Stream Vegetation Data for Twenty Long-term Study Sites in the New Jersey Pinelands

Kim J. Laidig and Robert A. Zampella

August 1996

Pinelands Commission
New Lisbon, New Jersey

Stream Vegetation Data for Twenty Long-term Study Sites in the New Jersey Pinelands

Kim J. Laidig and Robert A. Zampella

August 1996

Pinelands Commission
New Lisbon, New Jersey

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

STREAM VEGETATION DATA FOR TWENTY LONG-TERM STUDY SITES IN THE NEW JERSEY PINELANDS

INTRODUCTION

Because changes in water quality associated with watershed disturbance adversely effect characteristic aquatic and wetland plant communities in the New Jersey Pinelands (Ehrenfeld 1983, Ehrenfeld and Schneider 1991, Morgan and Philipp 1986), there is a continuing need to monitor the effects of upland land use patterns on the biological integrity of these communities. To provide a baseline for future assessments of watershed disturbance, we present data on the floristic composition of aquatic bed and emergent wetland communities in selected Pinelands streams. In a companion ecological study (Zampella and Laidig 1996), we examine the relationship between these plant species composition data and various environmental variables such as stream pH and specific conductance.

METHODS

We established twenty permanent study sites in streams within the Mullica River basin and tributaries to Barnegat Bay and Little Egg Harbor (Figure 1, Table 1). These drainages were previously selected for long-term environmental study by the Pinelands Commission (Zampella 1992). The stream study sites reflect a wide range of land uses, water quality conditions, and geographic locations. Each sampling station consists of a 100 m length of stream subdivided into four 25 m sections (Figure 2). Station breadth includes the channel and a 2 m wide belt transect along both sides of the channel. We recorded study site location and dimension details (Figure 3, Table 2). Section endpoints were permanently marked with PVC stakes placed on the stream banks. Latitude and longitude of the study sites were determined in the field using a global positioning system.

A species occurrence (presence/absence) survey of vascular plants in the channel and belt transects was completed at each study site in spring, summer and fall starting in early May 1994 and ending in early October 1994. Plant species were also noted throughout the 1994 and 1995 growing seasons during additional visits, spaced approximately every one to two months, while performing aspects of the companion ecological study (Zampella and Laidig 1996). Complete species tallies were obtained for each 25 m section for both the right and left sides, yielding eight separate lists for each stream station. In August and September 1994, we identified the dominant species found on the right bank, left bank, right channel, and left channel of each 25 m section. Dominant species were limited to common or abundant species within each survey area. Voucher specimens were collected for most species from each stream and deposited in the Chrysler Herbarium at Rutgers University, New Brunswick, NJ. Taxonomic nomenclature follows Gleason and Cronquist (1991).

DATA PRESENTATION

We found a total of 240 species of vascular plants, including 184 herbaceous and 56 woody species. Plant species tallies, presented as presence (+) or absence (-) data, for each study site and each 25 m section are presented in Tables 3a-3t. Based on data contained in Tables 3a-3t, frequency of occurrence was calculated for each species (Table 4). Of the 240 species encountered, we considered 56 species dominant (abundant or common) in at least one 25 m section. The frequency of occurrence of each dominant of the channel or bank species is presented in Table 5. The complete list of 240 species, along with their common names, is presented in Table 6.

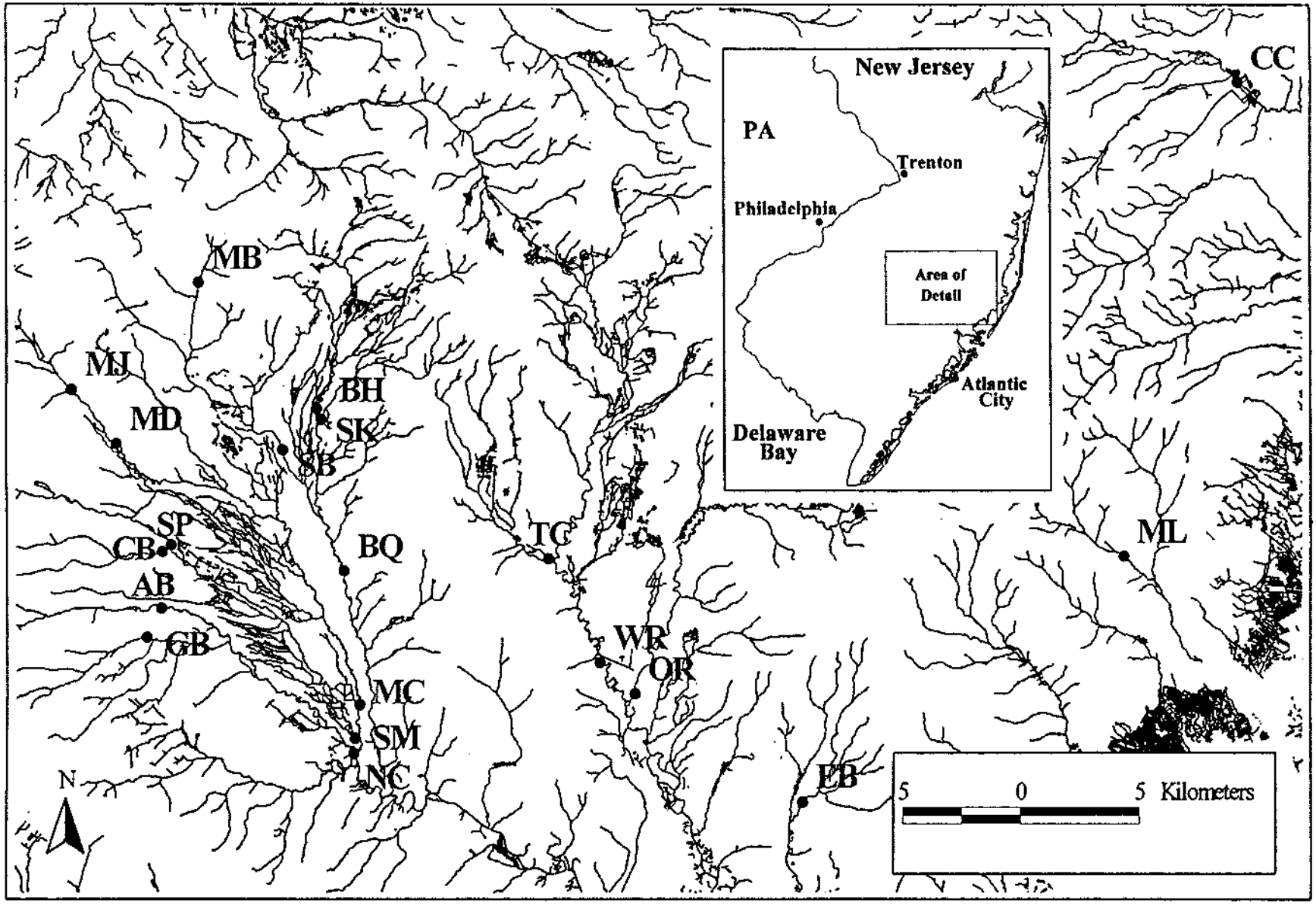

Figure 1. Location of stream vegetation study sites in the New Jersey Pinelands (1994-1995). Refer to Table 1 for stream codes.

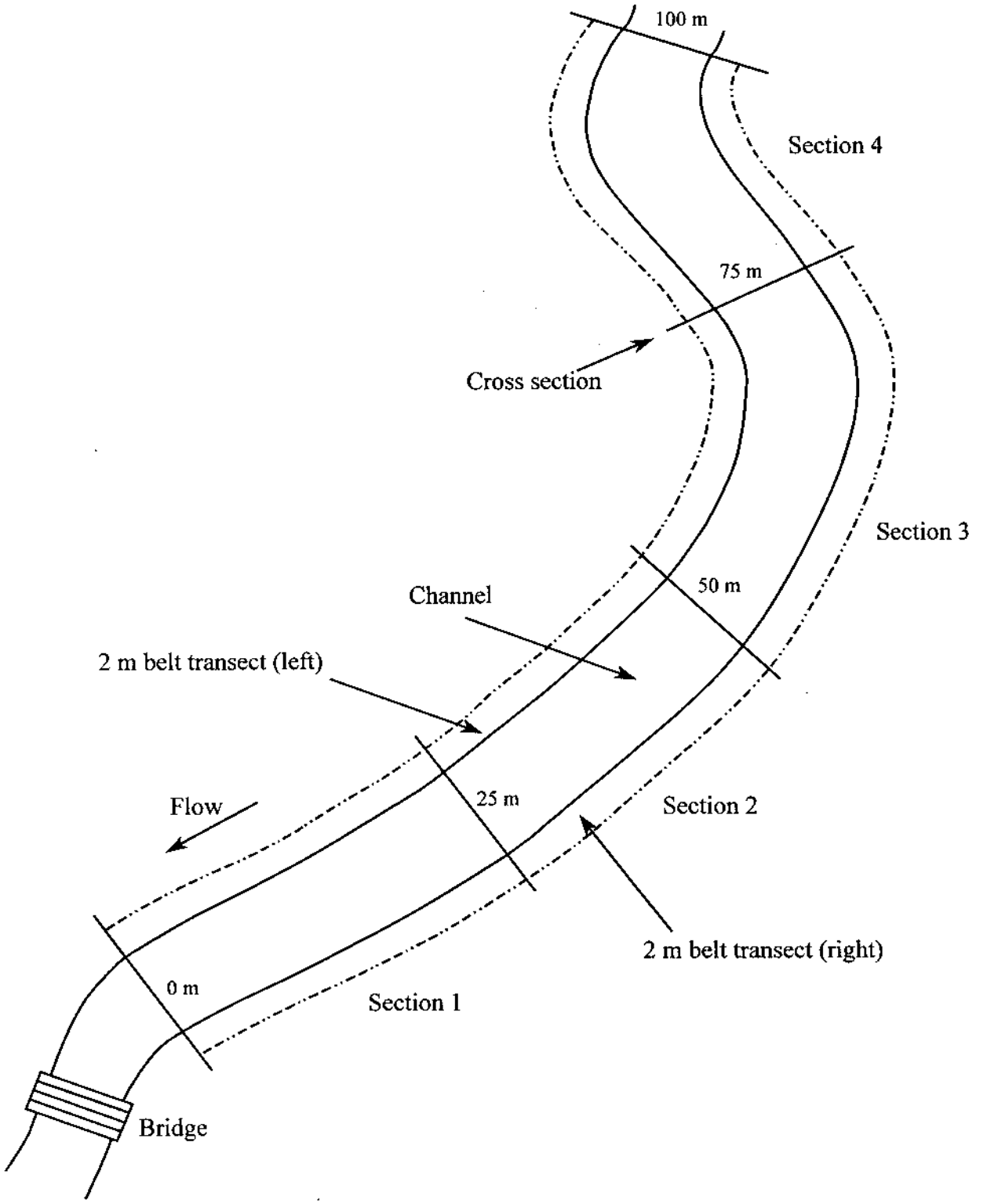

Figure 2. Example of stream vegetation study site showing channel, 2 m belt transects, 25 m sections, and cross sections.

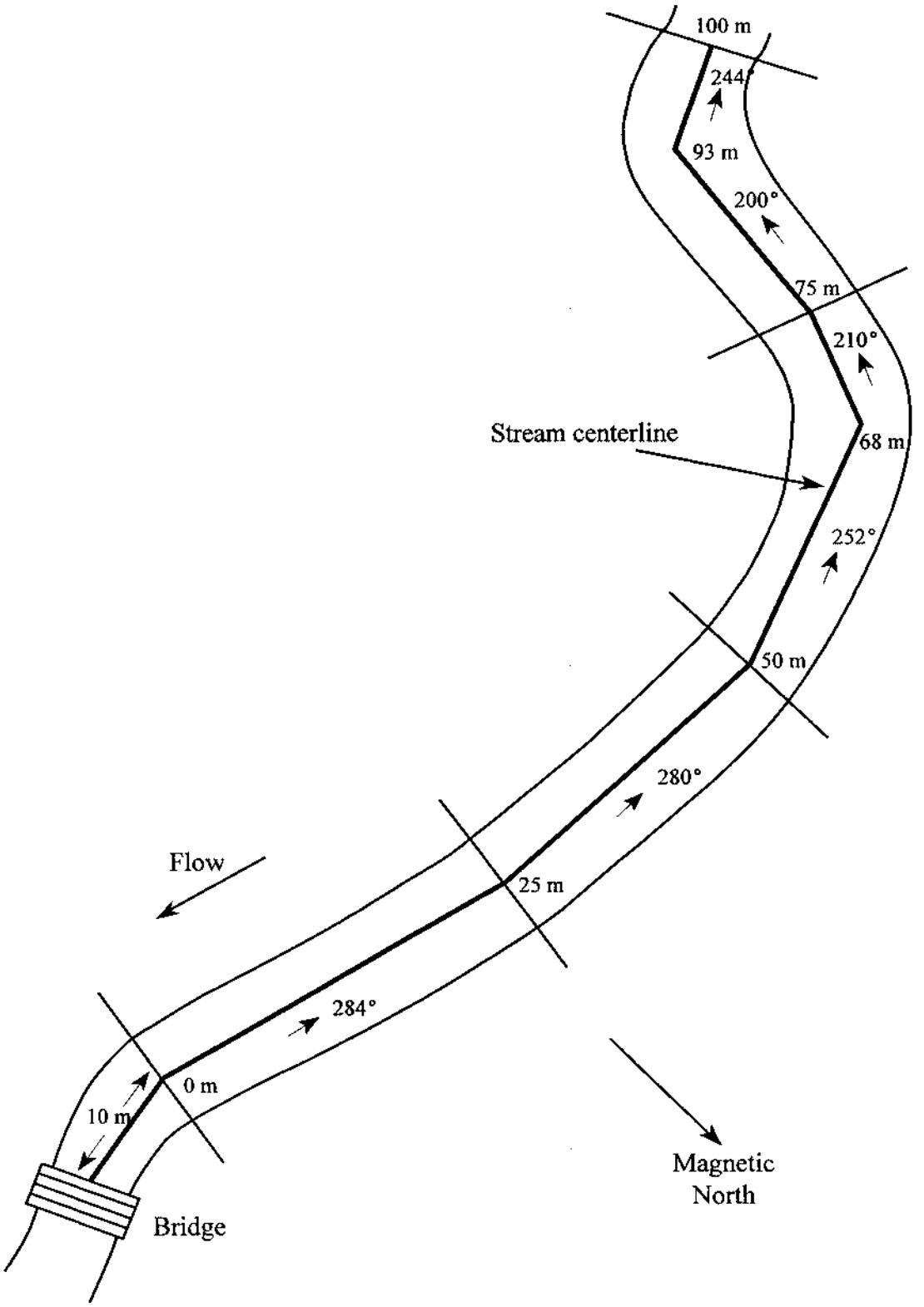

Figure 3. Example of stream vegetation study site layout showing compass bearings and distances as listed in Table 2. This diagram represents the Albertson Brook-Derelict Bridge site.

Table 1. Stream vegetation study sites in the New Jersey Pinelands (1994-1995). Refer to Table 2 for additional details on study site locations.

Study Site Name	Site Code	County	General Location	
			Latitude	Longitude
Mullica River Basin				
Albertson Brook-Derelict Bridge	AB	Atlantic	39°41'41"	74°44'38"
Batsto River-Hampton Rd.	BH	Burlington	39°46'16"	74°40'48"
Batsto River-Quaker Bridge	BQ	Burlington	39°42'36"	74°40'01"
Clark Branch-Parkdale	CB	Camden	39°43'01"	74°45'22"
East Branch Bass River-Stage Rd.	EB	Burlington	39°37'23"	74°26'28"
Great Swamp Branch-Middle Rd.	GB	Atlantic	39°41'02"	74°45'47"
Muskingum Brook-Tuckerton Rd.	MB	Burlington	39°49'05"	74°44'17"
Mullica River-Constable Bridge	MC	Atlantic/Burlington	39°39'28"	74°39'32"
Mullica River-Dike	MD	Burlington/Camden	39°45'29"	74°46'41"
Mullica River-Jackson Rd.	MJ	Burlington/Camden	39°46'41"	74°48'00"
Nescochague Creek-Pleasant Mills	NC	Atlantic	39°38'37"	74°39'46"
Oswego River-Harrisville Pond	OR	Burlington	39°39'47"	74°31'26"
Springers Brook-Hampton Rd.	SB	Burlington	39°45'18"	74°41'49"
Skit Branch-Hampton Rd.	SK	Burlington	39°46'01"	74°40'41"
Sleeper Branch-Pleasant Mills	SM	Atlantic	39°38'49"	74°39'40"
Sleeper Branch-Parkdale	SP	Camden	39°43'08"	74°45'04"
Tulpehocken Creek-Hawkin Bridge	TC	Burlington	39°42'50"	74°33'58"
Wading River-Evans Bridge	WR	Burlington	39°40'30"	74°32'28"
Barnegat Bay and Little Egg Harbor Tributaries				
Cedar Creek-Double Trouble	CC	Ocean	39°53'38"	74°13'34"
Mill Creek-Rt. 72	ML	Ocean	39°42'54"	74°16'59"

Table 2. Location and layout of stream vegetation study sites in the New Jersey Pinelands (1994-1995). Distances and compass bearings were measured while standing in the middle of the channel and facing upstream. Points 0, 25, 50, 75, and 100 represent boundaries of the 25 m sections. Compass bearings are not corrected for declination. Refer to Figure 3 for example of site layout.

Albertson Brook-Derelict Bridge. Point 0 is located 10 m upstream from derelict bridge (latitude 39°41'41" longitude 74°44'38") which is located downstream from Rt. 206.

From Point (m)	To Point (m)	Compass Bearing (deg)
0	25	284
25	50	280
50	68	252
68	75	210
75	93	200
93	100	244

Batsto River-Hampton Rd. Point 0 is located 20 m upstream from bridge at Hampton Rd. (latitude 39°46'16" longitude 74°40'48").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	7	84
7	25	40
25	40	40
40	50	18
50	56	18
56	69	350
69	75	2
75	84	10
84	100	354

Batsto River-Quaker Bridge. Point 100 is located in side channel, 30 m downstream from canoe launch located immediately west of Quaker Bridge (latitude 39°42'36" longitude 74°40'01").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	10	334
10	25	350
25	27	350
27	40	328
40	50	310
50	68	310
68	75	14
75	88	42
88	94	86
94	100	106

Table 2. Continued.

Clark Branch-Parkdale. Point 100 is located 8 m downstream from bridge at Johnson Rd. (latitude 39°43'01" longitude 74°45'22") near Parkdale.

From Point (m)	To Point (m)	Compass Bearing (deg)
0	7	230
7	12	258
12	25	302
25	26	302
26	32	286
32	38	306
38	50	332
50	55	332
55	72	308
72	75	296
75	78	296
78	96	300
96	100	270

Cedar Creek-Double Trouble. Point 0 is located 50 m upstream from bridge at Double Trouble State Park (latitude 39°53'38" longitude 74°13'34").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	22	320
22	25	290
25	41	290
41	50	330
50	54	330
54	75	358
75	77	358
77	91	330
91	100	352

Table 2. Continued.

East Branch Bass River-Stage Rd. Point 0 is located 5 m upstream from bridge at Stage Rd. (latitude 39°37'23" longitude 74°26'28").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	25	56
Skip next 4 m disturbance around foot bridge		
25	41	84
41	46	68
46	50	42
50	60	44
60	75	82
75	79	62
79	86	90

Great Swamp Branch-Middle Rd. Point 100 is located 9 m downstream from bridge at Middle Rd. near Rt. 206 (latitude 39°41'02" longitude 74°45'47").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	7	298
7	25	332
25	50	318
50	59	318
59	75	304
75	78	304
78	100	278

Muskingum Brook-Tuckerton Rd. Point 0 is located 16 m upstream from culvert at Tuckerton Rd. (latitude 39°49'05" longitude 74°44'17").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	25	28
25	32	26
32	43	352
43	50	26
50	65	66
65	75	46
75	77	46
77	95	18
95	100	60

Table 2. Continued.

Mullica River-Constable Bridge. Point 100 (latitude 39°39'28" longitude 74°39'32") is located approximately 175 m downstream from Constable Bridge.

From Point (m)	To Point (m)	Compass Bearing (deg)
0	25	348
25	50	24
50	75	346
75	100	310

Mullica River-Dike. Point 0 is located 65 m upstream from old dike (latitude 39°45'29" longitude 74°46'41").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	13	346
13	25	334
25	50	312
50	75	288
75	89	280
89	100	266

Mullica River-Jackson Rd. Point 0 is located 40 m upstream from bridge at Jackson Rd. (latitude 39°46'41" longitude 74°48'00").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	16	330
16	25	324
25	50	324
50	67	320
67	75	340
75	83	350
83	100	286

Mill Creek-Rt. 72. Point 0 is located 180 m upstream from bridge at Rt. 72 (latitude 39°42'54" longitude 74°16'59").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	25	294
25	50	322
50	75	308
75	83	308
83	98	336
98	100	304

Table 2. Continued.

Nescochague Creek-Pleasant Mills. Point 0 is located 50 m upstream from small sandy beach (latitude 39°38'37" longitude 74°39'46") located upstream from bridge at Pleasant Mills.

From Point (m)	To Point (m)	Compass Bearing (deg)
0	6	312
6	18	348
18	25	20
25	32	20
32	45	30
45	50	352
50	54	352
54	72	312
72	75	290
75	81	290
81	100	270

Oswego River-Harrisville Pond. Point 100 is located 42 m downstream of bridge at Harrisville-Chatsworth Rd. (latitude 39°39'47" longitude 74°31'26").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	10	20
10	25	24
25	43	24
43	50	42
50	75	45
75	100	42

Springers Brook-Hampton Rd. Point 0 is located 18 m upstream from bridge at Hampton Rd. (latitude 39°45'18" longitude 74°41'49").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	6	2
6	17	334
17	25	0
25	31	336
31	50	308
50	55	334
55	63	20
63	75	342
75	81	342
81	96	34
96	100	338

Table 2. Continued.

Skit Branch-Hampton Rd. Point 0 is located 32 m upstream from bridge at Hampton Rd. (latitude 39°46'01" longitude 74°40'41").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	7	94
7	23	86
23	25	80
25	38	70
38	50	36
50	72	12
72	75	42
75	93	64
93	100	50

Sleeper Branch-Pleasant Mills. Point 100 is located 21 m downstream from small footbridge (latitude 39°38'49" longitude 74°39'40") located upstream from Mullica River confluence.

From Point (m)	To Point (m)	Compass Bearing (deg)
0	10	344
10	25	280
Skip next 25 m due to beaver dam and impoundment		
25	50	322
50	60	320
60	75	276
75	85	262
85	100	320

Sleeper Branch-Parkdale. Point 50 is located at old dike (latitude 39°43'08" longitude 74°45'04") near Parkdale.

From Point (m)	To Point (m)	Compass Bearing (deg)
0	11	310
11	20	324
20	25	330
25	50	330
50	75	324
75	83	324
83	97	280
97	100	300

Table 2. Continued.

Tulpehocken Creek-Hawkin Bridge. Point 0 is located 35 m upstream from Hawkin Bridge at Friendship Rd. (latitude 39°42'50" longitude 74°33'58").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	3	280
3	14	296
14	20	234
20	25	276
25	50	276
50	57	270
57	68	240
68	75	192
75	81	206
81	88	240
88	91	276
91	98	240
98	100	272

Wading River-Evans Bridge. Point 0 is located 60 m upstream from Evans Bridge at Rt. 563 (latitude 39°40'30" longitude 74°32'28").

From Point (m)	To Point (m)	Compass Bearing (deg)
0	25	298
25	33	298
33	50	326
50	66	326
66	75	288
75	100	272

Table 3a. Plant species present at the Albertson Brook-Derelict Bridge stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Aster novi-belgii	V	-	-	+	-	-	+	-	-
Bidens frondosa	V	-	-	-	-	-	-	-	+
Callitriche heterophylla	V	+	+	+	+	+	+	+	+
Carex canescens	V	-	-	+	-	-	-	-	-
Carex lurida	V	+	-	-	-	-	-	-	-
Cuscuta sp.	-	+	+	-	+	+	+	+	+
Cyperus strigosus	-	-	-	-	-	-	-	-	+
Decodon verticillatus	V	+	-	-	-	-	-	-	+
Dioscorea villosa	V	-	-	-	+	-	-	-	+
Dulichium arundinaceum	V	-	-	+	-	-	+	-	+
Eleocharis acicularis	V	-	-	-	-	-	-	+	-
Eleocharis robbinsii	V	-	-	+	-	-	-	+	+
Eleocharis tenuis	V	+	-	+	-	-	-	-	-
Galium tinctorium	V	+	+	-	+	+	+	+	+
Glyceria obtusa	V	+	-	+	+	+	+	+	+
Hypericum denticulatum	-	+	+	-	-	-	-	+	+
Hypericum mutilum	V	+	+	-	+	-	-	-	+
Impatiens capensis	V	-	+	-	+	-	-	-	+
Juncus canadensis	V	-	-	-	-	-	-	-	+
Juncus effusus	V	+	-	-	-	-	+	-	+
Juncus militaris	V	+	+	+	+	+	+	+	+
Leersia oryzoides	V	+	+	+	+	+	+	-	+
Ludwigia palustris	V	+	+	+	+	+	+	-	+
Lycopus uniflorus	V	-	-	-	-	-	-	-	+
Lycopus virginicus	V	+	+	+	+	+	+	+	+
Lysimachia terrestris	V	+	+	+	+	+	+	-	+
Microstegium vimineum	V	+	+	-	+	+	+	+	+
Mikania scandens	-	+	+	+	+	-	+	+	+
Onoclea sensibilis	V	+	-	+	-	-	-	-	+
Osmunda cinnamomea	V	-	+	-	+	-	-	-	-
Peltandra virginica	V	+	+	+	+	+	+	+	+

Table 3a. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Polygonum arifolium	V	+	-	-	-	-	-	-	+
Polygonum hydropiperoides var. setaceum	V	+	+	+	-	+	+	-	+
Polygonum sagittatum	V	+	-	+	-	-	-	+	+
Pontedaria cordata	-	-	-	-	-	-	-	-	+
Sagittaria engelmanniana	-	-	-	-	-	-	+	-	-
Sparganium americanum	V	+	+	+	+	+	+	+	+
Thelypteris simulata	V	-	-	-	+	-	-	-	-
Triadenum virginicum	V	-	+	-	+	+	+	+	+
Woodwardia areolata	V	-	-	-	+	-	+	-	-
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Alnus serrulata	-	-	+	+	+	+	+	-	+
Aronia arbutifolia	-	-	-	-	+	+	+	-	+
Chamaecyparis thyoides	-	+	+	+	+	-	+	-	+
Chamaedaphne calyculata	-	-	-	+	-	-	+	-	-
Clethra alnifolia	-	+	+	+	+	+	+	+	+
Eubotrys racemosa	V	-	-	+	+	+	+	+	+
Gaylussacia dumosa	-	-	+	-	-	-	-	-	-
Gaylussacia frondosa	-	-	-	-	+	+	-	-	-
Ilex glabra	-	-	+	-	+	-	-	-	-
Ilex laevigata	V	-	-	-	-	-	-	-	+
Ilex opaca	-	-	+	-	-	-	-	-	-
Itea virginica	-	-	-	-	+	+	+	+	+
Lyonia ligustrina	-	-	-	+	-	+	+	+	+
Magnolia virginiana	-	-	-	-	-	-	+	-	-
Pinus rigida	-	-	-	-	-	-	-	-	+
Rhododendron viscosum	-	-	+	+	+	+	+	+	+
Rubus hispidus	V	-	-	-	-	+	-	+	-
Smilax glauca	-	-	+	-	+	-	-	-	-
Smilax rotundifolia	-	-	+	-	-	+	+	+	+
Toxicodendron radicans	-	-	+	-	+	+	-	+	+
Vaccinium corymbosum	-	-	+	+	+	-	-	+	-
Vaccinium macrocarpon	-	-	-	-	-	+	-	-	-
Viburnum nudum var. nudum	V	-	-	-	+	+	+	+	+

Table 3b. Plant species present at the Batsto River-Hampton Rd. stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis hyemalis	V	-	-	-	-	+	-	-	-
Andropogon virginicus var. abbreviatus	V	-	-	+	+	+	-	+	+
Bartonia paniculata	V	+	+	+	+	+	+	+	+
Calamagrostis cinnoides	V	-	-	-	-	-	-	+	-
Carex bullata	V	+	+	+	+	+	+	+	+
Carex stricta	V	+	+	+	+	+	+	+	+
Cladium mariscoides	V	-	+	-	-	-	-	-	-
Drosera intermedia	V	+	+	+	+	+	+	+	+
Dulichium arundinaceum	V	+	+	+	+	+	+	+	+
Eleocharis tenuis	V	+	+	+	+	+	+	+	+
Euthamia tenuifolia	V	+	-	-	-	-	-	-	+
Glyceria obtusa	V	+	+	+	+	+	+	+	-
Hypericum canadense	V	+	+	+	+	+	+	+	+
Juncus canadensis	V	+	+	-	-	-	-	+	-
Juncus effusus	V	+	-	+	+	-	-	-	-
Juncus militaris	V	-	+	+	+	-	-	-	-
Juncus pelocarpus	V	-	-	+	-	-	-	-	-
Lachnanthes caroliniana	V	+	+	-	+	+	+	-	+
Leersia oryzoides	V	+	+	+	+	+	+	+	+
Lobelia canbyi	V	-	-	-	-	-	+	-	-
Lobelia nuttallii	V	-	+	-	-	-	+	+	-
Lycopus uniflorus	V	-	-	-	-	-	+	+	-
Lysimachia terrestris	V	+	+	+	+	+	+	+	+
Muhlenbergia uniflora	V	-	-	-	-	+	+	+	+
Nuphar variegata	-	-	-	+	-	+	-	-	-
Osmunda cinnamomea	V	-	-	-	+	-	+	-	-
Panicum dichotomum	V	+	+	+	+	+	+	+	+
Panicum longifolium	V	-	+	+	+	+	+	+	+
Panicum spretum	V	-	-	-	-	-	-	-	-
Panicum verrucosum	V	-	+	+	+	+	+	+	+
Panicum virgatum	V	+	-	+	-	+	+	+	+
Peltandra virginica	V	+	+	+	+	+	+	+	+

Table 3b. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Polygala cruciata	V	-	-	+	-	+	-	+	+
Pontedaria cordata	V	-	-	-	-	+	+	+	-
Potamogeton confervoides	V	+	+	+	+	+	+	+	+
Rhexia mariana	V	-	-	-	-	-	+	-	-
Rhexia virginica	V	+	+	-	+	-	+	+	-
Rhynchospora alba	V	+	-	-	-	-	-	+	-
Sagittaria engelmanniana	V	-	-	-	-	-	+	-	-
Scirpus cyperinus	V	-	-	-	-	-	+	-	-
Scirpus subterminalis	V	+	-	+	+	+	+	+	+
Sparganium americanum	V	+	+	+	+	+	+	+	+
Triadenum virginicum	V	+	-	+	-	+	+	+	-
Viola lanceolata var. lanceolata	V	+	+	+	+	+	+	+	+
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Chamaedaphne calyculata	-	-	-	+	+	-	-	-	-
Clethra alnifolia	-	+	-	-	-	-	-	-	-
Eubotrys racemosa	-	-	-	-	-	-	-	-	+
Hypericum densiflorum	-	+	+	-	-	+	-	+	+
Rubus hispidus	-	+	-	+	-	-	+	+	+
Spiraea tomentosa	V	+	+	-	+	-	+	+	+
Vaccinium corymbosum	-	+	-	-	-	-	+	-	+
Vaccinium macrocarpon	-	+	+	+	-	+	+	+	+

Table 3c. Plant species present at the Batsto River-Quaker Bridge stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis hyemalis	V	-	-	-	+	+	+	-	+
Bartonia virginica	V	-	-	-	-	+	-	+	+
Calamagrostis cinnoides	V	-	-	-	-	+	-	-	-
Carex atlantica	V	-	-	-	-	-	-	-	+
Carex bullata	V	+	+	+	-	-	-	-	-
Carex crinita	V	-	-	+	-	-	-	-	-
Carex folliculata	V	-	-	-	-	-	-	+	+
Carex livida	V	-	-	-	-	+	-	-	-
Carex stricta	V	-	-	+	+	+	+	+	+
Cuscuta sp.	-	+	+	+	+	+	+	-	+
Drosera intermedia	V	-	+	-	-	+	-	+	+
Drosera rotundifolia	V	-	-	-	-	+	-	+	-
Dulichium arundinaceum	V	+	+	+	+	+	+	+	+
Eleocharis flavescens var. olivacea	V	-	+	-	-	-	-	-	-
Eleocharis robbinsii	V	+	+	+	+	-	-	+	-
Eleocharis tenuis	V	-	+	+	+	-	+	+	+
Eriocaulon aquaticum	V	+	+	+	+	+	+	+	+
Eriocaulon compressum	V	-	-	-	+	-	-	+	+
Eriocaulon decangulare	V	-	-	-	-	-	-	+	-
Glyceria obtusa	V	+	+	+	+	+	+	+	+
Habenaria clavellata	V	-	-	-	-	+	-	+	-
Hypericum denticulatum	V	-	-	+	-	-	-	+	-
Iris versicolor	V	-	-	+	-	-	-	-	+
Juncus canadensis	V	-	-	+	-	-	-	-	-
Juncus militaris	V	+	+	+	+	-	+	+	+
Juncus pelocarpus	V	+	+	-	+	-	-	+	+
Leersia oryzoides	-	+	+	+	+	+	+	+	+
Lobelia canbyi	V	-	+	-	-	-	-	-	-
Lobelia nuttallii	V	-	-	-	-	+	-	+	-
Lycopus uniflorus	V	-	-	-	-	-	-	-	+
Lysimachia terrestris	V	+	+	+	+	+	+	+	+
Nymphaea odorata	V	+	-	-	-	-	-	-	+

Table 3c. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Oxypolis rigidior	V	-	-	-	-	+	-	+	+
Panicum ensifolium	V	-	-	-	-	+	-	+	-
Panicum scabriusculum	V	+	+	+	-	+	-	+	+
Peltandra virginica	V	+	+	+	+	+	+	+	+
Polygala cruciata	V	-	-	-	-	+	-	-	-
Pontedaria cordata	V	+	+	+	+	+	+	+	+
Potamogeton confervoides	V	+	+	-	+	+	-	+	-
Rhexia virginica	V	-	+	+	-	+	-	-	+
Sabatia difformis	V	-	-	-	-	+	-	-	-
Sagittaria engelmanniana	V	-	+	-	-	-	-	-	-
Scirpus subterminalis	V	+	+	+	+	+	+	+	+
Sparganium americanum	V	+	+	+	+	+	+	+	+
Triadenum virginicum	V	+	+	+	+	+	+	+	+
Utricularia cornuta	V	-	+	-	-	-	-	-	-
Utricularia radiata	V	-	-	-	-	-	+	-	-
Vernonia noveboracensis	V	-	-	-	-	-	-	+	-
Viola lanceolata var. lanceolata	V	+	+	+	-	+	+	+	+
Viola primulafolia	V	-	-	-	-	-	-	+	-
Xyris difformis	V	-	+	+	-	+	-	-	-
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Alnus serrulata	-	+	+	+	+	-	-	+	+
Betula populifolia	-	+	-	-	-	-	-	-	-
Cephalanthus occidentalis	-	+	-	-	+	-	-	-	-
Chamaecyparis thyoides	-	+	-	-	-	+	+	+	-
Chamaedaphne calyculata	-	-	-	-	-	+	+	+	-
Clethra alnifolia	-	+	+	+	+	+	+	+	+
Eubotrys racemosa	-	-	+	-	+	+	-	+	-
Gaylussacia frondosa	-	-	-	-	-	+	-	+	-
Ilex glabra	-	-	-	-	+	+	-	+	+
Ilex verticillata	V	+	-	-	+	-	-	-	-
Kalmia latifolia	-	-	-	-	-	-	-	+	-
Magnolia virginiana	-	+	-	-	-	+	-	+	-
Nyssa sylvatica	-	-	+	-	+	+	-	+	-
Pinus rigida	-	-	-	-	-	-	-	+	-

Table 3c. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Rhododendron viscosum	-	-	+	-	-	+	-	+	-
Rubus hispidus	-	-	-	-	-	+	-	-	-
Smilax rotundifolia	-	-	+	-	-	+	-	+	-
Smilax walteri	V	-	+	-	+	-	-	-	-
Vaccinium corymbosum	-	-	+	-	-	+	-	+	-
Vaccinium macrocarpon	-	-	+	-	-	+	-	+	-
Viburnum nudum var. nudum	V	+	+	-	+	+	+	+	+

Table 3d. Plant species present at the Clark Branch-Parkdale stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Aster nemoralis	V	-	+	-	+	-	-	+	-
Aster novi-belgii	-	-	+	+	+	-	+	+	+
Bartonia paniculata	V	+	-	+	-	+	+	+	-
Bartonia virginica	V	+	-	-	-	-	-	-	-
Carex bullata	V	-	+	-	-	-	-	-	+
Carex striata	V	+	+	+	+	+	+	+	+
Cladium mariscoides	V	+	-	+	+	-	-	-	-
Cuscuta sp.	-	-	-	-	-	-	-	+	-
Drosera intermedia	V	+	+	+	+	-	+	+	+
Dulichium arundinaceum	V	+	+	+	+	+	+	+	+
Eleocharis flavescens var. olivacea	V	-	+	-	+	-	-	-	-
Eleocharis robbinsii	V	+	+	+	+	+	+	+	+
Eleocharis tenuis	V	+	+	+	-	+	+	+	+
Eleocharis tuberculosa	V	-	+	-	-	-	-	-	-
Eriocaulon aquaticum	V	-	-	-	-	+	+	+	-
Eriocaulon compressum	V	-	-	-	+	-	-	-	-
Glyceria obtusa	V	+	+	+	+	+	+	+	+
Hypericum canadense	V	+	-	-	+	+	-	+	-
Juncus canadensis	V	-	+	-	-	-	-	-	-
Juncus effusus	V	+	+	+	-	-	+	-	+
Lachnanthes caroliniana	V	+	+	+	-	-	-	-	-
Leersia oryzoides	-	+	+	+	+	+	+	+	+
Lycopus amplectans	V	+	-	-	-	-	-	+	-
Lysimachia terrestris	V	+	+	+	+	+	+	+	+
Nuphar variegata	-	+	+	-	-	-	-	-	-
Nymphaea odorata	V	-	-	+	+	+	-	+	+
Osmunda cinnamomea	V	-	-	-	-	-	-	+	+
Panicum longifolium	V	-	+	-	+	-	-	+	-
Panicum virgatum	V	-	-	-	-	-	-	+	-
Peltandra virginica	V	+	+	+	+	+	+	+	+
Pontedaria cordata	V	+	+	+	+	+	+	+	+
Rhexia virginica	V	-	-	+	-	-	+	+	-

Table 3d. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Rhynchospora capitellata	V	-	+	-	-	-	-	-	-
Sagittaria engelmanniana	V	+	+	+	+	+	+	+	+
Scirpus subterminalis	V	+	+	+	+	+	+	+	+
Sparganium americanum	V	+	+	+	+	+	+	+	+
Triadenum virginicum	V	+	+	+	+	+	+	+	+
Viola lanceolata var. lanceolata	V	+	+	-	+	+	+	+	-
Woodwardia areolata	-	+	+	+	+	+	-	-	-
Woodwardia virginica	-	+	+	+	+	+	+	+	+
Xyris difformis	V	-	-	-	-	+	-	-	-
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Aronia arbutifolia	-	-	-	-	-	-	-	-	+
Chamaecyparis thyoides	-	+	+	-	+	+	+	+	+
Chamaedaphne calyculata	-	+	+	+	+	+	+	+	+
Clethra alnifolia	-	+	+	+	+	+	+	+	+
Eubotrys racemosa	-	-	-	-	-	-	+	+	+
Hypericum densiflorum	-	-	+	+	+	-	-	-	-
Lyonia ligustrina	-	+	+	-	-	-	-	-	+
Rhododendron viscosum	-	+	-	-	+	-	-	-	-
Rubus hispidus	V	+	+	+	-	-	-	+	+
Smilax rotundifolia	-	+	-	-	-	-	-	+	-
Smilax walteri	-	-	-	-	+	-	+	-	-
Toxicodendron radicans	-	-	-	-	-	-	-	-	+
Vaccinium corymbosum	-	-	+	+	+	+	+	+	+
Vaccinium macrocarpon	-	+	-	+	-	-	-	+	-

Table 3e. Plant species present at the Cedar Creek-Double Trouble stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Andropogon virginicus var. abbreviatus	V	+	+	+	+	+	+	+	+
Andropogon virginicus var. virginicus	V	-	-	-	+	-	+	-	-
Aster nemoralis	V	+	+	+	+	+	+	+	+
Aster novi-belgii	V	-	+	+	-	-	+	+	-
Bartonia paniculata	V	+	-	-	-	-	-	-	-
Bartonia virginica	V	+	+	+	+	+	+	+	+
Carex albolutescens	-	-	-	+	-	-	-	-	-
Carex atlantica	V	-	+	+	+	+	-	+	-
Carex canescens	V	-	-	+	-	-	-	+	-
Carex exilis	V	-	-	-	-	+	-	-	-
Carex striata	V	-	-	-	+	-	+	-	+
Cuscuta sp.	-	-	-	+	-	-	-	+	-
Cyperus dentatus	V	-	-	+	+	-	+	+	-
Drosera intermedia	V	+	+	+	+	+	+	+	-
Drosera rotundifolia	V	+	+	+	-	-	-	-	+
Dulichium arundinaceum	V	+	+	+	+	+	+	+	+
Eleocharis flavescens var. olivacea	V	+	-	-	+	+	-	+	+
Eleocharis robbinsii	V	+	+	+	+	+	-	+	+
Eleocharis tenuis	V	-	-	+	+	-	+	-	+
Eleocharis tuberculosa	V	+	+	-	+	+	+	+	+
Eriocaulon aquaticum	V	+	+	+	-	+	+	+	+
Eriophorum virginicum	V	-	-	-	-	-	-	+	-
Eupatorium pilosum	V	-	-	-	-	+	-	-	+
Eupatorium resinosum	V	+	+	+	+	+	+	+	+
Euthamia tenuifolia	V	+	+	+	+	+	+	+	+
Glyceria obtusa	V	+	+	+	+	+	+	+	+
Hypericum canadense	V	+	+	-	+	-	-	-	-
Hypericum denticulatum	V	-	-	+	-	+	-	-	-
Hypericum mutilum	V	-	+	-	-	-	-	+	-
Iris versicolor	V	-	+	-	+	-	-	-	-
Juncus canadensis	V	+	+	+	+	+	+	+	+
Juncus effusus	V	-	-	-	+	-	-	-	+

Table 3e. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Juncus militaris	V	+	+	+	+	+	+	+	+
Juncus pelocarpus	V	+	+	+	+	+	+	+	+
Lachnanthes caroliniana	V	+	+	+	+	+	+	+	+
Leersia oryzoides	V	-	+	+	+	+	+	+	+
Lobelia nuttallii	V	-	+	+	+	+	+	+	-
Lysimachia terrestris	-	+	+	-	+	+	+	+	-
Muhlenbergia uniflora	V	-	+	+	+	+	-	+	-
Nuphar variegata	V	+	+	+	+	+	-	+	-
Nymphaea odorata	V	+	-	+	+	+	-	+	+
Orontium aquaticum	V	+	-	+	+	+	+	+	-
Osmunda cinnamomea	-	+	-	+	-	-	-	-	-
Osmunda regalis	V	+	-	+	-	-	-	-	-
Oxypolis rigidior	V	-	-	+	-	-	-	-	-
Panicum longifolium	V	+	+	+	+	+	+	+	+
Panicum spretum	V	+	-	+	+	-	+	-	+
Panicum verrucosum	V	-	+	+	+	-	+	+	+
Panicum virgatum	-	-	-	-	+	-	+	-	+
Peltandra virginica	V	+	+	+	+	+	+	+	+
Pogonia ophioglossoides	V	+	+	+	+	+	+	+	+
Polygala cruciata	V	-	+	+	+	+	+	+	+
Pontedaria cordata	V	+	+	+	+	+	+	+	-
Potamogeton confervoides	V	+	+	+	+	+	+	+	+
Potamogeton oakesianus	V	-	-	-	-	+	+	-	+
Rhexia virginica	V	+	+	-	+	+	+	+	+
Rhynchospora alba	V	+	+	+	+	+	+	+	+
Rhynchospora chalarocephala	V	-	+	-	+	+	+	+	-
Rhynchospora fusca	V	-	+	+	-	-	-	-	+
Sabatia difformis	V	+	+	-	+	-	+	+	+
Sagittaria engelmanniana	V	+	+	+	+	+	+	+	+
Sarracenia purpurea	-	+	-	-	-	-	-	-	-
Scirpus cyperinus	-	-	-	-	-	-	-	+	+
Scirpus subterminalis	V	+	+	+	+	+	+	+	+
Smilax herbacea	V	-	-	-	-	-	+	-	-
Sparganium americanum	V	+	+	-	+	+	+	-	+
Triadenum virginicum	V	+	+	+	+	+	+	+	+

Table 3e. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Utricularia fibrosa	V	+	-	-	-	+	-	-	-
Viola lanceolata var. lanceolata	-	-	+	-	+	-	+	-	-
Woodwardia areolata	-	-	-	-	-	+	+	+	+
Woodwardia virginica	V	+	-	+	-	+	+	-	+
Xyris difformis	V	+	-	+	+	-	+	+	+
Zizania aquatica	V	+	-	+	+	+	-	+	-
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Aronia arbutifolia	-	-	+	-	-	-	-	-	-
Cephalanthus occidentalis	-	-	-	+	-	-	-	-	+
Chamaecyparis thyoides	-	+	+	+	+	+	+	+	+
Chamaedaphne calyculata	-	-	+	+	+	-	+	-	+
Clethra alnifolia	-	+	+	+	-	+	+	+	+
Eubotrys racemosa	-	+	-	-	-	-	-	-	-
Gaylussacia dumosa	-	-	-	-	-	-	-	-	+
Hypericum densiflorum	-	+	+	+	+	+	+	+	+
Ilex glabra	-	-	-	-	-	-	-	-	+
Kalmia angustifolia	-	+	+	-	-	-	+	+	-
Lyonia mariana	-	+	-	-	-	-	-	-	-
Nyssa sylvatica	-	-	-	-	-	+	-	-	-
Rhododendron viscosum	-	+	-	+	-	-	-	-	+
Rubus hispidus	-	-	+	+	+	+	+	+	+
Sassafras albidum	-	-	-	-	-	-	+	-	-
Smilax glauca	-	+	-	+	-	-	+	-	-
Smilax rotundifolia	-	-	+	+	+	+	+	+	+
Spiraea tomentosa	-	-	-	+	-	+	-	-	+
Toxicodendron radicans	-	-	-	+	-	+	-	-	-
Vaccinium corymbosum	-	+	+	+	+	+	+	-	+
Vaccinium macrocarpon	V	+	+	+	+	+	+	+	+

Table 3f. Plant species present at the East Branch Bass River-Stage Rd. stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Arethusa bulbosa	V	-	-	-	+	-	+	-	+
Aster nemoralis	V	-	-	+	+	+	+	+	-
Aster novi-belgii	V	-	-	-	+	-	-	-	-
Bartonia paniculata	V	+	-	+	-	+	-	-	+
Bartonia virginica	V	-	-	-	-	-	+	-	-
Carex atlantica	V	-	-	+	+	+	-	+	+
Carex collinsii	V	-	-	+	-	+	+	-	-
Carex trisperma	V	-	-	-	-	+	-	-	-
Cuscuta sp.	-	-	-	-	-	-	+	-	-
Drosera intermedia	V	-	-	+	-	+	-	+	-
Drosera rotundifolia	V	+	-	+	+	+	+	+	+
Dulichium arundinaceum	V	+	+	-	-	+	-	+	-
Eleocharis flavescens var. olivacea	V	-	-	-	-	+	-	+	-
Eriocaulon aquaticum	V	+	+	+	-	+	+	+	-
Glyceria obtusa	V	+	+	-	-	+	-	+	-
Juncus pelocarpus	V	-	-	-	+	-	-	-	-
Leersia oryzoides	-	-	-	-	-	+	-	-	-
Lysimachia terrestris	-	+	-	-	-	-	-	-	-
Mitchella repens	V	-	+	+	+	+	+	+	+
Nuphar variegata	V	+	+	+	-	+	-	-	-
Nymphaea odorata	V	+	+	-	-	-	-	-	-
Orontium aquaticum	V	-	-	-	-	-	+	-	-
Osmunda cinnamomea	V	+	+	+	+	-	-	+	+
Osmunda regalis	V	+	+	+	+	+	+	+	+
Oxypolis rigidior	V	-	-	-	-	-	+	-	-
Panicum virgatum	-	+	-	-	-	-	-	-	-
Peltandra virginica	V	+	+	+	+	+	+	+	+
Pogonia ophioglossoides	V	-	-	-	+	+	+	+	+
Potamogeton confervoides	V	-	-	-	+	+	+	+	+
Sabatia difformis	V	+	-	-	+	+	+	+	-
Sarracenia purpurea	V	-	-	-	+	+	+	-	-
Schizaea pusilla	-	-	-	-	-	-	-	+	-
Scirpus cyperinus	-	+	-	-	-	-	-	-	-

Table 3f. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Scirpus subterminalis	V	+	+	+	+	+	+	+	+
Sparganium americanum	V	-	+	-	-	+	+	+	-
Triadenum virginicum	V	+	-	-	+	+	+	+	+
Trientalis borealis	V	-	-	+	+	-	-	-	-
Utricularia fibrosa	V	+	+	-	+	+	+	+	+
Viola lanceolata var. lanceolata	-	-	-	+	-	-	-	-	-
Woodwardia virginica	V	-	-	+	-	+	-	+	-
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	-	+
Amelanchier canadensis	-	-	+	-	-	+	-	-	-
Aronia arbutifolia	-	+	-	+	+	-	+	-	-
Chamaecyparis thyoides	-	+	+	+	+	+	+	+	+
Chamaedaphne calyculata	-	+	+	+	+	+	+	+	+
Clethra alnifolia	-	+	+	+	+	+	+	+	+
Eubotrys racemosa	-	+	+	+	+	+	+	+	-
Gaylussacia baccata	-	-	-	+	-	+	-	-	-
Gaylussacia dumosa	-	-	-	+	-	+	+	+	-
Gaylussacia frondosa	-	-	-	+	+	+	+	+	+
Ilex glabra	-	-	+	+	-	+	-	+	-
Ilex laevigata	-	-	-	+	+	+	+	-	-
Kalmia angustifolia	-	+	+	+	+	+	+	+	+
Kalmia latifolia	-	-	+	-	+	-	-	-	-
Lyonia ligustrina	-	+	-	-	-	-	-	-	-
Magnolia virginiana	-	-	-	+	-	-	-	-	-
Myrica pensylvanica	V	-	-	+	-	+	-	+	+
Parthenocissus quinquefolia	-	-	+	-	-	-	-	-	-
Pinus strobus	-	-	-	-	-	-	-	+	-
Rhododendron viscosum	V	+	+	+	+	+	+	+	+
Rubus hispidus	-	-	-	+	-	-	-	-	-
Smilax glauca	-	+	+	-	-	-	-	-	-
Smilax laurifolia	V	-	-	-	+	+	-	-	-
Smilax rotundifolia	-	+	-	-	-	-	-	-	-
Vaccinium corymbosum	-	-	+	+	+	+	+	+	-
Vaccinium macrocarpon	-	+	-	-	-	-	-	+	-
Viburnum nudum var. nudum	-	-	-	+	-	+	-	+	-
Vitis labrusca	-	-	+	-	-	-	-	-	-

Table 3g. Plant species present at the Great Swamp Branch-Middle Rd. stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R *	4L	4R
Herbaceous plants									
Apios americana	V	-	-	-	+	-	-	-	-
Asclepias incarnata	V	-	-	-	+	-	-	-	-
Aster novi-belgii	-	+	-	+	-	-	-	-	+
Bidens frondosa	V	+	+	-	+	-	-	+	-
Boehmeria cylindrica	V	+	+	+	+	+	+	+	+
Callitriche heterophylla	V	+	+	+	+	+	+	+	+
Carex lurida	V	-	-	-	-	-	-	-	+
Cuscuta sp.	-	+	+	+	+	+	+	+	+
Cyperus erythrorhizos	V	+	-	+	+	-	+	+	+
Cyperus esculentus	V	-	+	-	+	-	+	-	-
Decodon verticillatus	V	+	+	+	+	+	+	+	+
Eleocharis acicularis	V	+	+	+	+	+	+	+	+
Eleocharis ovata	V	-	-	+	-	-	-	+	-
Eupatorium dubium	V	+	-	-	-	+	-	+	-
Galium tinctorium	V	+	+	+	+	+	+	+	+
Glyceria obtusa	V	+	+	+	+	+	+	+	+
Hypericum mutilum	V	+	+	+	+	+	+	+	+
Impatiens capensis	V	+	+	+	+	+	+	+	+
Juncus acuminatus	V	-	-	-	+	-	-	-	-
Juncus effusus	-	+	+	-	-	+	-	+	+
Leersia oryzoides	V	+	+	+	+	+	+	+	+
Lindernia dubia	V	-	-	-	-	-	+	-	-
Ludwigia palustris	V	+	+	+	-	+	+	+	+
Lycopus uniflorus	V	-	+	-	-	-	-	+	-
Lycopus virginicus	V	+	+	+	+	+	+	+	+
Lysimachia terrestris	-	-	-	-	+	-	-	+	-
Mikania scandens	V	+	+	+	+	+	+	+	+
Onoclea sensibilis	V	+	+	+	+	+	+	+	+
Panicum clandestinum	V	-	+	-	-	-	-	-	+
Peltandra virginica	V	+	+	+	+	+	+	+	+
Polygonum arifolium	V	+	+	+	+	+	+	+	+
Polygonum hydropiperoides var. setaceum	V	+	+	+	+	+	+	+	+

Table 3g. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Polygonum sagittatum	V	+	+	+	+	+	+	+	+
Potamogeton epihydrus	V	-	-	-	-	-	+	+	-
Potamogeton pusillus	V	-	+	-	-	-	+	+	+
Rhexia virginica	V	-	-	-	-	-	-	+	-
Scutellaria lateriflora	V	+	-	-	+	-	-	+	-
Solidago rugosa	V	+	-	+	-	-	-	+	-
Sparganium americanum	V	+	+	+	+	+	+	+	+
Thelypteris palustris	V	+	+	+	+	+	+	+	+
Typha latifolia	-	-	-	-	-	+	-	+	+
Utricularia radiata	V	+	-	-	-	-	-	-	-
Woodwardia areolata	V	-	+	-	+	+	+	+	+
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Cephalanthus occidentalis	-	+	+	+	+	+	+	-	-
Clethra alnifolia	V	+	+	+	+	+	+	+	+
Eubotrys racemosa	-	-	+	-	-	+	+	+	+
Ilex verticillata	V	-	+	+	+	+	+	-	-
Nyssa sylvatica	-	-	-	-	-	-	-	+	+
Parthenocissus quinquefolia	-	-	+	+	+	+	+	+	+
Rubus sp.	-	-	+	+	+	-	+	+	-
Sambucus canadensis	V	-	+	+	+	+	+	+	-
Smilax rotundifolia	-	+	+	+	+	+	+	+	+
Spiraea tomentosa	V	-	+	+	-	-	-	-	-
Vaccinium corymbosum	-	+	+	-	-	+	-	-	-
Vitis labrusca	-	-	-	-	+	+	+	+	+

Table 3h. Plant species present at the Muskingum Brook-Tuckerton Rd. stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis hyemalis	V	-	-	+	-	-	-	-	-
Alisma subcordatum	V	-	+	-	-	-	-	-	-
Ambrosia artemisiifolia	V	-	-	-	-	-	-	-	+
Apios americana	V	-	-	-	+	-	-	-	-
Asclepias incarnata	V	+	+	+	-	+	+	+	+
Aster vimineus	V	+	-	-	-	-	-	-	-
Bidens connata	V	+	+	-	+	-	+	-	-
Bidens discoidea	V	-	-	+	-	+	+	+	+
Callitriche heterophylla	V	+	+	+	+	+	+	+	+
Cardamine pensylvanica	V	+	+	-	-	-	-	-	+
Carex lurida	V	-	-	-	+	+	+	+	+
Carex scoparia	V	+	+	-	-	-	-	-	-
Carex stipata	V	+	-	+	+	-	+	+	-
Cinna arundinacea	V	-	+	+	+	+	-	+	+
Cyperus strigosus	V	+	+	+	+	+	+	+	+
Decodon verticillatus	V	-	-	+	-	+	-	-	+
Dulichium arundinaceum	V	-	-	-	-	+	-	-	-
Echinochloa muricata	V	+	+	+	+	-	-	-	-
Eleocharis ovata	V	+	+	+	+	+	+	+	+
Epilobium coloratum	V	+	-	+	-	+	+	+	-
Erechtites hieracifolia	V	+	+	+	+	+	+	+	+
Erigeron annuus	V	+	-	-	-	-	-	-	-
Erigeron canadensis	V	+	-	+	-	-	-	-	-
Eupatorium perfoliatum	V	+	+	-	+	+	-	-	-
Galium tinctorium	V	+	+	+	+	+	+	+	+
Hibiscus moscheutos	V	+	+	+	+	-	+	+	-
Hypericum mutilum	V	+	+	+	+	-	+	-	+
Impatiens capensis	V	+	+	+	+	+	+	+	+
Juncus canadensis	V	-	+	+	+	+	+	-	+
Juncus effusus	V	+	+	+	+	+	+	+	+
Leersia oryzoides	V	+	+	+	+	+	+	+	+
Lemna sp.	-	+	+	+	+	+	+	+	+

Table 3h. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Lobelia cardinalis	V	-	-	-	-	+	-	-	-
Ludwigia palustris	V	+	+	+	+	+	+	+	+
Lycopus uniflorus	V	-	+	-	-	-	+	-	-
Lycopus virginicus	V	+	-	-	-	-	-	-	-
Lysimachia terrestris	-	-	+	-	-	-	-	-	-
Lythrum salicaria	V	+	+	-	+	+	+	-	-
Microstegium vimineum	V	+	+	+	+	+	+	+	+
Mikania scandens	V	+	+	+	+	+	-	-	-
Nuphar variegata	-	-	+	-	-	-	-	-	-
Onoclea sensibilis	-	-	+	+	-	-	-	-	-
Panicum verrucosum	-	+	+	+	+	-	+	-	-
Peltandra virginica	V	+	+	+	+	+	+	+	+
Phalaris arundinacea	V	+	-	-	-	-	-	-	-
Pilea pumila	V	+	+	-	+	+	+	+	+
Polygonum arifolium	V	+	+	+	+	+	+	+	+
Polygonum hydropiperoides var. setaceum	V	+	+	+	+	+	+	+	+
Polygonum punctatum	V	+	+	+	+	+	+	+	+
Polygonum sagittatum	V	+	+	+	+	+	+	+	+
Potamogeton epihydrus	V	+	+	+	+	+	+	+	+
Rhynchospora alba	V	-	+	+	+	+	-	+	-
Rorippa palustris	V	-	-	-	-	-	+	-	-
Scirpus cyperinus	V	+	+	+	+	+	+	+	+
Solidago canadensis	V	-	-	-	-	-	-	-	+
Sparganium americanum	V	+	+	+	+	+	+	+	+
Thelypteris palustris	V	+	-	+	-	-	-	-	-
Triadenum virginicum	-	-	+	-	-	-	-	-	-
Typha latifolia	-	+	+	+	+	+	+	+	+
Verbena hastata	V	-	-	+	-	-	-	+	+
Viola lanceolata var. lanceolata	V	-	+	-	-	-	-	-	-
Woodwardia areolata	-	-	-	-	-	-	-	+	-
Woody plants									
Alnus serrulata	-	+	+	+	+	+	+	-	-
Cephalanthus occidentalis	-	+	-	+	-	-	-	+	+
Rosa multiflora	-	-	-	+	-	-	-	-	-
Vitis labrusca	-	-	-	-	-	-	-	+	-

Table 3i. Plant species present at the Mullica River-Constable Bridge stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis hyemalis	-	-	-	-	-	+	-	-	-
Andropogon virginicus var. abbreviatus	-	-	-	-	-	+	-	+	+
Bartonia virginica	V	-	-	-	-	-	+	-	-
Calamagrostis cinnoides	V	+	-	-	-	-	-	-	+
Carex bullata	V	-	-	+	-	-	-	-	-
Carex exilis	V	-	+	-	-	-	-	-	-
Carex stricta	V	-	-	-	+	-	-	-	+
Cladium mariscoides	V	-	-	-	+	+	-	+	-
Cyperus dentatus	V	-	-	-	-	+	-	+	+
Drosera filiformis	V	+	+	+	+	+	+	+	-
Drosera intermedia	V	+	+	+	+	+	+	+	+
Dulichium arundinaceum	-	+	+	+	-	+	+	-	+
Eleocharis flavescens var. olivacea	V	-	-	-	+	+	-	-	-
Eleocharis robbinsii	V	+	+	+	-	+	+	-	+
Eleocharis tenuis	V	-	-	-	+	+	+	+	-
Eleocharis tuberculosa	V	-	-	-	-	-	-	+	-
Eriocaulon aquaticum	V	+	+	+	+	+	+	+	+
Eriocaulon decangulare	V	+	+	+	+	+	+	+	+
Euthamia tenuifolia	V	-	+	+	+	+	+	+	+
Hypericum canadense	V	-	-	-	-	+	-	+	+
Hypericum denticulatum	V	+	+	+	+	+	+	+	+
Iris prismatica	V	-	-	-	-	-	-	+	-
Juncus canadensis	V	+	-	-	+	+	-	+	+
Juncus militaris	-	+	+	+	+	+	+	+	+
Juncus pelocarpus	V	-	-	-	+	+	-	+	-
Lachnanthes caroliniana	-	-	+	+	+	-	+	+	+
Lobelia canbyi	V	-	-	-	-	-	+	+	-
Lobelia nuttallii	V	-	+	-	+	-	-	-	+
Lophiola aurea	V	-	-	-	+	+	-	+	-
Lycopus virginicus	-	-	-	+	-	-	-	-	-
Lysimachia terrestris	V	+	+	+	+	+	+	+	+
Muhlenbergia torreyana	V	+	+	+	+	+	+	+	+

Table 3i. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Orontium aquaticum	V	+	+	+	+	+	+	+	+
Osmunda cinnamomea	-	+	-	+	-	-	-	-	-
Oxypolis rigidior	-	+	-	-	-	-	-	-	-
Panicum longifolium	V	+	-	+	+	-	-	+	-
Panicum scabriusculum	V	+	-	+	+	+	+	+	+
Panicum virgatum	-	+	+	+	+	+	+	+	+
Peltandra virginica	-	-	-	+	-	-	-	-	-
Pogonia ophioglossoides	V	+	+	-	+	+	-	-	-
Polygala cruciata	V	-	-	-	+	+	-	+	-
Rhexia virginica	V	+	+	+	+	+	-	+	+
Rhynchospora alba	V	-	-	-	-	-	-	+	-
Rhynchospora fusca	V	+	-	-	-	-	-	-	-
Sabatia difformis	V	+	+	+	+	+	+	+	+
Sarracenia purpurea	-	-	-	-	+	-	-	-	-
Schizachyrium scoparium	V	-	-	+	-	-	+	-	-
Scirpus subterminalis	V	+	+	+	+	+	+	+	+
Triadenum virginicum	-	-	+	-	+	-	+	-	-
Utricularia cornuta	V	+	-	+	+	-	+	+	+
Viola lanceolata var. lanceolata	V	+	+	+	+	+	+	+	+
Xyris difformis	V	+	-	+	+	-	+	+	+
Woody plants									
Acer rubrum	-	+	+	+	-	+	+	+	+
Aronia arbutifolia	-	-	-	-	-	+	-	-	-
Chamaecyparis thyoides	-	+	+	+	+	+	+	+	+
Chamaedaphne calyculata	-	+	-	+	-	-	-	-	-
Clethra alnifolia	-	+	+	+	+	+	+	+	+
Diospyros virginiana	-	-	-	-	-	-	-	+	-
Eubotrys racemosa	-	+	-	-	-	-	-	-	-
Hypericum densiflorum	-	-	-	+	-	+	-	+	-
Ilex glabra	-	+	+	+	+	+	+	-	-
Kalmia angustifolia	-	-	-	+	-	+	-	-	-
Lyonia mariana	-	+	-	+	-	+	+	-	-
Pinus rigida	-	+	-	+	-	+	-	-	+
Vaccinium corymbosum	-	-	-	+	-	+	-	-	-
Vaccinium macrocarpon	-	+	+	+	+	+	+	+	+

Table 3j. Plant species present at the Mullica River-Dike stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Andropogon virginicus var. abbreviatus	-	-	-	-	-	-	+	-	-
Aster nemoralis	V	-	-	-	+	-	-	-	-
Bartonia paniculata	V	+	+	+	+	+	+	+	+
Bartonia virginica	V	-	-	-	-	-	-	-	+
Carex atlantica	V	-	-	-	-	-	-	-	+
Carex bullata	V	+	+	-	+	-	-	+	-
Carex canescens	V	+	-	-	-	-	-	-	-
Carex folliculata	V	-	-	-	-	-	+	-	-
Carex stricta	V	+	+	+	+	+	+	+	+
Cuscuta sp.	-	-	+	-	+	-	-	+	+
Drosera intermedia	V	+	+	+	+	+	+	-	+
Drosera rotundifolia	V	+	+	+	+	-	+	-	+
Dulichium arundinaceum	-	+	-	+	+	+	+	-	+
Eleocharis flavescens var. olivacea	V	+	-	+	-	+	+	+	+
Eleocharis tenuis	V	+	+	+	+	+	+	+	+
Eleocharis tuberculosa	V	-	-	-	+	+	+	-	-
Glyceria obtusa	V	+	+	+	+	+	+	+	+
Iris versicolor	-	-	-	-	+	-	-	+	-
Juncus canadensis	V	-	+	+	+	+	+	+	-
Juncus effusus	V	+	-	-	-	+	-	+	-
Juncus pelocarpus	V	+	-	+	+	-	+	-	+
Leersia oryzoides	V	+	+	+	+	+	+	+	+
Lysimachia terrestris	-	+	+	+	+	+	+	+	+
Muhlenbergia uniflora	V	-	-	-	-	-	+	-	-
Nymphaea odorata	-	-	-	-	-	-	+	-	+
Osmunda cinnamomea	-	-	-	-	+	-	-	-	-
Panicum dichotomum	V	-	-	-	+	-	-	-	-
Panicum longifolium	V	+	-	+	+	+	+	+	+
Panicum spretum	V	+	+	-	+	-	+	-	-
Panicum verrucosum	V	+	-	+	-	+	-	-	-
Panicum virgatum	V	+	-	-	-	-	-	-	-
Peltandra virginica	V	+	+	+	+	+	+	+	+

Table 3j. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Pogonia ophioglossoides	V	-	-	-	-	-	+	-	+
Polygala cruciata	V	-	-	-	+	-	-	-	-
Pontedaria cordata	-	-	-	+	-	-	-	-	-
Rhexia virginica	V	+	+	+	+	+	+	+	+
Rhynchospora alba	V	-	-	-	-	-	+	-	-
Sabatia difformis	V	-	+	-	+	-	+	-	-
Sarracenia purpurea	-	-	-	-	+	-	+	-	-
Schizachyrium scoparium	-	-	-	-	-	-	+	-	-
Scirpus cyperinus	-	+	-	-	+	+	-	+	-
Sparganium americanum	V	+	+	+	+	+	+	+	+
Triadenum virginicum	V	+	+	+	+	+	+	+	+
Viola lanceolata var. lanceolata	V	+	+	+	+	+	+	+	+
Xyris difformis	V	-	+	+	+	-	+	-	-
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Cephalanthus occidentalis	-	-	-	-	-	-	-	-	+
Chamaecyparis thyoides	-	+	+	+	+	+	+	-	-
Chamaedaphne calyculata	-	+	+	+	+	-	+	+	+
Clethra alnifolia	-	-	+	-	+	-	+	-	-
Hypericum densiflorum	-	-	+	-	+	-	-	-	-
Ilex glabra	-	-	-	-	-	-	+	-	-
Ilex opaca	-	-	+	-	+	-	+	-	-
Kalmia angustifolia	-	-	-	-	+	-	+	-	-
Vaccinium corymbosum	-	+	+	+	-	+	-	+	-
Vaccinium macrocarpon	-	+	+	+	+	+	+	+	+

Table 3k. Plant species present at the Mullica River-Jackson Rd. stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Carex stricta	V	+	+	+	+	+	+	+	+
Cuscuta sp.	-	+	+	+	+	+	-	+	-
Dulichium arundinaceum	-	+	+	+	-	-	-	-	-
Glyceria obtusa	V	+	-	+	-	+	+	+	-
Leersia oryzoides	-	+	+	+	+	+	+	+	+
Lysimachia terrestris	-	+	+	-	-	+	-	-	-
Panicum verrucosum	V	+	-	-	-	-	-	-	-
Peltandra virginica	-	+	-	-	-	-	-	-	-
Triadenum virginicum	V	+	-	-	-	-	-	-	-
Woodwardia virginica	-	-	-	-	-	-	-	+	+
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Aronia arbutifolia	-	-	+	-	-	-	-	-	-
Cephalanthus occidentalis	-	+	+	+	+	+	+	-	+
Chamaecyparis thyoides	-	-	-	-	-	-	+	-	+
Chamaedaphne calyculata	-	-	+	-	+	-	-	-	-
Clethra alnifolia	-	+	+	+	+	+	+	+	+
Eubotrys racemosa	-	+	+	+	+	+	+	+	+
Gaylussacia frondosa	-	-	-	-	-	-	-	+	-
Ilex verticillata	-	+	+	+	+	+	+	-	-
Itea virginica	-	-	-	-	-	-	-	-	+
Lyonia ligustrina	-	+	-	-	-	-	+	-	-
Magnolia virginiana	V	-	-	-	-	-	+	-	-
Nyssa sylvatica	V	-	-	+	+	+	+	+	+
Rhododendron viscosum	-	-	-	+	+	+	+	+	+
Smilax rotundifolia	-	-	+	+	+	-	+	+	-
Vaccinium corymbosum	-	+	-	+	+	+	+	+	+
Vaccinium macrocarpon	-	-	-	-	-	-	-	+	-
Viburnum nudum var. nudum	-	-	-	-	-	-	-	-	+

Table 31. Plant species present at the Mill Creek-Rt. 72 stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis stolonifera	V	-	-	-	-	-	-	-	+
Aster nemoralis	V	-	+	+	+	-	+	+	+
Aster novi-belgii	V	-	+	+	-	-	+	+	+
Carex atlantica	V	+	+	+	+	+	+	+	+
Carex collinsii	V	-	-	-	-	-	-	+	-
Carex folliculata	V	-	-	+	+	-	-	-	+
Carex pensylvanica	V	-	-	-	-	-	-	-	+
Carex striata	V	-	-	+	-	+	+	+	-
Carex trisperma	V	-	+	-	-	-	-	+	+
Cuscuta sp.	-	-	-	+	-	-	-	-	-
Drosera intermedia	V	+	+	-	+	-	-	+	-
Drosera rotundifolia	V	+	+	+	+	-	+	+	-
Eleocharis flavescens var. olivacea	V	-	-	+	-	-	-	-	+
Eriocaulon aquaticum	V	+	+	+	+	+	+	+	+
Glyceria obtusa	V	-	+	+	+	+	+	+	+
Iris versicolor	V	-	+	-	+	-	+	-	+
Juncus canadensis	V	-	+	-	-	-	-	-	-
Juncus effusus	-	-	-	-	-	+	-	+	-
Juncus militaris	V	+	+	-	-	-	+	-	-
Juncus pelocarpus	V	+	+	+	+	+	+	+	+
Leersia oryzoides	-	-	+	-	-	-	-	-	-
Nuphar variegata	V	+	-	+	-	+	-	-	-
Nymphaea odorata	-	-	-	-	-	+	-	-	-
Orontium aquaticum	V	+	+	-	+	-	+	-	+
Osmunda cinnamomea	V	+	+	+	-	+	+	+	+
Osmunda regalis	V	-	-	+	+	-	-	+	+
Oxypolis rigidior	V	-	-	-	-	-	-	+	-
Pogonia ophioglossoides	V	-	-	-	-	-	-	+	+
Potamogeton confervoides	V	+	+	+	+	+	+	+	-
Rhynchospora alba	V	-	+	-	-	-	+	-	+
Sarracenia purpurea	V	+	+	+	+	-	-	-	+
Scirpus subterminalis	V	+	-	+	+	+	+	-	-

Table 31. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Solidago erecta	V	-	-	-	-	-	-	-	+
Typha angustifolia	-	-	-	-	-	-	-	-	+
Utricularia biflora	V	-	-	-	-	-	-	-	+
Utricularia fibrosa	V	-	+	-	+	+	+	+	+
Utricularia radiata	V	-	-	-	-	-	-	-	-
Woodwardia virginica	-	+	-	+	-	+	-	-	+
Xyris difformis	V	-	-	-	-	-	-	-	+
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Alnus serrulata	-	+	+	+	+	-	+	-	+
Amelanchier canadensis	-	+	+	+	-	-	-	+	-
Aronia arbutifolia	-	+	-	+	+	-	-	+	-
Betula populifolia	-	+	-	+	-	+	-	-	-
Chamaecyparis thyoides	-	+	+	+	+	+	+	+	+
Chamaedaphne calyculata	-	+	+	+	+	+	+	+	+
Clethra alnifolia	-	+	+	+	+	+	+	+	+
Eubotrys racemosa	-	+	+	+	+	+	-	+	+
Gaultheria procumbens	-	+	-	+	-	-	-	+	+
Gaylussacia dumosa	V	+	+	+	+	+	-	+	+
Gaylussacia frondosa	-	+	+	+	+	+	+	+	+
Ilex glabra	-	+	+	+	+	+	+	+	+
Ilex opaca	-	-	-	+	-	-	-	-	-
Ilex verticillata	-	+	+	+	-	+	-	+	-
Kalmia angustifolia	V	+	+	+	+	+	+	+	+
Magnolia virginiana	-	+	+	+	+	+	-	+	+
Myrica pensylvanica	V	-	+	+	+	-	+	-	+
Nyssa sylvatica	-	+	-	+	-	+	-	+	-
Pinus rigida	-	+	-	+	-	+	-	+	-
Quercus ilicifolia	-	-	-	-	+	-	-	-	+
Rhododendron viscosum	-	+	+	+	+	+	+	+	-
Rubus hispidus	V	+	+	+	+	+	+	+	+
Smilax glauca	-	+	-	+	-	+	-	+	+
Smilax rotundifolia	-	-	+	-	-	+	-	-	+
Vaccinium corymbosum	-	+	-	+	-	-	-	-	+

Table 3m. Plant species present at the Nescochague Creek-Pleasant Mills stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis hyemalis	-	-	+	-	-	-	-	-	-
Apios americana	V	-	+	-	+	-	-	-	+
Aster novi-belgii	-	-	+	-	-	-	-	-	+
Bidens frondosa	V	-	+	-	-	-	-	-	+
Carex albolutescens	V	-	-	+	-	-	+	-	-
Carex pensylvanica	V	-	-	-	+	-	+	-	-
Cuscuta sp.	-	-	-	-	+	-	-	-	+
Cyperus retrorsus	V	-	-	+	-	-	-	-	-
Dioscorea villosa	-	-	-	-	-	-	+	-	-
Drosera intermedia	V	-	+	-	-	-	-	-	-
Dulichium arundinaceum	V	-	+	-	-	-	-	-	-
Eleocharis flavescens var. olivacea	V	+	-	-	-	-	-	-	-
Eleocharis tenuis	V	+	+	+	+	-	+	-	+
Erechtites hieracifolia	V	-	-	+	-	-	-	-	-
Eupatorium dubium	V	-	+	-	-	-	-	-	-
Euthamia tenuifolia	V	+	+	-	+	-	-	-	+
Glyceria obtusa	V	-	-	+	+	-	-	-	-
Hypericum canadense	V	-	+	-	-	-	-	-	-
Hypericum denticulatum	V	-	+	+	+	-	+	-	+
Iris prismatica	V	-	-	-	-	-	-	-	+
Juncus canadensis	V	+	+	-	-	-	-	-	-
Juncus effusus	V	-	-	+	-	-	-	-	+
Juncus militaris	-	+	-	+	+	-	-	-	+
Lachnanthes caroliniana	-	-	+	-	+	-	+	-	+
Leersia oryzoides	-	+	+	+	+	-	+	-	+
Lindernia dubia	V	+	+	+	-	-	-	-	-
Lobelia canbyi	V	-	+	-	-	-	-	-	-
Ludwigia palustris	V	+	+	+	+	+	-	-	+
Lycopus amplectans	V	-	+	-	+	-	-	-	-
Lycopus uniflorus	V	+	+	+	+	-	+	-	+
Lysimachia terrestris	V	+	+	+	+	-	+	-	+
Microstegium vimineum	V	-	-	+	-	+	+	-	-

Table 3m. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Mikania scandens	-	-	-	+	-	-	-	-	-
Osmunda regalis	V	-	+	-	-	-	-	-	-
Panicum dichotomum	V	-	+	+	+	-	+	-	+
Panicum ensifolium	V	-	+	-	+	-	+	-	+
Panicum longifolium	V	-	+	+	+	-	+	-	+
Panicum scabriusculum	V	-	+	+	+	-	+	-	+
Panicum verrucosum	V	-	+	+	+	-	+	-	-
Peltandra virginica	V	+	+	+	+	-	+	-	+
Polygonum hydropiperoides var. setaceum	V	-	+	+	-	+	-	-	-
Polygonum punctatum	V	-	-	+	-	-	-	-	-
Polygonum sagittatum	-	-	-	+	-	-	-	-	-
Pontedaria cordata	V	-	+	-	-	-	-	-	-
Rhexia virginica	V	-	+	+	-	-	-	-	-
Sagittaria engelmanniana	V	-	+	-	-	-	-	-	-
Schizachyrium scoparium	-	-	-	+	-	-	-	-	-
Scirpus cyperinus	-	-	+	+	-	-	-	-	-
Scirpus subterminalis	-	+	+	-	+	-	-	-	-
Scutellaria lateriflora	V	-	-	-	+	-	-	-	-
Sparganium americanum	V	+	+	+	+	-	+	+	+
Triadenum virginicum	-	+	-	+	-	-	+	-	-
Viola lanceolata var. lanceolata	V	+	+	+	+	-	+	-	+
Woodwardia areolata	-	-	-	-	-	-	+	-	-
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Cephalanthus occidentalis	-	+	+	-	+	-	-	+	+
Chamaecyparis thyoides	-	+	+	+	+	+	+	+	+
Chamaedaphne calyculata	-	+	+	+	+	-	+	-	+
Clethra alnifolia	-	+	+	+	+	+	+	+	+
Eubotrys racemosa	-	+	-	-	+	-	+	+	+
Hypericum densiflorum	-	+	-	+	-	-	-	-	-
Kalmia angustifolia	-	+	-	-	-	-	-	-	-
Leiophyllum buxifolium	-	+	-	-	-	-	-	-	-
Pinus rigida	-	+	+	-	+	+	+	+	+
Rhododendron viscosum	-	+	+	-	+	-	-	-	-
Smilax glauca	-	-	-	-	+	-	-	-	-

Table 3m. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Smilax rotundifolia	-	+	-	-	+	-	+	+	+
Spiraea tomentosa	-	-	-	-	-	-	-	-	+
Vaccinium corymbosum	-	+	-	+	+	+	-	+	-
Vaccinium macrocarpon	-	+	+	-	+	-	+	-	+

Table 3n. Plant species present at the Oswego River-Harrisville Pond stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis hyemalis	V	-	-	-	-	-	+	+	-
Andropogon virginicus var. abbreviatus	-	-	-	+	-	-	-	-	-
Aster dumosus	V	-	-	-	-	-	+	-	+
Bartonia paniculata	V	-	+	-	+	-	-	-	-
Calamagrostis cinnoides	V	-	+	-	+	-	+	-	-
Carex canescens	V	-	+	-	-	-	-	-	+
Cyperus dentatus	V	-	-	-	+	-	-	-	-
Drosera filiformis	V	-	-	+	-	-	-	-	-
Drosera intermedia	V	+	+	-	+	+	-	+	+
Drosera rotundifolia	V	-	-	+	-	-	-	-	+
Dulichium arundinaceum	V	-	+	-	+	+	+	+	+
Eleocharis acicularis	V	-	-	-	-	+	+	+	+
Eleocharis ovata	V	-	-	-	-	+	-	-	-
Eleocharis robbinsii	V	+	+	+	+	+	+	+	+
Eleocharis tenuis	V	-	+	-	-	+	+	-	-
Eleocharis tuberculosa	V	-	-	+	-	-	-	+	-
Eriocaulon aquaticum	V	+	+	+	+	+	+	+	+
Eriocaulon decangulare	-	-	-	+	+	-	-	-	-
Euphorbia ipecacuanhae	V	-	-	+	-	+	-	-	-
Euthamia tenuifolia	-	-	+	-	-	-	-	+	-
Glyceria obtusa	V	+	-	-	-	-	+	-	+
Hypericum canadense	V	-	-	-	-	+	-	+	-
Hypericum denticulatum	V	-	+	-	-	-	+	-	-
Hypericum stragulum	V	-	-	-	-	-	+	-	-
Juncus canadensis	V	-	-	-	+	+	+	+	-
Juncus militaris	V	+	+	+	+	+	+	+	+
Juncus pelocarpus	V	-	-	-	+	+	-	+	-
Leersia oryzoides	-	+	+	+	+	-	+	-	+
Lophiola aurea	V	-	-	-	-	-	-	+	-
Lycopus amplectans	V	-	+	-	-	-	-	-	-
Lycopus uniflorus	V	-	+	-	-	-	-	-	-
Lysimachia terrestris	V	-	+	-	+	-	+	-	+

Table 3n. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Muhlenbergia torreyana	V	-	-	-	+	+	-	+	-
Nymphaea odorata	V	+	+	-	+	+	-	+	-
Onoclea sensibilis	-	-	+	-	-	-	-	-	-
Orontium aquaticum	V	-	-	-	-	+	-	-	-
Osmunda cinnamomea	-	+	-	-	-	-	-	-	-
Osmunda regalis	V	-	+	-	-	-	-	-	-
Panicum ensifolium	V	-	-	-	+	-	+	+	+
Panicum longifolium	V	-	-	-	+	-	-	-	-
Panicum virgatum	V	-	+	-	+	-	+	+	+
Polygala cruciata	V	-	-	-	+	-	-	+	-
Potamogeton confervoides	V	-	+	-	+	+	-	-	-
Rhexia virginica	V	-	-	-	+	+	+	+	-
Rhynchospora alba	V	-	-	-	-	-	-	+	-
Rhynchospora capitellata	V	-	-	-	+	-	-	-	-
Sabatia difformis	V	-	-	-	+	-	-	-	-
Sagittaria engelmanniana	V	+	+	-	+	-	-	+	+
Sarracenia purpurea	-	-	-	-	-	-	-	-	+
Schizachyrium scoparium	-	-	-	-	+	-	+	-	-
Schizaea pusilla	-	-	-	+	-	-	-	-	-
Scirpus pungens	V	+	-	-	+	+	-	+	+
Scirpus subterminalis	V	+	+	+	+	+	+	+	+
Triadenum virginicum	V	-	+	+	+	+	+	+	+
Utricularia fibrosa	V	-	+	-	-	-	+	+	+
Viola lanceolata var. lanceolata	V	-	-	-	+	-	-	-	-
Xyris smalliana	V	-	-	+	+	+	+	+	-
Woody plants									
Acer rubrum	-	+	+	+	+	-	+	+	+
Alnus serrulata	-	+	+	+	+	-	+	+	-
Amelanchier canadensis	-	-	-	-	+	-	+	-	+
Aronia arbutifolia	-	+	-	-	-	-	-	-	+
Betula populifolia	-	-	-	-	-	-	+	-	+
Catalpa bignonioides	-	-	+	-	-	-	-	-	-
Chamaecyparis thyoides	-	+	+	+	+	-	+	-	+
Chamaedaphne calyculata	-	+	+	+	+	-	+	-	+
Clethra alnifolia	-	+	+	+	+	-	+	-	+

Table 3n. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Eubotrys racemosa	-	+	+	+	-	-	+	-	+
Gaultheria procumbens	-	-	-	-	-	-	+	-	+
Gaylussacia dumosa	-	-	-	-	-	-	-	-	+
Gaylussacia frondosa	-	-	-	-	-	-	+	-	-
Ilex glabra	-	+	+	+	+	-	+	-	+
Juniperus virgiana	-	-	-	-	-	-	+	-	-
Kalmia angustifolia	-	-	-	+	-	-	-	-	-
Lyonia ligustrina	-	-	-	+	-	-	-	-	-
Lyonia mariana	-	+	-	+	-	-	+	-	+
Myrica pensylvanica	V	-	+	-	-	-	-	-	-
Nyssa sylvatica	-	-	-	-	+	-	-	-	-
Parthenocissus quinquefolia	-	-	+	-	-	-	-	-	-
Pinus rigida	-	+	+	+	+	-	+	-	+
Quercus marilandica	-	+	+	+	-	+	-	-	-
Rhododendron viscosum	-	+	+	+	-	-	-	-	+
Rosa palustris	V	-	-	-	-	-	+	-	-
Rubus hispidus	-	-	+	-	+	-	+	-	-
Rubus sp.	-	-	-	-	-	-	+	-	-
Smilax glauca	-	+	+	-	+	-	-	-	-
Smilax rotundifolia	-	+	+	+	+	+	+	+	+
Vaccinium corymbosum	-	+	+	+	+	-	+	-	+
Vaccinium macrocarpon	-	-	+	+	+	-	+	+	+
Vaccinium pallidum	-	-	-	+	-	-	-	-	-

Table 3o. Plant species present at the Springers Brook-Hampton Rd. stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis hyemalis	V	+	+	+	-	+	+	+	-
Agrostis perennans	V	+	+	+	+	+	+	+	+
Apios americana	V	+	+	+	+	+	+	+	-
Asclepias incarnata	-	-	+	-	-	-	-	-	-
Bidens connata	V	+	-	-	+	-	+	-	+
Boehmeria cylindrica	V	-	+	-	+	-	+	-	-
Callitriche heterophylla	V	+	+	+	+	+	+	+	+
Carex crinita	V	+	+	+	+	+	+	+	+
Carex folliculata	V	-	+	+	-	+	-	-	-
Carex lurida	V	-	-	-	-	+	-	-	-
Carex pensylvanica	V	-	-	+	-	-	-	-	-
Cyperus strigosus	V	+	+	+	-	+	-	+	+
Dulichium arundinaceum	-	-	-	+	-	+	-	-	+
Echinochloa muricata	V	-	-	-	-	-	-	-	+
Eleocharis flavescens var. olivacea	V	-	-	-	-	-	-	+	-
Elodea nuttallii	V	-	-	-	+	-	-	-	-
Eupatorium dubium	V	-	+	+	+	+	+	+	+
Galium tinctorium	V	+	+	+	+	+	+	+	+
Glyceria obtusa	V	-	-	-	+	-	-	-	-
Hypericum mutilum	V	+	+	-	+	+	-	+	+
Impatiens capensis	-	-	+	-	+	-	+	-	-
Iris versicolor	V	-	+	+	+	-	+	-	-
Leersia oryzoides	-	+	+	+	+	+	+	+	+
Lindernia dubia	V	+	+	+	-	+	-	+	-
Lobelia cardinalis	V	+	+	-	+	-	+	+	+
Ludwigia palustris	V	+	+	+	+	+	+	+	+
Lycopus virginicus	V	+	+	+	+	-	+	+	-
Microstegium vimineum	V	+	+	+	+	+	+	+	+
Mikania scandens	V	+	+	+	+	+	+	+	+
Nymphaea odorata	-	-	-	-	+	-	-	-	-
Onoclea sensibilis	-	+	+	-	+	-	-	-	+
Panicum clandestinum	V	+	-	-	+	-	-	+	+

Table 3o. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Panicum dichotomum	V	+	-	+	+	+	-	+	-
Panicum longifolium	V	-	-	-	+	-	-	-	-
Panicum verrucosum	-	-	-	-	-	+	-	-	-
Polygonum hydropiperoides var. setaceum	V	+	+	+	+	+	+	+	+
Polygonum sagittatum	-	+	+	+	+	+	+	+	+
Potamogeton epihydrus	V	-	-	+	-	-	-	-	-
Potamogeton pusillus	V	-	-	+	-	+	-	+	-
Scutellaria lateriflora	V	-	-	+	-	+	+	-	-
Sparganium americanum	V	+	+	+	+	+	+	+	+
Spiranthes cernua	-	-	-	+	-	+	-	-	-
Thelypteris palustris	V	-	-	-	-	-	+	-	-
Triadenum virginicum	V	+	+	+	+	+	-	-	-
Viola lanceolata var. lanceolata	V	+	+	+	+	+	+	+	-
Woodwardia areolata	-	-	+	+	-	+	-	+	+
Woodwardia virginica	-	-	+	+	+	+	-	-	-
Woody plants									
Acer rubrum	-	+	+	+	+	+	-	+	+
Clethra alnifolia	-	+	+	+	+	+	+	+	+
Diospyros virginiana	V	-	-	-	-	+	+	-	-
Eubotrys racemosa	-	-	-	+	-	+	+	+	+
Liquidambar styraciflua	-	+	+	+	+	-	+	+	+
Nyssa sylvatica	-	-	-	-	-	-	-	+	-
Parthenocissus quinquefolia	-	+	-	-	-	-	-	+	+
Rubus pensilvanicus	V	-	-	-	+	-	+	+	+
Sambucus canadensis	-	-	-	-	-	-	-	-	+
Smilax glauca	-	-	-	+	-	-	-	-	-
Smilax rotundifolia	-	+	+	-	+	-	+	+	+
Vaccinium corymbosum	V	-	-	+	+	-	+	-	-

Table 3p. Plant species present at the Skit Branch-Hampton Rd. stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis hyemalis	V	+	-	-	-	-	-	-	-
Andropogon virginicus var. abbreviatus	V	+	-	+	-	+	+	-	+
Bartonia paniculata	V	+	+	-	+	-	+	-	+
Carex atlantica	V	+	+	+	+	+	-	+	+
Carex bullata	V	+	+	+	+	+	+	+	+
Carex canescens	V	+	-	-	-	-	-	-	-
Cyperus dentatus	V	-	-	-	+	-	-	-	-
Drosera intermedia	V	-	+	+	+	+	+	-	+
Drosera rotundifolia	V	-	+	+	+	-	+	-	+
Dulichium arundinaceum	V	+	+	+	+	+	+	+	+
Eleocharis robbinsii	V	+	+	+	+	+	+	+	+
Eleocharis tenuis	V	+	+	+	+	+	+	+	+
Eriocaulon aquaticum	V	+	+	+	+	+	+	+	+
Eriophorum virginicum	V	+	+	+	-	+	-	+	+
Glyceria obtusa	V	+	+	+	+	-	-	+	+
Hypericum canadense	V	-	-	-	-	+	-	-	-
Juncus canadensis	V	+	-	+	-	+	+	+	+
Juncus effusus	V	+	-	+	-	+	-	-	-
Juncus militaris	V	+	+	+	+	+	+	+	+
Juncus pelocarpus	V	+	+	+	+	+	+	+	+
Lachnanthes caroliniana	V	-	+	-	+	-	+	-	-
Leersia oryzoides	V	+	+	+	-	+	-	+	-
Lycopodium appressum	V	-	+	-	+	-	-	-	-
Lysimachia terrestris	V	+	+	+	+	+	-	-	+
Muhlenbergia uniflora	V	+	+	+	+	+	+	+	+
Nuphar variegata	V	+	+	-	+	+	+	+	+
Nymphaea odorata	-	+	-	+	+	+	+	+	+
Osmunda cinnamomea	-	-	+	-	-	-	-	-	-
Panicum longifolium	V	+	-	-	-	+	+	-	+
Panicum verrucosum	V	-	-	-	+	-	-	-	-
Panicum virgatum	V	-	-	-	+	-	-	-	-
Peltandra virginica	V	-	-	-	-	-	-	-	+

Table 3p. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Polygala cruciata	V	-	-	-	+	-	+	-	-
Potamogeton confervoides	V	-	-	-	-	+	-	-	-
Rhexia virginica	V	-	-	+	+	+	+	+	+
Rhynchospora alba	V	+	+	+	+	+	+	+	+
Sagittaria engelmanniana	V	+	-	+	+	+	-	+	-
Schizaea pusilla	-	-	-	-	+	-	-	-	-
Scirpus cyperinus	V	-	-	+	-	-	-	-	-
Scirpus subterminalis	V	+	+	+	+	+	+	+	+
Triadenum virginicum	V	+	+	+	+	+	+	+	+
Xyris difformis	V	-	-	-	-	+	-	+	-
Woody plants									
Acer rubrum	-	+	+	-	+	+	+	-	+
Chamaecyparis thyoides	-	+	+	+	+	+	+	+	+
Chamaedaphne calyculata	-	-	+	+	+	+	+	+	+
Clethra alnifolia	-	-	+	-	+	-	-	-	-
Eubotrys racemosa	-	-	-	-	+	-	-	-	-
Ilex glabra	-	-	+	-	-	-	-	-	-
Ilex opaca	-	-	+	-	-	-	-	-	-
Kalmia angustifolia	-	-	+	-	+	-	-	-	-
Lyonia mariana	-	-	-	-	+	-	-	-	-
Pinus rigida	-	-	-	+	+	-	+	-	-
Rhododendron viscosum	-	-	-	-	+	-	-	-	-
Smilax glauca	-	-	+	-	-	-	-	-	-
Vaccinium corymbosum	-	-	+	-	+	-	-	-	-
Vaccinium macrocarpon	-	+	+	+	+	+	+	+	+

Table 3q. Plant species present at the Sleeper Branch-Pleasant Mills stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Andropogon virginicus var. abbreviatus	V	-	-	-	-	-	-	-	+
Bartonia paniculata	V	+	-	-	-	+	+	+	+
Bartonia virginica	V	+	+	-	-	-	-	-	+
Carex atlantica	V	-	-	-	-	-	-	-	+
Carex bullata	V	+	-	+	+	+	+	-	+
Carex exilis	V	-	-	-	-	-	+	+	-
Carex striata	V	-	-	-	-	-	-	-	+
Carex stricta	V	-	-	-	+	-	-	-	-
Cladium mariscoides	-	-	-	-	-	+	-	-	-
Cuscuta sp.	-	+	-	-	-	+	+	+	+
Cyperus dentatus	V	+	+	-	-	+	-	+	+
Drosera filiformis	V	-	+	-	-	+	-	+	-
Drosera intermedia	V	+	+	-	+	+	+	+	+
Drosera rotundifolia	V	-	-	-	-	+	-	+	+
Dulichium arundinaceum	V	+	+	+	+	+	+	+	+
Eleocharis ovata	V	-	-	-	-	+	+	+	+
Eleocharis robbinsii	V	+	+	+	-	+	+	+	+
Eleocharis tenuis	V	+	+	+	+	+	+	+	+
Eleocharis tuberculosa	V	-	-	+	-	+	+	+	+
Eriocaulon decangulare	V	-	+	-	-	-	-	-	-
Euthamia tenuifolia	V	-	-	-	-	-	-	-	+
Glyceria obtusa	V	+	+	+	-	-	+	+	-
Juncus canadensis	V	-	+	-	-	+	+	-	+
Juncus effusus	-	-	-	-	-	+	-	-	+
Juncus militaris	V	+	+	+	+	+	+	+	+
Juncus pelocarpus	V	+	-	+	-	+	+	+	+
Lachnanthes caroliniana	V	+	+	+	+	+	+	+	+
Leersia oryzoides	V	+	+	+	+	+	+	+	+
Lycopodium appressum	V	-	-	-	-	+	-	+	-
Lysimachia terrestris	V	+	+	+	+	-	+	+	+
Muhlenbergia uniflora	V	+	-	+	-	+	+	+	+
Nuphar variegata	V	-	+	-	-	-	+	-	-

Table 3q. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Nymphaea odorata	V	+	+	+	+	+	+	+	+
Osmunda cinnamomea	V	-	-	-	-	+	+	+	-
Osmunda regalis	-	-	-	-	-	-	-	+	-
Panicum longifolium	V	+	+	+	+	+	+	+	+
Panicum scabriusculum	V	+	+	+	+	+	+	+	+
Panicum verrucosum	V	+	+	+	+	+	+	+	+
Panicum virgatum	-	+	+	-	-	-	-	-	-
Peltandra virginica	V	+	-	+	+	+	-	-	+
Polygala cruciata	V	+	-	+	-	+	+	+	+
Pontedaria cordata	-	-	-	-	-	-	-	+	-
Rhexia virginica	V	+	+	+	+	+	+	+	+
Rhynchospora alba	V	-	+	+	+	+	+	+	+
Rhynchospora capitellata	V	-	+	-	-	+	+	+	+
Sagittaria engelmanniana	V	+	+	+	+	+	+	+	+
Schizaea pusilla	-	-	-	-	-	+	-	+	-
Scirpus subterminalis	V	+	+	+	+	+	+	+	+
Triadenum virginicum	V	+	+	+	+	+	+	+	+
Viola lanceolata var. lanceolata	V	+	+	+	-	-	+	-	+
Woodwardia areolata	V	-	-	-	-	-	-	+	-
Xyris difformis	V	+	+	+	-	+	+	+	+
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Chamaecyparis thyoides	-	-	+	-	+	+	+	+	+
Chamaedaphne calyculata	-	+	+	+	+	+	+	+	-
Clethra alnifolia	-	+	-	+	+	-	+	+	-
Eubotrys racemosa	-	-	-	-	-	+	-	+	-
Gaylussacia dumosa	-	-	-	-	-	-	-	+	-
Hypericum densiflorum	-	-	-	-	-	-	-	+	-
Ilex glabra	-	-	-	+	-	+	+	+	-
Ilex opaca	-	-	-	-	-	-	-	+	-
Kalmia angustifolia	-	-	-	-	-	+	-	+	-
Liquidambar styraciflua	-	-	-	-	+	-	-	-	-
Lyonia mariana	-	-	-	-	-	-	-	+	-
Pinus rigida	-	-	+	-	-	+	-	+	-
Rhododendron viscosum	-	-	-	-	-	+	-	+	-

Table 3q. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Smilax rotundifolia	-	-	-	+	-	+	+	+	-
Vaccinium corymbosum	-	-	-	+	+	+	+	+	-
Vaccinium macrocarpon	-	+	+	+	+	+	+	+	+
Vaccinium pallidum	-	-	-	-	-	+	-	-	-

Table 3r. Plant species present at the Sleeper Branch-Parkdale stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Agrostis hyemalis	-	-	-	-	-	-	-	-	+
Apios americana	V	-	+	-	-	-	-	+	-
Aster nemoralis	-	-	-	-	+	+	-	-	-
Aster novi-belgii	-	-	-	-	-	+	-	+	+
Bartonia virginica	V	-	-	-	+	-	-	-	-
Calamagrostis canadensis	V	-	+	+	-	+	-	+	-
Carex striata	V	-	-	-	-	+	-	+	-
Cyperus dentatus	-	-	-	-	-	+	-	-	-
Decodon verticillatus	V	+	+	-	+	-	-	+	-
Dulichium arundinaceum	-	+	+	+	+	+	+	+	+
Eleocharis flavescens var. olivacea	V	-	-	-	-	-	+	-	-
Eleocharis robbinsii	V	-	-	-	-	+	+	-	+
Eleocharis tenuis	V	+	+	+	+	+	-	+	+
Eleocharis tuberculosa	V	-	-	-	-	+	-	-	-
Eupatorium resinosum	V	-	-	-	-	+	-	+	-
Euthamia tenuifolia	V	-	-	-	-	-	-	+	+
Glyceria obtusa	V	+	+	+	+	+	-	+	+
Hypericum canadense	V	-	-	-	-	-	-	+	+
Iris versicolor	-	-	-	-	-	+	-	-	-
Juncus canadensis	V	-	-	-	-	+	+	-	-
Juncus effusus	-	-	-	-	-	+	+	+	+
Juncus militaris	V	+	+	-	+	-	+	+	+
Juncus pelocarpus	V	-	-	-	-	+	-	-	-
Lachnanthes caroliniana	V	-	+	-	-	-	-	-	-
Leersia oryzoides	-	+	+	+	+	+	+	+	+
Lysimachia terrestris	-	-	-	-	-	-	+	+	+
Nuphar variegata	V	-	-	-	+	+	+	-	+
Nymphaea odorata	V	-	-	-	+	-	+	-	-
Osmunda cinnamomea	-	+	-	-	-	-	-	-	-
Panicum longifolium	V	-	-	-	-	+	-	-	+
Panicum verrucosum	-	-	-	-	-	+	-	-	-
Peltandra virginica	V	+	+	+	+	+	+	+	+

Table 3r. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Pontedaria cordata	-	-	+	+	+	+	+	+	+
Rhexia virginica	-	+	-	+	-	-	-	-	+
Rhynchospora alba	V	-	-	-	-	+	-	-	-
Rhynchospora capitellata	V	-	-	-	-	+	-	-	-
Sagittaria engelmanniana	-	-	-	-	-	+	-	-	+
Scirpus cyperinus	V	+	-	-	-	-	-	-	+
Scirpus subterminalis	V	-	-	-	-	-	-	+	+
Sparganium americanum	V	+	+	+	+	+	+	+	+
Triadenum virginicum	V	+	+	+	+	-	+	+	+
Viola lanceolata var. lanceolata	V	+	+	+	+	+	+	+	+
Xyris difformis	V	-	-	-	-	+	-	-	-
Woody plants									
Acer rubrum	-	+	+	+	+	+	-	-	-
Aronia arbutifolia	-	-	-	+	-	-	-	-	-
Chamaecyparis thyoides	-	-	-	+	+	-	-	-	-
Chamaedaphne calyculata	-	-	-	+	-	-	-	-	-
Clethra alnifolia	-	+	+	+	+	+	+	+	-
Eubotrys racemosa	V	+	+	+	+	+	-	-	-
Kalmia angustifolia	V	-	-	+	-	+	+	-	-
Lyonia ligustrina	-	-	+	-	+	-	-	-	-
Myrica pensylvanica	-	-	-	-	+	-	+	-	-
Nyssa sylvatica	-	+	+	-	-	-	-	-	-
Rhododendron viscosum	-	+	+	+	+	+	-	-	-
Rubus hispidus	-	+	-	+	-	-	-	-	-
Sassafras albidum	-	-	-	+	-	-	-	-	-
Smilax rotundifolia	V	+	+	+	+	-	+	-	-
Toxicodendron radicans	-	+	-	-	-	-	-	-	-
Vaccinium corymbosum	V	+	+	+	+	+	+	-	-
Viburnum nudum var. nudum	-	-	-	+	-	-	-	-	-
Vitis labrusca	V	+	+	+	-	-	-	-	-

Table 3s. Plant species present at the Tulpehocken Creek-Hawkin Bridge stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Andropogon virginicus var. abbreviatus	V	+	+	+	+	+	+	+	-
Aster nemoralis	V	+	-	-	-	-	-	-	-
Bartonia paniculata	V	-	+	-	-	-	-	-	-
Bartonia virginica	V	+	-	+	+	+	+	+	-
Carex exilis	V	-	+	+	-	+	+	+	-
Cyperus dentatus	V	+	+	+	+	+	+	+	+
Drosera filiformis	V	+	-	+	+	+	-	+	-
Drosera intermedia	V	+	+	+	+	+	+	+	+
Drosera rotundifolia	V	+	+	+	+	+	+	+	-
Dulichium arundinaceum	V	+	+	+	+	+	+	+	+
Eleocharis flavescens var. olivacea	V	+	+	+	+	+	+	+	+
Eleocharis robbinsii	V	+	+	+	+	+	+	-	+
Eleocharis tenuis	V	+	+	+	+	+	+	+	+
Eleocharis tuberculosa	V	+	+	+	+	+	+	+	-
Eriocaulon decangulare	V	-	+	-	-	-	-	-	-
Glyceria obtusa	V	+	-	+	-	+	-	+	-
Hypericum canadense	V	+	-	-	+	+	+	-	+
Juncus canadensis	V	+	+	-	-	-	+	+	+
Juncus effusus	-	-	-	+	-	-	-	-	-
Juncus militaris	V	+	+	-	+	+	+	+	+
Juncus pelocarpus	V	+	+	+	+	+	+	+	+
Lachnanthes caroliniana	V	-	+	+	+	+	+	-	+
Leersia oryzoides	-	+	-	+	-	+	-	+	-
Lobelia nuttallii	V	-	-	-	-	-	+	-	-
Lysimachia terrestris	-	+	-	-	-	-	-	-	+
Muhlenbergia uniflora	V	+	+	+	+	+	+	+	+
Nymphaea odorata	V	+	+	-	+	+	+	+	+
Orontium aquaticum	V	+	+	+	+	+	+	+	+
Panicum ensifolium	V	-	+	-	+	-	-	-	-
Panicum longifolium	V	-	+	-	-	-	+	-	-
Panicum verrucosum	V	+	+	+	+	+	+	+	+
Peltandra virginica	V	+	+	-	-	+	-	+	-

Table 3s. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Polygala cruciata	V	+	+	+	+	+	+	+	+
Potamogeton confervoides	-	-	-	-	+	-	-	-	+
Rhexia virginica	V	+	+	+	+	+	+	+	+
Rhynchospora alba	V	+	+	+	+	+	+	+	+
Sabatia difformis	V	-	+	-	-	+	-	+	-
Sagittaria engelmanniana	V	+	+	-	+	+	+	+	+
Sarracenia purpurea	-	-	-	+	-	-	+	+	-
Schizaea pusilla	-	-	+	-	+	+	+	+	-
Scirpus subterminalis	V	+	+	+	+	+	+	+	+
Triadenum virginicum	V	+	+	-	+	+	+	+	+
Utricularia cornuta	V	+	+	-	+	-	+	+	+
Utricularia juncea	V	+	-	-	-	-	-	-	-
Viola lanceolata var. lanceolata	V	-	-	-	-	-	-	-	+
Xyris difformis	V	+	+	-	+	-	+	+	+
Woody plants									
Acer rubrum	-	-	+	-	+	+	+	+	-
Aronia arbutifolia	-	+	+	-	-	+	-	+	-
Chamaecyparis thyoides	-	+	+	+	+	+	+	+	+
Chamaedaphne calyculata	-	+	+	+	+	+	+	+	-
Clethra alnifolia	-	+	+	+	+	-	-	+	-
Eubotrys racemosa	-	-	+	+	-	+	+	+	-
Gaylussacia dumosa	-	-	-	+	+	+	-	+	-
Gaylussacia frondosa	-	-	-	+	-	+	-	-	-
Ilex glabra	-	-	+	+	+	+	+	+	-
Kalmia angustifolia	-	-	-	+	-	+	+	-	-
Leiophyllum buxifolium	-	-	-	-	+	-	+	-	-
Lyonia mariana	-	-	-	-	-	-	+	-	-
Pinus rigida	-	+	+	+	-	+	-	-	-
Rhododendron viscosum	-	-	-	-	-	+	+	+	-
Smilax rotundifolia	-	-	+	-	-	-	-	-	-
Vaccinium corymbosum	-	+	-	+	+	+	-	+	-
Vaccinium macrocarpon	-	+	+	+	+	+	+	+	+

Table 3t. Plant species present at the Wading River-Evans Bridge stream vegetation study site in the New Jersey Pinelands (1994-1995). Stream sections are numbered in an upstream order with left (L) and right (R) sides viewed facing upstream. Vouchers (V) deposited in Chrysler Herbarium, Rutgers University. Refer to Table 2 for additional details on study site locations.

		Stream Section and Side							
Species	Voucher	1L	1R	2L	2R	3L	3R	4L	4R
Herbaceous plants									
Carex bullata	V	-	-	-	-	-	+	-	+
Carex stricta	V	-	-	+	-	-	-	-	-
Cuscuta sp.	-	-	+	-	+	-	-	-	-
Cyperus dentatus	V	-	-	-	-	+	-	-	-
Drosera intermedia	V	-	-	-	-	-	-	+	-
Dulichium arundinaceum	V	-	+	+	+	+	-	-	+
Eleocharis acicularis	V	+	+	-	+	-	+	+	+
Eleocharis robbinsii	V	-	-	+	-	+	-	-	-
Eleocharis tenuis	V	-	+	+	+	+	+	+	+
Eriocaulon aquaticum	V	+	+	+	+	+	+	+	-
Glyceria obtusa	V	+	+	+	+	+	+	+	+
Hypericum canadense	V	-	-	-	+	-	-	-	-
Hypericum denticulatum	V	-	+	-	+	+	+	+	-
Juncus canadensis	V	-	-	-	+	+	-	-	-
Juncus militaris	V	-	+	-	+	+	+	-	+
Juncus pelocarpus	V	-	-	+	+	+	-	-	-
Lachnanthes caroliniana	V	-	+	-	+	+	+	-	-
Leersia oryzoides	-	+	+	+	+	+	+	+	+
Lysimachia terrestris	V	-	-	-	+	+	+	-	-
Nymphaea odorata	V	-	+	+	+	+	-	-	-
Orontium aquaticum	V	-	-	-	-	+	-	-	-
Panicum dichotomum	V	-	+	+	+	+	+	-	+
Panicum scabriusculum	V	-	+	+	+	+	+	+	+
Panicum verrucosum	V	-	-	-	+	-	+	-	-
Panicum virgatum	-	-	-	-	+	+	-	+	-
Peltandra virginica	-	-	+	+	+	+	+	+	+
Potamogeton confervoides	V	+	+	+	+	+	+	+	+
Rhexia virginica	V	-	+	-	+	+	+	+	+
Sabatia difformis	V	-	-	-	+	-	-	-	-
Sagittaria engelmanniana	V	-	+	+	+	+	+	-	+
Sagittaria latifolia	V	-	-	-	-	-	-	-	+
Scirpus cyperinus	V	-	-	-	+	-	-	-	-

Table 3t. Continued.

Species	Voucher	Stream Section and Side							
		1L	1R	2L	2R	3L	3R	4L	4R
Scirpus subterminalis	V	-	+	+	+	+	+	+	+
Triadenum virginicum	V	-	-	-	+	+	+	-	+
Viola lanceolata var. lanceolata	V	-	+	+	+	+	+	+	+
Xyris difformis	V	-	-	-	+	-	-	-	-
Zizania aquatica	V	+	+	+	+	+	+	+	+
Woody plants									
Acer rubrum	-	+	+	+	+	+	+	+	+
Amelanchier canadensis	-	-	-	-	-	-	+	-	-
Chamaecyparis thyoides	-	+	+	-	-	+	+	+	+
Chamaedaphne calyculata	-	-	-	-	-	+	+	+	+
Clethra alnifolia	-	+	+	+	-	+	+	+	+
Eubotrys racemosa	-	+	+	+	-	-	-	+	+
Hypericum densiflorum	V	-	-	-	+	-	+	+	+
Ilex glabra	-	+	+	+	-	+	-	+	+
Nyssa sylvatica	-	+	+	-	-	-	-	+	+
Pinus rigida	-	-	+	-	-	+	-	+	-
Rhododendron viscosum	-	-	+	-	-	-	-	-	-
Smilax glauca	-	+	+	-	+	-	-	-	-
Smilax rotundifolia	-	-	-	+	-	-	-	-	-
Vaccinium corymbosum	-	+	+	+	-	-	+	+	-
Vaccinium macrocarpon	-	-	+	-	+	+	+	+	+

Table 4. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Callitriche heterophylla	100	-	-	-	-	-	100	100	-	-	-	-	-	-	100	-	-	-	-	-
Cardamine pensylvanica	-	-	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-
Carex albolutescens	-	-	-	-	13	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-
Carex atlantica	-	-	13	-	63	63	-	-	-	13	-	100	-	-	-	88	13	-	-	-
Carex bullata	-	100	38	25	-	-	-	-	13	50	-	-	-	-	-	100	75	-	-	25
Carex canescens	13	-	-	-	25	-	-	-	-	13	-	-	-	25	-	13	-	-	-	-
Carex collinsii	-	-	-	-	-	38	-	-	-	-	-	13	-	-	-	-	-	-	-	-
Carex crinita	-	-	13	-	-	-	-	-	-	-	-	-	-	-	100	-	-	-	-	-
Carex exilis	-	-	-	-	13	-	-	-	13	-	-	-	-	-	-	-	25	-	63	-
Carex folliculata	-	-	25	-	-	-	-	-	-	13	-	38	-	-	38	-	-	-	-	-
Carex livida	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Carex lurida	13	-	-	-	-	-	13	63	-	-	-	-	-	-	13	-	-	-	-	-
Carex pensylvanica	-	-	-	-	-	-	-	-	-	-	-	13	25	-	13	-	-	-	-	-
Carex scoparia	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-
Carex stipata	-	-	-	-	-	-	-	63	-	-	-	-	-	-	-	-	-	-	-	-
Carex striata	-	-	-	100	38	-	-	-	-	-	-	50	-	-	-	-	13	25	-	-
Carex stricta	-	100	75	-	-	-	-	-	25	100	100	-	-	-	-	-	13	-	-	13
Carex trisperma	-	-	-	-	-	13	-	-	-	-	-	38	-	-	-	-	-	-	-	-
Cinna arundinacea	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	-	-
Cladium mariscoides	-	13	-	38	-	-	-	-	38	-	-	-	-	-	-	-	13	-	-	-
Cuscuta sp.	88	-	88	13	25	13	100	-	-	50	75	13	25	-	-	-	63	-	-	25
Cyperus dentatus	-	-	-	-	50	-	-	-	38	-	-	-	-	13	-	13	63	13	100	13
Cyperus erythrorhizos	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyperus esculentus	-	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyperus retrorsus	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-

Table 4. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Cyperus strigosus	13	-	-	-	-	-	-	100	-	-	-	-	-	-	75	-	-	-	-	-
Decodon verticillatus	25	-	-	-	-	-	100	38	-	-	-	-	-	-	-	-	-	50	-	-
Dioscorea villosa	25	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-
Drosera filiformis	-	-	-	-	-	-	-	-	88	-	-	-	-	13	-	-	38	-	63	-
Drosera intermedia	-	100	50	88	88	38	-	-	100	88	-	50	13	75	-	75	88	-	100	13
Drosera rotundifolia	-	-	25	-	50	88	-	-	-	75	-	75	-	25	-	63	38	-	88	-
Dulichium arundinaceum	38	100	100	100	100	50	-	13	75	75	38	-	13	75	38	100	100	100	100	63
Echinochloa muricata	-	-	-	-	-	-	-	50	-	-	-	-	-	-	13	-	-	-	-	-
Eleocharis acicularis	13	-	-	-	-	-	100	-	-	-	-	-	-	50	-	-	-	-	-	75
Eleocharis flavescens var. olivacea	-	-	13	25	63	25	-	-	25	75	-	25	13	-	13	-	-	13	100	-
Eleocharis ovata	-	-	-	-	-	-	25	100	-	-	-	-	-	13	-	-	50	-	-	-
Eleocharis robbinsii	38	-	63	100	88	-	-	-	75	-	-	-	-	100	-	100	88	38	88	25
Eleocharis tenuis	25	100	75	88	50	-	-	-	50	100	-	-	75	38	-	100	100	88	100	88
Eleocharis tuberculosa	-	-	-	13	88	-	-	-	13	38	-	-	-	25	-	-	63	13	88	-
Elodea nuttallii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-
Epilobium coloratum	-	-	-	-	-	-	-	63	-	-	-	-	-	-	-	-	-	-	-	-
Erechtites hieracifolia	-	-	-	-	-	-	-	100	-	-	-	-	13	-	-	-	-	-	-	-
Erigeron annuus	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-
Erigeron canadensis	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-
Eriocaulon aquaticum	-	-	100	38	88	75	-	-	100	-	-	100	-	100	-	100	-	-	-	88
Eriocaulon compressum	-	-	38	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eriocaulon decangulare	-	-	13	-	-	-	-	-	100	-	-	-	-	25	-	-	13	-	13	-
Eriophorum virginicum	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	75	-	-	-	-
Eupatorium dubium	-	-	-	-	-	-	38	-	-	-	-	-	13	-	88	-	-	-	-	-
Eupatorium perfoliatum	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-

Table 4. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Eupatorium pilosum	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eupatorium resinosum	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-
Euphorbia ipecacuanhae	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-
Euthamia tenuifolia	-	25	-	-	100	-	-	-	88	-	-	-	50	25	-	-	13	25	-	-
Galium tinctorium	88	-	-	-	-	-	100	100	-	-	-	-	-	-	100	-	-	-	-	-
Glyceria obtusa	88	88	100	100	100	50	100	-	-	100	63	88	25	38	13	75	63	88	50	100
Habenaria clavellata	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hibiscus moscheutos	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	-	-
Hypericum canadense	-	100	-	50	38	-	-	-	38	-	-	-	13	25	-	13	-	25	63	13
Hypericum denticulatum	50	-	25	-	25	-	-	-	100	-	-	-	63	25	-	-	-	-	-	63
Hypericum mutilum	50	-	-	-	25	-	100	75	-	-	-	-	-	-	75	-	-	-	-	-
Hypericum stragulum	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-
Impatiens capensis	38	-	-	-	-	-	100	100	-	-	-	-	-	-	38	-	-	-	-	-
Iris prismatica	-	-	-	-	-	-	-	-	13	-	-	-	13	-	-	-	-	-	-	-
Iris versicolor	-	-	25	-	25	-	-	-	-	25	-	50	-	-	50	-	-	13	-	-
Juncus acuminatus	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-
Juncus canadensis	13	38	13	13	100	-	-	75	63	75	-	13	25	50	-	75	50	25	63	25
Juncus effusus	38	38	-	63	25	-	63	100	-	38	-	25	25	-	-	38	25	50	13	-
Juncus militaris	100	38	88	-	100	-	-	-	100	-	-	38	50	100	-	100	100	75	88	63
Juncus pelocarpus	-	13	63	-	100	13	-	-	38	63	-	100	-	38	-	100	75	13	100	38
Lachnanthes caroliniana	-	75	-	38	100	-	-	-	75	-	-	-	50	-	-	38	100	13	75	50
Leersia oryzoides	88	100	100	100	88	13	100	100	-	100	100	13	75	75	100	63	100	100	50	100
Lemna sp.	-	-	-	-	-	-	-	100	-	-	-	-	-	-	-	-	-	-	-	-
Lindernia dubia	-	-	-	-	-	-	13	-	-	-	-	-	38	-	63	-	-	-	-	-
Lobelia canbyi	-	13	13	-	-	-	-	-	25	-	-	-	13	-	-	-	-	-	-	-

Table 4. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Lobelia cardinalis	-	-	-	-	-	-	-	13	-	-	-	-	-	-	75	-	-	-	-	-
Lobelia nuttallii	-	38	25	-	75	-	-	-	38	-	-	-	-	-	-	-	-	-	13	-
Lophiola aurea	-	-	-	-	-	-	-	-	38	-	-	-	-	13	-	-	-	-	-	-
Ludwigia palustris	88	-	-	-	-	-	88	100	-	-	-	-	75	-	100	-	-	-	-	-
Lycopodium appressum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	25	-	-	-
Lycopus amplectans	-	-	-	25	-	-	-	-	-	-	-	-	25	13	-	-	-	-	-	-
Lycopus uniflorus	13	25	13	-	-	-	25	25	-	-	-	-	75	13	-	-	-	-	-	-
Lycopus virginicus	100	-	-	-	-	-	100	13	13	-	-	-	-	-	75	-	-	-	-	-
Lysimachia terrestris	88	100	100	100	75	13	25	13	100	100	38	-	75	50	-	75	88	38	25	38
Lythrum salicaria	-	-	-	-	-	-	-	63	-	-	-	-	-	-	-	-	-	-	-	-
Microstegium vimineum	88	-	-	-	-	-	-	100	-	-	-	-	38	-	100	-	-	-	-	-
Mikania scandens	88	-	-	-	-	-	100	63	-	-	-	-	13	-	100	-	-	-	-	-
Mitchella repens	-	-	-	-	-	88	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Muhlenbergia torreyana	-	-	-	-	-	-	-	-	100	-	-	-	-	38	-	-	-	-	-	-
Muhlenbergia uniflora	-	50	-	-	63	-	-	-	-	13	-	-	-	-	-	100	75	-	100	-
Nuphar variegata	-	25	-	25	75	50	-	13	-	-	-	38	-	-	-	88	25	50	-	-
Nymphaea odorata	-	-	25	63	75	25	-	-	-	25	-	13	-	63	13	88	100	25	88	50
Onoclea sensibilis	38	-	-	-	-	-	100	25	-	-	-	-	-	13	50	-	-	-	-	-
Orontium aquaticum	-	-	-	-	75	13	-	-	100	-	-	63	-	13	-	-	-	-	100	13
Osmunda cinnamomea	25	25	-	25	25	75	-	-	25	13	-	88	-	13	-	13	38	13	-	-
Osmunda regalis	-	-	-	-	25	100	-	-	-	-	-	50	13	13	-	-	13	-	-	-
Oxypolis rigidior	-	-	38	-	13	13	-	-	13	-	-	13	-	-	-	-	-	-	-	-
Panicum clandestinum	-	-	-	-	-	-	25	-	-	-	-	-	-	-	50	-	-	-	-	-
Panicum dichotomum	-	100	-	-	-	-	-	-	-	13	-	-	63	-	63	-	-	-	-	75
Panicum ensifolium	-	-	25	-	-	-	-	-	-	-	-	-	50	50	-	-	-	-	25	-

Table 4. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Panicum longifolium	-	88	-	38	100	-	-	-	50	88	-	-	63	13	13	50	100	25	25	-
Panicum scabriusculum	-	-	75	-	-	-	-	-	88	-	-	-	63	-	-	-	100	-	-	88
Panicum spretum	-	13	-	-	63	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-
Panicum verrucosum	-	88	-	-	75	-	-	63	-	38	13	-	50	-	13	13	100	13	100	25
Panicum virgatum	-	75	-	13	38	13	-	-	100	13	-	-	-	63	-	13	25	-	-	38
Peltandra virginica	100	100	100	100	100	100	100	100	13	100	13	-	75	-	-	13	63	100	50	88
Phalaris arundinacea	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-
Pilea pumila	-	-	-	-	-	-	-	88	-	-	-	-	-	-	-	-	-	-	-	-
Pogonia ophioglossoides	-	-	-	-	100	63	-	-	50	25	-	25	-	-	-	-	-	-	-	-
Polygala cruciata	-	50	13	-	88	-	-	-	38	13	-	-	-	25	-	25	75	-	100	-
Polygonum arifolium	25	-	-	-	-	-	100	100	-	-	-	-	-	-	-	-	-	-	-	-
Polygonum hydropiperoides var. setaceum	75	-	-	-	-	-	100	100	-	-	-	-	38	-	100	-	-	-	-	-
Polygonum punctatum	-	-	-	-	-	-	-	100	-	-	-	-	13	-	-	-	-	-	-	-
Polygonum sagittatum	50	-	-	-	-	-	100	100	-	-	-	-	13	-	100	-	-	-	-	-
Pontedaria cordata	13	38	100	100	88	-	-	-	-	13	-	-	13	-	-	-	13	88	-	-
Potamogeton confervoides	-	100	63	-	100	63	-	-	-	-	-	88	-	38	-	13	-	-	25	100
Potamogeton epihydrus	-	-	-	-	-	-	25	100	-	-	-	-	-	-	13	-	-	-	-	-
Potamogeton oakesianus	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potamogeton pusillus	-	-	-	-	-	-	50	-	-	-	-	-	-	-	38	-	-	-	-	-
Rhexia mariana	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhexia virginica	-	63	50	38	88	-	13	-	88	100	-	-	25	50	-	75	100	38	100	75
Rhynchospora alba	-	25	-	-	100	-	-	13	13	13	-	38	-	13	-	100	88	13	100	-
Rhynchospora capitellata	-	-	-	13	-	-	-	-	-	-	-	-	-	13	-	-	63	13	-	-
Rhynchospora chalarocephala	-	-	-	-	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rhynchospora fusca	-	-	-	-	38	-	-	-	13	-	-	-	-	13	-	-	-	-	-	-

Table 4. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Rorippa palustris	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-
Sabatia difformis	-	-	13	-	75	63	-	-	100	38	-	-	-	13	-	-	-	-	38	13
Sagittaria engelmanniana	13	13	13	100	100	-	-	-	-	-	-	-	13	63	-	63	100	25	88	75
Sagittaria latifolia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
Sarracenia purpurea	-	-	-	-	13	38	-	-	13	25	-	63	-	13	-	-	-	-	38	-
Schizachyrium scoparium	-	-	-	-	-	-	-	-	25	13	-	-	13	25	-	-	-	-	-	-
Schizaea pusilla	-	-	-	-	-	13	-	-	-	-	-	-	-	13	-	13	25	-	63	-
Scirpus cyperinus	-	13	-	-	25	13	-	100	-	50	-	-	25	-	-	13	-	25	-	13
Scirpus pungens	-	-	-	-	-	-	-	-	-	-	-	-	-	63	-	-	-	-	-	-
Scirpus subterminalis	-	88	100	100	100	100	-	-	100	-	-	63	38	100	-	100	100	25	100	88
Scutellaria lateriflora	-	-	-	-	-	-	38	-	-	-	-	-	13	-	38	-	-	-	-	-
Smilax pseudochina	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solidago canadensis	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-
Solidago erecta	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-
Solidago rugosa	-	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-
Sparganium americanum	100	100	100	100	75	50	100	100	-	100	-	-	88	-	100	-	-	100	-	-
Spiranthes cernua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-
Thelypteris palustris	-	-	-	-	-	-	100	25	-	-	-	-	-	-	13	-	-	-	-	-
Thelypteris simulata	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Triadenum virginicum	75	63	100	100	100	75	-	13	38	100	13	-	38	88	63	100	100	88	88	50
Trientalis borealis	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Typha angustifolia	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-
Typha latifolia	-	-	-	-	-	-	38	100	-	-	-	-	-	-	-	-	-	-	-	-
Utricularia biflora	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-
Utricularia cornuta	-	-	13	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	75	-

Table 4. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Utricularia fibrosa	-	-	-	-	25	88	-	-	-	-	-	75	-	50	-	-	-	-	-	-
Utricularia juncea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-
Utricularia radiata	-	-	13	-	-	-	13	-	-	-	-	13	-	-	-	-	-	-	-	-
Verbena hastata	-	-	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-
Vernonia noveboracensis	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Viola lanceolata var. lanceolata	-	100	88	75	38	13	-	13	100	100	-	-	75	13	88	-	63	100	13	88
Viola primulafolia	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Woodwardia areolata	25	-	-	63	50	-	75	13	-	-	-	-	13	-	63	-	13	-	-	-
Woodwardia virginica	-	-	-	100	63	38	-	-	-	-	25	50	-	-	50	-	-	-	-	-
Xyris difformis	-	-	38	13	75	-	-	-	75	50	-	13	-	-	-	25	88	13	75	13
Xyris smalliana	-	-	-	-	-	-	-	-	-	-	-	-	-	63	-	-	-	-	-	-
Zizania aquatica	-	-	-	-	63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100
Woody plants																				
Acer rubrum	100	100	100	100	100	88	100	-	88	100	100	100	100	88	88	75	100	63	63	100
Alnus serrulata	75	-	75	-	-	-	-	75	-	-	-	75	-	75	-	-	-	-	-	-
Amelanchier canadensis	-	-	-	-	-	25	-	-	-	-	-	50	-	38	-	-	-	-	-	13
Aronia arbutifolia	50	-	-	13	13	50	-	-	13	-	13	50	-	25	-	-	-	13	50	-
Betula populifolia	-	-	13	-	-	-	-	-	-	-	-	38	-	25	-	-	-	-	-	-
Catalpa bignonioides	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-
Cephalanthus occidentalis	-	-	25	-	25	-	75	50	-	13	88	-	63	-	-	-	-	-	-	-
Chamaecyparis thyoides	75	-	50	88	100	100	-	-	100	75	25	100	100	75	-	100	75	25	100	75
Chamaedaphne calyculata	25	25	38	100	63	100	-	-	25	88	25	100	75	75	-	88	88	13	88	50
Clethra alnifolia	100	13	100	100	88	100	100	-	100	38	100	100	100	75	100	25	63	88	63	88
Diospyros virginiana	-	-	-	-	-	-	-	-	13	-	-	-	-	-	25	-	-	-	-	-
Eubotrys racemosa	75	13	50	38	13	88	63	-	13	-	100	88	63	63	63	13	25	63	63	63

Table 4. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Gaultheria procumbens	-	-	-	-	-	-	-	-	-	-	-	50	-	25	-	-	-	-	-	-
Gaylussacia baccata	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaylussacia dumosa	13	-	-	-	13	50	-	-	-	-	-	88	-	13	-	-	13	-	50	-
Gaylussacia frondosa	25	-	25	-	-	75	-	-	-	-	13	100	-	13	-	-	-	-	25	-
Hypericum densiflorum	-	63	-	38	100	-	-	-	38	25	-	-	25	-	-	-	13	-	-	50
Ilex glabra	25	-	50	-	13	50	-	-	75	13	-	100	-	75	-	13	50	-	75	75
Ilex laevigata	13	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ilex opaca	13	-	-	-	-	-	-	-	-	38	-	13	-	-	-	13	13	-	-	-
Ilex verticillata	-	-	25	-	-	-	63	-	-	-	75	63	-	-	-	-	-	-	-	-
Itea virginica	63	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-
Juniperus virginiana	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-
Kalmia angustifolia	-	-	-	-	50	100	-	-	25	25	-	100	13	13	-	25	25	38	38	-
Kalmia latifolia	-	-	13	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leiophyllum buxifolium	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	25	-
Liquidambar styraciflua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	-	13	-	-	-
Lyonia ligustrina	63	-	-	38	-	13	-	-	-	-	25	-	-	13	-	-	-	25	-	-
Lyonia mariana	-	-	-	-	13	-	-	-	50	-	-	-	-	50	-	13	13	-	13	-
Magnolia virginiana	13	-	38	-	-	13	-	-	-	-	13	88	-	-	-	-	-	-	-	-
Myrica pensylvanica	-	-	-	-	-	50	-	-	-	-	-	63	-	13	-	-	-	25	-	-
Nyssa sylvatica	-	-	50	-	13	-	25	-	-	-	75	50	-	13	13	-	-	25	-	50
Parthenocissus quinquefolia	-	-	-	-	-	13	88	-	-	-	-	-	-	13	38	-	-	-	-	-
Pinus rigida	13	-	13	-	-	-	-	-	50	-	-	50	88	75	-	38	38	-	50	38
Pinus strobus	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Quercus ilicifolia	-	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-
Quercus marilandica	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-

Table 4. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Rhododendron viscosum	88	-	38	25	38	100	-	-	-	-	75	88	38	50	-	13	25	63	38	13
Rosa multiflora	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-
Rosa palustris	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-
Rubus hispidus	25	63	13	63	88	13	-	-	-	-	-	100	-	38	-	-	-	25	-	-
Rubus pensilvanicus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-
Rubus sp.	-	-	-	-	-	-	63	-	-	-	-	-	-	13	-	-	-	-	-	-
Sambucus canadensis	-	-	-	-	-	-	75	-	-	-	-	-	-	-	13	-	-	-	-	-
Sassafras albidum	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-
Smilax glauca	25	-	-	-	38	25	-	-	-	-	-	63	13	38	13	13	-	-	-	38
Smilax laurifolia	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Smilax rotundifolia	63	-	38	25	88	13	100	-	-	-	63	38	63	100	75	-	50	63	13	13
Smilax walteri	-	-	25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Spiraea tomentosa	-	75	-	-	38	-	25	-	-	-	-	-	13	-	-	-	-	-	-	-
Toxicodendron radicans	63	-	-	13	25	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-
Vaccinium corymbosum	50	38	38	88	88	75	38	-	25	63	88	38	63	75	38	25	63	75	63	63
Vaccinium macrocarpon	13	88	38	38	100	25	-	-	100	100	13	-	63	75	-	100	100	-	100	75
Vaccinium pallidum	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	13	-	-	-
Viburnum nudum var. nudum	63	-	88	-	-	38	-	-	-	-	13	-	-	-	-	-	-	13	-	-
Vitis labrusca	-	-	-	-	-	13	63	13	-	-	-	-	-	-	-	-	-	38	-	-

Table 5. Frequency of occurrence of dominant herbs at stream vegetation study sites in the New Jersey Pinelands (1994-1995). Values represent the frequency of occurrence (%) of each species in the eight subsections when that species was considered abundant or common. Refer to Table 1 for stream codes.

	Study site																			
Species	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Dominant channel plants																				
Callitriche heterophylla	-	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-
Dulichium arundinaceum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-
Eleocharis acicularis	-	-	-	-	-	-	63	-	-	-	-	-	-	-	-	-	-	-	-	13
Eleocharis robbinsii	-	-	13	25	63	-	-	-	-	-	-	-	-	38	-	-	13	-	75	-
Eriocaulon aquaticum	-	-	88	-	13	25	-	-	75	-	-	63	-	50	-	88	-	-	-	38
Juncus militaris	100	-	50	-	88	-	-	-	13	-	-	-	-	63	-	100	63	-	50	25
Juncus pelocarpus	-	-	-	-	-	-	-	-	-	-	-	63	-	-	-	-	-	-	-	-
Leersia oryzoides	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	-
Ludwigia palustris	-	-	-	-	-	-	-	88	-	-	-	-	-	-	13	-	-	-	-	-
Nymphaea odorata	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	13	-	-
Peltandra virginica	-	63	-	50	-	-	13	-	-	-	-	-	-	-	-	-	-	88	-	-
Polygonum hydropiperoides var. setaceum	-	-	-	-	-	-	13	75	-	-	-	-	-	-	-	-	-	-	-	-
Pontedaria cordata	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	63	-	-
Potamogeton confervoides	-	75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38
Potamogeton epihydrus	-	-	-	-	-	-	-	88	-	-	-	-	-	-	-	-	-	-	-	-
Scirpus subterminalis	-	63	100	75	13	100	-	-	50	-	-	25	-	38	-	100	100	-	100	25
Sparganium americanum	38	38	38	100	13	-	88	100	-	13	-	-	13	-	-	-	-	75	-	-
Utricularia fibrosa	-	-	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-	-	-	-
Dominant belt transect plants																				
Agrostis perennans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63	-	-	-	-	-
Andropogon virginicus var. abbreviatus	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-
Calamagrostis canadensis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-

Table 5. Continued.

Species	Study site																				
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR	
Carex bullata	-	88	-	-	-	-	-	-	-	-	-	-	-	-	-	75	38	-	-	-	
Carex crinita	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	-	-	-	-	-	
Carex striata	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Carex stricta	-	75	25	100	-	-	-	-	-	50	38	-	-	-	-	-	-	-	-	-	
Cladium mariscoides	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dulichium arundinaceum	-	13	63	50	13	-	-	-	-	-	-	-	-	-	-	75	75	38	50	-	
Eleocharis flavescens var. olivacea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	-	
Eleocharis robbinsii	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Eleocharis tenuis	-	75	13	-	-	-	-	-	-	38	-	-	-	-	-	38	63	13	63	-	
Glyceria obtusa	-	13	13	25	-	-	-	-	-	75	-	-	-	-	-	13	-	63	13	-	
Iris versicolor	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	
Juncus canadensis	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	13	-	-	
Juncus effusus	-	-	-	-	-	-	-	63	-	-	-	-	-	-	-	-	-	25	-	-	
Juncus militaris	-	-	25	-	50	-	-	-	-	-	-	-	-	25	-	25	13	-	25	-	
Juncus pelocarpus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	
Leersia oryzoides	-	100	88	63	-	-	63	100	-	50	38	-	25	38	25	25	100	75	-	25	
Microstegium vimineum	13	-	-	-	-	-	-	100	-	-	-	-	-	-	100	-	-	-	-	-	
Mikania scandens	-	-	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	
Muhlenbergia torreyana	-	-	-	-	-	-	-	-	75	-	-	-	-	-	-	-	-	-	-	-	
Muhlenbergia uniflora	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	-	-	38	-	
Nymphaea odorata	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	
Onoclea sensibilis	-	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	
Osmunda cinnamomea	-	-	-	-	-	13	-	-	-	-	-	13	-	-	-	-	-	-	-	-	
Osmunda regalis	-	-	-	-	-	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Panicum dichotomum	-	-	-	-	-	-	-	-	-	-	-	-	13	-	13	-	-	-	-	38	

Table 5. Continued.

Species	Study site																			
	AB	BH	BQ	CB	CC	EB	GB	MB	MC	MD	MJ	ML	NC	OR	SB	SK	SM	SP	TC	WR
Panicum ensifolium	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-
Panicum longifolium	-	38	-	13	-	-	-	-	-	38	-	-	13	-	-	-	13	-	-	38
Panicum scabriusculum	-	-	38	-	-	-	-	-	100	-	-	-	-	-	-	-	100	-	-	-
Panicum verrucosum	-	13	-	-	-	-	-	-	-	-	-	-	13	-	-	-	-	-	-	-
Panicum virgatum	-	-	-	-	13	-	-	-	88	-	-	-	-	13	-	-	-	-	-	13
Peltandra virginica	13	63	-	25	-	-	-	-	-	-	-	-	-	-	-	-	-	75	-	-
Polygonum arifolium	-	-	-	-	-	-	88	-	-	-	-	-	-	-	-	-	-	-	-	-
Polygonum hydropiperoides var. setaceum	-	-	-	-	-	-	50	63	-	-	-	-	-	-	38	-	-	-	-	-
Polygonum sagittatum	-	-	-	-	-	-	100	100	-	-	-	-	-	-	75	-	-	-	-	-
Pontedaria cordata	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-
Rhynchospora alba	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	-	-	-	-
Sagittaria engelmanniana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	38	-	-	-
Scirpus pungens	-	-	-	-	-	-	-	-	-	-	-	-	-	25	-	-	-	-	-	-
Sparganium americanum	-	-	-	-	-	-	63	-	-	-	-	-	-	-	-	-	-	-	-	-
Thelypteris palustris	-	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-	-	-
Triadenum virginicum	13	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	13	-	-
Typha latifolia	-	-	-	-	-	-	13	13	-	-	-	-	-	-	-	-	-	-	-	-
Woodwardia areolata	-	-	-	-	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Woodwardia virginica	-	-	-	88	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zizania aquatica	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25

Table 6. Scientific and common names of plants found at stream vegetation study sites in the New Jersey Pinelands (1994-1995). Scientific and common names follow Gleason and Cronquist (1991) and Anderson (1989), respectively.

Scientific Name	Common Name
Herbaceous plants	
Agrostis hyemalis	ticklegrass
Agrostis perennans	upland bent-grass
Agrostis stolonifera	red-top
Alisma subcordatum	small water plantain
Ambrosia artemisiifolia	common ragweed
Andropogon virginicus var. *abbreviatus*	bushy beard-grass
Andropogon virginicus var. *virginicus*	broomsedge
Apios americana	groundnut
Arethusa bulbosa	Arethusa
Asclepias incarnata	swamp milkweed
Aster dumosus	bushy aster
Aster nemoralis	bog aster
Aster novi-belgii	New York aster
Aster vimineus	small white aster
Bartonia paniculata	twining bartonia
Bartonia virginica	yellow bartonia
Bidens connata	purple-stemmed beggar ticks
Bidens discoidea	small beggar ticks
Bidens frondosa	beggar ticks
Boehmeria cylindrica	false nettle
Calamagrostis canadensis	blue-joint grass
Calamagrostis cinnoides	Nuttall's reed-grass
Callitriche heterophylla	larger water starwort
Cardamine pensylvanica	Pennsylvania bitter-cress
Carex albolutescens	greenish-white sedge
Carex atlantica	Atlantic sedge
Carex bullata	button sedge
Carex canescens	silvery sedge
Carex collinsii	Collins' sedge
Carex crinita	fringed sedge
Carex exilis	coast sedge
Carex folliculata	long sedge
Carex livida	livid sedge
Carex lurida	sallow sedge

Table 6. Continued.

Scientific Name	Common Name
Carex pensylvanica	Pennsylvania sedge
Carex scoparia	pointed broom sedge
Carex stipata	awl-fruited sedge
Carex striata	Walter's sedge
Carex stricta	tussock sedge
Carex trisperma	three-fruited sedge
Cinna arundinacea	wood-reed
Cladium mariscoides	twig-rush
Cuscuta sp.	dodder
Cyperus dentatus	toothed cyperus
Cyperus erythrorhizos	red-rooted cyperus
Cyperus esculentus	yellow nut-sedge
Cyperus retrorsus	Pine Barrens cyperus
Cyperus strigosus	straw-colored cyperus
Decodon verticillatus	swamp loosestrife
Dioscorea villosa	common wild yam
Drosera filiformis	thread-leaved sundew
Drosera intermedia	spatulate-leaved sundew
Drosera rotundifolia	round-leaved sundew
Dulichium arundinaceum	Dulichium
Echinochloa muricata	American barnyard grass
Eleocharis acicularis	needle spike-rush
Eleocharis flavescens var. *olivacea*	green spike-rush
Eleocharis ovata	blunt spike-rush
Eleocharis robbinsii	Robbin's spike-rush
Eleocharis tenuis	slender spike-rush
Eleocharis tuberculosa	tubercled spike-grass
Elodea nuttallii	Nuttall's water-weed
Epilobium coloratum	purple-leaved willow-herb
Erechtites hieracifolia	pilewort
Erigeron annuus	daisy fleabane
Erigeron canadensis	horseweed
Eriocaulon aquaticum	seven-angled pipewort
Eriocaulon compressum	flattened pipewort
Eriocaulon decangulare	ten-angled pipewort
Eriophorum virginicum	tawny cotton-grass

Table 6. Continued.

Scientific Name	Common Name
Eupatorium dubium	eastern joe-pye weed
Eupatorium perfoliatum	boneset
Eupatorium pilosum	rough boneset
Eupatorium resinosum	Pine Barrens boneset
Euphorbia ipecacuanhae	ipecac spurge
Euthamia tenuifolia	slender-leaved goldenrod
Galium tinctorium	stiff marsh bedstraw
Glyceria obtusa	blunt manna-grass
Habenaria clavellata	green wood orchid
Hibiscus moscheutos	swamp rose mallow
Hypericum canadense	Canada Saint John's-wort
Hypericum denticulatum	coppery Saint John's-wort
Hypericum mutilum	dwarf Saint John's-wort
Hypericum stragulum	Saint Andrew's cross
Impatiens capensis	spotted touch-me-not
Iris prismatica	slender blue flag
Iris versicolor	larger blue flag
Juncus acuminatus	sharp-fruited rush
Juncus canadensis	Canada rush
Juncus effusus	common rush
Juncus militaris	bayonet rush
Juncus pelocarpus	brown-fruited rush
Lachnanthes caroliniana	redroot
Leersia oryzoides	rice cut-grass
Lemna sp.	duckweed
Lindernia dubia	short-stalked false pimpernel
Lobelia canbyi	Canby's lobelia
Lobelia cardinalis	cardinal flower
Lobelia nuttallii	Nuttall's lobelia
Lophiola aurea	golden-crest
Ludwigia palustris	water purslane
Lycopodium appressum	southern bog clubmoss
Lycopus amplectans	sessile-leaved water-horehound
Lycopus uniflorus	northern bugleweed
Lycopus virginicus	Virginia bugleweed
Lysimachia terrestris	swamp loosestrife

Table 6. Continued.

Scientific Name	Common Name
Lythrum salicaria	purple loosestrife
Microstegium vimineum	eulalia
Mikania scandens	climbing hempweed
Muhlenbergia torreyana	Torrey's dropseed
Muhlenbergia uniflora	late-flowering dropseed
Nuphar variegata	bullhead lily
Nymphaea odorata	white water lily
Onoclea sensibilis	sensitive fen
Orontium aquaticum	golden club
Osmunda cinnamomea	cinanamon fern
Osmunda regalis	royal fern
Oxypolis rigidior	cowbane
Panicum clandestinum	deertongue grass
Panicum dichotomum	forked panic-grass
Panicum ensifolium	small-leaved panic-grass
Panicum longifolium	long-leaved panic-grass
Panicum scabriusculum	sheathed panic-grass
Panicum spretum	Eaton's panic-grass
Panicum verrucosum	warty panic-grass
Panicum virgatum	switchgrass
Peltandra virginica	arrow arum
Phalaris arundinacea	reed canary grass
Pilea pumila	clearweed
Pogonia ophioglossoides	rose pogonia
Polygala cruciata	cross-leaved milkwort
Polygonum arifolium	halberd-leaved tearthumb
Polygonum hydropiperoides var. *setaceum*	mild water pepper
Polygonum punctatum	dotted smartweed
Polygonum sagittatum	arrow-leaved tearthumb
Pontedaria cordata	pickerelweed
Potamogeton confervoides	alga-like pondweed
Potamogeton epihydrus	Nuttall's pondweed
Potamogeton oakesianus	Oakes' pondweed
Potamogeton pusillus	small pondweed
Rhexia mariana	Maryland meadow beauty
Rhexia virginica	Virginia meadow beauty

Table 6. Continued.

Scientific Name	Common Name
Rhynchospora alba	white beaked-rush
Rhynchospora capitellata	small-headed beaked-rush
Rhynchospora chalarocephala	loose-headed beaked-rush
Rhynchospora fusca	brown beaked-rush
Rorippa palustris	marsh yellow cress
Sabatia difformis	lance-leaved sabatia
Sagittaria engelmanniana	Engelmann's arrowhead
Sagittaria latifolia	broad-leaved arrowhead
Sarracenia purpurea	pitcher plant
Schizachyrium scoparium	little bluestem
Schizaea pusilla	curly-grass fern
Scirpus cyperinus	wool-grass
Scirpus pungens	three-square bulrush
Scirpus subterminalis	water club-rush
Scutellaria lateriflora	mad-dog skullcap
Smilax pseudochina	halberd-leaved greenbrier
Solidago canadensis	Canada goldenrod
Solidago erecta	slender goldenrod
Solidago rugosa	rough-stemmed goldenrod
Sparganium americanum	slender bur-reed
Spiranthes cernua	nodding ladies'-tresses
Thelypteris palustris	marsh fern
Thelypteris simulata	bog fern
Triadenum virginicum	marsh Saint John's-wort
Trientalis borealis	starflower
Typha angustifolia	narrow-leaved cat-tail
Typha latifolia	broad-leaved cat-tail
Utricularia biflora	two-flowered bladderwort
Utricularia cornuta	horned bladderwort
Utricularia fibrosa	fibrous bladderwort
Utricularia juncea	rush bladderwort
Utricularia radiata	smaller floating bladderwort
Verbena hastata	blue vervain
Vernonia noveboracensis	New York ironweed
Viola lanceolata var. *lanceolata*	lance-leaved violet
Viola primulafolia	primrose-leaved violet

Table 6. Continued.

Scientific Name	Common Name
Woodwardia areolata	netted chain fern
Woodwardia virginica	Virginia chain fern
Xyris difformis	Carolina yellow-eyed grass
Xyris smalliana	Small's yellow-eyed grass
Zizania aquatica	wild rice
Woody plants	
Acer rubrum	red maple
Alnus serrulata	smooth alder
Amelanchier canadensis	oblongleaf juneberry
Aronia arbutifolia	red chokeberry
Betula populifolia	gray birch
Catalpa bignonioides	common catalpa
Cephalanthus occidentalis	buttonbush
Chamaecyparis thyoides	Atlantic white cedar
Chamaedaphne calyculata	leatherleaf
Clethra alnifolia	sweet pepperbush
Diospyros virginiana	persimmon
Eubotrys racemosa	fetterbush
Gaultheria procumbens	wintergreen
Gaylussacia baccata	black huckleberry
Gaylussacia dumosa	dwarf huckleberry
Gaylussacia frondosa	dangleberry
Hypericum densiflorum	bushy Saint John's-wort
Ilex glabra	inkberry
Ilex laevigata	smooth winterberry
Ilex opaca	American holly
Ilex verticillata	winterberry
Itea virginica	Virginia willow
Juniperus virginiana	red cedar
Kalmia angustifolia	sheep laurel
Kalmia latifolia	mountain laurel
Leiophyllum buxifolium	sand myrtle
Liquidambar styraciflua	sweet gum
Lyonia ligustrina	maleberry
Lyonia mariana	staggerbush
Magnolia virginiana	sweet bay

Table 6. Continued.

Scientific Name	Common Name
Mitchella repens	partridge berry
Myrica pensylvanica	bayberry
Nyssa sylvatica	black gum
Parthenocissus quinquefolia	Virginia creeper
Pinus rigida	pitch pine
Pinus strobus	white pine
Quercus ilicifolia	scrub oak
Quercus marilandica	black-jack oak
Rhododendron viscosum	swamp azalea
Rosa multiflora	multiflora rose
Rosa palustris	swamp rose
Rubus hispidus	swamp dewberry
Rubus pensilvanicus	Pennsylvania blackberry
Rubus sp.	blackberry
Sambucus canadensis	common elder
Sassafras albidum	sassafras
Smilax glauca	glaucous greenbrier
Smilax laurifolia	laurel-leaved greenbrier
Smilax rotundifolia	common greenbrier
Smilax walteri	red-berried greenbrier
Spiraea tomentosa	steeplebush
Toxicodendron radicans	poison ivy
Vaccinium corymbosum	highbush blueberry
Vaccinium macrocarpon	large cranberry
Vaccinium pallidum	early low blueberry
Viburnum nudum var. *nudum*	naked withe-rod
Vitis labrusca	fox grape

ACKNOWLEDGMENTS

We extend our special thanks to K. Anderson for identifying or verifying most of the plant vouchers and for assisting with the plant surveys. We also thank A. E. Schuyler for identifying the *Potamogeton* species and L. Craig for assistance with field work. We are grateful to D. E. Fairbrothers for the initial offer to house the plant vouchers at the Chrysler Herbarium and J. C. French for mounting the extensive collection. We thank the New Jersey Department of Environmental Protection Division of Parks and Forestry and Division of Fish, Game and Wildlife for permission to conduct the study on state lands. This work was supported in part by the U.S. Environmental Protection Agency through the Wetlands Protection Development Program (grant no. X002769-01-0). Additional funds were provided by the Pinelands Commission.

LITERATURE CITED

Anderson, K. 1989. A check list of the plants of New Jersey. New Jersey Audubon Society, Rancocas Nature Center, Mount Holly, New Jersey.

Ehrenfeld, J. G. 1983. The effects of changes in land-use on swamps of the New Jersey Pine Barrens. Biological Conservation 25:353-375.

Ehrenfeld, J. G., and J. P. Schneider. 1991. *Chamaecyparis thyoides* wetlands and suburbanization: effects on hydrology, water quality and plant community composition. Journal of Applied Ecology 28:467-490.

Gleason, H. A., and A. Cronquist. 1991. Manual of vascular plants of northeastern United States and adjacent Canada, 2nd Edition. New York Botanical Garden, Bronx, New York.

Morgan, M. D., and K. R. Philipp. 1986. The effect of agricultural and residential development on aquatic macrophytes in the New Jersey Pine Barrens. Biological Conservation 35:143-158.

Zampella, R. A. 1992. Long-term Pinelands monitoring program, Task 1: study area selection. Pinelands Commission, New Lisbon, NJ.

Zampella, R. A., and K. J. Laidig. 1996. The effect of watershed disturbance on Pinelands stream vegetation. Pinelands Commission, New Lisbon, NJ.