LBOLA Awarded IDNR Matching Grant

In late summer, LBOLA was pleased to be informed that a matching grant from the Illinois Department of Natural Resources was awarded for a native plant and bird inventory of the Lake County Forest Preserve District's Lake Bluff Site, located just south of the Skokie River Preserve.

LBOLA board member and preserve steward Dave Szaflarski prepared the successful grant application funding locally acclaimed naturalist, Dr. Wayne Schennum's efforts to conduct a scientific inventory of the native plants and breeding birds on the LCFPD site. Dave has led recent efforts to restore the site's impressive oak stands and prairie remnants.

Preliminary findings by Dr. Schennum have documented some rather exciting rare plant finds in restored areas. (see following article)

In 1983, LBOLA identified the Lake Bluff Site's ecological significance and importance as a link in the greenway corridor chain that extends southward to Deerpath Road in Lake Forest.

Funding for this grant originates from the Illinois Wildlife Preservation Fund which appears at the bottom of the Illinois 1040 tax form as a voluntary check-off contribution for non-game wildlife.

Volunteer Appreciation

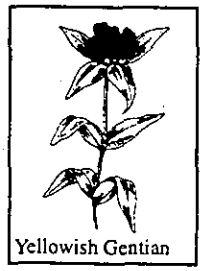
We'd like to thank this year's volunteer work force, including members of the Union Church Sunday School kids, Lake Forest Academy and St. Mary's Communicants. Your help is greatly appreciated. Volunteerism is what makes a community work!

Rare Wildflowers Discovered in L.B!

by Dave Szaflarski

Shrubby St. John's Wort

This summer some exciting and rare plants were discovered in the Skokie River Preserve and the LCFPD's Lake Bluff Site. One might think rare or exotic plants are found in remote and far-away locales and couldn't possibly be part of suburbia. But our Lake Bluff prairies proved to be just the place for two fine natives; Shrubby St. John's Wort (Hypericum spathulatum) and the Yellowish Gentian (Gentiana flavida).


Yellowish Gentian

Shrubby St. John's Wort is a bush which in mid-summer produces beautiful clusters of quarter-sized yellow blossoms. It has become exceedingly rare in the Chicago area. LBOLA volunteers cleared away the non-native buckthorn that was inhibiting its growth, to give it some much needed breathing room!

Dr. Wayne Schennum and Steward Dave Szaflarski conducting a grant funded plant and bird inventory at the Lake County Forest Preserve's Lake Bluff Site

LAKE BLUFF OPEN LANDS ASSOCIATION

LBOLA

FALL/WINTER 1998 NEWSLETTER

Debbie Barnes' third graders get hands-on experience meeting curricular goals studying prairies at the Prairie Preserve.

ECOLOGICAL ASSESSMENT OF THE LAKE BLUFF SITE, LAKE COUNTY FOREST PRESERVE DISTRICT & LAKE BLUFF OPEN LANDS ASSOCIATION

Wayne E. Schennum, March 1999

The Lake Bluff Site is an 80-acre parcel of rural open space along the East Branch of the Skokie River owned by the Lake County Forest Preserve District. It is the middle section of a 225-acre continuous belt of natural and disturbed lands along the river betwen Route 176 in Lake Bluff and Deerpath Road in Lake Forest, Illinois (hereafter called the East Skokie River Reserve). The adjoining parcels are the 35-acre Lake Bluff Open Lands Association's Skokie River Preserve to the north and the 110-acre Lake Forest Open Lands Association's Skokie River Nature Preserve to the south (see Figure 1).

Prior to Euro-American settlement in the early 1800's, lowlands bordering the Skokie River were a mosaic of prairies and open wetlands (marshes, native wet meadows) punctuated by small oak groves (Moran 1978). This community complex was largely poorly drained and unsuitable for agricultural or urban development. Light livestock pasturing was the only use of the land until the once meandering Skokie River was channelized and the adjacent lowlands were drained by installing networks of underground tile systems. Thereafter, crop agriculture and heavy livestock grazing were possible. Coupled with dehydration of the soil, these uses led to the loss of much of the native prairie, wetland and woodland vegetation. Eurasian weeds tolerant of and adapted to intensive agricultural use replaced many native species. Following the land's abandonment from agricultural use, and in the absence of occasional fires and soil hydration, native and non-native trees and shrubs invaded and some natural community recovery occurred, creating a cultural byproduct landscape of thickets, escaped cultivars, and remnant patches of the original native communites in varying stages of deviation from their original structure and compositon. Periodic wetness and recognition of the natural heritage value of the land by local citizens discouraged attempts at residential development and led to the protection of the land as private and publicly held open space.

Prior to 1998, intensive studies of the East Skokie River Reserve

focussed on its south and north sections. LFOLA's Skokie River Nature Preserve, though known locally prior to the late 1970's, was documented then by Illinois Natural Areas Inventory staff as an area of statewide significance, containing high quality remnants of mesic prairie and sedge meadow communities (see White 1978 and McFall & Kearnes 1995). LBOLA's Skokie River Preserve was studied by this report's author at the request of LBOLA and local residents seeking to prevent its development (see Schennum 1980). This study found remnant moderate quality, but diverse, mesic and wet prairie and sedge meadow communities in a maze of invading brush thickets. At that time, the "Lake Bluff Site" was the south unit of the Skokie River Preserve. It was little-studied except for general vegetation descriptions and consideration of its wildlife values along the Skokie River corridor.

Both the LFOLA Nature Preserve and LBOLA Skokie River Preserve have been studied further and intensively managed since their 1975-1980 discovery. The "Lake Bluff Site", however, has received comparatively less attention. The purposes of the present study are to describe this area's vegetation, including floristic composition, natural communities, and community quality; further asseess its wildlife and regional natural area value; and recommend prioritized management strategies for restoring this link between the LBOLA Nature Preserve and LFOLA Skokie Preserve.

METHODS

Prior to the present study, David Szaflarski and other members of LBOLA developed a vegetation map of the combined Lake Bluff Site (Lake County FPD) and Skokie River Preserve. This map became the basis for the 1998-99 study of the Lake Bluff Site (see Figure 2). In the spring of 1998, 5 vegetation study units were delineated within the site, and labeled 1 through 5, as shown in Figure 2. Intensive plant inventory work was confined to these parcels, including 3 woodlands and 2 prairie-fields. The remaining matrix of thickets and groves of exotic and invasive native trees and shrubs was too disturbed to warrant floristic investigation. Plant inventories and evaluations of community types (after Chicago Wilderness 1999) and ecological quality (after White 1978) were conducted on 4 visits to the Lake Bluff site, dated May 16, June 7, August 8, and September 26, 1998. During the quality assessments, additional notes were made on the actual and probable disturbance factors

responsible for the current diversity and structure of the vegetation.

Plant lists for each unit were prepared in the field and the data later transferred to standarized inventory forms. Questionable species were collected and identified later on the day of each inventory. Natural community types were described at the beginning of the field season and modified by further analyses during the field investigations.

A quantitative breeding bird survey was conducted from 7:00 to 9:00 a.m. on June 7. Bird survey census units were identical to those for plant inventories for Units 1 through 3. However, Units 4 and 5 were combined and another unit, the man-made pond and its wooded edges, was added. Bird census techniques consisted of 8-minute listening stops at the center of each bird survey unit (except the pond, studied from its edges). All bird species identified by vocalization, and in rare cases by visual contact, were recorded and frequency tallied at each stop. These data were later transferred to a standaridized form.

Data analyses followed the completion of the field studies. The Swink and Wilhelm (1994) floristic quality assessment system was applied to each of the 5 vegetation units. The coefficient of conservatism (C), floristic quality indices (FQI), and percentage of species with C > 4 were calculated and tabulated.

Overall natural community quality values were assigned using the system developed by White (1978) for the Illinois Natural Areas Inventory. Based on diversity, structural integrity, and degree of human disturbance, values may range from A (very high, native, undisturbed) to E (low, non-native, very disturbed). Field-assessed values were assigned to each of the 5 units.

No specific quantitative or qualitative analytical methods were applied to the bird census data. Repeated surveys during the breeding season, which were deemed unnecessary due to the small sizes of the study units, would have been necessary to justify application of a wildlife quality index system to these data. Therefore, the analysis of the bird data is purely descriptive and inferential.

RESULTS

A complete list of the plant species discovered in each of the 5 study units is given in Tables 1 through 5. Both Latin and common names are given, and lists are alphabetized by Latin name. Swink/Wilhelm C values (species' coefficients of conservatism), or an "x" for exotic species, follow each species' name.

The Floristic Quality Assessment of each unit is given in Table 6. The total number of species (N), number of native species (N), sum of C values (R), mean coefficient of conservatism (C), floristic quality index (I) and number and % of species with a C-value > 4 are given in the table.

The total number of species discovered ranged from a low of 57 in Unit 2 (central savanna) to 125 in Unit 4 (northwest prairie). The C values ranged from a low of 2.96 in Unit 5 (northwest savanna) to 3.94 in Unit 3 (east prairie). The I values ranged from a low of 21.14 in Unit 5 to 35.58 in unit 4. The percentage of "conservative " species (C > 4) ranged from 25% in Unit 5 to 51% in Unit 3. In general, C and I values clustered into two groups: group 1 -- Units 1, 3, & 4 with C's from 3.58 to 3.94 and I's from 29.41 to 35.58; group 2 -- Units 2 & 5 with C's from 2.96 to 3.38 and I values 21.14 to 21.90.

Table 7 lists the natural community types and quality ratings for Units 1 through 5. In two wooded units, U2 and U5, native tree density and structure indicate sufficient openness to classify them as savannas. Low herbaceous diversity and heavy exotic brush invasion give both units poor quality or D ratings. Unit 1's dense canopy structure and varied composition of dominant oaks classify this unit as a woodland. Moderate diversity and the presence of a conservative spring flora yield a higher, moderate (C) to poor (D) rating for this oak grove.

Units 3 and 4 are open mesic to wet prairie, with Unit 4 containing some sedge meadow. Unit 3 earns a higher rating (C) than Unit 4 (D) because of its higher percent cover by native species and presence of several more prairie indicator grasses and forbs. Unit 4 has a greater prevalence of exotics and few true prairie indicators; greater size and range of soil moisture types account for its much higher total diversity.

Except for the man-made pond, which was not surveyed botanically, the

remainder of the Lake Bluff Site is dominated by thickets and groves of non-native and invasive native vines, shrubs, and trees, classified as "unassociated growth-trees & shrubs". Six escaped non-native woody cultivars are particularly common, and the 4 shrubs have invaded the study units otherwise dominated by native species. These non-natives are common and glossy buckthorn, European highbush cranberry, Tartarian honeysuckle, and smooth arrow-wood. The common non-native tree is Norway maple.

Indirect evidence provided in the previously discussed quality ratings and their supporting rationale, and direct observation of soil conditions (dehydration, tile lines, old plow lines) indicate that heavy past livestock grazing, artificial drainage by tile systems (leading to the channelized Skokie River), and periodic cultivation in drier years are responsible for the current condition of the Lake Bluff Site. Heavy invasion by escaped cultivars following these agricultural uses was facilitated by the site's continuity with a large estate and other nearby residential areas.

Results of the bird survey are given in Table 8. A total of 30 species were identified, of which 27 are probable breeding residents. The sharp-shinned hawk, double-crested cormorant, and great blue heron are site visitors (feeding, fly-over). A single yellow-breasted chat was visually identified; though not confirmed, it is included in the total count.

All census units except Unit 2 (central savanna, set in a large matrix of trees and thickets) had 10 to 14 breeding species, represented by 12 to 23 individuals. All birds are tree and shrub nesters characteristic of woodlands, savannas, and shrublands (though the wood thrush and veery nest on the ground in woodlands and forests) or are pond/wetland dependent. Birds observed in sample Unit 4/5 may have territories overlapping into the adjacent Skokie River Preserve to the north, where several of the same species were noted in transit prior to and after the census time. Birds in other units also probably have territories extending beyond unit boundaries.

Three of the birds observed were listed as endangered /threatened in Illinois (Herkert 1991, 1992). However, all three, the veery, cormorant, and sharp-shinned hawk, were dropped from the list in summer 1998 (Herkert 1998).

DISCUSSION: ANALYSIS & RECOMMENDATIONS

ANALYSIS:

The 1998 field investigation of the Lake Bluff Site clearly shows that the 5 subunits selected for study because of their remnant native vegetation deviate significantly from the pre-Euro-American settlement natural communities which best describe them. This deviation is both compositional and structural. According to Swink and Wilhelm (1994), "areas with I values higher than 35 possess significant conservatism and richness to be of profound importance from a regional perspective." Only Units 4 and 3 equal or approach this minimum qualifier for regional significance. Furthermore, Swink and Wilhelm (1994) state "89% of our native flora has a C value > 4 and has a C value of 7.3." Units 3, 1, and 4, with the highest C values of 3.94, 3.86, and 3.58, respectively, are but one half that 7.3 mean value.

The structural/compositional deviation of the Lake Bluff Site from native/presettlement conditions is also indicated in the more subjective, but ecologically based, Illinois Natural Areas Inventory letter ratings. A C/D, moderate to poor, value is the highest rating obtained by any study unit (Units 1 and 3). According to White (1978), such ratings indicate moderately to heavily disturbed (C) or severely disturbed (D) communities. Brush invasion, lowered water tables, and past grazing have led to a reduced or low diversity of native plants characteristic of stable native communities and their displacement by alien species and early successional species (adapted to unstable soil and hydrological conditions).

The floristically and ecologically disturbed state of even the highest quality remnants of the Lake Bluff Site does not reduce their natural value to insignificance by any means. Swink and Wilhelm (1994) have found that most open space areas in the Chicago region have C values of 0 to 2, far below those of the Lake Bluff Site remnants. White's (1978) results for Illinois as a whole and numerous investigations of remnant native vegetation on public and privately owned open lands in northeast Illinois have shown that the Lake Bluff Site remnants represent at worst typical or average ecological conditions for such land. Their degree of compositional and structural alteration merely indicates the need for intensive restoration action at both the very local and regional level.

Several compositional discoveries at the Lake Bluff Site remnants predict a potential for successful restoration here. First, the woodland in Unit 1 retains its canopy of old oaks and harbors large populations of such conservative forest wildflowers as blue cohosh, early meadow rue, red baneberry, and great white trillium. The prairie in Unit 3, and to a lesser extent in Unit 4, has viable populations of such prairie indicator forbs as heath aster, marsh blazing star, narrow-leaved loosestrife, prairie dock, Riddell's goldenrod, and Culver's root, as well as the relatively uncommon shrubby St. John's wort. Furthermore, a diverse matrix of more disturbance tolerant, but characteristic, flora is present in Units 1, 3, and 4.

Secondly, the study area is contiguous with the relatively species-rich prairies and wetlands of LBOLA's Skokie River Preserve to the north, most of which has been restored for a much longer time using brush removal and prescribed burning. This site provides a long-term colonization source and short-term seed source for recovery of the Lake Bluff FPD parcel.

Thirdly, the Lake Bluff Site has a diverse representation of natural community types ranging from sedge meadow and prairie to savanna and woodland. These communities are present in both contiguous parcels of managed natural areas to the north and south (Lake Forest Nature Preserve). Therefore, when restored they can collectively form an ecologically integrated unit.

Fourthly, the Lake Bluff Site was found to support probable breeding populations of declining or relatively uncommon shrubland birds, including the blue-winged warbler, chestnut-sided warbler, rufous-sided towhee, and possibly the yellow-breasted chat. The populations of these birds should expand with restoration of the potential savanna-prairie ecosystem here.

Finally, the Lake Bluff Site is a critical ecological link between the Skokie River Preserve and the Lake Forest Nature Preserve. The long-term viability of these two areas is dependent on the restoration of the Lake Bluff Site. Without its recovery, the other two preserves would remain disjunct islands more vulnerable to the species loss and ecological degradation associated with small size and edge effects (Shafer 1990).

RECOMMENDATIONS:

Four restoration goals should guide volunteer management efforts at the Lake Bluff Site. In order of priority, these are as follows:

1. Protect, enhance, and expand the higher quality remnants to ensure their survival and recovery.

2. Manage for ecological continuity with the adjacent 35-acre Skokie River Preserve to make one larger site and allow southward movement of species.

3. Restore highly degraded sections to provide an 80-acre natural area with internal continuity.

4. Establish ecological continuity with the 110-acre Lake Forest Nature Preserve to create a single complete 225-acre "Skokie River Natural Area" or "East Skokie River Reserve."

Given the above prioritized restoration goals, a set of specific prioritized management actions should be employed to accomplish them. These objectives are described in the ensuing list of "actions."

Action 1: Control of garlic mustard.

Because this alien species can eliminate native woodland wildflowers, the highest priority should be assigned to this task. Areas in and adjacent to Unit 1 are most important; Unit 5 ranks second, Unit 2 third. Use of herbicide or prescribed burning when other native forbs and sedges are dormant are suitable techniques for the large infestations present. Pulling the entire plant and removing the parts in bags is feasible only for control of small colonies.

Action 2: Exotic and invasive native brush and tree removal.

LBOLA volunteers have already expended considerable effort on this and have cleared primarily common buckthorn from woodlands in Units 1 and 5 and several species from the Unit 3 prairie. Brush removal should concentrate on the Unit 3 prairie first, clearing and enlarging it considerably. The Unit 4 prairie should follow, again with the objective of

clearing the interior and enlarging it by cutting thickets at the perimeter. The uncleared remainder of the Unit 1 woodland understory should be the third priority for brush removal, followed by Units 5 and 2.

All brush removal should be coupled with herbicide treatment of cut stumps to prevent resprouting and the laborious, time-consuming, and frustrating process of recutting. Garlon 3A is the preferred chemical control, if volunteers have access to it. Garlon 4 is used in the non-growning season. If Garlon is not available, other compounds may be substituted, especially if they are translocated to the roots and kill the entire plant. Note that some shrubs, such as blue-leaved willow, shrubby St. John's wort, hazelnut, and others are not invasive natives. They can be cut if they form light-excluding thickets or reach large size (> 3 - 4 feet in height.) However, they should not be treated with herbicide.

Action 3: Species reintroduction.

Sepcies reintroduction is needed for two reasons at the Lake Bluff Site: 1. to establish the dominant grass/sedge ground cover in bare soil areas cleared of brush; and 2. to recreate compositionally more complete prairie, savanna, and woodland communities, like those in the adjacent Skokie River and Lake Forest Preserves. Direct hand seeding into bare soil areas should be simultaneous with brush clearing to deter reestablishment of thickets or colonization by exotic herbaceous species.

It is beyond the scope of this study to provide a complete list of candidate species for reintroduction. However, the species lists for corresponding communities in the LFOLA Skokie River Preserve (see Schennum 1980, and any follow-up studies by Cliff Miller) and Lake Forest Nature Preserve are suitable baselines. A primary need is to replant those native grasses (+ sedges in woodlands) and characteristic forbs lost to past grazing and shrub invasion. Grasses (and sedges) not only provide the dominant native herbaceous elements of prairie and savanna/woodland communities, but necessary fuels for prescribed fires (see Action 4). LBOLA volunteers have already introducted big bluestem to cleared parts of the Unit 4 prairie. Shaded woodland areas require different grasses, such as silky wild rye and bottlebrush grass, and common oak sedge. Only the latter speies was found in the Lake Bluff Site during the 1998 inventory. The Lake Forest Nature Preserve woodlands may have populations of the two grasses. If not, it is justifiable to collect seeds of

these species from the nearest available source.

Selection of forb species for reintroduction is a more difficult process than that for grasses/sedges since the pool of potential species is so much larger. Both Units 3 and 4 currently have common grazing-tolerant prairie composites and mints. Unit 3 has some of the less tolerant species, most in small numbers. These should be reintroduced to Unit 4. Examples include marsh blazing star, narrow-leaved loosestrife, prairie dock, and Culver's root. Common, characteristic prairie forbs which can readily be reintroduced from seed and which occur in the adjacent less disturbed preserves should be reintroduced to both Units 3 and 4. Examples include showy tick tre-foil, sneezeweed, cowbane, purple prairie clover, and golden alexanders.

The forb reintroduction process for the Unit 1 woodland and Units 2 & 5 savannas should emphasize the partial shade intolerant species lost to both past grazing and dense understory shading. Examples of these species are columbine, woodland sunflower, starry campion, false sunflower, and yellow pimpernel. A comprehensive list of these characteristic woodland/savanna species has been developed (see Packard and Mutel 1997).

Action 4: Prescribed burning

Prescribed burning is normally a very high priority objective in natural areas restoration. Its effectiveness in stimulating seed germination and compositional recovery and in controlling small brush and tree invaders and resprouts has long been recognized. A long-term rotational prescribed burning program should be implemented at the Lake Bluff Site. To the author's knowledge it has not been initiated. However, its effectiveness at this site will be limited in the early stages of restoration due to light fuel loads and lack of wind penetration in the currently small, enclosed native vegetation remnants. As grasses and sedges increase in % cover and wind-blocking thickets are removed, fire will become a more useful tool for stimulating recovery.

At present, three burn units exist in the preserve: woodland Unit 1, savanna Unit 2 - prairie Unit 3 (separated by a non-combustible thicket), and prairie Unit 4 - savanna Unit 5. Two of the three could be burned each year in a rotational system for several years until community composition

enrichment, fuel loads, and interunit continuity warrant a reduced frequency of one burn unit per year.

Action 5: Community reconstruction.

Complete reconstruction of those portions of the 80-acre Lake Bluff Site not included in Units 1 -- 5 is essential to create a viable preserve and complete natural community complex, both within itself and in conjunction with the two adjacent natural areas. Extensive dense thickets of common buckthorn, box elder, and other small trees and shrubs and large stands of Norway maple require removal to accomplish this. They should be replaced by planting prairie or savanna as soils and adjacent remnants indicate. Because the two bordering preserves are primarily grasslands, the emphasis should be placed on prairie reconstruction, with scatterred savannas and mixed prairie - native shrublands at the junctures of timber and grass dominated communities. This will be a long, tedious and frustrating task if a volunteer work force relying solely on hand tools is the accepted restoration method. Instead, it is recommended here that at least the cutting and stacking portion of this phase of the project be conducted by the Lake County FPD staff or its contractors. The follow-up herbicide treatment of cut stumps and planting of native communities could be accomplished by volunteers, with forest preserve guidance for the planting plan.

Action 6: Hydrological restoration.

Restoration of original soil moisture regimes is presented as a recommended option. This will require professional expertise in the location of drain tile networks and their removal by forest preserve staff or contractors using a tracked backhoe.

This action is optional because of its potentially high expense. However, several wetland restoration grant funds are available for such work, and the techniques have been successfully applied throughout the Chicago region and elsewhere. Certainly, improving the water storage capacity of the existing Lake Bluff Site is more compatible with the preserve, and probably less costly, than the construction of a detention basin on the site, as has been proposed, even if the existing man-made pond is expanded and/or deepened. A more natural use of this feature would be to restore it to a shallow ponded marsh for wetland and aquatic

wildlife.

Another aspect of hydrological restoration is remediation of the Skokie River's East Branch. This ditch in its current state accelerates water withdrawal from the preserve, exacerbating both brush invasion and water storage problems. Dechannelization of this watertcourse may be a non-tractable long-term goal for this site and region. However, the existing ditch can be modified to lessen its negative impacts by employing streambank grading techniques to lessen bank slope and planting with deep-rooted perennial grasses in erosion control matting to stabilize the new banks. These techniques would reduce erosion, down-cutting, and accelerated water removal. The latter improvements, and habitat diversification for aquatic organisms, could be enhanced further by installing such instream structures as wing dams and artificial rock riffles. Such hydrological restoration activities require professional expertise and equipment unavailable to a volunteer crew, and so would best be undertaken by Lake County FPD staff or its contractors. However, volunteers could assist with the placement of erosion control matting and the planting of native grass plugs. In fact, on a special volunteer workday in summer 1999, McHenry County Conservation District volunteers will engage in just such an activity at Glacial Park, as a significant part of the Nippersink Creek Dechannelization Project process.

SUMMARY

In conclusion, the 80-acre Lake Bluff Site (Lake County FPD) is a critical ecological link between the adjoining Skokie River Preserve (35 acres, LBOLA) and Lake Forest Nature Preserve (110 ares, LFOLA). Moderate quality restorable remnants of prairie and woodland lie within the Lake Bluff Site, supporting a number of plants characteristic of these communities. Ongoing volunteer management activities have made significant progress toward the restoration of these remnants. Increased volunteer efforts in garlic mustard control, brush removal, plant reintroduction, and prescribed burning, followed by Lake County Forest Preserve reconstruction of large highly degraded areas, both over a period of several years, will transform the Lake Bluff Site into an integral part of a 225-acre Lake Bluff - Lake Forest prairie - savanna - wetland natural area characteristic of the Skokie River valley at the time of Euro-American settlement. This natural area will make a significant contribution to biodiversity preservation in the Chicago Region.

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FIGURE 1 SKOKIE RIVER NATURAL AREAS

LAKE FOREST OPEN LANDS 30 YEARS OF PRESERVATION

Lake Forest Open Lands 30th Anniversary 1967 — 1997

NEWSLETTER

Summer 1997

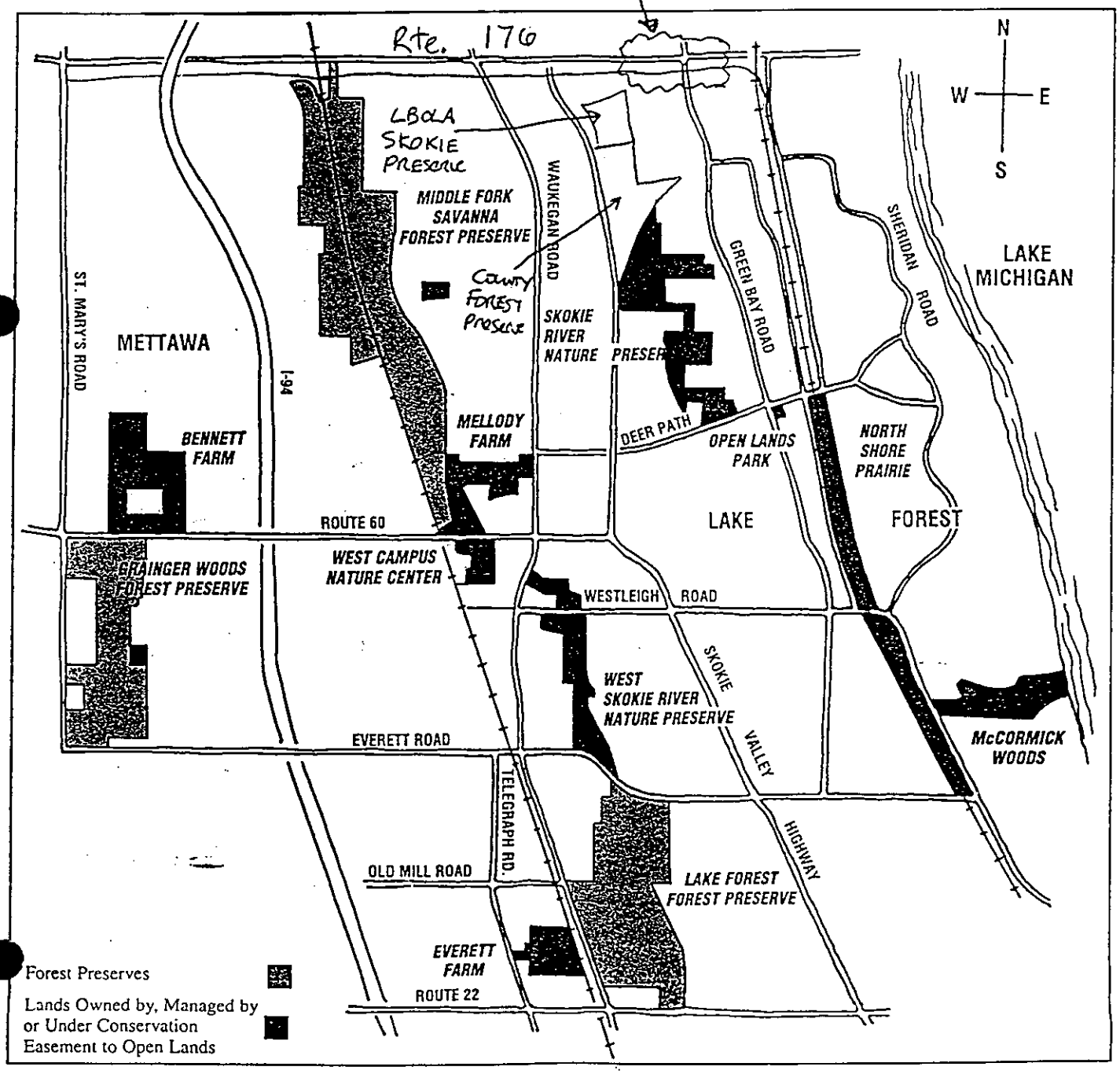

FIGURE 2 LAKE BLUFF SITE STUDY UNITS

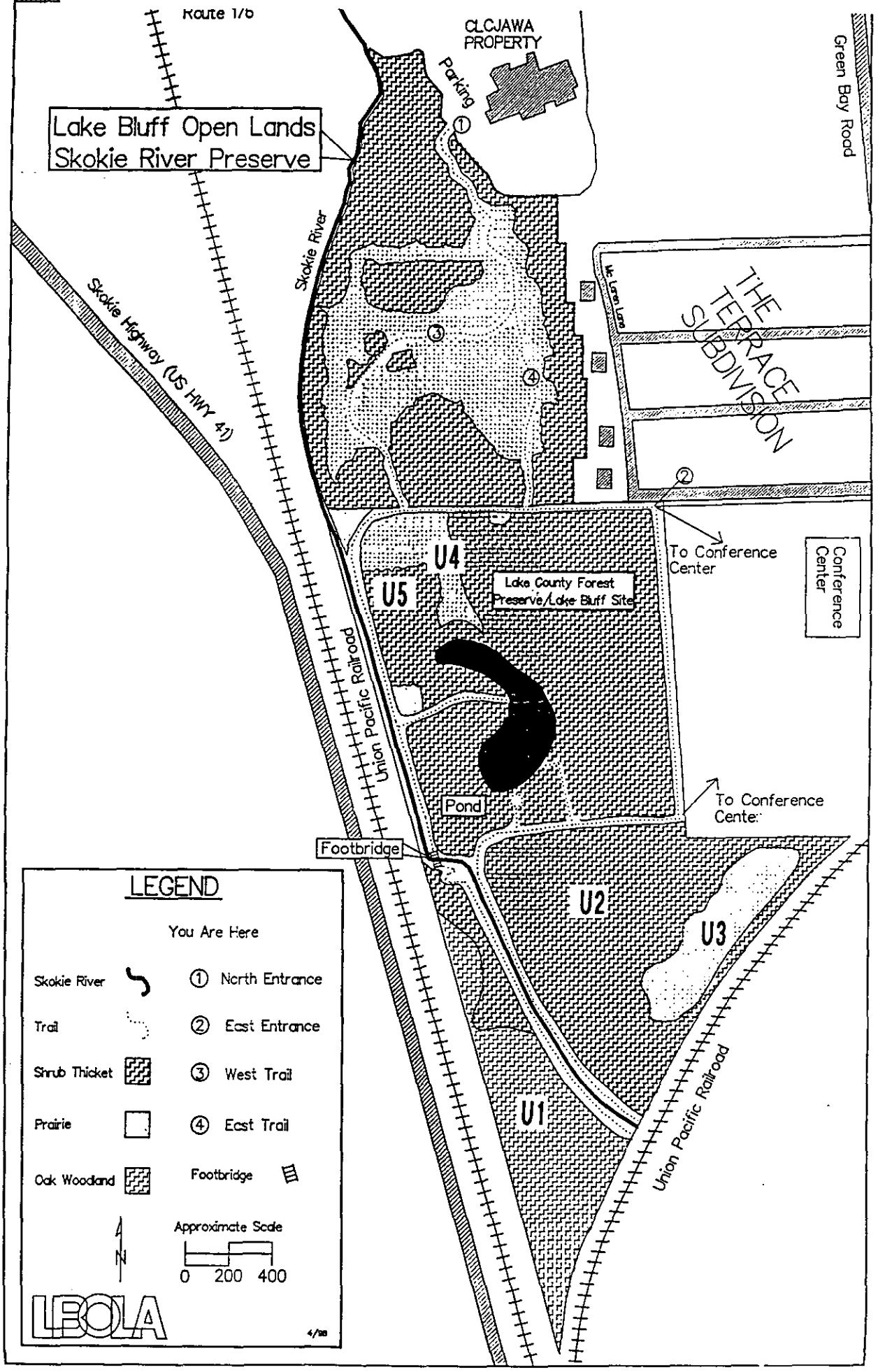

TABLE 1: UNIT 1 PLANT LIST

Acer negundo BOX ELDER 0
Actaea rubra RED BANEBERRY 10
Aesculus glabra OHIO BUCKEYE 3
Alliaria petiolata GARLIC MUSTARD x
Allium canadense WILD ONION 2
Allium tricoccum WILD LEEK 7
Anemone quinquefolia WOOD ANEMONE 7
Arctium minus COMMON BURDOCK x
Arisaema triphyllum JACK IN THE PULPIT 4
Aster lateriflorus SIDE-FLOWERING ASTER 4
Bidens frondosa COMMON BEGGAR'S TICKS 1
Brassica nigra BLACK MUSTARD x
Carex blanda COMMON WOOD SEDGE 1
Carya cordiformis BITTERNUT HICKORY 7
Carya ovata SHAGBARK HICKORY 5
Caulophyllum thalictroides BLUE COHOSH 8
Celastrus orbiculatus ORIENTAL BITTERSWEET x
Celastrus scandens CLIMBING BITTERSWEET 4
Celtis occidentalis HACKBERRY 3
Circaea lutetiana canadensis ENCHANTER' S NIGHTSHADE 1
Cirsium arvense CANADA THISTLE x
Cirsium vulgare BULL THISTLE x
Crataegus crus-galli COCKSPUR HAWTHORNE 2
Crataegus mollis DOWNY HAWTHORNE 2
Epilobium coloratum CINNAMON WILLOW HERB 3
Epicactis helleborine HELLEBORINE ORCHID x
Fraxinum pennsylvanica subintegerrima GREEN ASH 1
Geranium maculatum WILD GERANIUM 4
Geum canadense WHITE AVENS 1
Glyceria striata FOWL MANNA GRASS 4
Hackelia virginiana STICKSEED 0
Hamamelis virginiana WITCH HAZEL 8
Heracleum maximum COW PARSNIP 5
Hesperis matronalis DAME'S ROCKET x
Hydrophyllum virginianum VIRGINIA WATERLEAF 5
Impatiens capensis ORANGE JEWELWEED 3
Lactuca canadensis WILD LETTUCE 2
Lonicera tatarica TARTARIAN HONEYSUCKLE x

Nepeta cataria CATNIP x
Parthenocissus quinquefolia VIRGINIA CREEPER 2
Phalaris arundinacea REED CANARY GRASS x
Pilea pumila CLEARWEED 5
Podophyllum peltatum MAY APPLE 4
Polygonum hydropiper WATER PEPPER 2
Populus deltoides EASTERN COTTONWOOD 2
Populus tremuloides QUAKING ASPEN 4
Prunus serotina WILD BLACK CHERRY 1
Prunus virginiana CHOKE CHERRY 3
Quercus alba WHITE OAK 5
Quercus bicolor SWAMP WHITE OAK 6
Quercus coccinea SCARLET OAK 4
Quercus macrocarpa BUR OAK 5
Quercus rubra RED OAK 7
Rhamnus cathartica COMMON BUCKTHORN x
Ribes americanum WILD BLACK CURRANT 7
Rosa multiflora MULTIFLORA ROSE x
Rubus occidentalis BLACK RASPBERRY 2
Rumex crispus CURLY DOCK x
Salix interior SANDBAR WILLOW 1
Sambucus canadensis ELDERBERRY 1
Scirpus atrovirens DARK GREEN RUSH 4
Sicyos angulatus BUR CUCUMBER 5
Smilacina racemosa FEATHERY FALSE SOLOMON'S SEAL 3
Solanum americanum BLACK NIGHTSHADE x
Solanum dulcamara BITTERSWEET NIGHTSHADE x
Solidago altissima TALL GOLDENROD x
Taraxicum officinale DANDELION x
Thalictrum dasycarpum PURPLE MEADOW RUE 5
Thalictrum dioicum EARLY MEADOW RUE 7
Trillium grandiflorum LARGE-FLOWERED TRILLIUM 8
Trillium recurvatum RED TRILLIUM 5
Ulmus americana AMERICAN ELM 3
Ulmus rubra SLIPPERY ELM 4
Verbena urticifolia HAIRY WHITE VERVAIN 5
Viburnum lentago NANNYBERRY 5
Viburnum opulus EUROPEAN HIGH BUSH CRANBERRY
Vitis riparia RIVERBANK GRAPE 2

TABLE 2: UNIT 2 PLANT LIST

Acer negundo BOX ELDER 0
Acer platanoides NORWAY MAPLE x
Acer saccharinum SILVER MAPLE 0
Actaea rubra RED BANEBERRY 10
Alliaria petiolata GARLIC MUSTARD x
Allium canadense WILD ONION 2
Arisaema triphyllum JACK IN THE PULPIT 4
Berberis thunbergii JAPANESE BARBERRY x
Brassica nigra BLACK MUSTARD x
Carex rosea CURLY-STYLED WOOD SEDGE 4
Carya cordiformis BITTERNUT HICKORY 7
Caulophyllum thalictroides BLUE COHOSH 8
Celastrus scandens CLIMBING BITTERSWEET 4
Celtis occidentalis HACKBERRY 3
Circaea lutetiana canadensis ENCHANTER'S NIGHTSHADE 1
Cirsium vulgare BULL THISTLE x
Crataegus crus-galli COCKSPUR HAWTHORNE 2
Dryopteris spinulosa SPINULOSE SHIELD FERN 8
Epilobium coloratum CINNAMON WILLOW HERB 3
Euonymus alatus WINGED EUONYUMUS x
Fraxinum pennsylvanica subintegerrima GREEN ASH 1
Geranium maculatum WILD GERANIUM 4
Geum canadense WHITE AVENS 1
Hackelia virginiana STICKSEED 0
Hesperis matronalis DAME'S ROCKET x
Lonicera tatarica TARTARIAN HONEYSUCKLE x
Menispermum canadense MOONSEED 6
Oxalis stricta COMMON WOOD SORREL 0
Parthenocissus quinquefolia VIRGINIA CREEPER 2
Podophyllum peltatum MAY APPLE 4
Populus deltoides EASTERN COTTONWOOD 2
Prunus serotina WILD BLACK CHERRY 1
Prunus virginiana CHOKE CHERRY 3
Quercus coccinea SCARLET OAK 4
Quercus macrocarpa BUR OAK 5
Rhamnus cathartica COMMON BUCKTHORN x
Rhamnum frangula GLOSSY BUCKTHORN x
Rhus typhina STAGHORN SUMAC 1

Ribes americanum WILD BLACK CURRANT 7
Rosa multiflora MULTIFLORA ROSE x
Rubus occidentalis BLACK RASPBERRY 2
Rubus pensylvanicus YANKEE BLACKBERRY 3
Salix nigra BLACK WILLOW 4
Smilacina racemosa FEATHERY FALSE SOLOMON'S SEAL 3
Solanum americanum BLACK NIGHTSHADE x
Solanum dulcamara BITTERSWEET NIGHTSHADE x
Solidago altissima TALL GOLDENROD 1
Taraxicum officinale DANDELION x
Thalictrum dasycarpum PURPLE MEADOW RUE 5
Tilia americana BASSWOOD 5
Trillium grandiflorum LARGE-FLOWERED TRILLIUM 8
Ulmus americanum AMERICAN ELM 3
Viburnum lentago NANNYBERRY 5
Viburnum opulus EUROPEAN HIGH BUSH CRANBERRY x
Viburnum recognitum SMOOTH ARROW-WOOD x
Viola affinis LECONTE'S VIOLET 4
Vitis riparia RIVERBANK GRAPE 2

TABLE 3: UNIT 3 PLANT LIST

Achillea millefolium YARROW x
Agrostis alba REDTOP x
Allium cernuum NODDING WILD ONION 7
Ambrosia artemisiifolia elatior COMMON RAGWEED 0
Anemone cylindrica THIMBLEWEED 6
Apocynum cannabinum INDIAN HEMP 4
Asclepia syriaca COMMON MILKWEED 0
Aster ericoides HEATH ASTER 5
Aster lateriflorus SIDE-FLOWERING ASTER 4
Aster novae-angliae NEW ENGLAND ASTER 4
Aster pilosus HAIRY ASTER 0
Aster praeltus WILLOW ASTER 9
Aster sagittifolius drummondi DRUMMOND'S ASTER 2
Aster simplex PANICLED ASTER 3
Betula papyrifera PAPER BIRCH 10
Brassica nigra BLACK MUSTARD x
Carex granularis PALE SEDGE 4
Chrysanthemum leucanthemum OX-EYE DAISY x
Convolvulus sepium HEDGE BINDWEED 1
Cornus racemosa GRAY DOGWOOD 1
Crataegus crus-galli COCKSPUR HAWTHORNE 2
Crataegus mollis DOWNY HAWTHORNE 2
Daucus carota QUEEN ANNE'S LACE x
Equisetum arvense HORSETAIL 0
Erigeron annuus ANNUAL FLEABANE 0
Erigeron philadelphicus MARSH FLEABANE 4
Erigeron strigosus DAISY FLEABANE 5
Eupatorium altissimum TALL BONESET 0
Fragaria virginiana WILD STRAWBERRY 1
Fraxinus pennsylvanica subintegerrima GREEN ASH 1
Fraxinum pennsylvanica RED ASH 5
Helianthus grosserratus SAWTOOTH SUNFLOWER 2
Hypericum perforatum COMMON ST. JOHNSWORT x
Hypericum prolificum SHRUBBY ST. JOHNBSWORT 7
Juncus dudleyi DUDLEY'S RUSH 4
Juncus nodosus JOINTED RUSH 6
Liatris spicata MARSH BLAZING STAR 6
Lonicera tatarica TARTARIAN HONEYSUCKLE x

Lycopus americanus COMMON WATER HOREHOUND 5
Lysimachia quadriflora NARROW-LEAVED LOOSESTRIFE 9
Monarda fistulosa WILD BERGAMOT 4
Oenothera biennis COMMON EVENING PRIMROSE 0
Oxalis stricta COMMON WOOD SORREL 0
Panicum implicatum OLD-FIELD PANIC GRASS 2
Panicum virgatum SWITCH GRASS 5
Parthenocissus quinquefolia VIRGINIA CREEPER 2
Penstemon digitalis FOXGLOVE BEARD TONGUE 4
Phlox glaberrima MARSH PHLOX 8
Plantago major COMMON PLANTAIN x
Poa compressa CANADA BLUE GRASS x
Populus deltoides EASTERN COTTONWOOD 2
Potentilla recta SULFUR CINQUEFOIL x
Potentilla simplex COMMON CINQUEFOIL 4
Prunella vulgaris lanceolata SELF HEAL x
Prunus virginiana CHOKE CHERRY 3
Pycnanthemum virginianum COMMON MOUNTAIN MINT 5
Rhamnus cathartica COMMON BUCKTHORN x
Rhamnus frangula GLOSSY BUCKTHORN x
Robinia psuedoacacia BLACK LOCUST x
Rosa carolina PASTURE ROSE 5
Rosa multiflora MULTIFLORA ROSE x
Rudbeckia hirta BLACK-EYED SUSAN 1
Salix glaucophylloides BLUE-LEAVED WILLOW 7
Scirpus pendulus RED BULRUSH 4
Senecio aureus GOLDEN RAGWORT 7
Senecio pauperculus BALSAM RAGWORT 6
Silphium terebinthinaceum PRAIRIE DOCK 5
Sisyrinchium albidum COMMON BLUE-EYED GRASS 7
Solidago altissima TALL GOLDENROD 1
Solidago gigantea LATE GOLDENROD 4
Solidago graminifolia COMMON GRASS-LEAVED GOLDENROD 4
Solidago juncea EARLY GOLDENROD 5
Solidago nemoralis OLD-FIELD GOLDENROD 4
Solidago riddellii RIDDELL'S GOLDENROD 7
Solidago rigida STIFF GOLDENROD 4
Sorghastrum nutans INDIAN GRASS 5
Ulmus americana AMERICAN ELM 3
Verbena urticifolia HAIRY WHITE VERVAIN 5

Vernonia fasciculata COMMON IRONWEED 5
Vernonicastrum virginicum CULVER'S ROOT 7
Viburnum opulus EUROPEAN HIGH BUSH CRANBERRY x
Viola nephrophylla NORTHERN BOG VIOLET 9
Viola sororia COMMON BLUE VIOLET 3
Vitia riparia RIVERBANK GRAPE 2

TABLE 4: UNIT 4 PLANT LIST

Acer platanoides NORWAY MAPLE x
Achillea millefolium YARROW x
Agrostis alba REDTOP x
Allium canadense WILD ONION 2
Ambrosia artemisiifolia COMMON RAGWEED 0
Anemone cylindrica THIMBLEWEED 6
Anemone quinquefolia WOOD ANEMONE 7
Angelica atropurpurea GREAT ANGELICA 7
Antennaria plantaginifolia PUSSYTOES 3
Apocynum cannabinum INDIAN HEMP 4
Aster ericoides HEATH ASTER 5
Aster lateriflorus SIDE-FLOWERING ASTER 4
Aster novae-angliae NEW ENGLAND ASTER 4
Aster pilosus HAIRY ASTER 0
Aster sagittifolium drummondi DRUMMOND'S ASTER 2
Bidens frondosa COMMON BEGGAR'S TICKS 1
Brassica nigra BLACK MUSTARD x
Carex cephalophora SHORT-HEADED BRACTED SEDGE 3
Carex granularis PALE SEDGE 4
Carex pensylvanica COMMON OAK SEDGE 5
Carya ovata SHAGBARK HICKORY 5
Cerastium arvense villosum FIELD CHICKWEED 6
Chrysanthemum leucanthemum OX-EYE DAISY x
Circaea lutetiana canadensis ENCHANTER'S NIGHTSHADE 1
Cirsium arvense CANADA THISTLE x
Convolvulus sepium HEDGE BINDWEED 1
Cornus racemosa GRAY DOGWOD 1
Crataegus crus-galli COCKSPUR HAWTHORNE 2
Crataegus mollis DOWNY HAWTHORNE 2
Daucus carota QUEEN ANNE'S LACE x
Dianthus armeria DEPTFORD PINK x
Echinochloa walteri SALT-MARSH COCKSPUR GRASS 8
Epilobium coloratum CINNAMON WILLOW HERB 3
Equisetum arvense HORSETAIL 0
Erechtites hieracifolia FIREWEED 2
Erigeron annuus ANNUAL FLEABANE 0
Erigeron philadelphicus MARSH FLEABANE 4
Erigeron strigosus DAISY FLEABANE 5

Eupatorium maculatum SPOTTED JOE PYE WEED 4
Fragaria virginiana WILD STRAWBERRY 1
Fraxinum pennsylvanica subintegerrima GREEN ASH 1
Geranium maculatum WILD GERANIUM 4
Geum allepicum strictum YELLOW AVENS 7
Geum canadense WHITE AVENS 1
Glyceria striata FOWL MANNA GRASS 4
Gnaphalium obtusifolium OLD FIELD BALSAM 2
Helianthus grosserratus SAWTHOOTH SUNFLOWER 2
Helianthus tuberosus JERUSALEM ARTICHOKE 3
Heliopsis helianthoides FALSE SUNFLOWER 5
Hieraceum caespitosum FIELD HAWKWEED x
Hypericum perforatum COMMON ST. JOHNSWORT x
Hypericum prolificum SHRUBBY ST. JOHNSWORT 7
Juncus tenuis PATH RUSH 0
Lactuca canadensis WILD LETTUCE 2
Lemna minor SMALL DUCKWEED 5
Lonicera tatarica TARTARIAN HONEYSUCKLE x
Luzula multiflora COMMON WOOD RUSH 7
Lycopus americanus COMMON WATER HOREHOUND 5
Lythrum alatum WINGED LOOSESTRIFE 7
Lythrum salicaria PURPLE LOOSESTRIFE x
Malus ioensis IOWA CRAB 3
Medicago lupulina BLACK MEDIC x
Melilotus alba WHITE SWEET CLOVER x
Monarda fistulosa WILD BERGAMOT 4
Oenothera biennis COMMON EVENING PRIMROSE 0
Onoclea sensibilis SENSITIVE FERN 8
Oxalis stricta COMMON WOOD SORREL 0
Panicum capillare OLD WITCH GRASS 1
Parthenocissus quinquefolia VIRGINIA CREEPER 2
Physalis heterophylla CLAMMY GROUND CHERRY 3
Physocarpus opulifolius NINEBARK 8
Pilea pumila CLEARWEED 5
Poa compressa CANADA BLUE GRASS x
Poa pratensis KENTUCKY BLUE GRASS x
Polygonum hydropiper WATER PEPPER 2
Polygonum ramosissium BUSHY KNOTWEED 5
Populus deltoides EASTERN COTTONWOOD 2
Populus tremuloides QUAKING ASPEN 4

Potentilla recta SULFUR CINQUEFOIL x
Potentilla simplex COMMON CINQUEFOIL 4
Prunella vulgaris lanceolata SELF HEAL x
Prunus serotina WILD BLACK CHERRY 1
Prunus virginiana CHOKE CHERRY 3
Pycnanthemum virginianum COMMON MOUNTAIN MINT 5
Quercus coccinea SCARLET OAK 4
Quercus macrocarpa BUR OAK 5
Ranunculus pensylvanicus BRISTLY BUTTERCUP 6
Ratibida pinnata YELLOW CONEFLOWER 4
Rhamnus cathartica COMMON BUCKTHORN x
Rhamnus frangula GLOSSY BUCKTHORN x
Rhus typhina STAGHORN SUMAC 1
Rosa carolina PASTURE ROSE 5
Rosa multiflora MULTIFLORA ROSE x
Rubus allegheniensis COMMON BLACKBERRY 3
Rubus flagellaris COMMON DEWBERRY 3
Rubus occidentalis BLACK RASPBERRY 2
Rubus pensylvanicus YANKEE BLACKBERRY 3
Rudbeckia hirta BLACK-EYED SUSAN 1
Rumex acetosella FIELD SORREL x
Salix glaucophylloides BLUE-LEAVED WILLOW 7
Sanicula gregaria CLUSTERED BLACK SNAKEROOT 2
Scirpus atrovirens DARK GREEN RUSH 4
Sisyrinchium albidum COMMON BLUE-EYED GRASS 7
Smilacina racemosa FEATHERY FALSE SOLOMON'S SEAL 3
Solanum dulcamara BITTERSWEET NIGHTSHADE x
Solidago altissima TALL GOLDENROD 1
Solidago gigantea LATE GOLDENROD 4
Solidago graminifolia COMMON GRASS-LEAVED GOLDENROD 4
Solidago juncea EARLY GOLDENROD 5
Solidago nemoralis OLD-FIELD GOLDENROD 4
Solidago rigida STIFF GOLDENROD 4
Sonchus asper SPINY SOW THISTLE x
Thalictrum dasycarpum PURPLE MEADOW RUE 5
Trifolium repens WHITE CLOVER x
Typha latifolia BROAD-LEAVED CATTAIL 1
Ulmus americana AMERICAN ELM 3
Verbena hastata BLUE VERVAIN 4
Verbena urticifolia HAIRY WHITE VERVAIN 5

Viburnum lentago NANNYBERRY 5
Viburnum recognitum SMOOTH ARROW-WOOD x
Vicia americana AMERICAN VETCH 7
Viola affinis LECONTE'S VIOLET 4
Viola nephrophylla NORTHERN BOG VIOLET 9
Viola sororia COMMON BLUE VIOLET 3
Vitis riparia RIVERBANK GRAPE 2

TABLE 5: UNIT 5 PLANT LIST

Acalypha rhomboidea THREE-SEEDED MERCURY 0
Acer negundo BOX ELDER 0
Alliaria petiolata GARLIC MUSTARD x
Allium canadense WILD ONION 2
Arctium minus COMMON BURDOCK x
Aster lateriflorus SIDE-FLOWERING ASTER 4
Aster sagittifolius drummondi DRUMMOND'S ASTER 2
Bidens frondosa COMMON BEGGAR'S TICKS 1
Brassica nigra BLACK MUSTARD x
Carex cristatella CRESTED OVAL SEDGE 4
Carex blanda COMMON WOOD SEDGE 1
Carex pensylvanica COMMON OAK SEDGE 5
Carex rosea CURLY STYLED WOOD SEDGE 4
Carya ovata SHAGBARK HICKORY 5
Celtis occidentalis HACKBERRY 3
Circaea lutetiana canadensis ENCHANTER'S NIGHTSHADE 1
Cirsium vulgare BULL THISTLE x
Cornus racemosa GRAY DOGWOOD 1
Corylus americana AMERICAN HAZELNUT 5
Daucus carota QUEEN ANNE'S LACE x
Dianthus armeria DEPTFORD PINK x
Epilobium coloratum CINNAMON WILLOW HERB 3
Erigeron canadensis HORSEWEED 0
Eupatorium maculatum SPOTTED JOE PYE WEED 4
Eupatorium purpureum PURPLE JOE PYE WEED 7
Eupatorium rugosum WHITE SNAKEROOT 4
Fragaria virginiana WILD STRAWBERRY 1
Fraxinus americana WHITE ASH 5
Fraxinus pennsylvanica subintegerrima GREEN ASH 1
Galium aparine CLEAVERS 1
Geum canadense WHITE AVENS 1
Hackelia virginiana STICKSEED 0
Hesperis matronalis DAME'S ROCKET x
Lactuca canadensis WILD LETTUCE 2
Ligustrum vulgare COMMON PRIVET x
Lonicera tatarica TARTARIAN HONEYSUCKLE x
Lycopus uniflorus NORTHERN BUGLE WEED 7
Medicago lupulina BLACK MEDICK x

Melilotus alba WHITE SWEET CLOVER x
Nepeta cataria CATNIP x
Oxalis stricta COMMON WOOD SORREL 0
Panicum capillare OLD WITCH GRASS 1
Parthenocissus quinquefolia VIRGINIA CREEPER 2
Phalaris arundinacea REED CANARY GRASS x
Physocarpus opulifolius NINEBARK 8
Plantago lanceolata ENGLISH PLANTAIN x
Plantago major COMMON PLANTAIN x
Poa compressa CANADA BLUE GRASS x
Poa pratensis KENTUCKY BLUE GRASS x
Polygonum hydropiper WATER PEPPER 2
Populus deltoides EASTERN COTTONWOOD 2
Potentilla recta SULFUR CINQUEFOIL x
Prunella vulgaris lanceolata SELF HEAL x
Prunus serotina WILD BLACK CHERRY 1
Prunus virginiana CHOKE CHERRY 3
Quercus macrocarpa BUR OAK 5
Quercus velutina BLACK OAK 6
Rhamnus cathartica COMMON BUCKTHORN x
Rhamnus frangula GLOSSY BUCKTHORN x
Rhus glabra SMOOTH SUMAC 1
Ribes americanum WILD BLACK CURRANT 7
Rosa multiflora MULTIFLORA ROSE x
Rubus occidentalis BLACK RASPBERRY 2
Rudbeckia laciniata GREEN-HEADED CONEFLOWER 5
Smilacina racemosa FEATHERY FALSE SOLOMON'S SEAL 3
Solanum dulcamara BITTERSWEET NIGHTSHADE x
Solidago altissima TALL GOLDENROD 1
Solidago flexicaulis BROAD-LEAVED GOLDENROD 7
Solidago graminifolia COMMON GRASS-LEAVED GOLDENROD 4
Taraxicum officinale DANDELION x
Trifolium pratense RED CLOVER x
Ulmus americana AMERICAN ELM 3
Verbascum thapsus COMMON MULLEIN x
Viburnum lentago NANNYBERRY 5
Viburnum opulus EUROPEAN HIGH BUSH CRANBERRY x
Viburnum recognitum SMOOTH ARROW-WOOD x
Viola affinis LECONTE'S VIOLET 4
Viola sororia COMMON BLUE VIOLET 3

Vitis riparia RIVERBANK GRAPE 2

TABLE 6: FLORISTIC QUALITY ASSESSMENT

Unit 1 Southwest Woodland

N = 77 (19 exotic)

N = 58

R = 224

C = 3.86

I = 29.41

spp w/ C > 4 = 31 (41%)

Unit 2 Central Savanna

N = 57 (15 exotic)

N = 42

R = 142

C = 3.38

I = 21.90

spp w/ C > 4 = 20 (35%)

Unit 3 East Prairie

N = 84 (16 exotic)

N = 68

R = 268

C = 3.94

I = 32.50

spp w/ C > 4 = 43 (51%)

Unit 4 Northwest Prairie

N = 125 (26 exotic)

N = 99

R = 354

C = 3.58

I = 35.58

spp w/ C > 4 = 52 (42%)

Unit 5 Northwest Savanna

N = 79 (28 exotic)

N = 51

R = 151

C = 2.96

I = 21.14

spp w/ C > 4 = 20 (25 %)

TABLE 7: NATURAL COMMUNITIES & QUALITY
(all include woodland edge/thicket = Unassociated growth - shrub)

Unit 1	-	Mesic woodland	C/D
Unit 2	-	Loamy mesic savanna	D
Unit 3	-	Loamy mesic prairie	C/D
Unit 4	-	Loamy mesic prairie	D
		Sedge meadow	D
Unit 5	-	Loamy mesic savanna	D

TABLE 8: BIRD SURVEY SUMMARY

	unit				
	1	2	3	4&5	Pond
species					
veery	2		1		
gray catbird	3	1		1	
E. wood pee wee	1				
cardinal	2	1	2	1	2
black-capped chickadee	4			1	
chestnut-sided warbler	2				
crow	1		2	1	
wood thrush	1		1		
blue jay	1	1	1	2	
robin	1	1	1	2	1
rufous-sided towhee	1				
cedar waxwing	1		1		1
indigo bunting	1				
brown-headed cowbird		1	1	1	1
goldfinch		1			1
white-breasted nuthatch		1			
ruby-throated hummingbird			1		
sharp-shinned hawk (FO)			1		
blue-winged warbler				3	
yellow warbler				1	
rose-breasted grosbeak				1	
redwing blackbird				1	2
yellow-breasted chat ??				1	
mallard					1
common yellowthroat					1
double-crested cormorant					1
great blue heron					1
wood duck					4
green heron					1
Total # species	14	7	11	13	12
Total # individuals	23	7	14	18	17