

# Fourth Annual Monitoring Report – 2009 Growing Season

## Moccasin Creek Riparian Buffer Restoration (EEP Contract: 005015)



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Submitted to:



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### **Introduction and Background**

On 27 June 2005 the NC Ecosystem Enhancement Program awarded Greene Environmental Services a contract to restore 20.2 acres of riparian buffer along un-named tributaries to Moccasin Creek in southeastern Johnston County, NC (Figure 1). The project area is approximately 2.75 miles south of Princeton along Moccasin Creek's western bank. The unnamed tributary that the buffer surrounds confluences Moccasin Creek immediately to the southeast of the restoration site, approximately 7.5 stream miles north of its confluence with the Neuse River (Figure 1). The entire project lies on the Danny Kornegay Farm in USGS Hydrologic Unit 03020201160010. Hay fields and cattle pastures adjacent to the buffers receive liquid hog waste from the farm and typically have 65 cow/calf pairs rotating between fields.

The Moccasin Creek Riparian Buffer Restoration Plan was implemented in February 2006 with site preparation and the planting of approximately 9,700 bare root hardwood saplings of six species and 2,000 bald cypress saplings. Planted woody stem density, location, diameter, and height monitoring was conducted during October and November 2009 inside 17, 100 square meter (10m x 10m ) quadrats, pursuant to the 2006 CVS-EEP protocol for monitoring vegetation. The monitoring results, management activities to date, identified problem areas, and planned management activities are presented below.

### **Results**

During the 2009 monitoring, eight planted species with a total of 233 stems and six volunteer species with a total of 272 stems were recorded in the 17 monitoring plots (Table 1). Of the planted species, *Fraxinus pennsylvanica* was the most dominant, with a calculated Importance Value of 91.2 (Table 1). *Taxodium distichum* and *Liriodendron tulipifera* were the second and third most dominant planted species with Importance Values of 71.3 and 58.2, respectively. When calculating Importance Values inclusive of both planted and volunteer species, *Liquidambar styraciflua* superseded the above species with a value of 88.5 followed by *Fraxinus pennsylvanica* (53.3) *Taxodium distichum* (42.0) and *Liriodendron tulipifera* (34.4).

A total of 505 planted woody stems were recorded within the 17 plots, thus an average of 1203 stem per acre (Table 2). Tract D had the highest average planted stems per plot (15 $\pm$ 1) or 607 $\pm$ 57 planted stems per acre and Tract C had the lowest average planted stems per plot (11 $\pm$ 2)

or  $461 \pm 68$  planted stems per acre (Table 2). Inclusive of both planted and volunteer species, Tract D had the highest number of total stems per acre ( $2014 \pm 1988$ ) and Tract B had the lowest ( $648 \pm 100$  total stems per acre). The calculated stems per acre based on plot totals indicated that all 17 plots exceeded the required 320 stems per acre minimum; the highest plot value was Plot D-2 with 122 total stems per plot or 4939 total stems per acre while and the lowest five plots (B-2, C-2, C-3, C-4 and D-4) had the lowest with 13 total stems per plot or 526 total stems per acre (Tables 2 and 3).

A comparison of the 2008 to the 2009 annual monitoring data indicated no major changes in plots characteristics (Table 4). It should be noted, however that *Baccharis halimifolia*, a species comprising 8% of the woody stem total in the 2008 survey was not included in the 2009 data analysis because of its status as a shrub species. *Baccharis halimifolia* and *Morella cerifera*, both species of woody shrub, were recorded in the field data but not used in the data analysis (Table 5).

### **Maintenance (Completed and Planned) and Qualitative Observations**

Table 1 provides a qualitative status assessment of individual stems; for all species, status averages good to intermediate. Grazing by deer and other herbivores was the most problematic concern; *Fraxinus pennsylvanica* seem the most prone to such grazing while *Platanus occidentalis* and *Liriodendron tulipifera* seemed less affected and subsequently had achieved the greatest overall height (Table 1). Volunteer species appear to be less susceptible to grazing.

As noted in the 2008 monitoring report, portions of Tract A, especially near Plots A-1 and A-4 were not achieving as much growth success; this area contains dense stands of pre-existing or invading pasture grasses, including coastal Bermuda grass (Figure 2). Consequently, in January 2009 remedial plantings of approximately 200 bareroot seedlings of *Platanus occidentalis*, *Liriodendron tulipifera* and *Taxodium distichum* were planted in under-performing portions of the tract. Additionally, approximately 300 bareroot seedlings of *Taxodium distichum* on the south side of main tributary bisecting the project between Plots B-1 and C-5 in an area altered by channel modification activities and washout during flooding. These remedial plantings will be included in the next annual monitoring report (Year 2010) and any areas underperforming will be address with additional planting and herbicide application if necessary.

Table 1. Summary Data by Species – 2009 Vegetation Monitoring, Year 4. Moccasin Creek Riparian Buffer Restoration – Johnston County, NC.  
Greene Environmental Services, LLC.

| Species                        | Total Number of Stems | Average Height ± Std dev. (cm) | Average DBH/DGH ± Std dev. (cm) | Average Status* ± Std dev. | Relative Frequency (RFrq) | Relative Density (RDen) | Relative Dominance (RDom) | Planted Species Importance Value (RFrq+RDen+RDom) (Ranked) | Planted and Volunteer Species Importance Value (RFrq+RDen+RDom) (Ranked) |
|--------------------------------|-----------------------|--------------------------------|---------------------------------|----------------------------|---------------------------|-------------------------|---------------------------|--|--|
| <b>Planted Species</b>         |                       |                                |                                 |                            |                           |                         |                           |  |  |
| <i>Fraxinus pennsylvanica</i>  | 77                    | 205±100                        | 2.4±1.2                         | 1.4±0.6                    | 28.9                      | 33.0                    | 29.3                      | 91.2 (1)   | 53.3 (2)   |
| <i>Liriodendron tulipifera</i> | 49                    | 307±133                        | 2.6±1.6                         | 1.3±0.5                    | 17.8                      | 21.0                    | 20.1                      | 58.2 (3)   | 34.4 (4)   |
| <i>Nyssa sp.</i>               | 8                     | 182±79                         | 2.1±1.0                         | 1.0±0.0                    | 6.7                       | 3.4                     | 2.6                       | 12.7 (5)   | 7.7 (8)  |
| <i>Platanus occidentalis</i>   | 31                    | 330±185                        | 3.8±2.7                         | 1.2±0.4                    | 13.3                      | 13.3                    | 18.6                      | 45.2 (4)   | 26.9 (5)   |
| <i>Quercus michauxii</i>       | 7                     | 77±51                          | 0.9±0.5                         | 2.0±0.8                    | 4.4                       | 3.0                     | 1.0                       | 8.5 (7)  | 5.0 (10)   |
| <i>Quercus pagoda</i>          | 1                     | 37±0                           | 0.6±0.0                         | 2.0±0.0                    | 2.2                       | 0.4                     | 0.1                       | 2.7 (8)  | 1.7 (14)   |
| <i>Quercus spp.</i>            | 5                     | 58±16                          | 0.8±0.4                         | 1.0±0.3                    | 6.7                       | 2.1                     | 0.6                       | 9.4 (6)  | 5.8 (9)  |
| <i>Taxodium distichum</i>      | 55                    | 257±79                         | 3.2±1.4                         | 2.2±0.8                    | 20.0                      | 23.6                    | 27.7                      | 71.3 (2)   | 42.0 (3)   |
| Totals                         | 233                   | ----                           | ----                            | ----                       | 100                       | 100                     | 100                       | 300  | ----   |
|                                |                       |                                |                                 |                            |                           |                         |                           |  |  |
| <b>Volunteer Species</b>       |                       |                                |                                 |                            |                           |                         |                           |  | ----   |
| <i>Acer rubrum</i>             | 26                    | 193±66                         | 1.3±0.4                         | 1.2±0.5                    | 30.4                      | 9.6                     | 9.4                       | 49.4   | 18.8 (6)   |
| <i>Carya sp.</i>               | 1                     | 310±0                          | 2.1±0.0                         | 1.0±0.0                    | 4.3                       | 0.4                     | 0.6                       | 5.3  | 1.9 (12)   |
| <i>Diospyros virginiana</i>    | 2                     | 86±25                          | 1.0±0.0                         | 2.0±0.0                    | 4.3                       | 0.7                     | 0.6                       | 5.7  | 2.1 (11)   |
| <i>Liquidambar styraciflua</i> | 230                   | 127±51                         | 1.3±0.4                         | 1.2±0.4                    | 39.1                      | 84.6                    | 83.6                      | 207.3  | 88.5 (1)   |
| <i>Pinus taeda</i>             | 12                    | 118±52                         | 1.5±0.6                         | 1.2±0.6                    | 17.4                      | 4.4                     | 5.2                       | 27.0   | 10.1 (7)   |
| <i>Prunus serotina</i>         | 1                     | 170±0                          | 2.0±0.0                         | 1.0±0.0                    | 4.3                       | 0.4                     | 0.6                       | 5.3  | 1.9 (12)   |
| Totals                         | 272                   | ----                           | ----                            | ----                       | 100                       | 100                     | 100                       | 300  | ----   |

\*Status was a determined by a visual assessment of plant vigor; 1 = good, 2 = intermediate, 3 = poor.

Table 2. Summary Data by Plot - 2009 Vegetation Monitoring, Year 4. Moccasin Creek Riparian Buffer Restoration – Johnston County, NC. Greene Environmental Services, LLC.

| <b>Plot</b>     | <b>Planted<br/>Stems/Plot</b> | <b>Planted<br/>Stems/Acre</b> | <b>Volunteer<br/>Stems/Plot</b> | <b>Volunteer<br/>Stems/Acre</b> | <b>Total Stems/Plot</b> | <b>Total Stems/Acre</b> |
|-----------------|-------------------------------|-------------------------------|---------------------------------|---------------------------------|-------------------------|-------------------------|
| A-1             | 16                            | 648                           | 0                               | 0                               | 16                      | 648                     |
| A-2             | 8                             | 324                           | 55                              | 2227                            | 63                      | 2551                    |
| A-3             | 14                            | 567                           | 2                               | 81                              | 16                      | 648                     |
| A-4             | 15                            | 607                           | 20                              | 810                             | 35                      | 1417                    |
| $\bar{x}$ for A | 13 $\pm$ 4                    | 536 $\pm$ 145                 | 19 $\pm$ 25                     | 779 $\pm$ 1031                  | 32 $\pm$ 22             | 1316 $\pm$ 900          |
|                 |                               |                               |                                 |                                 |                         |                         |
| B-1             | 18                            | 729                           | 0                               | 0                               | 18                      | 729                     |
| B-2             | 12                            | 486                           | 1                               | 40                              | 13                      | 526                     |
| B-3             | 16                            | 648                           | 2                               | 81                              | 18                      | 729                     |
| B-4             | 13                            | 526                           | 2                               | 81                              | 15                      | 607                     |
| $\bar{x}$ for B | 14 $\pm$ 3                    | 587 $\pm$ 107                 | 1 $\pm$ 1                       | 50 $\pm$ 39                     | 16 $\pm$ 2              | 648 $\pm$ 100           |
|                 |                               |                               |                                 |                                 |                         |                         |
| C-1             | 14                            | 567                           | 0                               | 0                               | 14                      | 567                     |
| C-2             | 10                            | 405                           | 3                               | 121                             | 13                      | 526                     |
| C-3             | 11                            | 445                           | 2                               | 81                              | 13                      | 526                     |
| C-4             | 12                            | 486                           | 1                               | 40                              | 13                      | 526                     |
| C-5             | 14                            | 567                           | 45                              | 1822                            | 59                      | 2389                    |
| $\bar{x}$ for C | 11 $\pm$ 2                    | 461 $\pm$ 68                  | 10 $\pm$ 20                     | 413 $\pm$ 789                   | 22 $\pm$ 20             | 907 $\pm$ 829           |
|                 |                               |                               |                                 |                                 |                         |                         |
| D-1             | 16                            | 648                           | 20                              | 810                             | 36                      | 1457                    |
| D-2             | 15                            | 607                           | 107                             | 4332                            | 122                     | 4939                    |
| D-3             | 16                            | 648                           | 12                              | 486                             | 28                      | 1134                    |
| D-4             | 13                            | 526                           | 0                               | 0                               | 13                      | 526                     |
| $\bar{x}$ for D | 15 $\pm$ 1                    | 607 $\pm$ 57                  | 35 $\pm$ 49                     | 1407 $\pm$ 1978                 | 50 $\pm$ 49             | 2014 $\pm$ 1988         |
|                 |                               |                               |                                 |                                 |                         |                         |
| <b>Totals</b>   | <b>233</b>                    | <b>555</b>                    | <b>272</b>                      | <b>648</b>                      | <b>505</b>              | <b>1203</b>             |

Table 3. Species Counts by Plot - 2009 Vegetation Monitoring, Year 4. Moccasin Creek Riparian Buffer Restoration – Johnston County, NC. Greene Environmental Services, LLC.

| Species<br>(Common name)                         | A-1       | A-2       | A-3       | A-4       | B-1       | B-2       | B-3       | B-4       | C-1       | C-2       | C-3       | C-4       | C-5       | D-1       | D-2        | D-3       | D-4       |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|-----------|
| <b>Planted Species</b>                           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |            |           |           |
| <i>Fraxinus pennsylvanica</i><br>(Green ash)     |           | 8         | 2         |           | 4         | 10        | 5         | 9         | 5         | 9         | 2         | 8         | 4         | 9         |            |           | 2         |
| <i>Liriodendron tulipifera</i><br>(Tulip poplar) | 5         |           |           | 7         | 5         |           |           |           | 4         |           |           |           | 5         | 5         | 8          | 10        |           |
| <i>Nyssa sp.</i><br>(Black gum)                  |           |           |           |           |           |           |           |           |           |           |           | 4         |           |           | 1          | 3         |           |
| <i>Platanus occidentalis</i><br>(Sycamore)       | 3         |           |           | 8         | 8         |           |           |           | 4         |           |           |           |           | 2         | 4          | 2         |           |
| <i>Quercus michauxii</i><br>(Swamp chestnut oak) | 5         |           | 2         |           |           |           |           |           |           |           |           |           |           |           |            |           |           |
| <i>Quercus pagoda</i><br>(Cherrybark oak)        | 1         |           |           |           |           |           |           |           |           |           |           |           |           |           |            |           |           |
| <i>Quercus spp.</i><br>(Unidentified oaks)       | 2         |           | 2         |           | 1         |           |           |           |           |           |           |           |           |           |            |           |           |
| <i>Taxodium distichum</i><br>(Bald cypress)      |           |           | 8         |           |           | 2         | 11        | 4         | 1         | 1         | 9         |           | 5         |           | 2          | 1         | 11        |
| <b>Totals (Planted)</b>                          | <b>16</b> | <b>8</b>  | <b>14</b> | <b>15</b> | <b>18</b> | <b>12</b> | <b>15</b> | <b>13</b> | <b>10</b> | <b>10</b> | <b>11</b> | <b>12</b> | <b>14</b> | <b>16</b> | <b>15</b>  | <b>16</b> | <b>13</b> |
| <b>Volunteer Species</b>                         |           |           |           |           |           |           |           |           |           |           |           |           |           |           |            |           |           |
| <i>Acer rubrum</i><br>(Red maple)                |           | 5         | 1         |           |           | 2         |           |           |           | 1         | 1         |           | 15        | 1         |            |           |           |
| <i>Carya sp.</i><br>(Hicckory)                   |           |           |           | 1         |           |           |           |           |           |           |           |           |           |           |            |           |           |
| <i>Diospyros virginiana</i><br>(Persimmon)       |           |           |           |           |           |           |           | 2         |           |           |           |           |           |           |            |           |           |
| <i>Liquidambar styraciflua</i><br>(Sweetgum)     |           | 50        |           | 19        |           |           |           |           |           | 1         | 1         | 1         | 30        | 16        | 100        | 12        |           |
| <i>Pinus taeda</i><br>(Loblolly pine)            |           |           | 1         |           |           |           |           |           |           | 1         |           |           |           | 3         | 7          |           |           |
| <i>Prunus serotina</i><br>(Black cherry)         |           |           |           |           |           | 1         |           |           |           |           |           |           |           |           |            |           |           |
| <b>Totals (Volunteer)</b>                        | <b>0</b>  | <b>55</b> | <b>2</b>  | <b>20</b> | <b>0</b>  | <b>3</b>  | <b>0</b>  | <b>2</b>  | <b>0</b>  | <b>3</b>  | <b>2</b>  | <b>1</b>  | <b>45</b> | <b>20</b> | <b>107</b> | <b>12</b> | <b>0</b>  |
| <b>Combined Totals</b>                           | <b>16</b> | <b>63</b> | <b>16</b> | <b>35</b> | <b>18</b> | <b>13</b> | <b>18</b> | <b>15</b> | <b>14</b> | <b>13</b> | <b>13</b> | <b>13</b> | <b>59</b> | <b>36</b> | <b>122</b> | <b>28</b> | <b>13</b> |

Table 4. Comparison of Key Parameters from 2008 to 2009 Annual Monitoring Data. 2009 Vegetation Monitoring, Year 4. Moccasin Creek Riparian Buffer Restoration – Johnston County, NC. Greene Environmental Services, LLC.

| <b>Parameter</b>  | <b>Monitoring Year 2008</b>  | <b>Monitoring Year 2009</b>  |
|---|--|--|
| Total number of planted stems (17 plots)                                    | 227  | 233  |
| Total number of volunteer stems (17 plots)                                  | 270  | 272  |
| Average number of planted stems per acre                                    | 540  | 555  |
| Average number of planted and volunteer stems combined per acre             | 1157   | 1203   |
| Average number of planted stems per acre in Tract A                         | 465  | 536  |
| Average number of planted stems per acre in Tract B                         | 577  | 587  |
| Average number of planted stems per acre in Tract C                         | 510  | 461  |
| Average number of planted stems per acre in Tract D                         | 597  | 607  |
| Relative density of three most abundant planted species                     | <i>Fraxinus pennsylvanica</i> (35%)<br><i>Taxodium distichum</i> (28%)<br><i>Liriodendron tulipifera</i> (21%) | <i>Fraxinus pennsylvanica</i> (33%)<br><i>Taxodium distichum</i> (24%)<br><i>Liriodendron tulipifera</i> (21%) |
| Relative density of most abundant of planted and volunteer species combined | <i>Liquidambar styraciflua</i> (40%)   | <i>Liquidambar styraciflua</i> (45%)   |

Table 5. Raw Data – 2009 Vegetation Monitoring, Year 4. Moccasin Creek Riparian Buffer Restoration – Johnston County, NC. Greene Environmental Services, LLC.

| Plot | Species                            | Height<br>(cm) | DBH<br>(cm) | DGH<br>(cm) | Status | Multiples |
|------|------------------------------------|----------------|-------------|-------------|--------|-----------|
| A-1  | <i>Liriodendron tulipifera</i>     | 250            | 2           |             | 1      |           |
| A-1  | <i>Liriodendron tulipifera</i>     | 230            | 1.3         |             | 1      |           |
| A-1  | <i>Liriodendron tulipifera</i>     | 180            | 0.9         |             | 1      |           |
| A-1  | <i>Liriodendron tulipifera</i>     | 425            | 4.2         |             | 1      |           |
| A-1  | <i>Liriodendron tulipifera</i>     | 350            | 2.9         |             | 1      |           |
| A-1  | <i>Platanus occidentalis</i>       | 75             |             | 0.7         | 2      |           |
| A-1  | <i>Platanus occidentalis</i>       | 112            |             | 1           | 2      |           |
| A-1  | <i>Platanus occidentalis</i>       | 120            |             | 1.2         | 2      |           |
| A-1  | <i>Quercus michauxii</i>           | 170            |             | 1.5         | 1      |           |
| A-1  | <i>Quercus michauxii</i>           | 125            |             | 1.4         | 1      |           |
| A-1  | <i>Quercus michauxii</i>           | 66             |             | 0.9         | 2      |           |
| A-1  | <i>Quercus michauxii</i>           | 33             |             | 0.2         | 2      |           |
| A-1  | <i>Quercus michauxii</i>           | 53             |             | 0.4         | 2      |           |
| A-1  | <i>Quercus pagoda</i>              | 37             |             | 0.6         | 2      |           |
| A-1  | <i>unknown oak</i>                 | 45             |             | 0.5         | 2      |           |
| A-1  | <i>unknown oak</i>                 | 48             |             | 0.4         | 2      |           |
| A-2  | <i>Fraxinus pennsylvanica</i>      | 115            |             | 1.8         | 2      |           |
| A-2  | <i>Fraxinus pennsylvanica</i>      | 130            |             | 1.6         | 2      |           |
| A-2  | <i>Fraxinus pennsylvanica</i>      | 137            |             | 2.1         | 2      |           |
| A-2  | <i>Fraxinus pennsylvanica</i>      | 95             |             | 1           | 2      |           |
| A-2  | <i>Fraxinus pennsylvanica</i>      | 130            |             | 2           | 2      |           |
| A-2  | <i>Fraxinus pennsylvanica</i>      | 70             |             | 1           | 2      |           |
| A-2  | <i>Fraxinus pennsylvanica</i>      | 190            | 1.5         |             | 1      |           |
| A-2  | <i>Fraxinus pennsylvanica</i>      | 139            |             | 1.9         | 1      |           |
| A-2  | <i>Acer rubrum</i>                 | 140            |             | 1.9         | 1      |           |
| A-2  | <i>Acer rubrum</i>                 | 195            | 1           |             | 1      |           |
| A-2  | <i>Acer rubrum</i>                 | 116            |             | 1.1         | 2      |           |
| A-2  | <i>Acer rubrum</i>                 | 120            |             | 1.2         | 2      |           |
| A-2  | <i>Acer rubrum</i>                 | 95             |             | 0.9         | 2      |           |
| A-2  | <i>Liquidambar<br/>styraciflua</i> | 125 avg        |             | 1.5         | 1      |           |
| A-2  | <i>Liquidambar<br/>styraciflua</i> | 175 avg        |             | 2           | 1      |           |
| A-3  | <i>Fraxinus pennsylvanica</i>      | 275            | 2.4         |             | 1      |           |
| A-3  | <i>Fraxinus pennsylvanica</i>      | 78             |             | 1.4         | 3      |           |
| A-3  | <i>Quercus michauxii</i>           | 30             |             | 1           | 3      |           |
| A-3  | <i>Quercus michauxii</i>           | 65             |             | 1.1         | 3      |           |
| A-3  | <i>Taxodium distichum</i>          | 210            | 2.5         |             | 1      |           |
| A-3  | <i>Taxodium distichum</i>          | 225            | 3.2         |             | 1      |           |



|     |                                |         |     |     |   |
|-----|--------------------------------|---------|-----|-----|---|
| A-3 | <i>Taxodium distichum</i>      | 280     | 4   |     | 1 |
| A-3 | <i>Taxodium distichum</i>      | 220     | 3.1 |     | 1 |
| A-3 | <i>Taxodium distichum</i>      | 219     | 2   |     | 1 |
| A-3 | <i>Taxodium distichum</i>      | 162     | 1   |     | 1 |
| A-3 | <i>Taxodium distichum</i>      | 300     | 3.5 |     | 1 |
| A-3 | <i>Taxodium distichum</i>      | 280     | 4.5 |     | 1 |
| A-3 | <i>Acer rubrum</i>             | 30      |     | 0.3 | 3 |
| A-3 | <i>Pinus taeda</i>             | 45      |     | 0.8 | 3 |
| A-3 | <i>unknown oak</i>             | 72      |     | 1.2 | 3 |
| A-3 | <i>unknown oak</i>             | 78      |     | 1.2 | 3 |
| A-4 | <i>Liriodendron tulipifera</i> | 440     | 5.4 |     | 1 |
| A-4 | <i>Liriodendron tulipifera</i> | 320     | 3.9 |     | 1 |
| A-4 | <i>Liriodendron tulipifera</i> | 300     | 2.2 |     | 1 |
| A-4 | <i>Liriodendron tulipifera</i> | 500     | 2.9 |     | 1 |
| A-4 | <i>Liriodendron tulipifera</i> | 480     | 1.1 |     | 2 |
| A-4 | <i>Liriodendron tulipifera</i> | 540     | 1.3 |     | 2 |
| A-4 | <i>Liriodendron tulipifera</i> | 460     | 5   |     | 1 |
| A-4 | <i>Platanus occidentalis</i>   | 420     | 4   |     | 1 |
| A-4 | <i>Platanus occidentalis</i>   | 430     | 5.5 |     | 1 |
| A-4 | <i>Platanus occidentalis</i>   | 415     | 5.9 |     | 1 |
| A-4 | <i>Platanus occidentalis</i>   | 460     | 6.2 |     | 1 |
| A-4 | <i>Platanus occidentalis</i>   | 500     | 5.8 |     | 1 |
| A-4 | <i>Platanus occidentalis</i>   | 480     | 5.5 |     | 1 |
| A-4 | <i>Platanus occidentalis</i>   | 540     | 9.5 |     | 1 |
| A-4 | <i>Platanus occidentalis</i>   | 460     | 7   |     | 1 |
| A-4 | <i>Carya sp.</i>               | 310     | 2.1 |     | 1 |
| A-4 | <i>Liquidambar styraciflua</i> | avg 125 |     | 0.8 |   |
| A-4 | <i>Liquidambar styraciflua</i> | avg 175 |     | 1.5 |   |
| A-4 | <i>Liquidambar styraciflua</i> | avg 225 |     | 1.5 |   |
| B-1 | <i>Fraxinus pennsylvanica</i>  | 280     | 3   |     | 1 |
| B-1 | <i>Fraxinus pennsylvanica</i>  | 260     | 2   |     | 1 |
| B-1 | <i>Fraxinus pennsylvanica</i>  | 450     | 4.9 |     | 1 |
| B-1 | <i>Fraxinus pennsylvanica</i>  | 340     | 4   |     | 1 |
| B-1 | <i>Platanus occidentalis</i>   | 340     | 3.1 |     | 1 |
| B-1 | <i>Platanus occidentalis</i>   | 500     | 6   |     | 1 |
| B-1 | <i>Platanus occidentalis</i>   | 500     | 7.5 |     | 1 |
| B-1 | <i>Platanus occidentalis</i>   | 500     | 7   |     | 1 |
| B-1 | <i>Platanus occidentalis</i>   | 500     | 5.9 |     | 1 |
| B-1 | <i>Platanus occidentalis</i>   | 400     | 6   |     | 1 |
| B-1 | <i>Platanus occidentalis</i>   | 500     | 5.7 |     | 1 |

|     |                                |        |     |     |   |
|-----|--------------------------------|--------|-----|-----|---|
| B-1 | <i>Platanus occidentalis</i>   | 550    | 5.5 |     | 1 |
| B-1 | <i>Liriodendron tulipifera</i> | 320    | 3.2 |     | 1 |
| B-1 | <i>Liriodendron tulipifera</i> | 200    | 1.5 |     | 1 |
| B-1 | <i>Liriodendron tulipifera</i> | 200    | 1.5 |     | 1 |
| B-1 | <i>Liriodendron tulipifera</i> | 200    | 1.5 |     | 1 |
| B-1 | <i>Liriodendron tulipifera</i> | 215    | 1   |     | 1 |
| B-1 | <i>unknown oak</i>             | 45     | 0.7 |     | 1 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 235    | 2.6 |     | 1 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 94     |     | 1.7 | 2 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 240    | 2.7 |     | 1 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 142    |     | 3.2 | 2 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 280    | 3.2 |     | 1 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 250    |     | 2.6 | 1 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 270    |     | 3.5 | 1 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 320    | 3   |     | 1 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 260    | 3   |     | 1 |
| B-2 | <i>Fraxinus pennsylvanica</i>  | 95     |     | 1   | 3 |
| B-2 | <i>Taxodium distichum</i>      | 220    | 3   |     | 1 |
| B-2 | <i>Taxodium distichum</i>      | 210    | 1.7 |     | 1 |
| B-2 | <i>Baccharis halimifolia</i>   | avg200 |     | 5.5 | 1 |
| B-2 | <i>Prunus serotina</i>         | 170    |     | 2   | 1 |
| B-3 | <i>Fraxinus pennsylvanica</i>  | 200    |     | 3   | 1 |
| B-3 | <i>Fraxinus pennsylvanica</i>  | 200    | 1.7 |     | 1 |
| B-3 | <i>Fraxinus pennsylvanica</i>  | 140    |     | 2.6 | 1 |
| B-3 | <i>Fraxinus pennsylvanica</i>  | 143    | 0.8 |     | 1 |
| B-3 | <i>Fraxinus pennsylvanica</i>  | 166    |     | 3   | 1 |
| B-3 | <i>Taxodium distichum</i>      | 237    | 2.5 |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 300    | 3.4 |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 244    | 3.4 |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 180    | 3   |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 230    | 2.5 |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 290    | 3.8 |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 240    | 2.4 |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 300    | 3.4 |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 230    | 2.5 |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 210    | 1.6 |     | 1 |
| B-3 | <i>Taxodium distichum</i>      | 252    | 3.6 |     | 1 |
| B-3 | <i>Acer rubrum</i>             | 145    | 0.9 |     | 1 |
| B-3 | <i>Acer rubrum</i>             | 180    | 0.6 |     | 1 |
| B-3 | <i>Baccharis halimifolia</i>   | 210    |     | 4.1 | 1 |
| B-4 | <i>Fraxinus pennsylvanica</i>  | 112    |     | 1.6 | 2 |

|     |                                |        |     |     |   |
|-----|--------------------------------|--------|-----|-----|---|
| B-4 | <i>Fraxinus pennsylvanica</i>  | 94     |     | 1.7 | 2 |
| B-4 | <i>Fraxinus pennsylvanica</i>  | 350    | 3.4 |     | 1 |
| B-4 | <i>Fraxinus pennsylvanica</i>  | 310    | 2.3 |     | 1 |
| B-4 | <i>Fraxinus pennsylvanica</i>  | 120    |     | 2   | 2 |
| B-4 | <i>Fraxinus pennsylvanica</i>  | 40     |     | 0.9 | 3 |
| B-4 | <i>Fraxinus pennsylvanica</i>  | 220    | 1.7 |     | 1 |
| B-4 | <i>Fraxinus pennsylvanica</i>  | 200    | 1.5 |     | 1 |
| B-4 | <i>Fraxinus pennsylvanica</i>  | 310    | 4   |     | 1 |
| B-4 | <i>Taxodium distichum</i>      | 190    | 1.7 |     | 1 |
| B-4 | <i>Taxodium distichum</i>      | 320    | 4   |     | 1 |
| B-4 | <i>Taxodium distichum</i>      | 340    | 3.9 |     | 1 |
| B-4 | <i>Taxodium distichum</i>      | 230    | 2   |     | 1 |
| B-4 | <i>Diospyros virginiana</i>    | 105    | 1   |     | 2 |
| B-4 | <i>Diospyros virginiana</i>    | 70     | 1   |     | 2 |
|     |                                |        |     |     |   |
| C-1 | <i>Fraxinus pennsylvanica</i>  | 234    |     | 1.5 | 2 |
| C-1 | <i>Fraxinus pennsylvanica</i>  | 100    |     | 1.5 | 2 |
| C-1 | <i>Fraxinus pennsylvanica</i>  | 135    |     | 1.6 | 2 |
| C-1 | <i>Fraxinus pennsylvanica</i>  | 230    | 1.8 |     | 1 |
| C-1 | <i>Fraxinus pennsylvanica</i>  | 170    | 1.1 |     | 2 |
| C-1 | <i>Liriodendron tulipifera</i> | 300    |     | 0.6 | 3 |
| C-1 | <i>Liriodendron tulipifera</i> | 300    | 2   |     | 2 |
| C-1 | <i>Liriodendron tulipifera</i> | 300    | 1   |     | 2 |
| C-1 | <i>Liriodendron tulipifera</i> | 200    |     | 1   | 2 |
| C-1 | <i>Platanus occidentalis</i>   | 2.9    |     |     | 1 |
| C-1 | <i>Platanus occidentalis</i>   | 3.9    |     |     | 1 |
| C-1 | <i>Platanus occidentalis</i>   | 4.6    |     |     | 1 |
| C-1 | <i>Platanus occidentalis</i>   | 1.5    |     |     | 2 |
| C-1 | <i>Taxodium distichum</i>      | 90     |     | 0.9 | 2 |
| C-1 | <i>Baccharis halimifolia</i>   | avg180 |     | 3.5 | 1 |
|     |                                |        |     |     |   |
| C-2 | <i>Fraxinus pennsylvanica</i>  | 360    | 4.5 |     | 1 |
| C-2 | <i>Fraxinus pennsylvanica</i>  | 350    | 5.7 |     | 1 |
| C-2 | <i>Fraxinus pennsylvanica</i>  | 300    | 5   |     | 1 |
| C-2 | <i>Fraxinus pennsylvanica</i>  | 300    | 4.5 |     | 1 |
| C-2 | <i>Fraxinus pennsylvanica</i>  | 40     | 4.5 |     | 1 |
| C-2 | <i>Fraxinus pennsylvanica</i>  | 420    | 2.8 |     | 1 |
| C-2 | <i>Fraxinus pennsylvanica</i>  | 200    |     | 0.5 | 2 |
| C-2 | <i>Fraxinus pennsylvanica</i>  | 280    | 4.5 |     | 1 |
| C-2 | <i>Fraxinus pennsylvanica</i>  | 400    | 6   |     | 1 |
| C-2 | <i>Taxodium distichum</i>      | 320    | 5   |     | 1 |
| C-2 | <i>Acer rubrum</i>             | 260    | 1.5 |     | 1 |
| C-2 | <i>Liquidambar styraciflua</i> | 190    | 2   |     | 2 |
| C-2 | <i>Pinus taeda</i>             | 205    | 2   |     | 1 |

|     |                                |     |     |     |   |
|-----|--------------------------------|-----|-----|-----|---|
| C-3 | <i>Fraxinus pennsylvanica</i>  | 90  |     | 1   | 2 |
| C-3 | <i>Fraxinus pennsylvanica</i>  | 140 |     | 2.1 | 1 |
| C-3 | <i>Taxodium distichum</i>      | 340 | 5.4 |     | 1 |
| C-3 | <i>Taxodium distichum</i>      | 270 | 4.5 |     | 1 |
| C-3 | <i>Taxodium distichum</i>      | 300 | 5   |     | 1 |
| C-3 | <i>Taxodium distichum</i>      | 300 | 5   |     | 1 |
| C-3 | <i>Taxodium distichum</i>      | 275 | 4   |     | 1 |
| C-3 | <i>Taxodium distichum</i>      | 270 | 2.5 |     | 1 |
| C-3 | <i>Taxodium distichum</i>      | 400 | 7   |     | 1 |
| C-3 | <i>Taxodium distichum</i>      | 260 | 3.7 |     | 1 |
| C-3 | <i>Taxodium distichum</i>      | 240 | 3   |     | 1 |
| C-3 | <i>Acer rubrum</i>             | 125 |     | 1   | 2 |
| C-3 | <i>Liquidambar styraciflua</i> | 148 | 1.2 |     | 1 |
| C-4 | <i>Fraxinus pennsylvanica</i>  | 250 | 2   |     | 1 |
| C-4 | <i>Fraxinus pennsylvanica</i>  | 400 | 3.8 |     | 1 |
| C-4 | <i>Fraxinus pennsylvanica</i>  | 200 | 2   |     | 1 |
| C-4 | <i>Fraxinus pennsylvanica</i>  | 300 | 4.5 |     | 1 |
| C-4 | <i>Fraxinus pennsylvanica</i>  | 400 | 3.5 |     | 1 |
| C-4 | <i>Fraxinus pennsylvanica</i>  | 250 | 2   |     | 1 |
| C-4 | <i>Fraxinus pennsylvanica</i>  | 260 | 3.8 |     | 1 |
| C-4 | <i>Fraxinus pennsylvanica</i>  | 300 | 3   |     | 1 |
| C-4 | <i>Nyssa sp.</i>               | 140 |     | 0.9 | 1 |
| C-4 | <i>Nyssa sp.</i>               | 360 | 2.5 |     | 1 |
| C-4 | <i>Nyssa sp.</i>               | 160 |     | 2.5 | 1 |
| C-4 | <i>Nyssa sp.</i>               | 220 |     | 4   | 1 |
| C-4 | <i>Liquidambar styraciflua</i> | 90  |     | 1.4 | 2 |
| C-4 | <i>Morella cerifera</i>        | 160 |     | 0.9 | 1 |
| C-5 | <i>Fraxinus pennsylvanica</i>  | 180 | 1   |     | 1 |
| C-5 | <i>Fraxinus pennsylvanica</i>  | 140 |     | 1.5 | 1 |
| C-5 | <i>Fraxinus pennsylvanica</i>  | 200 | 1.5 |     | 1 |
| C-5 | <i>Fraxinus pennsylvanica</i>  | 130 |     | 3.2 | 2 |
| C-5 | <i>Liriodendron tulipifera</i> | 360 | 3.5 |     | 1 |
| C-5 | <i>Liriodendron tulipifera</i> | 480 | 4   |     | 1 |
| C-5 | <i>Liriodendron tulipifera</i> | 450 | 2.6 |     | 1 |
| C-5 | <i>Liriodendron tulipifera</i> | 220 | 1.3 |     | 1 |
| C-5 | <i>Liriodendron tulipifera</i> | 400 | 5   |     | 1 |
| C-5 | <i>Taxodium distichum</i>      | 200 | 2   |     | 1 |
| C-5 | <i>Taxodium distichum</i>      | 360 | 5   |     | 1 |
| C-5 | <i>Taxodium distichum</i>      | 380 | 2   |     | 1 |
| C-5 | <i>Taxodium distichum</i>      | 410 | 4.3 |     | 1 |

|     |                                |         |     |     |   |
|-----|--------------------------------|---------|-----|-----|---|
| C-5 | <i>Taxodium distichum</i>      | 400     | 5.8 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 210     | 1   |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 260     | 1.5 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 240     | 1.1 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 240     | 1.4 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 160     | 1.2 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 140     |     | 0.9 |   |
| C-5 | <i>Acer rubrum</i>             | 320     | 1.8 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 240     | 1.6 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 180     | 2   |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 200     | 1   |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 250     | 1.6 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 200     | 1.5 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 220     | 1.5 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 300     | 1.6 |     | 1 |
| C-5 | <i>Acer rubrum</i>             | 220     | 1.5 |     | 1 |
| C-5 | <i>Liquidambar styraciflua</i> | avg 175 | 1.5 |     | 1 |
| C-5 | <i>Liquidambar styraciflua</i> | avg 225 | 2   |     | 1 |
| D-1 | <i>Fraxinus pennsylvanica</i>  | 140     |     | 2   | 1 |
| D-1 | <i>Fraxinus pennsylvanica</i>  | 140     |     | 2   | 1 |
| D-1 | <i>Fraxinus pennsylvanica</i>  | 140     |     | 2.2 | 1 |
| D-1 | <i>Fraxinus pennsylvanica</i>  | 120     |     | 1.8 | 1 |
| D-1 | <i>Fraxinus pennsylvanica</i>  | 80      |     | 1.4 | 3 |
| D-1 | <i>Fraxinus pennsylvanica</i>  | 110     |     | 1.4 | 2 |
| D-1 | <i>Fraxinus pennsylvanica</i>  | 140     |     | 2.2 | 1 |
| D-1 | <i>Fraxinus pennsylvanica</i>  | 105     |     | 1.6 | 2 |
| D-1 | <i>Fraxinus pennsylvanica</i>  | 95      |     | 1.4 | 2 |
| D-1 | <i>Liriodendron tulipifera</i> | 350     | 2.8 |     | 1 |
| D-1 | <i>Liriodendron tulipifera</i> | 190     | 1   |     | 1 |
| D-1 | <i>Liriodendron tulipifera</i> | 150     |     | 2.5 | 2 |
| D-1 | <i>Liriodendron tulipifera</i> | 350     | 3   |     | 1 |
| D-1 | <i>Liriodendron tulipifera</i> | 350     | 3   |     | 1 |
| D-1 | <i>Platanus occidentalis</i>   | 450     | 4.6 |     | 1 |
| D-1 | <i>Platanus occidentalis</i>   | 320     | 2.5 |     | 1 |
| D-1 | <i>Acer rubrum</i>             | 225     | 1.7 |     | 1 |
| D-1 | <i>Liquidambar styraciflua</i> | avg 175 |     | 1   | 1 |
| D-1 | <i>Liquidambar styraciflua</i> | avg 175 |     | 2   | 1 |
| D-1 | <i>Pinus taeda</i>             | 120     |     | 1.9 | 1 |
| D-1 | <i>Pinus taeda</i>             | 95      |     | 1.2 | 1 |
| D-1 | <i>Pinus taeda</i>             | 190     | 3   |     | 1 |

|     |                                |         |     |     |   |
|-----|--------------------------------|---------|-----|-----|---|
| D-2 | <i>Liriodendron tulipifera</i> | 140     |     | 1.5 | 2 |
| D-2 | <i>Liriodendron tulipifera</i> | 85      |     | 1   | 2 |
| D-2 | <i>Liriodendron tulipifera</i> | 160     |     | 1.5 | 2 |
| D-2 | <i>Liriodendron tulipifera</i> | 170     |     | 2   | 1 |
| D-2 | <i>Liriodendron tulipifera</i> | 160     |     | 1.8 | 1 |
| D-2 | <i>Liriodendron tulipifera</i> | 130     |     | 1.4 | 2 |
| D-2 | <i>Liriodendron tulipifera</i> | 100     |     | 1   | 2 |
| D-2 | <i>Liriodendron tulipifera</i> | 11      |     | 1.1 | 2 |
| D-2 | <i>Nyssa sp.</i>               | 105     |     | 1.2 | 1 |
| D-2 | <i>Platanus occidentalis</i>   | 150     |     | 1.1 | 2 |
| D-2 | <i>Platanus occidentalis</i>   | 250     | 1.4 |     | 1 |
| D-2 | <i>Platanus occidentalis</i>   | 180     |     | 1.4 | 1 |
| D-2 | <i>Platanus occidentalis</i>   | 290     | 2.2 |     | 1 |
| D-2 | <i>Taxodium distichum</i>      | 60      |     | 0.7 | 3 |
| D-2 | <i>Taxodium distichum</i>      | 90      |     | 1.1 | 1 |
| D-2 | <i>Baccharis halimifolia</i>   | avg 125 |     | 2   | 1 |
| D-2 | <i>Baccharis halimifolia</i>   | avg 175 |     | 3   | 1 |
| D-2 | <i>Liquidambar styraciflua</i> | avg 75  |     | 1   | 1 |
| D-2 | <i>Morella cerifera</i>        | 250     |     | 3   | 1 |
| D-2 | <i>Morella cerifera</i>        | 200     |     | 3   | 1 |
| D-2 | <i>Morella cerifera</i>        | 100     |     | 1.5 | 1 |
| D-2 | <i>Pinus taeda</i>             | 120     |     | 1.4 | 1 |
| D-2 | <i>Pinus taeda</i>             | 120     |     | 1.4 | 1 |
| D-2 | <i>Pinus taeda</i>             | 85      |     | 1.5 | 1 |
| D-2 | <i>Pinus taeda</i>             | 95      |     | 1.1 | 1 |
| D-2 | <i>Pinus taeda</i>             | 190     | 1.7 |     | 1 |
| D-2 | <i>Pinus taeda</i>             | 60      |     | 0.9 | 2 |
| D-2 | <i>Pinus taeda</i>             | 95      |     | 1.5 | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 400     | 3.5 |     | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 400     | 3.5 |     | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 350     | 2.5 |     | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 500     | 5   |     | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 500     | 4.5 |     | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 300     | 2   |     | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 550     | 7   |     | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 450     | 5   |     | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 320     | 7   |     | 1 |
| D-3 | <i>Liriodendron tulipifera</i> | 320     | 2.5 |     | 1 |
| D-3 | <i>Nyssa sp.</i>               | 140     |     | 1.5 | 1 |
| D-3 | <i>Nyssa sp.</i>               | 180     |     | 2.6 | 1 |
| D-3 | <i>Nyssa sp.</i>               | 150     |     | 1.6 | 1 |
| D-3 | <i>Platanus occidentalis</i>   | 450     | 4.2 |     |   |

|     |                               |         |     |     |    |
|-----|-------------------------------|---------|-----|-----|----|
| D-3 | <i>Platanus occidentalis</i>  | 340     | 2.5 |     |    |
| D-3 | <i>Taxodium distichum</i>     | 120     |     | 1.4 | 1  |
|     | <i>Liquidambar</i>            |         |     |     |    |
| D-3 | <i>styraciflua</i>            | avg 125 |     | 1   | x6 |
|     | <i>Liquidambar</i>            |         |     |     |    |
| D-3 | <i>styraciflua</i>            | avg 175 |     | 2   | x6 |
| D-4 | <i>Fraxinus pennsylvanica</i> | 370     | 2.5 |     | 1  |
| D-4 | <i>Fraxinus pennsylvanica</i> | 120     |     | 1.5 | 1  |
| D-4 | <i>Taxodium distichum</i>     | 189     | 1.8 |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 300     | 3.8 |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 340     | 5.6 |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 360     | 5.4 |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 250     | 2.2 |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 170     | 1.5 |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 360     | 4.4 |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 300     | 3.8 |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 320     | 4.8 |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 200     | 2   |     | 1  |
| D-4 | <i>Taxodium distichum</i>     | 170     | 1.7 |     | 1  |
| D-4 | <i>Baccharis halimifolia</i>  | 250     | 4   |     | 1  |
| D-4 | <i>Morella cerifera</i>       | 150     | 1   |     | 1  |

Vegetation Monitoring Plot Photographs – Year 4 – 2009 Moccasin Creek Riparian Buffer Restoration



**Plot A-1**



**Plot A-2**



**Plot A-3**



**Plot A-4**



Vegetation Monitoring Plot Photographs – Year 4 – 2009 Moccasin Creek Riparian Buffer Restoration



**Plot B-1**



**Plot B-2**



**Plot B-3**



**Plot B-4**

Vegetation Monitoring Plot Photographs – Year 4 – 2009 Moccasin Creek Riparian Buffer Restoration



**Plot C-1**



**Plot C-2**



**Plot C-3**



**Plot C-4**

Vegetation Monitoring Plot Photographs – Year 4 – 2009 Moccasin Creek Riparian Buffer Restoration



**Plot C-5**



**Plot D-1**



**Plot D-2**



**Plot D-3**

Vegetation Monitoring Plot Photographs – Year 4 – 2009 Moccasin Creek Riparian Buffer Restoration



**Plot D-4**