

## Volunteer Stream Monitoring Program

One of the most exciting projects that Two Rivers Coalition {TRC} was involved in this year was the Volunteer Stream Monitoring Program {VSMP}. TRC partnered with Van Buren Conservation District {VBCD} to apply for a start-up grant through the Michigan Clean Water Corps {MiCorps}. The goal of the program, which is funded by the Department of Environmental Quality {DEQ}, is to establish benthic macro-invertebrate sampling on streams throughout the state. Benthic macro-invertebrate sampling is just a fancy way to say catching insects that live in streams and recording the data. The presence {or absence} of certain families of insects is a surprisingly good indicator of water quality. This is because some insects {like stoneflies} will not tolerate degraded conditions. Stoneflies are considered sensitive and will only live in cold, clear, clean streams. Other insects {like the side-swimming scud} can live in almost any body of water. Also, in keeping with the basic principle of biodiversity, the greater the variety of insect species in a river, the healthier the river eco-system is likely to be.

Once VBCD and TRC received notification that the start-up grant had been awarded, then the organizational work began. A committee consisting of A.J. Brucks {Director of VBCD}, and TRC board members Colleen Forestieri and Kevin Haight, began meeting to implement the grant. The committee members traveled to Ann Arbor for a full day of training about the MiCorps program. Highlights included learning how to identify the most common stream insects and wading in the Huron River with nets to learn how to sample from multiple micro-habitats in a 100 yard stretch of river.

The main goal in the first year was to host a sampling event on the Paw Paw River and, most importantly, get volunteers to come out and see what stream monitoring was all about. After picking a date for the event in October, publicity efforts began in earnest. Through VBCD's contacts with the media, we even were interviewed about the event on the Channel 3 morning news! The other thing that had to be determined in advance was exactly where on the Paw Paw River to do the sampling. The committee consulted with a biologist from the DEQ who had experience conducting monitoring in the river {the DEQ currently conducts sampling every 5 years}. Armed with this advice, the committee scouted out various locations along the river throughout the county to find sites that were relatively accessible, safe, and shallow enough to wade.

Sunday, October 12 dawned clear but decidedly nippy. Despite the chilly temperature, almost 30 people assembled at the River Park in Lawrence. After being fortified with coffee and donuts, A.J. explained the concept of the VSMP to the crowd while Colleen and Kevin donned their chest waders. They then stepped out into the river to demonstrate collection techniques for scooping insects from under logs, from the stream bottom and from submerged leaf packs. They were using sturdy kick nets that TRC board member Grant Poole had borrowed from his employer {a big thanks to the Pokagon Band}. The contents of the nets were frequently brought to shore where A.J. showed people how to pick through the debris to find the wriggling insect life that was the quarry.

A.J. explained that insect sampling would be conducted by teams of 3-4 people, with each team member having a different role to play. The "collector" wades out into the river wearing chest waders and uses the kick net to scoop up likely insect-hiding debris from a variety of micro-habitats along a 100

yard stretch of river. The “runner” transfers the contents of the net into a bucket or tray and then carries it back along the river bank to where the “pickers” are waiting. The pickers use spray bottles and tweezers to sort through the debris to locate anything that moves and put into a bucket for later identification.

By now the sun was up, it was getting warmer and people were excited to try their hand at collecting and picking. There were enough volunteers present to separate into 6 teams, each team assigned to a different location on the river. Each team gathered around its leader from the TRC board, grabbed the necessary equipment and car-pooled to its assigned location. {At least that was the plan, one team forgot the most important piece of equipment, the net, and had to arrange for an emergency equipment drop-off}. There were other minor issues that had to be dealt with. For instance, the river was running about 1-2 feet higher than normal. So instead of depths ranging from knee to waist deep, the collectors were looking at waist to neck deep water. This meant that great care needed to be taken that cold river water didn't lap over the top of the chest waders. Brrr! Kenneth “Kyak” Nesbitt's team dealt with the high water at their site in typical unique fashion; they abandoned the idea of wading and sampled their section of river from a kayak.

The plan was for all the teams to reassemble at noon at the village park in Lawrence for lunch, critter identification and debriefing. A.J. was clearly starting to get worried as noon came and went and only a few teams had made it back. Visions of volunteers lost on the river {or, more likely, lost on the back roads of Van Buren County} were going through her mind. But never fear, it turned out that some of the teams were just having too much fun and didn't want to get off the river in a timely fashion. Finally, everyone did show up and each team spread out its “catch” on picnic tables. Experts {including Steve Kohler, a professor from W.M.U.} then helped with identification while everyone munched on pizza.

Since this was considered a practice event, the data could not be entered in the statewide MiCorps database {but next year our data will be included}. Nonetheless, the results were both interesting and encouraging. An impressive variety of insect life was found at all 6 sites. Importantly, all of the sites had some insects that are considered “specific” in their habitat needs, thereby indicating good water quality. Perhaps most significant, stoneflies were found at all 6 sites, which is an indicator of good water quality over a longer time period. Because stonefly larvae take 2 years to mature, their presence indicates two consecutive years of cold, clear, clean water.

As part of the grant requirement, the committee attended the MiCorps annual conference in late October up in Higgins Lake. There they listened to speakers explain the uses this kind of insect sampling data could be used for. For example, if there is an impaired stretch of stream because of agricultural practices leading to excess sedimentation, before and after data could be useful to judge the efficacy of best management practices {BMP's} on water quality. Members of the committee also were able to network with both MiCorps staff and members of other watershed organizations to share ideas about volunteer monitoring.

After the MiCorps conference, the committee was inspired to experiment with one additional sampling event. Unlike the volunteer event in October which exclusively used road/bridge crossings to access

river sites, this time they wanted to try sampling someplace that had never been sampled before {imagine the Star Trek theme playing in the background and Captain Kirk saying, "To boldly go where no one has gone before"}. Therefore, with the temperature in the mid 30's and snowflakes drifting down, Kevin, A.J. and canoe racer extraordinaire Matt Meersman { president of Friends of the St. Joseph River} paddled upstream from the 40<sup>th</sup> Street bridge in Waverly township. The destination was the confluence of the North and South branches of the Paw Paw River in the middle of the large floodplain corridor called "Zululand" by local residents. After 30 minutes of paddling, they reached the confluence, donned waders and collected from locations on each branch just upstream of the confluence. They were immediately struck by the abundance of caddisflies. These amazing insects build houses from whatever is available: tiny sticks, leaves, small pebbles, etc. At least 3 different types of caddisfly houses were found, suggesting at least 3 different species of this indicator of good water quality. Also present were abundant stoneflies and mayflies, which are likewise very specific in their water quality needs. In addition to those sensitive species, lots of other stream inhabitants were found, including sow bugs, snails, true bugs, scuds, a crayfish, and Blue Gill and Perch minnows.

So what did VBCD and TRC accomplish with this start-up grant? We demonstrated how an effective volunteer monitoring program could be set up on the Paw Paw River. We showed that insect samples could be collected by volunteers from a wide variety of sampling sites, including places only accessible by canoe and kayak. Most importantly, we proved that there is a wide base of volunteers in the area willing to get involved in an on-going citizen science project on the river. Our volunteers for the October event were quite diverse. They ranged in age from 10 to 70 and in experience from absolutely none to college field work. One volunteer gave us some good advice. She told us we should have made it clear in our publicity that not everyone would need to get in the water. And she was right, probably the most important {and fun} job is the picker standing on the bank sorting through the interesting stuff coming out of the collector's net.

Although our small start-up grant was only designed to test the feasibility of implementing a volunteer monitoring program, we are already planning for 2015. We plan to hold volunteer sampling events in both the spring and fall to better assess macro-invertebrate populations. We want to include some sampling sites on tributaries of the PPR, perhaps Brush Creek. We want to sample on the southern most part of the South Branch upstream of the village of Paw Paw, where past agricultural practices have created problems and where the VBCD has been working with some farmers on utilizing BMP's. And, hopefully, we will be able to include monitoring sites on the Black River next year, as well. If this kind of citizen science sounds like something you, your family, or friends might like to try, make sure TRC and/or VBCD have contact information for you, including a phone number and email address, and we will keep you informed of our plans for 2015.