

Monitoring Report

Year 01

Third Fork Creek, Forest Hills Park Durham, North Carolina



1652 Mail Service Center Raleigh, NC 27699-1652

December 2005



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EXECUTIVE SUMMARY

The Third Fork Stream Restoration Project restored approximately 2,900 linear feet of perennial stream in the Cape Fear River Basin yielding 3,792 Stream Management Units. The project was initiated in summer of 2002 and construction was completed in the spring of 2005. The goal of the project is to restore channel morphology appropriate for the flows and sediment provided by the watershed, improve aquatic habitat diversity through the reestablishment of riffle-pool bed variability and the use of in-stream structures, and restore vegetative riparian buffers utilizing native species.

Activities in 2005 reflect the first year of monitoring following construction. Included in this report are analyses of both hydrologic and vegetation monitoring results. Monitoring activities included sampling vegetation survivability at ten locations, monitoring stream morphology and dimensions, and documenting general site conditions at established permanent photo documentation points within the restoration area.

The riparian buffer was planted with a mix of native trees and shrubs to provide structural diversity. Trees were planted at a density of 436 trees per acre and shrubs were planted at a density of 2,700 stems per acre. There were ten (10) vegetation-monitoring plots established throughout the planting areas. The 2005 vegetation monitoring of the planted areas revealed an average density of 1,109 stems per acre, which is well above the minimum requirement of 320 stems per acre needed to meet the success criteria at the end of the five year monitoring period.

The as built survey was completed immediately prior to relocation of active flow into the channel in April 2005. The conditions collected during the as built survey included four (4) permanent cross-sections and planform and profile measurements.

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1.0 STREAM

The stream restored on site was monitored to evaluate the compliance with the success criteria established for physical stability (cross section, planform, and profile).

1.1 Physical - The as-built survey depicted in the Third Fork Creek Mitigation Report was completed after construction activities in January 2005. The monitoring cross sections, profiles, and vegetation plot as-built survey referenced in this report were completed in March 2005. First year monitoring data was collected in September for dimension, planform and profiles in two monitoring reaches. This data was compared to the as-built condition (Appendix A) to identify any significant variations. Four bankfull events were recorded during this monitoring period. The permanent cross-sections (Table 1), planform data (Table 2) and profile (Table 3) showed minimal deviation from the as-built conditions indicating that the streams are maintaining a stable form (Appendix B). The pool formation at station 03+00 in profile 1 is due to scouring of the bed below a gauge that is buried into the bank. Profile 2 shows some migration of the pools, but the distance is exaggerated due to the formation of point bars within the meanders. These bars add length to the profile and therefore prevent the bed features from properly overlaying.

Table 1. Bankfull Cross Sectional Area

X-Section	As-Built	Year 1	Year 2	Year 3	Year 4	Year 5
XS-1	61.9	61.4				
XS-2	70.1	72.9				
XS-3	54.6	53.5				
XS-4	61.5	60.4				

Table 2. Planform (Sinuosity/Radius of Curvature)

Reach	As-Built	Year 1	Year 2	Year 3	Year 4	Year 5
Upstream	1.23/66.7	1.23/66.7				
Downstream	1.12/63.3	1.14/66.7				

Table 3. Profile (Average depth in feet from Control Elevation)

Reach	As-Built	Year 1	Year 2	Year 3	Year 4	Year 5
Upstream	1.22	1.47				
Downstream	0.72	0.86				

2.0 VEGETATION

The riparian buffer along the approximately 2,900 linear feet of stream restoration was planted at a density of 436 trees per acre and 2,700 shrubs per acre. There are ten (10) vegetation-monitoring plots established throughout the riparian buffer. Each plot is fifty by fifty feet (50'x 50') in size and marked with rebar covered by yellow caps that are flush with the ground. The corners located in the stream are not marked by rebar, as indicated on the monitoring plan view figure. The buffer is less than fifty (50) feet wide in many areas requiring the amount of buffer within each plot to be calculated independently of the actual plot size. This calculation is reflected in Table 1 below and the individual vegetation plot data sheets in Appendix C. The 2005 vegetation monitoring revealed an average density of 1,109 stems per acre, which is below the designed density of 1,465 stems per acre, but well above the minimum requirement of 320 stems per acre (Appendix C).

Additional species of note include sycamore (*Platanus occidentalis*) seedling volunteers that are appearing along the stream banks. The invasive vine, Japanese hops (*Humulus japonicus*) will require further monitoring and possible control actions. This vine is widespread throughout the project site, along stream banks and within the riparian buffer. In many areas, it has covered and weighted down the planted trees.

Table 1: Vegetation Monitoring Results

Plot #	Tag Alder <i>Alnus serrulata</i>	River Birch <i>Betula nigra</i>	Beautyberry <i>Callicarpa americana</i>	Sweetshrub <i>Calycanthus floridus</i>	Eastern Redbud <i>Cercis canadensis</i>	Silky Dogwood <i>Cornus amomum</i>	Flowering Dogwood <i>Cornus florida</i>	Green Ash <i>Fraxinus pennsylvanica</i>	Witchhazel <i>Hamamelis virginiana</i>	Deciduous Holly <i>Ilex decidua</i>	American Holly <i>Ilex opaca</i>	Virginia Sweetpire <i>Itea virginica</i>	Eastern Red Cedar <i>Juniperus virginiana</i>	Wax Myrtle <i>Myrica cerifera</i>	Sycamore <i>Platanus occidentalis</i>	Elderberry <i>Sambucus canadensis</i>	Coralberry <i>Symphoricarpos orbiculatus</i>	Southern Arrowwood <i>Viburnum dentatum</i>	Poosum Haw <i>Viburnum nudum</i>	Total 1st Year	Buffer acreage in plot	Density (Stems /Acre)
1	1		1	2		8				3		5		4	3	1	2	3	33	0.033	1,000	
2	6		8	4	2	2			1	5	1	3		4	3	3	4	2	2	50	0.034	1,471
3	2	2	11	3				2	2	2		3		3	2	2	3	3	4	44	0.047	936
4		2	3	3		3		5	1	2		2		1	2	1	4	1	5	35	0.036	972
5	16	4	10	4		10		4	2	4		3		3	2		10	6	4	82	0.047	1,745
6	12	1	6	2		6		1	2	3		5	2	2	2	2	5	5	3	59	0.049	1,204
7	2	3	2	2		3	1	2		3	2	2	1		1		5	3	4	36	0.054	667
8	1	5	2	1		5		2		4		1		3	3	2	4	1	4	38	0.028	1,357
9	2	2				1		1	1	2		2		3	2		3		3	22	0.037	595
10		2	1			1		2	2	3		1					1		3	16	0.014	1,143

Site Average = 1,109

3.0 MAINTENANCE/MANAGEMENT ACTIONS

Maintenance actions conducted after construction involved stabilization of stream banks in two sections. The first section is in the upstream section of the project near station 29+25 where a 10-inch terracotta sewer pipe crossed the channel. The scouring that was occurring around the pipe on the banks was stabilized with rip rap (Appendix D, see PRP 10 upstream photo). Maintenance was also necessary in the downstream section near station 33+50, where local bank erosion was occurring. This area was repaired with stone installed at the toe of the slope (Appendix D, see left side of PRP 11 downstream photo). Both of the maintenance areas were replanted with a seed mix to provide a fast growing herbaceous cover to prevent soil erosion.

Other actions on the site include unauthorized vegetation clearing in the riparian area. Members of the surrounding neighborhood conducted the clearing. The clearing was an initial concern because it was unknown if any planted vegetation was cut down or if the resulting brush piles smothered and killed any planted vegetation. After the action was taken, a site visit and visual inspection revealed that most of the cleared vegetation was giant ragweed (*Ambrosia trifida*) and pokeberry (*Phytolacca americana*). The brush piles were small in size and did not appear to have a significant impact on planted vegetation. In the future, it is not recommended that the neighborhood residents be allowed to continue cutting back vegetation within the riparian buffer. It is unknown if clearing large herbaceous vegetation helps the planted vegetation. If the neighborhood members insist on cutting back the vegetation, a possible

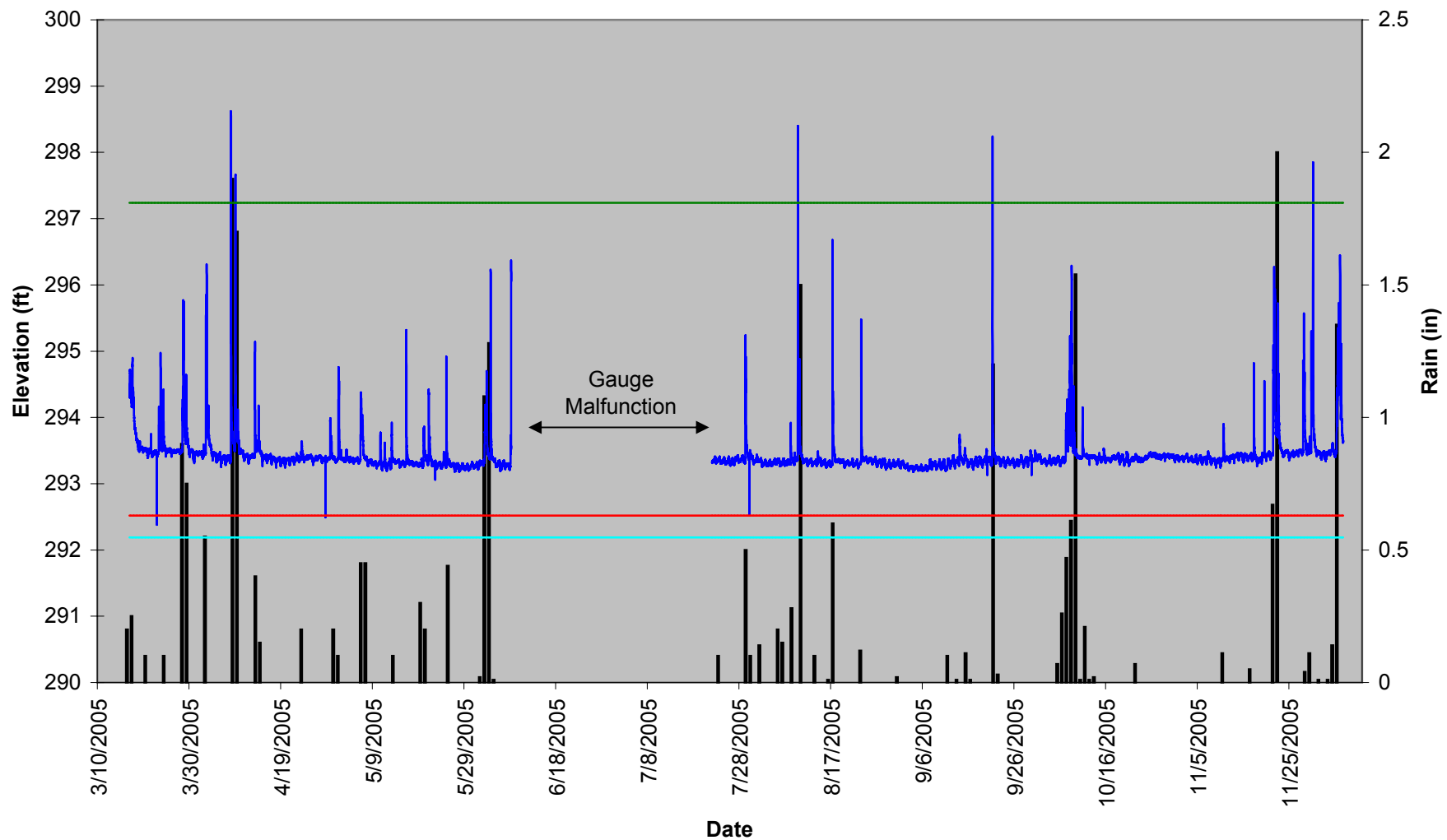
solution would be to have the clearing guided by an EEP vegetation specialist. This would provide positive interaction between the community and the EEP and prevent the possible clearing of planted vegetation.

4.0 CONCLUSIONS

Findings from this monitoring year indicate that the project site is performing as designed. The survival of the planted species exceeds the density requirement of the success criteria. The noted invasive vegetation should be monitored closely and future growing seasons may require manual removal or herbicide application to control its growth. Physical monitoring of the stream at two permanent monitoring reaches documented minimal change in the dimension, planform and profile from the as-built conditions. Currently, the stream is maintaining a stable form and accessing its floodplain. Instream structures are stable and functioning. Observations of stream bank vegetation indicate that live stake survivability is good and that herbaceous vegetation is well developed on the stream banks.

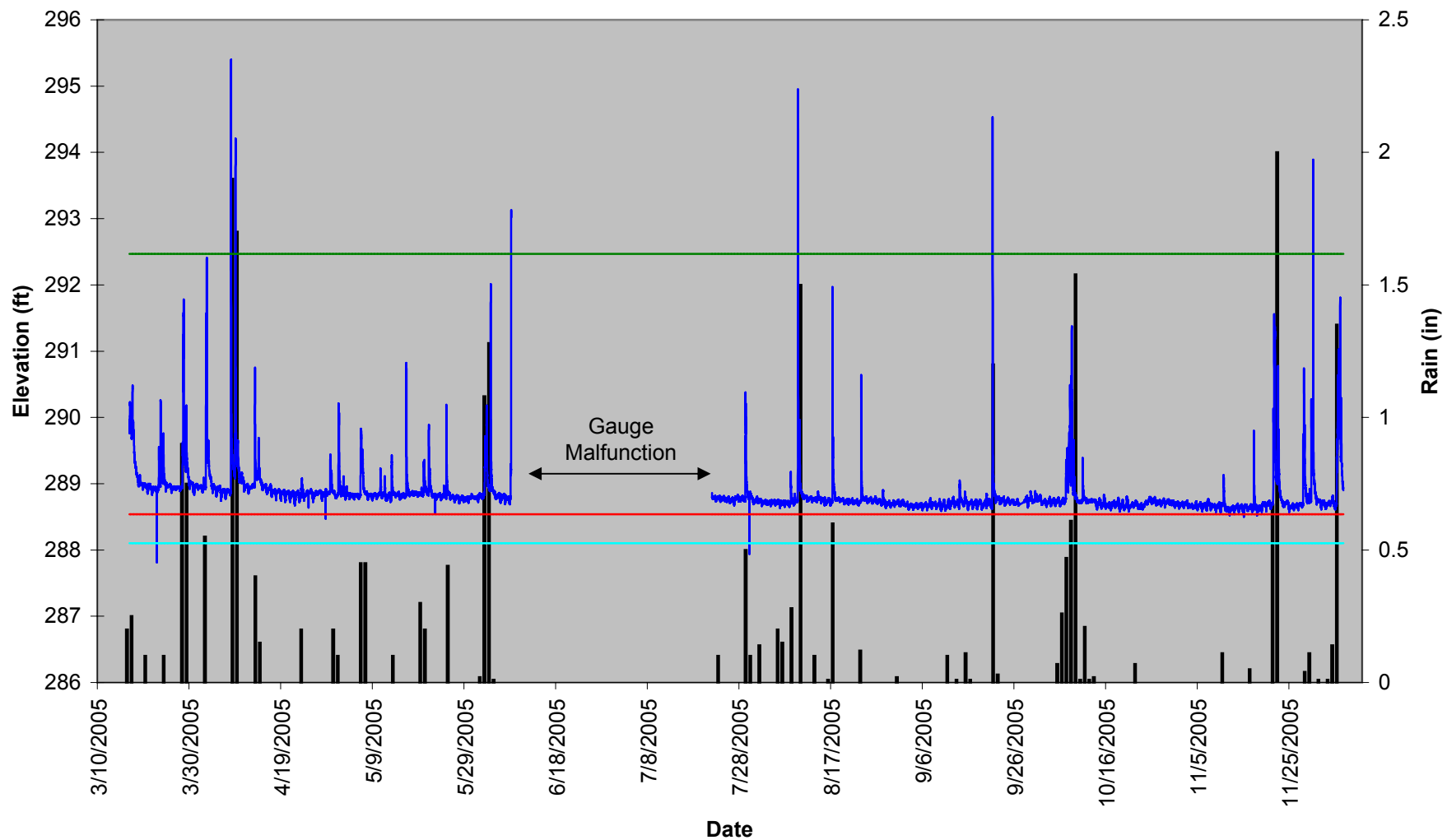
Appendix A
Hydrologic Monitoring

Third Fork-Gauge 1



■ Rain — Water Surface Elevation — Thalweg Elevation — Sensor Elevation — Bankfull Elevation

Third Fork-Gauge 2



■ Rain — Water Surface Elevation — Thalweg Elevation — Sensor Elevation — Bankfull Elevation

Appendix B
Stream Morphology

Third Fork Creek Stream Monitoring Year 01

River Basin:	Cape Fear
Watershed:	Third Fork Creek
XS ID	XS 1 (riffle)
Reach:	Upstream
Date:	9/27/2005
Field Crew:	A. Spiller and Z. Wendling

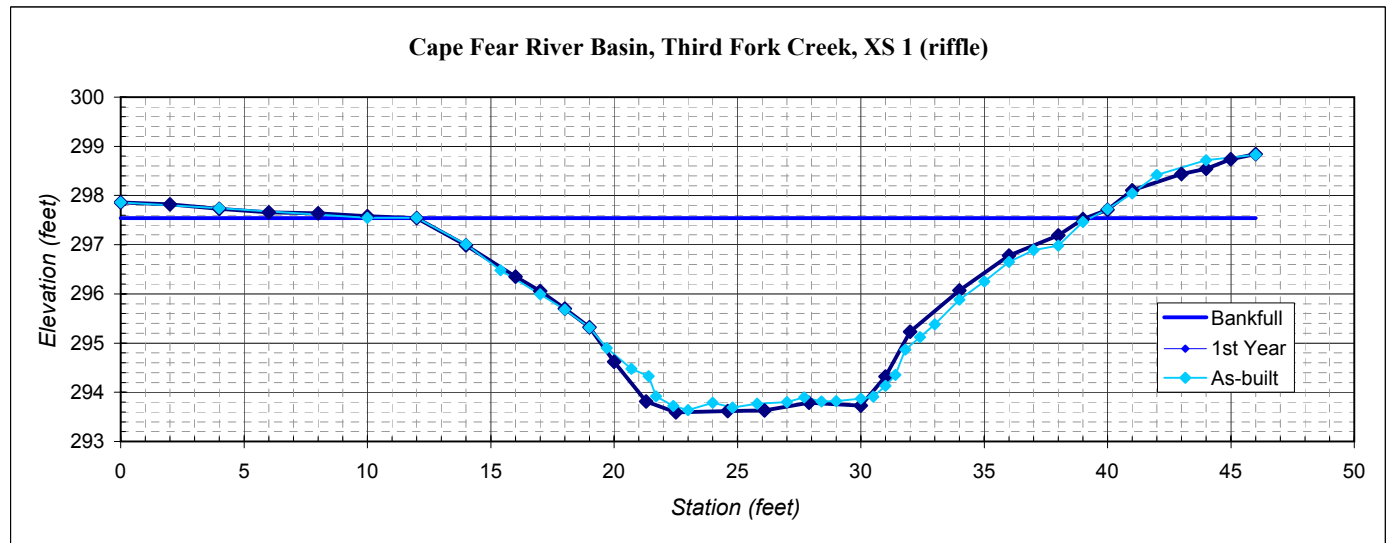


View of cross-section #1 looking upstream

Station	Rod Ht.	Elevation
0	4.48	297.86
2	4.52	297.82
4	4.61	297.73
6	4.68	297.66
8	4.70	297.64
10	4.76	297.58
12	4.80	297.54
14	5.35	296.99
16	5.99	296.35
17	6.28	296.06
18	6.64	295.70
19	7.02	295.32
20	7.72	294.62
21.3	8.53	293.81
22.5	8.75	293.59
24.6	8.72	293.62
26.1	8.71	293.63
27.9	8.55	293.79
30	8.61	293.73
31	8.02	294.32
32	7.11	295.23
34	6.27	296.07
36	5.56	296.78
38	5.15	297.19
39	4.82	297.52
40	4.63	297.71
41	4.23	298.11
43	3.90	298.44
44	3.80	298.54
45	3.60	298.74
46	3.50	298.84

SUMMARY DATA	
Bankfull Elevation:	297.54
Bankfull Cross-Sectional Area:	61.37
Bankfull Width:	27.11
Flood Prone Area Elevation:	301.49
Flood Prone Width:	240.00
Max Depth at Bankfull:	3.95
Mean Depth at Bankfull:	2.26
W / D Ratio:	12.0
Entrenchment Ratio:	8.85
Bank Height Ratio:	1.00

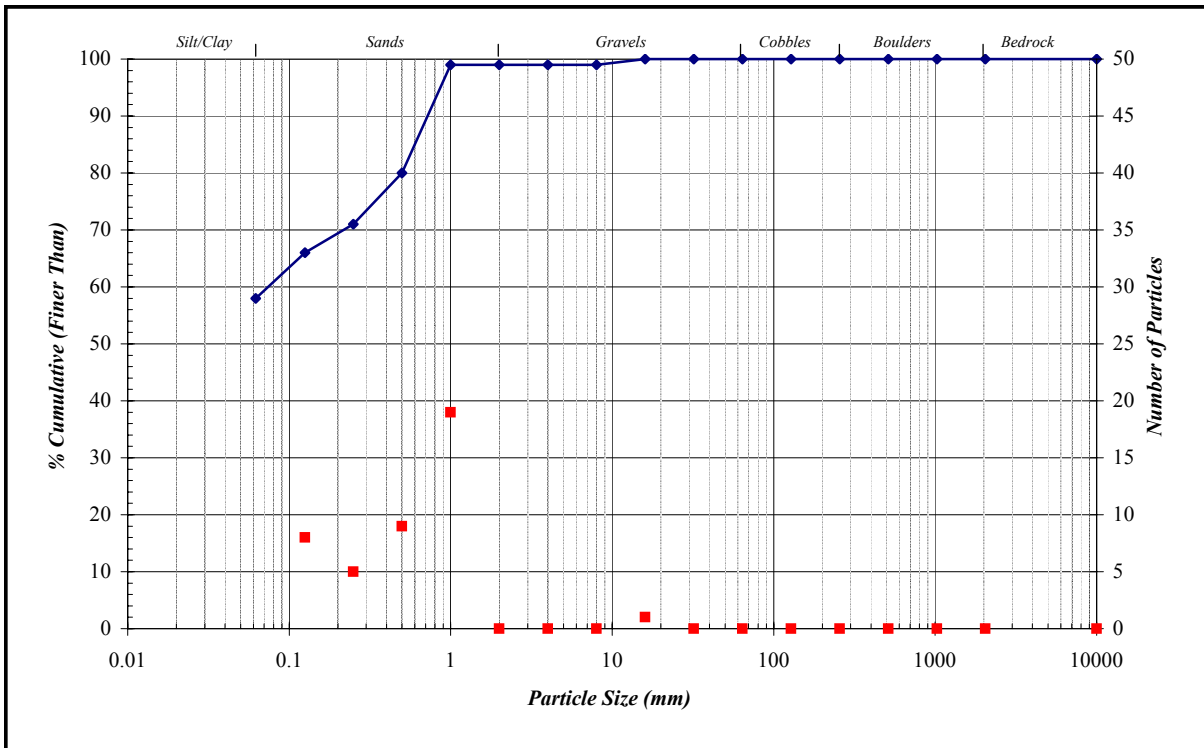
Stream Type:	C5c
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Third Fork Creek Stream Monitoring
Year 01

Stream:	Third Fork Creek
Location:	XS 1 - Riffle
Date:	9/27/2005

Particle		Size Range (mm)	Total #	Item %	% Cum.
S/C	Silt/Clay	0 < 0.062	58	58	58
Sand	Very Fine Sand	0.062 < 0.125	8	8	66
	Fine Sand	0.125 < 0.25	5	5	71
	Medium Sand	0.25 < 0.50	9	9	80
	Coarse Sand	0.50 < 1.0	19	19	99
	Very Coarse Sand	1 < 2	0	0	99
Gravel	Very Fine Gravel	2 < 4	0	0	99
	Fine Gravel	4 < 8	0	0	99
	Medium Gravel	8 < 16	1	1	100
	Coarse Gravel	16 < 32	0	0	100
	Very Coarse Gravel	32 < 64	0	0	100
Cbl	Small Cobble	64 < 128	0	0	100
	Large Cobble	128 < 256	0	0	100
Bldr	Small Boulder	256 < 512	0	0	100
	Medium Boulder	512 < 1024	0	0	100
	Large Boulder	1024 < 2048	0	0	100
Bdrk	Bedrock	Bedrock	0	0	100
Totals:			100	100	100



Size percent less than (mm)				
D16	D35	D50	D84	D95
0.060	0.060	0.060	0.600	0.85

Percent by substrate type (%)					
Silt/Clay	Sand	Gravel	Cobble	Boulder	Bedrock
58	41	1	0	0	0

Third Fork Creek Stream Monitoring Year 01

River Basin:	Cape Fear
Watershed:	Third Fork Creek
XS ID	XS 2 (pool)
Reach:	Upstream
Date:	9/27/2005
Field Crew:	A. Spiller and Z. Wendling

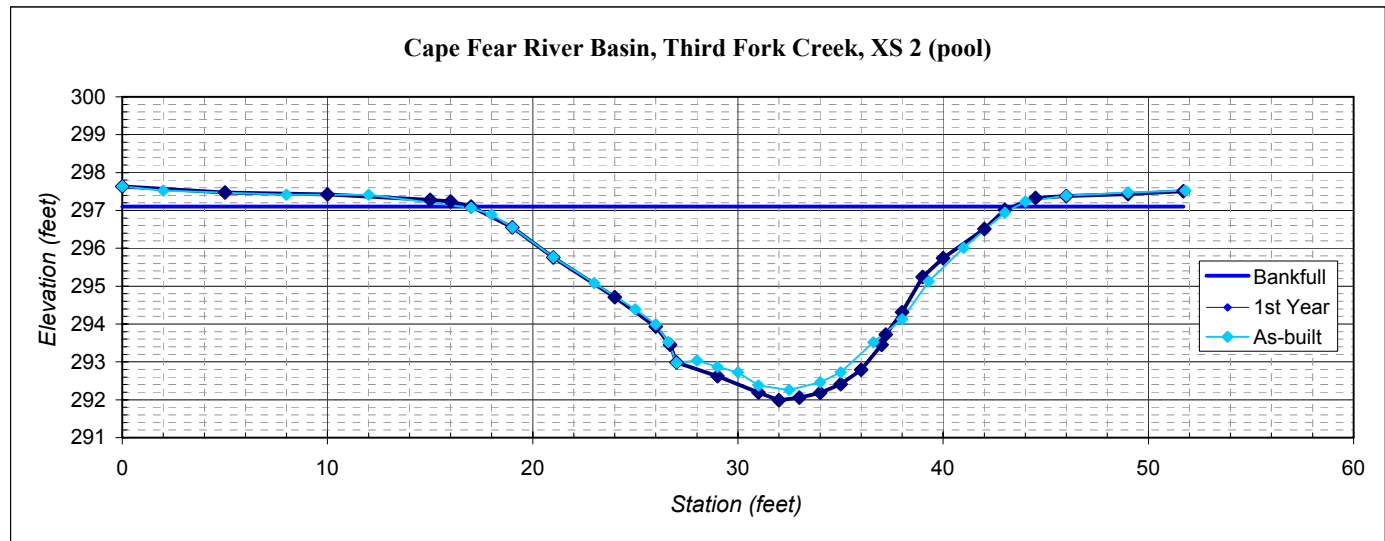
Station	Rod Ht.	Elevation
0	5.14	297.63
5	5.30	297.47
10	5.35	297.42
15	5.49	297.28
16	5.53	297.24
17	5.67	297.10
19	6.22	296.55
21	7.01	295.76
24	8.06	294.71
26	8.84	293.93
26.7	9.32	293.45
27	9.78	292.99
29	10.15	292.62
31	10.58	292.19
32	10.78	291.99
33	10.71	292.06
34	10.59	292.18
35	10.36	292.41
36	9.98	292.79
37	9.32	293.45
37.2	9.05	293.72
38	8.46	294.31
39	7.53	295.24
40	7.03	295.74
42	6.26	296.51
43	5.75	297.02
44.5	5.44	297.33
46	5.39	297.38
49	5.34	297.43
51.7	5.26	297.51

SUMMARY DATA	
Bankfull Elevation:	297.10
Bankfull Cross-Sectional Area:	72.88
Bankfull Width:	26.39
Flood Prone Area Elevation:	302.21
Flood Prone Width:	240.00
Max Depth at Bankfull:	5.11
Mean Depth at Bankfull:	2.76
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	1.03



View of cross-section #2 looking upstream

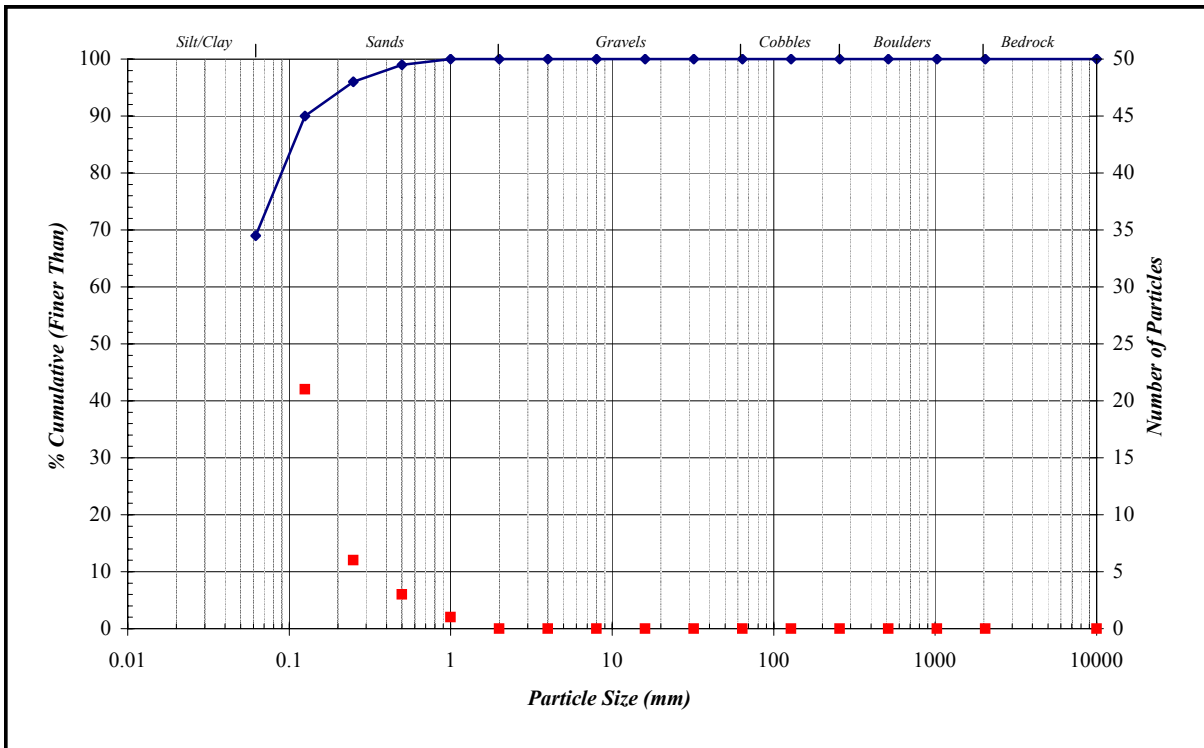
Stream Type:	C5c
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**Third Fork Creek Stream Monitoring
Year 01**

Stream:	Third Fork Creek
Location:	XS 2 - Pool
Date:	9/27/2005

Particle		Size Range (mm)	Total #	Item %	% Cum.
S/C	Silt/Clay	0 < 0.062	69	69	69
Sand	Very Fine Sand	0.062 < 0.125	21	21	90
	Fine Sand	0.125 < 0.25	6	6	96
	Medium Sand	0.25 < 0.50	3	3	99
	Coarse Sand	0.50 < 1.0	1	1	100
	Very Coarse Sand	1 < 2	0	0	100
Gravel	Very Fine Gravel	2 < 4	0	0	100
	Fine Gravel	4 < 8	0	0	100
	Medium Gravel	8 < 16	0	0	100
	Coarse Gravel	16 < 32	0	0	100
	Very Coarse Gravel	32 < 64	0	0	100
Cbl	Small Cobble	64 < 128	0	0	100
	Large Cobble	128 < 256	0	0	100
Bldr	Small Boulder	256 < 512	0	0	100
	Medium Boulder	512 < 1024	0	0	100
	Large Boulder	1024 < 2048	0	0	100
Bdrk	Bedrock	Bedrock	0	0	100
Totals:			100	100	100



Size percent less than (mm)				
D16	D35	D50	D84	D95
0.06	0.06	0.06	0.10	0.20

Percent by substrate type (%)					
Silt/Clay	Sand	Gravel	Cobble	Boulder	Bedrock
69	31	0	0	0	0

Third Fork Creek Stream Monitoring Year 01

River Basin:	Cape Fear
Watershed:	Third Fork Creek
XS ID	XS 3 (riffle)
Reach:	Downstream
Date:	9/27/2005
Field Crew:	A. Spiller and Z. Wendling

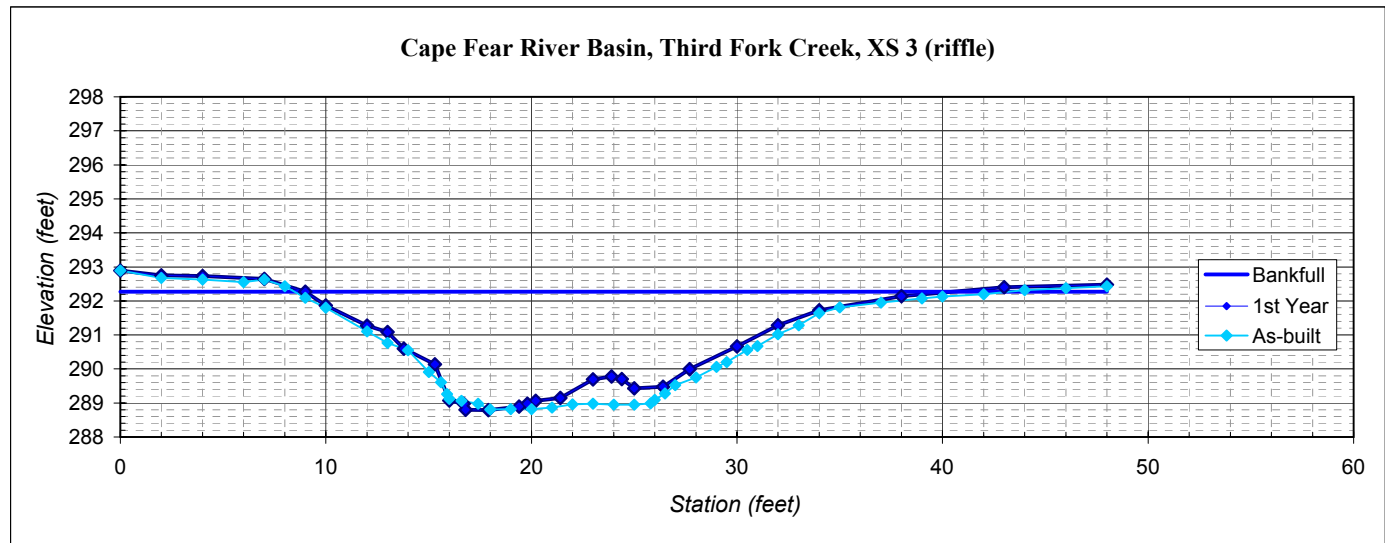
Station	Rod Ht.	Elevation
0	7.69	292.89
2	7.83	292.75
4	7.85	292.73
7	7.93	292.65
9	8.31	292.27
10	8.71	291.87
12	9.31	291.27
13	9.49	291.09
13.8	9.98	290.60
15.3	10.44	290.14
16	11.51	289.07
16.7	11.60	288.98
16.8	11.78	288.80
17.9	11.79	288.79
19.4	11.69	288.89
19.8	11.60	288.98
20.2	11.52	289.06
21.4	11.43	289.15
23	10.89	289.69
23.9	10.80	289.78
24.4	10.88	289.70
25	11.15	289.43
26.4	11.10	289.48
27.7	10.59	289.99
30	9.92	290.66
32	9.30	291.28
34	8.85	291.73
38	8.44	292.14
43	8.18	292.40
48	8.10	292.48

SUMMARY DATA	
Bankfull Elevation:	292.27
Bankfull Cross-Sectional Area:	53.46
Bankfull Width:	29.00
Flood Prone Area Elevation:	295.75
Flood Prone Width:	240.00
Max Depth at Bankfull:	3.48
Mean Depth at Bankfull:	1.84
W / D Ratio:	15.7
Entrenchment Ratio:	8.28
Bank Height Ratio:	1.04



View of cross-section #3 looking upstream

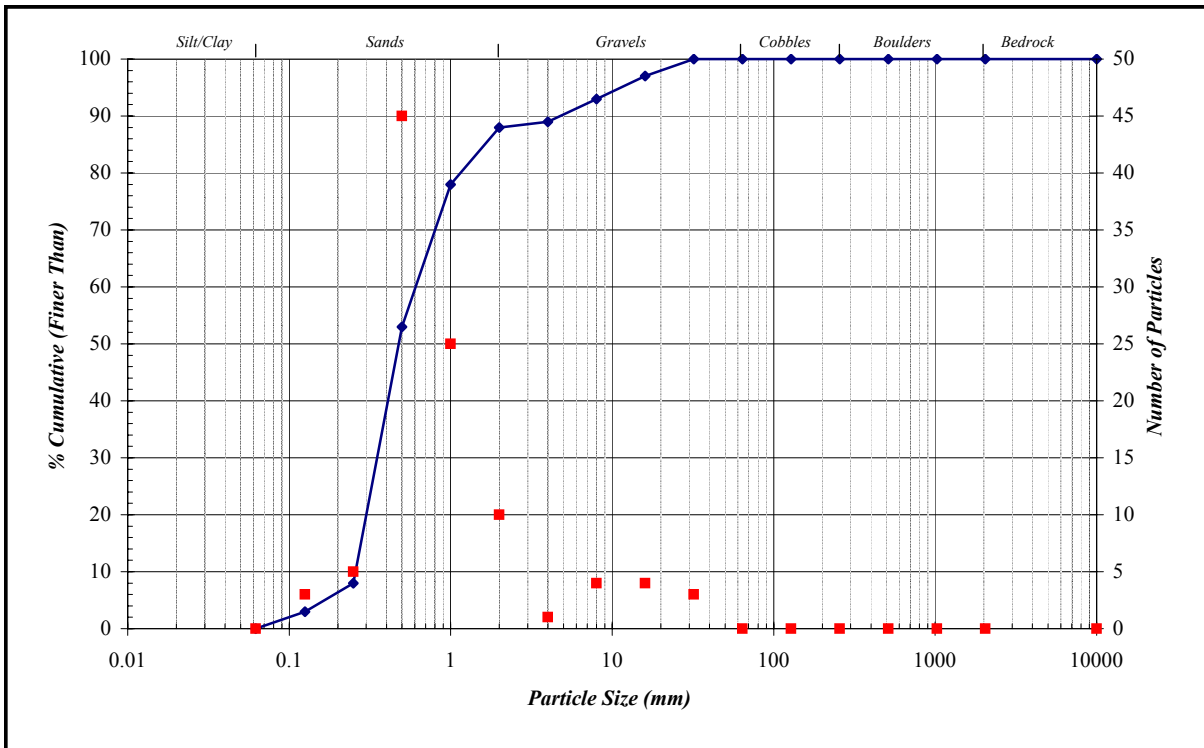
Stream Type:	C5c
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Third Fork Creek Stream Monitoring
Year 01

Stream:	Third Fork Creek
Location:	XS 3 - Riffle
Date:	9/27/2005

	Particle	Size Range (mm)	Total #	Item %	% Cum.
S/C	Silt/Clay	0 < 0.062	0	0	0
Sand	Very Fine Sand	0.062 < 0.125	3	3	3
	Fine Sand	0.125 < 0.25	5	5	8
	Medium Sand	0.25 < 0.50	45	45	53
	Coarse Sand	0.50 < 1.0	25	25	78
	Very Coarse Sand	1 < 2	10	10	88
Gravel	Very Fine Gravel	2 < 4	1	1	89
	Fine Gravel	4 < 8	4	4	93
	Medium Gravel	8 < 16	4	4	97
	Coarse Gravel	16 < 32	3	3	100
	Very Coarse Gravel	32 < 64	0	0	100
Cbl	Small Cobble	64 < 128	0	0	100
	Large Cobble	128 < 256	0	0	100
Bldr	Small Boulder	256 < 512	0	0	100
	Medium Boulder	512 < 1024	0	0	100
	Large Boulder	1024 < 2048	0	0	100
Bdrk	Bedrock	Bedrock	0	0	100
Totals:			100	100	100



Size percent less than (mm)				
D16	D35	D50	D84	D95
0.28	0.38	0.49	1.50	11.00

Percent by substrate type (%)					
Silt/Clay	Sand	Gravel	Cobble	Boulder	Bedrock
0	88	12	0	0	0

Third Fork Creek Stream Monitoring Year 01

River Basin:	Cape Fear
Watershed:	Third Fork Creek
XS ID	XS 4 (pool)
Reach:	Downstream
Date:	9/27/2005
Field Crew:	A. Spiller and Z. Wendling

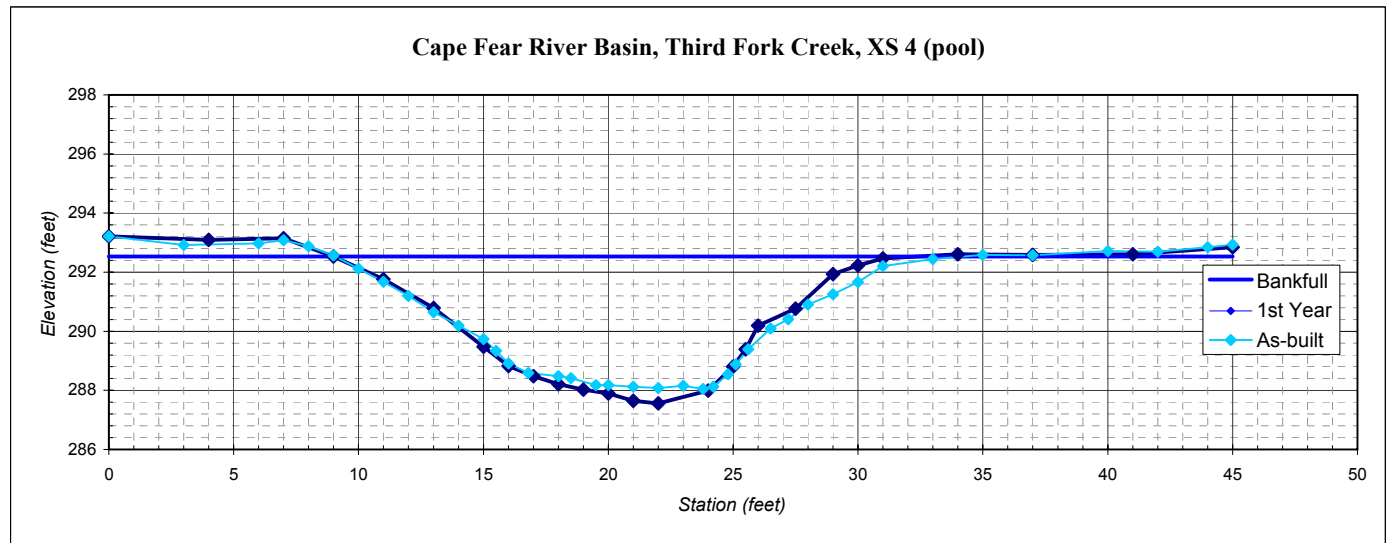


View of cross-section #3 looking upstream

Station	Rod Ht.	Elevation
0	7.32	293.21
4	7.44	293.09
7	7.38	293.15
9	8.00	292.53
11	8.77	291.76
13	9.74	290.79
15	11.05	289.48
16	11.70	288.83
17	12.05	288.48
18	12.32	288.21
19	12.50	288.03
20	12.64	287.89
21	12.88	287.65
22	12.97	287.56
24	12.54	287.99
25	11.73	288.80
25.5	11.14	289.39
26	10.34	290.19
27.5	9.76	290.77
29	8.59	291.94
30	8.30	292.23
31	8.06	292.47
34	7.92	292.61
37	7.95	292.58
41	7.92	292.61
45	7.68	292.85

SUMMARY DATA	
Bankfull Elevation:	292.53
Bankfull Cross-Sectional Area:	60.40
Bankfull Width:	23.29
Flood Prone Area Elevation:	297.50
Flood Prone Width:	240.00
Max Depth at Bankfull:	4.97
Mean Depth at Bankfull:	2.59
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	0.96

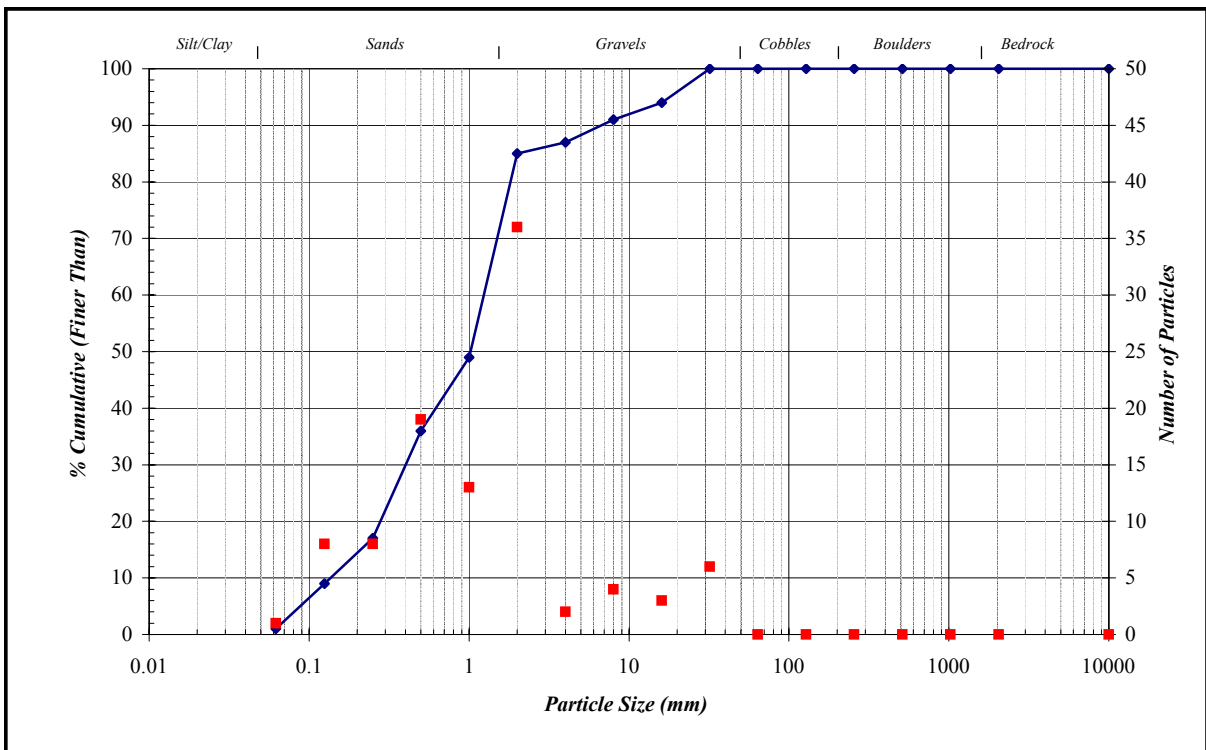
Stream Type: C5c



Third Fork Creek Stream Monitoring Year 01

Stream:	Third Fork Creek
Location:	XS 4 - Pool
Date:	9/27/2005

Particle	Size Range (mm)	Total #	Item %	% Cum.
S/C	Silt/Clay 0 < 0.062	1	1	1
Sand	Very Fine Sand 0.062 < 0.125	8	8	9
	Fine Sand 0.125 < 0.25	8	8	17
	Medium Sand 0.25 < 0.50	19	19	36
	Coarse Sand 0.50 < 1.0	13	13	49
	Very Coarse Sand 1 < 2	36	36	85
Gravel	Very Fine Gravel 2 < 4	2	2	87
	Fine Gravel 4 < 8	4	4	91
	Medium Gravel 8 < 16	3	3	94
	Coarse Gravel 16 < 32	6	6	100
	Very Coarse Gravel 32 < 64	0	0	100
Cbl	Small Cobble 64 < 128	0	0	100
	Large Cobble 128 < 256	0	0	100
Bldr	Small Boulder 256 < 512	0	0	100
	Medium Boulder 512 < 1024	0	0	100
	Large Boulder 1024 < 2048	0	0	100
Bdrk	Bedrock	0	0	100
Totals:		100	100	100



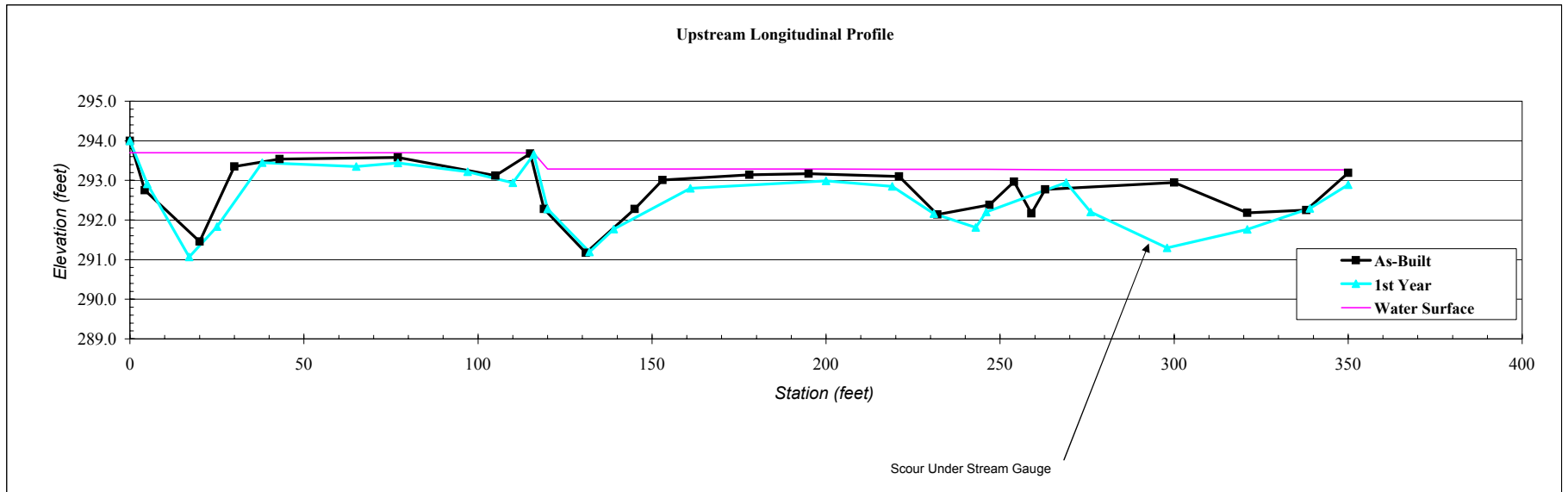
Size percent less than (mm)				
D16	D35	D50	D84	D95
0.25	0.48	1.00	2.00	18.00

Percent by substrate type (%)					
Silt/Clay	Sand	Gravel	Cobble	Boulder	Bedrock
1	84	15	0	0	0

**Third Fork Creek Stream Monitoring
Year 01**

River Basin:	Cape Fear
Watershed:	Third Fork Creek
Reach:	Upstream
Profile ID:	Profile 1
Date:	September-05
Field Crew:	A. Spiller and Z. Wendling

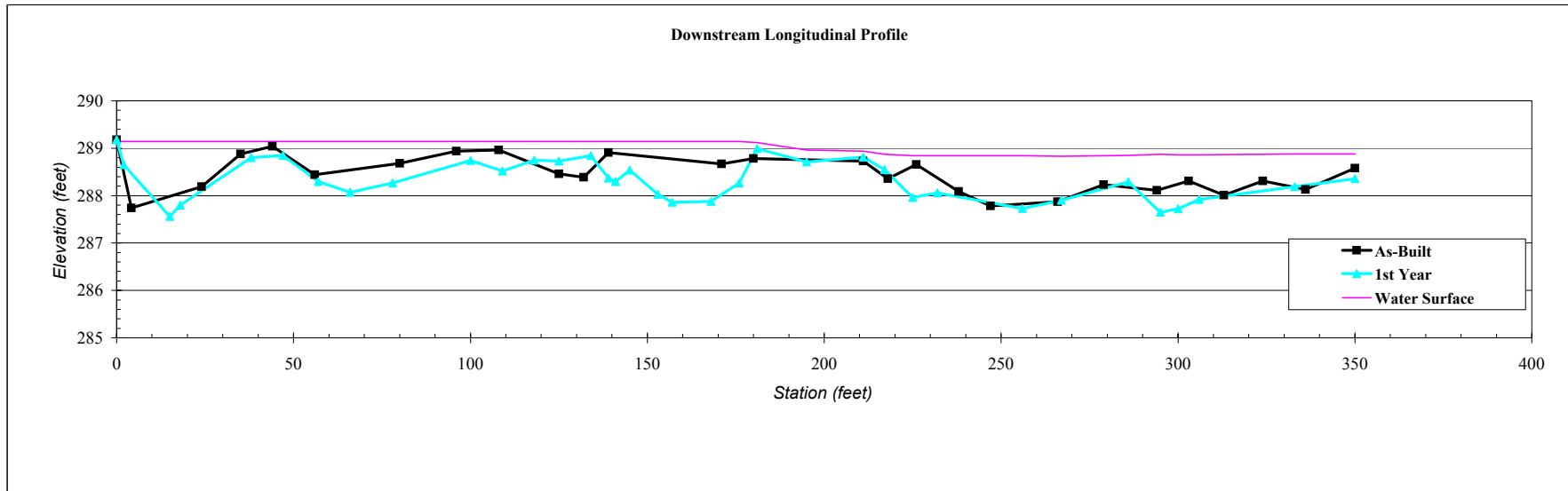
Average Slope:	0.001
Pool Water Surface Slope:	0.000-0.001
Riffle Water Surface Slope:	0.001-0.002
Pool to Pool Spacing (ft):	45-115
Average Depth As-built (ft):	1.22
Average Depth 1st Year (ft):	1.47



**Third Fork Creek Stream Monitoring
Year 01**

River Basin:	Cape Fear
Watershed:	Third Fork Creek
Reach:	Downstream
Profile ID:	Profile 2
Date:	September-05
Field Crew:	A. Spiller and Z. Wendling

Average Water Surface Slope:	0.001
Pool Water Surface Slope:	0.000-0.001
Riffle Water Surface Slope:	0.001-0.011
Pool to Pool Spacing (ft):	14-82
Average Depth As-built (ft):	0.72
Average Depth 1st Year (ft):	0.86



Appendix C
Vegetation Monitoring Plot Data Sheets

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 1 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Southern Arrowwood (<i>Viburnum dentatum</i>)	2.1	0.02	
2	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.4	0.02	Multistem
3	Coralberry (<i>Symphoricarpos orbiculatus</i>)	0.9	0.02	
4	Silky Dogwood (<i>Cornus amomum</i>)	1.8	0.02	Multistem
5	Silky Dogwood (<i>Cornus amomum</i>)	1.2	0.02	
6	Silky Dogwood (<i>Cornus amomum</i>)	1.0	0.02	Multistem
7	Silky Dogwood (<i>Cornus amomum</i>)	1.3	0.02	
8	Silky Dogwood (<i>Cornus amomum</i>)	1.2	0.02	
9	Silky Dogwood (<i>Cornus amomum</i>)	2.1	0.02	
10	Virginia Sweetspire (<i>Itea virginica</i>)	1.2	0.02	
11	Possum Haw (<i>Viburnum nudum</i>)	1.5	0.02	
12	Elderberry (<i>Sambucus canadensis</i>)	1.4	0.02	
13	Sycamore (<i>Platanus occidentalis</i>)	1.9	0.02	
14	Virginia Sweetspire (<i>Itea virginica</i>)	1.2	0.02	
15	Deciduous Holly (<i>Ilex decidua</i>)	1.5	0.02	
16	Tag Alder (<i>Alnus serrulata</i>)	1.2	0.01	
17	Sycamore (<i>Platanus occidentalis</i>)	1.6	0.02	
18	Beautyberry (<i>Callicarpa americana</i>)	0.6	0.02	
19	Silky Dogwood (<i>Cornus amomum</i>)	0.6	0.02	Multistem
20	Silky Dogwood (<i>Cornus amomum</i>)	0.9	0.02	
21	Elderberry (<i>Sambucus canadensis</i>)	0.7	0.02	
22	Sycamore (<i>Platanus occidentalis</i>)	1.0	0.02	
23	Possum Haw (<i>Viburnum nudum</i>)	1.5	0.02	
24	Deciduous Holly (<i>Ilex decidua</i>)	1.7	0.03	
25	Virginia Sweetspire (<i>Itea virginica</i>)	1.9	0.02	
26	Elderberry (<i>Sambucus canadensis</i>)	1.4	0.02	
27	Deciduous Holly (<i>Ilex decidua</i>)	1.3	0.01	
28	Sycamore (<i>Platanus occidentalis</i>)	2.6	0.03	
29	Sweetshrub (<i>Calycanthus floridus</i>)	1.2	0.02	
30	Possum Haw (<i>Viburnum nudum</i>)	1.3	0.02	Multistem
31	Virginia Sweetspire (<i>Itea virginica</i>)	1.2	0.01	Multistem
32	Sweetshrub (<i>Calycanthus floridus</i>)	1.2	0.02	
33	Virginia Sweetspire (<i>Itea virginica</i>)	1.0	0.02	
34	Possum Haw (<i>Viburnum nudum</i>)			Dead
35	Silky Dogwood (<i>Cornus amomum</i>)			Dead

Species	Percent of Total
Silky Dogwood (<i>Cornus amomum</i>)	24
Sycamore (<i>Platanus occidentalis</i>)	13
Elderberry (<i>Sambucus canadensis</i>)	9
Beautyberry (<i>Callicarpa americana</i>)	3
Tag Alder (<i>Alnus serrulata</i>)	3
Coralberry (<i>Symphoricarpos orbiculatus</i>)	3
Sweetshrub (<i>Calycanthus floridus</i>)	6
Virginia Sweetspire (<i>Itea virginica</i>)	15
Possum Haw (<i>Viburnum nudum</i>)	9
Deciduous Holly (<i>Ilex decidua</i>)	9
Southern Arrowwood (<i>Viburnum dentatum</i>)	6

Density:

$$\text{Total Number of Stems } \underline{33} \quad / \quad 0.033 \text{ acres} \quad = \quad \underline{1000} \quad \text{stems / acre}$$

Survivability:

$$\text{Total Number of Stems } \underline{33} \quad / \quad 35 \text{ stems} \quad \times \quad 100 \quad = \quad \underline{94} \quad \% \text{ survivability}$$



View of center of plot looking north.

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 2 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.3	0.02	Multistem
2	Virginia Sweetspire (<i>Itea virginica</i>)	1.2	0.02	Multistem
3	Beautyberry (<i>Callicarpa americana</i>)	0.8	0.01	Multistem
4	Eastern Redbud (<i>Cercis canadensis</i>)	5.6	0.05	Multistem
5	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.3	0.01	Multistem
6	Tag Alder (<i>Alnus serrulata</i>)	1.4	0.02	
7	Sycamore (<i>Platanus occidentalis</i>)	2.2	0.02	
8	Beautyberry (<i>Callicarpa americana</i>)	1.2	0.01	
9	Sweetshrub (<i>Calycanthus floridus</i>)	0.6	0.02	
10	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.3	0.02	
11	Wax Myrtle (<i>Myrica cerifera</i>)	1.8	0.02	
12	Sweetshrub (<i>Calycanthus floridus</i>)	1.1	0.02	
13	Elderberry (<i>Sambucus canadensis</i>)	1.9	0.02	
14	Eastern Redbud (<i>Cercis canadensis</i>)	6.0	0.06	Multistem
15	Deciduous Holly (<i>Ilex decidua</i>)	2.0	0.02	Multistem
16	Elderberry (<i>Sambucus canadensis</i>)	1.5	0.02	
17	Elderberry (<i>Sambucus canadensis</i>)	0.6	0.02	
18	Beautyberry (<i>Callicarpa americana</i>)	2.3	0.02	
19	Beautyberry (<i>Callicarpa americana</i>)	1.2	0.02	
20	Sycamore (<i>Platanus occidentalis</i>)	1.8	0.02	
21	Sweetshrub (<i>Calycanthus floridus</i>)	0.7	0.02	
22	Possum Haw (<i>Viburnum nudum</i>)	0.8	0.02	
23	Silky Dogwood (<i>Cornus amomum</i>)	1.3	0.02	
24	Tag Alder (<i>Alnus serrulata</i>)	1.7	0.02	
25	Tag Alder (<i>Alnus serrulata</i>)	2.0	0.02	
26	Witchhazel (<i>Hamamelis virginiana</i>)	0.8	0.02	Multistem
27	Virginia Sweetspire (<i>Itea virginica</i>)	1.4	0.03	
28	Southern Arrowwood (<i>Viburnum dentatum</i>)	2.1	0.04	
29	Beautyberry (<i>Callicarpa americana</i>)	1.8	0.02	Multistem
30	Sycamore (<i>Platanus occidentalis</i>)	2.5	0.03	Multistem
31	Tag Alder (<i>Alnus serrulata</i>)	2.0	0.02	
32	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.4	0.02	
33	Deciduous Holly (<i>Ilex decidua</i>)	0.7	0.02	
34	Deciduous Holly (<i>Ilex decidua</i>)	0.6	0.01	
35	Wax Myrtle (<i>Myrica cerifera</i>)	1.4	0.02	
36	Wax Myrtle (<i>Myrica cerifera</i>)	1.1	0.02	
37	Beautyberry (<i>Callicarpa americana</i>)	1.1	0.02	
38	Beautyberry (<i>Callicarpa americana</i>)	1.7	0.02	
39	Virginia Sweetspire (<i>Itea virginica</i>)	1.5	0.02	
40	Tag Alder (<i>Alnus serrulata</i>)	0.9	0.01	Multistem
41	Possum Haw (<i>Viburnum nudum</i>)	0.7	0.02	Multistem
42	Silky Dogwood (<i>Cornus amomum</i>)	1.1	0.02	
43	Coralberry (<i>Symphoricarpos orbiculatus</i>)	0.5	0.01	
44	Deciduous Holly (<i>Ilex decidua</i>)	1.0	0.01	Multistem
45	Tag Alder (<i>Alnus serrulata</i>)	1.2	0.02	Multistem
46	Deciduous Holly (<i>Ilex decidua</i>)	0.7	0.02	Multistem
47	Wax Myrtle (<i>Myrica cerifera</i>)	1.6	0.02	Multistem
48	American Holly (<i>Ilex opaca</i>)	2.2	0.03	Multistem
49	Beautyberry (<i>Callicarpa americana</i>)	1.6	0.02	
50	Sweetshrub (<i>Calycanthus floridus</i>)	1.0	0.02	Multistem
51	Elderberry (<i>Sambucus canadensis</i>)			Dead

Species	Percent of Total
Silky Dogwood (<i>Cornus amomum</i>)	4
Sycamore (<i>Platanus occidentalis</i>)	6
Elderberry (<i>Sambucus canadensis</i>)	6
Beautyberry (<i>Callicarpa americana</i>)	16
American Holly (<i>Ilex opaca</i>)	2
Witchhazel (<i>Hamamelis virginiana</i>)	2
Eastern Redbud (<i>Cercis canadensis</i>)	4
Tag Alder (<i>Alnus serrulata</i>)	12
Coralberry (<i>Symphoricarpos orbiculatus</i>)	10
Wax Myrtle (<i>Myrica cerifera</i>)	8
Sweetshrub (<i>Calycanthus floridus</i>)	6
Virginia Sweetspire (<i>Itea virginica</i>)	6
Possum Haw (<i>Viburnum nudum</i>)	4
Deciduous Holly (<i>Ilex decidua</i>)	10
Southern Arrowwood (<i>Viburnum dentatum</i>)	4

Density:

$$\text{Total Number of Stems } \underline{50} \quad / \quad 0.034 \text{ acres} \quad = \quad \underline{1471} \text{ stems / acre}$$

Survivability:

$$\text{Total Number of Stems } \underline{50} \quad / \quad 51 \text{ stems} \quad \times \quad 100 \quad = \quad \underline{98} \quad \% \text{ survivability}$$



View of center of plot looking north.

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 3 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Witchhazel (<i>Hamamelis virginiana</i>)	2.0	0.02	
2	Virginia Sweetspire (<i>Itea virginica</i>)	1.7	0.02	
3	Elderberry (<i>Sambucus canadensis</i>)	0.9	0.01	Multistem
4	Beautyberry (<i>Callicarpa americana</i>)	1.1	0.02	Multistem
5	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.9	0.02	Multistem
6	Beautyberry (<i>Callicarpa americana</i>)	1.7	0.02	
7	Possum Haw (<i>Viburnum nudum</i>)	2.2	0.02	
8	Deciduous Holly (<i>Ilex decidua</i>)	0.8	0.03	
9	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.5	0.02	
10	Beautyberry (<i>Callicarpa americana</i>)	2.0	0.03	
11	Beautyberry (<i>Callicarpa americana</i>)	1.0	0.02	
12	Green Ash (<i>Fraxinus pennsylvanica</i>)	2.8	0.03	
13	Tag Alder (<i>Alnus serrulata</i>)	1.6	0.03	
14	Coralberry (<i>Symphoricarpos orbiculatus</i>)	2.1	0.02	
15	Tag Alder (<i>Alnus serrulata</i>)	1.7	0.02	
16	Beautyberry (<i>Callicarpa americana</i>)	0.5	0.01	Multistem
17	River Birch (<i>Betula nigra</i>)	2.1	0.02	
18	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.8	0.02	
19	Beautyberry (<i>Callicarpa americana</i>)	2.0	0.02	
20	Possum Haw (<i>Viburnum nudum</i>)	1.1	0.02	
21	Witchhazel (<i>Hamamelis virginiana</i>)	2.0	0.02	
22	Beautyberry (<i>Callicarpa americana</i>)	1.1	0.02	
23	River Birch (<i>Betula nigra</i>)	1.8	0.02	
24	Wax Myrtle (<i>Myrica cerifera</i>)	1.6	0.01	
25	Beautyberry (<i>Callicarpa americana</i>)	0.6	0.02	
26	Beautyberry (<i>Callicarpa americana</i>)	1.5	0.02	
27	Sweetshrub (<i>Calycanthus floridus</i>)	2.0	0.02	
28	Sycamore (<i>Platanus occidentalis</i>)	1.6	0.02	
29	Virginia Sweetspire (<i>Itea virginica</i>)	0.6	0.03	
30	Sweetshrub (<i>Calycanthus floridus</i>)	0.8	0.03	Multistem
31	Beautyberry (<i>Callicarpa americana</i>)	1.3	0.02	Multistem
32	Possum Haw (<i>Viburnum nudum</i>)	1.6	0.02	
33	Wax Myrtle (<i>Myrica cerifera</i>)	1.8	0.02	
34	Virginia Sweetspire (<i>Itea virginica</i>)	2.5	0.02	
35	Deciduous Holly (<i>Ilex decidua</i>)	1.2	0.02	Multistem
36	Sycamore (<i>Platanus occidentalis</i>)	1.2	0.02	
37	Beautyberry (<i>Callicarpa americana</i>)	1.8	0.02	
38	Wax Myrtle (<i>Myrica cerifera</i>)	1.2	0.02	
39	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.0	0.02	
40	Elderberry (<i>Sambucus canadensis</i>)	0.8	0.02	Multistem
41	Possum Haw (<i>Viburnum nudum</i>)	0.7	0.02	
42	Sweetshrub (<i>Calycanthus floridus</i>)	0.7	0.02	
43	Southern Arrowwood (<i>Viburnum dentatum</i>)	0.6	0.02	
44	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.3	0.02	
45	Possum Haw (<i>Viburnum nudum</i>)			Dead
46	Southern Arrowwood (<i>Viburnum dentatum</i>)			Dead
47	Sweetshrub (<i>Calycanthus floridus</i>)			Dead

Species	Percent of Total
Sycamore (<i>Platanus occidentalis</i>)	5
Elderberry (<i>Sambucus canadensis</i>)	5
Beautyberry (<i>Callicarpa americana</i>)	25
River Birch (<i>Betula nigra</i>)	3
Witchhazel (<i>Hamamelis virginiana</i>)	5
Green Ash (<i>Fraxinus pennsylvanica</i>)	5
Tag Alder (<i>Alnus serrulata</i>)	5
Coralberry (<i>Symphoricarpos orbiculatus</i>)	6
Wax Myrtle (<i>Myrica cerifera</i>)	6
Sweetshrub (<i>Calycanthus floridus</i>)	6
Virginia Sweetspire (<i>Itea virginica</i>)	6
Possum Haw (<i>Viburnum nudum</i>)	11
Deciduous Holly (<i>Ilex decidua</i>)	5
Southern Arrowwood (<i>Viburnum dentatum</i>)	7

Density:

$$\frac{\text{Total Number of Stems } \mathbf{44}}{\text{0.047 acres}} = \mathbf{936} \text{ stems / acre}$$

Survivability:

$$\frac{\text{Total Number of Stems } \mathbf{44}}{\mathbf{47} \text{ stems}} \times 100 = \mathbf{94} \text{ \% survivability}$$



View of center of plot looking north.

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 4 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.2	0.01	Multistem
2	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.9	0.02	
3	Possum Haw (<i>Viburnum nudum</i>)	2.5	0.03	
4	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.7	0.02	
5	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.3	0.02	
6	Virginia Sweetspire (<i>Itea virginica</i>)	2.7	0.02	Multistem
7	Witchhazel (<i>Hamamelis virginiana</i>)	1.8	0.02	Multistem
8	River Birch (<i>Betula nigra</i>)	1.2	0.02	Multistem
9	Deciduous Holly (<i>Ilex decidua</i>)	1.7	0.02	Multistem
10	Sycamore (<i>Platanus occidentalis</i>)	2.1	0.03	Multistem
11	Sycamore (<i>Platanus occidentalis</i>)	1.8	0.02	
12	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.8	0.02	
13	Silky Dogwood (<i>Cornus amomum</i>)	1.7	0.02	
14	Possum Haw (<i>Viburnum nudum</i>)	1.3	0.02	Multistem
15	Sweetshrub (<i>Calycanthus floridus</i>)	2.1	0.02	Multistem
16	Beautyberry (<i>Callicarpa americana</i>)	1.0	0.02	Multistem
17	Deciduous Holly (<i>Ilex decidua</i>)	1.9	0.02	Multistem
18	Silky Dogwood (<i>Cornus amomum</i>)	1.6	0.02	Multistem
19	Beautyberry (<i>Callicarpa americana</i>)	1.0	0.01	Multistem
20	Green Ash (<i>Fraxinus pennsylvanica</i>)	2.5	0.02	
21	Wax Myrtle (<i>Myrica cerifera</i>)	1.1	0.01	
22	River Birch (<i>Betula nigra</i>)	1.5	0.02	
23	Virginia Sweetspire (<i>Itea virginica</i>)	1.0	0.01	
24	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.2	0.01	
25	Beautyberry (<i>Callicarpa americana</i>)	1.3	0.02	
26	Sweetshrub (<i>Calycanthus floridus</i>)	0.9	0.01	Multistem
27	Silky Dogwood (<i>Cornus amomum</i>)	0.8	0.02	
28	Possum Haw (<i>Viburnum nudum</i>)	0.9	0.01	Multistem
29	Elderberry (<i>Sambucus canadensis</i>)	0.5	0.01	Multistem
30	Sweetshrub (<i>Calycanthus floridus</i>)	1.4	0.02	Multistem
31	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.6	0.02	Multistem
32	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.6	0.02	Multistem
33	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.3	0.02	
34	Possum Haw (<i>Viburnum nudum</i>)	2.2	0.02	
35	Possum Haw (<i>Viburnum nudum</i>)	1.4	0.03	
36	Possum Haw (<i>Viburnum nudum</i>)			Dead
37	Virginia Sweetspire (<i>Itea virginica</i>)			Dead
38	Wax Myrtle (<i>Myrica cerifera</i>)			Dead
39	Elderberry (<i>Sambucus canadensis</i>)			Dead
40	Virginia Sweetspire (<i>Itea virginica</i>)			Dead

Species	Percent of Total
Sycamore (<i>Platanus occidentalis</i>)	6
Elderberry (<i>Sambucus canadensis</i>)	3
Beautyberry (<i>Callicarpa americana</i>)	6
River Birch (<i>Betula nigra</i>)	6
Witchhazel (<i>Hamamelis virginiana</i>)	6
Green Ash (<i>Fraxinus pennsylvanica</i>)	14
Coralberry (<i>Symphoricarpos orbiculatus</i>)	11
Wax Myrtle (<i>Myrica cerifera</i>)	3
Sweetshrub (<i>Calycanthus floridus</i>)	8
Virginia Sweetspire (<i>Itea virginica</i>)	6
Possum Haw (<i>Viburnum nudum</i>)	14
Deciduous Holly (<i>Ilex decidua</i>)	6
Southern Arrowwood (<i>Viburnum dentatum</i>)	3
Silky Dogwood (<i>Cornus amomum</i>)	8

Density:

$$\begin{array}{r} \text{Total Number of} \\ \text{Stems} \end{array} \quad \underline{35} \quad / \quad 0.036 \text{ acres} \quad = \quad \underline{972} \quad \text{stems / acre}$$

Survivability:

$$\begin{array}{r} \text{Total Number of} \\ \text{Stems} \end{array} \quad \underline{35} \quad / \quad 40 \text{ stems} \quad \times \quad 100 \quad = \quad \underline{88} \quad \% \text{ survivability}$$



View of center of plot looking north.

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 5 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Sycamore (<i>Platanus occidentalis</i>)	1.6	0.02	
2	River Birch (<i>Betula nigra</i>)	2.3	0.02	
3	Beautyberry (<i>Callicarpa americana</i>)	1.1	0.02	Multistem
4	Possum Haw (<i>Viburnum nudum</i>)	1.8	0.02	
5	Silky Dogwood (<i>Cornus amomum</i>)	1.7	0.03	not secure in ground
6	Silky Dogwood (<i>Cornus amomum</i>)	2	0.02	Multistem
7	Possum Haw (<i>Viburnum nudum</i>)	1.5	0.03	
8	Wax Myrtle (<i>Myrica cerifera</i>)	1.9	0.02	
9	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.6	0.02	Multistem
10	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.2	0.02	Multistem
11	Beautyberry (<i>Callicarpa americana</i>)	1	0.02	
12	Witchhazel (<i>Hamamelis virginiana</i>)	1.7	0.02	
13	Possum Haw (<i>Viburnum nudum</i>)	1.3	0.02	Multistem
14	Virginia Sweetspire (<i>Itea virginica</i>)	2.7	0.02	
15	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.8	0.02	Multistem
16	Tag Alder (<i>Alnus serrulata</i>)	1.6	0.02	
17	Tag Alder (<i>Alnus serrulata</i>)	0.7	0.02	
18	Silky Dogwood (<i>Cornus amomum</i>)	2	0.02	Multistem
19	Wax Myrtle (<i>Myrica cerifera</i>)	2	0.03	Multistem
20	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.6	0.02	
21	Beautyberry (<i>Callicarpa americana</i>)	1.2	0.02	Multistem
22	Beautyberry (<i>Callicarpa americana</i>)	2	0.02	
23	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.2	0.02	
24	Possum Haw (<i>Viburnum nudum</i>)	1.1	0.02	
25	Beautyberry (<i>Callicarpa americana</i>)	1.6	0.03	
26	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.8	0.02	
27	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.6	0.02	Multistem
28	Tag Alder (<i>Alnus serrulata</i>)	2.2	0.02	Multistem
29	Tag Alder (<i>Alnus serrulata</i>)	1.6	0.03	Multistem
30	Green Ash (<i>Fraxinus pennsylvanica</i>)	2	0.03	
31	Sweetshrub (<i>Calycanthus floridus</i>)	1.3	0.02	
32	Tag Alder (<i>Alnus serrulata</i>)	1.2	0.02	
33	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.4	0.03	
34	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.2	0.02	Multistem
35	Wax Myrtle (<i>Myrica cerifera</i>)	0.8	0.02	
36	Virginia Sweetspire (<i>Itea virginica</i>)	1.6	0.02	
37	Beautyberry (<i>Callicarpa americana</i>)	1.3	0.02	
38	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.7	0.02	Multistem
39	Sycamore (<i>Platanus occidentalis</i>)	1.6	0.03	
40	River Birch (<i>Betula nigra</i>)	2	0.03	
41	Witchhazel (<i>Hamamelis virginiana</i>)	1.8	0.03	
42	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.7	0.02	
43	Silky Dogwood (<i>Cornus amomum</i>)	1.6	0.02	
44	Silky Dogwood (<i>Cornus amomum</i>)	1.4	0.02	
45	Silky Dogwood (<i>Cornus amomum</i>)	1.4	0.02	
46	Tag Alder (<i>Alnus serrulata</i>)	1.3	0.02	
47	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.2	0.01	Multistem
48	Tag Alder (<i>Alnus serrulata</i>)	0.7	0.02	
49	Tag Alder (<i>Alnus serrulata</i>)	0.6	0.02	
50	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.6	0.02	
51	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.2	0.02	
52	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.9	0.02	
53	Beautyberry (<i>Callicarpa americana</i>)	1.6	0.03	
54	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.6	0.02	
55	Sweetshrub (<i>Calycanthus floridus</i>)	1.4	0.02	Multistem
56	River Birch (<i>Betula nigra</i>)	1.6	0.02	Multistem
57	Tag Alder (<i>Alnus serrulata</i>)	1.7	0.03	
58	Tag Alder (<i>Alnus serrulata</i>)	1.2	0.01	
59	River Birch (<i>Betula nigra</i>)	2.3	0.02	
60	Tag Alder (<i>Alnus serrulata</i>)	2.6	0.02	
61	Beautyberry (<i>Callicarpa americana</i>)	1.7	0.02	
62	Silky Dogwood (<i>Cornus amomum</i>)	1	0.02	
63	Silky Dogwood (<i>Cornus amomum</i>)	2.1	0.03	Multistem
64	Tag Alder (<i>Alnus serrulata</i>)	1.1	0.02	Multistem
65	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.5	0.02	
66	Tag Alder (<i>Alnus serrulata</i>)	1.7	0.03	
67	Tag Alder (<i>Alnus serrulata</i>)	1.8	0.03	

68	Virginia Sweetspire (<i>Itea virginica</i>)	1.3	0.03	
69	Beautyberry (<i>Callicarpa americana</i>)	0.8	0.02	
70	Deciduous Holly (<i>Ilex decidua</i>)	0.5	0.01	
71	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.6	0.03	
72	Beautyberry (<i>Callicarpa americana</i>)	2	0.02	Multistem
73	Silky Dogwood (<i>Cornus amomum</i>)	2.1	0.01	Multistem
74	Tag Alder (<i>Alnus serrulata</i>)	1.7	0.03	
75	Tag Alder (<i>Alnus serrulata</i>)	1.6	0.02	
76	Silky Dogwood (<i>Cornus amomum</i>)	2.1	0.03	
77	Sweetshrub (<i>Calycanthus floridus</i>)	1.8	0.02	
78	Deciduous Holly (<i>Ilex decidua</i>)	1.9	0.02	
79	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.7	0.02	
80	Deciduous Holly (<i>Ilex decidua</i>)	1.7	0.02	
81	Deciduous Holly (<i>Ilex decidua</i>)	1.6	0.02	Multistem
82	Sweetshrub (<i>Calycanthus floridus</i>)	1.4	0.03	
83	River Birch (<i>Betula nigra</i>)			Dead
84	Silky Dogwood (<i>Cornus amomum</i>)			Dead
85	Sweetshrub (<i>Calycanthus floridus</i>)			Dead
86	River Birch (<i>Betula nigra</i>)			Dead
87	Southern Arrowwood (<i>Viburnum dentatum</i>)			Dead
88	Sweetshrub (<i>Calycanthus floridus</i>)			Dead
89	Silky Dogwood (<i>Cornus amomum</i>)			Dead
90	Sweetshrub (<i>Calycanthus floridus</i>)			Dead
91	Wax Myrtle (<i>Myrica cerifera</i>)			Dead

Species	Percent of Total
Sycamore (<i>Platanus occidentalis</i>)	2
Beautyberry (<i>Callicarpa americana</i>)	12
River Birch (<i>Betula nigra</i>)	5
Witchhazel (<i>Hamamelis virginiana</i>)	2
Green Ash (<i>Fraxinus pennsylvanica</i>)	5
Tag Alder (<i>Alnus serrulata</i>)	20
Coralberry (<i>Symphoricarpos orbiculatus</i>)	12
Wax Myrtle (<i>Myrica cerifera</i>)	4
Sweetshrub (<i>Calycanthus floridus</i>)	5
Virginia Sweetspire (<i>Itea virginica</i>)	4
Possum Haw (<i>Viburnum nudum</i>)	5
Deciduous Holly (<i>Ilex decidua</i>)	5
Southern Arrowwood (<i>Viburnum dentatum</i>)	7
Silky Dogwood (<i>Cornus amomum</i>)	12

Density:

Total Number of Stems 82 / 0.047 acres = 1745 stems / acre

Survivability:

Total Number of Stems 82 / 91 stems x 100 = 90 % survivability



View of center of plot looking north.

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 6 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Wax Myrtle (<i>Myrica cerifera</i>)	2.6	0.02	
2	Possum Haw (<i>Viburnum nudum</i>)	1.8	0.02	Multistem
3	Virginia Sweetspire (<i>Itea virginica</i>)	1.3	0.03	
4	Silky Dogwood (<i>Cornus amomum</i>)	2.6	0.02	Multistem
5	Possum Haw (<i>Viburnum nudum</i>)	1.9	0.02	
6	Tag Alder (<i>Alnus serrulata</i>)	1.9	0.03	
7	Virginia Sweetspire (<i>Itea virginica</i>)	1.3	0.01	
8	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.9	0.02	
9	Eastern Red Cedar (<i>Juniperus virginiana</i>)	4.4	0.09	
10	Elderberry (<i>Sambucus canadensis</i>)	1.9	0.02	
11	River Birch (<i>Betula nigra</i>)	3.2	0.03	
12	Virginia Sweetspire (<i>Itea virginica</i>)	0.9	0.01	Multistem
13	Silky Dogwood (<i>Cornus amomum</i>)	1.0	0.01	Multistem
14	Tag Alder (<i>Alnus serrulata</i>)	1.6	0.02	
15	Beautyberry (<i>Callicarpa americana</i>)	1.6	0.02	
16	Beautyberry (<i>Callicarpa americana</i>)	1.4	0.02	
17	Sycamore (<i>Platanus occidentalis</i>)	2.5	0.02	
18	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.5	0.02	
19	Beautyberry (<i>Callicarpa americana</i>)	1.8	0.02	Multistem
20	Silky Dogwood (<i>Cornus amomum</i>)	1.6	0.02	Multistem
21	Beautyberry (<i>Callicarpa americana</i>)	1.6	0.02	
22	Witchhazel (<i>Hamamelis virginiana</i>)	1.7	0.02	
23	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.9	0.02	Multistem
24	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.2	0.02	
25	Tag Alder (<i>Alnus serrulata</i>)	1.9	0.02	
26	Tag Alder (<i>Alnus serrulata</i>)	2.3	0.02	
27	Silky Dogwood (<i>Cornus amomum</i>)	1.6	0.02	Multistem
28	Sweetshrub (<i>Calycanthus floridus</i>)	1.6	0.02	
29	Beautyberry (<i>Callicarpa americana</i>)	1.7	0.02	
30	Sycamore (<i>Platanus occidentalis</i>)	2.4	0.02	
31	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.1	0.02	Multistem
32	Beautyberry (<i>Callicarpa americana</i>)	1.6	0.02	
33	Silky Dogwood (<i>Cornus amomum</i>)	1.9	0.02	
34	Tag Alder (<i>Alnus serrulata</i>)	1.2	0.02	
35	Tag Alder (<i>Alnus serrulata</i>)	1.2	0.02	
36	Tag Alder (<i>Alnus serrulata</i>)	2.0	0.02	Multistem
37	Tag Alder (<i>Alnus serrulata</i>)	1.7	0.02	
38	Deciduous Holly (<i>Ilex decidua</i>)	3.2	0.02	Multistem
39	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.8	0.02	
40	Witchhazel (<i>Hamamelis virginiana</i>)	0.7	0.02	Multistem
41	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.0	0.02	Multistem
42	Eastern Red Cedar (<i>Juniperus virginiana</i>)	4.6	0.09	
43	Sweetshrub (<i>Calycanthus floridus</i>)	1.1	0.02	Multistem
44	Elderberry (<i>Sambucus canadensis</i>)	1.0	0.02	Multistem
45	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.4	0.03	
46	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.4	0.02	
47	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.5	0.02	
48	Tag Alder (<i>Alnus serrulata</i>)	1.0	0.02	
49	Tag Alder (<i>Alnus serrulata</i>)	1.5	0.02	Multistem
50	Silky Dogwood (<i>Cornus amomum</i>)	1.7	0.02	Multistem
51	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.9	0.02	Multistem
52	Tag Alder (<i>Alnus serrulata</i>)	2.3	0.02	
53	Tag Alder (<i>Alnus serrulata</i>)	1.8	0.02	
54	Deciduous Holly (<i>Ilex decidua</i>)	1.4	0.02	Multistem
55	Possum Haw (<i>Viburnum nudum</i>)	1.8	0.03	
56	Wax Myrtle (<i>Myrica cerifera</i>)	2.1	0.02	
57	Deciduous Holly (<i>Ilex decidua</i>)	1.0	0.02	Multistem
58	Virginia Sweetspire (<i>Itea virginica</i>)	1.0	0.02	
59	Virginia Sweetspire (<i>Itea virginica</i>)	1.0	0.02	
60	Possum Haw (<i>Viburnum nudum</i>)			Dead
61	Virginia Sweetspire (<i>Itea virginica</i>)			Dead
62	Southern Arrowwood (<i>Viburnum dentatum</i>)			Dead
63	Possum Haw (<i>Viburnum nudum</i>)			Dead

Species	Percent of Total
Sycamore (<i>Platanus occidentalis</i>)	3
Beautyberry (<i>Callicarpa americana</i>)	10
River Birch (<i>Betula nigra</i>)	2
Witchhazel (<i>Hamamelis virginiana</i>)	3
Green Ash (<i>Fraxinus pennsylvanica</i>)	2
Tag Alder (<i>Alnus serrulata</i>)	20
Coralberry (<i>Symphoricarpos orbiculatus</i>)	9
Wax Myrtle (<i>Myrica cerifera</i>)	3
Sweetshrub (<i>Calycanthus floridus</i>)	3
Virginia Sweetspire (<i>Itea virginica</i>)	8
Possum Haw (<i>Viburnum nudum</i>)	8
Deciduous Holly (<i>Ilex decidua</i>)	5
Southern Arrowwood (<i>Viburnum dentatum</i>)	8
Silky Dogwood (<i>Cornus amomum</i>)	10
Elderberry (<i>Sambucus canadensis</i>)	3
Eastern Red Cedar (<i>Juniperus virginiana</i>)	3

Density:

$$\text{Total Number of Stems } \underline{59} \quad / \quad 0.049 \text{ acres} \quad = \quad \underline{1204} \text{ stems / acre}$$

Survivability:

$$\text{Total Number of Stems } \underline{59} \quad / \quad 63 \text{ stems} \quad \times \quad 100 \quad = \quad \underline{94} \quad \% \text{ survivability}$$



View of center of plot looking north.

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 7 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Sycamore (<i>Platanus occidentalis</i>)	1.8	0.03	
2	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.6	0.03	
3	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.4	0.02	Multistem
4	Silky Dogwood (<i>Cornus amomum</i>)	1.3	0.02	
5	Tag Alder (<i>Alnus serrulata</i>)	1.2	0.02	
6	American Holly (<i>Ilex opaca</i>)	3.0	0.03	
7	Sweetshrub (<i>Calycanthus floridus</i>)	2.3	0.02	
8	Eastern Red Cedar (<i>Juniperus virginiana</i>)	3.8	0.09	
9	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.7	0.02	
10	Southern Arrowwood (<i>Viburnum dentatum</i>)	0.7	0.01	Multistem
11	River Birch (<i>Betula nigra</i>)	3.4	0.02	
12	Coralberry (<i>Symphoricarpos orbiculatus</i>)	2.0	0.02	Multistem
13	River Birch (<i>Betula nigra</i>)	2.2	0.02	Multistem
14	Possum Haw (<i>Viburnum nudum</i>)	1.0	0.02	
15	American Holly (<i>Ilex opaca</i>)	3.2	0.03	
16	Deciduous Holly (<i>Ilex decidua</i>)	1.1	0.02	
17	Virginia Sweetspire (<i>Itea virginica</i>)	1.3	0.01	Multistem
18	Possum Haw (<i>Viburnum nudum</i>)	1.9	0.02	
19	Silky Dogwood (<i>Cornus amomum</i>)	1.5	0.03	
20	Coralberry (<i>Symphoricarpos orbiculatus</i>)	0.9	0.01	Multistem
21	River Birch (<i>Betula nigra</i>)	2.5	0.02	Multistem
22	Possum Haw (<i>Viburnum nudum</i>)	1.4	0.02	
23	Flowering Dogwood (<i>Cornus florida</i>)	4.1	0.04	
24	Deciduous Holly (<i>Ilex decidua</i>)	1.2	0.02	
25	Sweetshrub (<i>Calycanthus floridus</i>)	1.7	0.02	
26	Silky Dogwood (<i>Cornus amomum</i>)	2.2	0.02	
27	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.8	0.02	Multistem
28	Southern Arrowwood (<i>Viburnum dentatum</i>)	0.7	0.02	Multistem
29	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.5	0.02	Multistem
30	Beautyberry (<i>Callicarpa americana</i>)	0.9	0.01	Multistem
31	Beautyberry (<i>Callicarpa americana</i>)	1.3	0.02	Multistem
32	Virginia Sweetspire (<i>Itea virginica</i>)	1.2	0.02	Multistem
33	Tag Alder (<i>Alnus serrulata</i>)	1.7	0.02	
34	Deciduous Holly (<i>Ilex decidua</i>)	0.6	0.01	Multistem
35	Possum Haw (<i>Viburnum nudum</i>)	1.5	0.03	
36	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.7	0.02	Multistem
37	Sweetshrub (<i>Calycanthus floridus</i>)			Dead
38	Southern Arrowwood (<i>Viburnum dentatum</i>)			Dead

Species	Percent of Total
Sycamore (<i>Platanus occidentalis</i>)	3
Beautyberry (<i>Callicarpa americana</i>)	6
River Birch (<i>Betula nigra</i>)	8
Green Ash (<i>Fraxinus pennsylvanica</i>)	6
Tag Alder (<i>Alnus serrulata</i>)	6
Coralberry (<i>Symphoricarpos orbiculatus</i>)	14
Sweetshrub (<i>Calycanthus floridus</i>)	5
Virginia Sweetspire (<i>Itea virginica</i>)	8
Possum Haw (<i>Viburnum nudum</i>)	11
Deciduous Holly (<i>Ilex decidua</i>)	8
Southern Arrowwood (<i>Viburnum dentatum</i>)	8
Silky Dogwood (<i>Cornus amomum</i>)	8
Eastern Red Cedar (<i>Juniperus virginiana</i>)	3
American Holly (<i>Ilex opaca</i>)	6

Density:

$$\frac{\text{Total Number of Stems } \underline{36}}{0.054 \text{ acres}} = \underline{667} \text{ stems / acre}$$

Survivability:

$$\frac{\text{Total Number of Stems } \underline{36}}{38 \text{ stems}} \times 100 = \underline{95} \% \text{ survivability}$$



View of center of plot looking north.

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 8 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Wax Myrtle (<i>Myrica cerifera</i>)	1.8	0.02	
2	Coralberry (<i>Symphoricarpos orbiculatus</i>)	0.9	0.01	Multistem
3	Beautyberry (<i>Callicarpa americana</i>)	1.2	0.01	
4	Coralberry (<i>Symphoricarpos orbiculatus</i>)	0.7	0.02	Multistem
5	Elderberry (<i>Sambucus canadensis</i>)	1.7	0.02	
6	Deciduous Holly (<i>Ilex decidua</i>)	0.6	0.02	Multistem
7	River Birch (<i>Betula nigra</i>)	2.8	0.03	
8	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.7	0.03	
9	Possum Haw (<i>Viburnum nudum</i>)	1.0	0.01	
10	River Birch (<i>Betula nigra</i>)	3.3	0.02	
11	Silky Dogwood (<i>Cornus amomum</i>)	1.7	0.02	
12	Sycamore (<i>Platanus occidentalis</i>)	1.9	0.02	
13	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.4	0.02	
14	Silky Dogwood (<i>Cornus amomum</i>)	2.0	0.02	
15	Silky Dogwood (<i>Cornus amomum</i>)	1.3	0.02	Multistem
16	Deciduous Holly (<i>Ilex decidua</i>)	1.5	0.02	
17	River Birch (<i>Betula nigra</i>)	0.8	0.01	Multistem
18	Beautyberry (<i>Callicarpa americana</i>)	1.2	0.01	Multistem
19	Possum Haw (<i>Viburnum nudum</i>)	1.5	0.02	Multistem
20	Silky Dogwood (<i>Cornus amomum</i>)	1.9	0.03	Multistem
21	Sycamore (<i>Platanus occidentalis</i>)	2.2	0.02	
22	Wax Myrtle (<i>Myrica cerifera</i>)	0.9	0.01	Multistem
23	Wax Myrtle (<i>Myrica cerifera</i>)	1.6	0.02	
24	Sycamore (<i>Platanus occidentalis</i>)	2.5	0.02	
25	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.0	0.03	
26	Sweetshrub (<i>Calycanthus floridus</i>)	1.0	0.01	Multistem
27	Deciduous Holly (<i>Ilex decidua</i>)	1.4	0.02	
28	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.2	0.02	
29	Southern Arrowwood (<i>Viburnum dentatum</i>)	1.0	0.02	
30	Silky Dogwood (<i>Cornus amomum</i>)	1.2	0.02	
31	River Birch (<i>Betula nigra</i>)	2.6	0.02	Multistem
32	Elderberry (<i>Sambucus canadensis</i>)	1.7	0.03	
33	Possum Haw (<i>Viburnum nudum</i>)	1.0	0.02	
34	River Birch (<i>Betula nigra</i>)	1.5	0.02	
35	Deciduous Holly (<i>Ilex decidua</i>)	1.8	0.02	
36	Tag Alder (<i>Alnus serrulata</i>)	2.0	0.02	
37	Virginia Sweetspire (<i>Itea virginica</i>)	1.6	0.02	
38	Possum Haw (<i>Viburnum nudum</i>)	1.6	0.02	

Species	Percent of Total
Sycamore (<i>Platanus occidentalis</i>)	7
Beautyberry (<i>Callicarpa americana</i>)	5
River Birch (<i>Betula nigra</i>)	13
Green Ash (<i>Fraxinus pennsylvanica</i>)	5
Tag Alder (<i>Alnus serrulata</i>)	3
Coralberry (<i>Symphoricarpos orbiculatus</i>)	11
Sweetshrub (<i>Calycanthus floridus</i>)	3
Virginia Sweetspire (<i>Itea virginica</i>)	3
Possum Haw (<i>Viburnum nudum</i>)	11
Deciduous Holly (<i>Ilex decidua</i>)	11
Southern Arrowwood (<i>Viburnum dentatum</i>)	3
Silky Dogwood (<i>Cornus amomum</i>)	13
Wax Myrtle (<i>Myrica cerifera</i>)	7
Elderberry (<i>Sambucus canadensis</i>)	5

Density:

$$\frac{\text{Total Number of Stems } \mathbf{38}}{\mathbf{0.028 \text{ acres}}} = \mathbf{1357 \text{ stems / acre}}$$

Survivability:

$$\frac{\text{Total Number of Stems } \mathbf{38}}{\mathbf{38 \text{ trees}}} \times 100 = \mathbf{100 \% \text{ survivability}}$$



View of center of plot looking north.

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 9 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Deciduous Holly (<i>Ilex decidua</i>)	1.3	0.02	
2	River Birch (<i>Betula nigra</i>)	1.5	0.02	Multistem
3	Witchhazel (<i>Hamamelis virginiana</i>)	1.3	0.02	Multistem
4	Coralberry (<i>Symphoricarpos orbiculatus</i>)	2.0	0.03	Multistem
5	River Birch (<i>Betula nigra</i>)	2.1	0.02	
6	Deciduous Holly (<i>Ilex decidua</i>)	2.1	0.02	
7	Wax Myrtle (<i>Myrica cerifera</i>)	0.6	0.01	
8	Sycamore (<i>Platanus occidentalis</i>)	2.9	0.03	Multistem
9	Coralberry (<i>Symphoricarpos orbiculatus</i>)	2.0	0.03	Multistem
10	Wax Myrtle (<i>Myrica cerifera</i>)	1.8	0.02	Multistem
11	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.7	0.02	
12	Wax Myrtle (<i>Myrica cerifera</i>)	2.0	0.02	
13	Tag Alder (<i>Alnus serrulata</i>)	2.4	0.02	
14	Tag Alder (<i>Alnus serrulata</i>)	0.7	0.02	
15	Sycamore (<i>Platanus occidentalis</i>)	1.0	0.01	
16	Silky Dogwood (<i>Cornus amomum</i>)	1.0	0.02	
17	Possum Haw (<i>Viburnum nudum</i>)	1.4	0.01	
18	Possum Haw (<i>Viburnum nudum</i>)	2.0	0.03	
19	Virginia Sweetspire (<i>Itea virginica</i>)	1.1	0.02	
20	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.8	0.02	
21	Possum Haw (<i>Viburnum nudum</i>)	2.1	0.02	
22	Virginia Sweetspire (<i>Itea virginica</i>)	1.8	0.02	Multistem
23	Possum Haw (<i>Viburnum nudum</i>)			Dead
24	Virginia Sweetspire (<i>Itea virginica</i>)			Dead
25	Coralberry (<i>Symphoricarpos orbiculatus</i>)			Dead
26	Virginia Sweetspire (<i>Itea virginica</i>)			Dead
27	Silky Dogwood (<i>Cornus amomum</i>)			Dead
28	Coralberry (<i>Symphoricarpos orbiculatus</i>)			Dead
29	Silky Dogwood (<i>Cornus amomum</i>)			Dead
30	Wax Myrtle (<i>Myrica cerifera</i>)			Dead
31	Virginia Sweetspire (<i>Itea virginica</i>)			Dead
32	Possum Haw (<i>Viburnum nudum</i>)			Dead
33	Wax Myrtle (<i>Myrica cerifera</i>)			Dead
34	Possum Haw (<i>Viburnum nudum</i>)			Dead

Species	Percent of Total
Sycamore (<i>Platanus occidentalis</i>)	9
River Birch (<i>Betula nigra</i>)	9
Green Ash (<i>Fraxinus pennsylvanica</i>)	5
Tag Alder (<i>Alnus serrulata</i>)	9
Coralberry (<i>Symphoricarpos orbiculatus</i>)	14
Virginia Sweetspire (<i>Itea virginica</i>)	9
Possum Haw (<i>Viburnum nudum</i>)	14
Deciduous Holly (<i>Ilex decidua</i>)	9
Wax Myrtle (<i>Myrica cerifera</i>)	14
Witchhazel (<i>Hamamelis virginiana</i>)	4
Silky Dogwood (<i>Cornus amomum</i>)	4

Density:

$$\text{Total Number of Stems} \quad \underline{22} \quad / \quad 0.037 \text{ acres} \quad = \quad \underline{595} \quad \text{stems / acre}$$

Survivability:

$$\text{Total Number of Stems} \quad \underline{22} \quad / \quad 34 \text{ stems} \quad \times \quad 100 \quad = \quad \underline{65} \quad \% \text{ survivability}$$



View of center of plot looking north.

Vegetation Monitoring Worksheet

Site: Third Fork Creek Plot: 10 Date: 8/4/2005

ID	Species	Height (ft)	Collar Diameter (ft)	Comments (volunteer, insect damage, disease, browsing)
1	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.6	0.02	
2	Possum Haw (<i>Viburnum nudum</i>)	1.3	0.02	
3	Deciduous Holly (<i>Ilex decidua</i>)	1.1	0.02	
4	Witchhazel (<i>Hamamelis virginiana</i>)	1.7	0.02	
5	Silky Dogwood (<i>Cornus amomum</i>)	1.4	0.02	
6	Coralberry (<i>Symphoricarpos orbiculatus</i>)	1.6	0.02	Multistem
7	Deciduous Holly (<i>Ilex decidua</i>)	1.6	0.02	Multistem
8	Beautyberry (<i>Callicarpa americana</i>)	2.3	0.02	
9	Virginia Sweetspire (<i>Itea virginica</i>)	2.1	0.02	
10	Deciduous Holly (<i>Ilex decidua</i>)	1.7	0.02	
11	Witchhazel (<i>Hamamelis virginiana</i>)	2.6	0.03	
12	Green Ash (<i>Fraxinus pennsylvanica</i>)	1.6	0.02	
13	River Birch (<i>Betula nigra</i>)	1.7	0.02	
14	River Birch (<i>Betula nigra</i>)	1.6	0.02	Multistem
15	Possum Haw (<i>Viburnum nudum</i>)	1.7	0.02	
16	Possum Haw (<i>Viburnum nudum</i>)	1.2	0.02	
17	Coralberry (<i>Symphoricarpos orbiculatus</i>)			Dead
18	Silky Dogwood (<i>Cornus amomum</i>)			Dead
19	Coralberry (<i>Symphoricarpos orbiculatus</i>)			Dead
20	Possum Haw (<i>Viburnum nudum</i>)			Dead
21	Green Ash (<i>Fraxinus pennsylvanica</i>)			Dead
22	Possum Haw (<i>Viburnum nudum</i>)			Dead
23	Silky Dogwood (<i>Cornus amomum</i>)			Dead

Species	Percent of Total
Green Ash (<i>Fraxinus pennsylvanica</i>)	13
Possum Haw (<i>Viburnum nudum</i>)	19
Deciduous Holly (<i>Ilex decidua</i>)	19
Witchhazel (<i>Hamamelis virginiana</i>)	13
Silky Dogwood (<i>Cornus amomum</i>)	6
Beautyberry (<i>Callicarpa americana</i>)	6
River Birch (<i>Betula nigra</i>)	12
Coralberry (<i>Symphoricarpos orbiculatus</i>)	6
Virginia Sweetspire (<i>Itea virginica</i>)	6

Density:

Total Number of Stems 16 / 0.014 acres = 1143 stems / acre

Survivability:

Total Number of Stems 16 / 23 stems x 100 = 70 % survivability



View of center of plot looking north.

Appendix D
Permanent Photo Documentation Points



PRP 1 – Looking upstream.



PRP 1 – Looking downstream.



PRP 2 – Looking upstream.



PRP 2 – Looking downstream.



PRP 3 – Looking at ditch entering stream.



PRP 4 – Looking upstream.



PRP 4 – Looking downstream.



PRP 5 – Looking at unnamed tributary entering stream.



PRP 6 – Looking upstream.



PRP 6 – Looking downstream.



PRP 7 – Looking upstream.



PRP 7 – Looking downstream.



PRP 8 – Looking upstream.



PRP 8 – Looking downstream.



PRP 9 – Looking upstream.



PRP 9 – Looking downstream.



PRP 10 – Looking upstream. Note the stone from stream repair.



PRP 10 – Looking downstream.



PRP 11 – Looking upstream.*



PRP 11 – Looking downstream.*

* Note – PRP 11 photos were taken from the bank opposite of the permanent photo location because tall vegetation obscured the view from the permanent location. Also, in PRP 11 downstream photo, note the stone on the left bank from stream maintenance.



PRP 12 – Looking at 15' CMP coming into Third Fork Creek; pipe is obscured from view because of vegetation.



PRP 13 – Looking upstream.



PRP 13 – Looking downstream.



PRP 14 – Looking upstream.



PRP 14 – Looking downstream.