

TABLES

Table 3. Log descriptions for wells in Units 1, 3, and 4 at the Four Rivers Conservation Area.

[m, meters; U, unit; W, well]

Depth, below ground surface, in m	General observations
U1W1	
0–2.4	Silty clay
2.4	Encountered water table but water continued to drop with depth
2.4–4.9	Silty clay
4.9–7.6	Fine sandy clay (granular) Constructed 04/19/2001
U1W2	
0–2.7	Gray clay, mottled with iron concretions, standing water at ground surface
2.7–4.6	Heavy gray clay mottled with iron concretions
4.6–5.8	Becoming silty, some fine sand
5.8–7.3	Brown silty clay with some fine sand Constructed 04/19/2001
U1W3	
0–2.7	Gray clay, mottled with iron concretions, water at surface, clay granular
2.7–6.1	Gray clay, dense, some layers with fine sand
6.1–6.7	Silty gray clay, saturated, mottled with iron concretions Constructed 04/19/2001
U3W1	
0–1.2	Silty clay (dark brown) encountered water table at 0.3–0.6 m
1.2–3.6	Heavy clay (gray/brown, iron concretions)
3.6–4.9	Fine sand and clay, increasing sand with depth within this layer, still mottled with iron concretions Constructed 03/29/2001
U3W2	
0–2.4	Heavy brown clay
2.4	Encountered water
2.4–3.8	Heavy clay
3.8–4.0	Saturated clay layer
4.0	Hard pan clay layer
4.0–5.5	Light brown heavy clay
5.5–6.4	Sandy loam Constructed 04/06/2001
U3W3a (deep well)	
0–5.8	Hole is in gray clay mottled with iron concretions becoming increasingly brown and silty Bottomed in brown/gray silty clay with some fine sand Constructed 04/17/2001

Table 3. Log descriptions for wells in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[m, meters; U, unit; W, well]

Depth, below ground surface, in m	General observations
U3W3b	
0–2.1	Gray clay mottled with iron concretions Constructed 04/17/2001
U4W1	
0–0.3	Clay loam
0.3–0.9	Clay
0.9–5.2	Brown clay, iron concretions, some black organic matter, some calcification, dry
5.2–5.8	Sandy clay layer
5.8–6.4	Clay Constructed 3/24/2001
U4W2	
0–3	Brown clay, some iron concretions, some black organic matter particulates
3–3.4	Sandy clay Constructed 03/24/2001
U4W3	
0–0.6	Dark silty clay (dark brown with high organic matter)
0.6–5.5	Dark clay with varying degrees of wetness, mottled with gray and iron concretions, initially encountered water table at 4.0 m Constructed 03/29/2001

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bryse.wsu.edu/saxton/soilwater/> developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; --, no data]

Site (figs. 3-5)	Depth	Measured textural characteristics				Estimated hydraulic properties						
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
NL1	0-0.30 m	28.3	7.2	64.4	4.0	Silty clay loam	16.9	37.9	57.9	0.21	12.12	1.12
	0.31-0.60 m	24.6	7.5	67.9	1.4	Silt loam	14.4	33.5	52.3	.19	2.01	1.27
	0.61-0.90 m	25.0	15.2	59.8	1.2	Silt loam	14.4	32.4	51.2	.18	1.35	1.29
	0.91-1.22 m	26.3	11.5	62.2	1.1	Silt loam	14.8	33.0	51.5	.18	1.27	1.29
NL2	0-0.30 m	32.7	8.5	58.8	4.0	Silty clay loam	19.2	38.8	58.5	.20	8.10	1.10
	0.31-0.60 m	28.6	9.1	62.3	1.4	Silty clay loam	16.3	34.7	52.8	.18	1.32	1.25
	0.61-0.90 m	24.5	15.2	60.2	1.2	Silt loam	14.4	32.4	51.2	.18	1.35	1.29
	0.91-1.22 m	28.3	16.5	55.2	1.1	Silty clay loam	15.8	33.2	51.5	.17	.94	1.29
NL3	0-0.30 m	29.0	9.0	62.0	4.0	Silty clay loam	17.3	38.0	57.9	.21	10.67	1.11
	0.31-0.60 m	27.0	6.8	66.2	1.4	Silt loam/Silty clay loam	15.3	34.1	52.6	.19	1.63	1.26
	0.61-0.90 m	23.6	10.2	66.2	1.2	Silt loam	13.9	32.6	51.3	.19	1.60	1.29
	0.91-1.22 m	29.0	7.5	63.5	1.1	Silty clay loam	16.2	34.5	52.4	.18	1.09	1.26
NL4	0-0.30 m	33.5	10.2	56.2	2.3	Silty clay loam	19.2	37.5	55.4	.18	2.08	1.18
	0.31-0.60 m	28.3	11.2	60.4	1.3	Silty clay loam	15.8	34.1	52.3	.18	1.27	1.26
	0.61-0.90 m	37.5	3.5	59.0	1.2	Silty clay loam	21.4	38.9	54.1	.18	.69	1.22
	0.91-1.22 m	38.8	2.5	58.7	1.1	Silty clay loam	22.0	39.3	54.0	.17	.58	1.22
NL5	0-0.30 m	31.1	12.8	56.2	2.3	Silty clay loam	17.7	36.1	54.8	.19	2.36	1.20
	0.31-0.60 m	25.3	12.5	62.2	1.3	Silt loam	14.4	32.8	51.6	.18	1.57	1.28
	0.61-0.90 m	29.9	4.2	65.8	1.2	Silty clay loam	16.7	35.2	52.8	.18	1.12	1.25
	0.91-1.22 m	29.5	4.0	66.5	1.1	Silty clay loam	16.7	35.1	52.7	.18	1.09	1.25
NL6	0-0.30 m	27.9	13.0	59.1	2.3	Silty clay loam	16.2	35.2	54.4	.19	3.05	1.21
	0.31-0.60 m	23.6	15.8	60.6	1.3	Silt loam	14.0	32.2	51.2	.18	1.60	1.29
	0.61-0.90 m	27.1	9.8	63.2	1.2	Silty clay loam	15.2	33.6	51.9	.18	1.27	1.27
	0.91-1.22 m	21.5	11.5	67.0	1.1	Silt loam	13.1	31.7	50.5	.19	1.70	1.31

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/>) developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; -, no data]

Site (figs. 3–5)	Depth	Measured textural characteristics					Estimated hydraulic properties					
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated density, bulk density, in g/cm ³
U1W1-T1	0–0.30 m	30.6	10.8	58.6	2.9	Silty clay loam	17.9	37.0	56.1	0.19	4.01	1.16
	0.31–0.60 m	28.3	15.0	56.7	2.3	Silty clay loam	16.3	35.0	54.3	.19	3.00	1.21
U1W1-T2	0–0.30 m	26.9	15.0	58.1	2.9	Silt loam	16.0	35.6	55.3	.20	5.03	1.18
	0.31–0.60 m	33.2	6.5	60.3	2.3	Silty clay loam	19.3	37.9	55.8	.19	2.51	1.17
	0.61–0.90 m	35.1	3.5	61.4	1.3	Silty clay loam	19.6	37.5	53.8	.18	.89	1.22
	0.91–1.22 m	28.5	7.8	63.8	1.4	Silty clay loam	16.3	34.8	52.9	.19	1.42	1.25
U1W1-T3	0–0.30 m	27.6	16.8	55.6	2.9	Silty clay loam	16.5	35.5	55.3	.19	4.45	1.18
	0.31–0.60 m	25.4	15.2	59.4	2.3	Silt loam	14.9	34.1	53.6	.19	3.61	1.23
	0.61–0.90 m	30.4	9.9	59.7	1.3	Silty clay loam	16.8	35.0	52.7	.18	1.12	1.25
	0.91–1.22 m	29.6	11.5	58.9	1.4	Silty clay loam	16.8	34.9	52.8	.18	1.19	1.25
NL7	0–0.30 m	41.2	1.0	57.8	6.0	Silt loam	^a 23.6	^a 41.5	^a 61.0	^a .18	^a 10.69	^a 1.03
	0.31–0.60 m	35.4	2.0	62.6	2.6	Silty clay loam	19.9	38.5	56.5	.19	2.92	1.15
	0.61–0.90 m	32.0	2.5	65.5	1.5	Silty clay loam	17.9	36.3	53.8	.18	1.32	1.22
	0.91–1.22 m	26.8	3.8	69.4	1.3	Silty clay loam	15.3	34.1	52.6	.19	1.63	1.26
NL8	0–0.30 m	43.6	1.2	55.2	6.0	Silty clay	^a 25.3	^a 42.1	^a 61.3	^a .17	^a 9.47	^a 1.03
	0.31–0.60 m	42.6	.8	56.6	2.6	Silty clay	24.6	41.6	57.4	.17	1.98	1.13
	0.61–0.90 m	35.6	1.2	63.2	1.5	Silty clay loam	20.2	38.1	54.5	.18	1.07	1.21
	0.91–1.22 m	31.2	2.2	66.6	1.3	Silty clay loam	17.3	35.7	53.3	.18	1.22	1.24
NL9	0–0.30 m	49.6	.8	49.6	6.0	Silty clay	^a 29.2	^a 45.2	^a 61.8	^a .16	^a 7.87	^a 1.01
	0.31–0.60 m	40.0	2.2	57.8	2.6	Silty clay loam/Silty clay	22.8	40.4	57.0	.18	2.18	1.14
	0.61–0.90 m	39.1	.8	60.2	1.5	Silty clay	22.0	39.5	54.9	.18	.91	1.20
	0.91–1.22 m	37.2	1.0	61.8	1.3	Silty clay loam	20.8	38.5	54.2	.18	.81	1.21

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/>) developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; -, no data]

Site (figs. 3-5)	Depth	Measured textural characteristics				Estimated hydraulic properties						
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
Soil texture Unit 1—Continued												
NL10	0-0.30 m	42.1	2.2	55.6	4.0	Silty clay	24.1	41.5	59.6	0.17	5.61	1.07
	0.31-0.60 m	38.0	3.5	58.5	1.7	Silty clay loam	21.4	39.2	55.1	.18	1.14	1.19
	0.61-0.90 m	48.8	2.6	48.5	1.7	Silty clay	28.5	44.6	56.4	.16	.79	1.16
	0.91-1.22 m	45.0	1.0	54.0	1.6	Silty clay	25.9	42.4	55.7	.17	.76	1.17
NL11	0-0.30 m	45.0	1.2	53.8	4.0	Silty clay	25.9	42.3	59.9	.17	5.00	1.06
	0.31-0.60 m	40.9	1.0	58.1	1.7	Silty clay	23.3	40.6	55.6	.17	1.04	1.18
	0.61-0.90 m	36.4	2.0	61.6	1.7	Silty clay loam	20.3	38.3	54.9	.18	1.32	1.19
	0.91-1.22 m	34.5	3.2	62.2	1.6	Silty clay loam	19.6	37.8	54.6	.18	1.27	1.20
NL12	0-0.30 m	46.9	2.5	50.6	4.0	Silty clay	27.2	43.6	60.0	.16	4.57	1.06
	0.31-0.60 m	49.9	1.5	48.6	1.7	Silty clay	29.2	45.2	56.6	.16	.79	1.15
	0.61-0.90 m	42.2	1.2	56.6	1.7	Silty clay	23.9	41.0	55.7	.17	.99	1.17
	0.91-1.22 m	39.9	1.5	58.6	1.6	Silty clay loam	22.7	40.1	55.2	.17	.97	1.19
FP1	0-0.30 m	34.5	3.8	61.8	3.1	Silty clay loam	20.0	38.9	57.4	.19	4.39	1.13
	0.31-0.60 m	33.4	3.5	63.1	1.3	Silty clay loam	18.4	36.6	53.6	.18	1.04	1.23
	0.61-0.90 m	34.7	1.8	63.6	1.3	Silty clay loam	19.6	37.5	53.9	.18	.91	1.22
	0.91-1.22 m	46.9	.1	53.0	1.2	Silty clay	27.2	43.6	55.3	.16	.51	1.19
FP2	0-0.30 m	37.7	2.8	59.6	3.1	Silty clay loam	21.7	39.9	57.6	.18	4.83	1.12
	0.31-0.60 m	32.7	3.2	64.0	1.3	Silty clay loam	18.4	36.6	53.5	.18	.99	1.23
	0.61-0.90 m	24.7	3.2	72.0	1.3	Silt loam	14.3	33.3	52.0	.19	1.78	1.13
	0.91-1.22 m	42.0	2.0	56.0	1.2	Silty clay	23.9	40.9	54.7	.17	.61	1.20
FP3	0-0.30 m	35.6	3.2	61.2	3.1	Silty clay loam	20.5	39.2	57.4	.19	3.91	1.13
	0.31-0.60 m	28.1	4.5	67.4	1.3	Silty clay loam	15.8	34.5	52.8	.19	1.50	1.25
	0.61-0.90 m	25.3	3.0	71.7	1.3	Silt loam	14.4	33.5	52.2	.19	1.91	1.12
	0.91-1.22 m	27.8	6.5	65.7	1.2	Silty clay loam	15.7	34.2	52.3	.19	1.24	1.26

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

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Site (figs. 3–5)	Depth	Measured textural characteristics					Estimated hydraulic properties					
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated density, in g/cm ³
FP4	0–0.30 m	51.8	3.0	45.2	5.4	Silty clay	^a 30.6	^a 46.3	^a 51.0	^a 0.16	^a 7.54	^a 1.01
	0.31–0.60 m	46.9	2.8	50.4	3.2	Silty clay	27.2	43.6	58.8	.09	2.74	1.09
	0.61–0.90 m	49.2	2.5	48.3	1.6	Silty clay	28.5	44.6	56.2	.16	.71	1.16
	0.91–1.22 m	55.0	2.0	43.0	2.7	Silty clay	32.6	47.8	58.7	.15	1.63	1.09
FP5	0–0.30 m	44.3	2.0	53.7	5.4	Silty clay	^a 25.3	^a 42.1	^a 61.3	^a .17	^a 9.47	^a 1.03
	0.31–0.60 m	34.9	1.0	64.1	3.2	Silty clay loam	20.0	39.0	57.6	.19	4.65	1.12
	0.61–0.90 m	55.2	.8	44.0	1.6	Clay	32.6	47.8	56.7	.15	.64	1.15
	0.91–1.22 m	44.6	5.0	50.4	2.7	Clay	25.9	42.4	57.8	.17	1.78	1.12
FP6	0–0.30 m	54.2	2.0	43.8	5.4	Silty clay	^a 31.9	^a 47.3	^a 62.1	^a .15	^a 7.29	^a 1.01
	0.31–0.60 m	50.4	1.2	48.4	3.2	Clay	29.2	45.2	59.1	.16	2.54	1.08
	0.61–0.90 m	65.6	1.0	33.4	1.6	Clay	35.9	50.4	57.3	.15	.66	1.13
	0.91–1.22 m	52.6	1.0	46.4	2.7	Clay	31.2	46.8	58.4	.16	1.57	1.10
FP7	0–0.30 m	44.1	3.1	29.0	9.2	Silty clay	^a 25.3	^a 42.1	^a 61.3	^a .17	^a 9.47	^a 1.03
	0.31–0.60 m	40.9	1.8	57.4	2.9	Silty clay	23.4	40.9	57.7	.18	2.64	1.12
	0.61–0.90 m	48.2	1.2	50.6	1.7	Silty clay	27.9	44.1	56.3	.16	.79	1.16
	0.91–1.22 m	56.2	1.0	42.8	1.5	Silty clay	33.2	48.4	56.7	.15	.61	1.15
FP8	0–0.30 m	53.4	2.0	44.6	9.2	Silty clay	^a 31.2	^a 46.8	^a 62.0	^a .16	^a 7.39	^a 1.01
	0.31–0.60 m	37.1	2.0	60.9	2.9	Silty clay loam	21.1	39.4	57.3	.18	3.30	1.13
	0.61–0.90 m	46.1	.5	53.4	1.7	Silty clay	26.5	43.0	56.1	.17	.84	1.16
	0.91–1.22 m	44.3	1.5	54.2	1.5	Silty clay	25.2	41.9	55.5	.17	.76	1.18
FP9	0–0.30 m	51.3	1.5	47.2	9.2	Silty clay	^a 29.9	^a 45.7	^a 61.9	^a .16	^a 7.70	^a 1.01
	0.31–0.60 m	52.1	1.5	46.4	2.9	Silty clay	30.6	46.3	58.7	.16	1.91	1.09
	0.61–0.90 m	42.9	.8	56.4	1.7	Silty clay	24.6	41.5	55.8	.17	.97	1.17
	0.91–1.22 m	36.1	.2	63.6	1.5	Silty clay loam	20.2	38.1	54.5	.18	1.07	1.21

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[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/>) developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; --, no data]

Site (figs. 3-5)	Depth	Measured textural characteristics				Estimated hydraulic properties						
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
Soil texture Unit 1—Continued												
FP10	0-0.30 m	51.0	1.5	47.5	3.3	Silty clay	29.9	45.7	59.2	0.16	2.54	1.08
	0.31-0.60 m	56.2	2.8	41.0	3.1	Silty clay	33.2	48.4	59.5	.15	2.18	1.07
	0.61-0.90 m	46.8	3.1	50.1	1.8	Silty clay	27.2	43.6	56.3	.16	.86	1.16
	0.91-1.22 m	66.0	1.8	32.2	1.5	Clay	35.9	50.4	57.0	.15	.58	1.14
FP11	0-0.30 m	48.0	.9	51.1	3.3	Silty clay	27.9	44.1	59.0	.16	2.79	1.09
	0.31-0.60 m	34.4	1.8	63.8	3.1	Silty clay loam	19.5	38.6	57.2	.19	4.55	1.13
	0.61-0.90 m	30.5	1.5	68.0	1.8	Silty clay loam	17.5	36.2	54.3	.19	1.88	1.21
	0.91-1.22 m	35.2	1.5	63.3	1.5	Silty clay loam	19.6	37.7	54.3	.18	1.14	1.21
FP12	0-0.30 m	45.1	1.5	53.4	3.3	Silty clay	25.9	42.4	58.7	.17	3.00	1.09
	0.31-0.60 m	35.4	1.8	62.8	3.1	Silty clay loam	20.0	38.9	57.4	.19	4.27	1.13
	0.61-0.90 m	48.0	1.0	51.0	1.8	Silty clay	27.9	44.1	56.4	.16	.84	1.15
	0.91-1.22 m	53.4	.2	46.4	1.5	Silty clay	31.2	46.8	56.5	.16	.61	1.15
AD1	0-0.30 m	47.8	2.2	50.0	4.4	Silty clay	27.9	44.1	60.7	.16	5.66	1.04
	0.31-0.60 m	42.2	2.0	55.8	1.9	Silty clay	23.9	41.1	56.0	.17	1.14	1.17
	0.61-0.90 m	57.4	1.2	41.4	1.8	Silty clay	33.9	48.9	57.4	.15	.79	1.13
	0.91-1.22 m	58.3	1.0	40.7	1.6	Silty clay	34.6	49.4	57.1	.15	.66	1.14
AD2	0-0.30 m	43.3	3.0	53.7	4.4	Silty clay	24.7	41.8	60.0	.17	7.02	1.05
	0.31-0.60 m	36.9	1.0	62.1	1.9	Silty clay loam	20.9	38.9	55.4	.18	1.47	1.18
	0.61-0.90 m	34.9	1.2	63.8	1.8	Silty clay loam	19.7	37.9	54.9	.18	1.50	1.19
	0.91-1.22 m	58.0	1.2	40.7	1.6	Silty clay	35.2	49.9	57.1	.15	.64	1.14

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/>) developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; -, no data]

Site (figs. 3–5)	Depth	Measured textural characteristics				Estimated hydraulic properties						
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated density, bulk density, in g/cm ³
Soil texture Unit 1—Continued												
AD3	0–0.30 m	53.1	1.5	45.4	3.3	Silty clay	31.2	46.8	59.4	0.16	2.46	1.08
	0.31–0.60 m	54.6	3.0	42.4	2.6	Silty clay	32.6	47.8	58.5	.15	1.45	1.10
	0.61–0.90 m	53.3	1.8	45.0	1.6	Silty clay	31.2	46.8	56.6	.16	.66	1.15
	0.91–1.22 m	50.4	.8	48.8	1.5	Silty clay	29.2	45.2	56.1	.16	.61	1.16
AD4	0–0.30 m	52.7	2.0	45.3	3.3	Silty clay	31.2	46.8	59.4	.16	2.46	1.08
	0.31–0.60 m	52.0	2.6	45.3	2.6	Silty clay	30.6	46.3	58.3	.16	1.55	1.11
	0.61–0.90 m	52.7	1.5	45.8	1.6	Silty clay	31.2	46.8	56.6	.16	.66	1.15
	0.91–1.22 m	47.3	.5	52.2	1.5	Silty clay	27.2	43.6	55.8	.16	.66	1.17
AD5	0–0.30 m	56.1	1.2	42.6	3.3	Silty clay	33.2	48.4	59.8	.15	2.51	1.07
	0.31–0.60 m	49.2	1.5	49.3	2.6	Silty clay	28.5	44.6	57.9	.16	1.60	1.11
	0.61–0.90 m	52.5	.5	47.0	1.6	Silty clay	31.2	46.8	56.7	.16	.69	1.15
	0.91–1.22 m	48.2	1.2	50.6	1.5	Silty clay	27.9	44.1	55.9	.16	.64	1.17
U1W2-T1	0–0.30 m	52.6	2.8	44.6	5.2	Silty clay	^a 31.2	^a 46.8	^a 62.0	^a 0.16	^a 7.39	^a 1.01
	0.31–0.60 m	47.4	2.2	50.4	2.4	Clay	27.2	43.6	57.4	.16	1.45	1.13
	0.61–0.90 m	50.7	.5	48.8	1.4	Silty clay	29.9	45.7	56.0	.16	.56	1.17
	0.91–1.22 m	46.8	.4	52.8	1.3	Silty clay	27.2	43.6	55.4	.16	.56	1.18
U1W2-T2	0–0.30 m	45.8	3.5	50.7	5.2	Silty clay	^a 26.5	^a 43.0	^a 61.5	^a 0.17	^a 8.81	^a 1.02
	0.31–0.60 m	49.6	3.9	46.5	2.4	Silty clay	29.2	45.2	57.8	.16	1.39	1.12
	0.61–0.90 m	52.8	2.1	45.0	1.4	Silty clay	31.2	46.8	56.2	.16	.53	1.16
	0.91–1.22 m	46.6	1.2	52.2	1.3	Silty clay	27.2	43.6	55.5	.16	.58	1.18
U1W2-T3	0–0.30 m	50.6	3.9	45.5	5.2	Silty clay	^a 29.9	^a 45.7	^a 61.9	^a 0.16	^a 7.70	^a 1.01
	0.31–0.60 m	53.6	2.8	43.6	2.4	Silty clay	31.9	47.3	58.1	.15	1.27	1.11
	0.61–0.90 m	53.4	1.5	45.2	1.4	Silty clay	31.2	46.8	56.2	.16	.55	1.16
	0.91–1.22 m	48.0	2.2	49.8	1.3	Silty clay	27.9	44.1	55.6	.16	.56	1.18

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/>) developed from equations derived from measurements by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; --, no data]

Site (figs. 3-5)	Depth	Measured textural characteristics				Estimated hydraulic properties						
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
Soil texture Unit 1—Continued												
AD6	0-0.30 m	55.4	2.2	42.4	4.4	Clay	32.6	47.8	61.3	0.15	5.03	1.03
	0.31-0.60 m	50.7	1.0	48.3	3.0	Silty clay	29.9	45.7	58.9	.16	2.16	1.09
	0.61-0.90 m	50.7	1.0	48.3	1.5	Silty clay	29.9	45.7	56.2	.16	.61	1.16
	0.91-1.22 m	49.4	1.5	49.1	2.1	Silty clay	28.5	44.6	57.1	.16	1.07	1.14
AD7	0-0.30 m	55.0	1.0	44.0	4.4	Clay	32.6	47.8	61.2	.15	4.93	1.03
	0.31-0.60 m	58.9	1.0	40.1	3.0	Clay	35.2	49.9	59.5	.15	2.01	1.07
	0.61-0.90 m	59.5	1.0	39.5	1.5	Clay	35.9	50.4	57.1	.15	.61	1.14
	0.91-1.22 m	53.8	.2	46.0	2.1	Silty clay	31.9	47.3	57.6	.15	1.02	1.12
AD8	0-0.30 m	61.3	.9	37.8	4.4	Clay	35.9	50.4	61.6	.15	4.88	1.02
	0.31-0.60 m	55.6	4.8	39.6	3.0	Clay	33.2	48.4	59.3	.15	2.03	1.08
	0.61-0.90 m	62.1	1.0	36.9	1.5	Clay	35.9	50.4	57.1	.15	.61	1.14
	0.91-1.22 m	60.7	.8	38.6	2.1	Clay	35.9	50.4	58.1	.15	.99	1.11
AD9	0-0.30 m	49.8	2.0	48.2	4.4	Silty clay	29.2	45.2	60.9	.16	5.36	1.04
	0.31-0.60 m	51.5	2.0	46.5	3.0	Silty clay	30.6	46.3	58.9	.16	2.06	1.09
	0.61-0.90 m	47.4	.8	51.8	1.5	Silty clay	27.2	46.3	55.8	.16	.69	1.17
	0.91-1.22 m	43.4	.0	56.6	2.1	Silty clay	24.6	41.5	56.5	.17	1.32	1.15
AD10	0-0.30 m	50.5	3.0	46.5	4.4	Silty clay	29.9	45.7	60.9	.16	5.26	1.04
	0.31-0.60 m	54.6	3.2	42.2	3.0	Silty clay	32.6	47.8	59.2	.15	1.98	1.08
	0.61-0.90 m	45.7	1.2	53.0	1.5	Silty clay	26.5	43.0	55.7	.17	.71	1.17
	0.91-1.22 m	45.0	.8	54.2	2.1	Silty clay	25.9	42.4	56.7	.17	1.19	1.15

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/> developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; --, no data]

Site (figs. 3–5)	Depth	Measured textural characteristics					Estimated hydraulic properties					
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
Soil texture Unit 1—Continued												
S1	0–0.30 m	63.0	2.4	34.7	9.2	Clay	^a 35.9	^a 50.4	^a 62.5	^a 0.15	^a 6.93	^a 0.99
	0.31–0.60 m	51.4	3.4	45.2	2.1	Silty clay	29.9	45.7	57.3	.16	1.07	1.13
	0.61–0.90 m	48.4	.9	50.7	1.6	Silty clay	27.9	44.1	56.1	.16	.71	1.16
	0.91–1.22 m	59.6	2.1	38.3	2.1	Clay	35.9	50.4	58.1	.15	1.02	1.11
BS2	0–0.30 m	56.6	2.9	40.5	9.2	Clay	^a 33.9	^a 48.9	^a 62.3	^a .15	^a 7.04	^a 1.00
	0.31–0.60 m	48.2	3.1	48.6	2.1	Silty clay	27.9	44.1	57.0	.16	1.09	1.14
	0.61–0.90 m	--	--	--	--	--	--	--	--	--	--	--
	0.91–1.22 m	59.8	1.4	38.8	2.1	Clay	35.9	50.4	58.1	.15	.99	1.11
BS3	0–0.30 m	59.0	2.2	38.8	5.6	Clay	^a 35.2	^a 49.9	^a 62.4	^a .15	^a 6.96	^a 1.00
	0.31–0.60 m	54.6	1.5	43.9	2.4	Silty clay	32.6	47.8	58.2	.15	1.24	1.11
	0.61–0.90 m	51.8	1.5	46.8	1.5	Silty clay	30.6	46.3	56.4	.16	.62	1.16
	0.91–1.22 m	54.4	.2	45.4	1.5	Clay	31.9	47.3	56.6	.15	.61	1.15
BS4	0–0.30 m	55.6	.8	43.6	5.6	Silty clay	^a 33.2	^a 48.4	^a 62.2	^a .15	^a 7.11	^a 1.00
	0.31–0.60 m	56.1	1.4	42.5	2.4	Silty clay	33.2	48.4	58.2	.15	1.25	1.11
	0.61–0.90 m	59.0	1.1	39.9	1.5	Silty clay	34.6	49.9	57.0	.15	.60	1.14
	0.91–1.22 m	--	--	--	1.5	--	--	--	--	--	--	--
BS5	0–0.30 m	59.5	.5	40.0	5.6	Clay	^a 35.9	^a 50.4	^a 32.5	^a .15	^a 6.93	^a .99
	0.31–0.60 m	52.7	2.4	44.9	2.4	Silty clay	31.2	46.8	58.0	.16	1.28	1.11
	0.61–0.90 m	62.2	2.2	35.6	1.5	Clay	35.9	50.4	57.0	.15	.58	1.14
	0.91–1.22 m	54.5	1.0	44.5	1.5	Clay	32.6	47.8	56.6	.15	.58	1.15
UIW3-TI	0–0.30 m	51.7	3.2	45.0	5.6	Clay	^a 30.6	^a 46.3	^a 61.9	^a .16	^a 7.54	^a 1.01
	0.31–0.60 m	54.3	1.5	44.2	2.4	Clay	31.9	47.3	58.1	.15	1.27	1.11
	0.61–0.90 m	51.3	2.0	46.7	1.5	Silty clay	29.9	45.7	56.3	.16	.63	1.16
	0.91–1.22 m	51.2	1.5	47.4	1.5	Silty clay	29.9	45.7	56.3	.16	.63	1.16

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyes.wsu.edu/saxton/soilwater/>) developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; --, no data]

Site (figs. 3-5)	Depth	Measured textural characteristics				Estimated hydraulic properties						
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
Soil texture Unit 1—Continued												
U1W3-T2	0-0.30 m	55.0	1.2	43.8	5.6	Silty clay	^a 32.6	^a 47.8	^a 62.1	^a 0.15	^a 7.19	^a 1.00
	0.31-0.60 m	58.4	1.2	40.4	2.4	Silty clay loam	34.6	49.4	58.5	.15	1.27	1.10
	0.61-0.90 m	56.6	1.5	41.9	1.5	Silty clay loam	33.9	48.9	56.8	.15	.58	1.15
	0.91-1.22 m	59.2	1.2	39.6	1.5	Clay	35.2	49.9	56.9	.15	.58	1.14
U1W3-T3	0-0.30 m	59.4	1.2	39.4	5.6	Clay	^a 35.2	^a 49.9	^a 62.4	^a .15	^a 6.96	^a 1.00
	0.31-0.60 m	50.8	2.5	46.7	2.4	Silty clay	29.9	45.7	57.9	.16	1.37	1.12
	0.61-0.90 m	46.6	.5	52.9	1.5	Silty clay	27.2	43.6	55.8	.16	.66	1.17
	0.91-1.22 m	56.1	1.0	42.9	1.5	Silty clay	33.2	48.4	56.7	.15	.58	1.15
BS6	0-0.30 m	59.5	1.2	39.2	4.2	Silty clay	35.9	50.4	61.3	.15	4.27	1.03
	0.31-0.60 m	51.9	.8	47.4	3.2	Silty clay	30.6	46.3	29.3	.16	2.44	1.08
	0.61-0.90 m	55.8	1.8	42.4	3.0	Silty clay	33.2	48.4	59.2	.15	1.98	1.08
	0.91-1.22 m	54.6	1.2	44.2	1.5	Clay	32.6	47.8	56.6	.15	.58	1.15
BS7	0-0.30 m	59.7	2.5	37.8	4.2	Clay	35.9	50.4	61.3	.15	4.27	1.03
	0.31-0.60 m	57.1	1.5	41.4	3.2	Clay	33.9	48.9	59.6	.15	2.24	1.07
	0.61-0.90 m	53.5	1.4	45.1	3.0	Silty clay	31.9	47.3	59.1	.15	2.06	1.03
	0.91-1.22 m	62.0	1.2	36.8	1.5	Clay	35.9	50.4	57.0	.15	.58	1.14
BS8	0-0.30 m	56.3	.8	43.0	4.2	Silty clay	33.2	48.4	61.0	.15	4.34	1.03
	0.31-0.60 m	52.8	1.8	45.4	3.2	Silty clay	31.2	46.8	59.4	.16	2.39	1.08
	0.61-0.90 m	57.2	.8	42.0	3.0	Clay	33.9	48.9	59.4	.15	2.01	1.08
	0.91-1.22 m	60.7	1.8	37.6	1.5	Clay	35.9	50.4	57.0	.15	.58	1.14
BS9	0-0.30 m	60.2	1.4	38.5	4.2	Clay	35.9	50.4	61.4	.15	4.47	1.02
	0.31-0.60 m	53.0	2.0	45.0	3.2	Silty clay	31.2	46.8	59.4	.16	2.39	1.08
	0.61-0.90 m	65.1	1.0	33.9	3.0	Clay	35.9	50.4	59.6	.15	2.01	1.07
	0.91-1.22 m	60.7	.5	38.8	1.5	Clay	35.9	50.4	57.1	.15	.61	1.14

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/>) developed from equations derived from Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; --, no data]

Site (figs. 3–5)	Depth	Measured textural characteristics				Estimated hydraulic properties						
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
Soil texture Unit 1—Continued												
BS10	0–0.30 m	64.6	1.2	34.2	4.2	Clay	35.9	50.4	61.4	0.15	4.37	1.02
	0.31–0.60 m	--	--	--	3.2	--	--	--	--	--	--	--
	0.61–0.90 m	56.2	.8	43.0	3.0	Clay	33.2	48.4	59.3	.15	2.03	1.08
	0.91–1.22 m	58.6	1.2	40.2	1.5	Silty clay	35.2	49.9	57.0	.15	.61	1.14
BS11	0–0.30 m	58.2	1.8	40.0	4.2	Clay	34.6	49.4	61.2	.15	4.37	1.03
	0.31–0.60 m	60.0	.5	39.5	3.2	Clay	35.9	50.4	59.8	.15	2.24	1.06
	0.61–0.90 m	60.3	1.0	38.7	3.0	Clay	35.9	50.4	59.5	.15	1.96	1.07
	0.91–1.22 m	55.2	.8	44.0	1.5	Clay	32.6	47.8	56.6	.15	.58	1.15
Soil texture Unit 3												
U3W1-T1	0–0.30 m	49.6	0.8	49.7	3.2	Silty clay	29.2	45.2	59.2	0.16	2.59	1.08
	0.31–0.60 m	47.3	2.0	50.7	3.5	Silty clay	27.2	43.6	59.3	.16	3.30	1.08
	0.61–0.90 m	55.6	4.6	39.8	1.9	Clay	33.2	48.4	57.3	.15	.81	1.13
	0.91–1.22 m	54.2	2.1	43.6	1.9	Silty clay	31.9	47.3	57.2	.15	.81	1.14
U3W1-T2	0–0.30 m	60.5	.9	38.6	3.2	Clay	35.9	50.4	59.8	.15	2.24	1.06
	0.31–0.60 m	45.2	2.6	52.1	3.5	Silty clay	25.9	42.4	59.1	.17	3.51	1.08
	0.61–0.90 m	49.8	3.4	46.9	1.9	Silty clay	29.2	45.2	56.8	.16	.89	1.14
	0.91–1.22 m	50.0	11.8	38.3	1.9	Silty clay	29.0	44.4	56.4	.15	.74	1.16
U3W1-T3	0–0.30 m	62.0	.6	37.4	3.2	Clay	35.9	50.4	59.8	.15	2.24	1.06
	0.31–0.60 m	41.8	1.3	56.9	3.5	Silty clay	24.1	41.4	58.8	.17	3.94	1.09
	0.61–0.90 m	53.8	2.2	43.9	1.9	Silty clay	31.9	47.3	57.3	.15	.86	1.13
	0.91–1.22 m	54.0	1.8	44.2	1.9	Silty clay	31.9	47.3	57.3	.15	.86	1.13

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/>) developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; --, no data]

Site (figs. 3-5)	Depth	Measured textural characteristics				Estimated hydraulic properties						
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
Soil texture Unit 3—Continued												
U3W2-T1	0-0.30 m	65.1	1.5	33.4	3.5	Clay	35.9	50.4	60.4	0.15	2.82	1.05
	0.31-0.60 m	64.2	1.4	34.4	2.0	Clay	35.9	50.4	57.9	.15	.89	1.12
	0.61-0.90 m	58.0	3.0	39.0	2.0	Clay	34.6	49.4	57.7	.15	.89	1.12
	0.91-1.22 m	51.0	3.6	45.4	1.3	Silty clay	29.9	45.7	55.8	.16	.48	1.17
U3W2-T2	0-0.30 m	66.3	1.1	32.6	3.5	Clay	35.9	50.4	60.3	.15	2.74	1.05
	0.31-0.60 m	61.6	2.1	36.3	2.0	Clay	35.9	50.4	57.9	.15	.89	1.12
	0.61-0.90 m	--	--	--	--	--	--	--	--	--	--	--
	0.91-1.22 m	54.4	4.0	41.6	1.3	Silty clay	31.9	47.3	56.1	.15	.48	1.16
U3W2-T3	0-0.30 m	59.7	2.2	38.0	3.5	Clay	35.9	50.4	60.4	.15	2.82	1.05
	0.31-0.60 m	66.4	1.6	32.0	2.0	Clay	35.9	50.4	57.9	.15	.91	1.11
	0.61-0.90 m	57.2	3.0	39.8	2.0	Clay	33.9	48.9	57.7	.15	.91	1.12
	0.91-1.22 m	49.2	4.8	46.0	1.3	Silty clay	28.5	44.6	55.6	.16	.53	1.18
U3W3-T1	0-0.30 m	56.0	1.2	42.7	4.3	Silty clay	33.2	48.4	61.2	.15	4.65	1.03
	0.31-0.60 m	60.1	2.2	37.6	2.8	Clay	35.9	50.4	59.2	.15	1.70	1.08
	0.61-0.90 m	54.8	3.0	42.2	2.0	Silty clay	32.6	47.8	57.5	.15	.89	1.13
	0.91-1.22 m	43.7	4.1	52.2	1.7	Silty clay	25.2	42.0	55.9	.17	.91	1.17
U3W3-T2	0-0.30 m	62.0	1.1	36.9	4.3	Clay	35.9	50.4	61.5	.15	4.57	1.02
	0.31-0.60 m	58.2	2.0	39.8	2.8	Clay	34.6	49.4	59.2	.15	1.75	1.08
	0.61-0.90 m	48.8	3.1	48.0	2.0	Silty clay	28.5	44.6	57.0	.16	1.02	1.14
	0.91-1.22 m	43.7	2.0	54.3	1.7	Silty clay	25.2	42.0	55.9	.17	.89	1.17
U3W3-T3	0-0.30 m	54.7	2.4	42.8	4.3	Silty clay	32.6	47.8	61.1	.15	4.70	1.03
	0.31-0.60 m	61.6	2.0	36.4	2.8	Clay	35.9	50.4	59.2	.15	1.65	1.08
	0.61-0.90 m	58.2	2.2	39.6	2.0	Clay	34.6	49.4	57.7	.15	.89	1.12
	0.91-1.22 m	45.6	3.5	50.9	1.7	Silty clay	26.5	43.0	56.2	.17	.86	1.16

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/>) developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; --, no data]

Site (figs. 3–5)	Depth	Measured textural characteristics				Texture class	Estimated hydraulic properties					
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight		Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
U4W1-T1	0–0.30 m	22.5	10.2	67.2	1.5	Silty loam	13.6	32.8	51.8	0.19	2.36	1.28
	0.31–0.60 m	50.4	4.9	42.9	1.4	Silty clay	29.2	45.2	55.9	.16	.56	1.17
	0.61–0.90 m	38.8	7.9	53.4	1.2	Silty clay loam	22.0	39.2	54.1	.17	.64	1.17
U4W1-T2	0–0.30 m	22.4	9.5	68.1	1.5	Silty loam	13.3	32.5	51.6	.19	2.59	1.28
	0.31–0.60 m	42.0	5.5	52.4	1.4	Silty clay	23.9	40.9	55.0	.17	.71	1.19
	0.61–0.90 m	--	--	--	1.2	--	--	--	--	--	--	--
U4W1-T3	0–0.30 m	26.1	11.2	62.6	1.5	Silty loam	14.9	33.7	52.4	.19	1.85	1.26
	0.31–0.60 m	45.6	6.5	47.9	1.4	Silty clay	26.5	42.9	55.3	.16	.58	1.18
	0.61–0.90 m	39.5	9.2	51.2	--	Silty clay loam	22.6	39.6	54.1	.17	.58	1.22
U4W2-T1	0–0.30 m	30.0	16.8	53.2	1.5	Silty clay loam	16.9	34.4	52.7	.18	1.17	1.25
	0.31–0.60 m	39.9	12.0	48.1	1.7	Silty clay loam	22.6	39.5	54.9	.17	.86	1.20
	0.61–0.90 m	36.4	12.1	51.5	.6	Silty clay loam	20.0	37.0	52.2	.17	.38	1.27
U4W2-T2	0–0.30 m	33.0	16.8	50.2	1.5	Silty clay loam	18.5	35.6	53.2	.17	.97	1.24
	0.31–0.60 m	37.4	15.5	47.0	1.7	Silty clay loam	20.8	37.6	54.3	.17	.94	1.21
	0.61–0.90 m	42.0	6.4	51.7	.6	Silty clay	23.8	40.7	53.4	.17	.33	1.23
U4W2-T3	0–0.30 m	34.4	15.2	50.4	1.5	Silty clay loam	19.0	36.3	53.4	.17	.91	1.23
	0.31–0.60 m	33.2	25.0	41.8	1.7	Clay loam	18.6	34.6	53.1	.16	.97	1.24
	0.61–0.90 m	40.0	15.0	45.0	.6	Silty clay loam	22.5	38.7	52.4	.16	.28	1.26

Table 13. Soil texture and estimated hydraulic properties data for soil profiles in Units 1, 3, and 4 at the Four Rivers Conservation Area.—Continued

[Organic matter percentages in bold also are used for sites indicated by the enclosing box outline; hydraulic properties are estimated from a computer program (Soil Water Characteristics Hydraulic Properties Calculator found at <http://www.bsyse.wsu.edu/saxton/soilwater/> developed from equations derived by Saxton and others (1986) using measured textural characteristics; cm/cm, centimeters per centimeter; cm/h, centimeters per hour; g/cm³, grams per cubic centimeter; m, meters; --, no data]

Site (figs. 3-5)	Depth	Measured textural characteristics				Estimated hydraulic properties						
		Clay, percentage by weight	Sand, percentage by weight	Silt, percentage by weight	Organic matter, percentage by weight	Texture class	Wilting point, percentage by volume	Field capacity, percentage by volume	Saturation, percentage by volume	Available water, in cm/cm	Saturated conductivity, in cm/h	Estimated bulk density, in g/cm ³
Soil texture Unit 4—Continued												
U4W3-T1	0-0.30 m	42.4	1.4	56.2	3.4	Silty clay	24.7	41.7	58.8	0.17	3.58	1.09
	0.31-0.60 m	46.6	2.4	51.1	2.6	Silty clay	27.2	43.6	57.8	.16	1.68	1.12
	0.61-0.90 m	61.6	2.9	35.6	2.0	Clay	35.9	50.4	57.9	.15	.91	1.11
	0.91-1.22 m	48.2	6.8	45.0	1.3	Silty clay	27.8	43.9	55.4	.16	.51	1.18
U4W3-T2	0-0.30 m	53.0	2.1	44.8	3.4	Silty clay	31.2	46.8	59.7	.16	2.79	1.07
	0.31-0.60 m	54.4	3.6	41.9	2.6	Silty clay	32.6	47.8	58.5	.15	1.50	1.10
	0.61-0.90 m	54.6	4.8	40.6	2.0	Silty clay	32.6	47.8	57.5	.15	.89	1.13
	0.91-1.22 m	47.2	5.0	47.8	1.3	Silty clay	27.2	43.6	55.3	.16	.53	1.18
U4W3-T3	0-0.30 m	55.7	3.2	41.0	3.4	Silty clay	33.2	48.4	59.8	.15	2.57	1.06
	0.31-0.60 m	49.7	6.1	44.2	2.6	Silty clay	29.2	45.1	58.0	.16	1.57	1.11
	0.61-0.90 m	49.9	5.9	44.2	2.0	Silty clay	29.2	45.1	57.0	.16	.97	1.14
	0.91-1.22 m	54.2	3.2	42.6	1.3	Clay	31.9	47.3	56.1	.15	.48	1.16

^aThe hydraulic properties utility can only accept organic matter values of as much as 5 percent and when actual values exceed this value then the actual hydraulic properties also will vary.

Table 15. Species master list for ground layer, understory, and overstory species sampled in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area in 2002 and 2003.

[WIS, wetland indicator status; N/I, native/introduced; FAC, facultative; FACU, facultative upland; FACW, facultative wetland; OBL, obligate; UL, unlisted as an indicator species; A, annual; B, biennial; P, perennial; S, shrub; T, tree; V, vine; W, woody; --, none]

Code	Species name	Common name	Family	WIS	Habit	N/I
Ground Layer Species						
AARTEM	<i>Ambrosia artemisiifolia</i> L.	Common ragweed	Asteraceae	FACU	A	N
ABRACT	<i>Amphicarpaea bracteata</i> (L.) Fern.	American Hog Peanut	Fabaceae	FAC	APV	N
ACANAB	<i>Apocynum cannabinum</i> L.	Indian Hemp	Apocynaceae	FAC	P	N
ADRACO	<i>Arisaema draconitum</i> (L.) Schott.	Green Dragon	Araceae	FACW	P	N
AINCAR	<i>Asclepias incarnata</i> L.	Swamp milkweed	Asclepiadaceae	OBL	P	N
ALAEVI	<i>Arabis laevigata</i> (Muhl.) Poir.	Smooth rock cress	Brassicaceae	UL	B	N
ALANCE	<i>Aster lanceolatus</i> Willd.	Panicled aster	Asteraceae	FACW	P	N
ALLIUM	<i>Allium</i> spp.	Wild onion/garlic	Liliaceae	--	P	--
ANEGUN	<i>Acer negundo</i> L.	Boxelder	Aceraceae	FACW	T	N
APLANT	<i>Alisma triviale</i> Pursh.	Northern water plantain	Alismataceae	OBL	P	N
ARUDIS	<i>Amaranthus rudis</i> Sauer.	Amaranth	Amaranthaceae	FACW	A	N
ASACCA	<i>Acer saccharinum</i> L.	Silver Maple	Aceraceae	FACW	T	N
ASPINO	<i>Aralia spinosa</i> L.	Hercules' Club	Araliaceae	FACW	T	N
ASTERS	<i>Aster</i> spp.	--	Asteraceae	--	--	--
ATRFIF	<i>Ambrosia trifida</i> L.	Giant ragweed	Asteraceae	FAC	A	N
ATRILO	<i>Asimina triloba</i> (L.) Dunal	Pawpaw	Annonaceae	FAC	T	N
BCYLIN	<i>Boehmeria cylindrica</i> (L.) Sw.	False Nettle	Urticaceae	OBL	P	N
CAMPHI	<i>Carex amphibola</i> Steud.	--	Cyperaceae	FAC	P	N
CARUND	<i>Cinna arundinaceae</i> L.	Wood reed grass	Poaceae	FACU	A	N
CBLAND	<i>Carex blanda</i> Dewey	--	Cyperaceae	FAC	P	N
CCANAD	<i>Cercis canadensis</i> L.	Eastern redbud	Caesalpiniaceae	FACU	T	N
CCOMMU	<i>Commelina communis</i> L.	Day flower	Commelinaceae	FAC	A	I
CCORDI	<i>Carya cordiformis</i> (Wang.) K. Koch	Bitternut or Pignut Hickory	Juglandaceae	FAC	T	N
CCRUSC	<i>Carex crus-corvi</i> Shuttlew. Ex. Kunze.	--	Cyperaceae	OBL	P	N
CDAVIS	<i>Carex davisii</i> Schwein. & Torr.	--	Cyperaceae	FAC	P	N
CDRUMM	<i>Cornus drummondii</i> Meyer	Rough leaved dogwood	Cornaceae	FAC	T	N
CEOCCI	<i>Cephalanthus occidentalis</i> L.	Buttonbush	Rubiaceae	OBL	T	N
CFRANK	<i>Carex frankii</i> Kunth	--	Cyperaceae	OBL	P	N
CGRAYI	<i>Carex grayii</i> J. Carey	Globe sedge	Cyperaceae	FACW	P	N
CGRISE	<i>Carex grisea</i> Wahlenb.	--	Cyperaceae	FAC	P	N
CHYALI	<i>Carex hyalinolepis</i> Steud.	--	Cyperaceae	OBL	P	N
CILLIN	<i>Carya illinoensis</i> (Wang.) K. Koch	Pecan	Juglandaceae	FACW	T	N
CJAMES	<i>Carex jamesii</i> Schwein.	--	Cyperaceae	UL	P	N

Table 15. Species master list for ground layer, understory, and overstory species sampled in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area in 2002 and 2003.—Continued

[WIS, wetland indicator status; N/I, native/introduced; FAC, facultative; FACU, facultative upland; FACW, facultative wetland; OBL, obligate; UL, unlisted as an indicator species; A, annual; B, biennial; P, perennial; S, shrub; T, tree; V, vine; W, woody; --, none]

Code	Species name	Common name	Family	WIS	Habit	N/I
		Ground Layer Species—Continued				
CLACIN	<i>Carya laciniata</i> (Michx.) Loud.	Big Shellbark Hickory	Juglandaceae	FACW	T	N
CLAEVE	<i>Cynachum laeve</i> (Michx.) Pers.	Climbing milkweed	Asclepiadaceae	FAC	PV	N
CLATIF	<i>Chasmanthium latifolium</i> (Michx.) H.O. Yates	River oats	Poaceae	FACW	P	N
CLUPUL	<i>Carex lupulina</i> Muhl. ex. Willd.	Hop sedge	Cyperaceae	OBL	P	N
CMOLLI	<i>Crataegus mollis</i> (T. & G.) Scheele	Downy hawthorne	Rosaceae	FACW	T	N
CMUSKI	<i>Carex muskingumensis</i> Schwein.	Palm sedge	Cyperaceae	OBL	P	N
CNORMA	<i>Carex normalis</i> Mackenz.	--	Cyperaceae	FACW	P	N
COCCID	<i>Celtis occidentalis</i> L.	Hackberry	Ulmaceae	FAC	T	N
COLIGO	<i>Carex oligocarpa</i> Schkuhr ex Willd.	--	Cyperaceae	UL	P	N
CRADIC	<i>Campsis radicans</i> (L.) Seem.	Trumpet creeper	Bignoniaceae	FAC	WV	N
CRCANA	<i>Cryptotaenia canadensis</i> (L.) DC.	Wild chervil	Apiaceae	FAC	P	N
CSEPIU	<i>Convolvulus sepium</i> (L.) R. Br.	Hedge bindweed	Convolvulaceae	UL	A	V
CSQUAR	<i>Carex squarrosa</i> L.	--	Cyperaceae	OBL	P	N
CTRIBU	<i>Carex tribuloides</i> Wahlenb.	--	Cyperaceae	FACW	P	N
CTYPHI	<i>Carex typhina</i> Michx.	--	Cyperaceae	OBL	P	N
CVULPI	<i>Carex vulpinoidea</i> Michx.	--	Cyperaceae	OBL	P	N
DVILLO	<i>Dioscorea villosa</i> L.	Yam	Dioscoreaceae	FAC	PV	N
EATROP	<i>Euonymus atropurpureus</i> Jacq.	Wahoo, burning bush	Celastraceae	FAC	S	N
ECANAD	<i>Conyza canadensis</i> (L.) Cronq.	Horseweed	Asteraceae	FAC	A	N
EHIERA	<i>Erechtites hieracifolia</i> (L.) Raf.	Fireweed	Asteraceae	FACU	A	N
EPALUS	<i>Eleocharis palustris</i> L.	Spike rush	Cyperaceae	OBL	P	N
ESUPIN	<i>Euphorbia supina</i> Raf.	Milk purslane	Euphorbiaceae	UL	A	N
EVIRGI	<i>Elymus virginicus</i> L.	Virginia wild rye	Poaceae	FACW	P	N
FPENNS	<i>Fraxinus pennsylvanica</i> Marshall	Green Ash	Oleaceae	FACW	T	N
FSUBVE	<i>Festuca subverticillata</i> (Pers.) E.B. Alexeev	Nodding fescue	Poaceae	FACU	P	N
GAPARI	<i>Galium aparine</i> L.	Goose grass	Rubiaceae	FACU	A	N
GCANAD	<i>Geum canadense</i> Jacq.	White avens	Rosaceae	FAC	P	N
GDIOIC	<i>Gymnocladus dioica</i> (L.) K. Koch	Kentucky Coffee Tree	Caesalpiniaceae	UL	T	N
GTRIAC	<i>Gleditsia triacanthos</i> L.	Honey locust	Caesalpiniaceae	FAC	T	N
HINDIC	<i>Heliotropium indicum</i> L.	Indian Heliotrope	Boraginaceae	FACW	A	I
HMLIT	<i>Hibiscus laevis</i> All.	Rose mallow	Malvaceae	OBL	P	N
IDECID	<i>Ilex decidua</i> Walt.	Deciduous holly	Aquifoliaceae	FACW	T	N
ILACUN	<i>Ipomoea lacunosa</i> L.	Small white morning glory	Convolvulaceae	FACW	AV	N

Table 15. Species master list for ground layer, understory, and overstory species sampled in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area in 2002 and 2003.—Continued

[WIS, wetland indicator status; N/I, native/introduced; FAC, facultative; FACU, facultative upland; FACW, facultative wetland; OBL, obligate; UL, unlisted as an indicator species; A, annual; B, biennial; P, perennial; S, shrub; T, tree; V, vine; W, woody; --, none]

Code	Species name	Common name	Family	WIS	Habit	N/I
Ground Layer Species—Continued						
IPALI	<i>Impatiens pallida</i> Nutt.	Pale touch-me-not	Balsaminaceae	FACW	A	N
IPINNA	<i>Iodanthus pinnatifidus</i> (Michx.) Steud.	Purple rocket	Brassicaceae	FACW	P	N
LCANAD	<i>Laportea canadensis</i> (L.) Wedd.	Wood nettle	Urticaceae	FACW	P	N
LLANCE	<i>Phyla lanceolata</i> (Michx.) E. Greene	Fog fruit	Verbenaceae	OBL	P	N
LLENTI	<i>Leersia lenicularis</i> Michx.	Catchfly grass	Poaceae	OBL	P	N
LNUMMU	<i>Lysimachia nummularia</i> L.	Moneywort	Primulaceae	FACW	P	I
LORYZO	<i>Leersia oryzoides</i> (L.) Sw.	Rice cutgrass	Poaceae	OBL	P	N
LVIRGI	<i>Lycopus virginicus</i> L.	Bugle weed	Lamiaceae	OBL	P	N
MCANAD	<i>Menispermum canadense</i> L.	Moonseed	Menispermaceae	FAC	WV	N
MRUBRA	<i>Morus rubra</i> L.	Red mulberry	Moraceae	FAC	T	N
PAMERI	<i>Prunus americana</i> Marsh.	Wild plum	Rosaceae	UL	T	N
PAMPHI	<i>Polygonum amphibium</i> L.	Water smartweed	Polygonaceae	OBL	P	N
PDIVAR	<i>Phlox divaricata</i> L.	Woodland phlox	Polemoniaceae	FACU	P	N
PHYDRO	<i>Polygonum hydropiperoides</i> Michx.	Wild water pepper	Polygonaceae	OBL	P	N
PPUMIL	<i>Pilea pumila</i> (L.) Gray	Clearweed	Urticaceae	FACW	A	N
PQUINQ	<i>Parthenocissus quinquefolia</i> (L.) Planch.	Virginia creeper	Vitaceae	FAC	WV	N
PSYLVE	<i>Poa sylvestris</i> A. Gray	Woodland bluegrass	Poaceae	FAC	P	N
PVIRGI	<i>Polygonum virginianum</i> L.	Virginia knotweed	Polygonaceae	FAC	AP	N
QMACRO	<i>Quercus macrocarpa</i> Michx.	Bur Oak	Fagaceae	FAC	T	N
QMUEHL	<i>Quercus muehlenbergii</i> Engelm.	Chinkapin Oak	Fagaceae	NI	T	N
QPALUS	<i>Quercus palustris</i> Muenchh.	Pin Oak	Fagaceae	FACW	T	N
RABORT	<i>Ranunculus abortivus</i> L.	Small flowered crowfoot	Ranunculaceae	FACW	BP	N
RCAROL	<i>Rosa carolina</i> L.	Pasture rose	Rosaceae	FACU	S	N
RLACIN	<i>Rudbeckia laciniata</i> L.	Cutleaf coneflower	Asteraceae	FACW	P	N
RRADIC	<i>Toxicodendron radicans</i> (L.) Kuntze.	Poison Ivy	Anacardiaceae	FAC	WV	N
RSEPTI	<i>Ranunculus hispidus</i> Michx. Var. caricetorum (E. Greene)	Swamp buttercup	Ranunculaceae	FACW	P	N
RSTREP	<i>Ruellia strepens</i> L.	Wild petunia	Acanthaceae	FAC	P	N
RUBUSSP	<i>Rubus</i> spp.	--	Rosaceae	--	S	--
RVERTI	<i>Rumex verticillatus</i> L.	Swamp dock	Polygonaceae	OBL	P	N
SANIODOR	<i>Sanicula odorata</i> (Raf.) KM Pryer & LR Phillippe	Clustered black snakeroot	Apiaceae	FAC	P	N
SBREVI	<i>Sagittaria brevirostra</i> Mackenzie & Bush.	Midwestern arrowhead	Alismataceae	OBL	P	N
SCANAD	<i>Sambucus canadensis</i> L.	Common elderberry	Caprifoliaceae	FACW	S	N
SCERNU	<i>Saururus cernuus</i> L.	Lizard's tail	Saururaceae	OBL	P	N

Table 15. Species master list for ground layer, understory, and overstory species sampled in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area in 2002 and 2003.—Continued

[WIS, wetland indicator status; N/I, native/introduced; FAC, facultative; FACU, facultative upland; FACW, facultative wetland; OBL, obligate; UL, unlisted as an indicator species; A, annual; B, biennial; P, perennial; S, shrub; T, tree; V, vine; W, woody; --, none]

Code	Species name	Common name	Family	WIS	Habit	N/I
Ground Layer Species—Continued						
SECIRR	<i>Smilax ecirrhata</i> (Engelm.) Wats.	Carrion flower	Smilacaceae	UL	V	N
SLASIO	<i>Spermacoce glabra</i> Michx.	Smooth buttonweed	Rubiaceae	FACW	P	N
SLATER	<i>Scutellaria lateriflora</i> L.	Mad-dog skullcap	Lamiaceae	OBL	P	N
SNIGRA	<i>Salix nigra</i> Marsh.	Black willow	Salicaceae	OBL	T	N
SORBIC	<i>Symphoricarpos orbiculatus</i> Moench.	Coral berry	Caprifoliaceae	FACU	S	N
SPECTI	<i>Spartina pectinata</i> Link	Cord grass	Poaceae	FACW	P	N
SPERFO	<i>Silphium perfoliatum</i> L.	Cup plant	Asteraceae	FACW	P	N
STAMNO	<i>Smilax tamnoides</i> L. var. <i>hispida</i>	Catbrier	Smilacaceae	FAC	WV	N
STENUI	<i>Stachys tenuifolia</i> Willd.	Hedgenettle	Lamiaceae	OBL	P	N
TAMERI	<i>Tilia americana</i> L.	Basswood	Tiliaceae	FACU	T	N
TLATIF	<i>Typha latifolia</i> L.	Common cattail	Typhaceae	OBL	P	N
UAMERI	<i>Ulmus americana</i> L.	American Elm	Ulmaceae	FACW	T	N
URUBRA	<i>Ulmus rubra</i> Muhl.	Slippery Elm	Ulmaceae	FAC	T	N
VAESTA	<i>Vitis aestivalis</i> var. <i>argenteifolia</i> (Munson) Fern.	Summer grape	Vitaceae	FACU	WV	N
VAESTI	<i>Vitis aestivalis</i> Michx.	Summer grape	Vitaceae	FACU	WV	N
VITISS	<i>Vitis</i> spp.	Grapevine	Vitaceae	--	WV	--
VMISSO	<i>Viola missouriensis</i> E. Greene	Missouri violet	Violaceae	FACW	P	N
VOCCID	<i>Verbena occidentalis</i> (L.) Walter	Southern sunflower	Asteraceae	UL	A	N
VPRUNI	<i>Viburnum prunifolium</i> L.	Black haw	Caprifoliaceae	FACU	ST	N
VPUBES	<i>Viola pubescens</i> Ait.	Downy yellow violet	Violaceae	FACU	P	N
VSOROR	<i>Viola sororia</i> Willd.	Woolly blue violet	Violaceae	FAC	P	N
VSTRIA	<i>Viola striata</i> Aiton.	Creamy violet	Violaceae	FACW	P	N
VVULPI	<i>Vitis vulpina</i> L.	Winter grape	Vitaceae	FACW	WV	N

Table 15. Species master list for ground layer, understory, and overstory species sampled in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area in 2002 and 2003.—Continued

[WIS, wetland indicator status; N/I, native/introduced; FAC, facultative; FACU, facultative upland; FACW, facultative wetland; OBL, obligate; UL, unlisted as an indicator species; A, annual; B, biennial; P, perennial; S, shrub; T, tree; V, vine; W, woody; --, none]

Code	Species name	Common name	Family	WIS	Habit	N/I
ANEGUN	<i>Acer negundo</i> L.	Boxelder	Aceraceae	FACW	T	N
ASACCA	<i>Acer saccharinum</i> L.	Silver Maple	Aceraceae	FACW	T	N
ATRILO	<i>Asimina triloba</i> (L.) Dunal	Pawpaw	Annonaceae	FAC	T	N
CCORDI	<i>Carya cordiformis</i> (Wang.) K. Koch	Bitternut or Pignut Hickory	Juglandaceae	FAC	T	N
CILLIN	<i>Carya illinoensis</i> (Wang.) K. Koch	Pecan	Juglandaceae	FACW	T	N
CLACIN	<i>Carya laciniosa</i> (Michx.) Loud.	Big Shellbark Hickory	Juglandaceae	FACW	T	N
COCCID	<i>Celtis occidentalis</i> L.	Hackberry	Ulmaceae	FAC	T	N
CEOCCI	<i>Cephalanthus occidentalis</i> L.	Buttonbush	Rubiaceae	OBL	T	N
CCANAD	<i>Cercis canadensis</i> L.	Eastern redbud	Caesalpinaceae	FACU	T	N
CDRUMM	<i>Cornus drummondii</i> Meyer	Rough leaved dogwood	Cornaceae	FAC	T	N
CMOLLI	<i>Crataegus mollis</i> (T. & G.) Scheele	Downy hawthorne	Rosaceae	FACW	T	N
COVATA	<i>Carya ovata</i> (Miller) Sweet.	Shagbark hickory	Juglandaceae	FACU	T	N
DVIRGI	<i>Diospyros virginiana</i> L.	Persimmon	Ebenaceae	FAC	T	N
EATROP	<i>Euonymus atropurpureus</i> Jacq.	Wahoo, burning bush	Celastraceae	FAC	S	N
FPENNS	<i>Fraxinus pennsylvanica</i> Marshall	Green Ash	Oleaceae	FACW	T	N
GTRIAC	<i>Gleditsia triacanthos</i> L.	Honey locust	Caesalpinaceae	FAC	T	N
GDIIOC	<i>Gymnocladus dioica</i> (L.) K. Koch	Kentucky Coffee Tree	Caesalpinaceae	UL	T	N
IDECID	<i>Ilex decidua</i> Walt.	Deciduous holly	Aquifoliaceae	FACW	T	N
JNIGRA	<i>Juglans nigra</i> L.	Walnut	Juglandaceae	FACU	T	N
MRUBRA	<i>Morus rubra</i> L.	Red mulberry	Moraceae	FAC	T	N
PAMERI	<i>Prunus americana</i> Marsh.	Wild plum	Rosaceae	UL	T	N
QBICOL	<i>Quercus bicolor</i> Willd.	Swamp White Oak	Fagaceae	FACW	T	N
QMACRO	<i>Quercus macrocarpa</i> Michx.	Bur Oak	Fagaceae	FAC	T	N
QPALUS	<i>Quercus palustris</i> Muenchh.	Pin Oak	Fagaceae	FACW	T	N
SNIGRA	<i>Salix nigra</i> Marsh.	Black willow	Salicaceae	OBL	T	N
SCANAD	<i>Sambucus canadensis</i> L.	Common elderberry	Caprifoliaceae	FACW	S	N
SORBIC	<i>Symphoricarpos orbiculatus</i> Moench.	Coral berry	Caprifoliaceae	FACU	S	N
TAMERI	<i>Tilia americana</i> L.	Basswood	Tiliaceae	FACU	T	N
UAMERI	<i>Ulmus americana</i> L.	American Elm	Ulmaceae	FACW	T	N
URUBRA	<i>Ulmus rubra</i> Muhl.	Slippery Elm	Ulmaceae	FAC	T	N
VPRUNI	<i>Viburnum prunifolium</i> L.	Black haw	Caprifoliaceae	FACU	ST	N

Table 15. Species master list for ground layer, understory, and overstory species sampled in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area in 2002 and 2003.—Continued

[WIS, wetland indicator status; N/I, native/introduced; FAC, facultative; FACU, facultative upland; FACW, facultative wetland; OBL, obligate; UL, unlisted as an indicator species; A, annual; B, biennial; P, perennial; S, shrub; T, tree; V, vine; W, woody; --, none]

Code	Species name		Common name	Family	WIS	Habit	N/I
ANEGUN		<i>Acer negundo</i> L.	Boxelder	Aceraceae	FACW	T	N
ASACCA		<i>Acer saccharinum</i> L.	Silver Maple	Aceraceae	FACW	T	N
CCORDI		<i>Carya cordiformis</i> (Wang.) K. Koch	Bitternut or Pignut Hickory	Juglandaceae	FAC	T	N
CILLIN		<i>Carya illinoensis</i> (Wang.) K. Koch	Pecan	Juglandaceae	FACW	T	N
CLACIN		<i>Carya laciniosa</i> (Michx.) Loud.	Big Shellbark Hickory	Juglandaceae	FACW	T	N
COVATA		<i>Carya ovata</i> (Miller) K. Koch	Shagbark Hickory	Juglandaceae	FACU	T	N
COCCID		<i>Celtis occidentalis</i> L.	Hackberry	Ulmaceae	FAC	T	N
CMOLLI		<i>Crataegus mollis</i> (T. & G.) Scheele	Downy hawthorne	Rosaceae	FACW	T	N
FPENNS		<i>Fraxinus pennsylvanica</i> Marshall	Green Ash	Oleaceae	FACW	T	N
GTRIAC		<i>Gleditsia triacanthos</i> L.	Honey locust	Caesalpinaceae	FAC	T	N
GDIOIC		<i>Gymnocladus dioica</i> (L.) K. Koch	Kentucky Coffee Tree	Caesalpinaceae	UL	T	N
JNIGRA		<i>Juglans nigra</i> L.	Walnut	Juglandaceae	FACU	T	N
MRUBRA		<i>Morus rubra</i> L.	Red mulberry	Moraceae	FAC	T	N
QMACRO		<i>Quercus macrocarpa</i> Michx.	Bur Oak	Fagaceae	FAC	T	N
QPALUS		<i>Quercus palustris</i> Muenchh.	Pin Oak	Fagaceae	FACW	T	N
SNIGRA		<i>Salix nigra</i> Marsh.	Black willow	Salicaceae	OBL	T	N
TAMERI		<i>Tilia americana</i> L.	Basswood	Tiliaceae	FACU	T	N
UAMERI		<i>Ulmus americana</i> L.	American Elm	Ulmaceae	FACW	T	N
URUBRA		<i>Ulmus rubra</i> Muhl.	Slippery Elm	Ulmaceae	FAC	T	N

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	2002–2003 mean species cover, in percent												2002 mean species cover, in percent		2003 mean species cover, in percent	
	Site NL1	Site NL2	Site NL3	Site NL4	Site NL5	Site NL6	Site NL7	Site NL8	Site NL9	Site NL10	Site NL11	Site NL12	mean species cover, in percent	in percent	in percent	in percent
Natural levee																
ABRACT	0	0	2.5	10.5	2.5	0	0	0	0	0	0	0	0	0.6	0.9	0.0
ADRACO	0	0	.5	.5	0	2.5	0	0	2.5	0	0	0	0	.2	.1	.5
ALAEVI	0	0	0	0	0	0	87.5	2.5	2.5	2.5	2.5	2.5	3.6	.0	.0	10.2
ALANCE	0	0	.5	10.5	10.5	2.5	0	0	0	0	0	0	.9	1.4	.0	.0
ALLIUM	.5	.5	.5	2.5	2.5	2.5	0	0	0	0	2.5	2.5	.5	.5	.5	.5
ANEGUN	2.5	.5	.5	2.5	2.5	2.5	0	0	0	2.5	2.5	2.5	.7	.6	.8	.8
ASACCA	0	0	0	10.5	2.5	2.5	10.5	0	0	10.5	2.5	0	1.5	.9	.9	2.5
ASPINO	0	0	.5	0	0	0	0	0	0	0	0	0	.0	.0	.0	.0
ATRIFI	2.5	0	.5	0	0	.5	0	0	0	1.5	0	2.5	.8	.2	1.8	1.8
ATRILO	0	2.5	10.5	0	0	.5	0	0	0	0	0	0	.5	.8	.0	.0
BCYLIN	.5	0	.5	.5	.5	.5	0	0	0	0	0	0	.1	.2	.0	.0
CAMPPI	0	0	0	2.5	2.5	10.5	0	62.5	0	0	0	0	2.9	.9	6.6	6.6
CARUND	0	0	.5	.5	0	0	0	0	0	0	0	0	.0	.1	.0	.0
CBLAND	2.5	2.5	2.5	2.5	10.5	10.5	0	0	0	0	0	0	1.2	1.8	.0	.0
CCANAD	2.5	0	0	0	0	0	0	0	0	0	2.5	2.5	.3	.2	.5	.5
CCORDI	0	0	0	0	0	0	0	0	0	10.5	0	0	.4	.0	1.1	1.1
CDAVIS	2.5	.5	.5	2.5	2.5	0	0	0	0	0	0	0	.3	.5	.0	.0
CDRUMM	2.5	0	.5	0	.5	0	0	0	0	0	2.5	0	.2	.2	.3	.3
CEOCCI	.5	0	0	0	0	0	0	0	0	0	0	0	.0	.0	.0	.0
CGRAYI	2.5	2.5	2.5	10.5	2.5	2.5	1.5	2.5	1.5	1.5	1.5	2.5	3.3	1.3	6.8	6.8
CGRISE	.5	0	0	0	0	0	0	0	0	0	0	0	.0	.0	.0	.0
CHYALI	0	0	0	0	0	0	0	0	2.5	0	0	0	.1	.0	.3	.3
CILLIN	0	0	.5	0	0	0	0	0	0	0	2.5	0	.1	.0	.3	.3
CJAMES	2.5	20.5	39.5	0	2.5	10.5	0	0	0	0	0	0	2.8	4.4	.0	.0
CLACIN	.5	.5	2.5	2.5	10.5	0	2.5	0	0	0	0	2.5	.8	1.0	.5	.5
CLATIF	0	0	0	.5	2.5	0	0	62.5	87.5	37.5	0	2.5	7.2	.2	20.0	20.0
CMOLLI	.5	0	0	.5	0	.5	0	2.5	0	0	0	0	.2	.1	.3	.3
CMUSKI	2.5	0	0	0	0	0	0	0	0	0	0	0	.1	.2	.0	.0
COCCID	.5	.5	.5	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5	2.5	.8	.5	1.3	1.3
CRADIC	0	0	20.5	10.5	0	2.5	2.5	0	0	1.5	0	2.5	2.0	2.0	2.1	2.1

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site NL1	Site NL2	Site NL3	Site NL4	Site NL5	Site NL6	Site NL7	Site NL8	Site NL9	Site NL10	Site NL11	Site NL12	2002-2003 mean species cover, in percent	2002 mean species cover, in percent	2003 mean species cover, in percent
	Natural levee—Continued														
CRCANA	2.5	0.5	10.5	2.5	10.5	10.5	0	0	0	0	0	0	1.4	2.2	0.0
CSQUAR	0	0	0	0	0	0	0	0	0	15	0	2.5	.7	.0	1.8
CVULPI	0	0	0	0	0.5	0	0	0	0	0	0	0	.0	.0	.0
EATROP	.5	.5	.5	0	.5	0	0	0	0	0	0	0	.1	.2	.0
EVIRGI	87.5	87.5	87.5	20.5	10.5	39.5	37.5	0	2.5	37.5	15	15	16.5	19.4	11.3
FPENNS	.5	0	2.5	2.5	2.5	2.5	0	2.5	2.5	2.5	2.5	0	.8	.6	1.0
FSUBVE	39.5	0	.5	0	0	0	0	0	0	0	0	0	1.5	2.3	.0
GAPARI	.5	0	0	0	0	0	0	0	0	0	0	0	.0	.1	.0
GCANAD	2.5	0	.5	0	0	0	2.5	0	0	0	2.5	2.5	.4	.2	.8
GDIOIC	0	0	2.5	0	0	0	0	0	0	0	0	0	.1	.2	.0
GTRIAC	0	0	0	0	0	0	0	0	0	0	0	2.5	.2	.0	.5
IDECID	.5	0	.5	2.5	0	0	0	0	0	0	2.5	2.5	.3	.2	.5
IPALLI	0	0	0	0	0	0	0	0	0	0	2.5	0	.1	.0	.3
IPINNA	0	0	2.5	.5	.5	.5	0	0	0	0	0	0	.2	.2	.0
LCANAD	0	0	2.5	0	0	0	0	0	0	0	0	0	.1	.2	.0
LNUMMU	0	0	0	39.5	20.5	0	0	0	0	15	0	0	2.8	3.5	1.6
LVIRGI	2.5	0	.5	.5	0	0	0	0	0	0	0	0	.1	.2	.0
MCANAD	.5	0	.5	2.5	10.5	.5	0	0	0	0	0	2.5	.6	.8	.3
MRUBRA	0	0	0	0	0	0	2.5	2.5	0	0	0	0	.2	.0	.5
PAMPHI	0	0	0	0	0	.5	0	0	0	0	0	0	.0	.0	.0
PDIVAR	2.5	2.5	2.5	2.5	10.5	10.5	0	0	0	0	0	0	1.2	1.8	.0
POLYGS	0	0	0	0	0	0	0	2.5	0	0	0	0	.1	.0	.3
PPUMIL	.5	0	.5	.5	2.5	.5	0	0	0	0	0	0	.2	.3	.0
PQUINQ	10.5	2.5	10.5	2.5	10.5	10.5	2.5	0	2.5	2.5	2.5	0	2.1	2.7	1.0
PSYLVE	62.5	62.5	62.5	0	0	2.5	0	0	0	0	0	0	7.1	11.1	.0
PVIRGI	2.5	.5	2.5	10.5	2.5	2.5	0	0	2.5	0	2.5	0	1.0	1.2	.5
QMACRO	2.5	0	0	0	0	0	0	0	2.5	2.5	2.5	2.5	.5	.2	1.0
QPALUS	.5	0	.5	39.5	10.5	.5	2.5	2.5	0	2.5	0	0	2.2	3.0	.8
RABORT	0	0	0	0	.5	0	0	0	0	0	0	0	.0	.0	.0
RLACIN	0	0	0	.5	20.5	0	0	0	0	0	0	0	.8	1.2	.0

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site NL1	Site NL2	Site NL3	Site NL4	Site NL5	Site NL6	Site NL7	Site NL8	Site NL9	Site NL10	Site NL11	Site NL12	2002–2003 mean species cover, in percent	2002 mean species cover, in percent	2003 mean species cover, in percent
	Natural levee—Continued														
RRADIC	10.5	0	2.5	62.5	39.5	2.5	1.5	2.5	1.5	15	15	37.5	8.2	6.8	10.5
RSEPT	0	0	.5	2.5	10.5	2.5	0	0	0	0	0	0	.6	.9	.0
RSTREP	.5	0	.5	2.5	10.5	2.5	0	0	0	2.5	0	2.5	.8	1.0	.5
RUBUSSP	0	0	0	.5	0	0	0	0	0	0	0	0	.0	.0	.0
SANIODOR	10.5	39.5	39.5	2.5	10.5	20.5	0	0	0	0	0	0	4.6	7.2	.0
SCANAD	0	0	0	0	2.5	0	0	0	0	0	0	0	.1	.2	.0
SECIRR	0	0	0	0	0	.5	0	2.5	0	0	2.5	0	.2	.0	.5
SLASIO	0	0	.5	10.5	.5	0	0	0	0	15	0	0	1.0	.7	1.6
SORBIC	10.5	.5	20.5	20.5	20.5	10.5	0	0	0	0	0	0	3.1	4.8	.0
STAMNO	2.5	2.5	10.5	20.5	20.5	10.5	2.5	0	2.5	15	0	0	3.3	3.9	2.1
STENUI	0	0	0	.5	0	0	0	0	0	0	0	0	.0	.0	.0
TAMERI	0	2.5	0	0	0	0	0	0	0	0	0	0	.1	.2	.0
UAMERI	.5	.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	0	0	.8	.6	1.0
URUBRA	.5	0	0	0	0	0	0	0	0	0	0	0	.0	.0	.0
VAESTA	0	0	0	0	.5	0	0	0	0	0	0	2.5	.1	.0	.3
VAESTI	0	0	0	.5	0	.5	0	0	0	2.5	15	0	.7	.1	1.8
VITISS	0	0	.5	0	0	0	0	0	0	0	0	0	.0	.0	.0
VMISSO	.5	2.5	.5	20.5	10.5	2.5	0	2.5	2.5	15	2.5	2.5	2.3	2.2	2.6
VPRUNI	2.5	0	0	0	0	.5	0	0	0	0	0	0	.1	.2	.0
VPUBES	.5	2.5	2.5	0	0	2.5	0	0	0	0	0	0	.3	.5	.0
VSOROR	0	0	0	2.5	0	0	0	0	0	0	0	0	.1	.2	.0
VSTRIA	0	0	0	.5	0	0	0	0	0	2.5	0	0	.1	.0	.3

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	Site	2002-2003	2002 mean	2003 mean	
	FP1	FP2	FP3	FP4	FP5	FP6	FP7	FP8	FP9	FP10	FP11	FP12	mean species cover, in percent	species cover, in percent	species cover, in percent	species cover, in percent	species cover, in percent	species cover, in percent	species cover, in percent	species cover, in percent	species cover, in percent	species cover, in percent	species cover, in percent	
Flood plain																								
AARTEM	0	0	0	0	0	0	0	0	0	15	2.5	0	0.7	0.0	1.9									
ABRACT	.5	2.5	0	0	0	0	0	0	0	0	0	0	.2	.3	.0									
ADRACO	.5	0	0	.5	0	0	0	0	0	0	2.5	2.5	.2	.1	.5									
ALAEVI	0	0	0	0	0	0	0	0	2.5	15	2.5	0	.8	.0	2.2									
ALANCE	2.5	0	2.5	20.5	20.5	39.5	0	0	0	0	0	0	3.3	5.2	.0									
ALLIUM	0	0	.5	0	0	0	0	0	0	0	0	2.5	.1	.0	.3									
ANEGUN	0	2.5	2.5	2.5	2.5	10.5	2.5	0	0	2.5	2.5	2.5	1.2	1.3	1.1									
ASACCA	.5	0	0	2.5	2.5	39.5	2.5	2.5	2.5	10.5	10.5	0	2.9	2.8	3.1									
ATRILO	0	0	.5	0	0	0	0	0	0	0	0	0	.0	.0	.0									
BCYLIN	0	10.5	.5	2.5	.5	.5	0	0	0	0	0	0	.6	.9	.0									
CAMPHI	0	0	0	10.5	0	0	0	0	0	0	0	0	.4	.6	.0									
CARUND	0	0	2.5	0	0	0	0	0	0	0	0	0	.1	.2	.0									
CBLAND	2.5	2.5	10.5	0	0	0	0	0	0	0	0	0	.6	1.0	.0									
CCANAD	.5	0	0	0	0	0	0	0	0	2.5	2.5	0	.2	.0	.5									
CCORDI	0	0	.5	0	0	0	0	0	0	0	0	0	.0	.0	.0									
CCRUSC	0	0	0	0	0	0	0	0	0	15	2.5	0	.7	.0	1.9									
CDAVIS	10.5	0	10.5	0	0	0	0	0	0	0	0	0	.8	1.3	.0									
CDRUMM	0	2.5	2.5	0	.5	0	0	0	0	0	0	0	.2	.3	.0									
CEOCCI	0	0	0	2.5	0	2.5	0	0	0	2.5	0	0	.3	.3	.3									
CFRANK	0	0	0	0	0	0	0	0	15	0	0	0	.6	.0	1.6									
CGRAYI	39.5	39.5	10.5	10.5	10.5	10.5	2.5	15	15	37.5	2.5	0	7.6	7.4	7.8									
CILLIN	0	0	0	2.5	0	0	0	2.5	0	0	0	0	.2	.2	.3									
CJAMES	0	2.5	20.5	0	0	0	0	0	0	0	2.5	0	1.0	1.4	.3									
CLACIN	0	10.5	2.5	0	.5	0	2.5	0	2.5	0	2.5	0	.8	.8	.8									
CLAEVE	0	0	0	0	.5	.5	0	0	0	0	0	0	.0	.1	.0									
CLATIF	0	0	0	39.5	39.5	20.5	0	2.5	0	37.5	0	2.5	5.6	6.1	4.6									
CLUPUL	0	0	0	0	0	0	0	2.5	0	0	0	0	.1	.0	.3									
CMOLLI	0	0	.5	0	2.5	0	0	0	2.5	0	0	0	.2	.2	.3									
CMUSKI	0	0	0	0	0	0	2.5	0	0	15	0	2.5	.8	.0	2.2									
CNORMA	0	0	0	0	0	0	0	0	0	2.5	0	0	.1	.0	.3									

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site FP1	Site FP2	Site FP3	Site FP4	Site FP5	Site FP6	Site FP7	Site FP8	Site FP9	Site FP10	Site FP11	Site FP12	2002–2003		2003 mean		
													mean species cover, in percent	species cover, in percent	mean species cover, in percent	species cover, in percent	
Flood plain—Continued																	
COCCID	0	2.5	0	0	0.5	0.5	0	0	0	0	2.5	0	0	0.2	0.2	0.3	
CRADIC	2.5	10.5	10.5	2.5	2.5	.5	0	0	0	0	0	0	0	1.1	1.8	.0	
CRCANA	2.5	2.5	2.5	0	0	0	0	0	0	0	0	0	0	.3	.5	.0	
CSQUAR	0	0	0	0	0	0	0	15	0	15	2.5	2.5	0	1.4	.0	3.8	
CVULPI	0	0	0	0	0	0	0	0	0	15	0	0	0	.6	.0	1.6	
DVILLO	0	2.5	0	0	0	0	0	0	0	0	0	0	0	.1	.2	.0	
EATROP	.5	0	0	0	0	0	0	0	0	0	0	0	0	.0	.0	.0	
ECANAD	0	0	0	0	0	0	0	0	0	0	2.5	0	0	.1	.0	.3	
EVIRGI	87.5	87.5	62.5	0	0	0	0	37.5	62.5	15	62.5	2.5	2.5	16.3	14.6	19.4	
FPENNS	0	10.5	2.5	2.5	2.5	2.5	2.5	10.5	2.5	10.5	0	0	0	1.8	1.3	2.8	
FSUBVE	20.5	20.5	0	0	0	0	0	0	0	0	0	0	0	1.6	2.5	.0	
GAPARI	0	0	.5	0	0	0	0	0	0	0	0	0	0	.0	.0	.0	
GCANAD	.5	.5	.5	0	0	0	0	2.5	0	0	0	2.5	2.5	.2	.1	.5	
GDIJIC	.5	0	0	0	0	0	0	0	0	0	0	0	0	.0	.0	.0	
GTRIAC	0	.5	.5	.5	0	.5	0	0	0	0	0	0	0	.1	.1	.0	
IDECID	0	0	.5	2.5	.5	10.5	2.5	0	0	0	0	0	0	.6	.9	.3	
IPALI	0	0	0	0	0	0	2.5	0	0	2.5	2.5	0	0	.3	.0	.8	
IPINNA	2.5	2.5	.5	0	2.5	.5	0	0	0	0	0	0	0	.3	.5	.0	
LCANAD	2.5	2.5	2.5	0	0	0	0	0	0	0	0	0	0	.3	.5	.0	
LLENTI	0	0	0	0	0	10.5	0	0	0	0	0	0	0	.4	.6	.0	
LNUMMU	0	0	0	87.5	87.5	87.5	0	37.5	0	37.5	15	15	15	14.4	16.1	11.3	
LVIRGI	0	0	0	39.5	10.5	20.5	0	0	0	0	0	0	0	2.8	4.3	.0	
MCANAD	0	2.5	0	0	.5	0	0	0	0	0	0	0	0	.1	.2	.0	
MRUBRA	0	0	0	0	0	0	0	2.5	0	0	0	0	0	.1	.0	.3	
PAMERI	0	0	.5	0	0	0	0	0	0	0	0	0	0	.0	.0	.0	
PDIVAR	2.5	2.5	2.5	0	0	0	0	0	0	0	0	0	0	.3	.5	.0	
POLYGS	0	0	0	0	0	0	2.5	2.5	0	0	2.5	0	0	.3	.0	.8	
PPUMIL	0	2.5	.5	0	0	0	0	0	0	0	0	0	0	.1	.2	.0	
PQUINQ	2.5	10.5	10.5	0	0	0	2.5	0	0	0	2.5	0	0	1.1	1.4	.5	
PSYLVE	62.5	20.5	39.5	0	0	0	0	0	0	0	0	0	0	4.8	7.5	.0	

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site FP1	Site FP2	Site FP3	Site FP4	Site FP5	Site FP6	Site FP7	Site FP8	Site FP9	Site FP10	Site FP11	Site FP12	2002–2003		2003 mean		
													mean species cover, in percent	species cover, in percent	2002 mean species cover, in percent	2003 mean species cover, in percent	
Flood plain—Continued																	
PVIRGI	2.5	2.5	2.5	0.5	0	0	0	0	0	15	0	0	0	0.9	0.5	1.6	
QMACRO	0	0	0	0	0	2.5	0	0	0	0	2.5	0	0	.2	.0	.5	
QMUEHL	0	0	.5	0	0	0	0	0	0	0	0	0	0	.0	.0	.0	
QPALUS	0	2.5	10.5	0	2.5	2.5	2.5	2.5	0	2.5	0	0	0	1.0	1.1	.8	
RABORT	0	0	0	0	.5	0	0	0	0	0	0	0	0	.0	.0	.0	
RLACIN	0	0	0	.5	0	0	0	0	0	0	0	0	0	.0	.0	.0	
RRADIC	10.5	10.5	2.5	10.5	.5	2.5	15	2.5	87.5	37.5	15	15	15	8.2	2.3	18.6	
RSEPTA	0	.5	0	0	0	0	0	0	0	0	0	0	0	.0	.1	.0	
RSTREP	10.5	2.5	2.5	0	0	.5	0	0	0	0	0	2.5	2.5	.7	1.0	.3	
RUBUSSP	.5	0	0	0	0	0	0	0	0	0	0	0	0	.0	.0	.0	
RVERTI	0	.5	0	.5	0	0	0	0	0	0	0	0	0	.0	.1	.0	
SANIODOR	10.5	10.5	20.5	0	0	0	0	0	0	0	0	0	0	1.6	2.5	.0	
SECIRR	0	2.5	0	0	0	0	0	0	0	0	2.5	0	0	.2	.2	.3	
SGLABR	0	0	0	0	0	.5	0	0	0	0	0	0	0	.0	.0	.0	
SLASIO	0	0	0	0	.5	0	0	0	0	0	0	0	0	.0	.0	.0	
SLATER	0	0	0	0	0	2.5	0	0	0	0	0	0	0	.1	.2	.0	
SORBIC	20.5	2.5	10.5	0	0	0	0	0	0	0	0	0	0	1.3	2.0	.0	
SPERFO	0	10.5	0	0	0	0	0	0	0	0	0	0	0	.4	.6	.0	
STAMNO	2.5	10.5	2.5	.5	2.5	0	2.5	0	2.5	0	0	2.5	2.5	1.0	1.1	.8	
STENUI	.5	.5	.5	2.5	2.5	2.5	0	0	0	0	0	2.5	2.5	.4	.6	.3	
UAMERI	0	2.5	2.5	.5	0	2.5	2.5	2.5	10.5	2.5	0	0	0	1.0	.5	1.9	
VAESTA	0	0	0	0	0	0	0	2.5	0	0	0	0	0	.1	.0	.3	
VAESTI	0	0	0	0	0	.5	0	0	0	0	2.5	2.5	2.5	.2	.0	.5	
VMISSO	2.5	2.5	10.5	10.5	10.5	2.5	2.5	2.5	0	0	2.5	2.5	2.5	1.9	2.4	1.1	
VPUBES	.5	2.5	.5	0	0	0	0	0	0	0	0	0	0	.1	.2	.0	
VVULPI	0	0	0	0	0	.5	0	0	0	0	2.5	0	0	.1	.0	.3	

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site AD1	Site AD2	Site AD3	Site AD4	Site AD5	Site AD6	Site AD7	Site AD8	Site AD9	Site AD10	2002–2003 mean species cover, in percent		2002 mean species cover, in percent		2003 mean species cover, in percent	
	Alluvial depression															
ADRACO	0	0.5	0	0	0	0	0	0	0	0	0	0.0	0.1	0.0	0.0	0.0
ALAEVI	0	0	0	0	0	15	0	0	2.5	0	0	1.3	.0	1.8	.0	1.8
ALANCE	2.5	2.5	10.5	2.5	10.5	0	0	0	0	0	0	1.2	4.3	.0	4.3	.0
ANEGUN	0	.5	0	.5	0	10.5	2.5	2.5	2.5	2.5	1.2	.2	.2	1.6	.2	1.6
APLANT	0	0	.5	.5	0	0	0	0	0	0	.1	.2	.2	.0	.2	.0
ASACCA	2.5	2.5	2.5	2.5	62.5	10.5	37.5	37.5	37.5	37.5	9.5	10.8	10.8	9.0	9.0	9.0
ASTERS	0	0	0	0	0	0	0	0	0	2.5	.1	.0	.0	.1	.0	.1
ATRIFI	0	0	0	0	0	2.5	2.5	0	2.5	0	.2	.0	.0	.3	.0	.3
BCYLIN	0	.5	0	.5	2.5	0	0	0	0	0	.1	.5	.5	.0	.5	.0
CCANAD	0	0	0	0	0	2.5	2.5	15	0	0	.8	.0	.0	1.1	.0	1.1
CCRUSC	0	0	0	0	0	0	15	37.5	0	2.5	2.2	.0	.0	3.1	.0	3.1
CDRUMM	0	.5	0	0	0	0	0	0	0	0	.0	.1	.1	.0	.1	.0
CEOCCI	0	.5	2.5	2.5	10.5	0	2.5	0	2.5	2.5	1.0	2.4	2.4	.4	2.4	.4
CGRAYI	10.5	10.5	2.5	10.5	10.5	37.5	15	0	15	2.5	4.7	6.6	6.6	3.9	6.6	3.9
CHYALI	0	0	0	0	.5	37.5	15	2.5	0	2.5	2.4	.1	.1	3.2	.1	3.2
CILLIN	0	0	0	0	0	2.5	0	0	0	0	.1	.0	.0	.1	.0	.1
CLACIN	.5	0	0	0	0	0	0	0	0	0	.0	.1	.1	.0	.1	.0
CLATIF	.5	.5	2.5	10.5	2.5	62.5	62.5	15	0	0	6.4	2.5	2.5	7.9	2.5	7.9
CMOLLI	0	.5	0	0	0	0	0	0	0	0	.0	.1	.1	.0	.1	.0
CMUSKI	0	0	0	0	0	15	37.5	2.5	2.5	0	2.4	.0	.0	3.2	.0	3.2
COCCID	.5	0	0	0	0	0	0	0	2.5	0	.1	.1	.1	.1	.1	.1
COLIGO	0	0	0	.5	0	0	0	0	0	0	.0	.0	.1	.0	.1	.0
CRADIC	0	20.5	.5	.5	0	0	2.5	0	0	0	1.0	3.2	3.2	.1	3.2	.1
CSQUAR	0	0	0	0	0	37.5	15	0	2.5	2.5	2.4	.0	.0	3.2	.0	3.2
CTRIBU	0	0	0	0	0	2.5	0	0	0	0	.1	.0	.0	.1	.0	.1
CTYPHI	2.5	0	0	0	0	0	0	0	0	0	.1	.4	.4	.0	.4	.0
CVULPI	0	0	0	0	0	15	15	15	2.5	0	1.9	.0	.0	2.7	.0	2.7
EPALUS	0	0	0	0	0	0	0	15	0	0	.6	.0	.0	.8	.0	.8
EVIRGI	0	0	0	0	0	0	0	0	2.5	0	.1	.0	.0	.1	.0	.1
FPENNS	2.5	20.5	10.5	10.5	10.5	2.5	10.5	10.5	10.5	10.5	4.0	8.1	8.1	2.5	8.1	2.5

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site AD1	Site AD2	Site AD3	Site AD4	Site AD5	Site AD6	Site AD7	Site AD8	Site AD9	Site AD10	2002-2003 mean species cover, in percent	2002 mean species cover, in percent	2003 mean species cover, in percent
	Alluvial depression—Continued												
GDIOIC	0	0	0	0	0	2.5	2.5	2.5	0	0	0.3	0.0	0.4
GTRIAC	0	.5	0	.5	0	0	0	0	2.5	2.5	.2	.2	.3
HMILIT	0	0	0	0	.5	0	0	62.5	0	2.5	2.7	.1	3.6
IDECID	2.5	2.5	0	0	0	2.5	0	0	2.5	0	.4	.8	.3
IPALLI	0	0	0	0	0	2.5	0	0	2.5	0	.2	.0	.3
LLANCE	0	0	2.5	0	10.5	0	0	37.5	0	0	2.1	1.9	2.1
LLENTI	.5	0	0	0	0	0	0	0	0	0	.0	.1	.0
LNUMMU	0	0	62.5	87.5	87.5	87.5	87.5	37.5	37.5	87.5	23.5	35.5	18.9
LORYZO	0	0	0	0	2.5	0	62.5	0	0	37.5	4.2	.4	5.6
LVIRGI	0	2.5	2.5	2.5	0	0	0	0	0	0	.3	1.1	.0
MRUBRA	0	0	0	.5	0	2.5	0	0	2.5	0	.2	.1	.3
PAMERI	0	.5	0	0	0	0	0	0	0	0	.0	.1	.0
POLYGS	0	0	0	0	0	37.5	37.5	15	2.5	37.5	5.3	.0	7.3
QMACRO	0	0	0	0	0	2.5	0	0	0	0	.1	.0	.1
QPALUS	39.5	10.5	0	0	2.5	10.5	0	0	2.5	2.5	2.8	7.8	.9
RCAROL	.5	0	0	0	0	0	0	0	0	0	.0	.1	.0
RRADIC	.5	10.5	0	.5	0	37.5	37.5	2.5	15	15	4.9	1.7	6.0
RSEPTI	.5	.5	0	2.5	0	0	0	0	0	0	.1	.5	.0
RSTREP	.5	2.5	0	0	0	0	0	0	0	0	.1	.4	.0
RVERTI	0	0	10.5	2.5	2.5	0	2.5	15	0	2.5	1.4	2.3	1.1
SCERNU	0	0	0	0	10.5	0	0	0	0	0	.4	1.6	.0
SLATER	0	0	0	2.5	.5	0	2.5	0	0	2.5	.3	.4	.3
SNIGRA	0	0	0	0	0	0	2.5	37.5	0	0	1.6	.0	2.2
SORBIC	0	.5	0	0	0	0	0	0	0	0	.0	.1	.0
STAMNO	0	10.5	0	0	0	0	0	0	0	0	.4	1.6	.0

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site AD1	Site AD2	Site AD3	Site AD4	Site AD5	Site AD6	Site AD7	Site AD8	Site AD9	Site AD10	2002–2003 mean species cover, in percent	2002 mean species cover, in percent	2003 mean species cover, in percent
	STENUI	0	0.5	2.5	0.5	2.5	0	37.5	1.5	2.5	0	2.5	0.9
UAMERI	0	.5	0	0	2.5	2.5	2.5	0	0	2.5	.4	.4	.4
VAESTA	0	0	0	0	0	2.5	0	0	0	0	.1	.0	.1
VAESTI	0	0	0	0	0	0	2.5	0	2.5	2.5	.3	.0	.4
VMISSO	.5	10.5	0	0	0	2.5	0	0	2.5	0	.6	1.6	.3
VOCCID	0	0	0	0	0	0	2.5	0	0	0	.1	.0	.1
VSOROR	.5	2.5	0	0	0	0	0	0	0	0	.1	.4	.0
VVULPI	0	0	.5	.5	0	0	0	0	0	0	.0	.2	.0

Alluvial depression—Continued

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site BS1	Site BS2	Site BS3	Site BS4	Site BS5	Site BS6	Site BS7	Site BS8	Site BS9	Site BS10	Site BS11	2002–2003 mean species cover, in percent	2002 mean species cover, in percent	2003 mean species cover, in percent
Backwater swamp														
ACANAB	0	0	0	0	0	0	2.5	2.5	0	0	15	1.3	0.0	2.5
AINCAR	2.5	0	0	0	2.5	0	2.5	0	0	0	0	.5	.4	.6
ALANCE	0	.5	0	.5	2.5	0	0	0	0	0	0	.2	.5	.0
ALLIUM	0	0	0	0	2.5	0	0	0	0	0	0	.2	.4	.0
ANEGUN	0	0	0	.5	0	2.5	2.5	0	0	0	2.5	.5	.1	.9
APLANT	0	.5	2.5	0	0	0	0	0	0	0	0	.2	.4	.0
ARUDIS	.5	0	0	0	.5	0	0	0	0	0	0	.1	.1	.0
ASACCA	10.5	2.5	2.5	10.5	0	2.5	2.5	0	0	2.5	2.5	2.4	3.8	1.2
ASTERS	0	0	0	0	0	15	2.5	0	0	0	0	1.2	.0	2.2
BCYLIN	2.5	2.5	0	10.5	20.5	0	0	0	0	0	0	2.4	5.2	.0
CAMPHI	0	0	0	0	0	0	2.5	2.5	0	2.5	0	.5	.0	.9
CCOMMU	0	0	0	0	10.5	0	0	0	0	0	0	.7	1.5	.0
CEOCCI	2.5	2.5	2.5	39.5	10.5	2.5	10.5	2.5	2.5	10.5	10.5	6.5	8.3	4.9
CHYALI	0	0	0	39.5	20.5	0	0	0	0	0	0	4.0	8.6	.0
CILLIN	0	0	0	0	0	2.5	2.5	2.5	0	0	0	.5	.0	.9
COCCID	0	0	0	.5	0	0	0	0	0	0	0	.0	.1	.0
CSEPIU	0	0	0	0	2.5	0	0	0	0	0	0	.2	.4	.0
EHIERA	0	0	0	0	.5	0	0	0	0	0	0	.0	.1	.0
ESUPIN	.5	0	0	0	0	0	0	0	0	0	0	.0	.1	.0
EVIRGI	0	0	0	0	0	0	0	0	15	2.5	0	1.2	.0	2.2
FPENNS	2.5	2.5	0	2.5	10.5	10.5	0	10.5	0	2.5	2.5	3.0	2.6	3.3
GTRIAC	.5	0	0	0	0	0	0	2.5	0	0	2.5	.4	.1	.6
HINDIC	2.5	2.5	.5	0	2.5	0	0	0	0	0	0	.5	1.2	.0
HMILIT	39.5	10.5	20.5	62.5	20.5	62.5	2.5	15	37.5	62.5	2.5	22.5	22.1	22.9
IDECID	0	0	0	0	0	2.5	0	0	0	0	0	.2	.0	.3
ILACUN	0	0	0	0	.5	0	0	0	0	0	0	.0	.1	.0
LLANCE	0	0	2.5	0	2.5	0	0	2.5	0	2.5	0	.7	.7	.6
LLENTI	.5	0	0	0	0	0	0	0	0	0	0	.0	.1	.0
LNUMMU	0	0	87.5	62.5	62.5	2.5	0	0	0	0	0	14.4	30.6	.3
LORYZO	0	0	0	0	2.5	0	0	0	0	0	0	.2	.4	.0

Table 16. Ground layer species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[See table 15 for explanation of species codes; species cover values for each site identifier are shown in percent]

Species code	Site BS1	Site BS2	Site BS3	Site BS4	Site BS5	Site BS6	Site BS7	Site BS8	Site BS9	Site BS10	Site BS11	2002–2003 mean species cover, in percent	2002 mean species cover, in percent	2003 mean species cover, in percent
	Backwater swamp—Continued													
MRUBRA	0	0	0	0	0	2.5	0	0	0	0	0	0.2	0.0	0.3
PAMPHI	.5	.5	0	10.5	0	0	0	0	0	0	0	.8	1.7	.0
PHYDRO	0	0	0	0	0	2.5	15	0	2.5	2.5	0	1.5	.0	2.8
POLYGS	0	0	0	0	0	0	0	2.5	2.5	0	0	.3	.0	.6
PVIRGI	0	0	0	0	0	2.5	0	2.5	2.5	0	2.5	.7	.0	1.2
QPALUS	.5	0	0	2.5	.5	0	0	2.5	0	0	2.5	.6	.5	.6
RCRISP	.5	0	0	0	0	0	0	0	0	0	0	.0	.1	.0
RRADIC	0	0	0	.5	0	15	0	0	0	0	0	1.0	.1	1.9
RVERTI	0	2.5	10.5	10.5	0	0	0	0	0	2.5	0	1.7	3.4	.3
SBREVI	0	0	10.5	0	0	0	0	0	0	0	0	.7	1.5	.0
SGLABR	0	0	0	0	.5	0	0	0	0	0	0	.0	.1	.0
SLATER	2.5	.5	2.5	10.5	10.5	15	2.5	2.5	0	0	0	3.1	3.8	2.5
SNIGRA	.5	0	2.5	2.5	0	0	0	0	10.5	10.5	0	1.8	.8	2.6
SPECTI	0	0	0	0	0	37.5	87.5	62.5	62.5	62.5	15	21.9	.0	41.0
STENUI	0	0	0	0	0	2.5	0	0	2.5	2.5	2.5	.7	.0	1.2
TLATIF	0	0	2.5	0	0	0	0	0	0	0	0	.2	.4	.0
UAMERI	0	0	0	0	0	0	0	2.5	0	0	0	.2	.0	.3
VVULPI	.5	.5	0	0	0	0	0	0	0	0	0	.1	.1	.0

Table 17. Basal area for understory species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area (see table 15 for explanation of species codes).

[Basal area values for each site identifier are shown in square decimeters per hectare]

Species code	Site NL1	Site NL2	Site NL3	Site NL4	Site NL5	Site NL6	Site NL7	Site NL8	Site NL9	Site NL10	Site NL11	Site NL12	Total basal area
ANEGUN	5.14	1.22	0.23	0.33	0	0	0.32	2.89	2.09	0	0.62	0.2	13.04
ATRILO	.39	2.41	.82	0	0	.68	.2	0	0	0	0	0	4.50
CCORDI	1.67	14	.11	0	0	0	0	0	0	1.18	0	0	16.96
CILLIN	.82	0	0	0	0	0	0	0	0	0	1.21	0	2.03
CLACIN	3.46	1.42	2.39	1.52	1.7	.61	0	0	.27	0	0	.73	12.10
COCCID	3.39	.6	.06	2.41	2.27	1.23	.16	2.44	.68	0	.62	.05	13.91
CCANAD	3.18	0	0	0	0	1.24	0	0	0	0	0	0	4.42
CDRUMM	0	0	.11	0	.06	1.82	0	0	.05	0	.06	0	2.10
CMOLLI	0	0	0	.01	0	.23	0	.43	.68	0	0	0	1.35
EATROP	0	0	0	.32	0	.11	0	0	0	0	0	0	.43
FPENNS	1.61	0	.06	.38	.03	1.58	.26	0	0	.84	.32	0	5.08
GTRIAC	.81	0	0	0	0	0	0	0	0	0	0	0	.81
GDIOIC	.11	0	.05	1.01	0	0	0	0	0	0	0	.05	1.22
IDECID	0	0	.01	.34	.04	.52	0	0	.34	.49	.02	.01	1.77
JNIGRA	0	0	0	0	.03	0	0	0	0	0	0	0	.03
MRUBRA	0	.43	0	0	0	.05	0	0	0	1.79	0	0	2.27
QBICOL	0	0	0	0	0	0	0	0	.25	0	0	0	.25
QMACRO	.2	0	0	0	.47	1.62	.15	0	.59	0	.32	.11	3.46
QPALUS	.43	0	0	0	0	.46	0	0	0	.11	0	0	1.00
SCANAD	0	0	0	0	.01	0	0	0	0	0	0	0	.01
SORBIC	.01	0	.16	.22	.03	.2	0	0	0	0	0	0	.62
TAMERI	0	1.13	0	0	0	0	0	0	0	.05	0	0	1.18
UAMERI	0	.32	.05	.81	3.66	5.65	.55	1.6	0	0	0	0	12.64
URUBRA	.2	.01	0	0	0	0	0	0	0	0	0	0	.21
VPRUNI	.56	0	0	0	0	0	0	0	0	0	0	0	.56
Total	21.98	21.54	4.05	7.35	8.3	16	1.64	7.36	4.95	4.46	3.17	1.15	101.95

Table 17. Basal area for understory species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area (see table 15 for explanation of species codes).—Continued

[Basal area values for each site identifier are shown in square decimeters per hectare]

Species code	Site FP1	Site FP2	Site FP3	Site FP4	Site FP5	Site FP6	Site FP7	Site FP8	Site FP9	Site FP10	Site FP11	Site FP12	Total basal area
ANEGUN	0.84	0.57	0	0.09	0	0	0.35	3.84	0	0.01	1.48	0.05	7.23
ASACCA	.47	0	0	4.88	.05	8.18	.03	0	0	.74	.84	.23	15.42
CCORDI	.2	0	.2	0	0	0	0	0	0	0	0	0	.40
CILLIN	0	0	0	.11	0	.11	.99	0	0	0	0	.25	1.46
CLACIN	.03	2.28	3.04	0	0	0	.46	.29	0	0	.54	0	6.64
COCCID	.77	.3	3.18	0	.01	0	0	0	1.11	0	0	0	5.37
CEOCCI	0	0	0	0	0	.03	0	0	0	0	0	0	.03
CCANAD	0	.62	.47	0	0	0	0	0	0	0	0	0	1.09
CDRUMM	1.76	.38	.2	0	0	0	.44	0	0	0	0	0	2.78
CMOLLI	0	.39	.41	0	0	0	0	0	1.04	0	0	0	1.84
DVIRGI	0	0	0	0	0	0	.12	0	0	0	0	0	.12
FPENNS	.04	3.96	0	1.09	0	.01	1.18	.19	0	.58	0	0	7.05
GDIOIC	.2	0	0	0	0	0	0	0	0	0	0	0	.20
IDECID	0	.68	.27	.27	.66	1.55	.93	0	.06	0	1.58	.13	6.13
MRUBRA	0	0	.47	0	0	0	0	0	0	0	0	.32	.79
PAMERI	.11	0	0	0	0	0	0	0	0	0	0	0	.11
QBICOL	0	0	0	0	0	0	.81	0	0	0	0	0	.81
QMACRO	.01	.81	0	0	0	0	0	0	0	0	0	.11	.93
QOVATA	0	0	0	0	0	0	0	0	0	0	0	.05	.05
QPALUS	.9	2.7	0	1.44	.47	1.57	.62	.02	.59	0	.01	1.3	9.62
SORBIC	.06	.01	.32	0	0	0	0	0	0	0	0	0	.39
UAMERI	0	1.72	0	.62	0	.13	2.14	0	0	1.39	0	0	6.00
Total	5.39	14.42	8.56	8.5	1.19	11.58	8.07	4.34	2.8	2.72	4.45	2.44	74.46

Table 17. Basal area for understory species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area (see table 15 for explanation of species codes).—Continued

[Basal area values for each site identifier are shown in square decimeters per hectare]

Species code	Site AD1	Site AD2	Site AD3	Site AD4	Site AD5	Site AD6	Site AD7	Site AD8	Site AD9	Site AD10	Total basal area	
	Alluvial depression											
ASACCA	0	3.01	3.77	12.24	29.06	3.8	2.12	2.89	1.3	4.94	63.13	
CILLIN	.62	0	0	0	0	0	0	0	0	0	.62	
COCCID	0	0	2.2	.01	0	0	0	0	.01	0	2.22	
CEOCCI	0	0	0	0	1.55	0	.27	.58	0	0	2.40	
CDRUMM	0	1.3	0	0	0	0	0	0	0	0	1.30	
FPENNS	.04	1.52	1.67	0	.94	0	.27	.28	.01	.22	4.95	
GTRIAC	0	0	0	0	0	0	0	0	0	.05	.05	
IDECID	.14	.63	.82	0	0	0	0	0	.11	0	1.70	
QMACRO	.32	0	0	0	0	0	0	0	0	0	.32	
QPALUS	0	6.16	.04	0	0	0	0	0	0	0	6.20	
SNIGRA	0	0	0	0	0	0	0	5.85	0	0	5.85	
UAMERI	0	.49	.03	1.62	.98	0	0	0	.81	0	3.93	
Total	1.12	13.11	8.53	13.87	32.53	3.8	2.66	9.6	2.24	5.21	92.67	
Species code	Site BS1	Site BS2	Site BS3	Site BS4	Site BS5	Site BS6	Site BS7	Site BS8	Site BS9	Site BS10	Site BS11	Total basal area
	Backwater swamp											
ANEGUN	0	0	0	0	0	0	0	0	0	0	0.02	0.02
ASACCA	4.32	3.98	.04	7.51	.01	0	.01	0	0	1.41	.03	17.31
CCORDI	0	0	0	.01	0	0	0	0	0	0	0	.01
COCCID	0	.76	0	0	0	0	0	1.87	1.61	.25	0	4.49
CEOCCI	3.52	0	.63	1.08	1.32	.13	5.12	0	0	0	2.87	14.67
FPENNS	2	2.39	.05	.53	.85	1.03	0	.69	0	1.24	.02	8.80
GTRIAC	.01	0	0	0	0	0	0	0	0	0	.46	.47
IDECID	0	0	0	0	0	.01	0	0	0	0	0	.01
SNIGRA	.51	.32	.43	6.94	0	0	6.36	0	2.8	1.74	0	19.10
Total	10.36	7.45	1.15	16.07	2.18	1.17	11.49	2.56	4.41	4.64	3.4	64.88

Table 18. Basal area for overstory species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area (see table 15 for explanation of species codes).

[Basal area values for each site identifier are shown in square decimeters per hectare; --, no overstory vegetation at site]

Species code	Site NL1	Site NL2	Site NL3	Site NL4	Site NL5	Site NL6	Site NL7	Site NL8	Site NL9	Site NL10	Site NL11	Site NL12	Total basal area
	Natural levee												
ANEGUN	3.75	29.64	8.56	1.82	90.33	16.02	0	48.69	39.13	0	4.59	15.59	258.12
ASACCA	0	0	0	0	0	0	0	58.05	0	0	0	0	58.05
CCORDI	0	6.95	0	0	0	0	0	0	0	0	0	0	6.95
CILLIN	0	0	0	0	0	0	0	0	0	0	19.66	22.22	41.88
CLACIN	0	1.27	7.92	3.65	0	4.1	39.03	0	0	22.35	0	42.32	120.64
COCCID	0	82.26	28.62	5.07	2.48	1.53	49.76	35.51	50.89	0	15.27	0	271.39
CMOLLI	0	0	1.27	0	0	0	0	0	1.12	0	0	0	2.39
FPENNS	2.29	0	3.66	7.77	0	7.41	0	0	0	0	0	0	21.13
GDIOIC	0	0	26.35	0	0	0	0	0	0	0	0	0	26.35
JNIGRA	0	0	0	0	0	0	4.2	0	0	0	0	0	4.20
MRUBRA	10.65	2.85	15.3	0	5.33	1.27	16.53	11.87	3.24	0	1.82	0	68.86
QMACRO	20.27	3.36	11.92	0	3.75	2.53	1.27	0	0	0	2.63	2.41	48.14
QOVATA	0	0	0	25.65	0	0	0	0	0	0	0	0	25.65
QPALUS	0	0	0	88.71	0	4.94	0	0	0	0	0	0	93.65
TAMERI	0	17.8	0	0	0	0	0	0	0	0	0	0	17.80
UAMERI	0	0	9.93	2.48	0	3.88	0	0	0	12.03	0	2.77	31.09
URUBRA	0	0	0	0	0	0	0	0	1.22	0	0	0	1.22
Total	36.96	144.13	113.53	135.15	101.89	41.68	110.79	154.12	95.6	34.38	43.97	85.31	1,097.51

Table 18. Basal area for overstory species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area (see table 15 for explanation of species codes).—Continued

[Basal area values for each site identifier are shown in square decimeters per hectare; --, no overstory vegetation at site]

Species code	Site FP1	Site FP2	Site FP3	Site FP4	Site FP5	Site FP6	Site FP7	Site FP8	Site FP9	Site FP10	Site FP11	Site FP12	Total basal area
ANEGUN	9.87	7.3	6.13	6.28	0	0	0	14.05	17.71	2.41	5.11	0	68.86
ASACCA	0	0	0	28.79	0	3.8	0	132.76	0	30.65	0	0	196.00
CCORDI	5.59	0	3.66	0	0	0	0	0	0	0	0	0	9.25
CILLIN	0	0	2.48	0	9.23	1.53	12.17	0	0	0	0	13.32	38.73
CLACIN	1.82	44.55	3.83	0	0	0	2.34	0	29.43	0	0	0	81.97
COCCID	37.94	1.03	0	0	10.24	0	0	0	13.24	0	0	0	62.45
FPENNS	36.71	14.42	16.06	36.74	69.01	42.07	37.11	27.49	0	54.78	38	7.3	379.69
GTRIAE	0	0	44.92	0	0	0	0	0	0	0	0	0	44.92
GDIOIC	0	0	0	0	0	0	0	0	12.51	0	0	0	12.51
MRUBRA	27.77	2.48	0	0	0	0	0	0	0	0	5.07	0	35.32
QMACRO	11.4	13.8	26.93	0	0	0	0	0	0	0	4.02	0	56.15
QOVATA	0	0	5.64	0	0	0	0	0	0	0	0	0	5.64
QPALUS	3.75	2.14	18.56	2.48	27.53	47.14	41.82	0	0	0	5.69	13.8	162.91
UAMERI	0	0	0	24.92	20.39	0	0	0	55.05	3.16	12.36	5.27	121.15
Total	134.85	85.72	128.21	99.21	136.4	94.54	93.44	174.3	127.94	91	70.25	39.69	1,275.55

Table 18. Basal area for overstory species, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area (see table 15 for explanation of species codes).—Continued

[Basal area values for each site identifier are shown in square decimeters per hectare; --, no overstory vegetation at site]

Species code	Site AD1	Site AD2	Site AD3	Site AD4	Site AD5	Site AD6	Site AD7	Site AD8	Site AD9	Site AD10	Total basal area
	AD1	AD2	AD3	AD4	AD5	AD6	AD7	AD8	AD9	AD10	
ANEGUN	0	0	0	0	0	11.27	0	0	0	0	11.27
ASACCA	0	1.27	54.12	50.02	11.67	11.92	16.36	0	11.66	20.05	177.07
CILLIN	1.82	15.72	5.07	0	0	0	0	0	0	15.28	37.89
COCCID	0	0	2.48	0	0	2.55	0	0	0	0	5.03
FPENNS	8.56	6.09	58.11	26.17	22.83	51.64	67.01	71.42	127.89	36.39	476.11
GTRIAC	0	10.65	0	0	0	3.56	0	0	0	0	14.21
JNIGRA	0	0	0	0	0	0	0	0	0	31.92	31.92
QPALUS	120.59	53.39	0	0	0	7.18	0	0	0	4.87	186.03
SNIGRA	0	0	13.14	44.11	0	0	0	29.85	0	0	87.1
UAMERI	0	17.47	26.69	26.78	15.16	0	0	0	4.63	8.47	99.2
Total	130.97	104.59	159.61	147.08	49.66	88.12	83.37	101.27	144.18	116.98	1,125.83

Species code	Site BS1	Site BS2	Site BS3	Site BS4	Site BS5	Site BS6	Site BS7	Site BS8	Site BS9	Site BS10	Site BS11	Total basal area
	BS1	BS2	BS3	BS4	BS5	BS6	BS7	BS8	BS9	BS10	BS11	
ASACCA	1.53	0	0	0	7.92	0	--	0	0	0	0	9.45
CILLIN	0	0	0	0	0	0	--	29.26	0	0	0	29.26
FPENNS	57.92	107.27	12.17	0	21.65	2.62	--	31.18	13.67	44.5	0	290.98
GTRIAC	0	0	0	0	0	1.53	--	0	0	0	0	1.53
SNIGRA	1.27	0	10.96	67.05	0	23.58	--	3.66	19.28	21.56	16.27	163.63
UAMERI	0	0	0	0	11.16	0	--	0	0	0	0	11.16
Total	60.72	107.27	23.13	67.05	40.73	27.73	--	64.1	32.95	66.06	16.27	506.01

Table 19. Ground layer families by landform type in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.

Family name	Natural levee, number of species / percentage of species	Flood plain, number of species / percentage of species	Alluvial depression, number of species / percentage of species	Backwater swamp, number of species / percentage of species
Acanthaceae	1 / 1.2	1 / 1.2	1 / 1.6	0
Aceraceae	2 / 2.4	2 / 2.3	2 / 3.2	2 / 4.2
Alismataceae	0	1 / 1.2	1 / 1.6	3 / 6.3
Amaranthaceae	0	0	0	1 / 2.1
Anacardiaceae	1 / 1.2	1 / 1.2	1 / 1.6	1 / 2.1
Annonaceae	1 / 1.2	1 / 1.2	0	0
Apiaceae	2 / 2.4	2 / 2.3	0	0
Apocynaceae	0	0	0	1 / 2.1
Aquifoliaceae	1 / 1.2	1 / 1.2	1 / 1.6	1 / 2.1
Araceae	1 / 1.2	1 / 1.2	1 / 1.6	0
Araliaceae	1 / 1.2	0	0	0
Asclepiadaceae	0	1 / 1.2	0	1 / 2.1
Asteraceae	3 / 3.7	5 / 5.8	4 / 6.3	3 / 6.3
Balsaminaceae	1 / 1.2	1 / 1.2	1 / 1.6	0
Bignoniaceae	1 / 1.2	1 / 1.2	1 / 1.6	0
Boraginaceae	0	0	0	1 / 2.1
Brassicaceae	2 / 2.4	2 / 2.3	1 / 1.6	0
Caesalpiniaceae	2 / 2.4	2 / 1.2	1 / 1.6	0
Caprifoliaceae	3 / 3.7	1 / 1.2	1 / 1.6	0
Celastraceae	1 / 1.2	1 / 1.2	0	0
Commelinaceae	0	1 / 1.2	0	1 / 2.1
Convolvulaceae	0	0	0	2 / 4.2
Cornaceae	1 / 1.2	1 / 1.2	1 / 1.6	0
Cyperaceae	10 / 12.2	12 / 14.0	10 / 15.9	3 / 6.3
Dioscoreaceae	0	1 / 1.2	0	0
Euphorbiaceae	0	0	0	1 / 2.1
Fabaceae	2 / 2.4	4 / 4.7	3 / 4.8	2 / 4.2
Fagaceae	2 / 2.4	3 / 3.5	2 / 3.2	1 / 2.1
Juglandaceae	3 / 3.7	2 / 2.3	2 / 3.2	1 / 2.1
Lamiaceae	2 / 2.4	2 / 2.3	2 / 3.2	1 / 2.1
Liliaceae	3 / 3.7	3 / 3.5	1 / 1.6	1 / 2.1
Malvaceae	0	0	1 / 1.6	1 / 2.1
Menispermaceae	1 / 1.2	1 / 1.2	0	0
Moraceae	0	1 / 1.2	1 / 1.6	1 / 2.1
Oleaceae	1 / 1.2	1 / 1.2	1 / 1.6	1 / 2.1
Poaceae	5 / 6.1	6 / 7.0	4 / 6.3	3 / 6.3
Polemoniaceae	1 / 1.2	1 / 1.2	0	0
Polygonaceae	3 / 3.7	3 / 3.5	1 / 1.6	6 / 12.5
Primulaceae	1 / 1.2	1 / 1.2	1 / 1.6	1 / 2.1
Ranunculaceae	2 / 2.4	2 / 2.3	1 / 1.6	0
Rosaceae	3 / 3.7	4 / 4.7	3 / 4.8	0
Rubiaceae	3 / 3.7	3 / 3.5	1 / 1.6	1 / 2.1
Salicaceae	0	0	1 / 1.6	1 / 2.1
Saururaceae	0	0	1 / 1.6	0
Tiliaceae	1 / 1.2	0	0	0
Typhaceae	0	0	0	1 / 2.1
Ulmaceae	3 / 3.7	2 / 2.3	2 / 3.2	1 / 4.2
Urticaceae	3 / 3.7	3 / 3.5	1 / 1.6	1 / 2.1
Verbenaceae	0	0	1 / 1.6	1 / 2.1
Violaceae	4 / 4.9	2 / 2.3	2 / 3.2	0
Vitaceae	4 / 4.9	4 / 4.7	3 / 4.8	1 / 2.1
Total number families	37	39	35	31

Table 21. Ground layer species unique to each landform type and their wetland indicator status for vegetation sampled in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.

[FACW, facultative wetland species, 67–99 percent occurrence in wetlands; FAC, facultative species, 34–66 percent occurrence in wetlands; FACU, facultative upland species, 1–33 percent occurrence in wetlands; UL, unlisted as an indicator species; OBL, obligate wetland species, greater than 99 percent occurrence in wetlands]

Landform type	Species name	Wetland indicator status
Natural levee	<i>Aralia spinosa</i>	FACW
	<i>Carex grisea</i>	FAC
	<i>Sambucus canadensis</i>	FACW
	<i>Tilia americana</i>	FACU
	<i>Ulmus rubra</i>	FAC
	<i>Virburnum prunifolium</i>	FACU
	<i>Viola pubescens</i>	FACU
	<i>Viola striata</i>	FACW
Flood plain	<i>Ambrosia artemisiifolia</i>	FACU
	<i>Carex frankii</i>	OBL
	<i>Cynachum laeve</i>	FAC
	<i>Carex lupulina</i>	OBL
	<i>Carex normalis</i>	FACW
	<i>Dioscorea villosa</i>	FAC
	<i>Erigeron canadensis</i>	FAC
	<i>Quercus muehlenbergii</i>	UL
	<i>Silphium perfoliatum</i>	FACW
	<i>Viola pubescens</i>	FACU
Alluvial depression	<i>Carex oligocarpa</i>	UL
	<i>Carex tribuloides</i>	FACW
	<i>Carex typhina</i>	OBL
	<i>Eleocharis palustris</i>	OBL
	<i>Rosa carolina</i>	FACU
	<i>Saururus cernuus</i>	OBL
	<i>Verbsina occidentalis</i>	UL
Backwater swamp	<i>Apocynum cannabinum</i>	FAC
	<i>Asclepias incarnata</i>	OBL
	<i>Amaranthus rudis</i>	FACW
	<i>Commelina communis</i>	FAC
	<i>Convolvulus sepium</i>	UL
	<i>Erechtites hieracifolia</i>	FACU
	<i>Euphorbia supina</i>	UL
	<i>Heliotropium indicum</i>	FACW
	<i>Ipomoea lacunosa</i>	FACW
	<i>Polygonum hydropiperoides</i>	OBL
	<i>Rumex crispus</i>	FAC
	<i>Sagittaria brevirostra</i>	OBL
<i>Typha latifolia</i>	OBL	

Table 24. Understory species unique to each landform type and their wetland indicator status for vegetation sampled in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.

[FAC, facultative species, 34–66 percent occurrence in wetlands; FACU, facultative upland species, 1–33 percent occurrence in wetlands; FACW, facultative wetland species, 67–99 percent occurrence in wetlands; UL, unlisted as an indicator species]

Landform type	Species name	Wetland indicator status
Natural levee	<i>Asimina triloba</i>	FAC
	<i>Euonymus atropurpureus</i>	FAC
	<i>Juglans nigra</i>	FACU
	<i>Sambucus canadensis</i>	FACW
	<i>Tilia americana</i>	FACU
	<i>Ulmus rubra</i>	FAC
	<i>Viburnum prunifolium</i>	FACU
Flood plain	<i>Diospyros virginiana</i>	FAC
	<i>Prunus americana</i>	UL
	<i>Carya ovata</i>	FACU
Alluvial depression	No unique species	
Backwater swamp	No unique species	

Table 26. Flood tolerance of understory woody species for each landform type in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.

[1, very tolerant: able to survive deep, prolonged flooding for more than 1 year; 2, tolerant: able to survive deep flooding for one growing season, with significant mortality occurring if flooding is repeated the following year; 3, somewhat tolerant: able to survive flooding or saturated soils for 30 consecutive days during the growing season; 4, intolerant: unable to survive more than a few days of flooding during the growing season without significant mortality; --, no data]

Species	Natural levee	Flood plain	Alluvial depression	Backwater swamp
<i>Acer negundo</i>	2	2	2	2
<i>Acer saccharinum</i>	2	2	2	2
<i>Asimina triloba</i>	4	--	--	--
<i>Carya cordiformis</i>	4	4	--	4
<i>Carya illinoensis</i>	--	1	1	--
<i>Carya laciniosa</i>	--	4	--	--
<i>Celtis occidentalis</i>	--	2	2	2
<i>Carya ovata</i>	--	4	--	--
<i>Cephalanthus occidentalis</i>	--	1	1	1
<i>Cercis canadensis</i>	4	4	--	--
<i>Cornus drummondi</i>	4	4	4	--
<i>Crataegus mollis</i>	3	3	--	--
<i>Diospyros virginiana</i>	--	2	--	--
<i>Eunonymus atropurpureus</i>	4	--	--	--
<i>Fraxinus pennsylvanica</i>	1	1	1	1
<i>Gleditsia triacanthos</i>	3	--	3	3
<i>Gymnocladus dioica</i>	--	4	4	--
<i>Ilex deciduas</i>	1	1	1	1
<i>Juglans nigra</i>	4	--	--	--
<i>Morus rubra</i>	4	4	--	--
<i>Prunus americana</i>	--	4	--	--
<i>Quercus bicolor</i>	3	3	--	--
<i>Quercus macrocarpa</i>	3	3	3	--
<i>Quercus palustris</i>	2	2	2	2
<i>Salix nigra</i>	--	--	1	1
<i>Sumbucus canadensis</i>	4	--	--	--
<i>Symphoricarpos orbiculata</i>	4	4	--	--
<i>Tilia americana</i>	4	--	--	--
<i>Ulmus americana</i>	3	3	3	--
<i>Ulmus rubra</i>	3	--	--	--
<i>Viburnum prunifolium</i>	3	--	--	--

Table 28. Flood tolerance of overstory woody species by landform type in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.

[1, very tolerant: able to survive deep, prolonged flooding for more than 1 year; 2, tolerant: able to survive deep flooding for one growing season, with significant mortality occurring if flooding is repeated the following year; 3, somewhat tolerant: able to survive flooding or saturated soils for 30 consecutive days during the growing season; 4, intolerant: unable to survive more than a few days of flooding during the growing season without significant mortality; --, no data]

Species	Natural levee	Flood plain	Alluvial depression	Backwater swamp
<i>Acer negundo</i>	2	2	2	--
<i>Acer saccharinum</i>	2	2	2	2
<i>Carya cordiformis</i>	4	4	--	--
<i>Carya illinoensis</i>	1	1	1	1
<i>Carya laciniosa</i>	4	4	--	--
<i>Celtis occidentalis</i>	2	2	2	--
<i>Carya ovata</i>	4	4	--	--
<i>Crataegus mollis</i>	3	--	--	--
<i>Fraxinus pennsylvanica</i>	1	1	1	1
<i>Gleditsia triacanthos</i>	--	3	3	3
<i>Gymnocladus dioica</i>	4	4	--	--
<i>Juglans nigra</i>	4	--	4	--
<i>Morus rubra</i>	4	4	--	--
<i>Quercus macrocarpa</i>	3	3	--	--
<i>Quercus palustris</i>	2	2	2	--
<i>Salix nigra</i>	--	--	1	1
<i>Tilia americana</i>	4	--	--	--
<i>Ulmus americana</i>	3	3	3	3
<i>Ulmus rubra</i>	3	--	--	--

Table 30. Age and circumference of selected canopy (tree numbers 1–3) and sub-canopy (tree numbers >3) sampled trees, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.

[>, greater than; cm, centimeters; m, meters]

Site	Collection date	Tree number	Common name	Scientific name	Circumference, in cm	Diameter, in cm	Tree age in 2003, in years ^a
NL1	10/11/2002	1	Hackberry	<i>Celtis occidentalis</i>	150	48	97
	10/11/2002	2	Hackberry	<i>Celtis occidentalis</i>	137	44	71
	10/11/2002	3	Burr Oak	<i>Quercus macrocarpa</i>	160	51	72
	10/11/2002	4	Boxelder	<i>Acer negundo</i>	65	21	32
	10/11/2002	5	Burr Oak	<i>Quercus macrocarpa</i>	61	19	21
	10/11/2002	6	Hickory	<i>Carya spp.</i>	61	19	44
NL2	10/11/2002	1	Hickory	<i>Carya spp.</i>	162	52	--
	10/11/2002	2	Pecan	<i>Carya illinoensis</i>	142	45	81
	10/11/2002	3	Hackberry	<i>Celtis occidentalis</i>	154	49	65
	10/11/2002	4	Basswood	<i>Tilia americana</i>	95	30	60
	10/11/2002	5	Hackberry	<i>Celtis occidentalis</i>	104	33	97
	10/11/2002	6	Hickory	<i>Carya spp.</i>	90	29	70
NL3	10/11/2002	1	Hickory	<i>Carya spp.</i>	146	46	41
	10/11/2002	2	Green Ash	<i>Fraxinus pennsylvanica</i>	150	48	44
	10/11/2002	3	Pecan	<i>Carya illinoensis</i>	151	48	62
	10/11/2002	4	Burr Oak	<i>Quercus macrocarpa</i>	67	21	69
	10/11/2002	5	American Elm	<i>Ulmus americana</i>	109	35	107
	10/11/2002	6	Hickory	<i>Carya spp.</i>	105	33	56
NL4	09/26/2002	1	Oak	<i>Quercus spp.</i>	124	39	53
	09/26/2002	2	Pin Oak	<i>Quercus palustris</i>	120	38	48
	09/26/2002	3	Green Ash	<i>Fraxinus pennsylvanica</i>	--	--	52
	09/26/2002	3B	Pin Oak	<i>Quercus palustris</i>	170	54	45
	09/26/2002	4	Green Ash	<i>Fraxinus pennsylvanica</i>	--	22	53
	09/26/2002	5	Green Ash	<i>Fraxinus pennsylvanica</i>	90	29	--
	09/26/2002	5B	Green Ash	<i>Fraxinus pennsylvanica</i>	90	29	48
	09/26/2002	6	Pin Oak	<i>Quercus palustris</i>	77	25	23
NL5	09/26/2002	1	Pin Oak	<i>Quercus palustris</i>	188	60	55
	09/26/2002	2	Green Ash	<i>Fraxinus pennsylvanica</i>	128	41	45
	09/26/2002	3	Pin Oak	<i>Quercus palustris</i>	178	57	43
	09/26/2002	4	Boxelder	<i>Acer negundo</i>	99	32	46
	09/26/2002	5	Green Ash	<i>Fraxinus pennsylvanica</i>	108	34	54
	09/26/2002	6	Boxelder	<i>Acer negundo</i>	107	34	62

Table 30. Age and circumference of selected canopy (tree numbers 1–3) and sub-canopy (tree numbers >3) sampled trees, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[>, greater than; cm, centimeters; m, meters]

Site	Collection date	Tree number	Common name	Scientific name	Circumference, in cm	Diameter, in cm	Tree age in 2003, in years ^a
NL6	09/26/2002	1	Shellbark	<i>Carya laciniosa</i>	156	50	--
	09/26/2002	1B	Shellbark	<i>Carya laciniosa</i>	156	50	71
	09/26/2002	2	Shellbark	<i>Carya laciniosa</i>	143	46	57
	09/26/2002	3	Pin Oak	<i>Quercus palustris</i>	138	44	41
	09/26/2002	4	Shellbark	<i>Carya laciniosa</i>	69	22	38
	09/26/2002	5	Pin Oak	<i>Quercus palustris</i>	75	24	34
	09/26/2002	6	Shellbark	<i>Carya laciniosa</i>	80	25	36
NL7	06/10/2003	1	Shellbark	<i>Carya laciniosa</i>	181	58	109
	06/10/2003	2	Hackberry	<i>Celtis occidentalis</i>	155	49	91
	06/10/2003	3	Hickory	<i>Carya spp.</i>	198	63	102
	06/10/2003	4	Hackberry	<i>Celtis occidentalis</i>	66	21	73
	06/10/2003	5	Shellbark	<i>Carya laciniosa</i>	55	18	48
	06/10/2003	6	Boxelder	<i>Acer negundo</i>	61	19	43
NL8	05/15/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	193	61	92
	05/15/2003	2	Silver Maple	<i>Acer saccharinum</i>	197	63	94
	05/15/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	197	63	73
	05/15/2003	4	Boxelder	<i>Acer negundo</i>	84	27	48
	05/15/2003	5	Hackberry	<i>Celtis occidentalis</i>	77	25	52
	05/15/2003	6	Silver Maple	<i>Acer saccharinum</i>	71	23	48
NL9	05/15/2003	1	Burr Oak	<i>Quercus macrocarpa</i>	200	64	119
	05/15/2003	2	Hackberry	<i>Celtis occidentalis</i>	132	42	61
	05/15/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	156	50	58
	05/15/2003	4	Basswood	<i>Tilia americana</i>	65	21	42
	05/15/2003	5	Hackberry	<i>Celtis occidentalis</i>	53	17	33
	05/15/2003	6	Hickory	<i>Carya spp.</i>	66	21	41
NL10	09/23/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	130	41	74
	09/23/2003	2	Green Ash	<i>Fraxinus pennsylvanica</i>	172	55	75
	09/23/2003	3	White Oak	<i>Quercus alba</i>	127	40	63
	09/23/2003	4	American Elm	<i>Ulmus americana</i>	51	16	51
	09/23/2003	5	Boxelder	<i>Acer negundo</i>	35	11	22
	09/23/2003	6	Burr Oak	<i>Quercus macrocarpa</i>	74	24	45

Table 30. Age and circumference of selected canopy (tree numbers 1–3) and sub-canopy (tree numbers >3) sampled trees, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[>, greater than; cm, centimeters; m, meters]

Site	Collection date	Tree number	Common name	Scientific name	Circumference, in cm	Diameter, in cm	Tree age in 2003, in years ^a
NL11	09/23/2003	1	Hickory	<i>Carya spp.</i>	211	67	144
	09/23/2003	2	Pin Oak	<i>Quercus palustris</i>	186	59	49
	09/23/2003	3	Hickory	<i>Carya spp.</i>	251	80	--
	09/23/2003	4	Hackberry	<i>Celtis occidentalis</i>	61	19	48
	09/23/2003	5	Burr Oak	<i>Quercus macrocarpa</i>	59	19	42
	09/23/2003	6	Hickory	<i>Carya spp.</i>	52	17	39
NL12	06/11/2003	1	Post Oak	<i>Quercus stellata</i>	193	61	41
	06/11/2003	2	Pecan	<i>Carya illinoensis</i>	160	51	56
	06/11/2003	3	Hickory	<i>Carya spp.</i>	180	57	89
	06/11/2003	4	White Oak	<i>Quercus alba</i>	76	24	34
	06/11/2003	5	Hackberry	<i>Celtis occidentalis</i>	61	19	33
	06/11/2003	6	White Oak	<i>Quercus alba</i>	60	19	21
FP1	10/10/2002	1	Hickory	<i>Carya spp.</i>	153	49	76
	10/10/2002	2	Pecan	<i>Carya illinoensis</i>	171	54	77
	10/10/2002	3	Green Ash	<i>Fraxinus pennsylvanica</i>	111	35	60
	10/10/2002	4	Pecan	<i>Carya illinoensis</i>	103	33	80
	10/10/2002	5	Green Ash	<i>Fraxinus pennsylvanica</i>	75	24	74
	10/10/2002	6	American Elm	<i>Ulmus americana</i>	102	32	94
FP2	10/10/2002	1	Hickory	<i>Carya spp.</i>	142	45	120
	10/10/2002	2	Hickory	<i>Carya spp.</i>	146	46	99
	10/10/2002	3	Hickory	<i>Carya spp.</i>	117	37	73
	10/10/2002	4	Burr Oak	<i>Quercus macrocarpa</i>	77	25	37
	10/10/2002	5	Hickory	<i>Carya spp.</i>	72	23	43
	10/10/2002	6	Hickory	<i>Carya spp.</i>	97	31	65
FP3	10/10/2002	1	Burr Oak	<i>Quercus macrocarpa</i>	138	44	76
	10/10/2002	2	Pecan	<i>Carya illinoensis</i>	150	48	71
	10/10/2002	3	Pecan	<i>Carya illinoensis</i>	127	40	63
	10/10/2002	4	Boxelder	<i>Acer negundo</i>	82	26	47
	10/10/2002	5	Burr Oak	<i>Quercus macrocarpa</i>	84	27	66
	10/10/2002	6	Hickory	<i>Carya spp.</i>	68	22	38
FP4	10/09/2002	1	American Elm	<i>Ulmus americana</i>	123	39	75
	10/09/2002	2	Green Ash	<i>Fraxinus pennsylvanica</i>	174	55	88
	10/09/2002	3	American Elm	<i>Ulmus americana</i>	131	42	73
	10/09/2002	4	American Elm	<i>Ulmus americana</i>	62	20	78
	10/09/2002	5	American Elm	<i>Ulmus americana</i>	86	27	44
	10/09/2002	6	Pin Oak	<i>Quercus palustris</i>	48	15	24

Table 30. Age and circumference of selected canopy (tree numbers 1–3) and sub-canopy (tree numbers >3) sampled trees, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[>, greater than; cm, centimeters; m, meters]

Site	Collection date	Tree number	Common name	Scientific name	Circumference, in cm	Diameter, in cm	Tree age in 2003, in years ^a
FP5	10/09/2002	1	Pecan	<i>Carya illinoensis</i>	166	53	--
	10/09/2002	2	Pin Oak	<i>Quercus palustris</i>	173	55	49
	10/09/2002	3	Pin Oak	<i>Quercus palustris</i>	195	62	54
	10/09/2002	4	Pin Oak	<i>Quercus palustris</i>	61	19	31
	10/09/2002	5	American Elm	<i>Ulmus americana</i>	53	17	61
	10/09/2002	6	American Elm	<i>Ulmus americana</i>	84	27	66
FP6	10/09/2002	1	Green Ash	<i>Fraxinus pennsylvanica</i>	132	42	78
	10/09/2002	2	Pin Oak	<i>Quercus palustris</i>	238	76	48
	10/09/2002	3	Pin Oak	<i>Quercus palustris</i>	148	47	32
	10/09/2002	4	Silver Maple	<i>Acer saccharinum</i>	49	16	31
	10/09/2002	5	Pecan	<i>Carya illinoensis</i>	111	35	47
	10/09/2002	6	Green Ash	<i>Fraxinus pennsylvanica</i>	50	16	23
FP7	06/10/2003	1	Pin Oak	<i>Quercus palustris</i>	139	44	50
	06/10/2003	2	Honey Locust	<i>Gleditsia triacanthos</i>	230	73	69
	06/10/2003	3	White Oak	<i>Quercus alba</i>	143	46	77
	06/10/2003	4	Hickory	<i>Carya spp.</i>	53	17	37
	06/10/2003	5	Green Ash	<i>Fraxinus pennsylvanica</i>	67	21	54
	06/10/2003	6	Pin Oak	<i>Quercus palustris</i>	56	18	38
	06/10/2003	7	Pin Oak	<i>Quercus palustris</i>	134	43	44
FP8	05/15/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	116	37	41
	05/15/2003	2	Silver Maple	<i>Acer saccharinum</i>	143	46	43
	05/15/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	185	59	88
	05/15/2003	4	Silver Maple	<i>Acer saccharinum</i>	63	20	41
	05/15/2003	5	Green Ash	<i>Fraxinus pennsylvanica</i>	73	23	--
	05/15/2003	5B	Green Ash	<i>Fraxinus pennsylvanica</i>	73	23	43
	05/15/2003	6	Green Ash	<i>Fraxinus pennsylvanica</i>	64	20	40
FP9	05/15/2003	1	Hackberry	<i>Celtis occidentalis</i>	198	63	48
	05/15/2003	2	Hickory	<i>Carya spp.</i>	197	63	125
	05/15/2003	3	Elm	<i>Ulmus spp.</i>	118	38	53
	05/15/2003	4	Hackberry	<i>Celtis occidentalis</i>	73	23	47
	05/15/2003	5	Elm	<i>Ulmus spp.</i>	87	28	56
	05/15/2003	6	Elm	<i>Ulmus spp.</i>	67	21	62

Table 30. Age and circumference of selected canopy (tree numbers 1–3) and sub-canopy (tree numbers >3) sampled trees, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[>, greater than; cm, centimeters; m, meters]

Site	Collection date	Tree number	Common name	Scientific name	Circumference, in cm	Diameter, in cm	Tree age in 2003, in years ^a
FP10	09/23/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	90	29	48
	09/23/2003	2	Silver Maple	<i>Acer saccharinum</i>	124	39	33
	09/23/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	118	38	43
	09/23/2003	4	Green Ash	<i>Fraxinus pennsylvanica</i>	42	13	42
	09/23/2003	5	Silver Maple	<i>Acer saccharinum</i>	72	23	32
	09/23/2003	6	Silver Maple	<i>Acer saccharinum</i>	92	29	24
FP11	09/23/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	164	52	49
	09/23/2003	2	Green Ash	<i>Fraxinus pennsylvanica</i>	154	49	--
	09/23/2003	3	Hickory	<i>Carya spp.</i>	180	57	75
	09/23/2003	4	Boxelder	<i>Acer negundo</i>	57	18	18
	09/23/2003	5	Shagbark	<i>Carya ovata</i>	57	18	13
	09/23/2003	6	Silver Maple	<i>Acer saccharinum</i>	42	13	17
FP12	06/11/2003	1	Pecan	<i>Carya illinoensis</i>	203	65	63
	06/11/2003	2	Pin Oak	<i>Quercus palustris</i>	165	53	61
	06/11/2003	3	White Oak	<i>Quercus alba</i>	216	69	92
	06/11/2003	4	American Elm	<i>Ulmus americana</i>	64	20	36
	06/11/2003	5	Hackberry	<i>Celtis occidentalis</i>	61	19	38
	06/11/2003	6	Pin Oak	<i>Quercus palustris</i>	56	18	35
AD1	10/10/2002	1	Pin Oak	<i>Quercus palustris</i>	141	45	45
	10/10/2002	2	Pin Oak	<i>Quercus palustris</i>	145	46	--
	10/10/2002	3	Pin Oak	<i>Quercus palustris</i>	132	42	49
	10/10/2002	4	Pin Oak	<i>Quercus palustris</i>	82	26	48
	10/10/2002	5	American Elm	<i>Ulmus americana</i>	150	48	80
	10/10/2002	6	Pin Oak	<i>Quercus palustris</i>	100	32	43
AD2	10/10/2002	1	Green Ash	<i>Fraxinus pennsylvanica</i>	172	55	76
	10/10/2002	2	Pin Oak	<i>Quercus palustris</i>	157	50	52
	10/10/2002	3	Pecan	<i>Carya illinoensis</i>	106	34	73
	10/10/2002	4	Pin Oak	<i>Quercus palustris</i>	82	26	32
	10/10/2002	5	Pin Oak	<i>Quercus palustris</i>	83	26	45
	10/10/2002	6	Pin Oak	<i>Quercus palustris</i>	77	25	36
AD3	09/26/2002	1	Silver Maple	<i>Acer saccharinum</i>	132	42	36
	09/26/2002	2	Silver Maple	<i>Acer saccharinum</i>	88	28	--
	09/26/2002	4	Persimmon	<i>Diospyros virginiana</i>	95	30	72
	09/26/2002	5	American Elm	<i>Ulmus americana</i>	60	19	36
	09/26/2002	6	American Elm	<i>Ulmus americana</i>	43	14	41

Table 30. Age and circumference of selected canopy (tree numbers 1–3) and sub-canopy (tree numbers >3) sampled trees, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[>, greater than; cm, centimeters; m, meters]

Site	Collection date	Tree number	Common name	Scientific name	Circumference, in cm	Diameter, in cm	Tree age in 2003, in years ^a
AD4	09/26/2002	1	Green Ash	<i>Fraxinus pennsylvanica</i>	182	58	81
	09/26/2002	2	Silver Maple	<i>Acer saccharinum</i>	112	36	51
	09/26/2002	4	Silver Maple	<i>Acer saccharinum</i>	89	28	42
	09/26/2002	5	American Elm	<i>Ulmus americana</i>	80	25	42
AD5	09/26/2002	1	Green Ash	<i>Fraxinus pennsylvanica</i>	98	31	61
	09/26/2002	2	Green Ash	<i>Fraxinus pennsylvanica</i>	102	32	79
	09/26/2002	3	Green Ash	<i>Fraxinus pennsylvanica</i>	87	28	76
	09/26/2002	3B	Green Ash	<i>Fraxinus pennsylvanica</i>	87	28	--
	09/26/2002	4	Green Ash	<i>Fraxinus pennsylvanica</i>	66	21	64
	09/26/2002	5	Green Ash	<i>Fraxinus pennsylvanica</i>	62	20	72
	09/26/2002	6	Silver Maple	<i>Acer saccharinum</i>	53	17	22
AD6	09/22/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	125	40	71
	09/22/2003	2	Green Ash	<i>Fraxinus pennsylvanica</i>	125	40	62
	09/22/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	118	38	89
	09/22/2003	4	Hackberry	<i>Celtis occidentalis</i>	61	19	44
	09/22/2003	5	Silver Maple	<i>Acer saccharinum</i>	67	21	36
	09/22/2003	6	Silver Maple	<i>Acer saccharinum</i>	56	18	24
AD7	09/22/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	123	39	63
	09/22/2003	2	Green Ash	<i>Fraxinus pennsylvanica</i>	105	33	69
	09/22/2003	3	Hickory	<i>Carya spp.</i>	131	42	75
	09/22/2003	4	Boxelder	<i>Acer negundo</i>	67	21	20
	09/22/2003	5	Silver Maple	<i>Acer saccharinum</i>	73	23	33
	09/22/2003	6	Silver Maple	<i>Acer saccharinum</i>	62	20	38
AD8	09/23/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	105	33	75
	09/23/2003	2	Green Ash	<i>Fraxinus pennsylvanica</i>	126	40	76
	09/23/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	78	25	42
	09/23/2003	4	Black Willow	<i>Salix nigra</i>	57	18	17
	09/23/2003	5	Black Willow	<i>Salix nigra</i>	53	17	12
	09/23/2003	6	Green Ash	<i>Fraxinus pennsylvanica</i>	50	16	22
AD9	09/23/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	107	34	76
	09/23/2003	2	Green Ash	<i>Fraxinus pennsylvanica</i>	116	37	79
	09/23/2003	2B	Green Ash	<i>Fraxinus pennsylvanica</i>	116	37	--
	09/23/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	142	45	76
	09/23/2003	4	American Elm	<i>Ulmus americana</i>	52	17	31
	09/23/2003	5	Silver Maple	<i>Acer saccharinum</i>	40	13	25
09/23/2003	6	Boxelder	<i>Acer negundo</i>	37	12	37	

Table 30. Age and circumference of selected canopy (tree numbers 1–3) and sub-canopy (tree numbers >3) sampled trees, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[>, greater than; cm, centimeters; m, meters]

Site	Collection date	Tree number	Common name	Scientific name	Circumference, in cm	Diameter, in cm	Tree age in 2003, in years ^a
AD10	06/11/2003	1	Ash	<i>Fraxinus pennsylvanica</i>	130	41	83
	06/11/2003	2	Pecan	<i>Carya illinoensis</i>	89	28	60
	06/11/2003	3	Pin Oak	<i>Quercus palustris</i>	213	68	50
	06/11/2003	4	American Elm	<i>Ulmus americana</i>	43	14	24
	06/11/2003	5	American Elm	<i>Ulmus americana</i>	71	23	27
	06/11/2003	6	Silver Maple	<i>Acer saccharinum</i>	61	19	34
BS1	10/10/2002	1	Green Ash	<i>Fraxinus pennsylvanica</i>	168	54	57
	10/10/2002	2	Silver Maple	<i>Acer saccharinum</i>	127	40	52
	10/10/2002	3	Green Ash	<i>Fraxinus pennsylvanica</i>	150	48	70
	10/10/2002	4	Green Ash	<i>Fraxinus pennsylvanica</i>	60	19	46
	10/10/2002	5	Silver Maple	<i>Acer saccharinum</i>	112	36	--
	10/10/2002	6	Green Ash	<i>Fraxinus pennsylvanica</i>	59	19	25
BS2	10/10/2002	1	Green Ash	<i>Fraxinus pennsylvanica</i>	130	41	63
	10/10/2002	2	Green Ash	<i>Fraxinus pennsylvanica</i>	134	43	78
	10/10/2002	3	Green Ash	<i>Fraxinus pennsylvanica</i>	185	59	73
	10/10/2002	4	Green Ash	<i>Fraxinus pennsylvanica</i>	78	25	38
	10/10/2002	5	Pin Oak	<i>Quercus palustris</i>	109	35	82
	10/10/2002	6	Green Ash	<i>Fraxinus pennsylvanica</i>	122	39	34
BS3	10/09/2002	1	Green Ash	<i>Fraxinus pennsylvanica</i>	167	53	81
	10/09/2002	2	Green Ash	<i>Fraxinus pennsylvanica</i>	124	39	76
	10/09/2002	3	Green Ash	<i>Fraxinus pennsylvanica</i>	118	38	--
	10/09/2002	4	Green Ash	<i>Fraxinus pennsylvanica</i>	71	23	72
	10/09/2002	5	Green Ash	<i>Fraxinus pennsylvanica</i>	84	27	--
	10/09/2002	6	Silver Maple	<i>Acer saccharinum</i>	72	23	41
BS4	10/09/2002	1	Black Willow	<i>Salix nigra</i>	151	48	41
	10/09/2002	2	Black Willow	<i>Salix nigra</i>	154	49	--
	10/09/2002	3	Black Willow	<i>Salix nigra</i>	159	51	28
	10/09/2002	4	Black Willow	<i>Salix nigra</i>	65	21	21
	10/09/2002	5	Black Willow	<i>Salix nigra</i>	60	19	24
	10/09/2002	6	Black Willow	<i>Salix nigra</i>	36	11	21
BS5	10/09/2002	1	Green Ash	<i>Fraxinus pennsylvanica</i>	151	48	65
	10/09/2002	2	Green Ash	<i>Fraxinus pennsylvanica</i>	146	46	73
	10/09/2002	3	Green Ash	<i>Fraxinus pennsylvanica</i>	163	52	--
	10/09/2002	4	American Elm	<i>Ulmus americana</i>	59	19	41
	10/09/2002	5	Green Ash	<i>Fraxinus pennsylvanica</i>	73	23	42
	10/09/2002	6	Green Ash	<i>Fraxinus pennsylvanica</i>	60	19	41

Table 30. Age and circumference of selected canopy (tree numbers 1–3) and sub-canopy (tree numbers >3) sampled trees, by site, in Unit 1 (Horton Bottoms) at the Four Rivers Conservation Area.—Continued

[>, greater than; cm, centimeters; m, meters]

Site	Collection date	Tree number	Common name	Scientific name	Circumference, in cm	Diameter, in cm	Tree age in 2003, in years ^a
BS6	09/16/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	105	33	31
	09/16/2003	2	Green Ash	<i>Fraxinus pennsylvanica</i>	67	21	18
	09/16/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	87	28	21
	09/16/2003	4	Black Willow	<i>Salix nigra</i>	94	30	16
	09/16/2003	5	Black Willow	<i>Salix nigra</i>	61	19	29
	09/16/2003	6	Black Willow	<i>Salix nigra</i>	46	15	13
BS7	09/16/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	60	19	23
	09/16/2003	4	Black Willow	<i>Salix nigra</i>	50	16	12
BS8	09/17/2003	1	Pecan	<i>Carya illinoensis</i>	137	44	84
	09/17/2003	2	Black Willow	<i>Salix nigra</i>	100	32	26
	09/17/2003	3	Black Willow	<i>Salix nigra</i>	100	32	21
	09/17/2003	4	Black Willow	<i>Salix nigra</i>	79	25	30
	09/17/2003	5	Black Willow	<i>Salix nigra</i>	61	19	--
	09/17/2003	6	Black Willow	<i>Salix nigra</i>	76	24	20
BS9	09/17/2003	1	Black Willow	<i>Salix nigra</i>	98	31	--
	09/17/2003	2	Green Ash	<i>Fraxinus pennsylvanica</i>	83	26	52
	09/17/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	95	30	26
	09/17/2003	4	Black Willow	<i>Salix nigra</i>	71	23	45
	09/17/2003	5	Black Willow	<i>Salix nigra</i>	42	13	13
	09/17/2003	6	Black Willow	<i>Salix nigra</i>	39	12	16
BS10	09/17/2003	1	Green Ash	<i>Fraxinus pennsylvanica</i>	134	43	70
	09/17/2003	2	Green Ash	<i>Fraxinus pennsylvanica</i>	105	33	53
	09/17/2003	3	Green Ash	<i>Fraxinus pennsylvanica</i>	101	32	71
	09/17/2003	4	Black Willow	<i>Salix nigra</i>	85	27	20
	09/17/2003	5	Black Willow	<i>Salix nigra</i>	70	22	25
	09/17/2003	6	Black Willow	<i>Salix nigra</i>	81	26	20
BS11	09/16/2003	1	Black Willow	<i>Salix nigra</i>	75	24	16
	09/16/2003	2	Black Willow	<i>Salix nigra</i>	75	24	18
	09/16/2003	3	Black Willow	<i>Salix nigra</i>	82	26	20
	09/16/2003	4	Black Willow	<i>Salix nigra</i>	38	12	9
	09/16/2003	5	Black Willow	<i>Salix nigra</i>	43	14	11
	09/16/2003	6	Black Willow	<i>Salix nigra</i>	80	25	16

^aTree age determined at breast height (approximately 1.37 meters).

Table 41. Species master list for vegetation sampled in Unit 4 at the Four Rivers Conservation Area in 2002.

[WIS, wetland indicator status; FACW, facultative wetland species, 67–99 percent occurrence in wetlands; FAC, facultative species, 34–66 percent occurrence in wetlands; FACU, facultative upland species, 1–33 percent occurrence in wetlands; UL, unlisted as an indicator species; OBL obligate wetland species, greater than 99 percent occurrence in wetlands; A, annual; T, tree; P, perennial; WV, woody vine; V, vine; B, biennial; N, native; I, introduced; --, no data]

Species code	Scientific name	Common name	Family	WIS	Habit	N/I
ABUTTHEO	<i>Abutilton theophrasti</i> Medic.	Velvet leaf	Malvaceae	FACU	A	I
ACALVIRG	<i>Acalypha virginica</i> L.	Three seeded mercury	Euphorbiaceae	FACU	A	N
ACERNEGU	<i>Acer negundo</i> L.	Boxelder	Aceraceae	FACW	T	N
ACERSACCI	<i>Acer saccharinum</i> L.	Silver maple	Aceraceae	FACW	T	N
AESC_SPP	<i>Asclepias</i> spp.	Milkweed	Asclepiadaceae	--	P	N
ALLI_SPP	<i>Allium</i> spp.	Wild onion, garlic	Liliaceae	--	--	--
AMARRUDI	<i>Amaranthus rudis</i>	Amaranth	Amaranthaceae	FACW	A	N
AMBRARTI	<i>Ambrosia artemisiifolia</i> L.	Annual ragweed	Asteraceae	FACU	A	N
AMBRTRIF	<i>Ambrosia trifida</i> L.	Ragweed	Asteraceae	FAC	A	N
APOCCANA	<i>Apocynum cannabinum</i> L.	Indian Hemp	Apocynaceae	FAC	P	N
ASTE_SPP	<i>Aster</i> spp.	--	Asteraceae	--	--	--
ASTEPILO	<i>Aster pilosus</i> Willd.	White Heath Aster	Asteraceae	FACU	P	N
BIDE_SPP	<i>Bidens</i> spp.	--	Asteraceae	--	--	--
BIDEBIPI	<i>Bidens bipinnata</i> L.	Spanish needles	Asteraceae	UL	P	I
CAMPRADI	<i>Campsis radicans</i> (L.) Seem.	Trumpet creeper	Bignoniaceae	FAC	WV	N
CARE_SPP	<i>Carex</i> spp.	--	Cyperaceae	--	--	--
CAREMUSK	<i>Carex muskingumensis</i> Schwein.	Palm sedge	Cyperaceae	OBL	P	N
CAREOVAL	<i>Carex leporina</i> L.	--	Cyperaceae	UL	A	I
CARYILLI	<i>Carya illinoensis</i> (Wang.) K. Koch	Pecan	Juglandaceae	FACW	T	N
CEPHOCCI	<i>Cephalanthus occidentalis</i> L.	Buttonbush	Rubiaceae	OBL	T	N
CLEMPITC	<i>Clematis pitcheri</i> T & G	Pitcher's virgin's bower	Ranunculaceae	FACU	V	N
COMMCOMM	<i>Commelina communis</i> L.	Asiatic day flower	Commelinaceae	FAC	A	I
CONVSEPI	<i>Convolvulus sepium</i> L.	Hedge bindweed	Convolvulaceae	UL	A	V
CONYCANA	<i>Erigeron canadensis</i> L.	Horseweed	Asteraceae	FAC	A	N
CYNALAEV	<i>Cynachum laeve</i> (Michx.) Pers.	Climbing milkweed	Asclepiadaceae	FAC	P	N
DESMILLI	<i>Desmanthus illinoensis</i> (Michx) Macmil.	Illinois bundleflower	Mimosaceae	FAC	P	N
DIGISANG	<i>Digitaria sanguinalis</i> (L.) Scop.	Hairy crabgrass	Poaceae	FACU	P	N
DIOSVIRG	<i>Diospyros virginiana</i> L.	Persimmon	Ebenaceae	FAC	T	N
EUPARUGO	<i>Eupatorium rugosum</i> Houtt.	White snakeroot	Asteraceae	UL	P	N
EUPASERO	<i>Eupatorium serotinum</i> Michx.	Black snakeroot	Asteraceae	FAC	P	N
EUPHMACU	<i>Euphorbia maculata</i> L.	Spotted broomsurge	Euphorbiaceae	FACU	A	N
EUPHSUPI	<i>Euphorbia supina</i> Raf.	Milk purslane	Euphorbiaceae	UL	A	N

Table 41. Species master list for vegetation sampled in Unit 4 at the Four Rivers Conservation Area in 2002.—Continued

[WIS, wetland indicator status; FACW, facultative wetland species, 67–99 percent occurrence in wetlands; FAC, facultative species, 34–66 percent occurrence in wetlands; FACU, facultative upland species, 1–33 percent occurrence in wetlands; UL, unlisted as an indicator species; OBL obligate wetland species, greater than 99 percent occurrence in wetlands; A, annual; T, tree; P, perennial; WV, woody vine; V, vine; B, biennial; N, native; I, introduced; --, no data]

Species code	Scientific name	Common name	Family	WIS	Habit	N/I
FRAXPENN	<i>Fraxinus pennsylvanica</i> Marshall	Green Ash	Oleaceae	FACW	T	N
HELL_SPP	<i>Helianthus</i> spp.		Asteraceae	--	--	--
HELIANNU	<i>Helianthus annuus</i> L.	Common sunflower	Asteraceae	FAC	A	N
HIBILACI	<i>Hibiscus moscheutos</i> L.	Rose mallow	Malvaceae	OBL	P	N
HORDPUSI	<i>Hordeum pusillum</i> Nutt.	Little barley	Poaceae	FAC	A	N
HYPERPERF	<i>Hypericum perforatum</i> L.	Common St. John's Wort	Clusiaceae	UL	P	I
IPOMLACU	<i>Ipomoea lacunosa</i> L.	Small white morning glory	Convolvulaceae	FACW	A	N
IVA_ANNU	<i>Iva annua</i> L.	Annual sumpweed	Asteraceae	FAC	A	I
LEERLENT	<i>Leersia lenicularis</i> Michx.	Catchfly grass	Poaceae	OBL	P	N
LEERVIRG	<i>Leersia virginica</i> Willd.	Whitegrass	Poaceae	FACW	P	N
LESPSTIP	<i>Lespedeza stipulaceae</i> Maxim.	Korean lespedeza	Fabaceae	FACU	A	F
LIPPLANC	<i>Phyla lanceolata</i> (Michx.) Greene	Fog fruit	Verbenaceae	OBL	P	N
LYCOAMER	<i>Lycopus americanus</i> Muhl.	American bugleweed	Lamiaceae	OBL	P	N
MOLLVERT	<i>Mollugo verticillata</i> L.	Green carpet weed	Molluginaceae	FAC	A	N
OENOBLEN	<i>Oenothera biennis</i> L.	Common evening primrose	Primulaceae	FACU	B	I
OXAL_SPP	<i>Oxalis</i> spp.		Oxalidaceae	--	--	--
OXALSTRI	<i>Oxalis stricta</i> L.	Common yellow wood sorrel	Oxalidaceae	UL	P	N
PANI_SPP	<i>Panicum</i> spp.		Poaceae	--	--	--
PHYSVIRG	<i>Physostegia virginiana</i> (L.) Benth	False dragonhead	Lamiaceae	FACW	P	N
POLY_SPP	<i>Polygonum</i> spp.		Polygonaceae	--	--	--
POLYAMPH	<i>Polygonum amphibium</i> L.	Water smartweed	Polygonaceae	OBL	P	N
POLYPENS	<i>Polygonum pensylvanicum</i> L.	Smartweed	Polygonaceae	FACW	A	N
POPUDELTA	<i>Populus deltoides</i> W. Bartram	Cottonwood	Salicaceae	FAC	T	N
PORTOLER	<i>Portulaca oleracea</i> L.	Common purslane	Portulacaceae	FAC	A	N
POTERECT	<i>Potentilla recta</i> L.	Sulphur cinquefoil	Rosaceae	UL	P	I
PRUNSERO	<i>Prunus serotina</i> Ehrh.	Black cherry	Rosaceae	FACU	T	N
QUERPALU	<i>Quercus palustris</i> Muenchh.	Pin Oak	Fagaceae	FACW	T	N
SALINIGR	<i>Salix nigra</i> Marsh.	Black willow	Salicaceae	OBL	T	N
SCHISCOPE	<i>Schizachyrium scoparium</i> (Michx) Nash	Little bluestem	Poaceae	UL	P	N
SETAFABE	<i>Setaria faberi</i> Herrm.	Nodding foxtail	Poaceae	FACU	A	I
SETAGLAU	<i>Setaria glauca</i> (L.) Beauv.	Yellow foxtail	Poaceae	FAC	A	I
SIDASPIN	<i>Sida spinosa</i> L.	Prickly mallow	Malvaceae	FACU	A	N
SOLAAMER	<i>Solanum americanum</i> L.	Black nightshade	Solanaceae	FACU	A	N