

Mann Creek at VanAmberg Road

Adopt-a-Stream Site Report, updated January 2012

Overall Condition: **Good**

In terms of overall water and habitat quality, this site ranks in the top 5 of all 73 sites monitored by HRWC's Adopt-A-Stream Program. It is the only site where we often find four different families of stoneflies in January. In addition, there are many kinds of bugs and many of them are sensitive in both spring and fall. The stream banks, streambed, and streamside vegetation are also healthy here.

Measuring Stream Quality

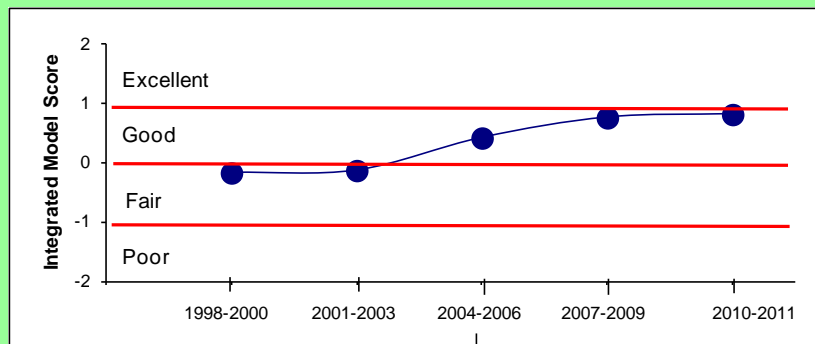
We use the bugs living in the creek to measure stream quality for two reasons. When the stream is rich in habitat variety it will have many diverse kinds of bugs (called families). Also, some bugs (called sensitive) can live only in good quality streams; they die in a poor quality stream. Any stream 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 36 times, starting in 1995. This includes Stonefly Search, River Roundup, Habitat, and Temperature events.

This site is 15 feet wide and shallow (less than a foot) with an occasional 1½-foot deep pool. In 2009 we found good habitat here with nice, clean rocks in the swift water (riffles) and stable banks. It has clean water that is warm (up to 81°F in the summer) and the watershed is covered by 18% impervious surface, which provides urban runoff that usually impairs the stream.

However, there is good diversity of bugs here. In the spring we typically find 15 different families and 4 are sensitive families that require a good quality stream. In the fall an average of 9 families are typically found, with 2 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. Many kinds of stoneflies are found at this site, another indication of excellent stream quality.



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: Chatura Vaidya

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Background Information

Site History

Mann Creek flows through the middle of a 4000-acre (6 ¼ mile²) proving ground operated by GM since 1924. It contains 132 miles of paved roads used for testing cars, a "salt-water trough" and "Black Lake", a 67-acre pad of blacktop equipped with sprinklers to test wet conditions. The other two-thirds of the watershed are primarily forested homes interspersed with open land in Brighton, Highland and Milford Townships.

Downstream of the proving grounds, the stream has a very wide vegetated riparian buffer around the stream that surely aids the quality of the water.

How is the Creek affected by land use here?

This creek site receives water from only 18 square miles of land, mostly developed. One-third of that land is the GM Proving Grounds.

According to data from 2000, nearly half of the Mann Creek watershed is developed while 13% is used for agriculture. At that time, 18% 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: 13% Agriculture, 46% Urban, 9% Forest, 19% Open, 13% Wetland.

What You Can Do

Help us improve Mann 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 2009-2011:

- *Brachycentridae — humpless case makers caddisfly
- *Capniidae — slender winter stonefly
- *Isonychiidae — brush-legged mayfly
- *Perlidae — Perlid stonefly
- *Perlodidae — Perlodid stonefly
- *Taeniopterygidae — broad-back stonefly
- Aeshnidae — damner dragonfly
- Baetidae — small minnow mayfly

- Calopterygidae — broad-winged damselfly
- Elmidae — riffle beetle
- Helicopsychidae — snail-case caddisfly
- Hydropsychidae — common net-spinner caddisfly
- Limnephilidae — northern caddisfly
- Tipulidae — crane fly
- Tricorythidae — little stout crawlers

**Sensitive Family*