

# Mill Creek at Shield Road

*Adopt-a-Stream Site Report, updated January 2012*

## Overall Condition: **Fair**

At this site there are several kinds of bugs and a few of them are sensitive. The stream banks and streamside vegetation are healthy here but the stream bed is very mucky. Unfortunately, one side of the creek has no natural riparian buffer at all (the stream bank is a residential lawn). Overall the stream is ranked "fair" for a decent insect community and stream habitat.

### Measuring Stream Quality

We use the bugs living in the creek to measure stream quality for two reasons. When the stream is rich in habitat variety it will have many diverse kinds of bugs (called families). Also, some bugs (called sensitive) can live only in good quality streams; they die in a poor quality stream. Any stream with sensitive families has the clean water and good habitat required by those bugs to survive.

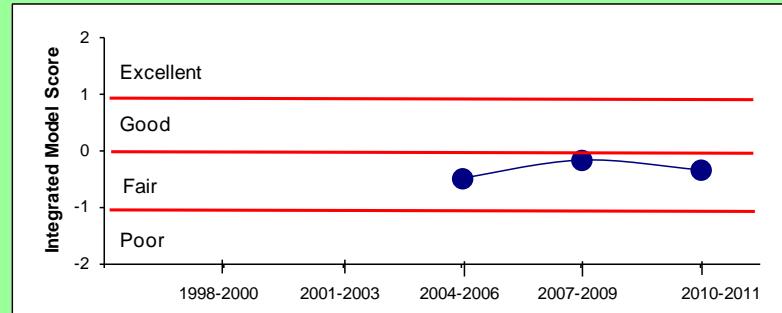
### Monitoring Data

These data come from HRWC volunteers who have monitored this site 22 times, starting in 2003. This includes Stonefly Search, River Roundup, Habitat, and Temperature events.

This large site on Mill Creek is 40 feet wide and shallow (less than two feet) with an occasional four-foot deep pool. In 2007 we found disappointing habitat here with a very mucky bottom (perhaps an effect of years of silt building up behind the dam), but in 2011 the stream had mostly sand and gravel on the bed. It has cool water.

There is modest diversity of bugs here a stream of this size. In the spring we typically find 14 different families and two are sensitive families that require a good quality stream. In the fall an average of 13 families are typically found, with one or two sensitive ones.

Stoneflies are very sensitive insects that are only found in clean water. Two kinds of "winter stoneflies" grow only in winter and are dormant the rest of the year. Both kinds of stoneflies grow in this site, which further indicates the good quality of this site.



To determine the overall condition rating, HRWC uses an integrative model that compares this site to all of HRWC's other monitoring sites in the Huron watershed. The model uses insect, habitat, temperature, and stream size data.



Photo credit: Lydia Austin

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## Background Information

### Site History

In the 1700's, lake sturgeon, walleye, northern pike, and muskellunge swam up the Huron into Mill Creek every spring. Native Americans seldom took food with them when traveling because fish were so abundant. Now the Huron River system is full of dams that block fish movement from Lake Erie.

In the 1960's, the Army Corps of Engineers proposed a dam on the South Fork of Mill Creek to create a lake for recreational purposes. Lima Township residents formed the Mill Creek Research Council to fight this and a similar proposal in the 70's and won. The MCRC continues to support research on Mill Creek.

In 2007 and 2008, the city of Dexter removed a dam that was beneath the bridge right next to Warrior Park. Warrior Park is located just downstream from your location. This change must have affected the ecology at Shield Road and the insect our volunteers sample will help determine the extent of the change.

### How is the Creek affected by land use here?

The area of land draining to this site is huge, receiving water from 161 square miles of land, mostly farms in the upstream portions of Mill Creek.

This is very rural area in the Huron watershed, according to data from 2000. Only one-eighth of the Mill Creek watershed is developed while two-thirds are used for agriculture. At that time, only 7% of the land was covered by impervious surface.

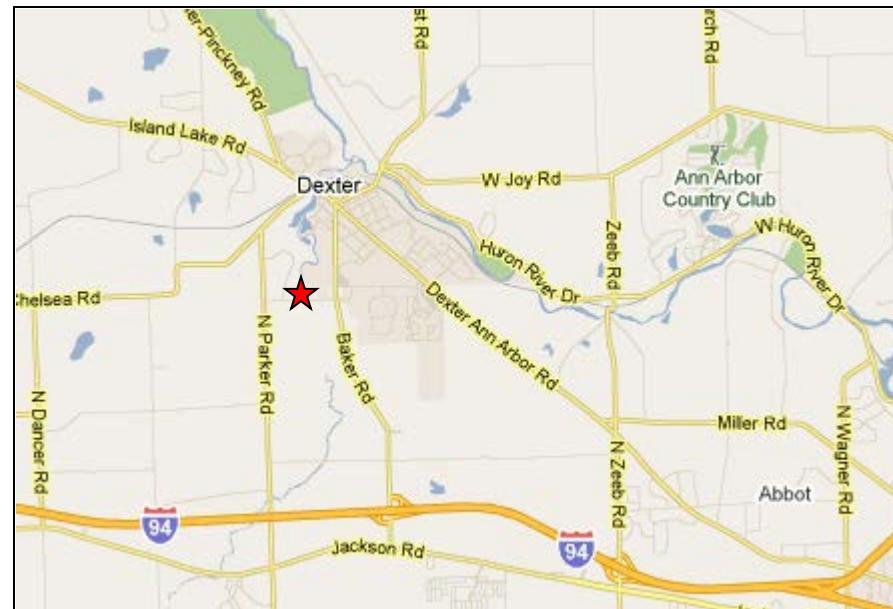
Impervious surface is hard on streams because it prevents rain from being filtered and cleaned through the soil and, instead, delivers it quickly to the stream, carrying pollutants and causing surging flows that damage the stream habitat and biotic community.

Creeks tend to start degrading once the watershed is more than 8% impervious and become badly degraded by 25%. [The most urbanized Huron River watershed that we study (draining into Millers Creek at Baxter Road) is 51% impervious.]

*Watershed land use in 2000: 66% Agriculture, 14% Urban, 10% Forest, 9% Open, 1% Wetland.*

### What You Can Do

Help us improve Mill Creek! Plant trees and deep-rooted plants in low areas on your property to help the rain infiltrate into the earth so it can be cleansed and cooled. Go to [www.hrcw.org/take-action](http://www.hrcw.org/take-action) for ways to keep the rain at home so that it doesn't wash pollutants into the stream and cause flooding from the sudden increase in flow volume.



Google 2011

### Insects found in at least two sampling events from 2009-2011:

- |  |   |
|--|---|
| *Capniidae — slender winter stonefly           | Elmidae — riffle beetle                       |
| *Isonychiidae — brush-legged mayfly            | Heptageniidae — flathead mayfly               |
| *Taeniopterygidae — broad-back winter stonefly | Hydropsychidae — common net-spinner caddisfly |
| Baetidae — small minnow mayfly                 | Notonectidae — back-swimmers                  |
| Baetiscidae — armored mayfly                   | Philopotamidae — finger-net caddisfly         |
| Calopterygidae — broad-winged damselfly        | Polycentropodidae — spotted head caddisfly    |
| Chironomidae — midge                           | Coenagrionidae — narrow-winged damselfly      |
|  | Simuliidae — black fly                        |
- \*Sensitive Family