
Thinking Like a Watershed

Black Earth Creek Watershed Association

Spring 2015

Ancient Trees in Festge Park

David Lucey, BECWA Board Member

Bur oak trees are the slowest growing, and thus the oldest, trees that are found in our area. Along with white oaks, bur oaks grow very conservatively, being careful not to add a lot of new growth that would be difficult to sustain in times of drought. As they grow, and add annual rings (tree rings), these trees are recording the growing conditions that existed for each year of growth. The trees will add a wide ring during a warm year with plenty of rainfall, while a short, cool summer, or a year of drought, will result in narrow rings. As these trees withstood the ravages of prairie fires and the coming of the plow, they recorded the climate history, the cycles of rain and drought that they endured during their lifetime.

The early settlers wrote about the weather they found when they settled Wisconsin in the 1850's. Scientists, who study weather patterns and cycles, need to reach farther back in history to have a clearer picture of how our climate may be changing. By reading the history stored in the old oak tree rings, we can uncover weather cycles going back earlier in time. At UW-Platteville, a group of researchers is gathering tree ring information from old trees by boring into them and studying the material extracted. Dr. Evan Larson, and research assistant, Sara Allen, are interested in compiling and studying climate information gathered from tree rings at their TREES Lab (Tree-Ring, Earth, and Environmental Sciences). In October, they were invited to Festge Park to bore some old trees, uncovered during recent prairie and savanna restoration work performed in the park, in an attempt to add to the database they are establishing on early area climate. Their work, called the Driftless Oak Project, is a two year research project that involves the boring of old oak trees from all over the Driftless Area in Wisconsin. This is an area that did not get covered by the glaciers that moved into Wisconsin which includes parts or all of 18 counties in the southern and western part of the state.

During their visit to Festge Park, ten old bur and white oak trees were bored with a hand-turned drill that allowed a pencil diameter core of material to be removed and taken back to Platteville for analysis. Two cores were extracted from each tree. Time constraints, and the hard work of turning the bore into solid oak, prevented the crew from doing more trees.



Dr. Larson and park volunteer Dave Lucey boring an old bur oak.

The Friends of Festge volunteer group recently heard back from the TREES Lab. In addition to climate information, the age of the trees can be determined by counting the annual rings. We were pleased to hear that the trees at Festge are among the oldest the Platteville team has encountered across the region. Five of our trees began growing before 1750, with the oldest one dating back to 1735, making it 280 years old! There are several more old bur oaks in the park that might be older, but haven't yet been dated. Work is underway to clear buckthorn, and other invasives, away from these old trees, as it has been shown that buckthorn competes with them for moisture and nutrients, as well as exudes a toxic substance that may shorten the lives of the oaks. Removing these invaders may allow the park's ancient oaks to reach 300 years and beyond.

Anyone who is interested in helping with the restoration work at Festge Park can contact Gary Nelson at 279-7401. Help is needed in brush removal and burning, seed collecting and sowing, as well as weed control, and can be arranged to fit the schedule of the volunteer. The Friends of Festge would appreciate the help, as well as would the ancient oaks.



**Black Earth Creek
Watershed
Association**

BECWA.ORG

Become a BECWA member or renew your membership

Send your check with name, address and email to:

David Lucey, 7952 County Highway K, Cross Plains, WI 53528

Lifetime Member - \$100 Business - \$50 Watershed Patron - \$35
Household - \$25 Basic - \$15

For the wise management of the land and water resources in the Black Earth Creek Watershed.

BECWA Goals

- To protect, conserve, support and advocate for the wise, long term management of the physical, biological, environmental, cultural and historical resources that constitute the heritage and future of the watershed.
- To foster and encourage citizen and locally-based stewardship among the many members of the Watershed community.
- To provide a forum for civilized discussion of issues and problems in the Watershed.

Board of Directors

- Greg Hyer, *President*
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- David Lucey, *Treasurer*
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- Deb Nemeth - *Newsletter Design*
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600 Gallons of Free Water

600 gallons. That is the amount of free water that drains from a 1000 square foot roof in a one inch rain event. Rainwater, the favorite choice for experienced gardeners, promotes healthier plants and communities. One of the most important benefits is that harvesting rainwater and using it when the ground is less saturated helps keep waterways cleaner by minimizing stormwater runoff.

Rain barrels along with compost bins will be available for discounted prices at the annual Madison Compost Bin And Rain Barrel Sale on Saturday, May 9th at the Alliant Energy Center parking lot. Compost bins will be sold for only \$69.99 and 50 gallon rain barrels with a diverter are just \$119.99. Area residents who pre-order before by April 27th will save an additional \$10 off. This opportunity is open to both Madison residents and non-residents. Supplies are limited! For more information and to pre-order your rain barrel and compost bin - visit www.cityofmadison.com/streets/compost/CompostBinSale.cfm

For homeowners looking to step-up their rain harvesting, this year's sale will also feature a rain barrel diverter combined with two 100 gallons barrels that can capture 200 gallons per downspout.

Bryant Moroder

Coming to a Watershed Near You!

Watch for brand new signs along the Black Earth Creek Watershed boundaries this spring.

BECWA QUIZ

Why doesn't Black Earth Creek freeze in the winter?

- a. Because the air temperatures do not get cold enough
- b. Because it is a spring-fed stream that maintains above freezing temperatures
- c. Because of global warming
- d. Because of runoff from adjacent land
- e. Because of sunlight warming the stream while the leaves are off the trees

Answer to quiz - page 5

Events in the Watershed

APRIL 25- BECWA & TU Spring Creek CleanUp
9 AM Salmo Pond

MAY 3 - Trout Days in Cross Plains

Join us for
Bugs by the Creek

1-3 PM Meet in back of CrossRoads Coffee Shop

My magical and challenging home waters - Black Earth Creek

Steve Born, BECWA Board Member

In our Fall BECWA newsletter John Donaldson offered his personal reflections on the role the Black Earth Creek has played in his life. Now Steve Born reflects on his relationship with the Creek and how it led to his creating BECWA and guiding it over the past 25 years. Stay tuned for future first person offerings.

Black Earth Creek wasn't always someplace special to me. When I came to Wisconsin to finish my graduate education, I moved back from the brawling big rivers and mountainous landscapes of the West. Little creeks flowing through cornfields and cow pastures didn't look very inviting! But one summer day I was taking a hike with my dog along the creek, and stopped to watch a flyfisher catch one brown trout after another; clearly I had to rethink my initial reaction to the creek and its watershed. More than four decades later, no matter where I've been fishing in the world (New Zealand, South America, Alaska, the Caribbean), I can't wait to get back to my magical and challenging home waters - Black Earth Creek.

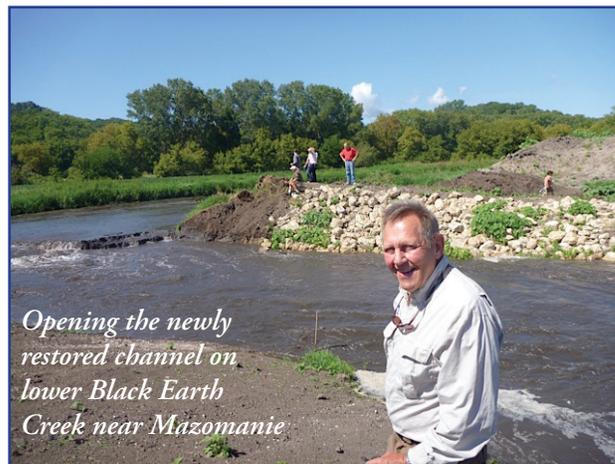
I've come to appreciate and love the subtle beauty of this fragile small spring creek (spring creeks - with their relatively constant flows and temperatures due to groundwater inflow, and highly fertile waters -- are among the rarest types of fresh water on the planet). These characteristics foster the growth of aquatic insects and vegetation that are key to the thriving wild brown trout fishery. And wary stream-bred browns and technically-difficult fishing situations present never-ending fishing challenges to anglers. The spring caddis hatches and the wonder of the night-time Hex (the biggest of the mayflies) hatches can produce spectacular fishing and indelible memories.



*Magnificent
Hex mayfly on a
warm June
evening on BEC*

As a water resources and environmental planning specialist at UW-Madison, it seemed like Black Earth Creek would be a perfect laboratory for student projects, workshops, and field trips. It has lived up to that potential in every way. UW-Madison's Water Resources Management

Program has done a number of major studies of the creek and its watershed. The 1985-86 workshop, which I helped lead, laid the groundwork for addressing many of the management issues facing this agricultural watershed which lies in the path of urbanization from metropolitan Madison. That workshop planted the seeds for the establishment of BECWA, and it was my pleasure to serve as president of that organization during the formative years. State and local conservation agencies and governments took the lead or collaborated in water quality and habitat improvements in the watershed. Landowners supported these efforts, and the Southern Wisconsin chapter of Trout Unlimited has led many team efforts to protect and maintain this wonderful trout stream.



Now that many seasons have slipped by, I'm elated by the recognition that this special place receives. The watershed is now people and communities connected by water. The recent stream restoration and trail project near Mazomanie, undertaken by many partners and local leaders, is exemplary of how far we've come. This vulnerable coldwater resource faces many challenges into the future, but I'm optimistic that Black Earth Creek's many champions will help sustain this beautiful and valuable resource for the anglers, birdwatchers, farmers, hikers, bikers, educators, and just kids of tomorrow.

Steve is co-author of "Exploring Wisconsin Trout Streams" and former National Chair of Trout Unlimited Volunteers and he is emeritus professor of Planning & Environmental Studies, UW-Madison.

Black Earth Creek Re-meander Project Update One Year Later

Bobbi Peckarsky, BECWA Board Member

In June 2013, a new channel was constructed through Zander Park in Cross Plains from the footbridge across from the Ice Age Trail Headquarters downstream to the hardware store, and the old channel was abandoned and engineered for storm water control. The fish in the abandoned section were “rescued” by WI DNR biologists and placed in the new channel (see photos in the Fall 2013 BECWA newsletter). About 50 years ago this section of stream was channelized (straightened) all the way upstream to Hwy P to prevent flooding of the railroad tracks and Lagoon Street.



Re-meandering the stream created a more natural channel shape, re-sloped the stream banks for better assimilation of floodwaters and increased the diversity and quality of habitats for the plants and animals that live in the stream. Kurt Welke of the WI DNR reported that by July 2013, fish in the reconstructed channel were at the desired levels for high quality streams in the driftless area of Wisconsin (340 fish per mile), which is good news indeed for anglers, nature-lovers and friends of Black Earth Creek.

While fish surveys are ongoing it is also important to monitor the recolonization of the re-meandered section by invertebrates that are critical food for trout. In September 2013, three months after the new channel was opened, two undergraduate students at UW Madison (Jay Osvatic and Erin Weinkauff), one graduate student (Kara Cromwell) and I took samples of the invertebrates and Professor Rex Lowe supervised visual counts of the amount of algae covering the stream bottom, which is used as food by invertebrates.

Results of those surveys, reported in the Spring BECWA newsletter (including photos and graphs) indicated that the numbers of different kinds of invertebrates (diversity) in the reconstructed area of Black Earth Creek were similar to an upstream section that remains channelized and also to a downstream section that has a naturally meandering shape and serves as a reference for the conditions targeted for the reconstructed section of stream. However, abundance of invertebrates in the reconstructed channel was lower than that of the reference site, although higher than the site upstream that remains channelized. While this initial recovery of invertebrates was much faster than expected, recolonization of algae in the new channel lagged behind that of invertebrates.



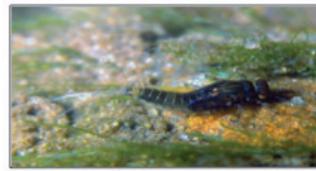
In September 2014 Kara and I repeated the invertebrate surveys with two more UW undergraduates (Maggie Sobolewski and Margot Cumming), and Rex and Jay repeated the algae survey. Results from those surveys include both good news and not so good news. First, the algae in the reconstructed section had rebounded impressively to levels comparable to the reference site. Second, the diversity of invertebrates continued to be similar at all three sites, but the percent composition of the 5 most abundant species changed between 2013 and 2014.

In 2013 the dominant species was a highly mobile mayfly (blue winged olives) whose larvae can drift or swim within the stream and have winged adults that can lay eggs in the newly constructed channel. In 2014 all stream sections were dominated by crustaceans (scuds), which

can only move within the stream and other less desirable species, such as snails and isopod crustaceans, which were not among the top 5 species in 2013. Finally, while the abundance of invertebrates was higher at all three sites in 2014 than 2013, possibly because of healthy algae, both channelized and the reconstructed channels had lower densities than the reference section.

While the initial recovery of the invertebrates was surprisingly fast and the algae appears to be completely recovered after one year, communities of invertebrates one year after the construction of the new channel indicate that more time is needed for a complete recovery to the benchmark conditions in the reference site. We will continue to monitor the progress of BEC until that time comes.

Five dominant taxa 2013



Baetis (Mayfly)



Gammarus (Amphipod crustacean)



Chironomidae (Midges)

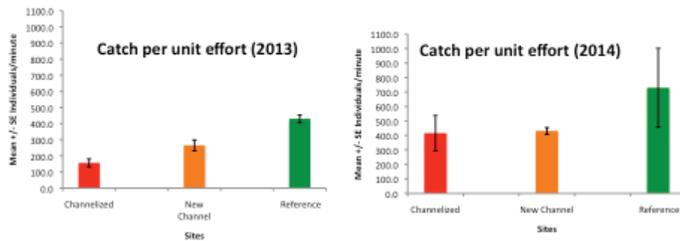


Hydropsychidae (Caddisfly)

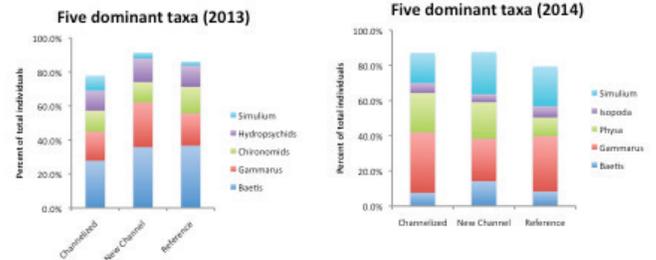


Simuliidae (Black flies)

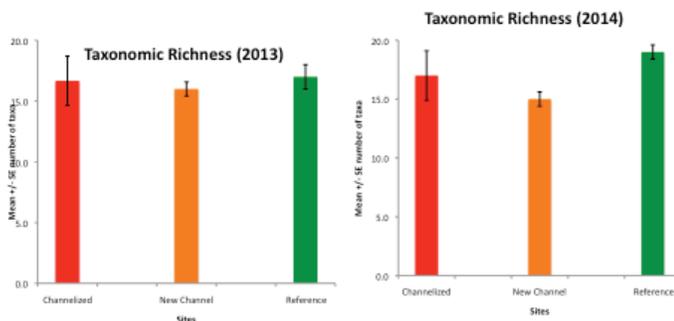
Comparison of 2013 to 2014 abundance of invertebrates



Comparison of the 5 dominant species from 2013 to 2014



Comparison of 2013 to 2014 diversity of invertebrates



Five dominant taxa 2014



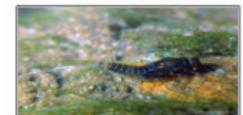
Gammarus (Amphipod crustacean)



Physa (Molluscs)



Simuliidae (Black flies)



Baetis (Mayfly)



Caecidota (Isopod crustacean)

What's Old is New Again for Village of Mazomanie's Lake Marion

Christopher Long, BECWA Board Member

The Village of Mazomanie's Lake Marion has a bright future again thanks to a new permanent water supply and a current project to restore the 150-year-old former millpond as a family recreational fishing spot.

Construction and initial testing of the new high capacity municipal well and pump were completed in mid-November. The new well replaced the historic water supply from the former diversion dam on Black Earth Creek that was decommissioned in 2012. The lake was then drained to prepare for a winter construction project. A Dane County PARC grant paid for a portion of the well project, which carried a base construction price of \$215,000.

In January, workers for Krause Excavating began installation of a landfill-grade geomembrane liner as part of sealing and regrading 1,855 feet of the lake's Northeast (Railroad) bank. The primary goal of this first phase of 2015 work was to reduce the seepage rate from the lake by at least half in order to minimize the pumping needed to maintain adequate depth for a family recreational fishery. The bank regrading will also better support shoreline aquatic vegetation and fish habitat. The sealing work, at a base cost of \$46,900, was underwritten in part by the Dane County PARC grant.

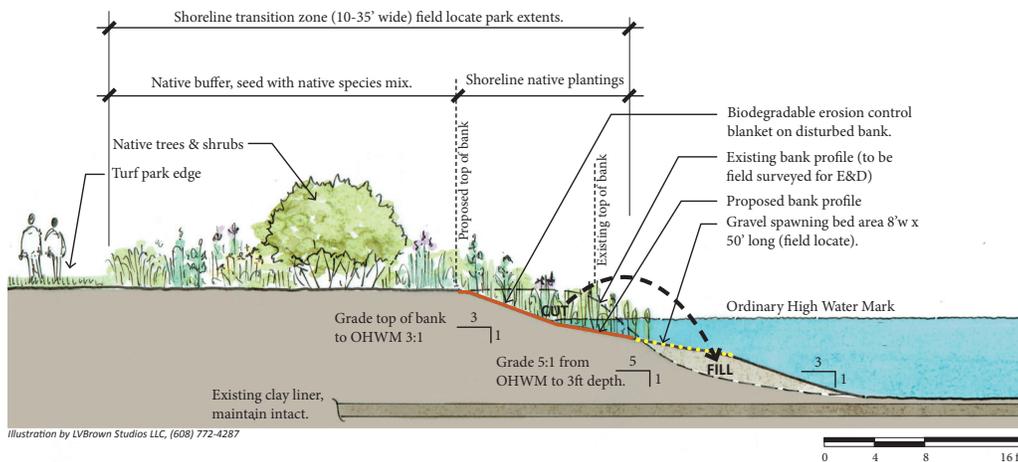
The Krause excavating crew returned in mid-February to dredge 3,000 cubic yards of sediment from the bottom

of the north end of the lake and stockpile it temporarily at the south end. The dredging will add water depth for improved fish habitat and a refuge pool during weather extremes. The dredged material will be used to build an aquatic shelf for plants and other fish habitat at the southeast corner of the lake during work planned for this May and June. The Village paid for the dredging, at a base price of \$14,250.

The final phase of 2015 work, planned for May and June, is to include: installation of a small "bubbler" aeration system at the north end of the lake; resloping the West (Highway KP) shoreline; adding additional habitat and spawning structure; planting aquatic and shoreline vegetation, and stocking largemouth bass, panfish, and channel catfish. The lake will be refilled after work is completed and restocked in the fall. Estimated remaining Phase Two cost is \$114,500 after the dredging.

The Village is seeking a \$47,250 Department of Natural Resources grant for the second phase of the project, with the Village and community donors teaming up to meet the local cost share. Donations are welcome; please send your contribution to 'The Lake Marion Improvement Project' c/o Village of Mazomanie, 133 Crescent Street, Mazomanie, WI 53560.

Christopher Long is the Village's manager for the Lake Marion project.



Section: Typical KP Shoreline

LAKE MARION FAMILY RECREATIONAL FISHERY PROJECT
Prepared for WDNR Lake Protection Grant Application February 1, 2015

Artwork: LVbrown Studio LLC

Fisheries Update

Kurt Welke, Wisconsin Department of Natural Resources

The Wisconsin Department of Natural Resources has two long-term “trend” sampling stations for fish on the Black Earth Creek. One is in the Town of Cross Plains, the other in the Town of Black Earth at Park Street. Based on data collected from the last 8 years, we have concluded the “trend line” is more important than individual annual values which tend to fluctuate, often widely, due to natural variability.

Length frequencies for brown trout in Black Earth Creek trend sites, from downstream to upstream, are given in Figures 1 through 3. Scales change considerably between sites, with larger numbers occurring at the Cross Plains survey site. Larger fish were more frequent at downstream sites consistent with stream size and harvest regulation. Noticeable reductions in smaller fish at the upstream Cross Plains station correspond with the re-meander project that re-structured habitat to create more adult habitat than previously present. Declines in years since 2012 may be due to cumulative stressors of draught followed by an unusually severe winter in 2013-2014.

Conclusions:

The trout resource in Black Earth Creek is strong and in no jeopardy. Habitat and water quality are such that the stream fishery—in particular the younger, smaller size fish --has every opportunity to rebound.

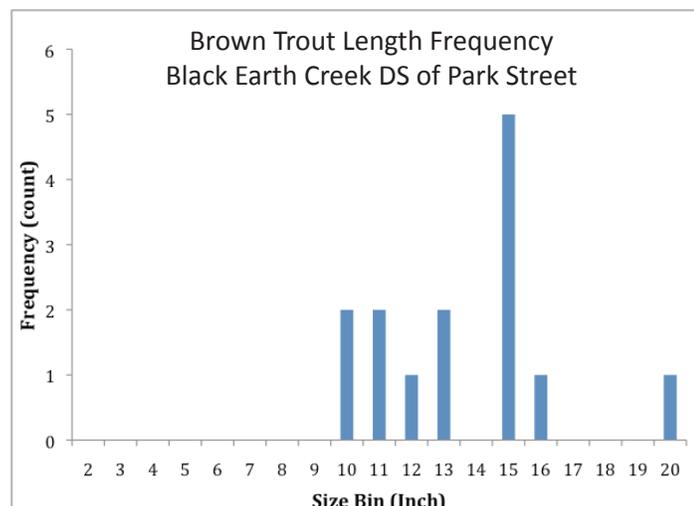


Figure 1

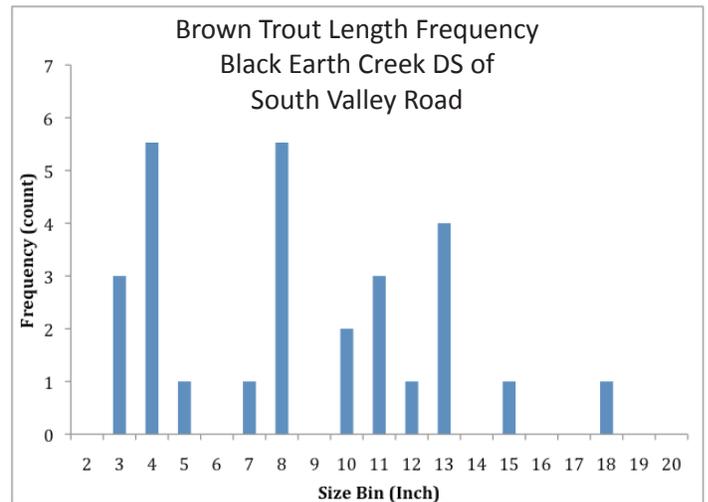


Figure 2

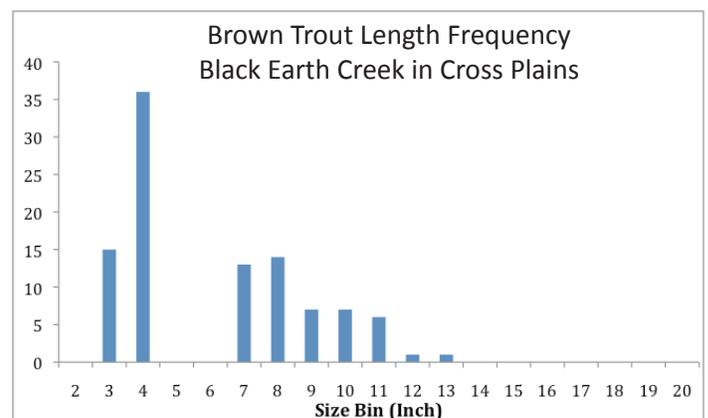


Figure 3

Connecting Watershed Groups in Dane County

Sue Jones, Dane County Office of Lakes and Watersheds

Through the Dane County Watershed Network, organizations with a connection to lakes, rivers, streams, wetlands share ideas, solve problems and learn from each other. Facilitated by the Dane County Office of Lakes and Watersheds, the Watershed Network gathers several times a year around topics chosen by Network participants. In the last few months, the Network has engaged around water communications and literacy, working with youth, creative placemaking, and maximizing volunteer efforts.

For more information:

<http://danewaters.com/business/DaneStewards.aspx>



Black Earth Creek Watershed Association

c/o Greg Hyer
4296 County P
Cross Plains, Wi 53528

Cross Plains Village Board Repeals 2005 Water Quality Corridor

Barbara Borns, BECWA Board Member

At its meeting on January 26, 2015 the Cross Plains Village board voted unanimously to remove distance restrictions for development along Black Earth Creek. It was argued at that meeting that new state and county regulations make the Corridor unnecessary and that only 75' setback would now be required.

In 2005 a Water Quality Corridor was created and passed by a strong majority of Village voters with the purpose of protecting the Creek from the adverse effects of development close to the Creek. At that time, the US Geologic Survey conducted an in depth study of the watershed and concluded the Corridor was needed to protect the Creek and the drinking water resources of the residents.

Comparison of old and new requirements:

Repealed Village of Cross Plains ordinance s. 83.19 had required:

- Development setback from stream of 300 - 150 feet.
- Limits impervious area within 1500 feet of stream.
- Maintain 100% pre-settlement infiltration.

Comparable WDNR minimum standards:

- Building/structure setback of 75 feet (NR 115.05).
- Limits impervious area within 300 feet of stream (NR 115.05).
- Maintain 60% - 90% predevelopment infiltration (NR 151.124).

