

Millers Creek at Plymouth Road

Adopt-a-Stream Site Report, updated January 2012

Overall Condition: **Poor**

At this site there are very few kinds of bugs and none of them are sensitive. The water has a high concentration of unknown pollutants. The stream banks, streambed, and streamside vegetation are also very poor. HRWC worked on this site quite extensively and made improvements, but the site is still in very poor condition.

Measuring Stream Quality

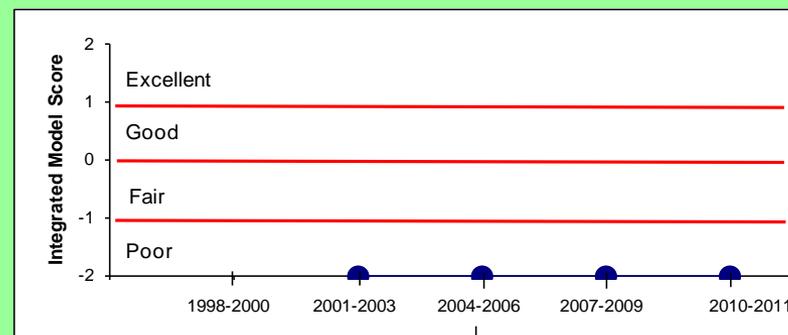
We use the bugs living in the creek to measure stream quality for two reasons. When the stream is rich in habitat variety it will have many diverse kinds of bugs (called families). Also, some bugs (called sensitive) can live only in good quality streams; they die in a poor quality stream. Any stream 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 26 times, starting in 2002. This includes Stonefly Search, River Roundup, Habitat, and Temperature events.

This site on Millers Creek is 6 feet wide and shallow (less than half a foot). In 2010 we found poor habitat here with bare banks and the rocks in the swift water (riffles) were somewhat clogged with silt. The water gets warm (but seldom over 75°F) in the summer and always contains a high concentration of unknown pollutants.

There is poor diversity of bugs here. In the spring we typically find three different families and none are sensitive families that require a good quality stream. In the fall an average of seven families are typically found, again with no 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. It is possible that they can live in streams that do not support sensitive families in the summer and fall due to low flow and warm temperatures. However, stoneflies have never been found at this site, indicating a year-round water quality problem.



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: HRWC

Millers Creek at Plymouth Road

Background Information

Site History

Millers Creek has a very high level of impervious surface, which is the primary cause of the degradation at this site and throughout the creek.

From 2006 through 2010, HRWC carried out the Millers Creek Rainwater Project. In this restoration project, HRWC worked with a number of partners including watershed residents in building raingardens and reducing storm runoff. This site was one of the study sites to test the outcomes. The initial results indicate that the insect community has increased slightly and that the water flow after storms is much more stable than it used to be. The overall condition rating of the site has gone up slightly, and we hope to continue to see improvements here.

How is the Creek affected by land use here?

The area of land draining to this site is very small, receiving water from only 0.4 square miles of land, entirely dense residential.

This is one of the most urbanized areas in the Huron watershed, according to data from 2000. Nearly all (94%) of this Millers Creek sub-watershed is developed. At that time, 41% of the land was covered by impervious surface.

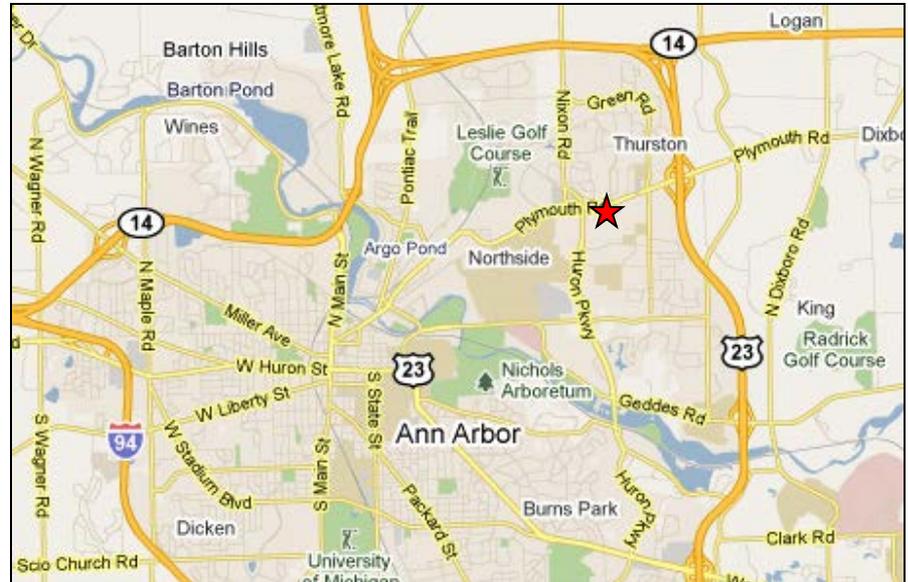
Impervious surface is hard on streams because it prevents rain from being filtered and cleaned through the soil and, instead, delivers it quickly to the stream, carrying pollutants and causing surging flows that damage the stream habitat and biotic community.

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: 0% Agriculture, 94% Urban, 4% Forest, 2% Open, 0% Wetland.

What You Can Do

Help us improve Millers 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.hrwc.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.



Insects found in at least two sampling events from 2008-2010:

- Coenagrionidae — narrow-winged damselfly
- Chironomidae — midge
- Simuliidae — black fly
- Tipulidae — crane fly