

Minutes of the Bonne Femme Watershed Project, Technical Advisory Team meeting,
April 14, 2017

Team members in attendance: Tom Wellman, Amy Meier, Lynne Hooper, Tom Ratermann, Bill Florea, Mike Powell, Cathy Richter, John George, Ann Koenig, John Rustige, Jason Thomas, Mike Parks, Bob Lerch

We opened the meeting with activity updates from team members. Tom Wellman started us off by reporting on a project with the sewer district at Bethel Church Road and Poplar Hill Drive. The project removed two on-site wastewater treatment systems that were failing and one that was not functioning well.

Cathy reported that she checked on the status of the data from the POCIS samplers this morning. The samples should still be finished this spring.

Amy said that she recently received a call from someone about the Brookhaven neighborhood where she had done a cleanup before our last meeting. The caller reported that one of her neighbors has been using a Bobcat to push tree debris into a tributary of Little Bonne Femme Creek and had also found a dump near the stream. The dump was extensive and included furniture. Amy referred the woman to the regional MDNR office to report the dump.

John George told us that MDC burned fields on the Three Creeks Conservation Area property for the first time in many years. MDC plans to follow up with exotic species treatment.

Ann came up next and talked about TRIM grants – TRIM being an acronym for Tree Resource and Maintenance. Grant applicants would need to use the funds on public property and could be awarded up to \$25,000. Ashland may apply for one of these grants – the deadline is April 19th. Mike Powell asked what the requirements were for use of the funds. Ann said that they could be used for education, staff time for something tree-related, advertising, or other similar tree-related purposes. Ann had also been working with the City of Columbia on writing a new tree ordinance – this has now passed. She will bring the newly adopted ordinance and canopy standards to the next meeting so we can compare them to what they were before.

John Rustige spoke next, indicating that the water area is still in transition at MDNR. The DEQ director and program director retired, and there is a new director of MDNR. Director Comer intends to refocus department efforts on core mission elements including getting permits out more quickly, completing inspections and dealing with non-compliance issues directly. The vacant positions have not yet been filled.

Jason Thomas introduced himself to the group. He is the acting airport operations supervisor at the Columbia Regional Airport. He will be attending future Technical Advisory Team meetings.

Mike Powell reported that Greenbelt will be hosting a nature photography hike at Big Sky Nature Preserve near the mouth of Bonne Femme Creek.

Mike Parks next gave an update on behalf of Columbia Regional Airport. There has been a lot going on with management changes – Mike is the new airport manager. Jason will now be supervising the stormwater management plan. The airport is in the process of renewing their stormwater permit with MDNR. A new runway is being built and Route H is being realigned to the North. These events will impact the stormwater plan at the airport. Mike had been working on the stormwater plan with Tom Wellman to make stormwater improvements to the entire area. Tom added that one of the runways is on the ridge between the Bonne Femme and Cedar Creek watersheds.

Bob Lerch came up next. Bob's lab has been working on the nutrient and herbicide analysis for the streams in the Greater Bonne Femme Watershed, and Lynne has been doing the *E. coli* testing from water samples collected by Bob's lab techs. Bob will be showing us a comparison of the new data to older data collected in the watershed between 2003 and 2007. Bob mentioned that he is getting ready to publish a paper based upon research in two watersheds in northern Boone County. The research indicates that 80% of the in-stream sediment in those watersheds is coming from eroding streambanks. The research also shows that 67% of the phosphorus exported from the watersheds is from eroding streambanks, as well as 25% of the nitrogen exported. Bob says that the research is helping to show us how to manage watersheds – showing us how much of the exported nutrients is coming from streambanks and how much from agricultural fields. He feels that some of that knowledge will transfer well to the Greater Bonne Femme Watershed because of the channelization and streambank erosion further down in the watershed. We will continue to develop our knowledge as we collect more data.

Next Lynne gave an update on Rock Bridge Memorial State Park. Spring school group tours have started up in the park, and a group of 10 AmeriCorps volunteers have arrived that will be at the park for a couple of months. The AmeriCorps folks will be helping with the Water Quality Monitoring Blitz tomorrow. The spring wildflower hikes are happening on Thursdays in the park, and another cave research trip is coming up in the cave soon. This trip will include a planarian count and some work with bats in the cave.

Switching hats, Lynne gave an update on activities going on with Boone County Resource Management. The Boone County Stormwater Stream Team is in the process of doing semi-annual water quality sampling at the two sites in Three Creeks Conservation Area. There were many darters and not many bugs at the site in Bonne Femme Creek – maybe the darters are eating the bugs! A brochure for the BFWP has been approved and will be printed soon. Lynne will bring copies to the next meeting. Mike asked if we could get him some copies for his booth at Earth Day – we will do that. Lynne added that she recently had the opportunity to walk two reaches of Bonne Femme Creek, both above and below the bridge on Nashville Church Road. The two reaches were very different and make for interesting comparisons to Hinkson Creek. MDNR uses Bonne Femme Creek as a control stream in water quality sampling on Hinkson Creek.

Subcommittee updates were next on the agenda. For the Outreach and Education Subcommittee, Lynne reported that the Rock Bridge Renew event was held on April 8th. This was a cleanup and invasive species removal event at Rock Bridge Memorial State Park. Although the turnout was low, a lot of trash was collected and there was a crew that did some bush honeysuckle removal.

The water quality monitoring blitz is coming up on April 15th from 8:30 a.m. until Noon. Six sites will be monitored for macroinvertebrate communities and water chemistry. We are expecting a couple of volunteers to travel in from St. Louis. Water quality is also being sampled monthly on the Devil's Icebox Cave Branch between the spring and the rock bridge to have a more consistent record of what is going on with the water coming out of the cave system. Missouri Master Naturalists have been involved with the water quality sampling and we hope to continue to grow their involvement with the project. Spring Brook trail hikes are also coming up – a flyer will be available next week.

The Strategic Plan Subcommittee should start meeting soon.

Bob Lerch gave a presentation on behalf of the Science Subcommittee. He showed us a few graphs comparing recent water quality data with data collected from 2003-2007 during the initial Bonne Femme Watershed Project. He showed 4th and 1st quarter samples from both time periods for a direct seasonal comparison. Little Bonne Femme and upper Bonne Femme (at Highway 63) both showed higher levels of ammonium than the other streams. The nitrate data showed that the Devil's Icebox cave branch has higher concentrations than the other sampled streams. This makes sense because the highest concentration of row crop agriculture occurs in the recharge area for the cave and the drainage area for upper Bonne Femme Creek. There is evidence of current chronic levels of contamination for both ammonium and nitrate in some of the streams in the greater watershed. There was very little precipitation during the recent sample collection cycles, so these numbers are likely to go up when nutrients on the landscape are transported after precipitation events. Nutrients are also going to be applied on the agricultural landscape in the spring, which is expected to increase nutrient levels in the upcoming spring samples. The values for orthophosphate in the newer data are a bit higher than the data from 2003-2007, although the observed increases are probably not statistically significant. Bonne Femme Creek is the standout for phosphorus levels which again makes sense due to the agricultural land use within the drainage area for the stream. An analysis of the *E. coli* data shows that Fox Hollow is no longer one of the top three for bacterial contamination. Cows are no longer grazing in the drainage area for the sampling site on Fox Hollow Branch. Overall the *E. coli* numbers are not too different from those shown in the older study. Bob explained that the bacterial contamination at the Devil's Icebox cave branch is likely a combination of point source (on-site wastewater treatment systems) and non-point source pollution because the *E. coli* numbers are often above the water quality standard even during low-flow conditions in the stream. Lynne reported that the geomean for *E. coli* samples collected during the first quarter of 2017 was nearly three times higher than the geomean for fourth quarter 2016. John George asked whether Bob had ever done any analysis of the source of the *E. coli* that ends up in the streams. Bob said that this type of analysis had not been performed by his lab. A brief discussion followed regarding the potential uncertainties involved in microbial source tracking to determine the sources of *E. coli* and issues associated with keeping cows out of streams on pastureland. Lynne added that the results from the POCIS sampling will indicate whether chemicals from wastewater are present in the sampled streams in the watershed. The county may follow up with some source tracking work in areas that show an influx of human wastewater.

The Conservation Day at Three Creeks Conservation Area that had been scheduled for April 21st has been cancelled due to bussing issues. The event will be rescheduled for some time in the fall of this year. We plan to offer the field trip twice per year if the first run turns out well.

The service project of invasive species removal at Three Creeks Conservation Area will require that each volunteer sign up with MDC individually, rather than pursuing a group project. Lynne handed out volunteer forms to team members who were interested in participating in the project. Someone (MDC staff or otherwise) with a pesticide applicator license would need to accompany volunteers to apply herbicide.

The next meeting date will be June 2nd from 10:00 to Noon.