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Project Completion Report

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Vascular Flora of the Iroquois County Conservation Area,
Iroquois County, Illinois

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ABSTRACT

The vascular flora of the Iroquois County Conservation Area, Iroquois County, Illinois was studied during the 2001 growing season. A total of 553 taxa were found: 15 fern and fern-allies, one gymnosperm, 153 monocots, and 384 dicots. The families with the largest number of taxa included the Asteraceae with 78 taxa, the Poaceae with 66 taxa, and the Cyperaceae with 48 taxa, of which 26 were members of the genus *Carex*. A survey of the ground layer vegetation was conducted on a Grade C sedge meadow, a Grade B shrub sand prairie, a Grade B wet-mesic sand prairie, and a Grade B dry sand prairie. In the Grade C sedge meadow *Carex haydenii/stricta* [*C. haydenii* Dewey (Hayden's sedge) and *C. stricta* Lam. (tussock sedge)] ranked first with an importance value (I.V.) of 113.4 (out of 200). Unlike the sedge meadow where only two taxa dominated, in the Grade B communities six to eight taxa were important in each community. The most important taxa in the shrub sand prairie (I.V. >10) were two shrubs, *Spiraea tomentosa* L. (hardhack) and *Rubus hispidus* L. (swampy dewberry), two sedges, Hayden's sedge and tussock sedge, one grass, *Schizachyrium scoparium* Michaux (little bluestem), and three forbs, *Potentilla simplex* Michaux (common cinquefoil), *Euthamia graminifolia* (L.) Salisb. (grass-leaved goldenrod), and *Liatris aspera* Michaux (rough blazing-star). The wet-mesic sand prairie and the dry sand prairie also had shrubs as important components of their structure. The most important taxa in the wet-mesic sand prairie (I.V. >10) were two shrubs, swampy dewberry, and *Rubus setosus* Bigel (bristly blackberry), one sedge, *Carex* sp. (sedge), two grasses, *Sorghastrum nutans* (L.) Nash (Indian grass) and little bluestem, and three forbs, grass-leaved goldenrod, common cinquefoil, and *Solidago canadensis* L. (tall goldenrod). The most important taxa in the dry sand prairie (I.V. >10) were two shrubs, swampy dewberry and *Vaccinium angustifolium* Ait. (low-bush blueberry), one sedge, *Carex pennsylvanica* Lam. (Pennsylvania sedge), two grasses, little bluestem and Indian grass, and one forb, *Aster simplex* Willd. (hairy aster).

INTRODUCTION

Iroquois County Conservation Area (ICCA), Iroquois County, Illinois, is located in the Kankakee Sand Area Section of the Grand Prairie Division (Schwegman, et al. 1973). It is within the eastern edge of the former Lake Watseka, a glacial lake formed approximately 14,000 years ago during the Kankakee Torrent (Willman & Frye 1970). Lake Watseka was eventually drained, due to incising of the Illinois and Kankakee rivers, exposing large areas of sand deposits along its shoreline. Wind action sorted these sand deposits into sand dunes and swales, largely on terraces along the Kankakee River Valley. In response to hypsithermal climatic stress, about 8300 A.D., prairie vegetation began replacing deciduous forest in Illinois (King 1981). In 1820, prairie vegetation covered 92% of Iroquois County (Hedborn 1984, Iverson, et al. 1989). Regular fires that swept across the prairies were a major factor in the development and maintenance of the communities at ICCA. The present study was undertaken to develop a vouchered flora, locate Illinois threatened and endangered species on the ICCA, and determine the structure and composition of the sedge meadow and prairie communities.

MATERIALS AND METHODS

Field trips were made to the ICCA at various times during the 2001 growing season. During each trip (12 trips) voucher specimens were collected, habitat data for each taxon were determined, and the plant communities were delineated. The material collected was identified and deposited in the herbarium of the Illinois Natural History Survey (ILLS), Champaign, Illinois. Criteria for designating native and non-native taxa followed Fernald (1950), Steyermark (1963), Mohlenbrock (1986), and Gleason and Cronquist (1991).

Within the Grade C sedge meadow (late June of 2001), 4 transects 250 m long were located in a general north-south orientation, 75 m apart (Figure 1). Permanent metal T-posts were positioned at both ends of each transect. Started 10 m south of the north end of each transect and at each 25 m thereafter (10m, 35m, 60m, 85m, 110m, 135m, 160m, 185m, 210m, 235m) 10 points were established. The center point of the 10 permanent plots along the transect was located to the east and west of these original points. A random numbers table (0 to 9) was used to determine the number of meters the center point would be located from the transect line. Center points located at even numbered intervals (10m, 60m, etc) were located to the east, center points located at odd numbered intervals (35m, 85m, etc) were located to the west side of the transect line.

At each center point (10 along each transect) the woody vegetation was analyzed using nested circular plots. At each center point a 0.04 ha circular plot was established and all living trees 10 cm dbh and above were identified to species and their diameters recorded (cm). Density (stems/ha), basal area (m^2/ha), relative frequency, relative density, relative dominance, importance value (IV), and average diameter were calculated for each species.

Woody understory composition, frequency, and density (stems/ha) were determined using 0.0001, 0.001, and 0.01 ha nested circular plots at each center point. Four additional 0.0001 ha and 0.001 ha plots were located 7 m from each center point on cardinal compass directions. In the 0.0001 ha plot, tree and shrub seedlings (≤ 50 cm tall) were counted; in the 0.001 ha circular plots small saplings (>50 cm tall and ≤ 2.5 dbh) were recorded; and in the 0.01 ha circular plots large saplings (2.6 to 9.9 cm dbh) were recorded. The shrubby species of *Rubus* (blackberries and raspberries) were counted in the 0.0001 ha plots, while the prairie shrubs *Rhus aromatica* Ait. (fragrant sumac) and *Rubus flagellaris* Willd. (dewberry) were surveyed with the ground layer taxa in the 1 m^2 plots.

Ground layer vegetation was determined using 1 m^2 quadrats (150 quadrats) located along line transects used for the woody vegetation. The determination of cover and frequency of ground layer vegetation began 10 m north of the southern 4 T-posts and 10 m north of two additional T-posts located at 75 m intervals to the west (Figure 1). The 1 m^2 quadrats extended north 25 m (10 m to 35 m). Odd numbered plots were placed east and even numbered plots west of the center line (25 for each transect). The cover of each species rooted in a quadrat was determined using Daubenmire (1959) cover classes as modified by Bailey and Poulton (1968) (class 1 = 0 to 1%, class 2 = >1 to 5%, class 3 = >5 to 25%, class 4 = >25 to 50%, class 5 = >50 to 75%, class 6 = >75 to

95%, class 7 = >95 to 100%). From these data, cover (%), relative cover, frequency (%), relative frequency, and importance value (IV) of each species were calculated. Nomenclature follows Mohlenbrock (1986).

The Grade B communities (shrub sand prairie, wet-mesic sand prairie, and dry sand prairie) were surveyed in early October 2001. The 1 m² (50 quadrats in each Grade B community), for determining the cover and frequency of ground layer vegetation, were positioned as shown in Figure 1. The position of the plots along the transect and the cover determination procedures were made as explained above with the Grade C sedge meadow community.

DESCRIPTION OF THE STUDY AREA

The study area, located about 6 kilometer northeast of Beaverville, Iroquois County, Illinois, was recognized as having high quality (Grade B) marsh, sedge meadow, dry-mesic sand prairie, shrub prairie, and dry to dry-mesic sand savanna by the Illinois Natural Areas Inventory (White & Madany 1978). This 777 ha (all of Sec 22, 23, 24 T29N R11W) conservation area is south and adjacent to Hooper Branch Savanna Nature Preserve.

The entire site is used as a Hunting Area with an office in the northwest corner of the ICCA. County Route (CR) 2800E borders the west edge, CR 3300N the north edge, and CR 3200N runs one mile along the southwest edge of ICCA. Additional roads include a north-south access road just within the east border and an east-west access road that transverses the northern-half of ICCA. Elevation varied from 193 m in the southwest portion to 210 m above sea level in the northeast portion. Before purchase, the area had been grazed, lightly logged, occasionally burned, farmed (mostly northwest portion), and had its hydrology altered. Additionally, a dozen small man-created ponds are located along a small stream in the northern half of the western third of ICCA.

The soil is of the Gilford-Chelsea-Watseka association (Kiefer 1982). These soils are formed in glacial outwash and in wind- or water-deposited sand. They range from excessively drained soils which are slightly acidic, light colored, and have little organic matter (savanna communities) to very poorly drained soils on flats and in depressions which are ponded (in places >0.25 m deep) in the winter and spring and which are neutral, black, and loamy (flatwoods and sedge meadow communities).

Eleven species listed, by the Illinois Endangered Species Protection Board (IESPB) [1999], as threatened or endangered have been reported from within the ICCA. The three threatened species reported are: *Agalinis skinneriana* (Wood) Britton (pale false foxglove), *Drosera intermedia* Hayne (narrow-leaved sundew), and *Veronica scutellata* L. (marsh speedwell). The eight endangered species reported are: *Hypericum adpressum* Bart. (shore St. John's wort), *Lycopodium dendroideum* Michaux (ground pine), *Platanthera flava* (L.) Lindl. var. *herbiola* (R. Br.) Luer (tuberclad orchid), *Poa wolfii* Scribn. (Wolf's bluegrass), *Polygonum careyi* Olney (Carey's heartease), *Rubus setosus* Bigelow [= *R. schneideri* Bailey] (bristly blackberry), *Sisyrinchium atlanticum* Bicknell (eastern blue-eyed grass), and *Viola primulifolia* L. (primrose violet).

The climate of east-central Illinois is continental with cool winters, hot summers, and little or no water deficit in any season of the year (Page 1949, Fehrenbacher et al. 1967, Schwegman et al. 1973). According to the Midwest Climate Center (2002), nearest station (32 km to the south-southwest) at Watseka, Illinois, the mean annual

precipitation is 100.2 cm with the month of July having the highest rainfall (10.5 cm) and the mean annual temperature is 9.6°C with the hottest month being July (average of 22.9°C) and the coldest month being January (average of -6.1°C). The number of frost free days is 160 to 170 (Page 1949).

RESULTS AND DISCUSSION

Vascular Plant Species Present: The documented flora in the ICCA consisted of 553 species and subspecific taxa within 211 genera and 91 families. Of these taxa, 64 (11.6%) were not native to Illinois. Pteridophytes were poorly represented at ICCA, accounting for only 15 taxa (2.7% of all taxa) while Spermatophytes accounted for the remainder. Among the Spermatophytes, gymnosperms accounted for 1 taxon (0.2% of all taxa), monocots accounted for 153 taxa (27.7% of all taxa) in 70 genera and 16 families, while dicots accounted for 384 taxa (69.4% of all taxa) in 211 genera and 66 families. Genera with the most taxa were: *Carex* (sedge) 26, *Polygonum* (smartweed) 17, *Aster* (aster) 9, *Juncus* (rush) 9, *Panicum* (panic grass) 9, and *Salix* (willow) 8. Families with the most taxa were: Asteraceae (aster family) 78, Poaceae (grass family) 66, Cyperaceae (sedge family) 48, Fabaceae (pea family) 23, Rosaceae (rose family) 23, Polygonaceae (smartweed family) 20, Scrophulariaceae (figwort family) 17, Brassicaceae (mustard family) 15, and Lamiaceae (mint family) 15. Nine species (1.6% of all taxa) listed as Illinois threatened or endangered by the IESPB (1999) were vouchered and their locations mapped (Figure 2). The two threatened species vouchered are: *Drosera intermedia* Hayne (narrow-leaved sundew), and *Veronica scutellata* L. (marsh speedwell). The eight endangered species vouchered are: *Hypericum adpressum* Bart. (shore St. John's wort), *Lycopodium dendroideum* Michaux (ground pine), *Platanthera flava* (L.) Lindl. var. *herbiola* (R. Br.) Luer (tubercled orchid), *Polygonum careyi* Olney (Carey's heartease), *Rubus setosus* Bigelow (bristly blackberry), *Sisyrinchium atlanticum* Bicknell (eastern blue-eyed grass), and *Viola primulifolia* L. (primrose violet). For a complete list of taxa and the natural communities where the species were observed see Appendix 1. For a brief discussion on tree and large shrub encroachment at ICCA see Appendix II.

Ground Layer Species of the Grade C Sedge Meadow: Ground layer species (including woody species <50 cm tall) were not very diverse; 29 taxa were recorded in the plots (Table 1). Of these, two were naturalized, *Mentha arvensis* L. (field mint) and *Poa pratensis* L. (Kentucky bluegrass). *Carex haydenii/stricta* [*C. haydenii* Dewey (Hayden's sedge) and *C. stricta* Lam. (tussock sedge)] was dominant with an importance value of 113.4 (out of 200). Other frequently encountered taxa (>20% frequency) included: one grass, *Calamagrostis canadensis* (Michaux) Beauv. (bluejoint grass), one sedge, *Carex buxbaumii* Wahlenb. (sedge), and three forbs, *Polygonum amphibium* L. (water smartweed), *Galium obtusum* Bigel. (wild madder), and *Hypericum sphaerocarpum* Michaux (round-fruited St. John's wort). Three shrubs were recorded, *Spiraea alba* DuRoi (meadow-sweet), *Cephalanthus occidentalis* L. (buttonbush), and *Rosa palustris* Marsh. (swamp rose). No trees were encountered.

Ground Layer Species of the Grade B Shrub Sand Prairie: Ground layer species (including woody species <50 cm tall) were diverse; 54 taxa were recorded in the plots (Table 2). Of these, none were naturalized taxa. The most important taxa (I.V. >10) in the shrub sand prairie were: two shrubs, *Spiraea tomentosa* L. (hardhack) and *Rubus hispidus* L. (swampy dewberry), two sedges, Hayden's sedge and tussock sedge, one grass, *Schizachyrium scoparium* Michaux (little bluestem), and three forbs, *Potentilla simplex* Michaux (common cinquefoil), *Euthamia graminifolia* (L.) Salisb.

(grass-leaved goldenrod), and *Liatris aspera* Michaux (rough blazing-star). Other frequently encountered taxa (>50% frequency) included: two grasses, *Spartina pectinata* Link (cord grass), *Sorghastrum nutans* (L.) Nash (Indian grass), and four forbs, *Polygala cruciata* L. (cross milkwort), *Lysimachia lanceolata* Walt. (loosestrife), *Viola lanceolata* L. (lance-leaved violet), and *Solidago gigantea* (late goldenrod). Five species listed as Illinois threatened or endangered by the IESPB (1999) were recorded: narrow-leaved sundew (Illinois threatened), shore St. John's wort (Illinois endangered), bristly blackberry (Illinois endangered), eastern blue-eyed grass (Illinois endangered), and primrose violet (Illinois endangered).

Ground Layer Species of the Grade B Wet-mesic Sand Prairie: Ground layer species (including woody species <50 cm tall) were fairly diverse; 42 taxa were recorded in the plots (Table 3). Of these, two were naturalized, Kentucky bluegrass and *Achillea millefolium* L. (yarrow). The most important taxa (I.V. >10) in the wet-mesic sand prairie were: two shrubs, swampy dewberry, and bristly blackberry, one sedge, *Carex* sp. (sedge), two grasses, Indian grass and little bluestem, and three forbs, grass-leaved goldenrod, common cinquefoil, and *Solidago canadensis* L. (tall goldenrod). Other frequently encountered taxa (>50% frequency) included: one shrub, hardhack, and two forbs, late goldenrod and *Liatris spicata* (L.) Willd. (marsh blazing-star). Two species listed as Illinois endangered by the IESPB (1999) were recorded: shore St. John's wort (Illinois endangered) and bristly blackberry (Illinois endangered).

Ground Layer Species of the Grade B Dry-mesic Sand Prairie: Ground layer species (including woody species <50 cm tall) were fairly diverse; 37 taxa were recorded in the plots (Table 4). Of these, one was naturalized, Kentucky bluegrass. The most important taxa (I.V. >10) in the dry sand prairie were: two shrubs, swampy dewberry and *Vaccinium angustifolium* Ait. (low-bush blueberry), one sedge, *Carex pensylvanica* Lam. (Pennsylvania sedge), two grasses, little bluestem and Indian grass, and one forb, *Aster simplex* Willd. (hairy aster). Other frequently encountered taxa (>50% frequency) included: one sedge, *Scleria triglomerata* Michx. (nut rush), and two forbs, common cinquefoil and grass-leaved goldenrod. One species listed as Illinois endangered by the IESPB (1999) was recorded: primrose violet. One native weedy tree, *Populus tremuloides* Michx. (quaking aspen) was becoming invasive (I.V. 4.7).

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Table 1. Frequency (%), average cover, relative frequency, relative cover, and importance values (IV) of the ground layer species encountered in a Grade C sedge meadow, Iroquois County Conservation Area, Iroquois County, Illinois.

Species	Frequency %	Average Cover	Relative Frequency	Relative Cover	I.V.
<i>Carex haydenii/stricta</i>	100	78.55	26.2	87.2	113.4
<i>Calamagrostis canadensis</i>	52	4.52	13.6	5.0	18.6
<i>Polygonum amphibium</i>	57	1.33	15.0	1.5	16.5
<i>Carex buxbaumii</i>	33	0.73	8.7	0.8	9.5
<i>Galium obtusum</i>	31	1.04	8.2	1.2	9.4
<i>Hypericum sphaerocarpum</i>	23	1.77	6.1	2.0	8.1
<i>Lycopus americanus</i>	16	0.10	4.2	0.1	4.3
<i>Eleocharis sp.</i>	15	0.12	3.8	0.2	4.0
<i>Mentha arvensis</i>	8	0.14	2.1	0.2	2.3
<i>Boehmeria cylindrica</i>	8	0.09	2.1	0.1	2.2
<i>Spartina pectinata</i>	6	0.31	1.6	0.3	1.9
<i>Pycnanthemum virginianum</i>	6	0.13	1.6	0.2	1.8
<i>Onoclea sensibilis</i>	3	0.57	0.9	0.6	1.5
<i>Lathyrus palustris</i>	3	0.02	0.9	--	0.9
<i>Thelypteris palustris</i>	2	0.30	0.5	0.3	0.8
<i>Epilobium leptophyllum</i>	3	0.03	0.7	--	0.7
<i>Solidago gigantea</i>	2	0.04	0.5	0.1	0.6
<i>Spiraea alba</i>	1	0.12	0.4	0.1	0.5
<i>Asclepias incarnata</i>	1	0.02	0.3	--	0.3
<i>Bidens aristosa</i>	1	0.01	0.3	--	0.3
<i>Carex suberecta</i>	1	0.01	0.3	--	0.3
<i>Cephalanthus occidentalis</i>	1	0.10	0.2	0.1	0.3
<i>Euthamia graminifolia</i>	1	0.01	0.3	--	0.3
<i>Poa pratensis</i>	1	0.01	0.3	--	0.3
<i>Rosa palustris</i>	1	0.2	0.3	--	0.3
<i>Verbena hastata</i>	1	0.01	0.3	--	0.3
<i>Cardamine bulbosa</i>	1	--	0.2	--	0.2
<i>Eleocharis wolfii</i>	1	--	0.2	--	0.2
<i>Iris shrevei</i>	1	--	0.2	--	0.2
Totals			100.0	100.0	200.0
Average bare ground		0.96			

Table 2. Frequency (%), average cover, relative frequency, relative cover, and importance values (IV) of the ground layer species encountered in a Grade B shrub sand prairie, Iroquois County Conservation Area, Iroquois County, Illinois.

Species	Frequency %	Average Cover	Relative Frequency	Relative Cover	I. V.
<i>Carex haydenii/stricta</i>	98	20.23	6.9	12.8	19.7
<i>Potentilla simplex</i>	94	19.30	6.6	12.2	18.8
<i>Spiraea tomentosa</i>	94	12.89	6.6	8.1	14.7
<i>Euthamia graminifolia</i>	96	10.00	6.8	6.3	13.1
<i>Rubus hispidus</i>	68	11.54	4.8	7.3	12.1
<i>Schizachyrium scoparium</i>	62	10.26	4.3	6.5	10.8
<i>Liatris aspera</i>	68	8.70	4.8	5.5	10.3
<i>Calamagrostis canadensis</i>	48	9.89	3.4	6.2	9.6
<i>Spartina pectinata</i>	52	8.31	3.6	5.1	8.7
<i>Sorghastrum nutans</i>	50	8.02	3.5	5.1	8.6
<i>Solidago gigantea</i>	54	3.68	3.8	2.3	6.1
<i>Viola primulifolia</i>	46	4.03	3.2	2.5	5.7
<i>Baptisia lactea</i>	22	6.00	1.5	3.8	5.3
<i>Lysimachia lanceolata</i>	56	2.04	3.9	1.3	5.2
<i>Viola lanceolata</i>	56	1.70	3.9	1.1	5.0
<i>Polygala cruciata</i>	58	0.59	4.1	0.4	4.5
<i>Solidago nemoralis</i>	24	3.70	1.7	2.3	4.0
<i>Andropogon gerardii</i>	28	2.73	2.0	1.7	3.7
<i>Eryngium yuccifolium</i>	18	3.59	1.3	2.3	3.6
<i>Coreopsis tripteris</i>	32	1.58	2.3	1.0	3.3
<i>Vernonia gigantea</i>	32	1.19	2.3	0.8	3.1
<i>Solidago canadensis</i>	32	1.05	2.3	0.7	3.0
<i>Bartonia virginica</i>	30	0.15	2.1	0.1	2.2
<i>Vaccinium angustifolium</i>	14	1.59	1.0	1.0	2.0
<i>Aster simplex</i>	18	0.58	1.3	0.4	1.7
<i>Galium obtusum</i>	18	0.19	1.3	0.1	1.4
<i>Polygala polygama</i>	18	0.09	1.3	0.1	1.4
<i>Osmunda regalis</i>	6	1.35	0.4	0.9	1.3
<i>Eleocharis verrucosa</i>	16	0.08	1.1	0.1	1.2
<i>Oxypolis rigidior</i>	14	0.32	1.0	0.2	1.2
Others (24 species)		3.46	6.9	1.8	8.7
Totals			100.0	100.0	200.0
Average bare ground		6.96			

Table 3. Frequency (%), average cover, relative frequency, relative cover, and importance values (IV) of the ground layer species encountered in a Grade B wet-mesic sand prairie, Iroquois County Conservation Area, Iroquois County, Illinois.

Species	Frequency %	Average Cover	Relative Frequency	Relative Cover	I.V.
<i>Rubus hispidus</i>	92	22.90	6.9	13.4	20.3
<i>Euthamia graminifolia</i>	98	18.69	7.4	10.9	18.3
<i>Potentilla simplex</i>	98	18.57	7.4	10.8	18.2
<i>Sorghastrum nutans</i>	84	20.26	6.3	11.8	18.1
<i>Rubus schneideri</i>	84	16.34	6.3	9.5	15.8
<i>Carex sp.</i>	98	11.71	7.4	6.8	14.2
<i>Schizachyrium scoparium</i>	84	12.87	6.3	7.5	13.8
<i>Solidago canadensis</i>	78	9.59	5.9	5.6	11.5
<i>Liatris spicata</i>	52	8.58	3.9	5.0	8.9
<i>Spiraea tomentosa</i>	66	5.85	5.0	3.4	8.4
<i>Coreopsis tripteris</i>	42	5.26	3.2	3.1	6.3
<i>Solidago gigantea</i>	56	2.74	4.2	1.8	6.0
<i>Bartonia virginica</i>	46	0.23	3.5	0.1	3.6
<i>Pycnanthemum virginiana</i>	30	1.28	2.3	0.7	3.0
<i>Andropogon gerardii</i>	18	2.69	1.4	1.6	3.0
<i>Poa pratensis</i>	28	0.97	2.1	0.6	2.7
<i>Spiraea alba</i>	30	0.75	2.3	0.4	2.7
<i>Panicum virgatum</i>	22	1.14	1.7	0.7	2.4
<i>Spartina pectinata</i>	24	1.10	1.8	0.6	2.4
<i>Aronia melanocarpa</i>	10	2.66	0.8	1.6	2.4
<i>Achillea millefolium</i>	24	0.66	1.8	0.4	2.2
<i>Galium obtusum</i>	22	0.55	1.7	0.3	2.0
<i>Helianthus grosseserratus</i>	12	1.72	0.9	1.0	1.9
<i>Aster simplex</i>	14	0.61	1.1	0.4	1.5
<i>Viola sagittata</i>	18	0.14	1.4	0.1	1.5
<i>Juncus dudleyi</i>	16	0.13	1.2	0.1	1.3
<i>Rosa palustris</i>	10	0.49	0.8	0.3	1.1
Others (24 species)		2.95	5.0	1.5	6.5
Totals			100.0	100.0	200.0
Average bare ground		6.90			

Table 4. Frequency (%), average cover, relative frequency, relative cover, and importance values (IV) of the ground layer species encountered in a Grade B dry sand prairie, Iroquois County Conservation Area, Iroquois County, Illinois.

Species	Frequency %	Average Cover	Relative Frequency	Relative Cover	I.V.
<i>Rubus hispidus</i>	100	16.72	10.6	21.9	32.5
<i>Schizachyrium scoparium</i>	92	16.43	9.8	21.5	31.3
<i>Vaccinium angustifolium</i>	38	13.83	4.0	18.1	22.1
<i>Sorghastrum nutans</i>	72	4.32	7.6	5.7	13.3
<i>Aster simplex</i>	82	3.35	8.7	4.4	13.1
<i>Carex pensylvanica</i>	70	4.36	7.4	5.7	13.1
<i>Euthamia graminifolia</i>	50	2.06	5.3	2.7	8.0
<i>Scleria triglomerata</i>	56	1.43	5.9	1.9	7.8
<i>Potentilla simplex</i>	58	1.14	6.2	1.5	7.7
<i>Salix humilis</i>	40	2.59	4.2	3.4	7.6
<i>Panicum virgatum</i>	28	1.75	3.0	2.3	5.3
<i>Populus tremuloides</i>	28	1.27	3.0	1.7	4.7
<i>Solidago nemoralis</i>	26	1.26	2.8	1.7	4.5
<i>Andropogon gerardii</i>	26	1.30	2.8	1.7	4.5
<i>Baptisia lactea</i>	26	0.68	2.8	0.9	3.7
<i>Quercus palustris</i>	18	0.87	1.9	1.1	3.0
<i>Viola sagittata</i>	20	0.30	2.1	0.4	2.5
<i>Gentiana saponaria</i>	18	0.19	1.9	0.2	2.1
<i>Rhus copallina</i>	10	0.78	1.1	1.0	2.1
<i>Spiraea tomentosa</i>	14	0.27	1.5	0.4	1.9
<i>Liatris spicata</i>	12	0.16	1.3	0.2	1.5
<i>Poa pratensis</i>	8	0.24	0.8	0.3	1.1
Others (24 species)			5.3	1.3	6.6
Totals			100.0	100.0	200.0
Average bare ground		24.33			

APPENDIX 1

The vascular taxa encountered and collected at the Iroquois County Conservation Area are listed below by major groups, Pteridophytes (ferns and fern-allies) and Spermatophytes (seed plants), the latter divided into Monocots and Dicots. The families, genera, and species are alphabetically arranged within each group. Non-native species are indicated by an asterisk (*). After the binomial and authority, the communities where the species was observed is given (1 = shrub swamp/marsh, 2 = sedge meadow, 3 = sand flatwoods, 4 = wet sand prairie, 5 = mesic sand prairie, 6 = dry-mesic sand prairie, 7 = dry sand prairie, 8 = shrub prairie, 9 = dry-mesic sand savanna, 10 = dry sand savanna, 11 = cultural). Following the community number(s), collecting numbers or date collected (when collecting number not assigned) preceded by the initial of the collector's name are given (E for John E. Ebinger, Ev for Robert A. Evers, F for Mary A. Feist, H for Fran Harty, M for Michael H. Madany, and P for Loy R. Phillippe).

PTERIDOPHYTES

ASPLENIACEAE

Asplenium platyneuron (L.) Oakes: 9; E 21827

DENNSTAEDTIACEAE

Pteridium aquilinum (L.) Kuhn var. *latiusculum* (Desv.) Underw.: 7, 10; E 21277, E 21834

DRYOPTERIDACEAE

Dryopteris carthusiana (Villars) H.P. Fuchs: 3; P 33033
Dryopteris cristata (L.) A. Gray: 3; P 33036
Onoclea sensibilis L.: 2; E 22332

EQUISETACEAE

Equisetum arvense L.: 2, 3, 4, 12; E 21630
Equisetum fluviatile L.: 3, 11; E 22008, E 22646
Equisetum hyemale L.: 7, 9, 10; E 22649
Equisetum laevigatum A. Br.: 7, 9, 10, 11; E 21957

LYCOPODIACEAE

Lycopodium dendroideum Michaux: 8; H 11 October 2001; P 33825

OPHIOGLOSSACEAE

Botrychium virginianum (L.) Sw.: 3; P 33038
Ophioglossum pusillum Raf.: 2, 3, 4, 5; P 32965

OSMUNDACEAE

Osmunda cinnamomea L.: 3; P 33276
Osmunda regalis L.: 3, 8; E 21240, E 21991, E 22271

THELYPTERIDACEAE

Thelypteris palustris Schott: 2, 8; E 22276

SPERMATOPHYTES: GYMNOSPERMS

PINACEAE

**Pinus banksiana* Lamb.: 11; P 33826

SPERMATOPHYTES: ANGIOSPERMS

MONOCOTS

ACORACEAE

Acorus americanus (Raf.) Raf.: 4, 11; P 33062, P 33703

ALISMACEAE

Alisma plantago-aquatica L. var. *parviflorum* (Pursh) Torrey: 1; E 22340
Sagittaria latifolia Willd.: 11; P 33655

COMMELINACEAE

Commelina erecta L.: 6, 7, 10, 11; E 21243, E 22423, E 22536
Tradescantia ohiensis Raf.: 6, 7, 9, 10, 11; E 21256, E 21857

CYPERACEAE

- Bulbostylis capillaris* (L.) C.B. Clarke in Hooker f.: 6; P 33821
Carex bebbii Olney: 6; E 21261
Carex blanda Dewey: 9, 10; P 32956
Carex brachyglossa Mack.: 5; F 981
Carex brevior (Dewey) Mack.: 5, 11; E 21912
Carex buxbaumii Wahlenb.: 2, 3, 4; E 21597, E 21818, E 22009
Carex cephalophora Muhl. ex Willd.: 3, 9, 10; P 33051
Carex crawei Dewey: 5, 11; E 21881
Carex emmonsii Dewey: 3, 5; P 32943
Carex festucacea Schk. in Willd.: 3; P 33053
Carex foenea Willd.: 9; E 21590
Carex haydenii Dewey: 2, 3, 4, 5; P 32946
Carex interior Bailey: 4, 5; P 32951
Carex lupuliformis Sartwell: 2; E 22341, E 22483, P 33478
Carex muhlenbergii Schk.: 7, 10, 11; E 21255, E 21850, E 21891, E 21893
Carex normalis Mack.: 5; F 975
Carex pellita Muhl.: 2; E 21595, E 21812
Carex pensylvanica Lam.: 7, 9, 10; E 21584
Carex physorhyncha Liebm.: 7, 8, 9, 10, 11; E 21851, E 21890, E 21999
Carex sartwellii Dewey: 2; P 32961
Carex scoparia Schk.: 2, 11; E 21822, E 22015, E 21870, E 21910
Carex stricta Lam.: 2; E 21598
Carex suberecta (Olney) Britt.: 2, 3, 4, 5, 9; P 32955
Carex swanii (Fernald) Mackenzie: 6, 9; E 21247, E 21837, E 21969, E 22345
Carex umbellata Schk. in Willd.: 5, 6; P 32963
Carex vesicaria L.: 4; P 33063
Carex vulpinoidea Michx.: 11; E 21880
Cyperus aristatus Rottb.: 11; E 22636
Cyperus erythrorhizos Muhl.: 11; E 22478, E 22635
Cyperus filiculmis Vahl: 6, 7, 10; E 21246, E 21254, E 22258, E22414, E 22422
Cyperus schweinitzii Torrey: 6, 7, 10; E 21242
Cyperus rivularis Kunth.: 11; E 22643
Cyperus strigosus L.: 11; E 22461
Eleocharis acicularis (L.) Roem. & Schultes: 12; E 22637
Eleocharis erythropoda Steud.: 1, 2; E 21822, E 22339
Eleocharis obtusa (Willd.) Schult.: 11; E 21298, E 21498, E 22310A, E 22460
Eleocharis tenuis (Willd.) Schult.: 8, 12; E 21895, E 21997
Eleocharis verrucosa (Svens.) Harms: 1, 2, 4, 5, 8; site record only
Eleocharis wolfii Gray: 2, 3, 4; P 33048
Fimbristylis autumnalis (L.) R. & S.: 11; Ev 85031, E 22455, E 22638
Fimbristylis puberula (Michx.) Vahl var. *drummondii* (Boeckl.) Ward.: 11; Ev 87587
Rhynchospora capitellata (Michx.) Vahl: 5, 8, 11; E 21291, E 21515, E 22311B, E 22314
Scirpus acutus Muhl.: 1; E 21972, E 22329
Scirpus cyperinus (L.) Kunth: 2, 4, 11; P 33615, P 33635
Scirpus micranthus Vahl: 11; E 22309
Scirpus pendulus Muhl.: 11; E 21885
Sclerea pauciflora Muhl. ex Willd. var. *caroliniana* (Willd.) Wood: 6, 9; P 33403
Sclerea triglomerata Michx.: 5, 6, 8, 10; P 33401

HYDROCHARITACEAE

Elodea canadensis L.C. Rich.: 11; E 30047

IRIDACEAE

Iris shrevei Small: 2, 5; E 21807

Sisyrinchium albidum Raf.: 6, 11; E 21576, E 21887

Sisyrinchium atlanticum Bickn.: 5, 8; E 21986, P 32944

JUNCACEAE

Juncus acuminatus Michx.: 2, 11; E 21296, E 21859, E 21956, E 22313, E 22456, E 21820, E 22277

Juncus brachycarpus Engelm.: 11; Ev 85014, Ev 102884

Juncus bufonius L.: 11; F 973.2

Juncus canadensis A. Gay.: 1, 8; E 22487, E 22585, E 22586

Juncus dudleyi Wieg.: 2, 5, 6; E 21806, E 21819, E 22007

Juncus greenei Oakes & Tuckerm.: 6; E 21235, E 22545

Juncus marginatus Rostk.: 8; E 21993

Juncus nodosus L.: 11; Ev 81372

Juncus tenuis Willd.: 9, 10, 11; E 21952

LEMNACEAE

Lemna minor L.: 11; E 30048

Spirodela polyrhiza (L.) Schleiden: 11; E 22291

LILIACEAE

Aletris farinosa L.: 4, 5, 6, 8, 9; E 21234, E 21996, E 22543

Asparagus officinalis L.: 11; E 21949

Hypoxis hirsuta (L.) Coville: 6, 7; Ev 87576

Maianthemum canadense Desf.: 3; P 33488

Polygonatum commutatum (Schult.) A. Dietr.: 9, 10; E 21284, E 21833

Smilacina racemosa (L.) Desf.: 9, 10; E 21305

Smilacina stellata (L.) Desf.: 9, 10; E 21280

ORCHIDACEAE

Liparis lillifolia (L.) Rich.: 3; P 33034

Liparis loeselii (L.) Rich.: 3; F 985

Platanthera flava (L.) Lindl. var. *herbiola* (R. Br.) Luer: 4; P 33049

Platanthera lacera (Michx.) G. Don: 8; E 21982

Spiranthes cernua (L.) Rich.: 5, 8; E 22648

POACEAE

- **Agropyron repens* (L.) Beauv.: 11; E 21869
 **Agrostis alba* L.: 5, 11; E 21236, E 21931
Agrostis hyemalis (Walt.) BSP.: 3, 4, 5, 8, 11; E 21902, E 21981, E 21995
Agrostis scabra Willd.: 3, 4, 6, 7, 9, 10; E 22413, E 22593, P 33618
Alopecurus carolinianus Walt.: 11; E 21894
Andropogon gerardii Vitman: 5, 6, 7, 8, 9, 10; E 22556, E 22580
Aristida basiramea Engelm.: 7, 10; E 22415
Aristida purpurascens Poir.: 7, 10; E 21503, E 22426, E 22519
Aristida tuberculosa Nutt.: 7, 10; E 22416
Bouteloua curtipendula (Michx.) Torrey: 11; 22506
 **Bromus commutatus* Schrad.: 11; E 21872, E 21909
 **Bromus inermis* Leyss.: 10, 11; E 21862, E 22281
 **Bromus japonicus* Thunb.: 11; 102859
Bromus purgans L.: 11; P 33467
 **Bromus tectorum* L.: 11; E 21621, E 21863
Calamagrostis canadensis (Michx.) Beauv.: 2, 8; E 21811, E 21283, E 21964, E 22292
Cenchrus longispinus (Hack.) Fernald: 11; E 22297, E 22507
 **Dactylis glomerata* L.: 11; E 21618, E 21864
Danthonia spicata (L.) Roem. & Schultes: 9, 10; F 989
Digitaria filiformis (L.) Koel.: 9, 11; P 33697
 **Digitaria ischaemum* (Schreb.) Muhl.: 11; E 22299
 **Digitaria sanguinalis* (L.) Scop.: 11; E 22300
Echinochloa crus-gallii (L.) Beauv.: 2, 11; E 21497, E 22465, E 22488
Elymus canadensis L.: 11; P 33656
Elymus virginicus L.: 11; E 22262
 **Eragrostis cilianensis* (All.) Mosher: 11; E 22534
Eragrostis hypnoides (Lam.) BSP.: 11; E 22480
Eragrostis pectinacea (Michx.) Nees: 11; E 22308, E 22532
Eragrostis spectabilis (Pursh) Steud.: 7, 9, 10; E 22510
Glyceria septentrionalis Hitchcock: 1; E 21974, E 22486
Glyceria striata (Lam.) Hitchcock: 2; E 22003, E 22005
Hierochloë odorata (L.) Beauv.: 5; F 988
Hordeum jubatum L.: 11; E 21884
Koeleria macrantha (Ledeb.) Spreng.: 7, 9, 10, 11; E 21269, E 21835, E 21951
Leersia oryzoides (L.) Swartz: 2, 11; E 22641, P 33474, P 33664
Leersia virginica Willd.: 3, 9; P 33651
Leptoloma cognatum (Schult.) Chase: 7, 10; E 21245, E 21509, E 22259, E 22410, E 22523
Muhlenbergia mexicana (L.) Trin.: 2, 3, 5; P 33476, P 33631
Muhlenbergia schreberi J.F. Gmel.: 11; P 33640
Panicum capillare L.: 11; Ev 85024
Panicum dichotomiflorum Michx.: 11; E 22564
Panicum lanuginosum Elliott: 6, 7, 10, 11; E 21259, E 21844, E 21911, E 21955, E 22567
Panicum meridionale Ashe: 11; E 21954
Panicum oligosanthos Schult.: 7, 9, 10, 11; E 21258, E 21845, E 21848, E 21975, E 22408, E 21904, E 22537
Panicum perlongum Nash: 7, 9, 10; E 21853, E 21976
Panicum rigidulum Bosc.: 3, 8, 9, 10; E 21496, E 22592
Panicum villosissimum Nash: 7, 9, 10, 11; E 21249, E 21854, E 21899
Panicum virgatum L.: 5, 6, 8, 9, 10, 11; E 22550, E 22261
Paspalum bushii Nash: 7, 10; E 21511, E 22260, E 22425, E 22524
Paspalum laeve Michx.: 11; P 33645
Phalaris arundinacea L.: 2, 3; E 21814

Phleum pratense L.: 11; E 21299, E 21892
 **Poa compressa* L.: 9, 10, 11; E 21923
 **Poa pratensis* L.: 2, 5, 6, 7, 8, 9, 10, 11; E 21604, E 22012
Schizachyrium scoparium (Michx.) Nash: 5, 6, 7, 8, 9, 10; E 21506, E 22427, E 22542
 **Setaria faberi* Herm: 11; E 22298, E 22538
 **Setaria viridis* (L.) Beauv.: 11; E 30034
Sorghastrum nutans (L.) Nash: 5, 6, 8; E 22561, E 22579
Spartina pectinata Link: 1, 3, 5, 8; E 22342, E 22495
Sphenopholis obtusata (Michx.) Scribner: 2, 11; E 21879, E 22004
Sporobolus clandestinus (Biehler) Hitchcock: 7, 9, 10; E 21500, E 22451
Sporobolus cryptandrus (Torrey) Gray: 11; E 22405, E 22484, E 22535
Stipa spartea Trin.: 7, 9, 10; E 21281, E 21829
Tridens flavus (L.) Hitchcock: 6, 7, 9, 10, 11; E 22546
Triplasis purpurea (Walt.) Chapm.: 7, 9, 10; E 22409
Vulpina octoflorus (Walt.) Rydb.: 7, 9, 10; E 21855

POTAMOGETONACEAE

**Potamogeton crispus* L.: 1; P 30046
Potamogeton foliosus Raf.: 11; P 33663
Potamogeton nodosus Poiret: 11; P 33658

SMILACACEAE

Smilax lasioneuron Hook.: 11; E 21873

SPARGANIACEAE

Sparganium eurycarpum Engelm.: 1; E 21970

TYPHACEAE

Typha latifolia L.: 1, 2, 11; P 33486

XYRIDACEAE

Xyris torta Sm.: 8, 11; E 22315. P 33399

DICOTS

ACEREACEAE

Acer negundo L.: 11; E 21944
Acer saccharinum L.: 11; E 21939

AMARANTHACEAE

- Amaranthus albus* L.: 11; Ev 84994
Amaranthus tuberculatus (Moq.) Sauer.: 11; E 22633, E 22634

ANACARDIACEAE

- Rhus copallina* L.: 6, 7, 9, 10; E 21250
Rhus glabra L.: 6, 7, 9, 10, 11; E 21289, E 21918
Rhus typhina L.: 6, 7, 9, 10, 11; E 21920
Toxicodendron radicans (L.) Kuntze: 11; P 30985
Toxicodendron vernix (L.) Kuntze: 5; P 33630

APIACEAE

- Cicuta maculata* L.: 2; E 22000
 **Daucus carota* L.: 11; E 22296, P 33466
Eryngium yuccifolium Michx.: 4, 5, 8; E 22302, E 22322
Osmorhiza claytonii (Michx.) Clarke: 11; E 21623
Osmorhiza longistylis (Torrey) DC.: 10; P 33643
Oxypolis rigidior (L.) Coult. & Rose: 8; E 22587
 **Pastinaca sativa* L.: 11; E 21945
Sanicula canadensis L.: 11; E 21932
Sium suave Walt.: 11; E 22264, E 22469

APOCYNACEAE

- Apocynum androsaemifolium* L.: 9, 10; E 21968

AQUIFOLIACEAE

- Ilex verticillata* (L.) Gray: 3, 9; E 21516

ASCLEPIADACEAE

- Asclepias amplexicaulis* Sm.: 7, 10; E 21276, E 21828, 21966
Asclepias hirtella (Pennell) Woodson: 8; E 22326
Asclepias incarnata L.: 2, 11; E 22278, P 33463
Asclepias syriaca L.: 11; E 22294
Asclepias tuberosa L.: 9, 10; E 21270
Asclepias verticillata L.: 6, 7, 8, 9, 10, 11; E 21253, E 22508

ASTERACEAE

- **Achillea millefolium* L.: 5, 6, 7, 8, 9, 10, 11; E 21287, E 21867
Ambrosia artemisiifolia L.: 11; E 22404
Ambrosia trifida L.: 11; P 33647
Antennaria neglecta Greene: 5, 6; P 32960

- Antennaria plantaginifolia* (L.) Richardson: 7, 9, 10; E 21588
 **Artemisia absinthium* L.: 11; P 33660
Aster azureus L.: 7, 9, 10, 11; E 21502, E 22453, E 22531
Aster dumosus L. var. *strictior* Torrey & Gray: 2, 3; E 22464, E 22512, E 22513, E 22558, E 22594
Aster ericoides L.: 8; site record only
Aster linariifolius L.: 7, 9, 10; E 22514
Aster novae-angliae L.: 2, 5, 8; E 22571, E 22644
Aster parviceps (Burgess) Mack. & Bush.: 6; E 22411
Aster praealtus Poir.: 8, 11; E 22632, E 22569
Aster simplex Willd.: 3, 5, 6, 8; E 22578
Aster umbellatus Mill.: 2, 4; P 33627
Bidens aristosa (Michx.) Britton: 3, 11; E 22591, E 22642
Bidens cernua L.: 1, 11; E 22503
Bidens comosa (Gray) Wieg.: 1, 11; E 22474, E 22499
Bidens coronata (L.) Britt.: 4, 11; Ev 85010, Ev 85047
Boltonia asteroides (L.) L'Hér.: 11; E 22645
Cacalia plantaginea (Raf.) Shinn.: 2, 4, 5; E 22011, F 976
 **Cichorium intybus* L.: 11; E 30035
 **Cirsium arvense* (L.) Scop.: 11; E 21947
Cirsium discolor (Muhl.) Spreng.: 11; E 22407
Cirsium muticum Michx.: 2; E 22446
Conyza canadensis (L.) Cronquist: 8, 9, 10, 11; P 33617
Coreopsis palmata Nutt.: 7, 9, 10, 11; E 21278, E 22312
Coreopsis tripteris L.: 5, 6, 8; E 22575
Erechtites hieracifolia (L.) Raf.: 11; E 22467
Erigeron annuus (L.) Pers.: 11; E 21962
Erigeron canadensis L.: 11; E 22505
Erigeron strigosus Muhl.: 6, 7, 8, 9, 10; E 21257, E 21839
Eupatorium altissimum L.: 5, 11; P 33661
Eupatorium maculatum L.: 2; E 22343, E. 22449, P 33473
Eupatorium perfoliatum L.: 1, 8; E 22492, E 22589
Eupatorium serotinum Michx.: 1, 3; E 22491
Eupatorium sessilifolium L.: 9; P 33634
Euthamia graminifolia (L.) Salisb.: 2, 5, 6, 8; E 21512, E 22555, E 22437
Euthamia gymnospermoides Greene: 11; Ev 85037
Gnaphalium obtusifolium L.: 5, 7, 9, 10; E 22511
Helenium autumnale L.: 4, 8; E 22574, P 33704
Helianthus divaricatus L.: 7, 10, 11; E 22290, E 22539, E 22577
Helianthus giganteus L.: 2, 11; E 22348, E 22466, E 22439
Helianthus grosseserratus Martens: 5; P 33625
Helianthus mollis Lam.: 7, 8, 9, 10; E 21499, E 22581
Helianthus occidentalis Riddell: 7, 8, 9, 10; E 22274, P 33469
Helianthus strumosus L.: 8; E 22583
Hieracium gronovii L.: 7, 8, 9, 10; E 22325, E 22424, 22509
Hieracium longipilum Torrey: 6, 11; E 22284
Hieracium scabrum Michx.: 7, 9, 10; P 33620
Hymenopappus scabiosaeus L'Hér.: 6, 9, 11; E 21282, E 21849, E 21978
Krigia biflora (Walt.) Blake: 2, 8; E 21813, E 21994
Krigia virginica (L.) Willd.: 6, 11; E 21244, E 21852
Lactuca canadensis L.: 5, 6, 7, 10; E 22419, E 22540
Lactuca floridana (L.) Gaertn.: 9; P 33652
Lactuca serriola L.: 11; E 22350
Liatriis spicata (L.) Willd.: 5, 6, 8, 9, 10; E 22328, E 22565, 22588

- *Matricaria matricarioides* (Less.) Porter: 11; E 21953
Parthenium integrifolium L.: 8; E 21233
Rudbeckia hirta L.: 8; E 21237, E 21840
Rudbeckia subtomentosa Pursh: 5; P 33653
Rudbeckia triloba L.: 11; P 33464
Senecio pauperculus Michx.: 5; P 32948
Senecio plattensis Nutt.: 11; E 21633
Silphium integrifolium Michx.: 8; E 22301
Solidago canadensis L.: 5, 8; site record only
Solidago gigantea Aiton: 2, 5, 8, 11; E 22428, E 22572, E 22447, E 22573, P 33465
Solidago missouriensis Aiton: 5, 8, 9; E 22318, E 22429, E 22349
Solidago nemoralis Aiton: 5, 6, 8, 9, 10, 11; E 22417, E 22521, E 22563
Solidago riddellii Frank.: 5; P 33629
Solidago speciosa Nutt.: 6, 7, 10; E 22504
Sonchus arvensis L. var. *glabrescens* (Guenther) Graf. & Wimmer: 11; P 33404
**Taraxacum officinale* Weber: 11; E 21607
**Tragopogon dubius* Scop.: 11; E 21889
Vernonia fasciculata Michx.: 2; P 33667
Vernonia gigantea (Walt.) Trel.: 6, 8; E 22551, E 22324, E 22431, E 22570
Vernonia missurica Raf.: 4; P 33482
Xanthium strumarium L.: 11; E 22457

BALSAMINACEAE

- Impatiens capensis* Meerb.: 3, 9, 11; P 33636

BETULACEAE

- Betula nigra* L.: 3, 9, 11; E 21926
Corylus americana Walt.: 7, 9, 10; E 21285, E 21967

BORAGINACEAE

- Hackelia virginiana* (L.) I.M. Johnston: 11; P 33639
Lithospermum caroliniense (Walt.) MacM.: 6, 7, 9, 10; E 21268, E 21241, E 21856
Myosotis verna Nutt.: 11; E 21871

BRASSICACEAE

- Alliaria petiolata* (Bied.) Cavara & Grande: 11; P 33044
Arabidopsis thaliana (L.) Heynh.: 9, 11; E 21271, E 21611
Arabis lyrata L.: 9, 10; P 32941
Armoracia aquatica (Eat.) Wieg.: 1, 2; E 21817, E 21971, E 22288, 22336
**Barbarea vulgaris* R. Br.: 11; E 21625
**Capsella bursa-pastoris* (L.) Medic.: 11; E 21616
Cardamine bulbosa (Schrab.) BSP.: 2; E 21594
Cardamine parviflora L.: 11; E 21208
Cardamine pensylvanica Muhl.: 11; E 21632
Draba reptans (Lam.) Fernald: 11; E 21610
**Lepidium campestre* (L.) R. Br.: 11; F 974

- Lepidium virginicum* L.: 11; E 21610
Rorippa islandica (Oeder) Borbas var. *fernaldiana* (Butters & Abbe) Stuckey: 2, 11; Ev 87582, E 21808, E 22311A
Rorippa islandica (Oeder) Borbas var. *hispida* (Desv.) Butt. & Abbe: 6, 11; Ev 87557
 **Sisymbrium altissimum* L.: 11; Ev 87581

CALLITRICHACEAE

- Callitriche heterophylla* Pursh.: 11; E 21600
Callitriche terrestris Raf.: 11; E 21950

CAMPANULACEAE

- Campanula americana* L.: 9; P 33637
Campanula aparinoides Pursh.: 2; E 22270, P 33472
Lobelia cardinalis L.: 11; E 22631, P 33462
Lobelia siphilitica L.: 11; E 22471
Lobelia spicata Lam.: 6, 7, 8, 9, 10; E 21262, E 21505, E 21842, E 22647
Triodanis perfoliata (L.) Nieuwl.: 11; E 21877

CAPRIFOLIACEAE

- **Lonicera maackii* (Rupr.) Maxim.: 11; E 30036
 **Lonicera morrowii* A. Gray: 2, 11; P 32968
 **Lonicera tatarica* L.: 11; E 21617, E 21626
Sambucus canadensis L.: 11; E 21948
Viburnum opulus L.: 11; P 33633

CARYOPHYLLACEAE

- **Cerastium vulgatum* L.: 11; E 21612, E 21960
 **Dianthus armeria* L.: 11; E 21295, E 21958
 **Holosteum umbellatum* L.: 11; P 32966
 **Lychnis alba* Mill.: 11; E 21925
Moehringia lateriflora (L.) Fenzl.: 7, 10; E 21591
Paronychia canadensis (L.) Wood: 3, 9, 10; P 33397
 **Saponaria officinalis* L.: 11; E 22295
Silene antirrhina L.: 11; E 21888
Silene stellata (L.) Aiton f.: 7, 10, 11; E 22285, E 22513

CERATOPHYLLACEAE

- Ceratophyllum demersum* L.: 11; P 33657

CHENOPODIACEAE

- Chenopodium desiccatum* A. Nels.: 7, 9, 10; E 22516
Chenopodium simplex (Torrey) Raf.: 11; P 33280
Cycloma atriplicifolium (Spreng.) Coult.: 11; E 22406

CISTACEAE

- Helianthemum bicknellii* Fernald: 7, 9, 10, 11; E 21507, E 22533
Helianthemum canadense (L.) Michx.: 7, 9, 10; E 21263, E 21279, E 21830, E 22527
Lechea pulchella Raf.: 5, 6, 9; E 22347
Lechea villosa Ell.: 7, 9, 10; P 33471

CLUSIACEAE

- Hypericum adpressum* Bart.: 4, 5, 8; E 22321, E 22433, F 1186
Hypericum canadense L.: 8, 11; E 21288, E 21293, E 22316
Hypericum gentianoides (L.) BSP.: 6, 7, 11; E 22566, P 33750
Hypericum mutilum L.: 8, 11; E 22293
**Hypericum perforatum* L.: 11; E 30038
Hypericum sphaerocarpum Michx.: 2, 4; P 33216, P 33668
Triadenum fraseri (Spach.) Gl.: 2; E 22330, E 22443

CONVOLVULACEAE

- Calystegia sepium* (L.) R. Br.: 11; E 21940

CORNACEAE

- Cornus obliqua* Raf.: 2, 4; E 21825
Cornus racemosa Lam.: 2, 3, 4, 8, 11; P 33059

CUSCUTACEAE

- Cuscuta compacta* Juss.: 2, 4; P 33670
Cuscuta gronovii Willd.: 1, 11; E 22472, E 22493, E 22500

DROSERACEAE

- Drosera intermedia* Hayne: 5, 8; P 33405, P 33487, P 33614

ELAEAGNACEAE

- **Elaeagnus umbellata* Thunb.: 11; E 21924

ERICACEAE

- Gaylussacia baccata* (Wang.) K. Koch: 9; P 33270
Vaccinium angustifolium Aiton: 3, 6, 8, 9; E 21586, E 21587, E 21983
Vaccinium corymbosum L.: 6; P 33819
Vaccinium pallidum Aiton: 3, 9; E 22553

EUPHORBIACEAE

- Acalypha gracilens* A. Gray: 9, 11; P 33621
Acalypha rhomboidea Raf.: 11; E 22462
Chamaesyce maculata (L.) Small: 11; P 33665
Chamaesyce nutans (Lag.) Small: 11; P 33662
Chamaesyce supina (Raf.) Moldenke: 11; E 22272, E 22530
Euphorbia corollata L.: 6, 7, 8, 9, 10, 11; E 21231, E 21980, E 22520, E 22263
Poinsettia dentata (Michx.) Kl. & Garcke: 11; E 30039

FABACEAE

- Amorpha canescens* Pursh: 7, 9, 10; E 21274
Baptisia lactea (Raf.) Thieret: 6, 8, 9; E 21267, E 21987, E 22562
Cassia fasciculata Michx.: 6, 7, 9, 10; E 22269, E 22559
Cassia nictitans L.: 7, 9, 10; E 21495, E 22515
Desmodium canadense (L.) DC.: 5; P 33626
Desmodium paniculatum (L.) DC.: 7, 10; E 22412
Desmodium rigidum (Ell.) DC.: 7, 10; E 22518
Desmodium sessilifolium (Torrey) Torrey & Gray: 7, 9, 10; E 22548
Lathyrus palustris L.: 2, 6, 11; E 21896, E 21809, E 22013
Lespedeza capitata Michx.: 6, 7, 9, 10; E 21508, E 22420, E 22526, E 22557
Lespedeza hirta (L.) Hornem.: 7, 9, 10; P 33623
Lespedeza hirta (L.) Hornem. X *L. capitata* Michx.: 9; P 33624
Lespedeza virginica (L.) Britt.: 9; P 33699
Lupinus perennis L.: 10, 11; E 21613
Medicago lupulina L.: 11; P 33260
Medicago sativa L.: 11; E 21860
 **Melilotus alba* Medik.: 11; E 30040
 **Melilotus officinalis* (L.) Lam.: 11; E 21874
 **Robinia pseudoacacia* L.: 11; E 21927
Tephrosia virginiana (L.) Pers.: 7, 9, 10, 11; E 21306, E 22267
 **Trifolium pratense* L.: 11; E 21882
 **Trifolium repens* L.: 11; E 21858
 **Vicia villosa* Roth: 11; E 30041

FAGACEAE

- Quercus alba* L.: 6, 9; E 21264, E 21913
Quercus palustris Muenchh.: 3, 6, 8; site record only
Quercus velutina Lam.: 6, 7, 9, 10; E 21307, E 21921

GENTIANACEAE

- Bartonia virginica* (L.) BSP.: 3, 5, 6, 8, 9; P 33402
Gentiana saponaria L.: 6, 8; E 21510, E 22650

HALORAGIDACEAE

- Proserpinaca palustris* L.: 3, 11; P 32958

JUGLANDACEAE

Juglans nigra L.: 11; E 21941

LAMIACEAE

Hedeoma hispida Pursh: 11; P 33265

**Leonurus cardiaca* L.: 11; E 21928

Lycopus americanus Muhl.: 1, 2, 11; E 22445, E 22490, P 33485

Lycopus virginicus L.: 1, 2; E 22331, E 22489, P 33481

**Mentha arvensis* L.: 1, 2; E 22436, E 22444, E 22502

Monarda fistulosa L.: 11; E 22283

Monarda punctata L.: 6, 7, 10; E 21272, E 22522, E 21519, E 22421

**Nepetea cataria* L.: 11; P 33279

Physostegia virginiana (L.) Benth.: 6, 8; E 22430, E 22549

Prunella vulgaris L.: 11; P 33644

Pycnanthemum virginianum (L.) Dur. & Jacks: 2, 5; E 22279, E 22442

Scutellaria galericulata L.: 2; E 22014, E 22438

Scutellaria lateriflora L.: 1, 2, 3; E 22494

Stachys tenuifolia Willd.: 1, 2, 8; E 22323

Teucrium canadense L. var. *virginicum* (L.) Eat.: 9, 10, 11; P 33264

LAURACEAE

Sassafras albidum (Nutt.) Nees: 9, 10, 11; E 21615

LINACEAE

Linum medium (Planch.) Britt.: 11; P 33400

LYTHRACEAE

Lythrum alatum Pursh: 2, 8, 11; E 21239, E 21990

Rotala ramosior (L.) Koehne: 11; E 22310B, E 22475

MELASTOMATACEAE

Rhexia virginica L.: 5, 6, 8, 11; E 22319, E 22482, E 22552

MOLLUGINACEAE

**Mollugo verticillatus* L.: 6, 11; E 22418

MORACEAE

- **Maclura pomifera* (Raf.) Schneider: 11; E 21937
 **Morus alba* L.: 11; E 21943

NYCTAGINACEAE

- **Mirabilis nyctaginea* (Michx.) MacM.: 11; E 21876

NYSSACEAE

- Nyssa sylvatica* Marshall: 3, 4; P 32954

OLEACEAE

- Fraxinus pennsylvanica* Marsh.: 1, 2, 3; P 29930

ONAGRACEAE

- Circaea lutetiana* L. ssp. *canadensis* (L.) Aschers & Magnus: 3; P 33277
Epilobium coloratum Muhl.: 2; Ev 85008
Epilobium leptophyllum Raf.: 2; E 22448, P 33475
Ludwigia alternifolia L.: 8, 11; E 212971, E 22317
Ludwigia palustris (L.) Ell.: 11; E 22289, E 22470
Ludwigia polycarpa Short & Peter: 11; E 22481
Oenothera biennis L.: 11; E 22346
Oenothera pilosella Raf.: 4, 5, 8; E 21843, E 22010
Oenothera rhombipetala Nutt.: 7, 9, 10; E 21260, E 21504, E 22257

OXALIDACEAE

- Oxalis dillenii* Jacq.: 5, 11; E 21868, E 21919, E 22529
Oxalis stricta L.: 11; E 21936

PHYTOLACCACEAE

- Phytolacca americana* L.: 11; P 33262

PLANTAGINACEAE

- Plantago aristata* Michx.: 11; P 33263
 **Plantago lanceolata* L.: 11; E 21883
Plantago patagonica Jacq.: 7, 9, 10; E 21977
Plantago rugelii Decne.: 11; E 21946, E 22517

POLEMONIACEAE

- Phlox bifida* Beck.: 7, 9, 10; E 21582
Phlox glaberrima L.: 2, 4, 8; E 21232, E 21815

POLYGALACEAE

- Polygala cruciata* L.: 8, 11; E 21518, E 22590
Polygala polygama Walt.: 8, 11; E 21905
Polygala sanguinea L.: 5; P 30002

POLYGONACEAE

- Polygonella articulata* (L.) Herm.: 7, 10; E 22450
Polygonum amphibium L.: 2, 4; P 33705
Polygonum aviculare L.: 11; E 22305
Polygonum careyi Olney: 3, 11; P 33477, P 33700
 **Polygonum cespitosum* Blume: 11; E 22286
Polygonum convolvulus L.: 11; E 21963
Polygonum cristatum Engelm. & Gray: 11; P 33648
Polygonum hydropiperoides Michx.: 1, 2, 11; E 22344, P 33468
Polygonum lapathifolium L.: 2, 11; E 22454, E 22477
Polygonum opelousanum Riddell: 2, 12; P 33484
Polygonum pensylvanicum L.: 11; E 22639
Polygonum persicaria L.: 11; E 30043, P 33483
Polygonum punctatum Ell.: 2, 3; E 22440
Polygonum ramosissimum Michx.: 2; P 33666
Polygonum sagittatum L.: 2; E 22435
Polygonum setaceum Baldw.: 1, 11; E 22473, E 22640, E 22498
Polygonum tenue Michx.: 7, 9, 10; P 33470
Polygonum virginianum L.: 11; P 33650
 **Rumex acetosella* L.: 6, 7, 9, 10, 11; E 21252, E 21846, E 21605
 **Rumex crispus* L.: 11; E 21866, E 22304

PORTULACACEAE

- Claytonia virginica* L.: 9, 10; E 21583
 **Portulaca oleracea* L.: 11; E 22266, E 22306
Talinum rugospermum Holz.: 7, 9, 10; P 33406, P 33619

PRIMULACEAE

- Lysimachia lanceolata* Walt.: 2, 8, 9; E 22327, E 21238, E 22452, P 33479
Lysimachia quadriflora Sims: 2, 4; P 33274
Lysimachia terrestris (L.) BSP.: 4; E 22006
Lysimachia thyrsiflora L.: 1, 2; E 21826, E 22338

RANUNCULACEAE

- Anemone canadensis* L.: 11; E 21898
Anemone cylindrica Gray: 7, 9, 10; E 21273
Anemone quinquefolia L.: 9; E 21578
Caltha palustris L.: 2; E 21596
Ranunculus abortivus L.: 11; E 21627
Ranunculus flabellaris Raf.: 11; E 21599
Ranunculus longirostris Godr.: 11; P 32968.1
Ranunculus pusillus Poir.: 11; P 32957
Thalictrum revolutum DC.: 8, 11; E 21861, 21985

RHAMNACEAE

- Ceanothus americanus* L.: 7, 9, 10; E 21266
 **Rhamnus cathartica* L.: 11; P 33278
 **Rhamnus frangula* L.: 2; P 33669

ROSACEAE

- Agrimonia parviflora* Aiton: 2, 5; E 22434
Aronia melanocarpa (Michx.) Ell.: 5, 8, 9, 11; E 21301, E 21577, P 33632
Fragaria virginiana Duchesne: 11; E 21606
Geum aleppicum Jacq.: 11; E 21897
Geum canadense Jacq.: 11; P 33649
Geum laciniatum Murr.: 11; E 21959
Malus ioensis (Wood) Britton: 11; E 21620
 **Malus prunifolium* (Willd.) Borkh.: 11; P 33654
Physocarpus opulifolius (L.) Maxim.: 11; E 21917
Potentilla norvegica L.: 11; E 30044
Potentilla simplex Michx.: 2, 5, 6, 8, 9, 10, 11; E 21602, E 21989
Prunus americana Marsh.: 11; E 21622
Prunus serotina Ehrh.: 9, 10, 11; E 21300, E 21575
Rosa carolina L.: 7, 8, 9, 10, 11; E 21275, E 21841, E 21922
 **Rosa multiflora* Thunb.: 11; E 21866
Rosa palustris Marsh.: 2, 4, 5, 8; P 33217
Rubus allegheniensis Porter: 6, 9, 10, 11; E 21292, E 21875, E 21903, E 21916, E 21961
Rubus flagellaris Willd.: 2, 8, 9, 10, 11; E 21290, E 21900, E 21574, E 21984, E 22016
Rubus hispida L.: 5, 6, 8, 11; E 21901, E 22547
Rubus occidentalis L.: 9, 10, 11; P 32967
Rubus schneideri Bailey: 4, 5, 8; F 990, P 33273
Spiraea alba Du Roi: 2, 3, 5, 8, 11; E 22268, E 22463
Spiraea tomentosa L.: 5, 6, 8, 9; E 21517, E 22584, E 22560

RUBIACEAE

- Cephalanthus occidentalis* L.: 1; E 22337
Galium aparine L.: 11; E 21624
Galium boreale L.: 1, 2, 4; Ev 87573
Galium circaezans Michx.: 9, 10; P 33642
Galium obtusum Bigel.: 1, 2, 4, 5, 8; E 22496, E 21821, E 22002

Galium pilosum Aiton: 9; E 21501, E 21832
Galium tinctorum L.: 2; P 33480
Hedyotis caerulea (L.) Hook.: 11; E 21603

RUTACEAE

Ptelea trifoliata L.: 11; P 33220

SALICACEAE

Populus deltoides Marsh.: 2, 11; E 21915
Populus grandidentata Michx.: 3, 11; E 21930
Populus tremuloides Michx.: 6, 8, 9, 11; E 21286, E 21914
Salix bebbiana Sarg.: 2; M 8 July 1977
Salix discolor Muhl.: 8; E 21998, E 22432
Salix exigua Nutt.: 2; E 21824
Salix humilis Marsh.: 6, 8, 9, 10, 11; E 21579, E 21619
Salix nigra Marsh.: 11; E 21938
Salix petiolaris Sm.: 5; Ev 87568
Salix rigida Muhl.: 11; E 21609
Salix sericea Marsh.: 5, 8; E 21838

SANTALACEAE

Comandra umbellata (L.) Nutt.: 6; E 21581

SAXIFRAGACEAE

Heuchera americana L.: 9; E 21831
Heuchera richardsonii R. Br.: 7 ; Ev 87528
Penthorum sedoides L.: 1; E 22333
Saxifraga pensylvanica L.: 4, 5; P 32962

SCROPHULARIACEAE

Agalinis purpurea (L.) Pennell: 6, 8, 11; E 22541, E 22568, P 33751
Agalinis tenuifolia (Vahl) Raf.: 11; E 22468
Aureolaria pedicularia L.: 6, 9, 10; E 22525, E 22544
Gratiola neglecta Torrey: 11; E 21908
Leucospora multifida (Michx.) Nutt.: 11; Ev 85065
Linaria canadensis (L.) Dumort.: 7, 8, 9, 10; E 21248, E 21847
Lindernia dubia (L.) Pennell var *anagallidea* (Michx.) Cooperrider; 11; E 22458, E 22459
Mimulus ringens L.: 1, 11; E 22335, E 22476
Pedicularis canadensis L.: 8; E 21992
Pedicularis lanceolata Michx.: 2; E 22576
Penstemon digitalis Nutt.: 11; E 21865
Scrophularia lanceolata Pursh: 9, 10; E 21265, E 21836
**Verbascum thapsus* L.: 3, 11; E 30045

**Veronica arvensis* L.: 11; E 21629
Veronica peregrina L.: 11; E 21628
Veronica scutellata L.: 1, 2, 4, 11; E 21816, E 21973, E 22773, E 22497, E 22287
Veronicastrum virginicum (L.) Farw.: 8, 11; E 22265, E 22320

SOLANACEAE

Physalis heterophylla Nees: 11; E 21942
Physalis virginiana Mill.: 11; E 21965, E 21907
Solanum carolinense L.: 11; E 21933, E 22275
**Solanum dulcamara* L.: 2; E 21810
Solanum ptycanthum Dunal.: 2, 3; P 33616

ULMACEAE

Celtis occidentalis L.: 11; P 33659
Ulmus americana L.: 2, 11; E 22001
Ulmus pumila L.: 11; E 30046

URTICACEAE

Boehmeria cylindrica (L.) Sw.: 1, 2, 11; E 22334, E 22485
Parietaria pensylvanica Muhl.: 11; E 21304, E 21878

VERBENACEAE

Phryma leptostachya L.: 9, 10; P 33638
Phyla lanceolata (Michx.) Greene: 11; E 22303
Verbena bracteata Lag. & Rodr.: 11; E 21302, E 21906
Verbena hastata L.: 2, 8; E 22282, E 22595
Verbena urticifolia L.: 11; P 33646

VIOLACEAE

Viola lanceolata L.: 5, 6, 8; E 21593
Viola pedata L.: 7, 9, 10; E 21585
Viola pranticola Greene: 9, 11; E 21589
Viola primulifolia L.: 3, 5, 6, 8, 11; E 21988, P 32942, P 33641
Viola sagittata Aiton: 5, 6, 7, 8, 9, 10; E 21580, P 33749
Viola sororia Willd.: 8, 9, 10; E 21592

VITACEAE

Parthenocissus quinquefolia (L.) Planch.: 11; E 21934
Vitis riparia Michx.: 3, 9, 10; P 33701

APPENDIX II. TREE AND LARGE SHRUB ENCROACHMENT AT IROQUOIS COUNTY CONSERVATION AREA, IROQUOIS COUNTY, ILLINOIS

Aerial photographs from 1940, 1954, 1988, and 1999 were digitized to demonstrate woody encroachment (tree & large shrub) at the Iroquois County Conservation Area (ICCA), Iroquois County, Illinois. These aerial photographs were borrowed from the University of Illinois Map Library and scanned with a Microtek ScanMaker. Fifteen stratified random 5 hectare sites, approximately 9.65% of the ICCA (Figure 3), were interpreted and then digitized using ARC/INFO (Table 5).

Data interpretation was difficult depending on the quality and resolution of the original photos, problems with registering the photos, and problems with the interpretation of the data, specifically differentiating between trees and other features which show up as black or dark gray such as shadows and wet areas. The 1940 and 1954 aerial photographs were flown in July while the 1988 and 1999 aeriels were flown in April.

In 1940 approximately 36.44 ha or 4.69% of the present area was covered by trees and large shrubs (Table 5). These species have increased dramatically, in 1954 there was approximately 85.78 ha or 11.04% cover, in 1988 approximately 267.9 ha or 34.48%, and in 1999 approximately 377.93 ha or 48.67%. This is a dramatic increase of 341.49 ha in 59 years. Trees and large shrubs, from 1940 (4.65% cover) to 1999 (48.67% cover), have significantly increased at the HBSNP. This woody encroachment is most obvious where hedge rows and pine plantations have been introduced.

Table 14. Cover (ha) of trees and large shrubs within 15, 5 hectare, stratified random sites digitized from aerial photography during four years (1940, 1954, 1988, & 1999) within Hooper Branch Savanna Nature Preserve, Iroquois County, Illinois.

5 hectare sites	1940 (ha)	1954 (ha)	1988 (ha)	1999 (ha)
1	1.56	1.49	3.93	3.29
2	2.43	2.77	1.54	2.39
3	0.95	2.37	2.28	3.25
4	1.61	2.45	3.08	2.71
Totals	6.55	9.08	10.83	11.64

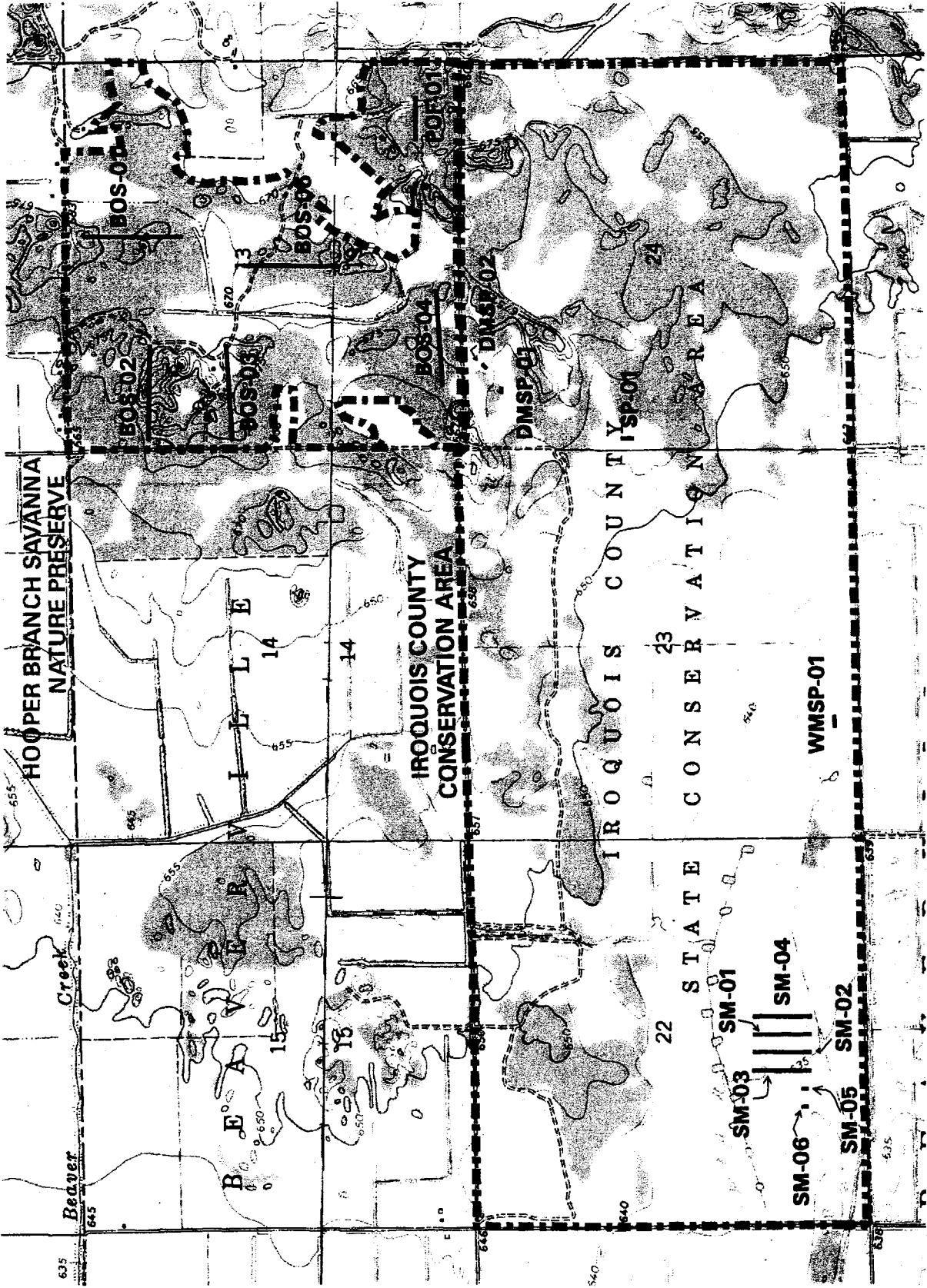


Figure 1. Iroquois County Conservation Area and Hooper Branch Savanna NP, Iroquois County, Illinois
 Location of transect lines.

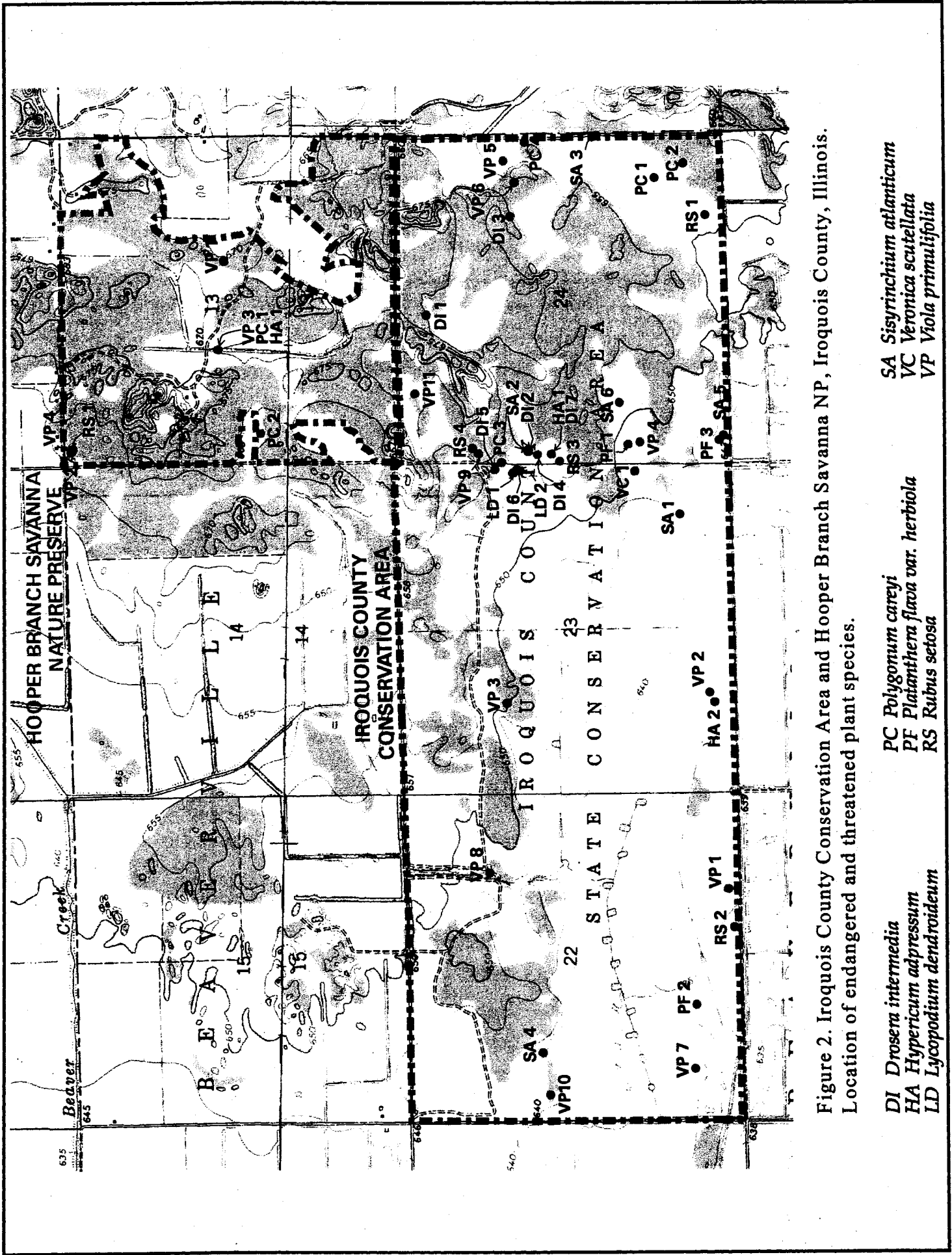


Figure 2. Iroquois County Conservation Area and Hooper Branch Savanna NP, Iroquois County, Illinois.
 Location of endangered and threatened plant species.

- | | | |
|----------------------------------|--|-----------------------------------|
| DI <i>Drosera intermedia</i> | PC <i>Polygonum careyi</i> | SA <i>Sisyrinchium atlanticum</i> |
| HA <i>Hypericum adpressum</i> | PF <i>Platanthera flava</i> var. <i>herbiola</i> | VC <i>Veronica scutellata</i> |
| LD <i>Lycopodium dendroideum</i> | RS <i>Rubus setosa</i> | VP <i>Viola primuiifolia</i> |

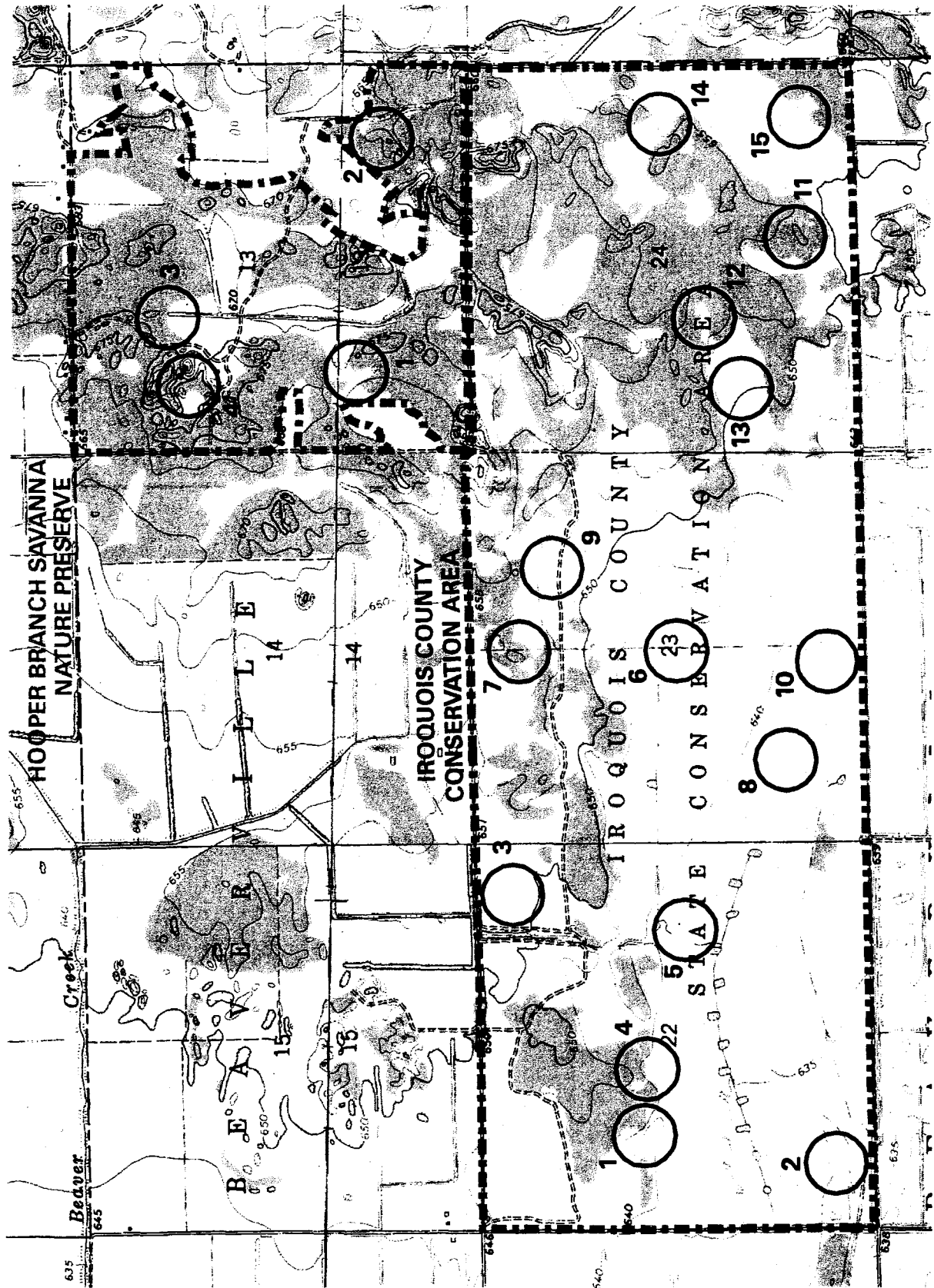
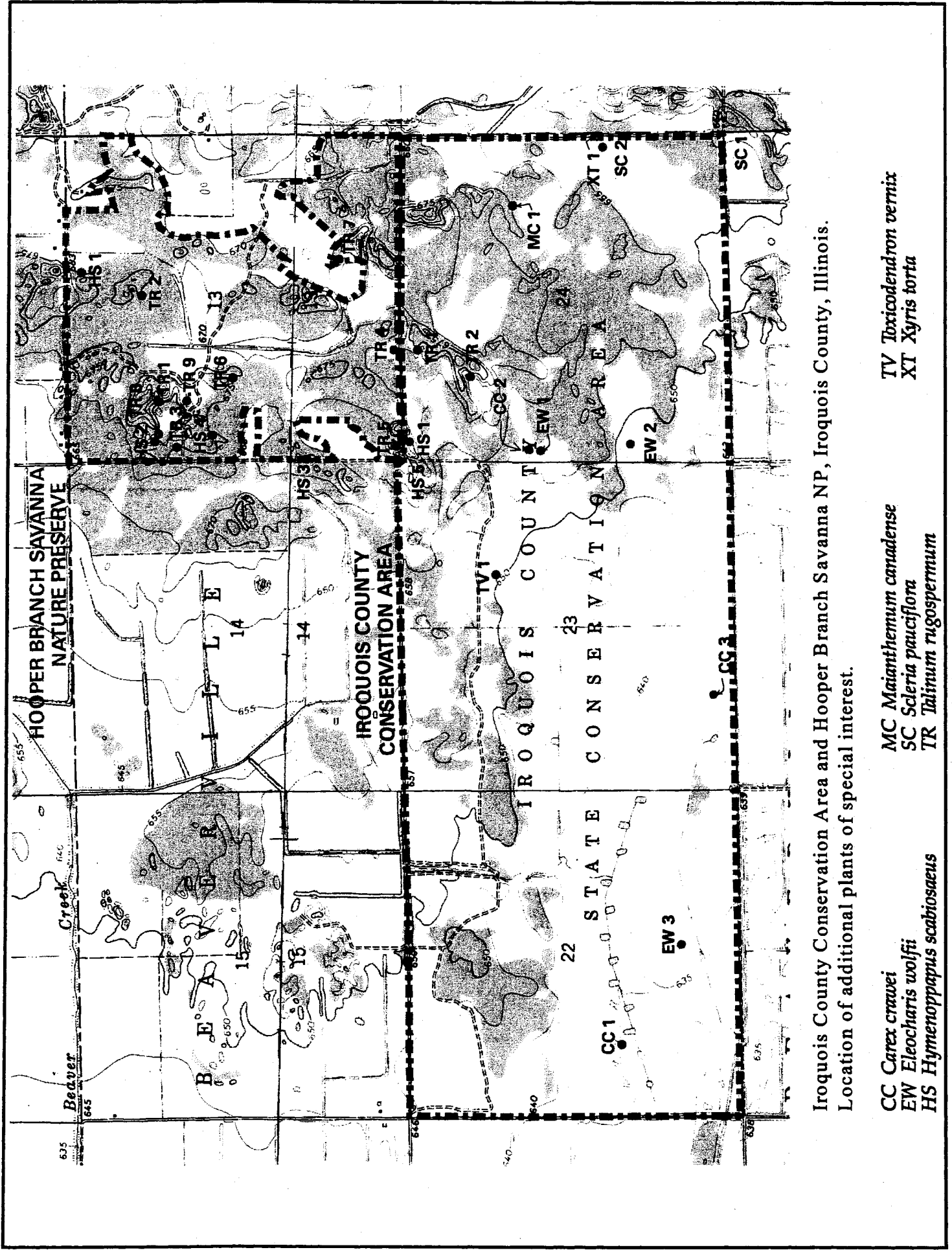


Figure 3. Iroquois County Conservation Area and Hooper Branch Savanna NP, Iroquois County, Illinois
 Location of 5 hectare sampling sites.



Iroquois County Conservation Area and Hooper Branch Savanna NP, Iroquois County, Illinois.
 Location of additional plants of special interest.

- | | | | | | |
|----|---------------------------------|----|------------------------------|----|-----------------------------|
| CC | <i>Carex crawei</i> | MC | <i>Maianthemum canadense</i> | TV | <i>Toxicodendron vernix</i> |
| EW | <i>Eleocharis wolffi</i> | SC | <i>Scleria pauciflora</i> | XT | <i>Xyris torta</i> |
| HS | <i>Hymenopappus scabiosaeus</i> | TR | <i>Talinum rugospernum</i> | | |

Iroquois County Conservation Area
Approximate Location of Transects

I. Sedge Meadow

Transect #	Latitude & Longitude			Transect Length	Relative Position	
SM-01.	40°	59'	03.00"	North West	250 meters	North
	-087°	35'	20.30"			South
SM-02.	40°	58'	55.20"	North West	250 meters	North
	-087°	35'	23.50"			South
SM-03.	40°	59'	03.00"	North West	250 meters	North
	-087°	35'	26.60"			South
SM-04.	40°	59'	03.00"	North West	250 meters	North
	-087°	35'	29.90"			South
SM-05	40°	58'	56.17"	North West	35 meters	North
	-087°	35'	33.20"			South
SM-06	40°	58'	56.17"	North West	35 meters	North
	-087°	35'	36.50"			South

II. Wet-Mesic Sand Prairie

WMSP-01.	40°	58'	52.26"	North West	50 meters	West
	-087°	34'	29.70"			East
	40°	58'	52.40"	North West		East
	-087°	32'	27.92"			West

III. Shrub Prairie

SP-01.	40°	59'	21.18"	North	50 meters	North
	-087°	33'	37.92"	West		
	40°	59'	19.56"	North		South
	-087°	33'	37.92"	West		

IV. Dry-Mesic Sand Prairie

DMSP-01.	40°	59'	37.14"	North	25 meters	East
	-087°	33'	29.04"	West		
	40°	59'	37.14"	North		West
	-087°	33'	30.17"	West		
DMSP-02.	40°	59'	39.78"	North	25 meters	Southwest
	-087°	33'	25.08"	West		
	40°	59'	39.38"	North		
	-087°	33'	25.58"	West		

Location of Illinois Threatened & Endangered Plants
Iroquois County Conservation Area
Iroquois County, Illinois

Voucher specimen collections are by: F (Mary Ann Feist), and P (Loy R. Phillippe).
Populations not vouchered are designated by n.v.

Scientific Name Common Name Voucher #'s

Drosera intermedia Hayne

Narrow-leaved Sundew

01.	40°	59'	38.04"	North Latitude	P 33614
	-087°	33'	09.06"	West Longitude	
02.	40°	59'	22.08"	North Latitude	P 33405
	-087°	33'	37.50"	West Longitude	
03.	40°	59'	25.14"	North Latitude	P 33487
	-087°	32'	48.54"	West Longitude	
04.	40°	59'	20.58"	North Latitude	n.v.
	-087°	33'	38.10"	West Longitude	
05.	40°	59'	27.20"	North Latitude	n.v.
	-087°	33'	41.30"	West Longitude	
06.	40°	59'	23.80"	North Latitude	n.v.
	-087°	33'	41.30"	West Longitude	
07.	40°	59'	18.36"	North Latitude	n.v.
	-087°	33'	37.98"	West Longitude	

Hypericum adpressum Bart.

Shore St. John's Wort

01.	40°	59'	18.36"	North Latitude	F 1186
	-087°	33'	37.98"	West Longitude	
02.	40°	58'	52.26"	North Latitude	n.v.
	-087°	34'	29.70"	West Longitude	

Lycopodium dendroideum Michx.

Ground Pine

01.	40°	59'	24.42"	North Latitude	P 33825
	-087°	33'	42.00"	West Longitude	
02.	40°	59'	23.28"	North Latitude	n.v.
	-087°	33'	41.52"	West Longitude	

Platanthera flava(L.) Lindl. var. herbiola (R. Br.) Luer Tubercled Orchid

01.	40°	59'	06.06"	North Latitude	P 33049
	-087°	33'	36.00"	West Longitude	
02.	40°	58'	54.84"	North Latitude	P 33061
	-087°	35'	33.12"	West Longitude	
03.	40°	58'	51.72"	North Latitude	F 986
	-087°	33'	34.80"	West Longitude	

Polygonum careyi Olney

Carey's Heartsease

01.	40°	59'	02.25"	North Latitude	P 33700
	-087°	32'	40.27"	West Longitude	
02.	40°	58'	57.69"	North Latitude	P 33477
	-087°	32'	37.20"	West Longitude	
03.	40°	59'	26.16"	North Latitude	F 1185
	-087°	33'	39.84"	West Longitude	
04.	40°	59'	23.00"	North Latitude	n.v.
	-087°	32'	33.00"	West Longitude	

Rubus setosus Bigel. (= R. schneideri Bailey)

Bristly Blackberry

01.	40°	58'	54.12"	North Latitude	P 33273
	-087°	32'	48.00"	West Longitude	
02.	40°	58'	49.00"	North Latitude	P 33221
	-087°	35'	17.00"	West Longitude	
03.	40°	59'	17.10"	North Latitude	F 990
	-087°	33'	39.48"	West Longitude	
04.	40°	59'	30.72"	North Latitude	n.v.
	-087°	33'	36.84"	West Longitude	

Sisyrinchium atlanticum Bickn.

Eastern Blue-eyed Grass

01.	40°	58'	57.84"	North Latitude	P 32959
	-087°	33'	50.40"	West Longitude	
02.	40°	59'	22.08"	North Latitude	P 32944
	-087°	33'	37.50"	West Longitude	
03.	40°	59'	12.12"	North Latitude	P 33398
	-087°	32'	29.70"	West Longitude	

04.	40°	59'	19.08"	North Latitude	F 984
	-087°	35'	43.38"	West Longitude	
05.	40°	58'	51.06"	North Latitude	F 987
	-087°	33'	33.84"	West Longitude	
06.	40°	59'	07.62"	North Latitude	n. v.
	-087°	33'	27.06"	West Longitude	

Veronica scutellata L.

Marsh Speedwell

01.	40°	59'	05.10"	North Latitude	P 32953
	-087°	33'	41.46"	West Longitude	

Viola primulifolia L.

Primrose Violet

01.	40°	58'	50.00"	North Latitude	P 33037
	-087°	35'	08.94"	West Longitude	
02.	40°	58'	53.04"	North Latitude	P 33040
	-087°	34'	27.60"	West Longitude	
03.	40°	59'	25.08"	North Latitude	P 33042
	-087°	34'	30.18"	West Longitude	
04.	40°	59'	04.32"	North Latitude	P 33052
	-087°	33'	35.34"	West Longitude	
05.	40°	59'	26.28"	North Latitude	P 33070
	-087°	32'	36.90"	West Longitude	
06.	40°	59'	24.54"	North Latitude	P 33071
	-087°	32'	41.40"	West Longitude	
07.	40°	58'	55.02"	North Latitude	P 33073
	-087°	35'	46.44"	West Longitude	
08.	40°	59'	27.54"	North Latitude	P 33641
	-087°	35'	05.88"	West Longitude	
09.	40°	59'	29.76	North Latitude	P 32942
	-087	33'	37.98"	West Longitude	
10.	40°	59'	17.88"	North Latitude	F 977
	-087°	35'	52.14"	West Longitude	
11.	40°	59'	39.72"	North Latitude	F 1370
	-087°	33'	25.50"	West Longitude	

Location of Illinois Plants of Special Interest
Iroquois County Conservation Area
Iroquois County, Illinois

Voucher specimen collections are by: E (John E. Ebinger), F (Mary Ann Feist), and P (Loy R. Phillippe). Populations not vouchered are designated by n.v.

Scientific Name	Common Name	Voucher #'s
<u>Carex crawei</u> Dewey	Sedge	
01. 40° 59' 06.30" North Latitude -087° 35' 42.36" West Longitude		P 33072
02. 40° 59' 22.08" North Latitude -087° 33' 37.50" West Longitude		P 32949
03. 40° 58' 52.50" North Latitude -087° 34' 28.56" West Longitude		n.v.
<u>Eleocharis wolfii</u> Gray	Wolf's Spike Rush	
01. 40° 59' 20.22" North Latitude -087° 33' 37.62" West Longitude		P 33047
02. 40° 59' 06.06" North Latitude -087° 33' 36.00" West Longitude		P 33048
03. 40° 58' 57.18" North Latitude -087° 35' 21.30" West Longitude		P 33213
<u>Hymenopappus scabiosaeus</u> L'Hér	Old Plainsman	
01. 40° 59' 41.00" North Latitude -087° 33' 36.00" West Longitude		E 21282
<u>Maianthemum canadense</u> Desf.	False Lily-Of-The-Valley	
01. 40° 59' 25.14" North Latitude -087° 32' 46.50" West Longitude		P 33488

Scleria pauciflora Muhl. ex Willd. var. caroliniana (Willd.) Wood
Nut Rush

01.	40°	58'	50.46"	North Latitude	P 33403
	-087°	32'	35.40"	West Longitude	
02.	40°	59'	11.00"	North Latitude	
	-087°	32'	34.00"	West Longitude	

Talinum rugospermum Holzinger

Flower-Of-An-Hour

01.	40°	59'	39.96"	North Latitude	P 33619
	-087°	33'	16.74"	West Longitude	
02.	40°	59'	31.50"	North Latitude	P 33406
	-087°	33'	22.20"	West Longitude	

Toxicodendron vernix (L.) Kuntze

Poison Sumac

01.	40°	59'	27.00"	North Latitude	P 33619
	-087°	34'	03.72"	West Longitude	

Xyris torta Sm.

Twisted Yellow-eyed Grass

01.	40°	59'	12.12"	North Latitude	P 33399
	-087°	32'	29.70"	West Longitude	