The Bryant Creek Assessment Project

In

Douglas and Ozark counties, Missouri

An ongoing Volunteer water quality monitoring Project of the

Ozark chapter of

Missouri master naturalists

Updated through March 29, 2013
The Project

In Spring 2010, members of the Ozark Chapter of Missouri Master Naturalists undertook an ambitious project to conduct chemical and biological monitoring at every mile of the “floatable portion” of Bryant Creek, in Douglas and Ozark County, Missouri. Beginning at the Vera Cruz MDC Access (“Mile 0.0”), and continuing to the creek’s confluence with the North Fork of the White River, the group completed an initial survey in May 2010, providing GPS coordinates for forty-nine sampling sites, collecting readings on turbidity, pH, air and water temperature, conductivity, dissolved oxygen, and phosphates at each location. An effort, hampered by high and dangerous water conditions, was made to provide macroinvertebrate collection data at each point. This portion of the project met with limited initial success, and only about one quarter of the sites were initially sampled for aquatic macroinvertebrates.

All data collected was submitted to Missouri Stream Team volunteer water quality monitoring personnel in Jefferson City in May 2010. In addition, an initial report, A Biological and Chemical Assessment of Bryant Creek in Douglas and Ozark Counties, Missouri, was completed to summarize the findings, with copies furnished to Missouri Stream Team personnel. This current report is an effort to provide a continuing, ongoing report of subsequent annual samplings at each site. Throughout the report, “BCAP” signifies “Bryant Creek Assessment Project”, and the sampling sites are numbered consecutively, upstream-to-downstream, from 1-49. All data collected is under the immediate supervision of trained Volunteer Water Quality Monitors, trained and certified at Level 2 or Level 3. All data is, or has been, submitted to Missouri Stream Team.

Participants

Janet Arth, Caulfield, CMN, Introductory Level VWQM
Tom Arth, Caulfield, CMN, Level 2 VWQM
Bob Bohemier, Willow Springs, CMN, Level 1 VWQM
Barbara Cody, West Plains, CMN, Level 2 VWQM
Becky Estes, West Plains, CMN, Introductory Level VWQM
Eric Fremgen, Willow Springs, CMN, Level 1 VWQM
Dan Martin, Caulfield
Martha Mills, West Plains, CMN, Level 2 VWQM
Lorri Orlowski, West Plains
Caroline Pickering, West Plains, Introductory Level VWQM
Tim Pickering, West Plains
John Rothgeb, Caulfield, CMN, Level 3 VWQM
Sue Roberts, West Plains, CMN, Level 2 VWQM
George Sims, Mansfield, CMN, Level 3 VWQM
Alan Suffridge, West Plains

(CMN – Certified Master Naturalist; MNI—Master Naturalist Intern; VWQM – Volunteer Water Quality Monitor)
The Stream

“Bryant Creek is a typical losing stream. It begins as an intermittent flow fed by several small drainages. The headwaters lie within what is now the Cedar Gap Conservation Area, at an altitude of about one thousand feet above sea level.

At Bryant Spring, near Ava, it becomes perennial for several miles, and around Dry Creek, it disappears underground. Just above Tarbutton Creek it resurfaces, and resumes its flow as a perennial (year-round) stream. At its confluence with the North Fork, its altitude is about five hundred and sixty feet above sea level.

The total length of Bryant Creek is about 60 miles, from its headwaters in Wright County until it flows into the North Fork River just above Norfork Lake in Ozark County. It is floatable for 42.6 miles from Vera Cruz to the North Fork.” (Bryant Watershed Education Project)
## The Sampling Sites

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Methodology

At each site, precise geographic coordinates were determined, utilizing Garmin GPSMAP 76CSx global positioning units, provided for the project by Missouri Stream Team, or personally owned Garmin eTrex and Bushnell ONIX 200CR units (Team A) and reported in DDD.ddddd format. Air and water temperatures, measured in degrees Celsius, were recorded at each sampling site.

Chemical Sampling:

At the direction of Priscilla Stotts, former Volunteer Water Quality Monitoring Coordinator for the Missouri Stream Team program, the sampling teams conducted chemical/physical testing at each site, following sampling guidelines as taught in the Missouri Volunteer Water Quality Monitoring program, Introductory through Level 2 training. Each team was led by one or more VWQM volunteers who had completed Level 2, or higher, training, and been certified at that level. Tests performed at each site included:

- **pH**  Samples were analyzed, using the Hach Pocket Pal pH Tester, as provided by Missouri Stream Team. The devices were pre-calibrated before use, using a two-point calibration at pH 7.00 and 10.00.

- **Conductivity**  Samples were analyzed, using the ECTester conductivity pen, supplied by Missouri Stream Team. The devices were pre-calibrated prior to use, using a calibration solution of 1000 μS/cm.

- **Turbidity**  Samples were analyzed for turbidity, using the turbidity tubes supplied by the VWQM program. Turbidity was measured in Nephelometric Turbidity Units (NTU).

- **Dissolved Oxygen**  Samples were analyzed, using the Hach Model OX-2P dissolved oxygen test kit, with results reported in mg/l and in percentage saturation.

- **Phosphate**  Although phosphate testing is not normally conducted by the Missouri VWQM program, the teams performed phosphate analysis at the request of Priscilla Stotts, using Hach Pocket Colorimeter II test kits, provided for the project by Missouri Stream Team.

- **Nitrate**  Nitrate analysis, normally conducted as part of the chemical analysis mandated by the VWQM procedures, was initially not performed in 2010 and 2011, at the request of the VWQM program; however, beginning with the 2012 sampling season, nitrate analysis was added to the sampling protocol.
Biological Sampling:

At each sampling site, where water conditions were conducive to macroinvertebrate sampling, three samplings for benthic macroinvertebrates were conducted, utilizing one-meter nets, as provided by the VWQM program. Some teams performed on-site identifications. Other teams, because of the distance and time factors involved, preserved the captured specimens in an 80% ethyl alcohol solution, for later identification and classification by Level 2 or 3 monitors. All procedures, as presented in Missouri VWQM training, were followed.

Acknowledgements

Grateful appreciation is extended to the following individuals and organizations who made this project possible and successful:

Andrew Branson, Stream Team Biologist, MDC
Jim and Dianne Darlington, Meramec River Kayak Swarm
Sherry Fischer, VWQM Coordinator, Missouri Stream Team, MDC
Susan Higgins, VWQM Coordinator, Missouri Stream Team, DNR
Amy Meier, Stream Team Biologist, MDC
Chris Riggert, VWQM Coordinator, Missouri Stream Team, MDC
Priscilla Stotts, Former VWQM Coordinator, Missouri Stream Team, DNR
Missouri Department of Conservation
Missouri Department of Natural Resources
Missouri Stream Team
Ozark Chapter, Missouri Master Naturalist
Site 1

VERA CRUZ MDC ACCESS, MILE 0.0
IMMEDIATELY DOWNSTREAM OF COUNTY ROAD C-224
DOUGLAS COUNTY
LAT 36.91412°N, LONG 92.49550°W

April 2010

August 2010

March 2012
## Biological Sampling

| Date   | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|--------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|
| 5/10   | 2   | 3  | 6  |    | 25 |    |    |    |    | 1  |    |    |    |    |    |    |    |    | 1  |    | 2   | 15  |
| 8/10   | 2   | 9  | 15 | 1  |    |    |    |    |    |    | 7  |    |    |    |    |    |    |    |    | 1   |    | 11  |
| 4/11   | 2   | 7  | 24 | 1  |    | 5  | 1  |    |    |    |    | 14 | 1  |    |    |    |    |    |    |    | 1   |    | 15  |
| 3/12   | 2   | 2  | 22 |    |    | 1  | 1  |    |    |    |    |    |    | 8  |    |    |    |    |    |    | 1   |    | 8   |
| 3/13   | 3   | 3  | 23 | 4  |    | 5  | 1  | 1  | 2  | 1  | 2  | 2  |    |    |    |    |    | 2   |    |    | 11  |

### Macroinvertebrate Water Quality Score

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

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**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- RF – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Da – Damselfly
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly
- Ws – Watersnipe Fly

**Tolerant**
- Cm – Clam/Mussel
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Le – Leech
- Md – Midge
- LS – Left Snail
- OS – Other Snail
**Site Notes and Journal:** Initial sampling was conducted immediately downstream from the bridge, on the left bank.

March 2012: Since last sampling, a new concrete bridge has been constructed across the stream, probably adversely affecting macroinvertebrates.
Site 2
1.0 mile below Vera Cruz MDC access
.27 miles ds tributary @ Sweden Hollow
Douglas County
Lat 36.90326°N, Long 92.48869°W

April 2010

June 2011

May 2012
### Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-------|
| 5/10 | 2   | 6  | 20 | 2  | 21 | 1  |     |    |    | 3  | 6  | 1  |     |     |     | 23 |    |    |    |    |    |    | 22  |
| 5/12 | 2   | 60 | 13 | 75 | 6  |     |    |    | 1  | 6  |     |     |     |     |     | 4  | 1  |    |    |    |    |    | 18  |

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- Cd – Caddisfly
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<td>0.15</td>
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### Chemical Sampling

#### May 2010
- Score: 22

#### May 2012
- Score: 18

Score criteria:
- <12 = Poor; 12-17 = Fair; 18-23 = Good; >23 = Excellent
Site Notes and Journal:
Site 3

2.0 miles below Vera Cruz MDC access, 200 feet ds Planer Branch
Douglas County
Lat 36.89320°N, Long 92.48851°W

April 2010

June 2011

May 2012
Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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</table>

Sensitive
Cd – Caddisfly
Db – Dobsonfly
My- Mayfly
RS – Right Snail
Rf – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Tolerant
Da – Damselfly
Sd – Scud
FF – Fishfly
Al – Alderfly
Ws – Watersnipe Fly
Le – Leech
Md – Midge
LS – Left Snail
OS – Other Snail

Macroinvertebrate Water Quality Score

Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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<td>19°</td>
<td>13°</td>
<td>8.9</td>
<td>440</td>
<td>0.19</td>
<td>&lt;10</td>
<td>10/95%</td>
<td></td>
</tr>
<tr>
<td>6/8/11</td>
<td>3</td>
<td>29°</td>
<td>20°</td>
<td>8.3</td>
<td>370</td>
<td>0.17</td>
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<td>13/143%</td>
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</tr>
<tr>
<td>5/23/12</td>
<td>2</td>
<td>21°</td>
<td>18°</td>
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<td>0.24</td>
<td>&lt;10</td>
<td>9/95%</td>
<td>0.5</td>
</tr>
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</table>
Site Notes and Journal:
Site 4

3.0 miles below Vera Cruz mdc access just upstream of Highway 14 bridge
PLSS section line Section 3 and Section 4
Douglas County
Lat 36.88720°N, Long 92.47342°W

April 2010

June 2011

May 2012
### Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>RF</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>WS</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
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<tr>
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<td>3</td>
<td></td>
<td>22</td>
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</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- RF – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly
- BF – Blackfly

**Tolerant**
- Da – Damselfly
- Cm – Clam/Mussel
- Sd – Scud
- FF – Fishfly
- AW – Aquatic Worm
- Al – Alderfly
- Ws – Watersnipe Fly
- Le – Leech
- Md – Midge
- LS – Left Snail
- OS – Other Snail

---

### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/2/10</td>
<td>2</td>
<td>20°</td>
<td>14°</td>
<td>8.9</td>
<td>450</td>
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<tr>
<td>6/8/11</td>
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<td>29°</td>
<td>19°</td>
<td>8.4</td>
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<tr>
<td>5/23/12</td>
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<td>19°</td>
<td>19°</td>
<td>8.3</td>
<td>440</td>
<td>0.20</td>
<td>&lt;10</td>
<td>10/108%</td>
<td>0.5</td>
</tr>
</tbody>
</table>
Site Notes and Journal: From data contained in the *Paddler’s Guide*, the Highway 14 bridge was expected to lie 2.5 miles downstream from the Rippee Access. GPS data showed the location to instead fall at almost exactly three miles from the access. Samplings were made just upstream of the bridge.
Site 5

4.0 miles below Vera Cruz MDC access
Approximately 200 feet upstream 1st trib in Section 3
Douglas County
Lat 36.8734°N, Long 92.46662°W

April 2010

June 2011

May 2012
### Biological Sampling

| Date     | Lvl | Cd | Db | My | RS | RF | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|----------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| 5/10     | 2   | 3  | 12 | 1  | 28 | 1  | 6  | 1  | 15 | | | | | | | | | | | 17  |

- **Sensitive**
  - Cd – Caddisfly
  - Db – Dobsonfly
  - My – Mayfly
  - RS – Right Snail
  - RF – Riffle Beetle
  - St – Stonefly
  - Pn – Water Penny

- **Somewhat Tolerant**
  - OB – Other Beetle
  - Cm – Clam/Mussel
  - Cr – Crab
  - Cy – Crayfish
  - Dr – Dragonfly

- **Tolerant**
  - Da – Damselfly
  - Sd – Scud
  - FF – Fishfly
  - BF – Blackfly

### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/2/10</td>
<td>2</td>
<td>22°</td>
<td>14°</td>
<td>8.9</td>
<td>450</td>
<td>0.18</td>
<td>&lt;10</td>
<td>10/97%</td>
<td>-</td>
</tr>
<tr>
<td>6/8/11</td>
<td>3</td>
<td>32°</td>
<td>19°</td>
<td>8.4</td>
<td>380</td>
<td>0.18</td>
<td>&lt;10</td>
<td>11/116%</td>
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<tr>
<td>5/23/12</td>
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<td>25°</td>
<td>20°</td>
<td>8.3</td>
<td>420</td>
<td>0.20</td>
<td>&lt;10</td>
<td>10/110%</td>
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</table>

May 2010

- <12=Poor; 12-17=Fair;18-23=Good;>23=Excellent

**Macroinvertebrate Water Quality Score**

[Bar chart showing score 17]

Macroinvertebrate Water Quality Score

- 0 = Poor
- 10 = Fair
- 20 = Good
- 30 = Excellent

May 2010

- <12=Poor; 12-17=Fair;18-23=Good;>23=Excellent

Bryant Creek Assessment Project
Site Notes and Journal:

- **pH**
  - Apr 2010: 8.9
  - Jun 2011: 8.4
  - May 2012: 8.3

- **Conductivity**
  - Apr 2010: 450
  - Jun 2011: 380
  - May 2012: 420

- **Phosphate**
  - Apr 2010: 0.18
  - Jun 2011: 0.18
  - May 2012: 0.2

- **Dissolved Oxygen**
  - Apr 2010: 97
  - Jun 2011: 116
  - May 2012: 110

- **Nitrate**
  - May 2012: 0.5
Site 6

4.5 miles below Vera Cruz mdc access @ Rippee mdc access
County Road 329
Douglas County
Lat 36.87133°N, Long 92.47178°W

April 2010

June 2011

Biological Sampling

<table>
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<tr>
<th>Date</th>
<th>Lvl</th>
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<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
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<td></td>
</tr>
<tr>
<td>5/12</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>15</td>
<td>12</td>
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</tbody>
</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My- Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damsel Fly
- Sd – Scud
- FF – Fish Fly
- Al – Alderfly
- Ws – Watersnipe Fly
- AW – Aquatic Worm
- BF – Blackfly
- Le – Leech
- Md – Midge
- LS – Left Snail
- OS – Other Snail
### Chemical Sampling

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<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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<td>25°</td>
<td>20°</td>
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<td>0.16</td>
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<td>400</td>
<td>0.26</td>
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<td>12/109%</td>
<td>0.25</td>
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### pH and Conductivity

#### pH

- April 2010: 8.9
- June 2011: 8.4
- March 2012: 8.5

#### Conductivity

- April 2010: 420 μS/cm
- June 2011: 370 μS/cm
- March 2012: 400 μS/cm
Site Notes and Journal:
May 2010: High and fast-moving water over the bridge necessitated macroinvertebrate sampling immediately downstream, on the left bank, visible in the left photo above.
March 2012: Water level too high and fast for macroinvertebrate sampling.
Site 7

5.0 miles below Vera Cruz mdc access
0.5 miles downstream from Site 6. Approximately 20’ ds confluence with 2nd tributary in Section 10

Douglas County
Lat 36.86950°N, Long 92.46565°W

April 2010

June 2011

May 2012
### Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | CM | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|
| 5/10 | 2   | 5  | 1  | 10 | 1  | 1  | 21 | 2  | 2  | 10 | 14 | 1  | 21 | 2  | 1  | 133 | 3  | 3  | 27  |
| 5/12 | 2   | 25 | 2  | 16 | 1  | 2  | 2  | 2  | 1  | 133| 3  | 3  | 25  |

- Sensitive
- Somewhat Tolerant
- Tolerant

<table>
<thead>
<tr>
<th>Cd – Caddisfly</th>
<th>OB – Other Beetle</th>
<th>Da – DamselFly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Db – Dobsonfly</td>
<td>Crm – Clam/Mussel</td>
<td>Sd – Scud</td>
</tr>
<tr>
<td>My – Mayfly</td>
<td>Cr – Cranefly</td>
<td>FF – Fishfly</td>
</tr>
<tr>
<td>Rf – Riffle Beetle</td>
<td>Cy – Crayfish</td>
<td>Al – Alderfly</td>
</tr>
<tr>
<td>St – Stonefly</td>
<td>Dr – Dragonfly</td>
<td>Ws – Watersnipe Fly</td>
</tr>
<tr>
<td>Pn – Water Penny</td>
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### Chemical Sampling

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<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
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<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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<td>14°</td>
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<td>0.19</td>
<td>&lt;10</td>
<td>10/112%</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Macroinvertebrate Water Quality Score:
- May 2010: Score 27 (24-28 = Fair)
- May 2012: Score 25 (24-28 = Fair)

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent
Site Notes and Journal:
Site 8
6.0 miles below Vera Cruz MDC access
At Brown Cave
Douglas County
Lat 36.86167°N, Long 92.45451°W

April 2010

June 2011

May 2012
### Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|
| 5/10 | 2   | 10 | 4  | 13 | 5  | 41 |    |    |    | 2  | 4  | 1  |    |    |    |    |    |    |    | 3  |    |    |    |    | 22  |
| 5/12 | 2   | 32 | 5  | 20 | 1  |    |    |    |    |    |    |    |    |    | 8  |    |    |    |    |    | 2  |    |    |    |    | 16  |

#### Key:
- **Sensitive**
  - Cd – Caddisfly
  - Db – Dobsonfly
  - My - Mayfly
  - RS – Right Snail
  - RF – Riffle Beetle
  - St – Stonefly
  - Pn – Water Penny

#### Somewhat Tolerant
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

#### Tolerant
- Da – Damselselfly
- Sd – Scud
- FF – Fishfly
- AL – Alderfly
- WS – Watersnipe Fly

#### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/18/10</td>
<td>2</td>
<td>26°</td>
<td>14°</td>
<td>9.1</td>
<td>350</td>
<td>0.14</td>
<td>&lt;10</td>
<td>12/117%</td>
<td>-</td>
</tr>
<tr>
<td>6/8/11</td>
<td>3</td>
<td>31°</td>
<td>21°</td>
<td>8.5</td>
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<td>0.07</td>
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<td>12/135%</td>
<td>-</td>
</tr>
<tr>
<td>5/23/12</td>
<td>2</td>
<td>25°</td>
<td>22°</td>
<td>8.4</td>
<td>430</td>
<td>0.11</td>
<td>&lt;10</td>
<td>9/103%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

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Macroinvertebrate Water Quality Score

- May 2010: 22
- May 2012: 16

<12 = Poor; 12-17 = Fair; 18-23 = Good; >23 = Excellent

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Bryant Creek Assessment Project
Site Notes and Journal:
Site 9
6.8 miles below Vera Cruz mdc access @ Monastery Bridge
Immedately downstream bridge crossing County Road 14-335
Douglas County
Lat 36.85174°N, Long 92.45908°W

April 2010

Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
|      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

**Sensitive**

- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- Rs – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**

- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**

- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

**Macroinvertebrate Water Quality Score**

- <12 = Poor; 12-17 = Fair; 18-23 = Good; >23 = Excellent
## Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/24/10</td>
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<td>29°</td>
<td>15°</td>
<td>9.1</td>
<td>340</td>
<td>0.14</td>
<td>&lt;10</td>
<td>12/119%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>22°</td>
<td>10°</td>
<td>8.6</td>
<td>410</td>
<td>0.32</td>
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<td>7/62%</td>
<td>-</td>
</tr>
<tr>
<td>4/22/12</td>
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<td>18°</td>
<td>13°</td>
<td>8.4</td>
<td>400</td>
<td>0.35</td>
<td>&lt;10</td>
<td>11/105%</td>
<td>0.25</td>
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### pH

<table>
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<th>Date</th>
<th>pH</th>
<th>Date</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2010</td>
<td>9.1</td>
<td>Mar 2011</td>
<td>8.6</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>8.4</td>
<td></td>
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### Conductivity

<table>
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<tr>
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<th>μS/cm</th>
<th>Date</th>
<th>μS/cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2010</td>
<td>340</td>
<td>Mar 2011</td>
<td>410</td>
</tr>
<tr>
<td>Apr 2012</td>
<td>400</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Phosphate

<table>
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<th>mg/l</th>
<th>Date</th>
<th>mg/l</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.14</td>
<td>Mar 2011</td>
<td>0.32</td>
</tr>
<tr>
<td>Apr 2012</td>
<td>0.35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Dissolved Oxygen

<table>
<thead>
<tr>
<th>Date</th>
<th>mg/l</th>
<th>Date</th>
<th>mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2010</td>
<td>12</td>
<td>Mar 2011</td>
<td>7</td>
</tr>
<tr>
<td>Apr 2012</td>
<td>11</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Site Notes and Journal: Very swift waters at this site may cause a lack of suitable macroinvertebrate monitoring locations. Site 10, however, is located only 0.2 miles downstream.
Site 10

0.2 miles below Monastery Bridge access
Douglas County
Lat 36.85022°N, Long 92.45705°W

April 2010

Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Da | Sd | FF | AI | Ws | AW | BF | Lc | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 4/12 | 2   | 7  | 2  | 55 | 2  | 25 | 1  | 19 | 1  | 1  | 1  | 1  | 25 | 1  | 6  | 6  | 22 |

Sensitive
Cd – Caddisfly
Db – Dobsonfly
My- Mayfly
RS – Right Snail
Rf – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Tolerant
Da – Damselfly
Sd -- Scud
FF – Fishfly
AI - Alderfly
Ws – Watersnipe Fly

Macroinvertebrate Water Quality Score

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

Apr 2012
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/18/10</td>
<td>2</td>
<td>27°</td>
<td>15°</td>
<td>9.1</td>
<td>270</td>
<td>0.19</td>
<td>&lt;10</td>
<td>10/99%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>21°</td>
<td>11°</td>
<td>8.4</td>
<td>370</td>
<td>0.41</td>
<td>&lt;10</td>
<td>14/127%</td>
<td>-</td>
</tr>
<tr>
<td>4/22/12</td>
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<td>16°</td>
<td>14°</td>
<td>8.3</td>
<td>430</td>
<td>0.20</td>
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<td>10/97%</td>
<td>0.25</td>
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</table>

#### Graphs

**pH**

<table>
<thead>
<tr>
<th>pH</th>
<th>Apr 2010</th>
<th>Mar 2011</th>
<th>Apr 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.1</td>
<td>8.4</td>
<td>8.3</td>
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</table>

**Conductivity**

<table>
<thead>
<tr>
<th>Conductivity</th>
<th>Apr 2010</th>
<th>Mar 2011</th>
<th>Apr 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>µS/cm</td>
<td>270</td>
<td>370</td>
<td>430</td>
</tr>
</tbody>
</table>

**Phosphate**

<table>
<thead>
<tr>
<th>Phosphate</th>
<th>Apr 2010</th>
<th>Mar 2011</th>
<th>Apr 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>mg/l</td>
<td>0.19</td>
<td>0.41</td>
<td>0.2</td>
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</table>

**Dissolved Oxygen**

<table>
<thead>
<tr>
<th>Dissolved Oxygen</th>
<th>Apr 2010</th>
<th>Mar 2011</th>
<th>Apr 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>mg/l</td>
<td>10</td>
<td>14</td>
<td>10</td>
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</tbody>
</table>
Site Notes and Journal:
Site 11

1.3 miles below Monastery Bridge access
.21 miles (345 meters) ds confluence of 1st trib in Section 14 near Trimble Spring
Douglas County
Lat 36.8543°N, Long 92.44078°W

April 2010

March 2011

Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>4/12</td>
<td>2</td>
<td>11</td>
<td>4</td>
<td>40</td>
<td>10</td>
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<td>9</td>
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<td></td>
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<td></td>
<td></td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

Sensitive
Cd – Caddisfly
Db – Dobsonfly
My- Mayfly
RS – Right Snail
Rf – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Tolerant
Da – Damselfly
Sd – Scud
FF – Fishfly
Al – Alderfly
Ws – Watersnipe Fly

Cd- – Caddisfly
Db - Dobsonfly
My--Mayfly
RS- Right Snail
Rf- Riffle Beetle
St – Stonefly
Pn – Water Penny

AW – Aquatic Worm
BF - Blackfly
Le - Leech
Md - Midge
LS – Left Snail
OS – Other Snail
## Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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</thead>
<tbody>
<tr>
<td>4/18/10</td>
<td>2</td>
<td>21°</td>
<td>15°</td>
<td>9.1</td>
<td>370</td>
<td>0.14</td>
<td>&lt;10</td>
<td>5/50%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>26°</td>
<td>12°</td>
<td>8.4</td>
<td>370</td>
<td>0.14</td>
<td>&lt;10</td>
<td>13/121%</td>
<td>-</td>
</tr>
<tr>
<td>4/22/12</td>
<td>2</td>
<td>16.5°</td>
<td>14°</td>
<td>8.2</td>
<td>410</td>
<td>0.30</td>
<td>&lt;10</td>
<td>11/107%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### Macroinvertebrate Water Quality Score

![Macroinvertebrate Water Quality Score Graph](image)

> Apr 2012
> <12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

### pH Chart

![pH Chart](image)

- Apr 2010: 9.1
- Mar 2011: 8.4
- Apr 2012: 8.2

### Conductivity Chart

![Conductivity Chart](image)

- Apr 2010: 370 μS/cm
- Mar 2011: 370 μS/cm
- Apr 2012: 410 μS/cm
Site Notes and Journal:

**Phosphate**

<table>
<thead>
<tr>
<th>Month</th>
<th>mg/l</th>
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<tbody>
<tr>
<td>Apr 2010</td>
<td>0.14</td>
</tr>
<tr>
<td>Mar 2011</td>
<td>0.14</td>
</tr>
<tr>
<td>Apr 2012</td>
<td>0.3</td>
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**Dissolved Oxygen**

<table>
<thead>
<tr>
<th>Month</th>
<th>mg/l</th>
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<tbody>
<tr>
<td>Apr 2010</td>
<td>5</td>
</tr>
<tr>
<td>Mar 2011</td>
<td>13</td>
</tr>
<tr>
<td>Apr 2012</td>
<td>11</td>
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</tbody>
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**Dissolved Oxygen Saturation**

<table>
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<th>%</th>
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</thead>
<tbody>
<tr>
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<td>50</td>
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<tr>
<td>Mar 2011</td>
<td>121</td>
</tr>
<tr>
<td>Apr 2012</td>
<td>107</td>
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**Nitrate**

<table>
<thead>
<tr>
<th>Month</th>
<th>mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 2012</td>
<td>0.25</td>
</tr>
</tbody>
</table>
### Site 12

**2.3 miles below Monastery Bridge access**  
**Near Boiler Hollow. Approx. 200 ft ds confluence with 1st trib in Section 13**  
**Douglas County**  
**Lat 36.84425°N, Long 92.42920°W**

**April 2010**

**Biological Sampling**

<table>
<thead>
<tr>
<th>Date</th>
<th>Lv1</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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</tbody>
</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My - Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

**Macroinvertebrate Water Quality Score**

- <12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
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<tbody>
<tr>
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<td>2</td>
<td>19°</td>
<td>15°</td>
<td>9.1</td>
<td>390</td>
<td>0.13</td>
<td>&lt;10</td>
<td>12/119%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>20°</td>
<td>12°</td>
<td>8.4</td>
<td>380</td>
<td>0.63</td>
<td>&lt;10</td>
<td>10/93%</td>
<td>-</td>
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<tr>
<td>4/22/12</td>
<td>2</td>
<td>17.5°</td>
<td>14°</td>
<td>8.1</td>
<td>410</td>
<td>0.18</td>
<td>&lt;10</td>
<td>12/117%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

**Graphs:**
- **pH**
- **Conductivity**
- **Phosphate**
- **Dissolved Oxygen**
Site Notes and Journal: April 2012: No sites conducive to macroinvertebrate sampling.
Site 13
3.2 miles below Monastery Bridge access
Douglas County
Lat 36.83745°N, Long 92.42202°W

April 2010

Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lv1</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
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<td>64</td>
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<td>15</td>
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<td>1</td>
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<td>2</td>
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<td></td>
<td></td>
<td>20</td>
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</tbody>
</table>

Sensitive
Cd – Caddisfly
Db – Dobsonfly
My – Mayfly
RS – Right Snail
RF – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Tolerant
Da – Damselfly
Sd - Scud
FF – Fishfly
Al - Alderfly
Ws – Watersnipe Fly

Macroinvertebrate Water Quality Score

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent
## Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/18/10</td>
<td>2</td>
<td>22°</td>
<td>16°</td>
<td>9.2</td>
<td>390</td>
<td>0.10</td>
<td>&lt;10</td>
<td>11/112%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>28°</td>
<td>13°</td>
<td>8.5</td>
<td>370</td>
<td>0.10</td>
<td>&lt;10</td>
<td>14/133%</td>
<td>-</td>
</tr>
<tr>
<td>4/22/12</td>
<td>2</td>
<td>15.5°</td>
<td>14°</td>
<td>8.5</td>
<td>400</td>
<td>0.21</td>
<td>&lt;10</td>
<td>12/117%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### Graphs

**pH**

- April 2010: pH 9.2
- March 2011: pH 8.5
- April 2012: pH 8.5

**Conductivity**

- April 2010: Conductivity 390 μS/cm
- March 2011: Conductivity 370 μS/cm
- April 2012: Conductivity 400 μS/cm

**Phosphate**

- April 2010: Phosphate 0.1 mg/l
- March 2011: Phosphate 0.1 mg/l
- April 2012: Phosphate 0.21 mg/l

**Dissolved Oxygen**

- April 2010: Dissolved Oxygen 11 mg/l
- March 2011: Dissolved Oxygen 14 mg/l
- April 2012: Dissolved Oxygen 12 mg/l
Site Notes and Journal:
Site 14

4.2 miles below Monastery Bridge access
.2 miles us Coon Den Spring
Douglas County
Lat 36.83491°N, Long 92.41384°W

April 2010

### Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 4/12 | 2   | 7  | 10 | 44 | 7  | 1  | 9  |    |    |    |    |    |    |    |    |    |    |    |    |    |    | 10  | 23  |

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- RF – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
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**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
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**Macroinvertebrate Water Quality Score**

![Macroinvertebrate Water Quality Score](image)

- <12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

---

Bryant Creek Assessment Project
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/18/10</td>
<td>2</td>
<td>27°</td>
<td>17°</td>
<td>9.2</td>
<td>330</td>
<td>0.15</td>
<td>&lt;10</td>
<td>12/124%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>29°</td>
<td>13°</td>
<td>8.5</td>
<td>360</td>
<td>0.15</td>
<td>&lt;10</td>
<td>14/133%</td>
<td>-</td>
</tr>
<tr>
<td>4/22/12</td>
<td>2</td>
<td>15°</td>
<td>14°</td>
<td>8.3</td>
<td>410</td>
<td>0.24</td>
<td>&lt;10</td>
<td>12/117%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

#### Graphs

- **pH**
  - April 2010: 9.2
  - March 2011: 8.5
  - April 2012: 8.3

- **Conductivity**
  - April 2010: 330 μS/cm
  - March 2011: 360 μS/cm
  - April 2012: 410 μS/cm

- **Phosphate**
  - April 2010: 0.15 mg/l
  - March 2011: 0.15 mg/l
  - April 2012: 0.24 mg/l

- **Dissolved Oxygen**
  - April 2010: 12 mg/l
  - March 2011: 14 mg/l
  - April 2012: 12 mg/l
Site Notes and Journal:
## Site 15

5.2 miles below Monastery Bridge access  
Approx .36 miles ds Columbus Spring and 875 ft us 1st trib in Section 20  
Douglas County  
Lat 36.83317°N, Long 92.39884°W

### April 2010

#### Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>WS</th>
<th>AW</th>
<th>BF</th>
<th>Lc</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sensitive**

Cd – Caddisfly  
Db – Dobsonfly  
My – Mayfly  
RS – Right Snail  
Rf – Riffle Beetle  
St – Stonefly  
Pn – Water Penny

**Somewhat Tolerant**

OB – Other Beetle  
Cm – Clam/Mussel  
Cr – Cranefly  
Cy – Crayfish  
Dr – Dragonfly

**Tolerant**

Da – Damselfly  
Sd – Scud  
FF – Fishfly  
Al – Alderfly  
Ws – Watersnipe Fly

### Macroinvertebrate Water Quality Score

<12 = Poor; 12-17 = Fair; 18-23 = Good; >23 = Excellent
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/18/10</td>
<td>2</td>
<td>18°</td>
<td>16°</td>
<td>8.2</td>
<td>370</td>
<td>0.14</td>
<td>&lt;10</td>
<td>7/71%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>26°</td>
<td>14°</td>
<td>8.5</td>
<td>370</td>
<td>0.11</td>
<td>&lt;10</td>
<td>15/146%</td>
<td>-</td>
</tr>
<tr>
<td>4/22/12</td>
<td>2</td>
<td>17°</td>
<td>15°</td>
<td>8.6</td>
<td>400</td>
<td>0.36</td>
<td>&lt;10</td>
<td>11/109%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### Graphs

- **pH**
  - April 2010: 8.2
  - March 2011: 8.5
  - April 2012: 8.6

- **Conductivity**
  - April 2010: 370 μS/cm
  - March 2011: 370 μS/cm
  - April 2012: 400 μS/cm

- **Phosphate**
  - April 2010: 0.14 mg/l
  - March 2011: 0.11 mg/l
  - April 2012: 0.36 mg/l

- **Dissolved Oxygen**
  - April 2010: 7 mg/l
  - March 2011: 15 mg/l
  - April 2012: 11 mg/l
Site Notes and Journal: April 2012: No sites suitable for macroinvertebrate sampling.
Site 16

Bertha Ford/Bridge access, County Road 345
5.85 miles below Monastery Bridge access
Douglas County
Lat 36.82671°N, Long 92.39015°W

April 2010

May 2012

Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>5/12</td>
<td>2</td>
<td>23</td>
<td>2</td>
<td>12</td>
<td>22</td>
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<td>1</td>
<td>1</td>
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<td>7</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>27</td>
</tr>
</tbody>
</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

- AW – Aquatic Worm
- BF - Blackfly
- Le - Leech
- Md - Midge
- LS – Left Snail
- OS – Other Snail
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/18/10</td>
<td>2</td>
<td>19°</td>
<td>17°</td>
<td>8.2</td>
<td>350</td>
<td>0.11</td>
<td>&lt;10</td>
<td>11/114%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>27°</td>
<td>14°</td>
<td>8.5</td>
<td>370</td>
<td>0.12</td>
<td>&lt;10</td>
<td>11/107%</td>
<td>-</td>
</tr>
<tr>
<td>5/21/12</td>
<td>3</td>
<td>20°</td>
<td>20°</td>
<td>8.1</td>
<td>420</td>
<td>0.28</td>
<td>&lt;10</td>
<td>9/99%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### Macroinvertebrate Water Quality Score

- May 2012
- <12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

### pH and Conductivity Graphs

- **pH**:
  - April 2010: 8.2
  - March 2011: 8.5
  - May 2012: 8.1

- **Conductivity**:
  - April 2010: 350 μS/cm
  - March 2011: 370 μS/cm
  - May 2012: 420 μS/cm
Site Notes and Journal:

- Phosphate levels:
  - Apr 2010: 0.11 mg/l
  - Mar 2011: 0.12 mg/l
  - May 2012: 0.28 mg/l

- Dissolved Oxygen levels:
  - Apr 2010: 11 mg/l
  - Mar 2011: 11 mg/l
  - May 2012: 9 mg/l

- Dissolved Oxygen Saturation:
  - Apr 2010: 114%
  - Mar 2011: 107%
  - May 2012: 99%

- Nitrate levels:
  - May 2012: 0.25 mg/l
Site 17
.45 miles below Bertha Ford/Bridge
Approx 300 ft ds confluence with Fox Creek
Douglas County
Lat 36.82542°N, Long 92.38482°W

April 2010

May 2012

Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
</tr>
</thead>
</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- RF – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

**Biological Sampling**

- **Cd** – Caddisfly
- **Db** – Dobsonfly
- **My** – Mayfly
- **RS** – Right Snail
- **RF** – Riffle Beetle
- **St** – Stonefly
- **Pn** – Water Penny

**Biological Sampling**

- **OB** – Other Beetle
- **Cm** – Clam/Mussel
- **Cr** – Cranefly
- **Cy** – Crayfish
- **Dr** – Dragonfly
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/18/10</td>
<td>2</td>
<td>18°</td>
<td>17°</td>
<td>7.6</td>
<td>370</td>
<td>0.23</td>
<td>&lt;10</td>
<td>9/93%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>25°</td>
<td>14°</td>
<td>8.5</td>
<td>380</td>
<td>0.22</td>
<td>&lt;10</td>
<td>11/107%</td>
<td>-</td>
</tr>
<tr>
<td>5/21/12</td>
<td>3</td>
<td>21°</td>
<td>20°</td>
<td>8.2</td>
<td>420</td>
<td>0.17</td>
<td>&lt;10</td>
<td>10/110%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

---

### Macroinvertebrate Water Quality Score

- <12 = Poor
- 12-17 = Fair
- 18-23 = Good
- >23 = Excellent

### pH and Conductivity Graphs

**pH**
- April 2010: 7.6
- March 2011: 8.5
- May 2012: 8.2

**Conductivity**
- April 2010: 370 μS/cm
- March 2011: 380 μS/cm
- May 2012: 420 μS/cm
Site Notes and Journal:
Site 18
1.45 miles below Bertha Ford/Bridge
Approx 500 ft ds confluence of 1st trib at Turkey Flat Hollow in Section 28
Douglas County
Lat 36.81785°N, Long 92.38049°W

April 2010

May 2012

Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|------|
| 5/12 | 2   | 20 | 5  | 10 | 10 | 1  | 5  |    | 2  | 1  | 5  |    |    |    |    |    |    |    | 30 | 1   |     |     |     | 28   |

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

**Score**

**Sensitive**
- AW – Aquatic Worm
- BF - Blackfly
- Le - Leech
- Md - Midge
- LS – Left Snail
- OS – Other Snail

**Somewhat Tolerant**

**Tolerant**
## Chemical Sampling

The following table summarizes the chemical sampling results for Bryant Creek Assessment Project.

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/18/10</td>
<td>2</td>
<td>17°</td>
<td>17°</td>
<td>8.2</td>
<td>N/A</td>
<td>0.14</td>
<td>&lt;10</td>
<td>3/31%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>22°</td>
<td>14°</td>
<td>8.6</td>
<td>380</td>
<td>0.08</td>
<td>&lt;10</td>
<td>10/97%</td>
<td>-</td>
</tr>
<tr>
<td>5/21/12</td>
<td>3</td>
<td>21°</td>
<td>20°</td>
<td>8.2</td>
<td>410</td>
<td>0.18</td>
<td>&lt;10</td>
<td>8/88%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### Macroinvertebrate Water Quality Score

- **<12=Poor**
- **12-17=Fair**
- **18-23=Good**
- **>23=Excellent**

### pH and Conductivity Graphs

**pH**
- April 2010: 8.2
- March 2011: 8.6
- May 2012: 8.2

**Conductivity**
- March 2011: 380 μS/cm
- May 2012: 410 μS/cm
Site Notes and Journal:
Site 19
2.45 miles below Bertha Ford/Bridge
Approximately .5 miles US Confluence of Spring Creek
Douglas County
Lat 36.80939°N, Long 92.37354°W

April 2010

May 2012

Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Lc | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|
|      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

Sensitive
Cd – Caddisfly
Db – Dobsonfly
My- Mayfly
RS – Right Snail
Rf – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Da – Damsel Fly
Sd – Scud
FF – Fishfly
Al – Alderfly
Ws – Watersnipe Fly

Tolerant
AW – Aquatic Worm
BF - Blackfly
Lc - Leech
Md - Midge
LS – Left Snail
OS – Other Snail
Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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<td>4/18/10</td>
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<td>17°C</td>
<td>8.2</td>
<td>N/A</td>
<td>0.19</td>
<td>&lt;10</td>
<td>6/62%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>24°C</td>
<td>14°C</td>
<td>8.6</td>
<td>370</td>
<td>0.11</td>
<td>&lt;10</td>
<td>11/107%</td>
<td>-</td>
</tr>
<tr>
<td>5/20/12</td>
<td>3</td>
<td>25°C</td>
<td>21°C</td>
<td>8.2</td>
<td>400</td>
<td>0.21</td>
<td>&lt;10</td>
<td>11/124%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Macroinvertebrate Water Quality Score

- <12 = Poor
- 12-17 = Fair
- 18-23 = Good
- >23 = Excellent

**pH**

<table>
<thead>
<tr>
<th>Year</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 2010</td>
<td>8.2</td>
</tr>
<tr>
<td>Mar 2011</td>
<td>8.6</td>
</tr>
<tr>
<td>May 2012</td>
<td>8.2</td>
</tr>
</tbody>
</table>

**Conductivity**

<table>
<thead>
<tr>
<th>Year</th>
<th>μS/cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2011</td>
<td>370</td>
</tr>
<tr>
<td>May 2012</td>
<td>400</td>
</tr>
</tbody>
</table>
Site Notes and Journal:
Site 20
3.45 miles below Bertha Ford/Bridge
Approximately .45 miles ds confluence of Spring Creek
Douglas County
Lat 36.80035°N, Long 92.36142°W

April 2010

May 2012

Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Lc</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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<tbody>
<tr>
<td>5/12</td>
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<td>12</td>
<td>18</td>
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<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>29</td>
</tr>
</tbody>
</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damsel Fly
- Sd – Scud
- FF – Fishfly
- AI – Alderfly
- Ws – Watersnipe Fly

AW - Aquatic Worm
BF - Blackfly
Le - Leech
Md - Midge
LS – Left Snail
OS – Other Snail
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
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<tbody>
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<td>17°</td>
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<td>&lt;10</td>
<td>9/93%</td>
<td>-</td>
</tr>
<tr>
<td>3/20/11</td>
<td>3</td>
<td>21°</td>
<td>15°</td>
<td>8.6</td>
<td>370</td>
<td>0.12</td>
<td>&lt;10</td>
<td>12/119%</td>
<td>-</td>
</tr>
<tr>
<td>5/21/12</td>
<td>3</td>
<td>25°</td>
<td>21°</td>
<td>8.2</td>
<td>420</td>
<td>0.12</td>
<td>&lt;10</td>
<td>10/112%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### Macroinvertebrate Water Quality Score

May 2012

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

<table>
<thead>
<tr>
<th>Date</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 2010</td>
<td>7.6</td>
</tr>
<tr>
<td>Mar 2011</td>
<td>8.2</td>
</tr>
<tr>
<td>May 2012</td>
<td>8.6</td>
</tr>
</tbody>
</table>

### pH

<table>
<thead>
<tr>
<th>Date</th>
<th>pH</th>
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</thead>
<tbody>
<tr>
<td>Apr 2010</td>
<td>7.6</td>
</tr>
<tr>
<td>Mar 2011</td>
<td>8.6</td>
</tr>
<tr>
<td>May 2012</td>
<td>8.2</td>
</tr>
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### Conductivity

<table>
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<tr>
<th>Date</th>
<th>μS/cm</th>
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</thead>
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<tr>
<td>Mar 2011</td>
<td>380</td>
</tr>
<tr>
<td>May 2012</td>
<td>420</td>
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</table>
Site Notes and Journal:
## Site 21

**4.45 miles below Bertha Ford/Bridge**  
**Approximately .5 miles us State Highway 95 Bridge**  
**Ozark County**  
**Lat 36.7890°N, Long 92.3680°W**

March 2011

May 2012

### Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
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</tbody>
</table>

**Sensitive**  
- Cd – Caddisfly  
- Db – Dobsonfly  
- My- Mayfly  
- RS – Right Snail  
- Rf – Riffle Beetle  
- St – Stonefly  
- Pn – Water Penny

**Somewhat Tolerant**  
- OB – Other Beetle  
- Cm – Clam/Mussel  
- Cr – Cranefly  
- Cy – Crayfish  
- Dr – Dragonfly  
- Da – Damselfly  
- Sd -- Scud  
- FF -- Fishfly  
- Al - Alderfly  
- Ws – Watersnipe Fly

**Tolerant**  
- AW – Aquatic Worm  
- BF - Blackfly  
- Le - Leech  
- Md - Midge  
- LS – Left Snail  
- OS – Other Snail
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/21/12</td>
<td>3</td>
<td>27°</td>
<td>21°</td>
<td>8.3</td>
<td>400</td>
<td>0.16</td>
<td>&lt;10</td>
<td>13/146%</td>
<td>&lt;0.25</td>
</tr>
</tbody>
</table>

###Macroinvertebrate Water Quality Score

- <12 = Poor
- 12-17 = Fair
- 18-23 = Good
- >23 = Excellent

### Graphs

**pH**
- Scale: 0 to 10
- Data point: 8.3 in May 2012

**Conductivity**
- Scale: 0 to 600 μS/cm
- Data point: 134 μS/cm in May 2012
Site Notes and Journal:
3/20/11: After initial sampling of this section of the creek in 2010, it was determined that the distance between Site #20 and the Highway 95 bridge, shown to be 0.3 miles in the *Paddler’s Guide*, was actually substantially longer, over one mile. During the 2011 sampling excursion, this additional sampling point was added, one mile downstream from Site #20 and about 0.5 miles above the Highway 95 bridge. No actual sampling was done at this site, however, due to impending darkness.
# Site 22

**Highway 95 Bridge**  
**Ozark County**  
**Lat 36.7831°N, Long 92.36695°W**

### April 2010

### June 2011

## Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 5/12 | 2   | 15 | 7  | 20 | 22 | 6  |     |    |    |    | 1  |    |    | 3  |    |    |    |    | 3  |    |    |    |    |    | 20  |

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- RF – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

**AW** – Aquatic Worm  
**BF** – Blackfly  
**Le** – Leech  
**Md** – Midge  
**LS** – Left Snail  
**OS** – Other Snail
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/2/10</td>
<td>2</td>
<td>17°</td>
<td>15°</td>
<td>8.2</td>
<td>370</td>
<td>0.18</td>
<td>&lt;10</td>
<td>13/129%</td>
<td>-</td>
</tr>
<tr>
<td>6/23/11</td>
<td>3</td>
<td>27°</td>
<td>17°</td>
<td>8.2</td>
<td>400</td>
<td>0.15</td>
<td>&lt;10</td>
<td>9/93%</td>
<td>-</td>
</tr>
<tr>
<td>5/5/12</td>
<td>3</td>
<td>29°</td>
<td>21°</td>
<td>8.2</td>
<td>400</td>
<td>0.16</td>
<td>&lt;10</td>
<td>10/112%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### pH Graph

- April 2010: 8.2
- June 2011: 8.2
- May 2012: 8.2

### Conductivity Graph

- April 2010: 370 μS/cm (340 μS/cm)
- June 2011: 400 μS/cm (380 μS/cm)
- May 2012: 400 μS/cm (420 μS/cm)
Site Notes and Journal:

- Phosphate levels from Apr 2010 to May 2012:
  - Apr 2010: 0.18 mg/l
  - Jun 2011: 0.15 mg/l
  - May 2012: 0.16 mg/l

- Dissolved Oxygen levels from Apr 2010 to May 2012:
  - Apr 2010: 13 mg/l
  - Jun 2011: 9 mg/l
  - May 2012: 10 mg/l

- Dissolved Oxygen Saturation:
  - Apr 2010: 129%
  - Jun 2011: 93%
  - May 2012: 112%

- Nitrate level from May 2012:
  - May 2012: 0.25 mg/l
Site 23
0.7 mile below Highway 95 Bridge
Approx .2 miles ds Boat Gunnel Hollow, 300 ft ds 1st trib in Section 11
Ozark County
Lat 36.77808°N, Long 92.35693°W

April 2010

June 2011

May 2012
## Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>AW</th>
<th>BF</th>
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<th>Md</th>
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<td></td>
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</tbody>
</table>

### Sensitive
- Cd – Caddisfly
- Db – Dobsonfly
- My - Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

### Somewhat Tolerant
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

### Tolerant
- Da – Damselfly
- Sd - Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

### Macroinvertebrate Water Quality Score

\[
\begin{align*}
\text{Score} &= \begin{cases} 
<12 = \text{Poor} ; & 12-17 = \text{Fair} ; 
18-23 = \text{Good} ; & >23 = \text{Excellent} 
\end{cases}
\end{align*}
\]

## Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/2/10</td>
<td>2</td>
<td>25°</td>
<td>15°</td>
<td>8.2</td>
<td>340</td>
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<td>13/129%</td>
<td>-</td>
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<tr>
<td>6/23/11</td>
<td>3</td>
<td>30°</td>
<td>21°</td>
<td>8.3</td>
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<td>0.14</td>
<td>&lt;10</td>
<td>11/124%</td>
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<tr>
<td>5/5/12</td>
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<td>24°</td>
<td>21°</td>
<td>8.3</td>
<td>410</td>
<td>0.12</td>
<td>&lt;10</td>
<td>9/101%</td>
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</table>
Site Notes and Journal:
Site 24

1.7 miles below Highway 95 Bridge
Approximately .3 miles ds confluence of Dry Creek
Ozark County
Lat 36.78064°N, Long 92.34079°W

April 2010

June 2011

May 2012
### Biological Sampling

<table>
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<th>Date</th>
<th>Lvl</th>
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<th>Db</th>
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<th>RS</th>
<th>Rf</th>
<th>St</th>
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<th>Cr</th>
<th>Cy</th>
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<th>Vs</th>
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<th>LS</th>
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<td>1</td>
<td>25</td>
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</tbody>
</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My- Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – CraneFly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

---

### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
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<td>-</td>
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<tr>
<td>6/23/11</td>
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<td>22°</td>
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</tbody>
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**Macroinvertebrate Water Quality Score**

- May 2012
- <12=Poor; 12-17=Fair;18-23=Good;>23=Excellent
Site Notes and Journal:
Site 25
2.7 miles below Highway 95 Bridge
Approx 650 ft ds confluence of tributary at Owens Hollow
Ozark County
Lat 36.76926°N, Long 92.33888°W

April 2010

June 2011

May 2012
## Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
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<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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</table>

### Sensitive
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

### Somewhat Tolerant
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

### Tolerant
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

## Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/2/10</td>
<td>2</td>
<td>21°</td>
<td>15°</td>
<td>8.3</td>
<td>340</td>
<td>0.08</td>
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<td>14/139%</td>
<td>-</td>
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<tr>
<td>6/23/11</td>
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<td>25°</td>
<td>22°</td>
<td>8.4</td>
<td>400</td>
<td>0.10</td>
<td>&lt;10</td>
<td>9/103%</td>
<td>-</td>
</tr>
<tr>
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<td>400</td>
<td>0.00</td>
<td>&lt;10</td>
<td>8/93%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

May 2012

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

Macroinvertebrate Water Quality Score

![Macroinvertebrate Water Quality Score](image)
Site Notes and Journal:
Site 26
3.7 miles below Highway 95 Bridge
Between tribs 5 and 6 in Section 18 & approx .4 miles us confluence with Muddy Branch
Ozark County
Lat 36.76223°N, Long 92.32836°W

April 2010

June 2011

May 2012

Biological Sampling
| Date  | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Lc | Md | LS | OS | Score |
|-------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 4/10  | 2   | 1  | 162| 2  | 2  | 4  | 3  | 1  | 1  | 1  | 7  |     |    |    |    |    |    |    |    |    |    |    |    | 14 |
| 5/12  | 2   | 15 | 31 | 6  | 2  | 1  | 1  | 2  | 8  | 1  |    |    |    |    |    |    |    |    |    |    |    |    | 24 |

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- LS – Left Snail
- OS – Other Snail

---

**Macroinvertebrate Water Quality Score**

![Graph showing water quality scores]

**Chemical Sampling**

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/2/10</td>
<td>2</td>
<td>23°</td>
<td>15°</td>
<td>8.4</td>
<td>330</td>
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<td>13/129%</td>
<td>-</td>
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<td>6/23/11</td>
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<td>400</td>
<td>0.09</td>
<td>&lt;10</td>
<td>9/105%</td>
<td>-</td>
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<tr>
<td>5/5/12</td>
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<td>25°</td>
<td>21°</td>
<td>8.2</td>
<td>390</td>
<td>0.15</td>
<td>&lt;10</td>
<td>10/112%</td>
<td>0.25</td>
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</table>
Site Notes and Journal:
Site 27

4.7 miles below Highway 95 Bridge
Approx. 0.2 miles trib at Tar Kiln Hollow & 300 ft us confluence with Muddy Branch
Ozark County
Lat 36.75787°N, Long 92.31480°W

April 2010

June 2011

May 2012
### Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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<tbody>
<tr>
<td>5/12</td>
<td>2</td>
<td>18</td>
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<td>13</td>
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<td>13</td>
<td>4</td>
<td>9</td>
<td>20</td>
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</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damsel Fly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly
- LS – Left Snail
- OS – Other Snail

---

### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
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<td>15°</td>
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<td>13/129%</td>
<td>-</td>
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<tr>
<td>6/23/11</td>
<td>3</td>
<td>30°</td>
<td>23°</td>
<td>8.3</td>
<td>400</td>
<td>0.01</td>
<td>&lt;10</td>
<td>10/117%</td>
<td>-</td>
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<tr>
<td>5/5/12</td>
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<td>29°</td>
<td>22°</td>
<td>8.2</td>
<td>390</td>
<td>0.18</td>
<td>&lt;10</td>
<td>9/103%</td>
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</table>

---

*Macroinvertebrate Water Quality Score*

May 2012

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent
Site Notes and Journal:
### Site 28

#### 5.7 miles below Highway 95 Bridge
**At Negro Ford, approx 300 ft us confluence of Trail Creek**
**Ozark County**
**36.74564°N, Long 92.31131°W**

**April 2010**

**June 2011**

---

### Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cr | Cm | Cr | Cy | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|
|      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |      |
|      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |      |
|      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |      |
|      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |      |

**Sensitive**

Cd – Caddisfly  
Db – Dobsonfly  
My - Mayfly  
RS – Right Snail  
Rf – Riffle Beetle  
St – Stonefly  
Pn – Water Penny

**Somewhat Tolerant**

Ob – Other Beetle  
Cm – Clam/Mussel  
Cr – Cranefly  
Cy – Crayfish  
Dr – Dragonfly

**Tolerant**

Da – Damselfly  
Sd – Scud  
FF – Fishfly  
Al - Alderfly  
Ws – Watersnipe Fly

**Tolerant**

AW – Aquatic Worm  
BF - Blackfly  
Le - Leech  
Md - Midge  
LS – Left Snail  
OS – Other Snail
### Macrionvertebrate Water Quality Score

<table>
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<tr>
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<td>2012</td>
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</table>

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/2/10</td>
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<td>30°</td>
<td>16°</td>
<td>8.4</td>
<td>370</td>
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<td>15/152%</td>
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<tr>
<td>6/23/11</td>
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<td>29°</td>
<td>23°</td>
<td>8.4</td>
<td>380</td>
<td>0.23</td>
<td>&lt;10</td>
<td>10/117%</td>
<td>-</td>
</tr>
<tr>
<td>5/5/12</td>
<td>3</td>
<td>29°</td>
<td>23°</td>
<td>8.2</td>
<td>390</td>
<td>0.08</td>
<td>&lt;10</td>
<td>10/117%</td>
<td>0.25</td>
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</table>

### pH

<table>
<thead>
<tr>
<th>pH</th>
<th>Apr 2010</th>
<th>Jun 2011</th>
<th>May 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8.4</td>
<td>8.4</td>
<td>8.2</td>
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### Conductivity

<table>
<thead>
<tr>
<th>Conductivity</th>
<th>Apr 2010</th>
<th>Jun 2011</th>
<th>May 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>μS/cm</td>
<td>370</td>
<td>380</td>
<td>390</td>
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</table>
Site Notes and Journal:
Site 29

6.7 miles below Highway 95 Bridge
Approx 600 ft ds confluence with Hurricane Creek
Ozark County
Lat 36.73487°N, Long 92.30096°W

April 2010

June 2011

May 2012
## Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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<tbody>
<tr>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sensitive
- **Cd** – Caddisfly
- **Db** – Dobsonfly
- **My** – Mayfly
- **RS** – Right Snail
- **Rf** – Riffle Beetle
- **St** – Stonefly
- **Pn** – Water Penny

### Somewhat Tolerant
- **OB** – Other Beetle
- **Cm** – Clam/Mussel
- **Cr** – Crayfish
- **Cy** – Crayfish
- **Dr** – Dragonfly
- **Ob** – Other Beetle
- **Da** – Damselfly
- **SD** – Scud
- **FF** – Fishfly
- **Al** – Alderfly

### Tolerant
- **AW** – Aquatic Worm
- **BF** – Blackfly
- **Le** – Leech
- **Md** – Midge
- **LS** – Left Snail
- **OS** – Other Snail

### Macroinvertebrate Water Quality Score

1.5
1
0.5
0

<12 = Poor; 12-17 = Fair; 18-23 = Good; >23 = Excellent

## Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
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<td>30°</td>
<td>16°</td>
<td>8.3</td>
<td>320</td>
<td>0.23</td>
<td>&lt;10</td>
<td>15/152%</td>
<td>-</td>
</tr>
<tr>
<td>6/23/11</td>
<td>3</td>
<td>26°</td>
<td>20°</td>
<td>8.4</td>
<td>400</td>
<td>0.24</td>
<td>&lt;10</td>
<td>9/99%</td>
<td>-</td>
</tr>
<tr>
<td>5/5/12</td>
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<td>22°</td>
<td>8.1</td>
<td>400</td>
<td>0.10</td>
<td>&lt;10</td>
<td>11/126%</td>
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</tbody>
</table>
Site Notes and Journal:
Site 30

7.7 miles below Highway 95 Bridge
Approx .3 miles US confluence of Bollinger Branch
Ozark County
Lat 36.73525°N, Long 92.28698°W

April 2010

June 2011

May 2012
## Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>RF</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>5/12</td>
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<td>15</td>
<td>3</td>
<td>12</td>
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<td>7</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

### Sensitive
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- RF – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

### Somewhat Tolerant
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly
- FF – Fishfly
- Al – Alderfly

### Tolerant
- Da – Damselfly
- Sd – Scud
- BF – Blackfly
- Le – Leech
- Md – Midge
- LS – Left Snail
- OS – Other Snail

### Macroinvertebrate Water Quality Score

May 2012

\(<12=\text{Poor}; 12-17=\text{Fair}; 18-23=\text{Good}; >23=\text{Excellent}\)

## Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/2/10</td>
<td>2</td>
<td>28°</td>
<td>16°</td>
<td>8.4</td>
<td>330</td>
<td>0.09</td>
<td>&lt;10</td>
<td>13/132%</td>
<td>-</td>
</tr>
<tr>
<td>6/23/11</td>
<td>3</td>
<td>30°</td>
<td>24°</td>
<td>8.3</td>
<td>400</td>
<td>0.11</td>
<td>&lt;10</td>
<td>9/107%</td>
<td>-</td>
</tr>
<tr>
<td>5/5/12</td>
<td>3</td>
<td>29°</td>
<td>24°</td>
<td>8.3</td>
<td>390</td>
<td>0.17</td>
<td>&lt;10</td>
<td>11/131%</td>
<td>0.25</td>
</tr>
</tbody>
</table>
Site Notes and Journal:

- **Phosphate** (Apr 2010: 0.09, Jun 2011: 0.11, May 2012: 0.17)
- **Nitrate** (May 2012: 0.25)
Site 31
8.7 miles below Highway 95 Bridge
Approx. 0.6 miles ds Bollinger Branch
Ozark County
Lat 36.72412°N, Long 92.28158°W

April 2010

June 2011

May 2012
### Biological Sampling

| Date  | Lvl | Cd  | Db  | My  | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|-------|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|    |
|       |     |     |     |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damsel fly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly
- LS – Left Snail
- OS – Other Snail

### Macroinvertebrate Water Quality Score

- <12 = Poor
- 12-17 = Fair
- 18-23 = Good
- >23 = Excellent

### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
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<th>Nitrate</th>
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<tr>
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<td>2</td>
<td>26°</td>
<td>16°</td>
<td>8.3</td>
<td>340</td>
<td>0.15</td>
<td>&lt;10</td>
<td>13/132%</td>
<td>-</td>
</tr>
<tr>
<td>6/23/11</td>
<td>3</td>
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<td>8.3</td>
<td>390</td>
<td>0.19</td>
<td>&lt;10</td>
<td>11/133%</td>
<td>0.25</td>
</tr>
</tbody>
</table>
Site Notes and Journal:

**pH**
- April 2010: 8.3
- June 2011: 8.3
- May 2012: 8.3

**Conductivity**
- April 2010: 340 μS/cm
- June 2011: 400 μS/cm
- May 2012: 390 μS/cm

**Phosphate**
- April 2010: 0.15 mg/L
- June 2011: 0.13 mg/L
- May 2012: 0.19 mg/L

**Dissolved Oxygen**
- April 2010: 13 mg/L
- June 2011: 11 mg/L
- May 2012: 11 mg/L

**Dissolved Oxygen Saturation**
- April 2010: 132%
- June 2011: 133%
- May 2012: 133%

**Nitrate**
- May 2012: 0.25 mg/L
### Site 32
**Sycamore MDC Access**  
130 ft ds Hodgson Mill Spring Branch  
Ozark County  
Lat 36.70754°N, Long 92.26466°W

March 2012

**Biological Sampling**

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cr | Cy | Da | Sd | FF | Al | Ws | AW | BF | Lc | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
|      |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |     |

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Cm – Clam/Mussel
- Da – Damselfly
- Sd – Scud
- Al – Alderfly
- Ws – Watersnipe Fly

**Macroinvertebrate Water Quality Score**

- Score range: 0–23
- <12 = Poor; 12-17 = Fair; 18-23 = Good; >23 = Excellent
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
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<th>Nitrate</th>
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<td>390</td>
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<tr>
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<td>21°</td>
<td>17°</td>
<td>8.4</td>
<td>370</td>
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<td>11/114%</td>
<td>-</td>
</tr>
<tr>
<td>3/17/12</td>
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<td>15°</td>
<td>15°</td>
<td>8.1</td>
<td>360</td>
<td>0.32</td>
<td>&lt;10</td>
<td>11/109%</td>
<td>1.0</td>
</tr>
</tbody>
</table>

#### pH

![Graph showing pH levels from Mar 2010 to Mar 2012: pH values range from 8.6 to 8.1, with a downward trend over time.]

#### Conductivity

![Graph showing conductivity levels from Mar 2010 to Mar 2012: Conductivity values range from 390 to 360 μS/cm, with a downward trend over time.]

#### Phosphate

![Graph showing phosphate levels from Apr 2011 to Mar 2012: Phosphate levels range from 0.07 to 0.32 mg/l, with an upward trend over time.]

#### Dissolved Oxygen

![Graph showing dissolved oxygen levels from Mar 2010 to Mar 2012: Dissolved oxygen levels range from 14 to 11 mg/l, with a downward trend over time.]

---

Bryant Creek Assessment Project
Site Notes and Journal:
Site 33

1.01 mile below Sycamore MDC access
.4 miles ds Lottie Hollow & .5 miles us Russel Ford
Ozark County
Lat 36.69535°N, Long 92.26440°W

March 2010

March 2012

Biological Sampling

<table>
<thead>
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<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>ws</th>
<th>Aw</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
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<td>8</td>
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<td>11</td>
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Sensitive
Cd – Caddisfly
Db – Dobsonfly
My - Mayfly
RS – Right Snail
Rf – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Tolerant
Da – Damselfly
Sd -- Scud
FF -- Fishfly
Al - Alderfly
Ws – Watersnipe Fly

Score

AW – Aquatic Worm
BF - Blackfly
Le - Leech
Md - Midge
LS – Left Snail
OS – Other Snail

Bryant Creek Assessment Project
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
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<tbody>
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<td>10°</td>
<td>8.4</td>
<td>380</td>
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<tr>
<td>4/9/11</td>
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<td>17°</td>
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<tr>
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### Macroinvertebrate Water Quality Score

<table>
<thead>
<tr>
<th>Date</th>
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<tbody>
<tr>
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<td>15</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>22</td>
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</table>

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

### pH

<table>
<thead>
<tr>
<th>Date</th>
<th>pH</th>
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<tr>
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<td>8.4</td>
</tr>
<tr>
<td>Apr 2011</td>
<td>8.5</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>8.2</td>
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### Conductivity

<table>
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<tr>
<th>Date</th>
<th>μS/cm</th>
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</thead>
<tbody>
<tr>
<td>Mar 2010</td>
<td>385</td>
</tr>
<tr>
<td>Apr 2011</td>
<td>380</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>380</td>
</tr>
</tbody>
</table>
Site Notes and Journal:
Site 34

2.1 miles below Sycamore MDC access
At Job Hollow, immediately US confluence of Job Hollow trib
Ozark County
Lat 36.68901°N, Long 92.27448°W

March 2012

Biological Sampling

| Date | lvl | Cd | Db | My | RS | Ref | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|
| 3/12 | 2   | 3  | 1  | 42 | 3  | 2   |    |    | OB |    |    |    |    |    |    |    |    |    |    |    | 1   | 3   |    | 21  |

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My– Mayfly
- RS – Right Snail
- RF – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

Macroinvertebrate Water Quality Score

![Bar chart showing water quality score for March 2012]

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

Mar 2012
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/19/10</td>
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<td>14°</td>
<td>10.5°</td>
<td>8.6</td>
<td>380</td>
<td>0.24</td>
<td>&lt;10</td>
<td>5/45%</td>
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<tr>
<td>4/9/11</td>
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<td>18°</td>
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<td>0.11</td>
<td>&lt;10</td>
<td>11/116%</td>
<td>-</td>
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<tr>
<td>3/17/12</td>
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<td>19°</td>
<td>16°</td>
<td>8.1</td>
<td>360</td>
<td>0.23</td>
<td>&lt;10</td>
<td>12/122%</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Graphs:**
- **pH**
- **Conductivity**
- **Phosphate**
- **Dissolved Oxygen**

Bryant Creek Assessment Project
Site Notes and Journal:
**Site 35**

3.12 miles below Sycamore MDC access
At The Narrows, approx .4 miles ds confluence of trib at Osburn Ford
Ozark County
Lat 36.67875°N, Long 92.26788°W

March 2010

**Biological Sampling**

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 4/10 | 3   | 2  | 131| 4  | 26 | 4  | 26 | 4  |    |    |    |    |    |    |    |    |    |    |    |    |    | 20  |
| 5/12 | 2   | 2  | 7  | 23 | 14 | 3  | 2  | 1  | 9  |    |    |    |    |    |    |    |    |    |    |    |    | 21  |

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My- Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly
- AW – Aquatic Worm
- BF – Blackfly
- Le – Leech
- Md – Midge
- LS – Left Snail
- OS – Other Snail

![Macroinvertebrate Water Quality Score](image)

Macrobenthic Quality Score

- <12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent
## Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/19/10</td>
<td>3</td>
<td>14.5°</td>
<td>11°</td>
<td>8.5</td>
<td>380</td>
<td>0.22</td>
<td>&lt;10</td>
<td>13/118%</td>
<td>-</td>
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<tr>
<td>4/9/11</td>
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<td>28°</td>
<td>18°</td>
<td>8.5</td>
<td>360</td>
<td>0.09</td>
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<td>13/138%</td>
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<tr>
<td>3/17/12</td>
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<td>16°</td>
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**Phosphorus**

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<th>Level</th>
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<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2010</td>
<td></td>
<td></td>
<td></td>
<td>8.2</td>
<td>324</td>
<td>1.0</td>
<td>10</td>
<td>13/0.5</td>
<td>-</td>
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</table>

**Conductivity**

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2010</td>
<td></td>
<td></td>
<td></td>
<td>8.2</td>
<td>324</td>
<td>1.0</td>
<td>10</td>
<td>13/0.5</td>
<td>-</td>
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</table>

**Dissolved Oxygen**

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<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 2010</td>
<td></td>
<td></td>
<td></td>
<td>8.2</td>
<td>324</td>
<td>1.0</td>
<td>10</td>
<td>13/0.5</td>
<td>-</td>
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Bryant Creek Assessment Project
Site Notes and Journal:
Site 36
3.99 miles below Sycamore mdc access
Just us Upper Muleshoe Bend, approx .13 miles us trib at upper bend of Muleshoe Bend
Ozark County
Lat 36.67936°N, Long 92.27891°W

Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Lc</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
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</thead>
</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My - Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

Macroinvertebrate Water Quality Score

\[
\text{Score} = \begin{cases} 
<12 & \text{Poor;} \\
12-17 & \text{Fair;} \\
18-23 & \text{Good;} \\
>23 & \text{Excellent}
\end{cases}
\]

Chemical Sampling
<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
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<tbody>
<tr>
<td>3/19/10</td>
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<td>19.5°</td>
<td>11°</td>
<td>8.4</td>
<td>370</td>
<td>0.18</td>
<td>&lt;10</td>
<td>11/100%</td>
<td>-</td>
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<tr>
<td>4/9/11</td>
<td>3</td>
<td>31°</td>
<td>18°</td>
<td>9.5</td>
<td>370</td>
<td>0.07</td>
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<td>10/105%</td>
<td>-</td>
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<tr>
<td>3/17/12</td>
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<td>17°</td>
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<td>0.05</td>
<td>&lt;10</td>
<td>11/114%</td>
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**Graphs:**
- **pH**
- **Conductivity**
- **Phosphate**
- **Dissolved Oxygen**
- **Dissolved Oxygen Saturation**
- **Nitrate**
Site Notes and Journal:

Site 37

5.02 miles below Sycamore MDC access
Approx 500 ft ds Lower Muleshoe Bend
Ozark County
Lat 36.67468°N, Long 92.27879°W
March 2010

Biological Sampling

| Date  | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Dr | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|-------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|----|----|-----|-----|
| 4/10  | 3   | 2  | 177| 4  | 19 | 39 | 1  | 1  | 5  |     |     |     |     |     |     |     | 15 |     |    |    |    | 21  |
| 3/12  | 2   | 8  | 10 | 15 | 7  | 2  | 1  | 1  | 2  | 2  |     |     |     |     |     |     | 5  |     |    |    |    | 26  |

Sensitive
Cd – Caddisfly
Db – Dobsonfly
My- Mayfly
RS – Right Snail
RF – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Tolerant
Da – Damselfly
Sd – Scud
FF – Fishfly
Al – Alderfly
Ws – Watersnipe Fly

Macroinvertebrate Water Quality Score

<table>
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<th>Apr 2010</th>
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<tbody>
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<td>26</td>
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<12=Poor; 12-17=Fair;18-23=Good;>23=Excellent

Chemical Sampling

<table>
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<th>Level</th>
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<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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<tr>
<td>3/19/10</td>
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<td>21°</td>
<td>12°</td>
<td>8.6</td>
<td>370</td>
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<td>13/121%</td>
<td>-</td>
</tr>
<tr>
<td>4/9/11</td>
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<td>32.5°</td>
<td>18°</td>
<td>9.5</td>
<td>370</td>
<td>0.08</td>
<td>&lt;10</td>
<td>8/85%</td>
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<tr>
<td>3/17/12</td>
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<td>0.30</td>
<td>&lt;10</td>
<td>14/145%</td>
<td>0.5</td>
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</table>
Site Notes and Journal:  3/17/2012:  Dead and bloated cow in stream immediately upstream, about 100’ from sampling site.
Site 38

6.0 miles below Sycamore MDC access
Approx 35 ft us confluence of trib on the upper curve of Horseshoe Bend
Ozark County
Lat 36.67311°N, Long 92.26338°W

Biological Sampling
<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
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<th>Nitrate</th>
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<tbody>
<tr>
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<td>18°</td>
<td>12°</td>
<td>8.7</td>
<td>370</td>
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<td>-</td>
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<tr>
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<td>19°</td>
<td>9.0</td>
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<td>0.21</td>
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<td>&lt;10</td>
<td>12/127%</td>
<td>.5</td>
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</table>
Site Notes and Journal:
Site 39

7.05 miles below Sycamore MDC access
Approx .3 miles ds Brixey Spring
Ozark County
Lat 36.66297°N, Long 92.27131°W

March 2010

Biological Sampling
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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</thead>
<tbody>
<tr>
<td>3/19/10</td>
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<td>20°</td>
<td>19°</td>
<td>8.5</td>
<td>380</td>
<td>0.19</td>
<td>&lt;10</td>
<td>15/143%</td>
<td>-</td>
</tr>
<tr>
<td>4/9/11</td>
<td>3</td>
<td>33.9°</td>
<td>20°</td>
<td>8.5</td>
<td>370</td>
<td>0.08</td>
<td>&lt;10</td>
<td>6/66%</td>
<td>-</td>
</tr>
<tr>
<td>3/17/12</td>
<td>3</td>
<td>24°</td>
<td>18°</td>
<td>8.7</td>
<td>350</td>
<td>0.17</td>
<td>&lt;10</td>
<td>14/148%</td>
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### Macroinvertebrate Water Quality Score

<table>
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<tr>
<th>Date</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Apr 2010</td>
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</tr>
<tr>
<td>Mar 2012</td>
<td>23</td>
</tr>
</tbody>
</table>

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent
Site Notes and Journal:
Site 40

WARREN BRIDGE
Access at County Road 328
Ozark County
Lat 36.66817°N, Long 92.28105°W

April 2011

Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rs</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

Sensitive   Somewhat Tolerant   Tolerant
Cd – Caddisfly
Db – Dobsonfly
My – Mayfly
RS – Right Snail
RF – Riffle Beetle
St – Stonefly
Pn – Water Penny

OB – Other Beetle
Cn – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly
Cy – Crayfish
Al – Alderfly

Da – Damselfly
Sd – Scud
FF – Fishfly
BW – Watersnipe Fly

AW – Aquatic Worm
BF - Blackfly
Le - Leech
Md - Midge
LS – Left Snail
OS – Other Snail

Macroinvertebrate Water Quality Score

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/19/10</td>
<td>3</td>
<td>19.5°</td>
<td>13°</td>
<td>8.6</td>
<td>380</td>
<td>0.18</td>
<td>&lt;10</td>
<td>10/95%</td>
<td>-</td>
</tr>
<tr>
<td>4/3/11</td>
<td>2</td>
<td>19°</td>
<td>12°</td>
<td>8.4</td>
<td>380</td>
<td>0.28</td>
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<td>10/93%</td>
<td>-</td>
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<tr>
<td>3/17/12</td>
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<td>15°</td>
<td>8.4</td>
<td>390</td>
<td>0.04</td>
<td>&lt;10</td>
<td>11/109%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

pH

Mar 2010 8.6
Apr 2011 8.4
Mar 2012 8.4

Conductivity

Mar 2010 380
Apr 2011 380
Mar 2012 390
Site Notes and Journal:
Site 41

1.03 mile below Warren Bridge
Approx .25 miles us confluence of trib at Sanfield Ford
Ozark County
Lat 36.65697°N, Long 92.28265°W

April 2011

Biological Sampling

| Date | Lvl | Cd  | Db  | My  | RS  | Rf  | St  | Pn  | OB  | Cm  | Cr  | Cy  | Dr  | Da  | Sd  | FF  | Al  | Ws  | AW  | BF  | Lc  | Md  | LS  | OS  | Score |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

Sensitive
- Cd – Caddisfly
- Db – Dobsonfly
- My- Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

Somewhat Tolerant
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

Tolerant
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

AW – Aquatic Worm
BF - Blackfly
Le - Leech
Md - Midge
LS – Left Snail
OS – Other Snail
Macroinvertebrate Water Quality Score

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
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<tr>
<td>4/3/11</td>
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<td>18°</td>
<td>13°</td>
<td>8.3</td>
<td>370</td>
<td>2.3</td>
<td>&lt;10</td>
<td>11/105%</td>
<td>-</td>
</tr>
<tr>
<td>3/19/12</td>
<td>2</td>
<td>22°</td>
<td>17°</td>
<td>8.2</td>
<td>370</td>
<td>1.66</td>
<td>&lt;10</td>
<td>10/104%</td>
<td>0.25</td>
</tr>
</tbody>
</table>
Site Notes and Journal:
Site 42

3.15 miles below Warren Bridge
.6 miles due west of junction CR 326 & CR 319 (1.8 miles up Pine Creek)
Ozark County
Lat 36.63735°N, Long 92.28903°W

April 2011

Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>Ws</th>
<th>AW</th>
<th>BF</th>
<th>Lc</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
</tr>
</thead>
</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My - Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

**Tolerant**
- AW – Aquatic Worm
- BF - Blackfly
- Lc - Leech
- Md - Midge
- LS – Left Snail
- OS – Other Snail
Macroinvertebrate Water Quality Score

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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<td>3/26/10</td>
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<td>&lt;10</td>
<td>9/78%</td>
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<tr>
<td>4/3/11</td>
<td>2</td>
<td>20°</td>
<td>13°</td>
<td>8.3</td>
<td>370</td>
<td>2.4</td>
<td>&lt;10</td>
<td>10/95%</td>
<td>-</td>
</tr>
<tr>
<td>3/19/12</td>
<td>2</td>
<td>26°</td>
<td>17°</td>
<td>8.1</td>
<td>370</td>
<td>2.59</td>
<td>&lt;10</td>
<td>10/104%</td>
<td>0.50</td>
</tr>
</tbody>
</table>

pH

Conductivity

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent
Site Notes and Journal:

- **Phosphate**
  - March 2010: 0.27 mg/l
  - April 2011: 2.4 mg/l
  - March 2012: 2.59 mg/l

- **Dissolved Oxygen**
  - March 2010: 0 mg/l
  - April 2011: 9 mg/l
  - March 2012: 10 mg/l

- **Dissolved Oxygen Saturation**
  - March 2010: 78%
  - April 2011: 95%
  - March 2012: 104%

- **Nitrate**
  - March 2012: 0.5 mg/l
Site 43

3.56 miles below Warren Bridge

Approx 100 ft ds line between Sections 28 & 33 and 1.5 miles us Pine Creek
Ozark County

Lat 36.63377°N, Long 92.28723°W

April 2011

Biological Sampling

| Date | Lvl | Cd   | Db   | My   | Rs   | Rf   | St   | Pn   | Ob   | Cm | Cr  | Cy  | Dr  | Da  | Sd  | FF  | Al  | Ws  | Aw  | Bf  | Le  | Md  | Ls  | Os  | Score |
|------|-----|------|------|------|------|------|------|------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

Sensitive
Cd – Caddisfly
Db – Dobsonfly
My - Mayfly
Rs – Right Snail
Rf – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
Ob – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Tolerant
Da – Damselfly
Sd – Scud
FF – Fishfly
Al – Alderfly
Ws – Watersnipe Fly

Aw – Aquatic Worm
Bf - Blackfly
Le - Leech
Md - Midge
LS – Left Snail
Os – Other Snail
### Macroinvertebrate Water Quality Score

- **<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent**

### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/26/10</td>
<td>2</td>
<td>12°</td>
<td>10°</td>
<td>8.4</td>
<td>260</td>
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<tr>
<td>4/3/11</td>
<td>2</td>
<td>25°</td>
<td>13°</td>
<td>8.3</td>
<td>360</td>
<td>2.6</td>
<td>&lt;10</td>
<td>10/95%</td>
<td>-</td>
</tr>
<tr>
<td>3/19/12</td>
<td>2</td>
<td>23°</td>
<td>17°</td>
<td>7.9</td>
<td>380</td>
<td>2.85</td>
<td>&lt;10</td>
<td>9/93%</td>
<td>0.5</td>
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</table>

#### pH

- **Mar 2010**: 8.4
- **Apr 2011**: 8.3
- **Mar 2012**: 7.9

#### Conductivity

- **Mar 2010**: 260 μS/cm
- **Apr 2011**: 360 μS/cm
- **Mar 2012**: 380 μS/cm
Site Notes and Journal:
Site 44
4.38 miles below Warren Bridge
1 miles upstream confluence of Pine Creek & .2 miles us line between Sections 33 & 22
Ozark County
Lat 36.62775°N, Long 92.29045°W

April 2011

<table>
<thead>
<tr>
<th>Biological Sampling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
<tr>
<td>-------</td>
</tr>
</tbody>
</table>

**Sensitive**
- Cd – Caddisfly
- Db – Dobsonfly
- My- Mayfly
- RS – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

**Somewhat Tolerant**
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly

**Tolerant**
- Da – Damsel Fly
- Sd – Scud
- FF – Fishfly
- Al - Alderfly
- Ws – Watersnipe Fly

- AW – Aquatic Worm
- BF - Blackfly
- Le - Leech
- Md - Midge
- LS – Left Snail
- OS – Other Snail
### Chemical Sampling

<table>
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<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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<tr>
<td>4/3/11</td>
<td>2</td>
<td>27°</td>
<td>13°</td>
<td>8.3</td>
<td>370</td>
<td>1.0</td>
<td>&lt;10</td>
<td>10/95%</td>
<td>-</td>
</tr>
<tr>
<td>3/19/12</td>
<td>2</td>
<td>25°</td>
<td>18°</td>
<td>7.9</td>
<td>380</td>
<td>3.3</td>
<td>&lt;10</td>
<td>11/116%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### pH

- Apr 2011: 8.3
- Mar 2012: 7.9

### Conductivity

- Apr 2011: 370 μS/cm
- Mar 2012: 380 μS/cm
Site Notes and Journal:
Site 45
6.42 miles below Warren Bridge
Approx 450 yards ds USGS Gauging Station 07058000
Ozark County
Lat 36.62530°N, Long 92.30194°W

April 2011

Biological Sampling

| Date | Lvl | Cd | Db | My | RS | Rf | St | Pn | OB | Cm | Cr | Cy | Da | Sd | FF | Al | Ws | AW | BF | Le | Md | LS | OS | Score |
|------|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|

Sensitive
Cd – Caddisfly
Db – Dobsonfly
My- Mayfly
RS – Right Snail
Rf – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Tolerant
Da – Damselfly
Sd – Scud
FF – Fishfly
Al – Alderfly
Ws – Watersnipe Fly

AW – Aquatic Worm
BF - Blackfly
Le - Leech
Md - Midge
LS – Left Snail
OS – Other Snail

Bryant Creek Assessment Project
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
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<tbody>
<tr>
<td>3/26/10</td>
<td>2</td>
<td>15°</td>
<td>11°</td>
<td>8.3</td>
<td>270</td>
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<tr>
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<td>26°</td>
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<td>370</td>
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<td>9/89%</td>
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<tr>
<td>3/19/12</td>
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<td>23°</td>
<td>18°</td>
<td>8.0</td>
<td>380</td>
<td>2.52</td>
<td>&lt;10</td>
<td>10/106%</td>
<td>0.25</td>
</tr>
</tbody>
</table>

### pH

![pH Graph](Image)

**pH**

- Mar 2010: 8.3
- Apr 2011: 8.3
- Mar 2012: 8

### Conductivity

![Conductivity Graph](Image)

**Conductivity**

- Mar 2010: 270 μS/cm
- Apr 2011: 370 μS/cm
- Mar 2012: 380 μS/cm

---

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent
Site Notes and Journal:
Site 46
7.92 miles below Warren Bridge
Approx 300 yards US confluence of Little Pine Creek
Ozark County
Lat 36.61531°N, Long 92.29269°W

April 2011

Biological Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Lvl</th>
<th>Cd</th>
<th>Db</th>
<th>My</th>
<th>RS</th>
<th>Rf</th>
<th>St</th>
<th>Pn</th>
<th>OB</th>
<th>Cm</th>
<th>Cr</th>
<th>Cy</th>
<th>Dr</th>
<th>Da</th>
<th>Sd</th>
<th>FF</th>
<th>Al</th>
<th>WS</th>
<th>AW</th>
<th>BF</th>
<th>Le</th>
<th>Md</th>
<th>LS</th>
<th>OS</th>
<th>Score</th>
</tr>
</thead>
</table>

**Sensitive**
Cd – Caddisfly
Db – Dobsonfly
My – Mayfly
RS – Right Snail
Rf – Riffle Beetle
St – Stonefly
Pn – Water Penny

**Somewhat Tolerant**
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

**Tolerant**
Da – Damselfly
Sd – Scud
FF – Fishfly
Al – Alderfly
Ws – Watersnipe Fly

AW – Aquatic Worm
BF – Blackfly
Le – Leech
Md – Midge
LS – Left Snail
OS – Other Snail
## Macroinvertebrate Water Quality Score

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>4/3/11</td>
<td>2</td>
<td>26°</td>
<td>16°</td>
<td>8.4</td>
<td>370</td>
<td>1.8</td>
<td>&lt;10</td>
<td>9/91%</td>
<td>-</td>
</tr>
<tr>
<td>3/19/12</td>
<td>2</td>
<td>23°</td>
<td>18°</td>
<td>7.9</td>
<td>380</td>
<td>1.8</td>
<td>&lt;10</td>
<td>10/106%</td>
<td>0.50</td>
</tr>
</tbody>
</table>

- $<12 = $Poor; $12-17 = $Fair; $18-23 = $Good; $>23 = $Excellent

### Chemical Sampling

#### pH

<table>
<thead>
<tr>
<th>Date</th>
<th>pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 2011</td>
<td>8.4</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>7.9</td>
</tr>
</tbody>
</table>

#### Conductivity

<table>
<thead>
<tr>
<th>Date</th>
<th>µS/cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 2011</td>
<td>370</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>380</td>
</tr>
</tbody>
</table>
Site Notes and Journal:
## Site 47

9.57 miles below Warren Bridge  
Approx 650 yards ds mdc Cook (Flo) access  
Ozark County  
Lat 36.60129°N, Long 92.31007°W

April 2011

### Biological Sampling

| Date | Lvl | Cd  | Db  | My  | RS  | Rf  | St  | Pn  | OB   | Cm  | Cr  | Cy  | Da  | Sd  | FF  | Al  | Ws  | AW  | BF  | Le  | Md  | LS  | OS  | Score |
|------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

**Sensitive**  
Cd – Caddisfly  
Db – Dobsonfly  
My – Mayfly  
RS – Right Snail  
Rf – Riffle Beetle  
St – Stonefly  
Pn – Water Penny

**Somewhat Tolerant**  
OB – Other Beetle  
Cm – Clam/Mussel  
Cr – Cranefly  
Cy – Crayfish  
Dr – Dragonfly

**Tolerant**  
Da – Damselfly  
Sd – Scud  
FF – Fishfly  
AI – Alderfly  
Ws – Watersnipe Fly

AW – Aquatic Worm  
BF – Blackfly  
Le – Leech  
Md – Midge  
LS – Left Snail  
OS – Other Snail
### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/26/10</td>
<td>2</td>
<td>13°</td>
<td>11°</td>
<td>8.3</td>
<td>260</td>
<td>0.31</td>
<td>50</td>
<td>8/73%</td>
<td>-</td>
</tr>
<tr>
<td>4/3/11</td>
<td>2</td>
<td>29°</td>
<td>15°</td>
<td>8.4</td>
<td>370</td>
<td>2.7</td>
<td>&lt;10</td>
<td>6/60%</td>
<td>-</td>
</tr>
<tr>
<td>3/19/12</td>
<td>2</td>
<td>22°</td>
<td>18°</td>
<td>8.1</td>
<td>380</td>
<td>1.69</td>
<td>&lt;10</td>
<td>10/106%</td>
<td>0.25</td>
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</table>

### Macroinvertebrate Water Quality Score

- <12 = Poor
- 12-17 = Fair
- 18-23 = Good
- >23 = Excellent

### Graphs

#### pH

- Mar 2010: 8.3
- Apr 2011: 8.4
- Mar 2012: 8.1

#### Conductivity

- Mar 2010: 260 μS/cm
- Apr 2011: 370 μS/cm
- Mar 2012: 380 μS/cm
**Site Notes and Journal:**

**Phosphate**

- March 2010: 0.31 mg/l
- April 2011: 2.7 mg/l
- March 2012: 1.69 mg/l

**Dissolved Oxygen**

- March 2010: 8 mg/l
- April 2011: 6 mg/l
- March 2012: 10 mg/l

**Dissolved Oxygen Saturation**

- March 2010: 73%
- April 2011: 60%
- March 2012: 106%

**Nitrate**

- March 2012: 0.25 mg/l
Site 48
10.8 miles below Warren Bridge
Approx .4 miles us confluence with North Fork of the White River
Ozark County
Lat 36.59792°N, Long 92.29357°W

April 2011

Biological Sampling

| Date | Lvl | Cd  | Db  | My  | RS  | Rs  | St  | Pn  | OB  | Cm  | Cr  | Cy  | Da  | Sd  | FF  | Al  | Ws  | AW  | BF  | Lc  | Md  | LS  | OS  | Score |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

Sensitive
Cd – Caddisfly
Db – Dobsonfly
My – Mayfly
RS – Right Snail
Rf – Riffle Beetle
St – Stonefly
Pn – Water Penny

Somewhat Tolerant
OB – Other Beetle
Cm – Clam/Mussel
Cr – Cranefly
Cy – Crayfish
Dr – Dragonfly

Tolerant
Da – Damselfly
Sd – Scud
FF – Fishfly
Al – Alderfly
Ws – Watersnipe Fly

AW – Aquatic Worm
BF - Blackfly
Lc - Leech
Md - Midge
LS – Left Snail
OS – Other Snail
Macroinvertebrate Water Quality Score

<12=Poor; 12-17=Fair; 18-23=Good; >23=Excellent

Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
<th>Cond</th>
<th>Phosphate</th>
<th>Turbidity</th>
<th>DO/Sat</th>
<th>Nitrate</th>
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<td>11°</td>
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<td>16°</td>
<td>8.4</td>
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<td>2.3</td>
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<td>23°</td>
<td>18°</td>
<td>8.0</td>
<td>380</td>
<td>1.06</td>
<td>&lt;10</td>
<td>9/95%</td>
<td>0.25</td>
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</table>

pH

<table>
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<th>Value</th>
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<tbody>
<tr>
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<td>8.3</td>
</tr>
<tr>
<td>Apr 2011</td>
<td>8.4</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>8</td>
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Conductivity

<table>
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<th>Year</th>
<th>Value</th>
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<tr>
<td>Mar 2010</td>
<td>270</td>
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<tr>
<td>Apr 2011</td>
<td>370</td>
</tr>
<tr>
<td>Mar 2012</td>
<td>380</td>
</tr>
</tbody>
</table>
Site Notes and Journal:

**Phosphate**

- Mar 2010: 0.21 mg/l
- Apr 2011: 2.3 mg/l
- Mar 2012: 1.06 mg/l

**Dissolved Oxygen**

- Mar 2010: 9 mg/l
- Apr 2011: 5 mg/l
- Mar 2012: 9 mg/l

**Dissolved Oxygen Saturation**

- Mar 2010: 82%
- Apr 2011: 51%
- Mar 2012: 95%

**Nitrate**

- Mar 2012: 0.25 mg/l
Site 49

North Fork of the White River
Approx 300 ft us confluence Bryant Creek and North Fork of the White River
Ozark County
Lat 36.59633°N, Long 92.28887°W

April 2011

Biological Sampling

| Date | Lvl | Cd  | Db  | My  | RS  | Rf  | St | Pn | OB  | Cm  | Cr  | Cy  | Dr  | Da  | Sd  | FF  | Al  | Ws  | AW  | BF  | Le  | Md  | LS  | OS | Score |
|------|-----|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

Sensitive
- Cd – Caddisfly
- Db – Dobsonfly
- My – Mayfly
- Rs – Right Snail
- Rf – Riffle Beetle
- St – Stonefly
- Pn – Water Penny

Somewhat Tolerant
- OB – Other Beetle
- Cm – Clam/Mussel
- Cr – Cranefly
- Cy – Crayfish
- Dr – Dragonfly
- Da – Damselfly
- Sd – Scud
- FF – Fishfly
- Al – Alderfly
- Ws – Watersnipe Fly

Tolerant
- AW – Aquatic Worm
- BF – Blackfly
- Le – Leech
- Md – Midge
- LS – Left Snail
- OS – Other Snail
### Macroinvertebrate Water Quality Score

![Macroinvertebrate Water Quality Score](image)

- <12 = Poor
- 12-17 = Fair
- 18-23 = Good
- >23 = Excellent

### Chemical Sampling

<table>
<thead>
<tr>
<th>Date</th>
<th>Level</th>
<th>Air</th>
<th>Water</th>
<th>pH</th>
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<td>13°</td>
<td>11°</td>
<td>8.5</td>
<td>270</td>
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</tbody>
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### pH

![pH](image)

- March 2010: 8.5
- April 2011: 8.5
- March 2012: 8

### Conductivity

![Conductivity](image)

- March 2010: 270 μS/cm
- April 2011: 360 μS/cm
- March 2012: 380 μS/cm
Site Notes and Journal:
Summary Graphs by Season

pH
(Blue-2010, Red-2011, Green-2012, Purple-2013)
Conductivity
(Blue-2010, Red-2011, Green-2012, Purple-2013)

Phosphate
(Blue-2010, Red-2011, Green-2012, Purple-2013)
Dissolved Oxygen
(Blue-2010, Red-2011, Green-2012, Purple-2013)

Dissolved Oxygen Saturation
(Blue-2010, Red-2011, Green-2012, Purple-2013)
Nitrate
(Green-2012, Purple-2013)

Macroinvertebrate Quality Score
(Green-2012, Purple-2013)

<12=Poor, 12-17=Fair, 18-23=Good, >23=Excellent)
Any questions, comments, corrections, additions or suggestions should be addressed to:

George Sims
Ozark Chapter, Missouri Master Naturalists
Route 2, Box 237-3
Mansfield, Missouri 65705-9564
(417) 554-1682
georgesims@hotmail.com
March 29, 2013

References


Ozark Chapter, Missouri Master Naturalists. (2010). *A Biological and Chemical Assessment of Bryant Creek in Douglas and Ozark Counties, Missouri*. Mansfield, Missouri: Ozark Chapter, Missouri Master Naturalists.
