

Within-Channel Vegetation Survey
Little Topashaw Creek Stream Corridor
Rehabilitation Project

Spring, 1999

Sara Davis

Objective:

The objective of the Little Topashaw Creek vegetation study was to document the current vegetation present within the proposed restoration channel banks.

Methods:

The floristic survey conducted in the 1999 growing season consisted of two components:

1. Establishment of 10 transverse transects extending between the top creek bank edges. Ten transects are located along the NRCS surveyed benchmarks numbered as LT#5 (sampled 8-11-99), LT#6 (sampled 8-11-99), LT#7 (sampled 8-11-99), LT#8 (sampled 8-11-99), LT#9 (sampled 8-11-99), LT#10 (sampled 8-13-99), LT#12 (sampled 8-13-99), LT#13 (sampled 8-13-99), LT#17 (sampled 8-11-99), and LT#18 (sampled 8-11-99). Standard collecting procedures were followed for unknown species. Specimens were carefully collected and labeled before placement in polyethylene bags in the field, then transferred to plant presses. Pressed specimens were dried for a minimum of 48 hours over portable driers using 60 watt incandescent bulbs as a heat source. Species identifications were made in the field or from dried specimens and carried to the species level only if there was sufficient material to do so (Radford et al. 1968). The numbered specimens are filed by family name in preparation for mounting and herbarium storage in the laboratory of Dr. C. M. Cooper, USDA ARS, Oxford, Mississippi, USA. Species composition and percent cover were recorded using quarter meter square quadrats every five meters along each transect. Species composition was determined by identifying all species within each quadrat (Radford et al. 1968) and along each transect. Species richness was calculated as the total number of species present within each transect (Barbour et al. 1987). Species percent cover was determined by the visual estimate of the percentage of the quadrat occupied by a given species (Barbour et al. 1987).
2. 2. Documentation of vegetation present on six sandbars proposed for willow planting. Sandbars were sampled using 10x10 square meter quadrats. The six

sampled sites were located in reference to the NRCS surveyed benchmarks as: 11.4 meters south of LT#5 (east, sampled 8-13-99), LT#6 (east, sampled 9-14-99), 43.1 meters south of LT#8 (east, sampled 9-14-99), LT#10 (east, sampled 9-14-99), LT#13 (west, sampled 8-13-99), and LT# 19 (west, sampled 8-13-99). Species composition and percent cover were recorded within each quadrat.

Results

Results of the floristic study have revealed 18 different vascular plant families with 51 different species (Appendix A). Appendix B displays the species collected by transect/quadrat location. Little vegetation was found along the streams edge, as evident by the low frequency and percent cover values. Of the vegetation present most species were opportunistic, commonly found along stream edges within this geographic region. Further up the bank the herbaceous vegetation is compatible with herbaceous vegetation in the adjacent fields, suggesting seed dispersal from the fields. The sandbars were found to be slightly vegetated. The *Salix nigra* sampled on the sandbars are possible representative of an attempt for early second succession.

References

- Barbour M.G., J.H. Burk, and W.D. Pitts. 1987. Terrestrial plant ecology. 2nd ed. The Benjamin/Cummings Publishing Company, Inc. Menlo Park, California.
- Daubenmire, R. 1968. Plant Communities. Harper& Row Publishers, New York, New York.
- Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the vascular flora of the Carolinas. The University of North Carolina Press. Chapel Hill, NC.

Appendix A

Genus/species	Common name	Family
<i>Acer negundo</i>	box elder	Aceraceae
<i>Alnus serrulata</i>	alder	Betulaceae
<i>Ambrosia artemisiifolia</i>	common ragweed	Asteraceae
<i>Arundinaria gigantea</i>	cane	Poaceae
<i>Betula nigra</i>	river birch	Betulaceae
<i>Campsis radicans</i>	trumpet vine	Bignoniaceae
<i>Cenchrus tribuloides</i>	sandspur	Poaceae
<i>Chamaecrista fasciculata</i>	partridge pea	Fabaceae
<i>Cirsium discolora</i>	field thistle	Asteraceae
<i>Commelina sp.</i>	dayflower	Commelinaceae
<i>Croton capitatus</i>		Euphorbiaceae
<i>Cyperus sp.</i>	sedge	Cyperaceae
<i>Digitaria sp.</i>	crab grass	Poaceae
<i>Eleocharis obtusa</i>	spike rush	Cyperaceae
<i>Elephantopus carolinianus</i>	elephant's foot	Asteraceae
<i>Eupatorium capillifolium</i>	thoroughwort	Asteraceae
<i>Galium sp.</i>	bedstraw	Rubiaceae
<i>Hydrangea styraciflua</i>	oak-leaf	Hydrangeaceae
<i>Ipomoea coccinea</i>	morning glory	Convolvulaceae
<i>Juncus effusus</i>	rush	Juncaceae
<i>Lamium purpureum</i>	henbit	Lamiaceae
<i>Leersia oryzoides</i>	cut grass	Poaceae
<i>Lespedeza virginica</i>		Fabaceae
<i>Liquidamber styraciflua</i>	sweet gum	Hamamelidaceae
<i>Lonicera japonica</i>	Japanese honeysuckle	Caprifoliaceae
<i>Ludwigia palustris</i>	floating primrose	Onagraceae
<i>Mitchella repens</i>	partridge berry	Rubiaceae
<i>Neptunia lutea</i>	sensitive plant	Mimosaceae
<i>Oenothera sp.</i>	evening primrose	Onagraceae
<i>Oxalis dillennii</i>	wood sorrel	Oxialdaceae
<i>Panicum dichotomifolia</i>		Poaceae
<i>Panicum sp.</i>		Poaceae
<i>Parthenocissus quinquefolia</i>	Virginia creeper	Vitaceae
<i>Paspalum fluitans</i>		Poaceae

<i>Platanus occidentalis</i>	sycamore	Platanaceae
<i>Poaceae sp.</i>		Poaceae
<i>Polygonum procumbens</i>	knotweed	Polygonaceae
<i>Polygonum sagittatum</i>	jewel weed	Polygonaceae
<i>Populus alba</i>	white poplar	Salicaceae
<i>Pueraria lobata</i>	kudzu	Fabaceae
<i>Quercus nigra</i>	water oak	Fagaceae
<i>Rhus glabra</i>	common sumac	Anacardiaceae
<i>Rubus allegheniensis</i>	blackberry	Rosaceae
<i>Salix nigra</i>	black willow	Salicaceae
<i>Smilax bona-nox</i>	greenbriar	Liliaceae
<i>Solidago sp.</i>	goldenrod	Asteraceae
<i>Solidago nemoralis</i>	goldenrod	Asteraceae
<i>Spiraea tomentosa</i>	hardhack	Rosaceae
<i>Toxicodendron radicans</i>	poison oak	Anacardiaceae
<i>Trichostema dichotomum</i>	blue curl	Lamiaceae
<i>Vitis rotundifolia</i>	muscadine	Vitaceae

Appendix B:

Survey Date: 8-11-99	Frequency	% Cover	Species Composition
East to West			along transect
LT #5 East = 25 meters			
Quad 0 from creek			Galium sp.
No Vegetation			Digitaria sp.
Quad 5m from creek			<i>Paspalum fluitans</i>
Galium sp.	13	40	<i>Cenchrus tribuloides</i>
Digitaria sp.	9	10	<i>Ipomoea coccinea</i>
Quad 10m from creek			<i>Croton capitatus</i>
No Vegetation			<i>Salix nigra</i>
Quad 15m from creek			<i>Leersia oryzoides</i>
Digitaria sp.	4	5	<i>Ludwigia palustris</i>
<i>Paspalum fluitans</i>	5	2	
Quad 20m from creek			
<i>Paspalum fluitans</i>	53	90	
<i>Cenchrus tribuloides</i>	5	10	
LT#5 West = 9.9 meters			
No Vegetation			
East to West			<i>Galium</i>
LT #6 East =11.3 meters			<i>Cyperus sp.</i>
Quad 0 from creek			<i>Ambrosia artemisiifolia</i>
No Vegetation			<i>Oxalis dillenii</i>
Quad 5m from creek			<i>Toxicodendron radicans</i>
No Vegetation			<i>Panicum sp.</i>
Quad 10m from creek			<i>Paspalum fluitans</i>
<i>Campsis radicans</i>	2	40	<i>Digitaria sp.</i>
<i>Lonicera japonica</i>	4	20	<i>Campsis radicans</i>
<i>Rubus sp.</i>	1	5	<i>Lonicera japonica</i>
			<i>Rubus allegheniensis</i>
			<i>Panicum dichotomifolia</i>
LT #6 West			<i>Pueraria lobata</i>
<i>Pueraria lobata</i> to creeks edge			
LT #7 East = 9.4 meters			
Quad 0 from creek			
<i>Polygonum procumbens</i>	3	70	<i>Lonicera japonica</i>
<i>Eleocharis obtusa</i>	50	10	<i>Rubus allegheniensis</i>

<i>Digitaria sp.</i>	2	1	<i>Salix nigra</i>
Quad 5m from creek			<i>Polygonum sagittatum</i>
<i>Ambrosia artemisiifolia</i>	3	25	<i>Panicum dichotomifolia</i>
<i>Lonicera japonica</i>	1	1	<i>Rhus glabra</i>
<i>Campsis radicans</i>	1	5	<i>Oenothera sp.</i>
			<i>Polygonum procumbens</i>
			<i>Eleocharis obtusa</i>
			<i>Digitaria sp.</i>
			<i>Ambrosia artemisiifolia</i>
			<i>Campsis radicans</i>
LT #7 West = 12.8 meters to <i>Pueraria lobata</i>			<i>Solidago sp.</i>
Quad 0 from creek			<i>Campsis radicans</i>
No Vegetation			<i>Arundinaria gigantea</i>
Quad 5m from creek			<i>Acer negunda</i>
No Vegetation			<i>Polygonum procumbens</i>
Quad 10m from creek			<i>Eleocharis obtusa</i>
<i>Rubus allegheniensis</i>	4	35	<i>Digitaria sp.</i>
			<i>Pueraria lobata</i>
Lt #8 West = 10 meters			<i>Panicum dichotomifolia</i>
Quad 0 from creek			<i>Neptunia lutea</i>
No Vegetation			<i>Mitchella repens</i>
Quad 5m from creek			<i>Panicum sp.</i>
<i>Arundinaria artemisiifolia</i>	8	40	<i>Panicum dichotomifolia</i>
<i>Neptunia lutea</i>	2	10	<i>Lonicera japonica</i>
<i>Mitchella repens</i>	1	3	<i>Smilax bona-nox</i>
<i>Panicum sp.</i>	9	15	<i>Parthenocissus quinquefolia</i>
Quad 10m from creek			<i>Toxicodendron radicans</i>
<i>Campsis radicans</i>	2	55	<i>Lamium purpureum</i>
<i>Lonicera japonica</i>	1	30	<i>Alnus serrulata</i>
<i>Smilax bona-nox</i>	1	5	<i>Lespedeza virginica</i>
<i>Parthenocissus quinquefolia</i>	1	5	<i>Juncus effusus</i>
<i>Toxicodendron radicans</i>	2	5	<i>Quercus nigra</i>
LT #8 East = 10.7 meters			<i>Panicum dichotomifolia</i>
Quad 0 from creek			<i>Cyperus sp.</i>
No Vegetation			<i>Lonicera japonica</i>
Quad 5m from creek			<i>Chamaecrista fasciculata</i>
No Vegetation			<i>Acer negunda</i>
Quad 10m from creek			<i>Smilax bona-nox</i>
<i>Juncus effusus</i>	15	10	<i>Ambrosia artemisiifolia</i>
<i>Cyperus sp.</i>	2	5	
<i>Lonicera japonica</i>	2	15	

LT #9 West = 14.4 meters			<i>Pueraria lobata</i>
No Vegetation to <i>Pueraria lobata</i>			
LT #9 East 10 meters			<i>Pueraria lobata</i>
No Vegetation to <i>Pueraria lobata</i>			
Lt #10 West 13.6 meters			<i>Oenothera sp.</i>
Quad 0 from creek			<i>Ludwigia palustris</i>
No Vegetation			<i>Panicum dichotomifolia</i>
Quad 5m from creek			<i>Poaceae sp.</i>
<i>Oenothera sp.</i>	1	5	<i>Ambrosia artemisiifolia</i>
<i>Ludwigia palustris</i>	1	5	<i>Panicum dichotomifolia</i>
<i>Panicum dichotomifolia</i>	1	1	<i>Liquidamber styroacifilua</i>
<i>Poaceae sp.</i>	1	1	<i>Lespedeza virginica</i>
Quad 10m from creek			<i>Panicum dichotomifolia</i>
<i>Ambrosia artemisiifolia</i>	5	20	<i>Trichostema dichotomum</i>
<i>Panicum dichotomifolia</i>	1	5	<i>Hydrangea quercifolia</i>
			<i>Parthenocissus quinquefolia</i>
			<i>Croton capitatus</i>
			<i>Ludwigia palustris</i>
LT# 10 East + 20.5 meters			<i>Spiraea tomentosa</i>
Quad 0 from creek			<i>Panicum sp.</i>
No Vegetation			<i>Poaceae sp.</i>
Quad 5m from creek			<i>Trichostema dichotomum</i>
No Vegetation			<i>Ludwigia palustris</i>
Quad 10m from creek			
No Vegetation			
Quad 15m from creek			
<i>Spiraea tomentosa</i>	11	20	
Quad 20m from creek			
<i>Panicum sp.</i>	12	10	
<i>Poaceae sp.</i>	1	1	
<i>Trichostema dichotomum</i>	9	5	
<i>Ludwigia palustris</i>	1	2	
Lt #19 West =17.2 meters			<i>Ludwigia palustris</i>
Quad 0 from creek			<i>Digitaria sp.</i>
No Vegetation			<i>Galium sp.</i>
Quad 5m from creek			<i>Eleocharis obtusa</i>
No Vegetation			<i>Galium sp.</i>
Quad 10m from creek			<i>Cyperus sp.</i>
<i>Ludwigia palustris</i>	3	1	<i>Salix nigra</i>

<i>Digitaria sp.</i>	14	2	
Galium sp.	1	1	
<i>Eleocharis obtusa</i>	1	1	
Quad 15m from creek			
Galium sp.	6	10	
<i>Cyperus sp.</i>	2	1	
LT #19 East			<i>Pueraria lobata</i>
<i>Pueraria lobata</i> to water edge			
Lt #18 West =7 meters			<i>Oxalis dillennii</i>
This site runs to the right of the point where Dry and Topashaw join.			<i>Digitaria sp.</i>
Quad 0 from creek			<i>Ambrosia artemisiifolia</i>
No Vegetation			<i>Panicum dichotomifolia</i>
Quad 5m from creek			<i>Betula nigra</i>
Quad 5m from creek			<i>Solidago sp.</i>
<i>Oxalis dillennii</i>	1	1	<i>Panicum dichotomifolia</i>
<i>Digitaria sp.</i>	3	1	<i>Juncus effusus</i>
			<i>Elephantopus carolinianus</i>
			<i>Campsis radicans</i>
			<i>Arundinaria gigantea</i>
			<i>Chamaecrista fasciculata</i>
LT #18 East =9.95			<i>Ambrosia artemisiifolia</i>
Quad 0 from creek			<i>Panicum dichotomifolia</i>
No Vegetation			
Quad 5m from creek			
No Vegetation			
Quad 10m from creek			
<i>Ambrosia artemisiifolia</i>	5	20	
<i>Panicum dichotomifolia</i>	1	5	
LT #12 West = 14.5 meters			
Quad 0 from creek			
No Vegetation			<i>Vitis rotundifolia</i>
Quad 5m from creek			<i>Campsis radicans</i>
<i>Platanus occidentalis</i>	1	15	<i>Lonicera japonica</i>
<i>Vitis rotundifolia</i>	2	30	<i>Oxalis dillennii</i>
<i>Campsis radicans</i>	1	10	<i>Poaceae sp.</i>
<i>Lonicera japonica</i>	2	15	<i>Smilax bona-nox</i>
<i>Oxalis dillennii</i>	1	1	<i>Neptunia lutea</i>
<i>Poaceae sp.</i>	4	5	<i>Populus alba</i>
Quad 10m from creek			<i>Digitaria sp.</i>
<i>Smilax bona-nox</i>	1	3	<i>Alnus serrulata</i>

<i>Neptunia lutea</i>	1	5	<i>Arundinaria gigantia</i>
<i>Populus alba</i>	1	1	<i>Salix nigra</i>
<i>Digitaria sp.</i>	5	2	<i>Rubus allegheniensis</i>
Quad 15m from creek			<i>Eupatorium capillifolium</i>
No Vegetation			<i>Smilax bona-nox</i>
			<i>Galium sp.</i>
			<i>Ambrosia artemisiifolia</i>
			<i>Ipomoea coccinea</i>
			<i>Aster sp.</i>
			<i>Commelina sp.</i>
LT #12 East = 11.1 meters			<i>Vitis rotundifolia</i>
Quad 0 from creek			Poaceae sp.
No Vegetation			
Quad 5m from creek			
<i>Vitis rotundifolia</i>	1	20	
Poaceae sp.	1	1	
Quad 10m from creek			
No Vegetation			
LT #13 East 15-20 meters			
No Vegetation			
LT #13 West 17.3 meters			<i>Galium sp.</i>
Quad 0 from creek			Poaceae sp.
No Vegetation			
Quad 5m from creek			
No Vegetation			
Quad 10m from creek			
<i>Galium sp.</i>	6	20	
Poaceae sp.	5	10	
Quad 15m from creek			
No Vegetation			
10 meter x 10 meter between LT #4 and LT #5			<i>Galium sp.</i>
Sandbar on East side			Poaceae sp.
<i>Galium sp.</i>	Total Cover= 18%		<i>Ipomoea coccinea</i>
Poaceae sp.			<i>Salix nigra</i>
<i>Ipomoea coccinea</i>			<i>Digitaria sp.</i>
<i>Salix nigra</i>			<i>Solidago sp.</i>
<i>Digitaria sp.</i>			
<i>Solidago sp.</i>			

10 meter x 10 meter LT #13			<i>Ludwigia palustris</i>
Sandbar on West side	Total cover =6%		<i>Smilax bona-nox</i>
<i>Ludwigia palustris</i>			<i>Ambrosia artemisiifolia</i>
<i>Smilax bona-nox</i>			<i>Juncus effusus</i>
<i>Ambrosia artemisiifolia</i>			<i>Neptunia lutea</i>
<i>Juncus effusus</i>			<i>Ipomoea coccinea</i>
<i>Neptunia lutea</i>			<i>Digitaria sp.</i>
<i>Ipomoea coccinea</i>			<i>Leersia oryzoides</i>
<i>Digitaria sp.</i>			<i>Solidago sp.</i>
<i>Leersia oryzoides</i>			<i>Salix nigra</i>
<i>Solidago sp.</i>			<i>Lonicera japonica</i>
<i>Salix nigra</i>			
<i>Lonicera japonica</i>			
10 meter x 10 meter LT #19			<i>Digitaria sp.</i>
Sandbar on East side	Total cover =10%		<i>Salix nigra</i>
<i>Digitaria sp.</i>			<i>Leersia oryzoides</i>
<i>Salix nigra</i>			<i>Ludwigia palustris</i>
<i>Leersia oryzoides</i>			<i>Ipomoea coccinea</i>
<i>Ludwigia palustris</i>			<i>Galium sp.</i>
<i>Ipomoea coccinea</i>			<i>Eupatorium capillifolium</i>
<i>Galium sp.</i>			<i>Cyperus sp.</i>
<i>Eupatorium capillifolium</i>			<i>Eleocharis obtusa</i>
<i>Cyperus sp.</i>			
<i>Eleocharis obtusa</i>			
9-14-99			<i>Ipomoea coccinea</i>
10 meter x 10 meter LT #6	Total Cover=9%		<i>Neptunia lutea</i>
Sandbar on East side			<i>Cyperus sp.</i>
<i>Ipomoea coccinea</i>			<i>Neptunia lutea</i>
<i>Neptunia lutea</i>			<i>Salix nigra</i>
<i>Cyperus sp.</i>			<i>Galium sp.</i>
<i>Neptunia lutea</i>			<i>Chamaecrista fasciculata</i>
<i>Salix nigra</i>			<i>Juncus effusus</i>
<i>Galium sp.</i>			
<i>Chamaecrista fasciculata</i>			
<i>Juncus effusus</i>			
Note: 4 <i>Salix nigra</i> approx. 1m tall			
10 meter x 10 meter LT #8 (43.1 meters South of TL8)	Total Cover=4%		<i>Eleocharis obtusa</i>
Sandbar on East side			<i>Chamaecrista fasciculata</i>

<i>Eleocharis obtusa</i>			<i>Cyperus sp.</i>
<i>Chamaecrista fasciculata</i>			<i>Ludwigia palustra</i>
<i>Cyperus sp.</i>			<i>Leersia oryzoides</i>
<i>Ludwigia palustra</i>			<i>Vita rotundifolia</i>
<i>Leersia oryzoides</i>			<i>Lonicera japonica</i>
<i>Vita rotundifolia</i>			
<i>Lonicera japonica</i>			
10 meter x 10 meter LT #10	Total Cover=35%		<i>Eleocharis obtusa</i>
Sandbar on East side	mostly <i>Ludwigia palustra</i>		<i>Chamaecrista fasciculata</i>
<i>Eleocharis obtusa</i>			<i>Cyperus sp.</i>
<i>Chamaecrista fasciculata</i>			<i>Galium sp.</i>
<i>Cyperus sp.</i>			<i>Solidago nemoralis</i>
<i>Galium sp.</i>			<i>Ludwigia palustra</i>
<i>Solidago nemoralis</i>			
<i>Ludwigia palustra</i>			