

The Blanchard River Watershed Partnership (BRWP) started a Water Quality Monitoring Program in the fall of 2007. The BRWP used the Ohio Scenic Rivers Stream Quality Assessment Form for the basis of collecting the data. Starting 2008 the BRWP started doing monitoring in the spring and in the fall. The monitoring involves identifying the macroinvertebrates found at each sites. Macroinvertebrates are under rocks and debris in stream riffle areas. The macroinvertebrates are grouped into three categories based on the tolerance of the macroinvertebrate to pollution.

The species in the first group (1) are *very sensitive* to any pollution. This group includes Water Penny larvae, Mayfly nymphs, Stonefly nymphs, Dobsonfly larvae, Caddisfly larvae, Riffle beetle adult, and Gilled snails. The species in the second group (2) are *somewhat sensitive* to any pollution. This group includes Damselfly nymphs, Dragonfly nymphs, Crane fly larvae, Beetle larvae, Crayfish, Scuds, Clams, Sowbugs (isopods). The species in the third group (3) are *pollution tolerant*. This groups includes Blackfly larvae, Aquatic worms, Midge larvae, Pouch snails, and Leech. At each site the number of each species identified was counted and recorded on the assessment form.

To determine the overall water quality, the number of taxa in each group was determined. The number of group 1 taxa was multiplied by three; group 2 by 2; and group 3 by 1. The product of each group was added together to determine the Cumulative Index Value. *Stream Quality Assessment (SQA)* was based on the following basis: Excellent (>22), Good (17-22), Fair (11-16), and Poor (<11).

Summary 2011 Macroinvertebrate Monitoring

Twenty six sites were monitored during 2011 on the Blanchard River (9), Lye Creek(4), The Outlet(3), Riley Creek(7), and Little Riley Creek(3). Again in 2011 only rock grabs were used at every site and rock grab and seine nets were used on the Blanchard River in the spring. As in 2010, high water levels in the spring forced the monitoring to be delayed until late June. In the fall high water again force the monitoring to be done on only 6 sites. The three riffle dam sites were unsafe to monitor at all in the fall.

The data was entered into the Stream Quality form described above. Individual Assessment forms for each side can be obtained by contacting the BRWP.

Of the nine sites on the Blanchard River, 6 sites showed a SQA of good and 3 sites were fair in the spring. In the fall only 6 sites could be monitored on the river due to the high level of the water with only 2 sites being good, 3 sites were fair and 1 site was poor. The largest number of taxa (45.5%) were from the most sensitive group to pollution. The high water levels with the high sediment load were probably responsible for the lower number of taxa observed in the river. Although taxa richness, prevented all of the sites from ranking excellent, the fact that each of the sites had the most taxa in the most sensitive group holds well for the water quality of the river. The substrate of the Blanchard River is mainly bedrock. The lack diversity in the type of macroinvertebrates could be attributed to the lack of specific habitat that some of the macroinvertebrates need. The heavy rains in June and late September may have washed some of the macroinvertebrates downstream and the species did not have enough time to re-colonize before the collection.

Of the four sites on Lye Creek, 3 sites were good and 1 site was poor in the spring. In the fall only 3 of the sites were observed. All three sites scored in the good range. Again, most of the taxa were species from the most sensitive to pollution (45.5%).

The Outlet sites showed poor SQA at all sites in the spring and fall. With the heavy rains during both the spring and fall. The sediment loading in The Outlet placed a significant sediment covering over the substrate that caused the habitat for the macroinvertebrates to be very limited or even destroyed. All taxa were from the Pollution Tolerant group. Whether this shows a poor water quality or is due to the excessive sediment loading was not determined.

Monitoring on Riley Creek occurred at 7 sites in the spring and 6 sites in the fall. The site at the Pandora Park has very little riffle areas and will no longer be studied. Results from the spring monitoring showed 3 sites being good, 2 sites fair, and 2 sites poor. Most of the taxa present were from the Pollution Sensitive group with 45.5% of the taxa. In the fall 4 sites were good, 1 site was fair, and 1 site was poor. Again, most of the taxa were from the Pollution Sensitive group with 45.5%.

Monitoring on Little Riley Creek occurred at 3 sites in the spring and 2 in the fall. The two sites that studied in the spring and fall showed a SQA ranking of poor both during the spring and fall. Even with the poor SQA, the dominate SQA group was the Pollution Sensitive group with 42.9% of the taxa. The other site studied in the spring showed an SQA of fair.

Heavy rain events in the Riley Creek and Little Riley Creek watersheds forced the monitoring to be delayed during the spring and fall. The effects of these events on the results can not be determined.

Water Quality Monitoring Results 2011 Blanchard River Watershed

Blanchard River Sites	Spring 2011	Fall 2011	KEY to Information
BR 020-1 Riffle Dam east Blanchard Ave.	Fair-11	NR*	Green - Water Quality Excellent (>22)
BR 020-2 North of Intersection TR208/TR234	Fair-13	Fair-12	Red - Water Quality is Good (17-22)
BR 020-3 Riverbend 2000' East of TR241	Good-21	Fair-13	Blue - Water Quality is Fair (11-16)
BR 020-4 South of the Bridge on TR 207	Good-19	Fair-14	Brown - Water Quality is Poor (<11)
BR 020-5 Private Dam at the Curve TR 173	Good-20	Poor-9	
BR 020-6 TR 166 just West Rieck Center	Good-19	Good-19	
BR 020-7 SR 37 1/4 South of Bridge	Good-17	Good-20	
BR 030-1 Riffle Dam east of Cory St. bridge	Good-17	NR*	
BR 030-2 Liberty Street Riffle Dam	Fair-16	NR*	
Lye Creek Sites			
LC-2 West Bridge Hancock Co. Fairgrounds	Good-21	Good-18	
LC-2a Joyce Bostwick farm of SR 37	Good-17	NR**	
LC-3 Elm Grove Cemetery SR 37/TR 234	Good-17	Good-19	
LC-4 TR 167 on north side of bridge	Poor-9	Good-18	
The Outlet(2) Sites			
TO-020-1 TR 255 north of CR 7	Poor-1	Poor-1	
TO-020-2 CR 11 South Branch	Poor-1	Poor-1	
TO-020-3 TR 264	Poor-2	Poor-1	
Riley Creek			
RC 050-1 Road 6 east of Road L	Fair-14	Good-17	
RC 050-2 Road 6 south of Road M	Good-18	Good-19	
RC 050-3 SR 12 in Pandora Park	Poor-6	***	
RC 050-4 Road R east of Road 5	Poor-10	Fair-15	
RC 050-5 Phillips Rd. south of Bixel Rd.	Fair-12	Good-18	
RC 050-6 Spring St. just east of Riley St.	Good-19	Good-19	
RC 050-7 College Ave. just north of stadium	Good-17	Poor-8	
Little Riley Creek			
LR 1 East of Elm Street bridge	Poor-6	Poor-4	NR* Water level was too high to safely monitor
LR 2 East of bridge at Bentley Rd. and Campus Dr.	Poor-5	Poor-7	NR** Landowner was gone and we could not get permission
LR 3 Bridge on Phillips Rd. 1/4 mile north of Hillville	Fair-11	NR***	NR*** Construction prevented be able to monitor *** site is no longer being monitored due to poor riffles

Macroinvertebrate Seasonal Frequency

Blanchard River Sites

	Spring			Fall			2011 Avg.
	Frequency/Percentage			Frequency/Percentage			
Pollution Sensitive	F	S	P	F	S	P	
Water Penny Larvae	7	9	77.8	5	6	83.5	80.0
Mayfly Nymph	9	9	100	4	6	66.7	86.7
Stonefly Nymph							
Dobsonfly Nymph							
Caddisfly Nymph	9	9	100	6	6	100	100
Riffle Beetle Adult	6	9	66.7	2	6	33.3	53.3
Gilled Snail	8	9	88.7	5	6	83.5	86.7
Pollution Intermediate							
Damselfly Nymph	4	9	44.4	3	6	50.0	46.7
Dragonfly Nymph							
Cranefly Nymph							
Beetle Larvae							
Crayfish	4	9	44.4	1	6	16.7	33.3
Scuds							
Clam	3	9	33.3	2	6	33.3	33.3
Sowbug	2	9	22.2	3	6	50.0	33.3
Pollution Tolerant							
Blackfly Larvae							
Aquatic Worms	2	9	22.2	0	6	---	13.3
Midge Larvae							
Pouch Snail	3	9	33.3	0	6	---	20.0
Leech	4	9	44.4	3	6	50.0	80.0

Macroinvertebrate Seasonal Frequency

Lye Creek Sites

	Spring			Fall			2011 Avg.
	Frequency/Percentage			Frequency/Percentage			
Pollution Sensitive	F	S	P	F	S	P	
Water Penny Larvae	2	4	50.0	2	3	66.7	57.1
Mayfly Nymph	3	4	75.0	3	3	100	85.7
Stonefly Nymph							
Dobsonfly Nymph							
Caddisfly Nymph	4	4	100	3	3	100	100
Riffle Beetle Adult	4	4	100	3	3	33.3	100
Gilled Snail	2	4	50.0	1	3	33.3	42.9
Pollution Intermediate							
Damselfly Nymph	1	4	25.0	1	3	33.3	28.6
Dragonfly Nymph							
Crane fly Nymph							
Beetle Larvae							
Crayfish	3	4	75.0	1	3	33.3	57.2
Scuds							
Clam	0	4	---	2	3	66.7	28.6
Sowbug	1	4	25.0	2	3	66.7	42.9
Pollution Tolerant							
Blackfly Larvae							
Aquatic Worms	3	4	75.0	0	3	---	42.9
Midge Larvae							
Pouch Snail	1	4	25.0	2	3	66.7	42.9
Leech	3	4	75.0	3	3	100.0	85.7

Macroinvertebrate Seasonal Frequency

The Outlet Ditch Sites

	Spring			Fall			2011 Avg.
	Frequency/Percentage			Frequency/Percentage			
Pollution Sensitive	F	S	P	F	S	P	
Water Penny Larvae							
Mayfly Nymph							
Stonefly Nymph							
Dobsonfly Nymph							
Caddisfly Nymph							
Riffle Beetle Adult							
Gilled Snail							
Pollution Intermediate							
Damselfly Nymph							
Dragonfly Nymph							
Crane fly Nymph							
Beetle Larvae							
Crayfish							
Scuds							
Clam							
Sowbug							
Pollution Tolerant							
Blackfly Larvae							
Aquatic Worms							
Midge Larvae							
Pouch Snail	1	3	33.3	0	3	---	16.7
Leech	1	3	33.3	1	3	33.3	33.3

Macroinvertebrate Seasonal Frequency

Riley Creek Sites

	Spring			Fall			2011 Avg.
	Frequency/Percentage			Frequency/Percentage			
Pollution Sensitive	F	S	P	F	S	P	
Water Penny Larvae	2	7	28.6	4	6	66.7	46.1
Mayfly Nymph	7	7	100	6	6	100	100
Stonefly Nymph							
Dobsonfly Nymph							
Caddisfly Nymph	7	7	100	5	6	83.3	92.3
Riffle Beetle Adult	4	7	57.1	4	6	66.7	61.5
Gilled Snail	5	7	71.4	5	6	83.3	76.9
Pollution Intermediate							
Damselfly Nymph	2	7	28.6	5	6	83.3	53.8
Dragonfly Nymph							
Cranefly Nymph							
Beetle Larvae							
Crayfish	4	7	57.1	1	6	16.7	38.5
Scuds							
Clam	2	7	28.6	2	6	33.3	33.3
Sowbug	1	7	14.3	1	6	16.7	15.4
Pollution Tolerant							
Blackfly Larvae							
Aquatic Worms	0	7	---	4	6	66.7	30.8
Midge Larvae							
Pouch Snail	1	7	14.3	0	6	---	7.7
Leech	4	7	57.1	4	6	66.7	61.5

Macroinvertebrate Seasonal Frequency

Little Riley Creek Sites

	Spring			Fall			2011 Avg.
	Frequency/Percentage			Frequency/Percentage			
Pollution Sensitive	F	S	P	F	S	P	
Water Penny Larvae							
Mayfly Nymph	3	3	100	1	2	50	80.0
Stonefly Nymph							
Dobsonfly Nymph							
Caddisfly Nymph	1	3	33.3		2	---	20.0
Riffle Beetle Adult							
Gilled Snail	2	3	66.7	2	2	100	80.0
Pollution Intermediate							
Damselfly Nymph	1	3	33.3	0	2	---	20.0
Dragonfly Nymph							
Crane fly Nymph							
Beetle Larvae							
Crayfish							
Scuds							
Clam							
Sowbug	0	3	---	1	2	50.0	20.0
Pollution Tolerant							
Blackfly Larvae							
Aquatic Worms							
Midge Larvae							
Pouch Snail	1	3	33.3	0	2	---	20.0
Leech	1	3	33.3	1	2	50.0	60.0