more prone to nutrient runoff during snowmelt or intense precipitation events than others. Our working theory is that if these sites can be identified and appropriate practices applied to them, conservation dollars will go farther than if nutrient management practices are applied indiscriminately on farmland in a large area. The Soil Nutrient Application Planner (SNAP-Plus) software will be a key tool used to identify critical sites. Like other components of this project, identification of critical sites requires cooperation from landowners in the watershed.



Sand County Foundation West Branch Milwaukee River Watershed Project

- ***Application of nutrient management practices.*** There aren't many "silver bullets" in agriculture. Most nutrient management practices have a history, some have a very long history. We know when they will work perfectly (when there is no rain and/or snowmelt, there is no runoff) and when they will not work at all (when fields are flooded). The West Branch project will use incentives and build on relationships to apply established practices to avoid, control, and trap phosphorus and nitrogen runoff in the West Branch, beginning with identified critical sites.
- ***Evaluation of data.*** The West Branch project will generate a lot of data: on farming practices, on how they can be changed to reduce agriculture's impact on water quality, and, especially, on the impact land management changes are actually having on water quality at the edge of field and eventually in the watershed itself. Data produced by Sand County Foundation's West Branch project will be evaluated in the context of data produced by other SCF-funded watershed projects in Wisconsin. These data, in turn, will be analyzed in comparison to projects supported by NRCS, EPA, and other organizations elsewhere in the Great Lakes and Mississippi River Basins.



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Map of the monitoring site location in the watershed.

