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Natural Heritage

BASELINE ANALYSIS OF VASCULAR VEGETATION FOR HISTORIC OAK SAVANNA REMNANTS OF NORTHERN ILLINOIS

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INTRODUCTION

Fire has played a major and integral role in the evolution, development, and maintenance of many biological systems throughout North American (Ahlgren, 1960; Wright, 19--). But however, only recently, has a basic understanding of the intricate role of fire in maintaining grasslands, wetlands, and numerous forest types (Kilgore, 1978, 1983; Heinselman, 1973) developed. Equally as recent is the understanding that fire suppression associated with Eurasian settlement of North America has resulted in gross changes in the aspect, appearance, and ecological functions of natural systems.

Society's long-standing concept of fire as an undesirable, destructive agent now is being enlightened by the scientific community (Kilgore, 1982). Results from research in systems where fire has played an important historic role suggest fire suppression is often followed by declines in native plant and animal species richness and diversity, increased litter and shading, phytotoxin build up in substrates, decreased availability of essential nutrients and mycorrhizal fungi, and increased homogeneity in habitat structure and spatial heterogeneity. The increased biomass and fuel loads than can develop eventually can produce severe conflagrations and cause even more potential disruption. Reduced nutrient cycling and increased domination by few species also can result (Huston, 1979). In some forest types, shifts in many wildlife species, and increases in shade tolerant and less flammable plant species accompany fire suppression (Heinselman, 1973; Loucks, 1970; Ahlgren, 1960; Apfelbaum and Haney, 1981; Schmelz _et al._, 1975; Schlesinger, 1976; Davison, 1980; McGee, 1984).

Savanna ecosystems have a global distribution in temperate, subtropical, and tropical climes (Walter, 1973). Most are associated as

perpherial zones with grassland and sometimes forested ecosystems (Walter, 1973; Anderson, 1982). The proximity of savanna to grasslands with frequent recurring fires may suggest an important historic role for fire in savanna and also as well as some forests. Physiologic responses and adaptations of some prairie and savanna species suggests that they were dependent upon fire and that fire had a critical role in the synecology of their biomes.

The historical occurrence of fire in the upper midwest prairies and associated savannas, barrens, and oak woodlands is well documented (Curtis, 1959). The role of this natural process in development and maintenance of these communities also has had a considerable historical treatment and review (Gleason, 1912, 1913; Muir, 1913; Wells, 1970; Vogl, 1974, Anderson, 1982, 1983; Nuzzo, 1986). The vegetational character of post-settlement savannas, barrens, and oak woodlands has been studied (Vestal, 1936; Bray, 1960; Curtis, 1959), but very little specific pre-settlement detail on this biological community is known (Packard, 1985).

Prairie, oak savanna, and oak woodland often originally were contiguous communities (Anderson, 1982) and certainly influenced on a landscape level by widespread natural processes such as fire. Prescribed burning has been the primary prairie management tool used in Illinois for nearly a decade; but only recently have efforts been made to use fire for the maintenance and restoration of oak woodlands and savannas. Although some examples of these communities have been maintained naturally on sand substrates, their counterparts on silt loam soils began to disappear with settlement and subsequent fire suppression. Only a few silt loam savanna remnants of even moderate quality now remain., and these woodlands are typically in transition to domination by more mesic woody species as canopy oaks decline. The pre-settlement flora and fauna of these communities have changed greatly; management and restoration efforts need study to document these

changes and to develop potential maintenance options for existing remnants.

In northern Illinois, the original distribution of savanna has been mapped only on a general or partial basis (Nuzzo, 1986; Moran, 1978; Hanson, 1978). This community occupied deep silt loam soils, primarily on moraines, and was a frequent vegetation type in northern Illinois. The pre-settlement savanna vegetation in this region now has all but been lost to agricultural land-uses including great modifications by timbering, tillage, drainage, intense recurring livestock grazing, and fire suppression. Several degraded silt loam soil savannas remain, but most remnants occur on sandy soils.

The Illinois Nature Preserve Commission recognized the urgency of this problem and contracted with The Morton Arboretum to collect baseline vegetation information and study the effects of burning on plants, small mammals, and insects at Reed-Turner Nature Preserve, Lake County, a 15 ha closed oak woodland community. Additional funding from the Nature Conservancy, Max McGraw Foundation, Lake County Forest Preserve District, and Illinois Department of Conservation (Non-game Checkoff Fund) allowed expansion of the study to cover three other sites representing a mesic continuum from closed to open savanna conditions. These included Middlefork Savanna (Lake County), a 10 ha high quality open savanna; Somme Prairie and Savanna (Cook County), a 45 ha matrix of prairie and closed savanna; and Wadsworth Prairie and Savanna (Lake County), a 40 ha closed oak savanna with some adjacent prairie. Similar studies of dry-mesic and wet-mesic savanna have not been initiated.

Goals of these investigations included:

1) Characterization of quantitative and qualitative aspects of the vascular vegetation, nesting birds, resident small mammals, and selected insects in the study areas.

2) Establishment of baseline monitoring and research designed to allow an analysis of the effects of prescribed burning on these various plant and animal communities.

3) Characterization of the effects of prescribed burning on the study areas, comparison of differences within and among sites, and development of long-term management recommendations to rehabilitate these sites.

Specific vegetation objectives are to determine the effect of burning on (1) the composition of the herbaceous (fine fuel) layer (does fire result in an increase in fule species and decline in other species?); (2) the density of invading woody species (does fire cause a decline in woody density?); (3) oak reproduction (does fire result in increased reproduction of oaks?); and (4) does the natural quality and species richness increase over time. Significant data may not be immediately available on oak reproduction, but initial trends for herbaceous/fuel species and woody density should begin to become established after several years of fire treatment.

We expect resulting vegetation changes to have significant effects on wildlife. If tree and shrub layers are opened by fire, shifts in bird and small mammal populations should occur: will species of these closed forest communities decline while open ground foraging species increase? Similarly, will fire cause an increase in those insect populations adapted to exposed ground conditions and high density/diversity of grass/sedge and forb species, and will ground fires result in direct mortality of some insect species adapted to fire exclusion?

STUDY AREAS

REED-TURNER WOODLAND

The Reed-Turner Preserve was chosen because of the existence of a high quality woodland which included remnants of historic savanna vegetation. Barbara Turner, Preserve owner endorsed the project, and use of an existing trail system facilitated access and segmentation of experimental units.

This 15 ha Preserve is located on the edge on the historic Long Grove (Figure 1). Presumably, Reed-Turner Woodland was originally a savanna. The Public Land Survey and map of Section 24 (Figure 2) described the western border as "timber" and "scattering timber" with an understory of young oak and hazel. Witness trees and line trees all were bur and white oaks with diameters between 9 and 24 inches. Black oak, red oak, and hickory also are mentioned for this section.

Previous preserve studies included a master plant (INPC, 1979) vegetation surveys (Schulenberg, unpublised data; Wilhelm and Packard, unpublished data) and studies of butterflies (Shennum, unpublished data).

These studies suggested that Reed-Turner Woodland, like most former prairie groves, had gradually lost its open structure and many of its species. Now, a variety of community types including dry-mesic and mesic upland forest with north- and south-facing slopes, and floodplain (wet-mesic) forest occur within the preserve. Oak reproduction appears minimal in all areas, although old, open grown bur and white oaks occur on the preserve's south boundary where a natural prairie-savanna transition occurred. A small 1/2 acre area adjacent to the north preserve boundary was kept open by mowing for many years. This area is of particular interest because of an inclusion of savanna vegetation including alumroot (*Heuchera richardsonii*), shooting star (*Dodecatheon meadia*), fire pink (*Silene virginica*), two-flowered cynthia (*Krigia biflora*), and the state-threatened

creamy vetchling (*Lathyrus ochroleucus*). Elsewhere in the preserve are local populations of other savanna species including sandwort (*Arenaria lateriflora*), wild hyacinth (*Camassia scilloides*), and Pennsylvania sedge (*Carex pensylvanica*).

WADSWORTH SAVANNA

Wadsworth Savanna is a 40 ha closed canopy savanna remnant, which is part of the larger (over 120 ha) Wadsworth Prairie Nature Preserve, Lake County, Illinois (Figure 1). The preserve is owned by the Lake County Forest Preserve District and managed by prescribed burning. The site was chosen because it was presumed to represent the closed end of a continuum from open to closed savanna, and because of management potential by the preserve owner.

The Nature Preserve is a complex of prairie, wetland, and savanna situated adjacent to the east side of the Des Plaines River. Most of the preserve occurs in the River floodplain; however, the savanna study site is situated on a low morainic bluff adjacent to the floodplain.

No prior investigations have been conducted at the site. Qualitative assessments suggested that part of the savanna had been more degraded by past grazing but primary changes appear to have been an increase in density of woody understory vegetation due to fire protection. Bur oak is a common overstory tree, while black cherry is a major understory tree. Herbaceous savanna species noted initially included *Lathyrus ochroleucus*, *Taenidia integerrima*, *Zizia aurea*, and *Carex pensylvanica*. Included within the site are several sedge-dominated wetlands, while immediately adjacent tracts includes a high quality prairie remnant and sedge meadow.

SOMME PRAIRIE AND SAVANNA

Somme Prairie and Savanna is a 40 ha tract containing a small area of closed oak savanna, and more extensive degraded prairie openings within a matrix of successional woody vegetation. This site is owned by the Cook County Forest Preserve District and managed by the North Branch Prairie Project. It was chosen for study because an accelerated conversion to open higher quality savanna is being managed for by brush clearing, seeding, and presecribed burning. A control (non-burn) treatment was established in a separate Forest Preserve District tract adjacent to the east.

The North Branch Prairie Project has conducted some prior studies (S. Packard, pers. comm.) at the site. These qualitative studies and observations found many weedy plant species and a low diversity of prairie and savanna species in openings. A closed former savanna community now characterized by bur oak with an understory dominated by buckthorn occurs along the south tract boundary and in adjacent Forest Preserve property. Included within the Forest Preserve, but not the study area is a small high quality prairie dedicated as Somme Prairie Nature Preserve.

MIDDLEFORK SAVANNA

Middlefork Savanna is a 10 ha tract of relatively high quality savanna in Lake County, Illinois (Figure 1); it apparently is the best remnant on silt loam soil in Illinois. The area remains in private ownership but public protection and management is being negotiated. The site was chosen as a benchmark for comparison against more disturbed sites in the study complex. Past disturbances to Middlefork Savanna include moderate grazing and invasion by Eurasian buckthorn. The site includes a railroad right-of-way and prairie which may have served as a source of periodic fire and recolonization by prairie species after grazing.

The site was recently discovered, and no prior quantitative studies have been completed. Most vegetative information on the site was collected during the 1986 study season. The entire site was burned for management purposes in spring, 1985.

GENERAL METHODS

REED-TURNER WOODLAND

The small size (15 ha) of the preserved allowed for relatively intense sampling but not for a wide variety of treatments. To provide control for spatial variability and management treatments the preserve was segmented into east, west, and center woods, and unmowed yard study areas and each was further divided into burn and non-burn units (Figure 3). Segmentation into burn units followed trail systems.

Plant species lists for control and test areas were developed following the time-meander search technique of Goff *et al*. (1982). Lists were generated from two simultaneous surveys through each study segment by recording all plant species observed in five-minute search intervals until no additional species were listed. This method established a datum from which to judge the effectiveness of sampling. An east-west preserve baseline was established, from which perpendicular sampling transects were surveyed through treatment and control areas for each site study unit. These random stratified transects also were perpendicular to major drainage gradients in the preserve. Study transect endpoints and 50m points were marked with steel conduit stakes.

WADSWORTH SAVANNA

In order to represent presumed differences between effects of past

grazing, the study site was divided into two replicates; each replicate will receive burn and non-burn treatments. Four east-west 300 meter transects were established (Figure 4), each in a separate burn or non-burn replicate. Transects were stratified randomly by positioning their starting points along a north-south railroad track baseline at the west boundary of the study site.

SOMME PRAIRIE AND SAVANNA

Four east-west 780 meter transects were surveyed on a stratified random basis from a northwest-southeast baseline located along the east preserve boundary (Figure 5). Two transects were extended 300 meters eastward as control (non-burn) transects in an adjacent forest preserve.

MIDDLEFORK SAVANNA

A baseline for transect locations was positioned along the railraod tracks forming the west site boundary. Four transects were surveyed on a stratified random basis from the baseline and extended east for distances of 150, 150, 100, and 50 meters (Figure 6). The irregular shape of the area determined the various lengths of transects.

SPECIFIC METHODS

GROUND COVER

All vascular and woody plants less than a meter high were quantified in meter square quadrats centered over transect lines at 10 meter intervals. In each quadrat percent cover of all plant species and ground cover elements (woody debris, leaf litter, rock, etc.) was estimated within cover classes. This data was used to calculate absolute and relative cover, relative

frequency, and importance values for each species by transects. Transects were combined for control (non-burn) and treatment (burn) areas. All nomenclature for vascular vegetation follows Swink and Wilhelm (1979). Natural quality indexing (Swink and Wilhelm, 1976) of control and test areas were evaluated from quadrat data and species lists generated using the Goff (1982) method. Searches for special status species were conducted, and demographic and reproductive data was measured for these species.

All sampling was conducted in late May 1986; later blooming species were identified in vegetative condition. Plots were re-sampled in August 1986 to determine adequacy of vegetative identification and sampling; results were found to be virtually identical and are not reported here.

WOODY VEGETATION

The intercept of woody plant canopies directly over each 50m transect was recorded by species in two layers, trees (2 inches DBH and over) and vines, shrubs, and small trees (less than 2 inches DBH and greater than 1m high). All associated tree diameters (DBH) were recorded by species on 1m either side of each 50m line. Stems of all vine, shrub, and small tree species at least 1m tall were tallied within 1m of the left side of each 50m line. All dead stems were identified but recorded separately. Woody stems were divided into 4 inch size classes for each species. Alive and dead stems were expressed as species density and combined for all transects within burn and within non-burn treatments.

RESULTS

REED-TURNER WOODLAND

Ground Cover

Species richness generated by time meander searches for the center woods burn and non-burn units appears similar, with 52 species (13% were not native) (Table 1). Species richness was highest in the yard study area (92 species, 20% not native), with all species encountered in a short search time because of the small size of this area. Species richness also was high in the west woods study area (87 species, 17% not native), but more search-time was required to encounter all species in this larger area.

Thirty-six species were encountered in quadrats in the east woods study area (Tables 2 & 3), and burn and non-burn transects were similar. Dominant herbaceous plants were the woodland species *Circaea quadrisulcata*, *Erythronium albidum*, and *Smilacina racemosa*. Dominant woody plants under 1 meter were *Fraxinus americana*, *Prunus serotina*, *Rhamnus cathartica*, *Rhamnus frangula*, *Ribes missouriense*, and *Cornus racemosa*. Fuel primarily was from leaf litter (Importance value = 62-66), but woody litter also was abundant (IV = 20-23).

Transect quadrat data was combined for the west woods and center woods study areas (Table 4 & 5) because of their small size and overlapping transects. Fifty-four species were encountered, and burn and non-burn transects were similar. Dominant herbaceous plants were *Circaea quadrisulcata*, *Erythronium albidum*, *Smilacina racemosa*, and *Arisaema triphyllum*. The savanna species *Camassia scilloides* and *Carex pensylvanica* were relatively common on these transects, while *Dodecatheon meadia* and *Veronicastrum virginicum* were present but not sampled. Dominant woody plants under 1 meter were *Fraxinus americana*, *Cornus racemosa*, and *Prunus virginiana*. Fuel primarily was from leaf litter (IV = 64-66), but woody

litter also was abundant (IV = 21-24).

The yard study area had the relatively highest species diversity (Tables 6 & 7). Sixty-nine species were encountered in this small area. Erythronium albidum and Smilacina racemosa were common, but shared dominance with graminoid/cyperoid fuel species (IV = 14, and 20) including Carex sp., Carex pensylvanica, Danthonia spicata, Poa compressa, Poa pratensis, and other graminoid species such as European fine-leafed Fescues. Dominant woody plants under 1 meter were Fraxinus americana, Cornus racemosa, Rhamnus cathartica, and Quercus alba. Leaf litter was relatively low (IV = 2-30), as was woody litter (IV = 2-9).

Two colonies of the state-threatened plant species Lathyrus ochroleucus were encountered during the field survey. This legume was restricted to openings, which were free from understory competition by shrubs. The yard study area colony consisted of 14 ramets (3 flowering) in a 15 meter square area. This colony apparently had survived in a mowed yard for many years. A second colony occurred in a previously mowed opening in the center woods. This colony had 66 ramets in a 7 meter square area; 6 ramets apparently flowered but were destroyed by a herbivore.

Woody vegetation

For purposes of discussion, woody vegetation data from the three woody study areas were lumped into burn and non-burn data sets (Tables 8 & 9), and treated separately from the yard study area data set (Table 10).

Woody vegetation in the yard was virtually absent, with one Quercus alba in an upper size class; though, the other study areas had a complex canopy structure, which appeared similar on burn and non-burn sites.

Upper size classes (10-24inches DBH) at Reed-Turner Woodland were dominated by Quercus alba; subordinate co-dominant trees included Quercus

rubra, and Quercus macrocarpa. The mid-size classes (6-10 inches DBH) were more diverse, and dominated by Fraxinus americana, Tilia americana, Ulmus americana, Quercus ellipsoidalis, and Carya ovata. Lower size classes (0-6 inches DBH) included shrubs and reproduction from the mid-size classes. Dominant trees undergoing reproduction included Ulmus americana, Fraxinus americana, and Tilia americana; also the oaks Quercus ellipsoidalis, and Quercus rubra occurred at low densities in lower size classes. The shrub layer is dominated by Prunus virginiana, Prunus serotina, Ostrya virginiana, and the introduced Rhamnus cathartica. Other important understory plants include the exotics Rhamnus frangula, and Lonicera tatarica.

WADSWORTH SAVANNA

Ground Cover

Quadrat sampling encountered 102 herbaceous, graminoid, or cyperoid plant species at Wadsworth Savanna. Dominant (Importance Value >= 2.0) (Table 11) herbaceous plants included Smilacina racemosa, Trillium recurvatum, Geranium maculatum, Trillium grandiflorum, Sanicula gregaria, Taraxacum officinale, and Carex lacustris (in wetlands). Dominant (IV >= 2.0) woody species under 1m included Viburnum dentatum, Cornus racemosa, Rubus sp., Corylus americana, Lonicera tatarica, Rhamnus cathartica, and Viburnum prunifolium. Fuel primarily was from leaf litter (Mean IV = 13.75) and graminoid/cyperiod cover (mean IV = 11.0), but wood litter also was abundant (Mean IV = 7.425).

Woody vegetation

Upper size classes (18-26 inches DBH) sampled at Wadsworth were dominated by Quercus alba and Quercus rubra (Table 12). Mid-size classes

(10-18 inches DBH) were represented by Carya ovata, Quercus alba, Prunus serotina, Juglans cinerea, Populus grandidentata, Quercus ellipsoidalis, and Quercus palustris. Lower size classes (0-10 inches DBH) contained more than 25 species. Dominant species included European buckthorns (Rhamnus frangula and R. cathartica), Corylus americana, Cornus racemosa, Viburnum dentatum, and Lonicera tatarica. Some minimal oak reproduction occurred from Quercus ellipsoidalis occurred.

SOMME PRAIRIE AND SAVANNA

Ground cover

Quadrat sampling encountered over 190 herbaceous grass, and sedge species at Somme Prairie and Savanna (Table 13). However, only one such species (Geum canadense) had an importance value over 2.0. Other dominant species included Poa pratense, Carex laxiflora, Fragaria virginianan, and Solidago juncea. Dominant woody species under 1m included Rhamnus cathartica, Cornus racemosa, Prunus serotina, Crataegus sp., Prunus virginiana, and Lonicera tatarica. The Eurasian shrub R. cathartica had the highest relative frequency, relative cover, and important value of all species under 1 meter. Leaf litter and wood litter contributed almost equally to fuel with mean important values of 7.5 and 7.3, respectively; however, graminoid/cyperoid cover contributed more with a mean value of 13.2 per transect.

Woody Vegetation

Upper size class (18-26 inches DBH) sampled at Somme included only Quercus macrocarpa, but these trees were rare; control transects encountered only Fraxinus americana and Quercus ellipsoidalis in these size classes (Table 14). Mid-size-classes (10-18 inches DBH) were characterized by a

heterogeneous mixture including Carya ovata, Populus alba (Eurasian), Robinia pseudoacacia, Prunus serotina, Fraxinus americana, and Quercus rubra. Lower size classes were dominated by European buckthorn (Rhamnus sp.), Crataegus sp., dogwood (Cornus racemosa), and Eurasian honeysuckle (Lonicera sp.).

MIDDLEFORK SAVANNA

Ground Cover

Quadrat sampling encountered over 100 herbaceous, graminoid, or cyperoid species at Middlefork Savanna (Table 15). Dominant (highest importance values) examples of these species included Carex pensylvanica (IV = 3.80), Andropogon gerardi (IV = 3.79), Fragaria virginiana (IV = 2.77), Solidago juncea (IV = 2.51), and Helianthus divaricatus (IV = 1.85). Other significant species include Comandra richardsoniana (IV = 1.42), Dodecatheon meadia (IV = 1.34), Silphium terebinthinaceum, Cyripedium calceolus, and the state-endangered Platanthera leucophaea. Important woody species encountered by quadrat sampling include Cornus racemosa (IV = 2.43), Rhamnus cathartica (IV = 2.43), Rosa carolina (IV = 1.84), Lonicera tatarica (IV = 1.29), and Smilax herbacea (IV = 1.25). Leaf litter and wood litter contributed equally to fuel (Mean IV/transect = 12); however graminoid/cyperoid cover contributed heavily with a mean value of 24.8 per transect.

Woody Vegetation

Upper size classes (18-26 inches DBH).were exclusively dominated by Quercus alba and Quercus macrocarpa (Table 16). Woody species almost totally were absent from the mid-size classes (6-18 inches DBH), while lower

size class (0-6 inches DBH) were dominated by Cornus racemosa, Rhamnus cathartica, Quercus macrocarpa, and Quercus ellipsoidalis.

DISCUSSION

REED-TURNER WOODLAND

At Reed-Turner Woodland, herbaceous species richness and natural quality appear directly related to overstory and understory woody canopy cover (Table 17). Herbaceous native species richness and mean natural quality index all were highest for the yard study area, which is free of canopy cover. In contrast, the east woods study area, which has a closed woody understory and tree canopy had lower species richness and natural quality but higher levels of woody plant cover, leaf litter, and woody litter. The center and west woods (a composite study area) was intermediate in species richness but low in species density. This large area is heterogeneous, with mixed areas of open and closed understory structure, but primarily it has a closed overstory structure. Summer- and fall-flowering savanna species, which are rare at Reed-Turner, are restricted to these opening or to open study areas.

Woody vegetation structure at Reed-Turner (Figure 7 & 8) appears characteristic of fire protected woodlands. Larger (older) size classes are dominated by white, red and bur oaks. However, these trees occur at relatively low densities in the mid-size classes where dominant trees are white ash and basswood. White oak is almost totally absent from the smallest size classes, except for reproduction encountered in the open yard study area. Instead, white ash, American elm, and basswood constitute the primary tree reproduction. In addition to native shrub species, the introduced buckthorns and tartarian honeysuckle are locally abundant in the forest understory.

These data support the argument that profound changes have taken place at Reed-Turner Woods Nature Preserve. These changes appear caused by shading and competition from a closed understory, presumably due to protection from fire, which promotes understory openings and maintains comparatively higher light levels. We suggest that disturbance by fire originally sustained a white, bur, and red oak-dominated woodland with a herbaceous and graminoid-rich fuel base. Fire protection has allowed reproduction by the more shade tolerant but fire sensitive white ash, basswood, and American elm. Shade from these woody species has restricted oak and graminoid reproduction to rare open patches and dramatically lowered species diversity and richness.

WADSWORTH SAVANNA

Herbaceous vegetation at Wadsworth was diverse, with over 100 herbs, grasses, or sedges encountered by sampling. Although canopy conditions now are relatively closed, few species characteristic of forest conditions were encountered and the most common species are more typical of open woodland; presumably, these species are remnants from more open savanna conditions.

As expected, woody tree species were not equally distributed through all size classes. Their distribution appears to represent a former oak-dominated community with reproduction and succession in smaller size classes now represented by shade tolerant canopy species and understory shrubs. Larger size classes contain only red and white oak, but the latter species was not present as reproduction in the smallest size class.

SOMME PRAIRIE AND SAVANNA

Although this site had extremely high species diversity, few were

conservative prairie or savanna species, and this diversity reflects a high heterogeneity of disturbed habitat with many Eurasian species. Although some herbaceous savanna species were present, they occurred at low frequencies (apparently due to intense past grazing) and contributed little to total importance value.

Woody understory species were dominated by the Eurasian Rhamnus cathartica. Mid-size classes include a diversity of species, but several (Populus alba and Robinia pseudacacea) reflect a long history of disturbance. Upper size classes contained few species. The presence of bur oak suggests a former savanna condition; but the presence of Fraxinus americana and Quercus ellipsoidalis in these upper size classes also suggests a relatively long history of disturbance.

MIDDLEFORK SAVANNA

Herbaceous vegetation at Middlefork Savanna was diverse, with over 100 species of grasses, sedges, and forbs encountered in only 450 meters of transects. Many of these were more conservative prairie and savanna species; while the characteristic prairie grass big bluestem was the second most important species encountered; very few species typical of more closed savanna conditions were present.

Woody vegetation was bimodally distributed by size-classes. Large bur and white oak formed a savanna overstory. However, trees were absent from mid-size classes, presumably due to a recent fire and moderate grazing history. Bur oak was well represented by reproduction in lower size classes and was co-dominant with dogwood and buckthorn, presumably in response to high light levels generated by past fire and moderate grazing.

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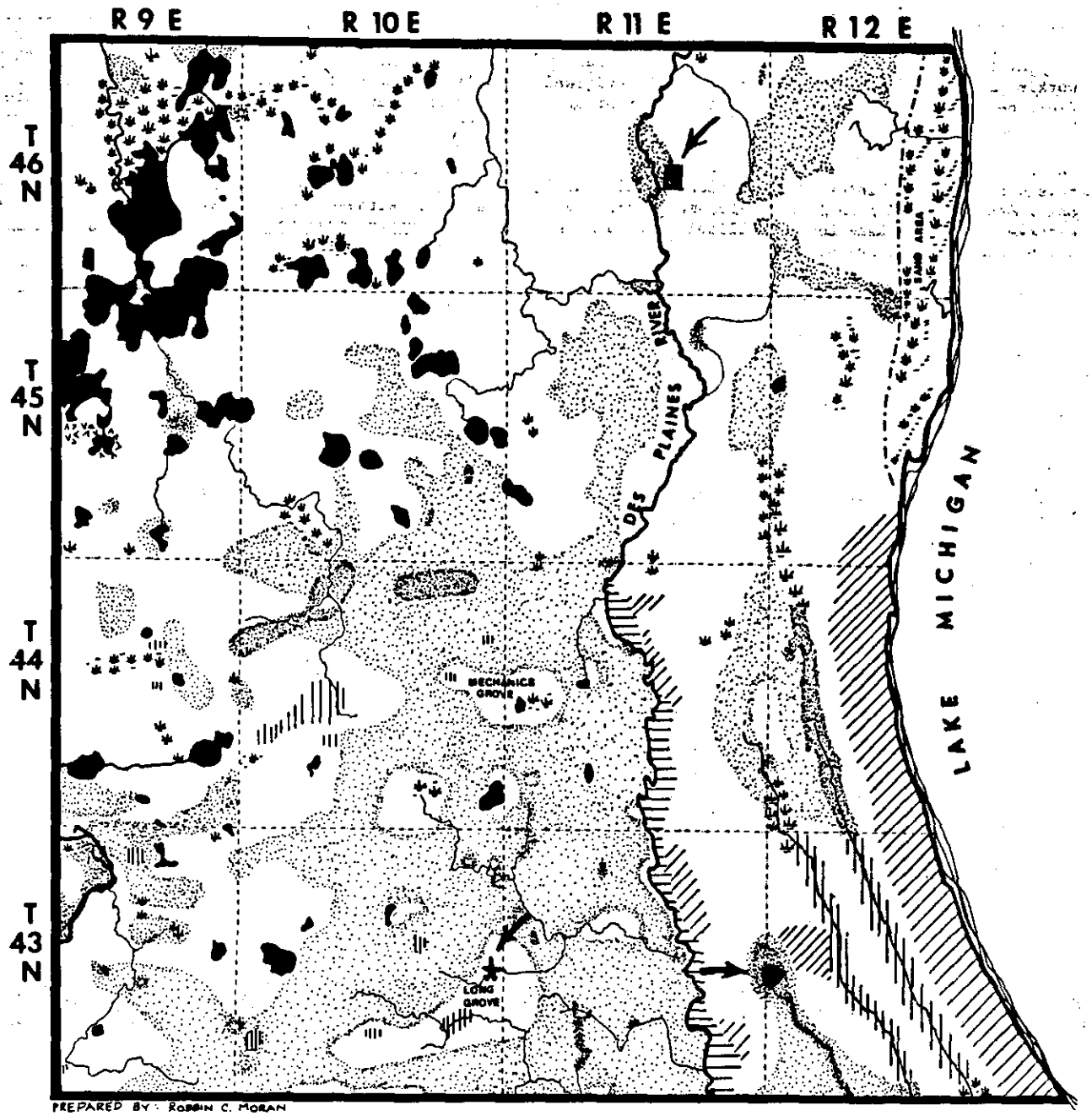


PRESETTLEMENT VEGETATION OF LAKE COUNTY, ILLINOIS

FROM MORAN (1976)

MAPLE - BASSWOOD
WET PRAIRIE
MARSH
OAK - HICKORY
PRAIRIE
TAMARACK BOG
SAVNNNA
WATER
SWAMP

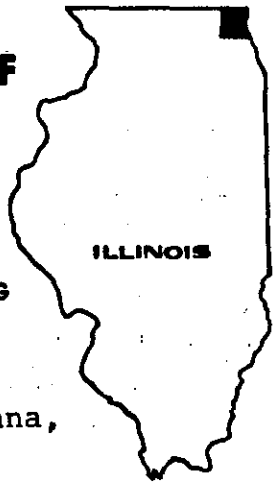
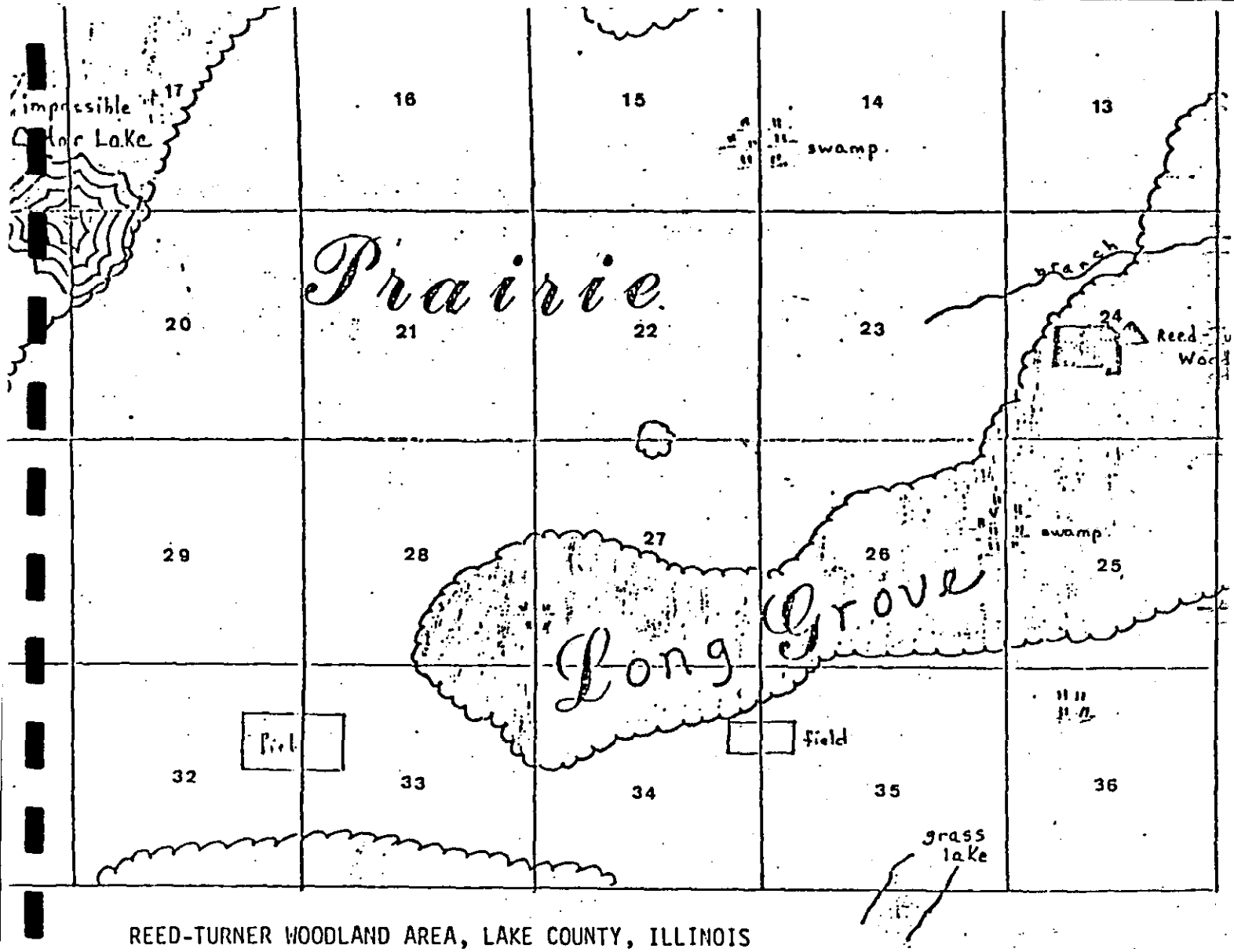


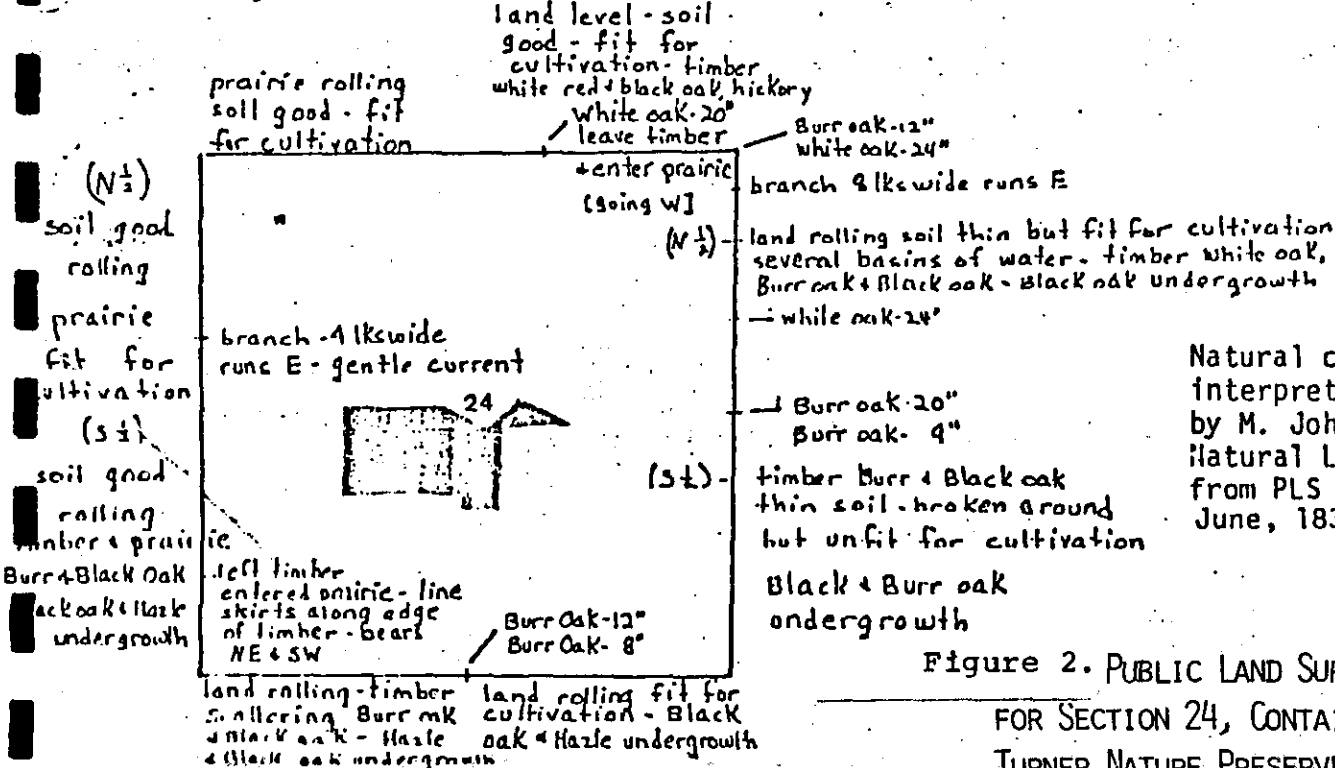
Figure 1. Location of Reed Turner Woodland, Wadsworth Savanna, and Somme Prairie and Savanna in Lake Co., Ill.

★ = Reed Turner Woodland
■ = Wadsworth Savanna
● = Somme Prairie and Savanna



REED-TURNER WOODLAND AREA, LAKE COUNTY, ILLINOIS

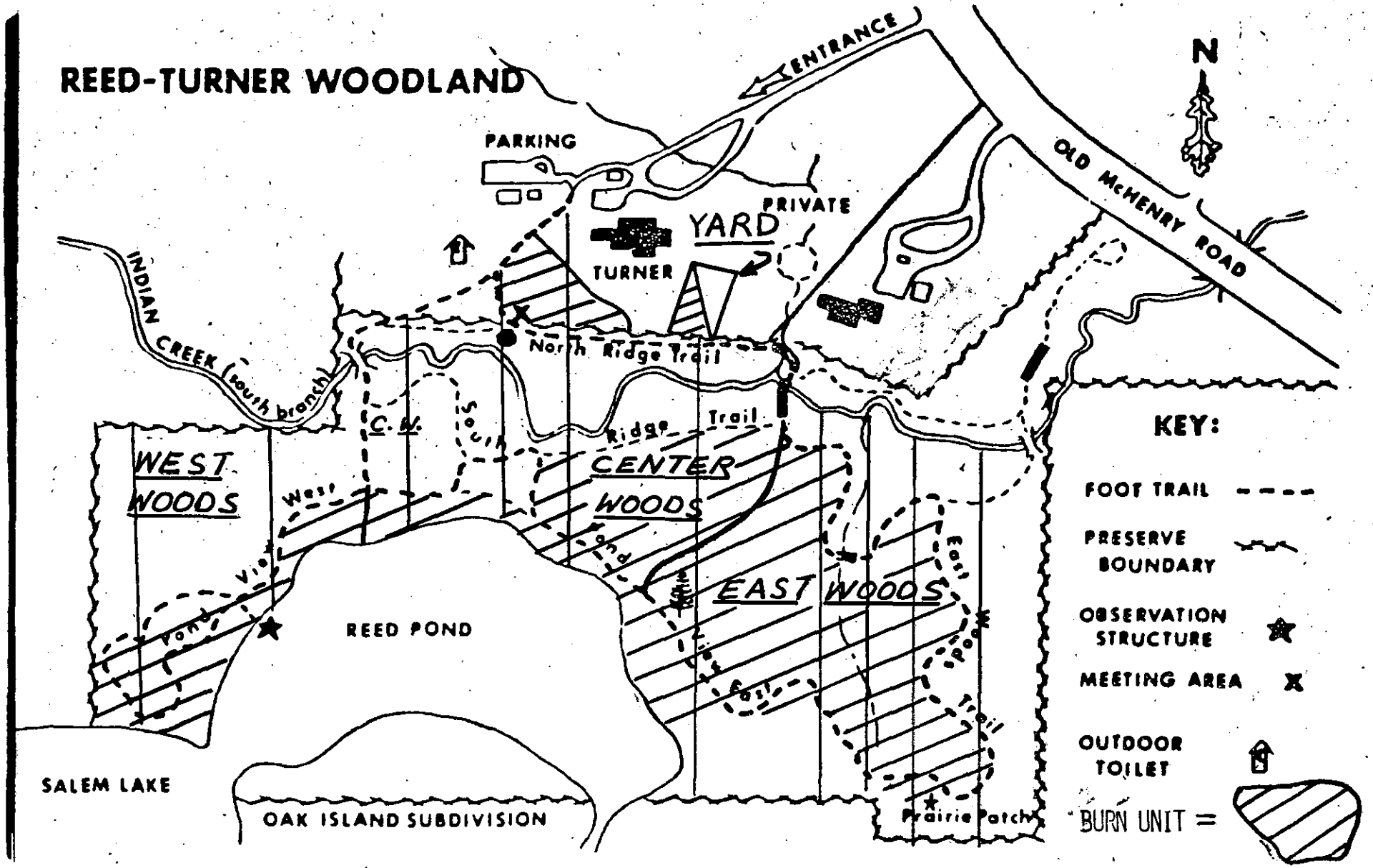
T43N, R10E, 3rd Principal Meridian



Natural character interpreted March, 198
by M. Johnson,
Natural Land Institute
from PLS notes of
June, 1838.

Figure 2. PUBLIC LAND SURVEY NOTES FOR SECTION 24, CONTAINING REED-TURNER NATURE PRESERVE.

Figure 3. LOCATION OF STUDY AREAS AND BURN TREATMENT UNITS AT REED-TURNER NATURE PRESERVE, LAKE CO., IL



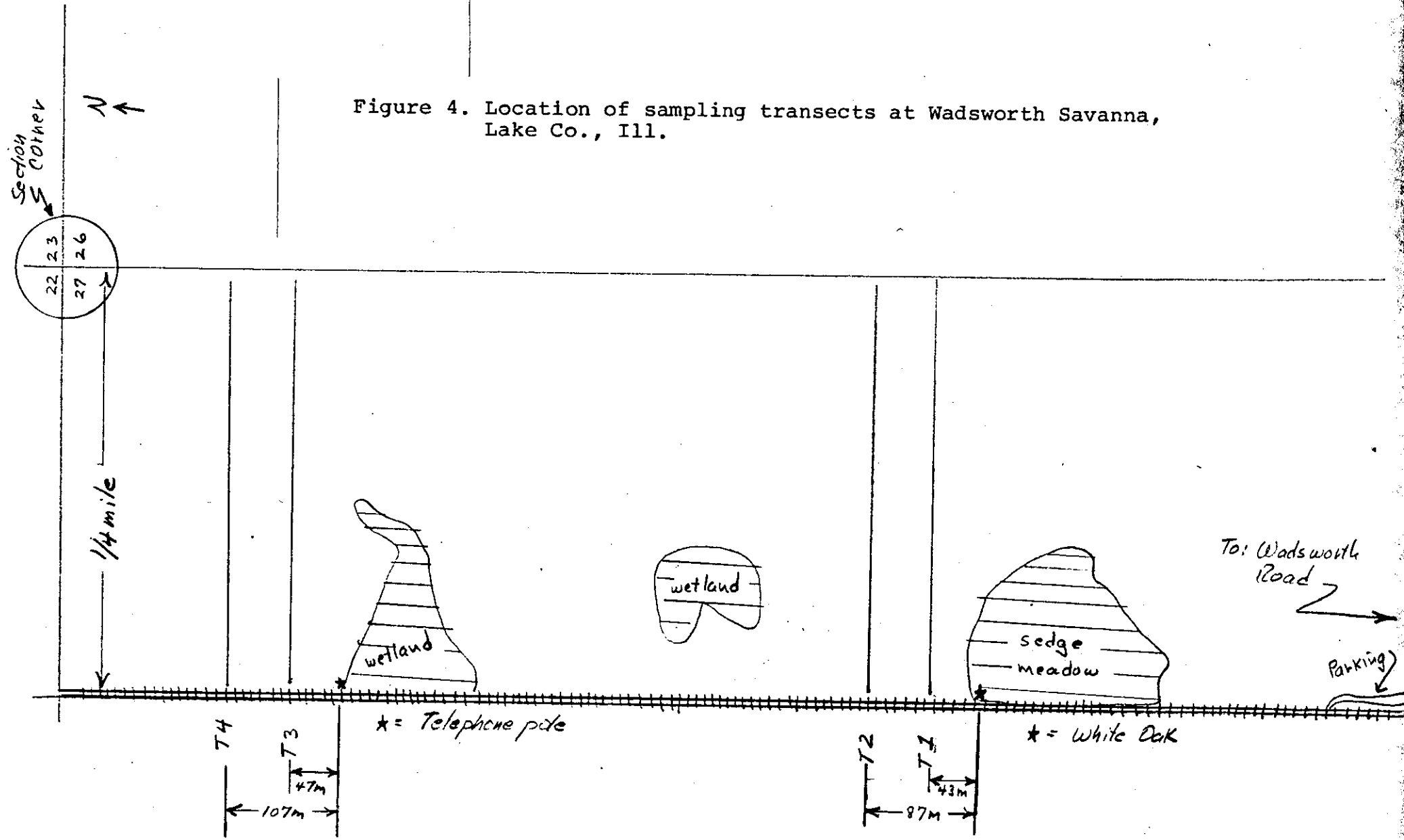
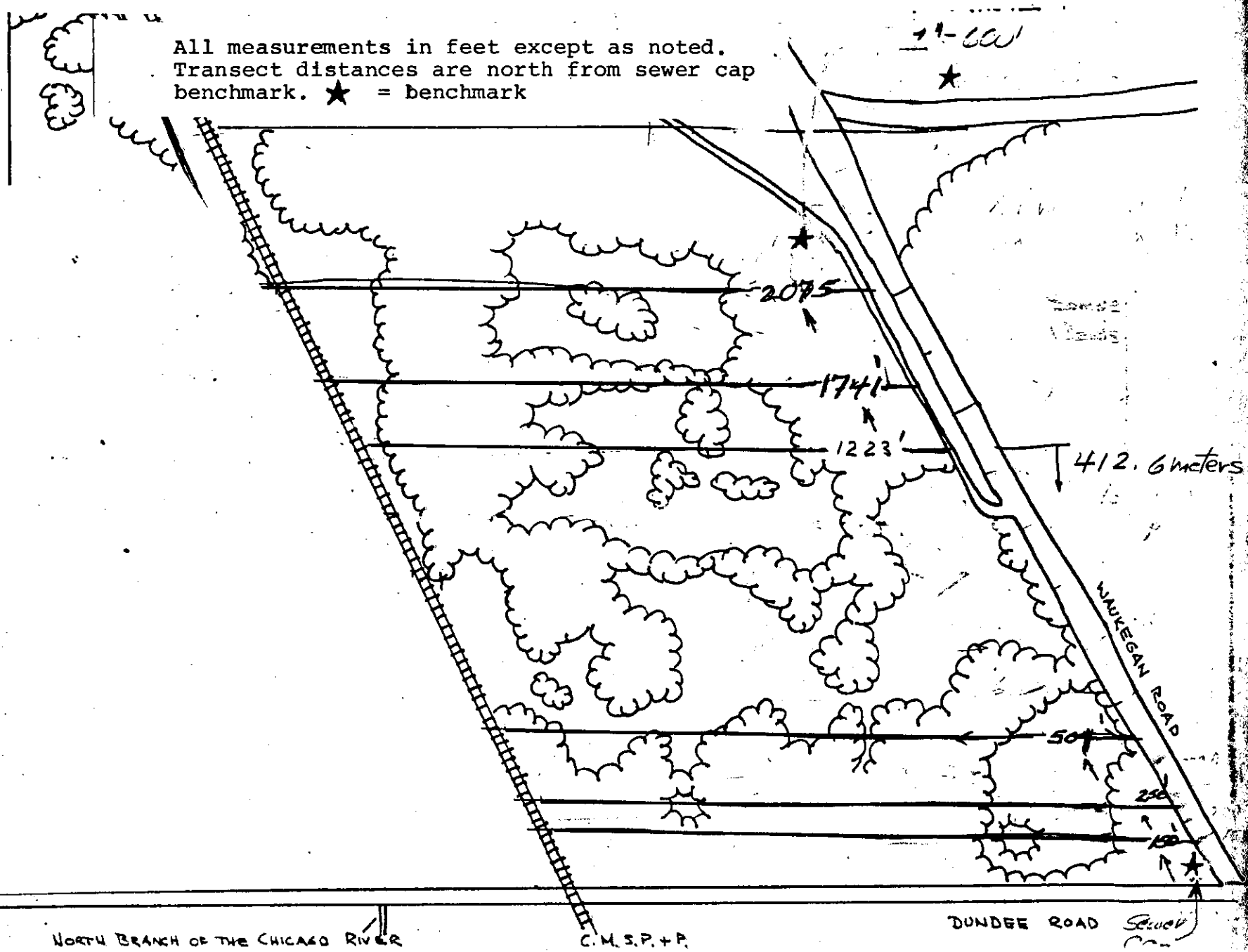


Figure 4. Location of sampling transects at Wadsworth Savanna, Lake Co., Ill.

Figure 5. Location of sampling transects at Somme Prairie and Savanna, Lake Co., Ill.

All measurements in feet except as noted. Transect distances are north from sewer cap benchmark. ★ = benchmark



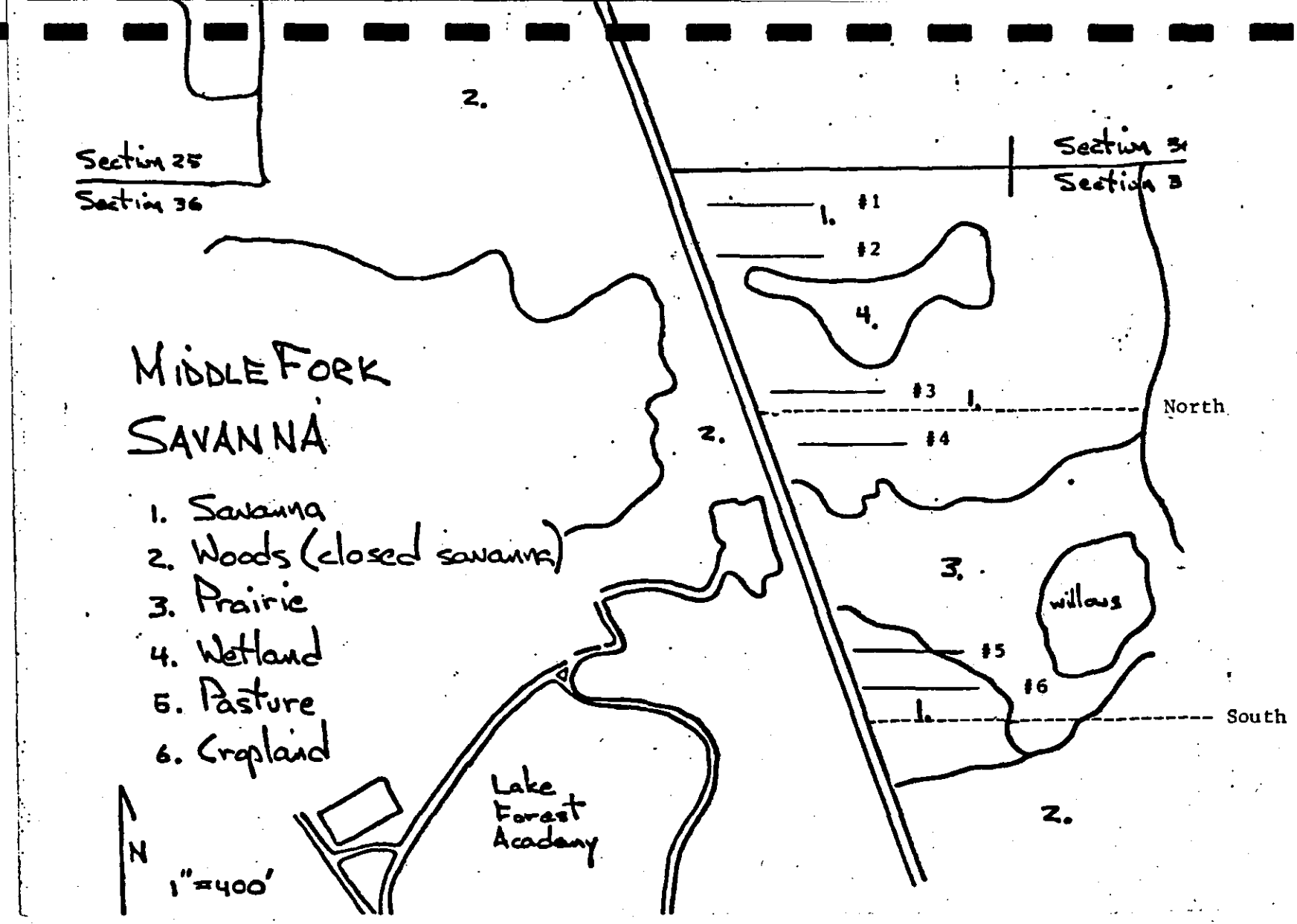
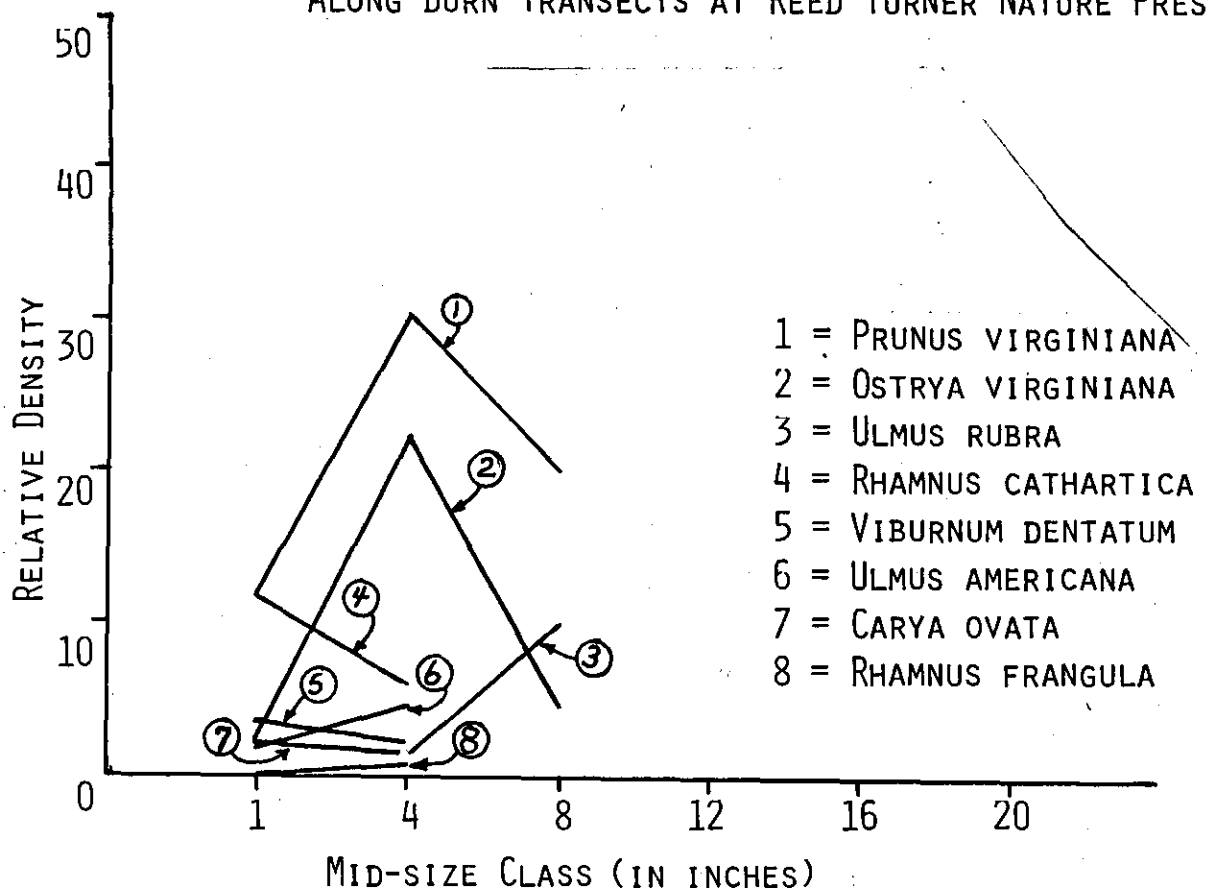


Figure 6. Location of sampling transects at Middlefork Savanna, Lake Co., Ill.

Figure 7. RELATIVE DENSITY BY MID-SIZE CLASS OF WOODY PLANTS ALONG BURN TRANSECTS AT REED TURNER NATURE PRESERVE



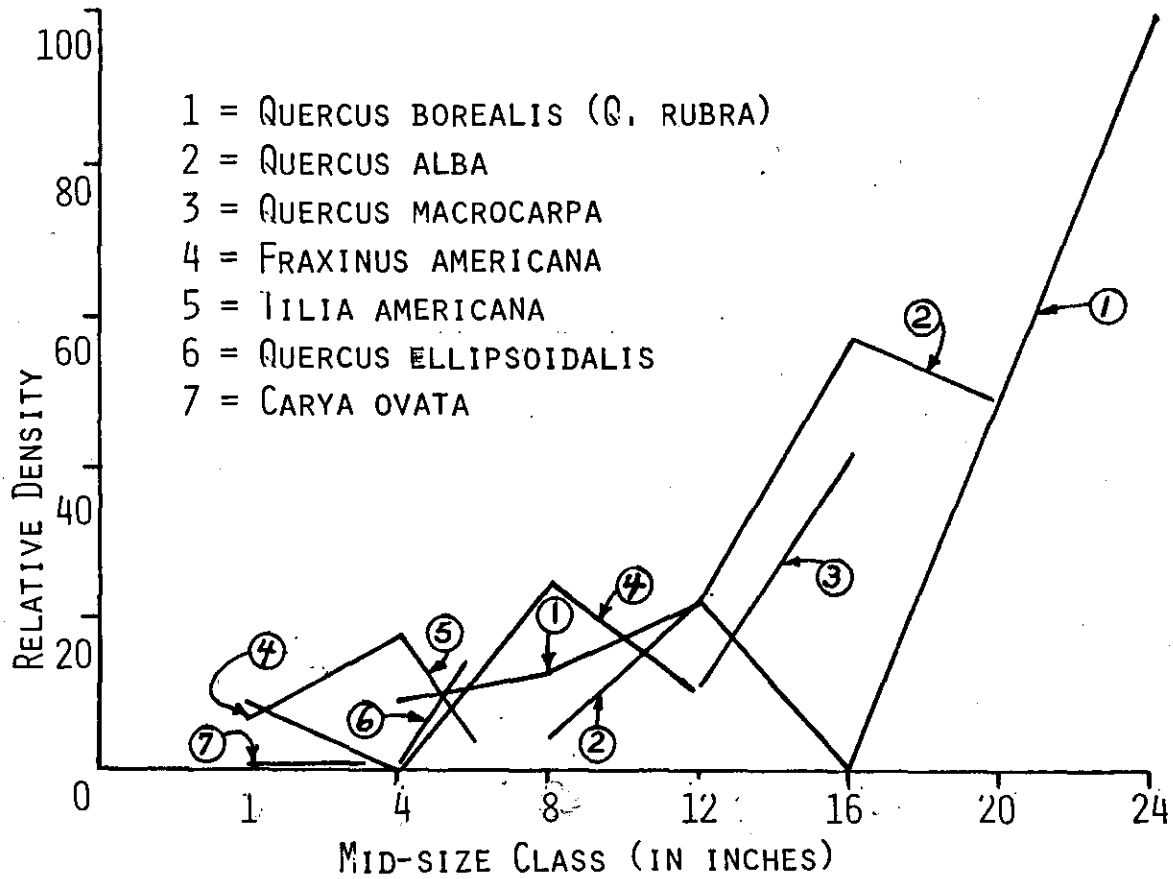
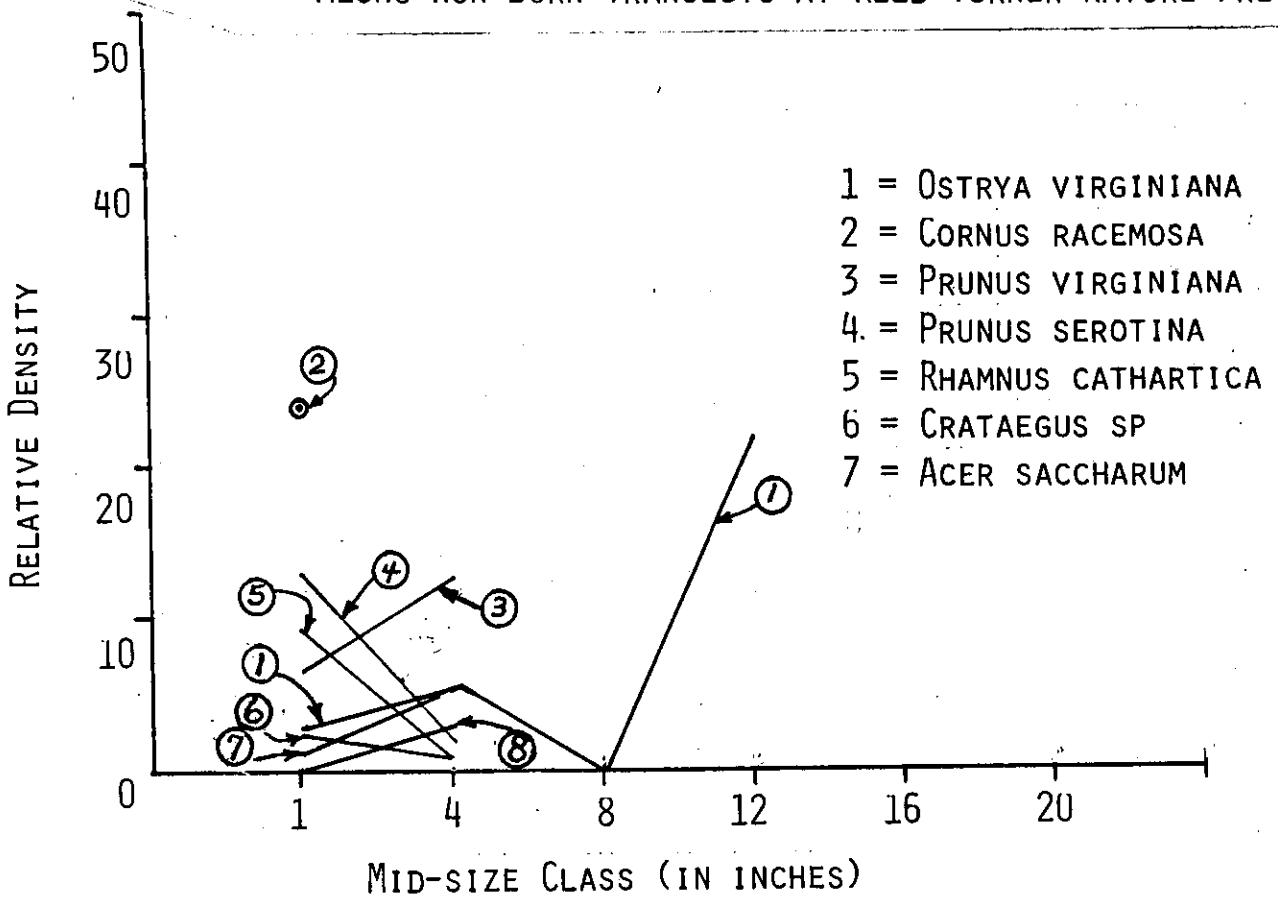


Figure 8. RELATIVE DENSITY BY MID-SIZE CLASS OF WOODY PLANTS ALONG NON-BURN TRANSECTS AT REED TURNER NATURE PRESERVE



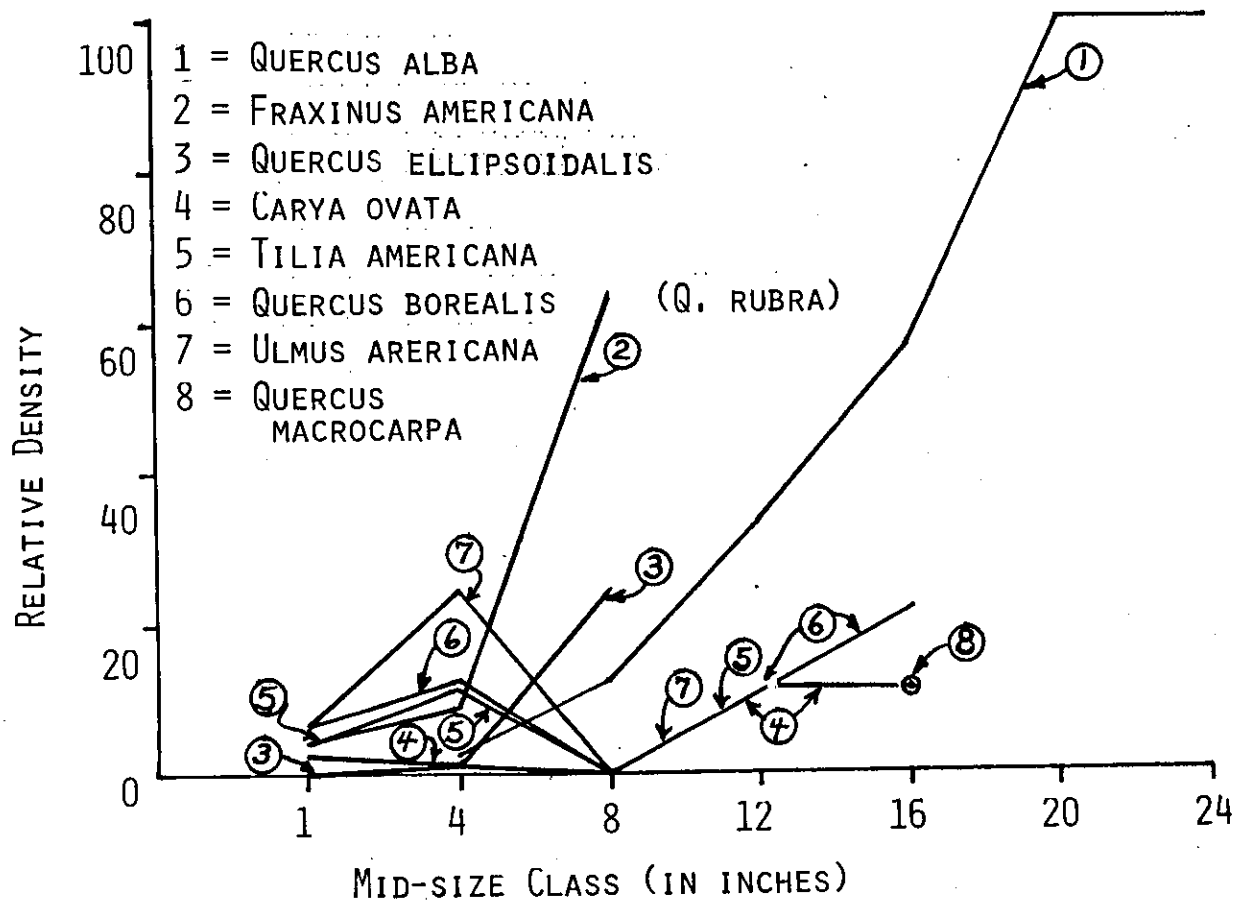


TABLE 1: Numbers of plant species recorded in each five minute search interval in select research segments in the Reed-Turner Nature Preserve, Long Grove, IL in June 1986.

SEARCH/ INTERVAL	ELAPSED TIME	WEST WOODS		YARD		CENTER WOODS BURN		CENTER WOODS NO BURN	
1	5	29	28	31	35	28	24	24	27
2	10	11	9	15	24	10	5	9	9
3	15	6	10	13	15	5	5	6	7
4	20	6	8	8	10	9	8	1	0
5	25	11	11	6	4	0	7		
6	30	10	5	7	4				
7	35	5	4	0	0				
8	40	3	2						
9	45	2	1						
10	50	3	2						
11	55	1	0						
12	60								
# SPP.		87	80	80	92	52	49	40	43
MEAN ± STD		7.9±7.8	7.3±7.8	11.43±9.9	13.1±12.5	10.4±10.6	10.2±7.9	10.0±9.9	10.8±11.5

* Standard deviation of species/interval

TABLE 2: Ground Cover and Plant Absolute Cover (COV) and Frequency (FRE) and Relative Percent Cover (%C) and Frequency (%F) and summation, an Importance Value (IV), from Study Transects in the EAST WOODS BURN Study Site, Reed-Turner Nature Preserve. Based on Analysis 20 May 1986 using 1m2 quadrats.

NAME	A	A	A	A	A	B	B	B	B	B	C	C	C	C	C	COV	FRE	%C	%F	IV
ACER SACCHARUM							1						1			0.13	2	1	2	3
ARISAEMA TRIPHYLLUM			1													0.07	1	0	1	1
ASTER SP.					1											0.07	1	0	1	1
CARYA OVATA								1								0.07	1	0	1	1
CIRCAEA QUADRISULCATA		1	1						2	1	4	2	4	4		1.27	8	6	8	14
CORNUS RACEMOSA				1				1						2	2	0.40	4	2	4	6
CRATAEGUS CRUSGALI															1	0.07	1	0	1	1
DENTARIA LACINIATA	1															0.07	1	0	1	1
ERYTHRONIUM ALBIDUM	1	1	1				1	1	4				2	1	2	0.93	9	5	9	14
FRAGARIA VIRGINIANA															1	0.07	1	0	1	1
FRAXINUS AMERICANA	1	2		6	2				1	1	1	1		2	10	1.80	10	9	10	19
LITTER, LEAF	10	10	10	10	6	10	10	10	8	10	8	8	10	10	10	9.33	15	47	15	62
LITTER, WOODY	1	1	1	1	1	1	1		2	1	2	1	2	1	1	1.13	14	6	14	20
PRUNUS SEROTINA	2								2	2				2		0.53	4	3	4	7
RHAMNUS FRANGULA					2											0.13	1	1	1	2
RHUS RADICANS				1											1	0.13	2	1	2	3
RIBES AMERICANA						6										0.40	1	2	1	3
RIBES MISSOURIENSE	6	4	4				4	2	1			8	6			2.33	8	12	8	20
ROSA SETIGERA					1											0.07	1	0	1	1
SMILACINA RACEMOSA	1	1	1		1		1			2	1	1		2		0.73	9	4	9	13
TILIA AMERICANA							1									0.07	1	0	1	1
TRILLIUM GRANDIFLORA							1									0.07	1	0	1	1
ULMUS AMERICANA						1										0.07	1	0	1	1
VIBURNUM DENTATA														1		0.07	1	0	1	1
VIOLA PAPILIONACEA					1											0.07	1	0	1	1
TOTAL	25	23	20	19	19	15	18	20	15	20	17	16	21	25	25	28 20.06	99	100.0	100	200

OF QUADRATS = 15

TABLE 3: Ground Cover and Plant Absolute Cover (COV) and Frequency (FRE) and Relative Percent Cover (%C) and frequency (%F) and summation, an Important Value (IV), from Study Transects in the EAST WOODS NO BURN STUDY Site, Reed-Turner Nature Preserve. Based on Analysis 20 May 1986 using 1m2 quadrats.

NAME		A	A	A	A	A	A	B	B	B	B	B	COV	FRE	%C	%F	IV
AMEMONELLA THALICTROIDES					1								0.09	1	1	1	2
ARISAEMA DRACONTIUM							1						0.09	1	1	1	2
ARISAEMA TRYPHYLLUM			2		1			1					0.36	3	2	4	6
ASTER SP.												1	0.09	1	1	1	2
CARYA OVATA								1	1		1		0.27	3	2	4	5
CIRCAEA QUADRISULCATA			1			1			1		1		0.36	4	2	5	7
CORNUS RACEMOSA											1		0.09	1	1	1	2
ERYTHRONIUM ALBIDUM			1	2			1		1	1	1	1	0.73	7	4	9	13
FRAXINUS AMERICANA			1	1	4	1		1	1	1	1	1	1.09	9	6	12	18
LITTER, LEAF		6	10	10	10	10	10	10	10	8	6	6	8.73	11	52	14	66
LITTER, WOODY		1	2	1	1	2	1	2	1	4	1	1	1.55	11	9	14	23
OXALIS SP.												1	0.09	1	1	1	2
PANICUM SP.											1		0.09	1	1	1	2
PARTHENOCISSUS INCERTUS							1						0.09	1	1	1	2
PRUNUS VIRGINIANA										1			0.09	1	1	1	2
QUERCUS RUBRA											1		0.09	1	1	1	2
RANUNCULUS ARBORTIVUS												1	0.09	1	1	1	2
RHAMNUS CATHARTICA										1	1	1	0.27	3	2	4	5
RHUS RADICANS			2				1						0.27	2	2	3	4
RIBES MISSOURIENSE							2						0.18	1	1	1	2
ROSA MULTIFLORA											1		0.09	1	1	1	2
RUBUS SP.		1							2	1	1	1	0.55	5	3	6	10
SMILACINA RACEMOSA		1				1			4	1		1	0.73	5	4	6	11
TILIA AMERICANA				1									0.09	1	1	1	2
TRAIL		6									1		0.64	2	4	3	6
TOTAL	25	15	19	15	17	15	17	15	21	18	18	15	16.82	78	100	100	200

OF QUADRATS = 11

TABLE 4: Ground Cover and Plant Absolute Cover (COV) and Frequency (FRE) and Relative Percent Cover (%C) and Frequency (%F) and summation, an Importanct Value (IV), from Study Transects in the CENTER WOODS BURN STUDY Site, Reed-Turner Nature Preserve. Based on Analysis 20 May 1986 using 1m2 quadrats.

NAME	A	A	A	A	A	A	B	B	B	B	B	B	C	C	C	C	C	D	D	D	D	D	D	E	E
ACTAEA PACHYPODA						1																			
AGRIMONIA GRYPOSEPALA															1										
ALLIUM CANADENSIS	1						4																		
ALLIUM TRICOCCUM																									
AMEMONELLA THALICTRODES							1										1				1				4
ARISAEMA TRIPHYLLUM	1						1												1			1			
ASTER SAGITTIFOLIUS															1										
ASTER SP.															1										
CAMASSIA SCILLOIDES																									1
CAREX GRACILLIMA																									
CAREX PENSYLVANICA					1																				
CELASTRUS ORBICULATUS																									
CIRCAEA QUADRISCULATA		1					1					1	1	1		1			1	2	4			2	2
CLAYTONIA VIRGINIANA																		1							
CORNUS RACEMOSA															1										
DENTARIA LACINIATA	1						1	1												1	1				
ERYTHRONIUM ALBIDUM	2	6		1	4			1	1	1	1	6		1		1	1		1	2	4	1	6	1	
FRAXINUS AMERICANA		1		1	2					1	1	2	1	4	1				1		1			1	1
GERANIUM MACULATUM																					2				
LITTER, LEAF	10	4	10	10	10	2	10	8	10	10	8	8	10	8	1	1	10	10	10	10	10	10	4	8	8
LITTER, WOODY	1	1	1	2	1	6	1	1	1	1	1	1	2		1	6	1	2	1	2	1	1	4	1	2
MOSS															8										
OSTRYA VIRGINIANA																		2							
PARTHENOCISSUS INCERTUS																1								1	
POA SP.															1										
POTENTILLA SIMPLEX															1										
PRUNUS SEROTINA																									
PRUNUS VIRIGNIANA			6		1	2		1	8							1	4		2	6		4			
QUERCUS BOREALIS																									2
QUERCUS RUBRA														1											
RANUNCULUS ARBORTIVUS															1										
RHAMNUS CATHARTICA																									
RHAMNUS FRANGULA						2																			
RHAMNUS SP.																									
RHUS RADICANS																									
RIBES MISSOURIENSE		1									1						1								
RUBUS OCCIDENTALIS													10	1											1
RUBUS SP.																									
SMILACINA RACEMOSA				2	1		1			1	2	1	1	1	1		1	1			1	1	1	1	
SMILACINA STELLATA						1																			
SMILAX ECIRRHATA															1										
SOLIDAGO CAESSI		2																							
SOLIDAGO SP.																									
TARAXACUM OFFICINALE															1										
TILIA AMERICANA																		1			2			1	
TRAIL																									
TRILLUM RECURVATUM																									
ULMUS AMERICANA																					1				
VIBIRUNUM OPULUS																1									
VITIS RIPARIA					1							1													
	50	16	16	17	16	21	14	20	12	20	14	14	20	25	17	21	12	19	17	17	23	28	18	15	16	21

E	E	E	F	F	F	F	F	G	G	G	G	G	G	H	H	H	H	H	H	I	I	I	I	I	COV	FRE	%C	%F	IV
																									0.02	1	0	0	0
																									0.02	1	0	0	0
																									0.10	2	1	1	1
					4							1													0.10	2	1	1	1
													1												0.16	5	1	2	2
	2				1	1		1		1		1		1	1		1								0.29	13	2	4	6
																									0.02	1	0	0	0
																									0.02	1	0	0	0
						1																			0.04	2	0	1	1
																					1				0.02	1	0	0	0
																									0.02	1	0	0	0
			2																						0.04	1	0	0	1
		4	4			4						1		1	1	1		1	1		1	1	1	1	0.80	24	4	7	12
																									0.02	1	0	0	0
						2	8						1					2		4	2			1	0.43	8	2	2	5
											1	1	1	1			1			1					0.22	11	1	3	5
											1	1	1	1		1	1	1		1	1	1	1	1	1.08	30	6	9	15
4	1	4	2	1			2			1	1				1	1						2		1	0.80	25	4	8	12
																									0.04	1	0	0	1
10	10	8	8	10	10	10	8	10	10	10	8	10	10	10	10	8	10	10	8	8	10	8	10	6	8.78	50	48	15	64
1	2	1	2	1	1	1	2	1	1	1	4	2	2	1	2	2	1	1		1	2	2	1	1	1.59	48	9	15	24
																									0.16	1	1	0	1
																									0.04	1	0	0	1
1					1		2														1		1		0.16	7	1	2	3
																									0.02	1	0	0	0
																									0.02	1	0	0	0
	6					2										1							1		0.20	4	1	1	2
																									0.71	10	4	3	7
																									0.04	1	0	0	1
																									0.02	1	0	0	0
																									0.02	1	0	0	0
				1	4																			2	0.14	3	1	1	2
																								1	0.06	2	0	1	1
					4																				0.08	1	0	0	1
																									0.00	0	0	0	0
	2																2								0.14	5	1	2	2
2																									0.29	4	2	1	3
														1											0.02	1	0	0	0
2		2	4	6	2	2			1	1		1	1		1		1				1	1	1	1	0.92	31	5	10	15
																									0.02	1	0	0	0
																									0.02	1	0	0	0
																									0.04	1	0	0	1
																									0.00	0	0	0	0
	2																								0.06	2	0	1	1
									1			1													0.12	5	1	2	2
																				2					0.04	1	0	0	1
																				1					0.02	1	0	0	0
											1														0.04	2	0	1	1
														1			4								0.12	3	1	1	2
																									0.04	2	0	1	1
20	5	19	22	19	27	23	22	12	13	14	16	19	17	17	16	14	21	15	9	18	19	15	16	15	18.20	323	100.0	100	200

TABLE 5: Ground Cover and Plant Absolute Cover (COV) and Frequency (FRE) and Relative Percent Cover (%C) and Frequency (%F) and summation, an Important Value (IV), from Study Transects in the CENTER WOODS NO BURN Study Site, Reed-Turner Nature Preserve. Based on Analysis 20 May 1986 using 1m2 quadrats.

NAME	A	A	A	A	A	B	B	B	B	B	B	C	C	C	C	D	D	D	COV	FRE	%C	%F	IV
ACER SACCAHARUM												1				1			0.11	2	1	2	2
ACTEA PACHYPODA												1							0.06	1	0	1	1
ALLIUM CANADENSE									1				1						0.11	2	1	2	2
ANENOME QUINQUEFOLIA						1					1								0.11	2	1	2	2
ANENOMELLA THALICTROIDES						1									1	1		1	0.22	4	1	3	5
ARASAEMA TRIPHYLLUM							1	1				1							0.17	3	1	3	3
ARISAEMA TRIPHYLLA	1	1	1	1															0.22	4	1	3	5
CAMISSIA SCILLOIDES									2				1						0.17	2	1	2	3
CIRCAEA QUADRISULCATA		2				1			1					1					0.28	4	2	3	5
CORNUS RACEMOSA					2				2										0.22	2	1	2	3
CRATAEGUS MOLLIS					2														0.11	1	1	1	1
ERYTHRONIUM ALBIDUM	4	2	4	1	1	1	1			1	1	1	1	1		1	1		1.17	14	7	12	19
FRAXINUS AMERICANA	2					1						1	1		1		1	1	0.44	7	3	6	8
GEUM CANADENSIS	2																		0.11	1	1	1	1
GEUM SP.									1	1									0.11	2	1	2	2
LITTER, LEAF	10	10	10	10	4	10	10	10	10	10	6	10	10	10		10	10	8	8.78	17	51	14	66
LITTER, WOODY	1			1	10	2	0	1	1	1	1	1	1	1		1	2	1	1.39	15	8	13	21
LONICERA PROLIFERUM							4												0.22	1	1	1	2
PARTHENOCISSUS QUINQUEFOLIA			1	2															0.17	2	1	2	3
POA COMPRESSA														1				1	0.11	2	1	2	2
POLYGONATUM BIFLORUM																	1		0.06	1	0	1	1
POTENTILLA SIMPLEX	1																	1	0.11	2	1	2	2
PRUNUS SEROTINA									2										0.11	1	1	1	1
PRUNUS VIRGINIANA				2	2														0.22	2	1	2	3
QUERCUS ALBA									1									1	0.11	2	1	2	2
QUERCUS RUBRA		1							1										0.11	2	1	2	2
RHAMNUS CATHARTICA																		1	0.06	1	0	1	1
RHUS RADICANS			6																0.33	1	2	1	3
RIBES SP.						1													0.06	1	0	1	1
SMILACINA RACEMOSA		2	7	2	2		1	1	3		1	1			1				1.17	10	7	8	15
TILIA AMERICANA												1							0.06	1	0	1	1
ULMUS AMERICANA	1				1														0.11	2	1	2	2
UNK, HERB. DICT										1									0.06	1	0	1	1
UNK. GRAMIN										1									0.06	1	0	1	1
VERONICASTRUM VIRGINICUM		1																	0.06	1	0	1	1
VIOLA SORORIA						1													0.06	1	0	1	1
VITIS RIPARIA		1																	0.06	1	0	1	1
TOTALS	37	22	20	29	19	24	19	17	13	25	15	10	18	15	14	3	14	15	15 17.05	119	100.0	100	200

QUADRATS = 18

TABLE 6: Ground Cover and Plant Absolute Cover (COV) and Frequency (FRE) and Relative Cover (%C) and Frequency (%F) and summation, an Important Value (IV), from Study Transects in the YARD BURN STUDY SITE Reed-Turner Nature Preserve. Based on Analysis 20 May 1986 using 1m2 quadrats.

NAME	A	A	A	A	B	B	B	B	COV	FRE	%C	%F	IV
ACER NEGUNDO						1			0.13	1	1	1	2
ACHILLEA MILLEFOLIUM		2	1						0.38	2	2	2	4
ANEMONE QUINQUEFOLIA	1								0.13	1	1	1	2
ANTENNARIA NEGLECTA		1							0.13	1	1	1	2
ANTENNARIA PLANTAGINIFOLIA					1				0.13	1	1	1	2
ASTER SAGITTIFOLIUS	1	1		2	1				0.63	4	3	4	7
CAREX SP.		4	2						0.75	2	4	2	6
CAREX PENSYLVANICA				1	1	4			0.75	3	4	3	5
CORNUS RACEMOSA	1	1							0.25	2	1	2	3
DANTHONIA SPICATA	1				4				0.63	2	3	2	5
DENTARIA LACINIATA						1			0.13	1	1	1	2
DIANTHUS ARMERIA					1				0.13	1	1	1	2
ERIGERON STRIGOSUS					1				0.13	1	1	1	2
ERYTHRONIUM ALBIDUM	1		1	4	1	2	2		1.38	6	6	6	13
EUPATORIUM SP.	1								0.13	1	1	1	2
FESTUCA SP.					1				0.13	1	1	1	2
FRAGARIA VIRGINIANA							1	2	0.38	2	2	2	4
FRAXINUS AMERICANA		1	4	2		4			1.38	4	6	4	11
GLECOMA HEDERACEAE								2	0.25	1	1	1	2
HIERACIUM SP.	1		1		1		1		0.50	4	2	4	7
JUGLANS NIGRA		1							0.13	1	1	1	2
LITTER, LEAF	4	8	10	10	4	4			5.00	6	24	6	30
LITTER, WOODY		1							0.13	1	1	1	2
LONICERA TATARICA			1						0.13	1	1	1	2
ORNITHOGALUM UMBELLATUM	1								0.13	1	1	1	2
OSTRYA VIRGINIANA					1				0.13	1	1	1	2
OXALIS STRICTA			1		1				0.25	2	1	2	3
POA COMPRESSA		1							0.13	1	1	1	2
POA PORTENSIS			4	2	1	1	4		1.50	5	7	5	12
POTENTILLA SIMPLEX		2	1	1	1		2		0.88	5	4	5	9
PRUNUS SEROTINA			2						0.25	1	1	1	2
PRUNUS VIRGINIANA				2					0.25	1	1	1	2
QUERCUS ALBA		1					2		0.38	2	2	2	4
RANUNCULUS ARBORTIVUS	1				1				0.25	2	1	2	3
RHAMNUS CATHARTICA			1	1					0.25	2	1	2	3
ROSA MULTIFLORA						1			0.13	1	1	1	2
RUBUS OCCIDENTALIS						1			0.13	1	1	1	2
SMILACINA RACEMOSA		1							0.13	1	1	1	2
SMILAX ECCIHIRATA					1				0.13	1	1	1	2
SOLIDAGO SP.						2	1		0.38	2	2	2	4
TARAXACUM OFFICINALE	1	1	1	1	1		1		0.75	6	4	6	10
UNK, GRAMIN	2	1							0.38	2	2	2	4
VIBURNUM DENTATUM		1							0.13	1	1	1	2
VIBURNUM OPULUS	1								0.13	1	1	1	2
VIOLA SORORIA	4				1	1	1		0.88	4	4	4	8
TOTAL	45	21	28	30	26	24	22	15	4 21.25	93	100	100	200

QUADRATS = 8

TABLE 7: Ground Cover and Plant Absolute Cover (COV) and Frequency (FRE) and Relative Percent Cover (%C) and Frequency (%F) and summation, an Important Value (IV), from Study Transects in the YARD NO BURN STUDY SITE Reed-Turner Nature Preserve. Based on Analysis 20 May 1986 using 1m2 quadrats.

NAME	A	A	A	A	A	B	B	B	COV	FRE	%C	%F	IV
ACER SACCAHARUM				1					0.13	1	0	1	1
ALLIUM CANADENSIS					1				0.13	1	0	1	1
ALLIUM TRICOCCUM		1			1				0.25	2	1	1	2
ANEMONE QUINQUEFOLIA	1		1	2	1		2	2	1.13	6	4	4	8
ANEMONE VIRGINICUM			1		1				0.25	2	1	1	2
ANEMONELLA TRALICTROIDES		1					2		0.38	2	1	1	3
ANTENNARIA PLANTAGINIFOLIUS	1		1			2			0.50	3	2	2	4
ARENARIA LATERIFLORA		4		1			2	1	1.00	4	3	3	6
ASTER SAGITTIFOLIUS	1		1			1	1	1	0.63	5	2	4	6
BERBERIS THUNBERGII		1							0.13	1	0	1	1
CAREX PENSYLVANICA							4	8	1.50	2	5	1	6
CAREX ROSEA	1	4							0.63	2	2	1	4
CAREX SP.	1	4							0.63	2	2	1	4
CARYA OVATA							1		0.13	1	0	1	4
CIRCAEA QUADRISULCATA				1					0.13	1	0	1	1
CLAYTONIA VIRGINICA				1	1				0.25	2	1	1	2
CORNUS RACEMOSA		1							0.13	1	0	1	1
DACTULIS GLOMERATA				2					0.25	1	1	1	2
DENTARIA LACINIATA							1	1	0.25	2	1	1	2
ERYTHRONIUM ALBIDUM			2	2	2		2	2	1.25	5	4	4	8
EUPATORIUM SP.		1							0.13	1	0	1	1
FRAXINUS AMERICANA	1		1	2	2				0.75	4	3	3	5
GERANIUM MACULATUM		1	1			2			0.50	3	2	2	4
GEUM CANADENSIS				1				1	0.25	2	1	1	2
GLAIUM TRIFIDUM								1	0.13	1	0	1	1
GLECHOMA HEDERACEAE			1		1			1	0.38	3	1	2	3
HEPATICA ACUTILOBA				2					0.25	1	1	1	2
HIERCIUM SP.	1		2			2		2	0.88	4	3	3	6
HYDROPHYLLUM VIRGINIANUM			1	1					0.25	2	1	1	2
KRIGIA BIFLORA						1			0.13	1	0	1	1
LITTER, LEAF						2			0.25	1	1	1	2
LITTER, WOODY						7		10	2.13	2	7	1	9
OSTRYA VIRGINIANA			1		2				0.38	2	1	1	3
OXALIS STRICTA		1		1		2			0.50	3	2	2	4
PHLOX GLABERIMA								1	0.13	1	0	1	1
POA PRATENSIS		1	1	1	6				1.13	4	4	3	7
POTENTILLA SIMPLEX		1						1	0.25	2	1	1	2
PRENANTHES ALBA							1		0.13	1	0	1	1
PRUNUS SEROTINA	1		1						0.25	2	1	1	2
QUERCUS ALBA				4			1		0.63	2	2	1	4
QUERCUS RUBRA							2		0.25	1	1	1	2
RANUNCULUS ARBORTIVUS		1					2		0.38	2	1	1	3
RANUNCULUS FASCULARIS					1				0.13	1	0	1	1
RHAMNUS CATHARTICA	1							2	0.38	2	1	1	3
RHAMNUS FRANGULA		2							0.25	1	1	1	2
RHUS RADICANS		1					2		0.38	2	1	1	3
ROSA MULTIFLORA			1						0.13	1	0	1	1
SANICULA GREGARIA	1			1					0.25	2	1	1	2

SMILACINA RACEMOSA		1	2	1	2	1	2	2	4	1.88	8	6	6	12
SMILAX ECIRRHATA									1	0.13	1	0	1	1
SOLIDAGO SP.		1		1		1				0.38	3	1	2	3
TARAXACUM OFFICIANALE			1	1	1	1	2	2	2	1.25	7	4	5	9
TRILLIUM RECURVATUM						1				0.13	1	0	1	1
UNK. #1								1	1	0.25	2	1	1	2
UNK. #2								1	1	0.25	2	1	1	2
UNK. GRAMINEA		8		2			9		1	2.50	4	8	3	11
VIBURNUM OPULUS					1					0.13	1	0	1	1
VIOLA PENSYLVANICA			1							0.13	1	0	1	1
VIOLA SORORIA		1	1	1	3	1	2	2	2	1.63	8	5	6	11
VITIS RIPARIA		1								0.13	1	0	1	1
	60	22	30	22	30	24	34	31	46	29.87	139	100.0	100	200

QUADRATS = 8

TABLE 8: BURN STUDY SITES Summary of Woody Vegetation density (mean +/- standard deviation) by Stem Size Class in the Reed-Turner Nature Preserve. Based on transect sampling 20 May 1986 in the Western, Eastern, and Center Woods.

NAME		0-2				2-6				6-10				10-14		
		ALIVE		DEAD		ALIVE		DEAD		ALIVE		DEAD		ALIVE		DEAD
	Unknown		0.53			0.07	0.27									
ACER SACCAHARUM	Sugar Maple	1.00	1.50													
CARPINUS CAROLINIANA	Hop hornbeam	0.79	2.00			0.14	0.53			0.07	0.27					
CARYA OVATA	Shagbark Hickory	2.10	2.10	0.14	0.53	0.07	0.27									
CELASTRUS ORBICULATUS	Bittersweet	1.94	10.20													
CORNUS RACEMOSA	Grey Dogwood	21.30	41.30	4.40	8.90											
CRATAEGUS SP.	Hawthorn	1.70	3.30	0.14	0.53											
FRAXINUS AMERICANA	White Ash	9.10	11.40	1.40	2.80		1.80	0.14	0.53	0.43	0.76			0.07	0.27	
GLEDITSIA TRICANTHUS	Honey Locust	1.40	5.10													
JUGLANS NIGRA	Black Walnut	0.29	1.10			0.07	0.27							0.07	0.27	
LIGUSTRUM SP.	Unk. Privet	0.70	2.70	0.14	0.53											
LONICERA TATARICA	Honeysuckle	1.00	2.00													
OSTYRA VIRGINIANA	Ironwood	2.10	4.70	0.29	0.73	1.40	0.26			0.07	0.27					
PINUS SYLVESTRIS	Scotch Pine									0.07	0.27	0.07	0.27			
PRUNUS SEROTINA	Choke Cherry	6.70	10.90	1.70	4.40											
PRUNUS VIRGINIANA	Black Cherry	9.60	7.20	1.30	1.50	1.90	0.21	0.21	0.58	0.21	0.43					
QUERCUS ALBA	White Oak									0.07	0.27			0.14	0.36	
QUERCUS BICOLOR	Swamp White Oak					0.21	0.80									
QUERCUS BOREALIS	Northern Red Oak					0.50	1.30			0.21	0.43			0.14	0.36	
QUERCUS ELLIPSOIDALIS	Hills Oak			0.14	0.53	0.07	0.27			0.28	0.82					
QUERCUS MACROCARPA	Bur Oak							0.07	0.27					0.07	0.27	0.07
RHAMNUS CATHARTICA	European Buckthorn	12.00	25.50	0.29	0.72	0.36	0.74									
RHAMNUS FRANGULA	Glossy Buckthorn	7.70	16.40	0.14	0.53	0.07	0.27									
RIBES SP.	Gooseberry	2.00														
TILEA AMERICANA	Basswood	6.60	12.20			1.10	2.00	0.07	0.27	0.07	0.27	0.07	0.27			
ULMUS AMERICANA	American Elm	1.70	3.80			0.29	0.47									
ULMUS RUBRA	Red Elm			0.24	1.10	0.14	0.36			0.17	0.36					
VIBURNUM ACERIFOLIUM	Maple Leaf Vibernuri	1.10	1.70													
VIBURNUM DENTATA	Toothed Viberrium	0.14	0.53													
VIBURNUM PRUNIFOLIUM	Vibernum Prunifolini	0.71	2.20							0.07	0.27			0.14	0.53	
VITIS RIPARIA	Fox Grape	0.64	1.10													
TOTALS	31 SPECIES	92.31		10.32		6.39		0.49		1.72		0.14		0.63		0.07

	14-18		18-22		22-26		26-30	
	ALIVE	DEAD	ALIVE	DEAD	ALIVE	DEAD	ALIVE	DEAD

TABLE 9: Woody Vegetation NO BURN STUDY Site including west, east, and Center Areas.

	NAME	0-2 ALIVE		0-2 DEAD		2-6 ALIVE		2-6 DEAD		6-10 ALIVE		6-10 DEAD		10-14 ALIVE		10-14 DEAD	
	Unknown	0.14	0.53	0.50	1.90												
ACER RUBRUM	Red Maple					0.07	0.27										
ACER SACCAHARUM	Sugar Maple	0.83	2.00			0.36	0.93										
BERBERBIS THUNBERGII	Barberry	0.14	0.53			0.07											
CARPINUS CAROLINIANA	Hophornbean	0.29	1.10			0.21	0.80										
CARYA OVATA	Shagbark Hickory	2.10	2.60	0.17	0.27	0.07	0.27							0.07	0.27		
CELASTRUS ORBICULATIS	Bittersweet	0.14	0.53														
CORNUS RACEMOSA	Grey Dogwood	20.10	43.10	3.40	10.70												
CRATAEGUS CRUSGALI	Loxspur Thorn						0.27										
CRATAEGUS MOLLIS	Downy Hawthorn	0.19	1.90	1.80	4.50												
CRATAEGUS SPP.	Hawthorn	1.80	2.40	0.14	0.53	0.07	0.27										
FRAXINUS AMERICANA	White Ash	3.60	5.40	0.29	0.73	0.64	1.70	0.14	0.36	0.36	0.74						
JUGLANS NIGRA	Black Walnut					0.07	0.27										
LONICERA TATARICA	HOneysuckle	0.29	0.72	0.29	1.10												
MALLUS SP.	Apple	0.71	2.10														
OSTRYA VIRGINIANA	Ironwood	4.60	6.50	0.29	0.73	0.71	1.30							0.14	0.53		
PHILADELPHIA CORONARIU	Mock ORange	0.43	1.60														
PRUNUS SEROTINA	Choke Cherry	10.90	21.90	7.10	24.20	0.14	0.36										
PRUNUS SP.	Prunus Sp.			0.14	0.53												
PRUNUS VRGINIANA	Black Cherry	5.50	5.50	0.57	1.50	0.86	0.95										
QUERCUS ALBA	White Oak					0.14	0.53			0.07	0.27			0.21	0.58		
QUERCUS BICOLOR	Swamp White Oak			0.5	1.9												
QUERCUS BOREALIS	Northern Red Oak	5.50	7.20	0.21	0.58	0.86	1.50	0.17	0.27					0.07	0.27		
QUERCUS ELLIPSOIDALIS	Hills Oak	0.14	0.53	0.43	1.60	0.07	0.27	0.21	0.58	0.14	0.36						
QUERCUS MACROCARPA	Bur Oak																
QUERCUS MARILANDICA	Black Oak	0.14	0.53														
RHAMNUS CATHARTICA	EuropeAn Buckthorn	7.80	18.50	0.36	0.74	0.07	0.27										
RHAMNUS FRANGULA	Glossy Buckthorn	1.20	2.50														
RHAMNUS SP.	Buckthorn	0.14	0.53														
RHUS RADICANS	Poison Ivy	0.79	1.90														
RIBES SP.	Gooseberry	1.90	4.90														
TILEA AMERICANA	Basswood	3.60	4.20	0.21	0.80	0.79	1.10							0.07	0.27		
ULMUS AMERICANA	American Elm	5.40	4.30	0.14	0.53	1.67	1.20							0.07	0.27		
ULMUS RUBRA	Red Elm	1.90	1.00														
VIBURNUM ACERIFOLIUM	Maple Leaf Vibernu	2.90	7.40														
VIBURNUM DENTATA	Toothed Vibernum	0.43	1.63														
TOTALS	36 SPECIES	83.6		16.54		6.87		0.52		0.57		0		0.63		0	

14-18		18-22		22-26		26-30	
ALIVE	DEAD	ALIVE	DEAD	ALIVE	DEAD	ALIVE	DEAD
0.07	0.27						
0.36	0.74	0.36	0.74	0.07	0.27		
0.14	0.36						
0.07	0.27						0.07 0.27
0.64	0	0.36	0	0.07	0	0	0.07

TABLE 10: Woody Vegetation YARD STUDY SITE

NAME		0-2 ALIVE	0-2 DEAD	2-6 ALIVE	2-6 DEAD	6-10 ALIVE	6-10 DEAD	10-14 ALIVE	10-14 DEAD
ACER SACCAHARUM	Sugar Maple								
CRATAEGUS SP.	Hawthorn	3.00	4.20						
OSTRYA VRGINIANA	Ironwood					0.50	0.71		
QUERCUS ALBA	White Oak								
QUERCUS BOREALIS	Northern Red Oak								
TOTALS	5 SPECIES	3.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00

14-18		18-22		22-26		26-30	
ALIVE	DEAD	ALIVE	DEAD	ALIVE	DEAD	ALIVE	DEAD
				0.5	0.71		
0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00

TABLE 11A. Relative frequency, relative cover, and importance value of groundcover vegetation and fuel from 1m2 quadrats on transects 3 and 4 at Wadsworth Savanna, Lake County, Illinois.

	t3			t4			total			
	RF	RC	IV	RF	RC	IV	RF	RC	IV	RIV
Smilacina racemosa	4.7	4.2	8.9	5.5	10.	15.	10.	14.	24.	7.2
Trillium recurvatum	6.0	1.0	7.0	5.5	1.4	7.0	11.	2.4	14.	4.1
Viburnum dentatum	1.7	3.5	5.3	4.1	4.0	8.1	5.9	7.5	13.	3.9
Geranium maculatum	3.8	1.5	5.3	2.0	3.7	5.8	5.9	5.2	11.	3.3
Cornus racemosa	3.8	3.0	6.9	1.3	1.4	2.8	5.2	4.5	9.8	2.8
Prunus virginiana	1.2	1.1	2.4	3.4	3.3	6.8	4.7	4.5	9.3	2.7
Trillium grandiflorum	1.7	1.6	3.4	3.4	1.9	5.4	5.2	3.6	8.8	2.6
Sanicula sp.				6.9	1.8	8.8	6.9	1.8	8.8	2.6
Rubus apricata				6.2	2.1	8.4	6.2	2.1	8.4	2.5
Corylus americana	2.5	2.1	4.7	1.3	2.1	3.5	3.9	4.2	8.2	2.4
Lonicera tatarica	0.8	4.2	5.0	1.3	1.4	2.8	2.2	5.6	7.9	2.3
Carex lacustris				2.0	5.6	7.7	2.0	5.6	7.7	2.2
Viburnum prunifolium	3.4	3.4	6.9				3.4	3.4	6.9	2.0
Osmorhiza longistylis				4.8	1.8	6.7	4.8	1.8	6.7	1.9
Galium aparine	0.4	0.8	1.2	3.4	1.4	4.9	3.9	2.2	6.1	1.8
Carex rosa	1.2	1.1	2.4	0.6	2.8	3.5	1.9	3.9	5.9	1.7
Sanicula gregaria	4.7	1.1	5.9				4.7	1.1	5.9	1.7
Agrimonia gryposepala	0.4	0.8	1.2	2.7	1.7	4.5	3.2	2.6	5.8	1.7
Lonicera sp.	0.4	5.0	5.5				0.4	5.0	5.5	1.6
Prenanthes alba	3.8	1.5	5.3				3.8	1.5	5.3	1.5
Circaea quadrisulcata	0.8	0.8	1.7	2.0	1.4	3.5	2.9	2.2	5.2	1.5
Rhamnus cathartica	0.8	2.1	2.9	0.6	1.4	2.1	1.5	3.5	5.0	1.5
Viburnum lentago				2.7	2.1	4.9	2.7	2.1	4.9	1.4
Allium cernuum	1.2	1.4	2.7	0.6	1.4	2.1	1.9	2.8	4.8	1.4
Andropogon gerardi	0.4	0.8	1.2	0.6	2.8	3.5	1.1	3.6	4.8	1.4
Carex pensylvanica	3.0	1.5	4.6				3.0	1.5	4.6	1.3
Rubus occidentalis	3.0	1.2	4.2				3.0	1.2	4.2	1.2
Carex sp.	0.8	0.8	1.7	0.6	1.4	2.1	1.5	2.2	3.8	1.1
Osmerhiza liqu	2.5	1.1	3.7				2.5	1.1	3.7	1.0
Thalictrum sp.				0.6	2.8	3.5	0.6	2.8	3.5	1.0
Anemone quinquefolia	2.5	0.8	3.4				2.5	0.8	3.4	1.0
Lathyrus sp	0.4	0.8	1.2	0.6	1.4	2.1	1.1	2.2	3.3	0.9
Arenaria lateriflora	0.4	0.8	1.2	0.6	1.4	2.1	1.1	2.2	3.3	0.9
Fragaria virginiana	1.7	1.2	2.9				1.7	1.2	2.9	0.8
Fraxinus americana	0.8	2.1	2.9				0.8	2.1	2.9	0.8
Rhamnus frangula	0.8	2.1	2.9				0.8	2.1	2.9	0.8
Rubus strigosis	0.8	2.1	2.9				0.8	2.1	2.9	0.8
Lysimachia thyrsiflora				1.3	1.4	2.8	1.3	1.4	2.8	0.8
Prenanthes sp.				1.3	1.4	2.8	1.3	1.4	2.8	0.8
Solanum dulcamara				1.3	1.4	2.8	1.3	1.4	2.8	0.8
Amphicarpa bracteata				1.3	1.4	2.8	1.3	1.4	2.8	0.8
Smilax perbascer				1.3	1.4	2.8	1.3	1.4	2.8	0.8
Smilax herbacea				1.3	1.4	2.8	1.3	1.4	2.8	0.8
Sambucus sp.				1.3	1.4	2.8	1.3	1.4	2.8	0.8
Carex laxiflora	1.7	1.0	2.7				1.7	1.0	2.7	0.8
Galium sp.	1.7	0.8	2.5				1.7	0.8	2.5	0.7
Smilax ecirrhata	1.7	0.8	2.5				1.7	0.8	2.5	0.7
Geum canadense	1.2	1.1	2.4				1.2	1.1	2.4	0.7
Smilax lasioneura	1.2	0.8	2.1				1.2	0.8	2.1	0.6
Taraxacum sp.	1.2	0.8	2.1				1.2	0.8	2.1	0.6
Carya ovata	0.4	1.6	2.1				0.4	1.6	2.1	0.6
Rubus candensis	0.4	1.6	2.1				0.4	1.6	2.1	0.6
Taenidia sp.	0.4	1.6	2.1				0.4	1.6	2.1	0.6
Quercus borealis	0.4	1.6	2.1				0.4	1.6	2.1	0.6
Hydrophyllum virginianum	0.4	1.6	2.1				0.4	1.6	2.1	0.6
Sisyrinchium albidum				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Viola sp				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Hydrophyllum appendiculatum				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Viburnum sp.				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Hypoxis				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Veronicastrum virginicum				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Geum sp.				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Fraxinus seedling				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Potentilla recta				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Solidago juncea				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Solidago candensis				0.6	1.4	2.1	0.6	1.4	2.1	0.6
Podophyllum peltatum	0.8	0.8	1.7				0.8	0.8	1.7	0.5
Zizia aurea	0.8	0.8	1.7				0.8	0.8	1.7	0.5
Phryma sp.	0.8	0.8	1.7				0.8	0.8	1.7	0.5
Rhus radicans	0.4	0.8	1.2				0.4	0.8	1.2	0.3

Sambucus canadensis	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Rosa carolina	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Panicum latiflorum	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Apocynum cannabinum	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Parthenocissus inserta	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Verbascum thapsus	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Lathyrus venosus	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Lonicera prolifera	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Impatiens pallida	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Ulmus rubrum	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Rhus glabra	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Allium tricoccum	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Hieracium sp.	0.4	0.8	1.2	0.4	0.8	1.2	0.3
Poa pratensis				0	0	0	0
Galium obtusum				0	0	0	0
Galium concinnum				0	0	0	0
Podophyllum sp.				0	0	0	0
Eupatorium maculatum				0	0	0	0
Potentilla simplex				0	0	0	0
Erythronium albidum				0	0	0	0
Osmorhiza sp.				0	0	0	0
Dicentra canadensis				0	0	0	0
Prunus americana				0	0	0	0
Daucus carota				0	0	0	0
Oxalis stricta				0	0	0	0
Crataegus sp.				0	0	0	0
Achillea millefolium				0	0	0	0
Solidago altissima				0	0	0	0
Ranunculus abortivus				0	0	0	0
Crataegus mollis				0	0	0	0
Oritca sp				0	0	0	0
Arctium minus				0	0	0	0
Monarda fistulosa				0	0	0	0
Convolvulus sp.				0	0	0	0
Ribes sp.				0	0	0	0
Taenidia sp.				0	0	0	0
Malus loensis				0	0	0	0
Cirsium candense				0	0	0	0
Luzula multiflora				0	0	0	0
Circon				0	0	0	0
Linaria sp.				0	0	0	0
Theulptera palustris				0	0	0	0
Lilium michiganense				0	0	0	0
Trifolium repens				0	0	0	0
Herehoound maximum				0	0	0	0
Trifolium sp white				0	0	0	0
Senecio davderculus				0	0	0	0
Chrysanthemum leucanthemum				0	0	0	0
Poa sp.				0	0	0	0
Allium canadense				0	0	0	0
Phryma leptostachya				0	0	0	0
Chenopodium album				0	0	0	0
Prunus serotina				0	0	0	0
Urtica sp.				0	0	0	0
Quercus macrocarpa				0	0	0	0
Cerastium sp.				0	0	0	0
Onoclea sensibilis				0	0	0	0
Carex vulpinoidea				0	0	0	0
Rosa blanda				0	0	0	0
Carex stricta				0	0	0	0
Anemone virginiana				0	0	0	0
Campanula aparinoides				0	0	0	0
Hydrophyllum sp.				0	0	0	0
Actaea pachypoda				0	0	0	0
Galium trifidum				0	0	0	0
Calamagrostis canadensis				0	0	0	0
Prunella vulgaris				0	0	0	0
Viola Yellow				0	0	0	0
Osmorhiza cugur				0	0	0	0
Viola papilionacea				0	0	0	0
Rosa setigera				0	0	0	0
Viola sororia				0	0	0	0
Anemonella thalictroides				0	0	0	0
Aster sp.				0	0	0	0
Quercus alba				0	0	0	0
Viola sp.				0	0	0	0
Rubus sp.				0	0	0	0
Ribes americanum				0	0	0	0

Aster puniceus							0	0	0			0
Vitis riparia							0	0	0			0
Aster sagittifolius							0	0	0			0
bare soil	4.3	3.2	7.6									
dirt												
leaf	7.3	4.6	11.	8.3	9.5	17.						
unkown arum												
water	0.8	5.0	5.9									
wood	5.1	1.9	7.0	8.3	1.7	10.						
	100	100	200	100	100	200	165	173	339			100

TABLE 11B. Relative frequency, relative cover, and importance value of ground cover vegetation and fueld from 1m2 quadrats on transects 1 and 2 at Wadsworth, Savanna, Lake County, Illinois.

		t1			t2			total			
		RF	RC	IV	RF	RC	IV	RF	RC	IV	RIV
Cornus racemosa		4.37	0.9	5.3	3.4	3.5	6.9	7.7	4.4	12.	3.6
Prunus virginiana		5.83	1.7	7.5	3.0	1.0	4.1	8.9	2.7	11.	3.5
Smilacina racemosa		3.28	0.8	4.1	5.2	2.1	7.4	8.5	3.0	11.	3.4
Lonicera tatarica		2.55	1.2	3.7	3.0	2.7	5.8	5.6	4.0	9.6	2.9
Taraxacum sp.		5.10	0.8	5.9	2.1	0.8	3.0	7.2	1.7	8.9	2.6
Carex pensylvanica		1.09	4.6	5.7	1.5	0.8	2.3	2.6	5.4	8.1	2.4
Sanicula gregaria		1.82	1.3	3.2	3.0	1.3	4.4	4.9	2.7	7.6	2.2
Rubus occidentalis		1.82	0.8	2.6	3.0	1.6	4.7	4.9	2.5	7.4	2.2
Geranium maculatum		0.36	0.8	1.2	3.4	2.6	6.0	3.7	3.5	7.3	2.1
Rhamnus cathartica		2.18	0.8	3.0	2.4	1.6	4.1	4.6	2.5	7.2	2.1
Corylus americana		0.36	0.8	1.2	1.8	3.3	5.2	2.2	4.2	6.4	1.9
Galium aparine		2.18	0.8	3.0	1.8	0.8	2.7	4.0	1.7	5.7	1.7
Fragaria virginiana		2.55	0.8	3.4	1.2	1.0	2.2	3.7	1.9	5.7	1.7
Trillium grandiflorum					3.0	2.4	5.5	3.0	2.4	5.5	1.6
Hydrophyllum virginianum					3.7	1.8	5.5	3.7	1.8	5.5	1.6
Viburnum dentatum		0.36	0.8	1.2	1.2	2.9	4.1	1.6	3.8	5.4	1.6
Osmorhiza cugur	T2				4.0	1.2	5.2	4.0	1.2	5.2	1.5
Agrimonia gryposepala		2.18	0.8	3.0	1.2	0.8	2.0	3.4	1.7	5.1	1.5
Solidago juncea		1.45	3.2	4.7				1.4	3.2	4.7	1.4
Trillium recurvatum		1.09	0.8	1.9	1.5	0.8	2.3	2.6	1.7	4.3	1.3
Allium cernuum		1.82	1.0	2.8	0.6	0.8	1.4	2.4	1.8	4.3	1.2
Anemone quinquefolia		0.72	0.8	1.6	1.2	1.4	2.7	1.9	2.3	4.3	1.2
Carex lacustris					0.9	3.3	4.3	0.9	3.3	4.3	1.2
Potentilla recta		3.28	0.8	4.1				3.2	0.8	4.1	1.2
Smilax ecirrhata		0.36	0.8	1.2	1.8	0.8	2.8	2.2	1.7	4.0	1.2
Ranunculus abortivus		0.72	0.8	1.6	1.5	0.8	2.3	2.2	1.7	3.9	1.1
Parthenocissus inserta		1.09	1.7	2.8	0.3	0.8	1.1	1.4	2.5	3.9	1.1
Prenanthes alba		0.36	0.8	1.2	0.9	1.6	2.6	1.2	2.5	3.8	1.1
Solidago altissima		1.82	0.8	2.6	0.3	0.8	1.1	2.1	1.7	3.8	1.1
Aster sagittifolius		1.82	0.8	2.6	0.3	0.8	1.1	2.1	1.7	3.8	1.1
Calamagrostis canadensis		0.36	3.4	3.8				0.3	3.4	3.8	1.1
Podophyllum sp.		0.36	3.4	3.8				0.3	3.4	3.8	1.1
Carya ovata		1.45	0.8	2.3	0.6	0.8	1.4	2.0	1.7	3.7	1.1
Luzula multiflora		1.09	2.6	3.7				1.0	2.6	3.7	1.1
Onoclea sensibilis					0.3	3.3	3.6	0.3	3.3	3.6	1.1
Geum canadense		0.36	0.8	1.2	1.5	0.8	2.3	1.9	1.7	3.6	1.0
Rhamnus frangula		1.09	0.8	1.9	0.6	0.8	1.4	1.7	1.7	3.4	1.0
Circaea quadrisulcata					2.1	1.0	3.2	2.1	1.0	3.2	0.9
Carex rosa		0.72	0.8	1.6	0.6	0.8	1.4	1.3	1.7	3.0	0.9
Galium trifidum					2.1	0.8	3.0	2.1	0.8	3.0	0.9
Prunus americana					1.5	1.3	2.9	1.5	1.3	2.9	0.8
Circon	T1	1.82	1.0	2.8				1,8	1.0	2.8	0.8
Prunus serotina					1.8	0.8	2.7	1.8	0.8	2.7	0.8
Osmorhiza sp.		1.82	0.8	2.6				1.8	0.8	2.6	0.8
Crataegus sp.		1.82	0.8	2.6				1.8	0.8	2.6	0.8
Poa pratensis		1.45	1.0	2.5				1.4	1.0	2.5	0.7
Phryma leptostachya					1.5	0.8	2.3	1.5	0.8	2.3	0.7
Carex laxiflora		0.36	0.8	1.2	0.3	0.8	1.1	0.6	1.7	2.3	0.7
Carex sp.		0.36	0.8	1.2	0.3	0.8	1.1	0.6	1.7	2.3	0.7

Viola sororia		0.36	0.8	1.2	0.3	0.8	1.1	0.6	1.7	2.3	0.7
Viburnum prunifolium		0.36	0.8	1.2	0.3	0.8	1.1	0.6	1.7	2.3	0.7
Lathyrus venosus		0.36	0.8	1.2	0.3	0.8	1.1	0.6	1.7	2.3	0.7
Quercus alba		1.45	0.8	2.3				1.4	0.8	2.3	0.6
Daucus carota		1.45	0.8	2.3				1.4	0.8	2.3	0.6
Rubus sp.		1.09	1.1	2.2				1.0	1.1	2.2	0.6
Hieracium sp.		0.72	1.3	2.0				0.7	1.3	2.0	0.6
Carex vulpinoidea					0.3	1.6	2.0	0.3	1.6	2.0	0.5
Lilium michiganense					0.3	1.6	2.0	0.3	1.6	2.0	0.5
Aster puniceus					0.3	1.6	2.0	0.3	1.6	2.0	0.5
Theulptera palustris	T2				0.3	1.6	2.0	0.3	1.6	2.0	0.5
Arctium minus					0.3	1.6	2.0	0.3	1.6	2.0	0.5
Vitis riparia		1.09	0.8	1.9				1.0	0.8	1.9	0.5
Oritca sp	T1	1.09	0.8	1.9				1.0	0.8	1.9	0.5
Anemone virginiana		1.09	0.8	1.9				1.0	0.8	1.9	0.5
Cirsium candense	T2				0.6	1.2	1.8	0.6	1.2	1.8	0.5
Potentilla simplex					0.9	0.8	1.7	0.9	0.8	1.7	0.5
Galium obtusum					0.9	0.8	1.7	0.9	0.8	1.7	0.5
Hydrophyllum sp.		0.72	0.8	1.6				0.7	0.8	1.6	0.4
Chrysanthemum leucanthemum		0.72	0.8	1.6				0.7	0.8	1.6	0.4
Cerastium sp.		0.72	0.8	1.6				0.7	0.8	1.6	0.4
Achillea millefolium		0.72	0.8	1.6				0.7	0.8	1.6	0.4
Viola Yellow	T1	0.72	0.8	1.6				0.7	0.8	1.6	0.4
Prunella vulgaris		0.72	0.8	1.6				0.7	0.8	1.6	0.4
Poa sp.					0.6	0.8	1.4	0.6	0.8	1.4	0.4
Linaria sp.		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Herehoound maximum	T1	0.36	0.8	1.2				0.3	0.8	1.2	0.3
Rosa setigera		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Urtica sp.		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Quercus macrocarpa		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Ribes sp.		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Viola papilionacea		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Trifolium sp white	T1	0.36	0.8	1.2				0.3	0.8	1.2	0.3
Trifolium repens		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Senecio davderculus	T1	0.36	0.8	1.2				0.3	0.8	1.2	0.3
Arenaria lateriflora		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Melus loensis	T1	0.36	0.8	1.2				0.3	0.8	1.2	0.3
Viola sp.		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Rosa blanda		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Monarda fistulosa		0.36	0.8	1.2				0.3	0.8	1.2	0.3
Aster sp.					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Oxalis stricta					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Taenidia sp.	T2				0.3	0.8	1.1	0.3	0.8	1.1	0.3
Crataegus mollis					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Campanula aparinoides					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Allium canadense					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Anemonella thalictroides					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Ribes americanum					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Podophyllum peltatum					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Dicentra canadensis					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Convolvulus sp.					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Eupatorium maculatum					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Carex stricta					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Actaea pachypoda					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Chenopodium album					0.3	0.8	1.1	0.3	0.8	1.1	0.3
Quercus borealis					0.3	0.8	1.1	0.3	0.8	1.1	0.3

Galium concinnum			0.3	0.8	1.1	0.3	0.8	1.1	0.3
Erythronium albidum			0.3	0.8	1.1	0.3	0.8	1.1	0.3
Osmorhiza longistylis						0	0	0	0
Lonicera sp.						0	0	0	0
Thalictrum sp.						0	0	0	0
Rubus apricata	T4					0	0	0	0
Lonicera prolifera						0	0	0	0
Rubus strigosis						0	0	0	0
Lathyrus sp						0	0	0	0
Rhus radicans						0	0	0	0
Iopatiens pallida						0	0	0	0
Rhus glabra						0	0	0	0
Hypoxis	T4					0	0	0	0
Sabucus canadensis						0	0	0	0
Hydrophyllum appendiculatum						0	0	0	0
Phryma sp.						0	0	0	0
Ulmus rubrum						0	0	0	0
Smilax lasioneura						0	0	0	0
Geum sp.						0	0	0	0
Solanum dulcamara						0	0	0	0
Verbascum thapsus						0	0	0	0
Solidago candensis						0	0	0	0
Veronicastrum virginicum						0	0	0	0
Taenidia sp.						0	0	0	0
Galium sp.						0	0	0	0
Rubus candensis	T3					0	0	0	0
Viburnum lentago						0	0	0	0
Sambucus sp.						0	0	0	0
Fraxinus seedling						0	0	0	0
Sisyrinchium albidum						0	0	0	0
Viburnum sp.						0	0	0	0
Smilax herbacea						0	0	0	0
Fraxinus americana						0	0	0	0
Panicum latiflorum						0	0	0	0
Apocynum cannabinum						0	0	0	0
Lysimachia thyrsiflora						0	0	0	0
Andropogon gerardi						0	0	0	0
Sanicula sp.						0	0	0	0
Viola sp						0	0	0	0
Smilax perbascer	T4					0	0	0	0
Amphicarpa bracteata						0	0	0	0
Rosa carolina						0	0	0	0
Osmerhiza liqu	T3					0	0	0	0
Prenanthes sp.						0	0	0	0
Allium tricoccum						0	0	0	0
Zizia aurea						0	0	0	0

bare soil		0.72	0.8	1.6	2.1	3.6	5.7
dirt	T1	2.18	5.9	8.1			
leaf		8.39	6.4	14.	7.7	6.1	13.
unkown arum	T1	0.36	0.8	1.2			
water		1.45	6.9	8.4			

wood	4.01	0.8	4.8	6.8	1.1	7.9						
	100	100	200	100	100	200	166	167	333	100		

TABLE 12. Mean density and standard deviation for numbers of live and dead trees by size class (inches) from transects at Wadsworth Savanna, Lake County, Illinois.

		0-2				2-6				6-10				10-14		14-18		
		A		D		A		D		A		D		A	D	A	D	
T1	HONEYSUCKLE	13.6	19.2															
T1	GLOSSY BUCKTHORN	22.4	39.6															
T1	EUROPEAN BUCKTHORN	128.4	133.0	4.0	3.7													
T1	HAZELNUT	1.2	2.7															
T1	GREY DOGWOOD	16.8	37.6															
T1	BLACK CHERRY	17.5	14.2	2.4	3.3	0.2	0.5	0.4	0.6	0.2	0.5							
T1	SHAGBARK HICKORY	42.0	20.8	0.8	1.1											0.2	0.5	
T1	PIN OAK	2.8	2.7	0.4	0.9	0.2	0.5											
T1	HAWTHORNE	6.4	4.3	0.4	0.9	1.4	2.6	0.4	0.6									
T1	VIBERNUM DENTATUM	2.0	4.5															
T1	VITIS SP	0.7																
T1	WHITE ASH	0.8	1.8					0.2	0.5									
T1	WHITE OAK																	
T1	MALUS					0.2	0.5									0.4	0.6	0.
T2	HAZELNUT	163.0	145.6	0.4	0.9													
T2	BUSH HONEYSUCKLE	30.0	36.7															
T2	GREY DOGWOOD	91.2	22.1	10.8	14.5													
T2	BUCKTHORN	11.2	12.5	2.0	2.8													
T2	BLACK CHERRY	0.4	0.9			0.2	0.5							0.6	0.6			
T2	SHAGBARK HICKORY	9.6	13.4	1.6	2.6													
T2	CHOKE CHERRY	6.0	3.7															
T2	QUAKING ASPEN	5.6	10.4			0.2	0.5											
T2	TOOTHED VIBERNUM	24.8	34.1	0.4	0.9													
T2	R. FRANGULA	10.0	14.8															
T2	NANNYBERRY	0.8	1.1															
T2	HAWTHORNE	2.0	3.5	0.4	0.9	0.6	0.9	0.2	0.5	0.2	0.5							
T2	GRAPE	0.8	1.8															
T2	UNKNOWN	0.8	1.5															
T2	SAMBUCAS C			2.0	4.5													
T2	WHITE ASH	0.4	0.9	0.4	0.9	0.4	0.9			0.2	0.5							
T2	MALUS IOWENIENSIS					1.6	1.8											
T2	BUTTERNUT													0.2	0.5			
T3	HAZELNUT	22.0	32.7	3.2	7.2													
T3	EUROPEAN BUCKTHORN	84.8	76.6	2.0	2.5													
T3	BIG TOOTH ASPEN	2.0	4.5											0.6	1.3			
T3	SMOOTH SUMAC	9.6	21.5	0.4	0.9													
T3	NORTHERN RED OAK	3.2	5.2	1.6	3.6	0.6	1.3											
T3	BLACK CHERRY	2.8	5.2			0.6	1.3			0.2	0.5	0.4	0.9					
T3	SHAGBARK HICKORY	4.8	5.0	0.8	1.8													
T3	CHOKE CHERRY	33.2	22.5	0.4	0.9													
T3	UNKNOWN			2.8	2.7													
T3	HAWTHORNE	1.2	1.8	0.4	0.9													
T3	VIBERNUM DENTATUM	9.6	14.1															
T3	WHITE ASH	3.2	4.1															
T3	BITTERNUT HICKORY	1.6	2.2			0.2	0.5											
T3	HONEYSUCKLE	7.6	10.5															
T3	HILLS OAK	0.8	1.8															
T3	VIBERNUM PURNAFOLIUM	14.0	17.1													0.2	0.5	
T3	THORN BERRY	0.4	0.9															
T3	IRONWOOD	3.6	6.1															
T3	QUAKING ASPEN	0.8	1.8															
T3	GLOSSY BUCKTHORN	0.4	0.9															
T4	HAZEL	44.0	71.1	2.7	4.6													
T4	GODWOOD	38.0	39.4	2.7	4.6													
T4	BUCKTHORN	1.0	1.7															
T4	TOOTH VIBERNUM	140.7	159.6	7.3	6.4													
T4	SHAGBARK HICKORY	5.6	6.1															
T4	NANNY BERRY	28.7	27.0															
T4	R. FRANGULA	2.0	3.5															
T4	HONEYSUCKLE	29.3	30.3															
T4	GRAPE	0.7	1.1															
T4	CHOKECHERRY	24.0	15.1															
T4	QUAKING ASPEN	1.3	2.3															
T4	N. RED OAK	1.3	2.3															
T4	PIN OAK																	
T4	WHITE ASH					0.3	0.6									0.3	0.6	
T4	BLACK CHERRY									0.7	1.2							0

18-22 D A 22-26 D A 26-30 D

2 0.5 0.2 0.5

0.2 0.5

TABLE 13. Relative frequency, relative cover, and importance value of ground cover vegetation and fuel from 1m2 quadrats along transects at Somme Prairie and Savanna, Cook County, Illinois.

	t1			t2			t3			t4			total			
	RF	RC	IV	RF	RC	IV	RF	RC	IV	RF	RC	IV	RF	RC	IV	RIV
Acer negundo										0.6	0.5	1.2	0.6	0.5	1.2	0.16
Acer saccharinum							0.1	0.5	0.6	0.1	0.5	0.7	0.3	1.0	1.3	0.19
Achillea millefolium	0.5	0.8	1.3	0.1	0.5	0.7	0.4	0.7	1.1	0.1	0.5	0.7	1.3	2.6	3.9	0.55
Achillea sp.										0.5	0.5	1.0	0.5	0.5	1.0	0.14
Agrimonia sp.							0.2	0.5	0.8				0.2	0.5	0.8	0.11
Agropyron repens							0.9	0.6	1.5				0.9	0.6	1.5	0.21
Alliaria officinalis										1.1	1.1	2.3	1.1	1.1	2.3	0.32
Allium canadense				1.4	0.6	2.0	1.7	0.7	2.5	0.8	0.5	1.3	4.0	1.9	5.9	0.83
Allium cernuum	0.7	1.0	1.7	0.5	0.9	1.5	0.4	0.7	1.1	0.1	0.5	0.7	1.8	3.2	5.1	0.71
Allium sp.	1.2	0.9	2.2										1.2	0.9	2.2	0.31
Allium tricoccum	0.3	0.9	1.2	0.1	0.5	0.7							0.5	1.4	2.0	0.28
Ambrosia artemisiifolia	0.1	0.6	0.7	0.1	0.5	0.7	0.2	0.8	1.0	0.3	1.3	1.7	0.9	3.3	4.3	0.60
Ambrosia sp.							0.1	2.1	2.2				0.1	2.1	2.2	0.32
Amphicarpa bracteata										0.1	0.5	0.7	0.1	0.5	0.7	0.10
Andropogon gerardi	0.3	0.6	0.9				0.2	3.2	3.5				0.6	3.8	4.4	0.62
Anemone cylindrica				0.1	0.5	0.7							0.1	0.5	0.7	0.10
Anemone virginiana										0.6	0.5	1.2	0.6	0.5	1.2	0.16
Antennaria neglecta				0.1	0.5	0.7	0.1	0.5	0.6	0.5	0.7	1.2	0.8	1.8	2.6	0.37
Antennaria sp.										0.1	0.5	0.7	0.1	0.5	0.7	0.10
Apocynum androsaemifolium										0.1	1.0	1.2	0.1	1.0	1.2	0.17
Apocynum cannabinum							0.5	0.5	1.0				0.5	0.5	1.0	0.15
Apocynum sp.							0.4	0.5	0.9				0.4	0.5	0.9	0.13
Aquilegia canadensis	0.1	1.2	1.3										0.1	1.2	1.3	0.19
Arctium minus	0.3	0.6	0.9							0.1	0.5	0.7	0.5	1.1	1.6	0.23
Arctium sp.										0.1	0.5	0.7	0.1	0.5	0.7	0.10
Arisaema sp.				0.3	0.5	0.9							0.3	0.5	0.9	0.13
Arisaema triphyllum	1.8	0.8	2.6	0.8	0.5	1.4	0.2	0.5	0.8				3.0	1.9	4.9	0.69
Asclepias tuberosa										0.1	0.5	0.7	0.1	0.5	0.7	0.10
Asclepias verticillata				0.1	0.5	0.7							0.1	0.5	0.7	0.10
Aster ericoides				1.0	0.6	1.7	0.1	0.5	0.6	0.6	0.5	1.2	1.8	1.7	3.6	0.50
Aster novae-angliae	0.3	0.6	0.9	0.1	0.5	0.7	0.2	1.0	1.3	0.5	0.5	1.0	1.3	2.8	4.1	0.57
Aster puniceus	0.1	2.4	2.6	0.1	0.5	0.7	0.4	0.7	1.1				0.7	3.7	4.4	0.62
Aster sagittifolius	1.4	0.6	2.0	0.5	0.5	1.1	0.6	0.5	1.2	2.6	0.6	3.3	5.3	2.3	7.7	1.08
Aster simplex				0.8	0.5	1.4	0.2	0.5	0.8				1.1	1.1	2.2	0.31
Aster sp				0.3	0.5	0.9	0.5	0.9	1.4				0.9	1.5	2.4	0.33
Berberis japonica	0.1	0.6	0.7										0.1	0.6	0.7	0.11
Brachyletyrum erectum							0.1	0.5	0.6				0.1	0.5	0.6	0.09
Bromus inermis	0.5	0.8	1.3										0.5	0.8	1.3	0.18
Bromus kalmii				0.1	0.5	0.7							0.1	0.5	0.7	0.10
Calamagrostis canadensis										0.1	1.0	1.2	0.1	1.0	1.2	0.17
Carex jamesii				0.1	0.5	0.7							0.1	0.5	0.7	0.10
Carex lanuginosa				0.1	5.8	6.0	0.6	1.8	2.5				0.8	7.6	8.5	1.19
Carex laxiflora	1.2	0.6	1.9	1.9	0.6	2.5	2.0	0.7	2.8	3.5	0.5	4.0	8.8	2.6	11.	1.60
Carex pensylvanica				0.1	0.5	0.7	0.1	0.5	0.6				0.3	1.1	1.4	0.20
Carex rosea										0.1	0.5	0.7	0.1	0.5	0.7	0.10
Carex scoparia				0.7	0.5	1.2							0.7	0.5	1.2	0.18
Carex sp.	0.1	1.2	1.3	0.7	0.5	1.2	0.1	0.5	0.6				1.0	2.3	3.3	0.47
Carex vulpinoidea	0.3	0.6	0.9				0.6	0.9	1.6				1.0	1.5	2.6	0.36
Carya cordiformis				0.1	0.5	0.7							0.1	0.5	0.7	0.10

Carya ovata			0.1 2.1 2.2		0.1 2.1 2.2	0.32
Celastrus sp.		0.3 0.5 0.9			0.3 0.5 0.9	0.13
Cerastium sp.			0.1 0.5 0.6		0.1 0.5 0.6	0.09
Chenopodium album		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Chenopodium hybridum		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Chenopodium leptophyllum		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Chenopodium sp.		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Chrysanthemum leucanthemum	0.3 0.9 1.2				0.3 0.9 1.2	0.17
Chrysanthemum sp.		0.8 0.5 1.4	2.3 0.5 2.8	1.6 0.7 2.3	4.8 1.8 6.7	0.94
Circaea quadrisulcata			0.6 1.7 2.4		0.6 1.7 2.4	0.33
Circaea sp.	3.5 1.2 4.7	1.7 0.5 2.3		1 0.9 1.9	6.2 2.7 8.9	1.25
Cirsium arvense	0.9 0.7 1.6	1.7 0.5 2.3		1.1 0.6 1.7	3.8 1.9 5.8	0.81
Cirsium discolor	0.5 0.6 1.1	0.3 0.5 0.9	1.3 0.5 1.9	0.5 0.7 1.2	2.7 2.5 5.2	0.73
Cirsium vulgare	1.6 0.8 2.5	0.3 0.5 0.9	1.6 0.5 2.2	0.3 0.5 0.8	3.9 2.5 6.5	0.91
Convolvulus arvensis				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Convolvulus sepium	0.1 0.6 0.7	0.5 0.5 1.1	0.2 0.5 0.8	1 0.5 1.5	1.9 2.2 4.2	0.59
Cornus racemosa	4.0 1.5 5.6	3.0 0.6 3.7	5.3 1.1 6.4	4.3 0.9 5.2	16. 4.3 21.	2.94
Cornus sp.				0.3 1.0 1.4	0.3 1.0 1.4	0.20
Crataegus sp.	0.5 1.0 1.5	2.4 0.5 3.0	2.1 0.5 2.7	1.3 0.7 2.0	6.5 2.9 9.4	1.32
Cyperus strigosus			0.1 2.1 2.2		0.1 2.1 2.2	0.32
Dactylis glomerata			0.4 0.5 0.9		0.4 0.5 0.9	0.13
Dactylis sp.				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Daucus carota	1.1 0.9 2.0		2.1 0.6 2.8	1 0.8 1.8	4.2 2.3 6.6	0.93
Daucus sp.		1.0 0.5 1.6		0.5 0.5 1.0	1.5 1.1 2.7	0.37
Desmodium canadense		0.3 0.5 0.9		0.1 0.5 0.7	0.5 1.1 1.6	0.23
Dodecatheon media		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Eleocharis palustris	0.1 1.2 1.3				0.1 1.2 1.3	0.19
Eleocharis sp.		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Elymus canadensis				0.3 0.5 0.8	0.3 0.5 0.8	0.12
Epilobium sp.	0.3 0.9 1.2				0.3 0.9 1.2	0.17
Erigeron philadelphicus	0.5 0.6 1.1	0.1 0.5 0.7	0.6 0.6 1.3	0.1 0.5 0.7	1.5 2.3 3.9	0.55
Erigeron sp.		0.1 0.5 0.7		0.1 0.5 0.7	0.3 1.1 1.4	0.20
Erigeron strigosus				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Erigeron strigosus		0.1 0.5 0.7		0.8 0.6 1.4	1.0 1.2 2.2	0.31
Eryngium sp.		0.1 0.5 0.7		0.3 0.5 0.8	0.5 1.1 1.6	0.22
Eryngium yuccifolium				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Euphorbia corrolata			0.5 0.5 1.0	0.1 0.5 0.7	0.7 1.0 1.8	0.25
Festuca elatior	1.2 2.6 3.9	0.3 2.0 2.3	0.4 0.7 1.1		2.0 5.4 7.4	1.04
Fragaria sp.	3.1 0.8 3.9	3.2 0.6 3.8		2.5 0.6 3.1	8.8 2.1 11.	1.53
Fragaria virginiana		0.5 0.5 1.1	4.2 1.1 5.4	1.5 0.5 2.0	6.2 2.3 8.6	1.20
Fraxinus americana T1	0.1 1.2 1.3				0.1 1.2 1.3	0.19
Fraxinus americana	1.8 1.2 3.0		0.5 0.5 1.0	1.1 0.6 1.7	3.5 2.3 5.9	0.82
Fraxinus pennsylvanica		1.2 0.9 2.1			1.2 0.9 2.1	0.30
Fraxinus sp.	0.1 1.2 1.3			1.3 0.5 1.8	1.5 1.7 3.2	0.45
Galium aparine				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Galium obtusum				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Galium sp.	0.1 0.6 0.7			0.1 0.5 0.7	0.3 1.1 1.5	0.21
Gentiana flavida		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Gentiana sp.			0.5 0.5 1.0		0.5 0.5 1.0	0.15
Geranium maculatum	0.9 0.8 1.7	0.7 0.7 1.4	0.1 0.5 0.6		1.7 2.1 3.8	0.54
Geum canadense	5.5 0.7 6.2	3.0 0.5 3.6	3.4 0.5 4.0	1.1 0.5 1.7	13. 2.4 15.	2.18
Geum laciniatum	0.1 1.2 1.3	0.3 0.5 0.9	0.4 0.8 1.3		0.9 2.6 3.6	0.50
Geum sp.		1.4 0.5 2.0		2.5 0.5 3.0	3.9 1.1 5.0	0.71
Gramineae sp.		0.3 0.5 0.9			0.3 0.5 0.9	0.13
Heckelia sp.				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Helianthus divaricatus			0.4 2.1 2.5	0.1 0.5 0.7	0.5 2.7 3.2	0.45

Helianthus grosseserratus			1.3 0.8 2.1		1.3 0.8 2.1	0.30
Hieracium sp.	0.9 1.0 2.0	0.1 0.5 0.7	2.4 0.8 3.3	1.5 0.7 2.2	5.0 3.3 8.3	1.16
Hypericum perforatum	0.1 0.6 0.7	0.3 0.5 0.9	0.2 0.5 0.8		0.8 1.7 2.5	0.35
Hypericum punctatum		0.3 0.5 0.9		0.1 0.5 0.7	0.5 1.1 1.6	0.23
Impatiens capensis				0.5 0.5 1.0	0.5 0.5 1.0	0.14
Impatiens sp.	0.7 0.6 1.3	0.5 0.5 1.1		0.1 0.5 0.7	1.4 1.7 3.1	0.44
Juncus dudleyi	0.1 1.2 1.3	0.7 0.5 1.2		0.3 2.4 2.8	1.2 4.2 5.4	0.76
Lactuca sp.		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Lathyrus palustris		0.5 0.5 1.1			0.5 0.5 1.1	0.15
Lathyrus venosus				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Lespedeza capitata		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Liatris spicata	0.1 0.6 0.7	0.1 0.5 0.7		0.1 0.5 0.7	0.5 1.7 2.2	0.31
Lilium michiganense		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Lobelia spicata		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Lonicera sp.			0.2 1.0 1.3		0.2 1.0 1.3	0.18
Lonicera tataria	1.6 1.4 3.0	0.3 0.5 0.9	0.9 2.3 3.3	1.1 0.6 1.7	4.1 5.0 9.1	1.27
Lycopus americanus	0.1 0.6 0.7	0.1 0.5 0.7			0.3 1.1 1.5	0.21
Lycopus sp.	0.1 1.2 1.3	0.1 0.5 0.7			0.3 1.7 2.1	0.30
Melilotus alba		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Melilotus sp.			0.5 0.5 1.0		0.5 0.5 1.0	0.15
Monarda fistulosa	0.5 0.6 1.1	0.7 0.5 1.2	1.6 0.7 2.4	0.6 0.5 1.2	3.5 2.5 6.0	0.84
Monarda sp.		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Oenothera biennis	0.3 0.6 0.9	0.5 0.5 1.1	1.0 0.5 1.6	0.3 0.5 0.8	2.3 2.2 4.6	0.64
Osmorhiza sp.				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Oxalis sp.				0.6 0.5 1.2	0.6 0.5 1.2	0.16
Oxalis stricta	1.1 0.7 1.8	1.9 0.5 2.5	1.5 0.6 2.1	1.6 0.5 2.2	6.2 2.4 8.7	1.21
Panicum implicatum		0.5 0.5 1.1			0.5 0.5 1.1	0.15
Parthenium integrifolium		0.1 0.5 0.7		0.1 0.5 0.7	0.3 1.1 1.4	0.20
Parthenocissus inserta	1.6 1.0 2.6	0.3 0.5 0.9	0.1 1.0 1.2	1.5 0.5 2.0	3.6 3.2 6.8	0.96
Parthenocissus quinquefolia		0.5 0.5 1.1			0.5 0.5 1.1	0.15
Pastinaca sativa	0.3 0.6 0.9	0.5 0.7 1.3	0.4 0.7 1.1	0.5 0.7 1.2	1.8 2.8 4.6	0.64
Pastinaca sp.				0.3 0.5 0.8	0.3 0.5 0.8	0.12
Plantago rugelii			0.1 1.0 1.2		0.1 1.0 1.2	0.16
Poa compressa				0.8 0.5 1.3	0.8 0.5 1.3	0.19
Poa pratensis	2.5 1.4 4.0	2.6 0.8 3.5	2.5 1.2 3.8	1.1 0.8 2.0	9.0 4.4 13.	1.88
Podophyllum sp.				0.1 2.1 2.3	0.1 2.1 2.3	0.33
Polygonatum canaliculatum				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Polygonum sp.		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Populus alba	0.1 0.6 0.7				0.1 0.6 0.7	0.11
Populus deltoides			0.1 0.5 0.6		0.1 0.5 0.6	0.09
Populus tremuloides				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Potentilla recta		0.3 0.5 0.9			0.3 0.5 0.9	0.13
Potentilla simplex	1.6 0.8 2.5		2.4 0.8 3.3		4.1 1.7 5.8	0.81
Potentilla sp.		0.7 0.7 1.4		0.5 0.5 1.0	1.2 1.2 2.4	0.34
Prenanthes alba		0.8 0.5 1.4			0.8 0.5 1.4	0.20
Prenanthes racemosa		0.3 0.5 0.9		0.1 0.5 0.7	0.5 1.1 1.6	0.23
Prenanthes sp	0.1 0.6 0.7				0.1 0.6 0.7	0.11
Prunella sp.		0.3 0.5 0.9			0.3 0.5 0.9	0.13
Prunella vulgaris	1.6 0.8 2.5	0.3 0.5 0.9	1.3 0.5 1.9	0.3 0.5 0.8	3.7 2.5 6.3	0.88
Prunus serotina	3.8 1.0 4.9	1.7 0.7 2.4	0.9 1.7 2.7	0.1 0.5 0.7	6.7 4.0 10.	1.51
Prunus sp.	0.3 1.5 1.8			0.3 0.5 0.8	0.7 2.0 2.7	0.38
Prunus virginiana	0.7 1.5 2.2	2.3 0.6 2.9	0.5 0.9 1.4	1.8 0.8 2.6	5.4 3.9 9.4	1.31
Pycnanthemum virginianum	0.1 0.6 0.7	0.3 0.5 0.9			0.5 1.1 1.7	0.24
Pycnanthemum virginianum		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Quercus alba		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Quercus ellipsoidalis	0.3 0.6 0.9	0.3 0.5 0.9			0.7 1.1 1.9	0.26

Quercus macrocarpa	0.1 3.6 3.8			0.1 0.5 0.7	0.3 4.1 4.5	0.63
Ranunculus abortivus	0.1 0.6 0.7	0.1 0.5 0.7	0.1 0.5 0.6		0.4 1.7 2.2	0.31
Ranunculus circinatus	0.1 2.4 2.6				0.1 2.4 2.6	0.36
Ranunculus septentrionalis		0.3 0.5 0.9			0.3 0.5 0.9	0.13
Ranunculus sp.	0.1 0.6 0.7				0.1 0.6 0.7	0.11
Ratibida pinnata			0.4 0.5 0.9		0.4 0.5 0.9	0.13
Ratibida sp.	0.1 0.6 0.7	0.1 0.5 0.7		0.3 0.5 0.8	0.6 1.7 2.4	0.34
Red sub T2		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Rhamnus cathartica	7.5 1.7 9.2	6.7 0.9 7.7	3.0 1.1 4.1	4 1.0 5.0	21. 4.8 26.	3.66
Rhamnus frangula	0.1 0.6 0.7	1.2 0.6 1.9		0.3 1.3 1.7	1.7 2.6 4.4	0.61
Rhamnus frangula	0.1 0.6 0.7				0.1 0.6 0.7	0.11
Rhus glabra		0.5 0.5 1.1	0.2 0.5 0.8	0.6 0.5 1.2	1.4 1.6 3.1	0.43
Rhus radicans	0.9 0.6 1.5	0.3 0.5 0.9	0.5 0.5 1.0	0.8 0.5 1.3	2.6 2.2 4.9	0.68
Rosa blanda				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Rosa carolina	0.1 1.2 1.3		1.2 0.7 2.0	0.1 2.1 2.3	1.5 4.1 5.7	0.80
Rosa multiflora			0.2 0.5 0.8	0.6 0.5 1.2	0.9 1.0 2.0	0.28
Rosa palustris		0.7 0.5 1.2			0.7 0.5 1.2	0.18
Rosa setigera			0.5 0.8 1.3		0.5 0.8 1.3	0.18
Rosa sp.				0.6 1.3 2.0	0.6 1.3 2.0	0.28
Rubus occidentalis		0.1 0.5 0.7		0.1 0.5 0.7	0.3 1.1 1.4	0.20
Rubus sp.		0.3 0.5 0.9		1.3 0.5 1.8	1.6 1.1 2.8	0.39
Rubus strigosus	1.1 0.9 2.0	0.3 0.8 1.2	0.5 0.6 1.2		2.0 2.4 4.4	0.62
Rudbeckia hirta	0.1 0.6 0.7	0.5 0.5 1.1	1.2 0.6 1.8	0.3 0.5 0.8	2.2 2.3 4.6	0.65
Rudbeckia subtomentosa				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Rumex crispus			0.1 0.5 0.6		0.1 0.5 0.6	0.09
Salix sand T4				0.1 2.1 2.3	0.1 2.1 2.3	0.33
Sanicula gregaria		0.5 0.5 1.1	0.9 0.6 1.5	0.5 0.5 1.0	1.9 1.7 3.7	0.52
Sanicula vulgaria				0.3 0.5 0.8	0.3 0.5 0.8	0.12
Scirpus lineatus		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Senecio pauperculus	0.5 2.8 3.3	0.8 1.7 2.6	0.2 1.3 1.6	0.1 0.5 0.7	1.8 6.4 8.3	1.16
Seroplhyan ceasly T4				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Silphium integrifolium	0.1 0.6 0.7		0.1 0.5 0.6	0.1 0.5 0.7	0.4 1.6 2.1	0.30
Silphium terebinthinaceum	0.1 0.6 0.7			0.5 0.5 1.0	0.6 1.1 1.8	0.25
Sis albid T3			0.1 0.5 0.6		0.1 0.5 0.6	0.09
Sisymidaium albidum T4				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Sisymimchim albidum T2		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Sllium candensee T2		0.3 0.5 0.9			0.3 0.5 0.9	0.13
Smilacina racemosa	2.3 0.6 3.0	1.7 0.5 2.3	0.2 0.5 0.8	0.1 0.5 0.7	4.6 2.3 6.9	0.97
Smilacina sp.		0.3 0.5 0.9			0.3 0.5 0.9	0.13
Smilacina stellata		0.8 1.7 2.6		0.3 0.5 0.8	1.2 2.3 3.5	0.49
Smilax ecirrhata	0.3 0.6 0.9	0.5 0.5 1.1	0.1 0.5 0.6	1.3 0.6 1.9	2.3 2.3 4.7	0.65
Smilax lasioneura				0.6 0.5 1.2	0.6 0.5 1.2	0.16
Smilax sp.		0.1 0.5 0.7			0.1 0.5 0.7	0.10
Solanum dulcamara	0.7 0.9 1.6	1.7 0.5 2.3	0.2 0.5 0.8	0.3 0.5 0.8	3.1 2.5 5.7	0.79
Solidago altissima		2.1 1.3 3.5		1.8 0.9 2.8	3.9 2.3 6.3	0.88
Solidago ampher T3			0.4 1.4 1.8		0.4 1.4 1.8	0.25
Solidago ara T4				0.1 0.5 0.7	0.1 0.5 0.7	0.10
Solidago canadense	0.1 2.4 2.6		1.6 0.9 2.6	0.3 0.5 0.8	2.1 3.9 6.1	0.85
Solidago gigantea			0.9 1.3 2.2		0.9 1.3 2.2	0.31
Solidago graminifolia		0.1 0.5 0.7	2.4 0.8 3.3	0.3 1.0 1.4	2.9 2.5 5.4	0.76
Solidago juncea	0.7 0.6 1.3	0.5 2.3 2.8	2.3 1.3 3.6	2 0.7 2.7	5.5 5.0 10.	1.49
Solidago larc T4				0.5 1.0 1.5	0.5 1.0 1.5	0.22
Solidago rigida		1.0 1.5 2.6	1.0 1.2 2.3	1.5 1.4 2.9	3.6 4.3 7.9	1.11
Solidago sp.	0.1 0.6 0.7	0.1 0.5 0.7	0.1 0.5 0.6	0.3 1.0 1.4	0.8 2.8 3.6	0.51
Sonchus arvensis	0.1 0.6 0.7				0.1 0.6 0.7	0.11
Sonchus sp.			0.1 0.5 0.6		0.1 0.5 0.6	0.09

Spartina pectinata																		0.5	0.7	1.2	0.5	0.7	1.2	0.17
Stachys hispida		0.1	0.6	0.7							0.1	0.5	0.6								0.3	1.1	1.4	0.20
Stachys tenuifolia																		0.1	0.5	0.7	0.1	0.5	0.7	0.10
Taraxacum sp.		2.5	0.6	3.2	1.0	0.5	1.6				2.1	0.5	2.7	2.5	0.5	3.0	8.3	2.3	10.	1.48
Thalictrum revolutum														0.3	0.5	0.8	0.3	0.5	0.8	0.12
Tilia americana														0.5	0.5	1.0	0.5	0.5	1.0	0.14
Tilia sp.					0.3	0.5	0.9							0.1	0.5	0.7	0.5	1.1	1.6	0.23
Tradescantia canaliculata		0.1	2.4	2.6													0.1	2.4	2.6	0.36
Tradescantia ohiensis		0.1	0.6	0.7										0.1	1.0	1.2	0.3	1.7	2.0	0.28
Tradescantia sp.		0.1	0.6	0.7							0.2	0.8	1.0				0.4	1.4	1.8	0.26
Trifolium repens		0.3	0.6	0.9							1.3	0.5	1.9	0.6	0.5	1.2	2.4	1.7	4.1	0.58
Trifolium sp.														0.3	0.5	0.8	0.3	0.5	0.8	0.12
Trillium recurvatum		0.3	0.9	1.2	0.5	0.5	1.1										0.9	1.4	2.3	0.33
Trillium repens					0.1	0.5	0.7										0.1	0.5	0.7	0.10
Trillium sp.					0.1	0.5	0.7										0.1	0.5	0.7	0.10
Triosteum sp.											0.4	1.6	2.0				0.4	1.6	2.0	0.28
Ulmus americana		0.1	0.6	0.7	0.1	0.5	0.7				0.1	0.5	0.6	0.1	0.5	0.7	0.6	2.2	2.9	0.41
Ulmus seedling	T4													0.1	0.5	0.7	0.1	0.5	0.7	0.10
Ulmus sp.		0.5	0.6	1.1										0.6	0.5	1.2	1.2	1.1	2.3	0.33
Verbena sp.		0.1	0.6	0.7	0.5	0.7	1.3										0.7	1.3	2.1	0.29
Veronica sp.		0.1	0.6	0.7													0.1	0.6	0.7	0.11
Veronicastrum virginicum					0.3	0.5	0.9										0.3	0.5	0.9	0.13
Vicea anemoia	T2				0.1	0.5	0.7										0.1	0.5	0.7	0.10
Vicea purpr	T4													0.1	0.5	0.7	0.1	0.5	0.7	0.10
Vicia americana					0.1	0.5	0.7				0.2	0.5	0.8				0.4	1.1	1.5	0.22
Viola americana	T1	1.1	0.8	1.9													1.1	0.8	1.9	0.26
Viola papilionacea											0.9	0.6	1.6	0.1	0.5	0.7	1.1	1.2	2.3	0.33
Viola papilionacea					0.1	0.5	0.7				0.5	1.4	2.0	0.5	0.5	1.0	1.2	2.6	3.8	0.53
Viola sororia					0.1	0.5	0.7				0.2	0.5	0.8				0.4	1.1	1.5	0.22
Vitis riparia					0.3	0.5	0.9							0.3	0.5	0.8	0.6	1.1	1.8	0.25
Vitis sp.		1.2	1.2	2.5	0.1	0.5	0.7				0.9	0.7	1.7	0.5	0.5	1.0	2.9	3.1	6.1	0.85
Zizea aurea					0.1	0.5	0.7				0.9	0.6	1.5	0.1	0.5	0.7	1.3	1.7	3.0	0.42
bare	T4										4.9	3.0	7.9	1.3	3.6	4.9				
ditch	T2				0.1	1.7	1.9													
leaf		6.2	2.9	9.2	5.8	2.2	8.1				3.5	1.6	5.1	5.8	1.8	7.6				
path		4.0	2.4	6.5																
unk grass	T3	0.1	0.6	0.7							0.1	2.1	2.2							
water	T3										0.1	4.3	4.4							
wood		6.8	1.1	7.9	7.4	1.6	9.1				4.2	0.6	4.9	6.5	0.8	7.3				
																	344	371	715	100

TABLE 14. Mean density and standard deviation for numbers of live and dead trees by size class (inches) from transects at Somme Prairie and Savanna, Cook County, Illinois.

		0-2				2-6				6-10				10-14				14-18	
		A		D		A		D		A		D		A		D		A	
ST1	HONEY LOCUST					0.3	0.9												
ST1	SILVER POPLAR					0.1	0.3					0.1	0.3	0.2	0.6				
ST1	WHITE ASH	5.8	13.6	2.5	4.9					0.1	0.3								
ST1	BUCKTHORN	21.0	34.8	25.5	31.5	0.8	1.4	0.3	1.2										
ST1	HAWTHORN	12.3	36.7	5.5	10.6	2.5	3.3	0.5	1.0										
ST1	HILLS OAK					0.1	0.3												
ST1	HONEYSUCKLE	3.7	8.6	1.0	3.5														
ST1	DOGWOOD	12.5	21.0	22.3	30.9														
ST1	EUR HONEYSUCKLE	9.2	29.3	3.2	5.2														
ST1	BURR OAK					0.1	0.3												
ST1	GRAPE	0.2	0.6																
ST1	PIGNUT HICKORY					0.1	0.3											0.1	0.
ST1	CHOKE CHERRY	5.7	11.8	0.8	1.5														
ST1	PIN OAK					0.3	0.9			0.1	0.3								
ST1	BLACK CHERRY					0.3	0.8	0.33	0.88	0.17	0.58							0.08	0.2
ST1	SMOOTH SUMAC	1.3	3.5			0.3	0.8	0.2	0.6										
ST1	AMERICAN ELM	0.7	1.8																
ST1	IRONWOOD							0.4	1.0	0.3	0.6								
ST1	BASS WOOD	0.3	1.2			0.3	0.6			0.1	0.3								
ST1	SUGAR MAPLE					0.1													
ST1	BOXELDER	0.3	1.2																
ST1	HAIRY WHITE ASH	1.2	3.0	0.7	2.3														
ST1	BLACK LOCUST									0.1	0.3								
ST2	HONEY LOCUST					0.1	0.2			0.2	0.6								
ST2	WHITE POPLAR			0.2	0.6									0.1	0.3				
ST2	PIN OAK							0.1	0.3					0.2	0.4				
ST2	HACKBERRY					0.1	0.3												
ST2	GLOSSY BUCKTHORN	0.2	0.6	0.5	1.7	0.2	0.6												
ST2	WHITE ASH	5.3	8.7	0.5	1.2	0.3	0.7			0.1	0.3								
ST2	UNKNOWN			1.0	2.0			0.1	0.6										
ST2	RED OAK	0.8	1.8																
ST2	GREY DOGWOOD	16.8	30.4	9.0	14.2														
ST2	HAWTHORN	4.2	5.9	3.5	4.0	1.7	2.4	0.8	1.6			0.1	0.3						
ST2	TARTAR HONEYSUCKLE	3.3	6.8	6.7	13.4														
ST2	BUCKTHORN	15.2	22.1	23.7	43.7														
ST2	GRAPE	1.0	1.8	0.2	0.6														
ST2	BURR OAK					0.1	0.3			0.1	0.3								
ST2	DOGWOOD	0.7	2.3	3.5	9.0														
ST2	HAIRY WHITE ASH									0.1	0.3								
ST2	BLACK CHERRY			0.2	0.6	0.1	0.2												
ST2	AMERICAN ELM	0.8	1.6	0.3	1.2	0.3	0.7			0.3	0.5								
ST2	SHAGBARK HCKORY					0.1	0.3												
ST2	CHOCK CHERRY	0.8	2.3	4.6	9.5	0.1	0.4												
ST2	SUGAR MAPLE					0.3	0.6												
ST2	GREEN ASH			0.3	1.2														
ST2	VIBERNUM PRUN	0.5	1.7																
ST2	SUMAC	0.2	0.6	0.2	0.6														
ST2	BASSWOOD					0.1	0.3			0.1	0.3								
ST2	BLACK LOCUST									0.1	0.3			0.1	0.3				
ST2	WHITE OAK					0.1	0.6			0.3	0.6								
ST2	WILD RASPBERRY	0.5	1.7							0.3									
		0-2				2-6				6-10				10-14				14-18	
		A		D		A		D		A		D		A		D		A	
ST3	HAWTHORNE	4.3	5.5	8.5	8.7	0.8	1.4			0.1	0.3								
ST3	M. ROSE	1.3	4.6	2.8	9.8														
ST3	BUCKTHORN	7.6	13.6	12.0	23.3														
ST3	DOGWOOD	33.0	39.4	671.0	2151.0	0.4	1.4												
ST3	PIGNUT HICKORY					0.2	0.3												
ST3	BURR OAK	0.2	0.6			0.7	0.9			0.3	0.6			0.1	0.3				
ST3	WHITE ASH	0.2	0.6																
ST3	CHOKE CHERRY	1.3	3.1	1.3	3.6														
ST3	EUR HONEYSUCKLE	7.3	12.7	4.2	9.3														
ST3	GRAPE	0.2	0.6	0.2	0.6														
ST3	SHAGBARK HICKORY			0.2	0.6														
ST3	UNKWON PRIVIT	0.3	1.2	0.2	0.6														
ST3	SMOOTH SUMAC	0.3	1.2	1.0	2.9														
ST3	BLACK CHERRY	1.3	4.6	0.3	1.2									0.1	0.3				
ST3	EATERN RED CEDAR			0.2	0.6														
ST3	AMERICAN ELM	0.5	0.9	1.0	2.3	0.1	0.3												

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0.4 1.0

0.1 0.3

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ST3	BLACK BERRY																						
ST3	BASS WOOD	1.0	3.5			0.6	1.4			0.4	0.8			0.1	0.9								
ST3	WHITE OAK			0.2	0.6	0.3	0.9			0.1	0.3												
ST3	QUAKING ASPEN	0.2	0.6					0.2	0.6														
ST3	PIN OAK																						
ST3	NANNY BERRY	0.5	1.7																				

		0-2				2-6				6-10				10-14				14-18	
		A		D		A		D		A		D		A		D		A	
ST4	BOX ELDER	0.6	1.3			0.2	0.42												
ST4	WHITE ASH	4	5.16	0.6	1.9	0.8	1.4	0.5	0.71	0.6	1.1			0.4	0.52	0.1	0.32		
ST4	AMERICAN ELM					0.5	0.71			0.5	0.71	0.1	0.32	0.2	0.42				
ST4	SALIIX	8.6	27.2	0.2	0.63														
ST4	UNKNOWN			6.6	15.2			0.4	0.32										
ST4	DOGWOOD	49.2	58.9	12.4	28.4														
ST4	HAWTHORN	2.8	4.4	0.4	0.84	2.6	2.2												
ST4	BLACK LOCUST	0.9	1.4			0.9	1.4	0.8	1.3	0.8	1.6								
ST4	BASS WOOD	2	3.4	0.4	0.84	0.4	1.3	0.1	0.32	0.2	0.42								
ST4	WHITE OAK					0.1	0.32	0.1	0.32										
ST4	BUCKTHORN	0.6	0.97	0.2	0.63														
ST4	PAPER BIRCH					0.1	0.32												
ST4	SUGAR MAPLE					0.3	0.67												
ST4	BLACK CHERRY	0.6	1.3			0.2	0.63												
ST4	HONEYSUCKLE	7.4	13.3	0.2	0.63														
ST4	GRAPE	0.2	0.63																
ST4	SUMAC	0.6	0.97	0.2	0.63														
ST4	NORTHERN RED OAK					0.1	0.32			0.1	0.32				0.1	0.32			
ST4	BURR OAK	0.2	0.63																
ST4	CHOKE SHERRY	4.6	12.6																

		0-2				2-6				6-10				10-14				14-18	
		A		D		A		D		A		D		A		D		A	
STC4	BUCKTHORN	23.1	40.5	10.9	19.4	0.86	1.2												
STC4	WHITE ASH	2.3	4.4	0.86	1.1	0.57	0.79			0.43	0.79			0.14	0.38			0.29	0.4
STC4	BASS WOOD	5.1	8.2	1.4	2.2	4	2.5			0.14	0.38	0.14	0.38						
STC4	WALNUT	0.57	1.5	0.28	0.76	0.28	0.49			0.28	0.76			0.14	0.38				
STC4	HAWTHORN	1.4	2.5	4	8	0.57	0.79	0.14	0.78										
STC4	CHOKE CHERRY	29.7	39.5	6	7.4														
STC4	AMERICAN ELM	2	4.5																
STC4	DOGWOOD	4.3	7.5	0.28	0.76														
STC4	HONEYSUCKLE	1.1	2.3	0.28	0.76														
STC4	UNKNOWN							0.14	0.38										
STC4	BURR OAK					0.17	0.38												
STC4	BOX ELDER					0.14	0.38												

		0-2				2-6				6-10				10-14				14-18	
		A		D		A		D		A		D		A		D		A	
STC3	BUCKTHORN	88.4	80.1	179.2	384.1	101.8	222.6			0.2	0.45			0.2	0.45				
STC3	BASS WOOD	0.68	7.3			5.1	4.9	0.2	0.45	0.4	0.54								
STC3	BURR OAK					0.6	1.3												
STC3	HAWTHORNE	4.2	7.4	4.6	7.4	0.8	1.3	1	1.4										
STC3	WHITE ASH	9.8	9.9	1.6	1.7	0.4	0.54	0.4	0.89	0.2	0.45								
STC3	PIN OAK	0.4	0.89			0.4	0.54			0.4	0.54								
STC3	SHAGBARK									0.2	0.45			0.4	0.89				
STC3	HONEYSUCKLE BUSH	4.2	6	2	3.5														
STC3	EURASIAN HONEYSUCK	10.2	21.2	0.4	0.89														
STC3	AMERICAN ELM	3.2	7.1	9.2	14.8														
STC3	BUCKTHORN	39.2	69.3	10.2	17.8														
STC3	GREY DOGWOOD	21.8	29.1																
STC3	GRAPE	1.8	1.09																
STC3	POISON IVY	6	12.3																
STC3	SMOOTH SUMAC	0.6	1.3																

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0.14 0.38

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TABLE 15. Relative frequency, relative cover, and importance value of ground cover vegetation and fuel quadrats along transects at Middlefork Savanna, Lake County, Illinois.

	t1			t4			t6			t9			total			
	RF	RC	IV	RF	RC	IV	RF	RC	IV	RF	RC	IV	RF	RC	IV	RIV
Carex pensyvlanica	1.9	2.8	4.7	2.5	1.7	4.3	4.4	6.8	11.	4.7	1.7	6.4	13.	13.	26.	3.80
Andropogon gerardi	2.5	6.6	9.1	0.4	8.5	9.0	1.1	7.5	8.6				4.1	22.	26.	3.79
Cornus racemosa	3.8	1.4	5.2	2.5	1.5	4.1	2.2	3.1	5.3	3.4	2.3	5.8	12.	8.4	20.	2.91
Fragaria virginiana	0.6	0.7	1.4	3.4	1.1	4.6	4.4	1.8	6.3	5.1	2.0	7.2	13.	5.8	19.	2.77
Solidago juncea				1.7	0.8	2.5	3.3	5.0	8.3	4.7	2.1	6.8	9.8	7.9	17.	2.51
Rhamnus cathartica	1.9	0.7	2.7	1.2	1.1	2.4	4.4	2.8	7.2	3.0	1.7	4.8	10.	6.5	17.	2.43
Aster simplex	0.6	4.6	5.3				3.3	3.3	6.6	2.5	2.3	4.9	6.5	10.	16.	2.39
Poa pratensis	0.6	0.7	1.4	3.0	3.4	6.4	1.1	2.5	3.6	1.7	2.2	3.9	6.5	8.9	15.	2.18
Taraxacum sp.	4.5	0.7	5.2	3.4	0.8	4.3				3.8	1.2	5.1	11.	2.9	14.	2.09
Helianthus divaricatus	1.2	3.4	4.7	2.1	2.0	4.2	2.2	1.8	4.1				5.6	7.4	13.	1.85
Viola papilionacea	2.5	0.7	3.3	2.5	0.8	3.4	1.1	1.2	2.3	3.0	0.8	3.9	9.3	3.7	13.	1.85
Rosa carolina				3.0	0.9	4.0	3.3	1.2	4.5	3.4	1.0	4.4	9.8	3.2	13.	1.84
Potentilla simplex							6.6	2.2	8.9	1.2	1.1	2.4	7.9	3.4	11.	1.61
Veronicastrum virginicum	4.5	0.9	5.5	0.8	0.8	1.7				2.1	1.0	3.2	7.5	2.9	10.	1.48
Allium cernuum	4.5	0.8	5.4	0.8	3.8	4.7							5.3	4.7	10.	1.43
Comandra richardsiana	1.2	1.1	2.4	1.2	0.8	2.1	1.1	1.2	2.3	1.7	1.3	3.0	5.4	4.6	10.	1.42
Daucus carota	0.6	0.7	1.4	1.7	0.8	2.5	1.1	1.2	2.3	2.5	0.8	3.4	6.0	3.7	9.8	1.39
Dodecatheon media	1.2	0.7	2.0	0.8	0.8	1.7	2.2	1.2	3.4	0.4	1.7	2.2	4.8	4.6	9.4	1.34
Aster sagittifolius	2.5	0.7	3.3	1.2	0.8	2.1	1.1	1.2	2.3	0.4	0.8	1.3	5.4	3.7	9.2	1.30
Lonicera tatarica	0.6	4.6	5.3	0.4	3.4	3.8							1.0	8.0	9.1	1.29
Solidago altissmia				3.4	1.2	4.7				3.0	1.1	4.1	6.4	2.4	8.9	1.26
Smilax herbacea				1.2	0.8	2.1	1.1	1.2	2.3	3.4	0.8	4.3	5.8	3.0	8.8	1.25
Rubus occidentalis	0.6	3.1	3.7							2.1	2.8	5.0	2.8	5.9	8.7	1.24
Potentilla recta	1.2	1.9	3.2	4.3	0.8	5.1							5.6	2.8	8.4	1.19
Geranium maculatum	1.2	0.7	2.0	0.4	0.8	1.2	1.1	2.5	3.6	0.4	0.8	1.3	3.2	5.0	8.3	1.17
Tradescantia sp.							3.3	1.2	4.5	2.5	0.8	3.4	5.9	2.1	8.0	1.14
Carex sp.	1.9	0.7	2.7	3.0	2.2	5.2							4.9	2.9	7.9	1.12
Vicia americana	1.9	0.7	2.7	0.4	0.8	1.2	1.1	1.2	2.3	0.4	0.8	1.3	3.9	3.7	7.6	1.08
Taenidia sp.				0.4	0.8	1.2	2.2	1.8	4.1	0.8	1.3	2.2	3.5	4.0	7.6	1.07
Helianthus aprinactis T9										3.8	3.6	7.5	3.8	3.6	7.5	1.07
Thalictrum dasycarpum	0.6	1.5	2.1	0.8	0.8	1.7				1.2	2.0	3.3	2.8	4.5	7.3	1.03
Agropyron repens				3.4	1.3	4.8				1.2	0.8	2.1	4.7	2.2	7.0	0.99
Arenaria lateriflora				1.2	0.8	2.1	2.2	1.2	3.4	0.4	0.8	1.3	3.9	3.0	6.9	0.98
Smilax lasioneura	2.5	0.7	3.3	0.4	0.8	1.2				0.8	0.8	1.7	3.8	2.5	6.4	0.90
Tradescantia ohiensis	1.2	0.7	2.0	3.4	0.8	4.3							4.7	1.6	6.3	0.90
Viola sororia				0.4	0.8	1.2	2.2	1.2	3.4	0.4	0.8	1.3	3.0	3.0	6.0	0.86
Taraxacum officinale	0.6	0.7	1.4				3.3	1.2	4.5				3.9	2.0	6.0	0.84
Corylus americana	1.2	1.5	2.8							1.2	1.7	3.0	2.5	3.3	5.9	0.83
Prenanthes alba							2.2	1.8	4.1	0.8	0.8	1.7	3.0	2.7	5.8	0.82
Prunella vulgaris							2.2	1.8	4.1	0.8	0.8	1.7	3.0	2.7	5.8	0.82
Quercus rubra										0.4	5.3	5.8	0.4	5.3	5.8	0.82
Monardo sp.	1.2	0.7	2.0	0.4	0.8	1.2	1.1	1.2	2.3				2.8	2.8	5.7	0.80
Monardo fistulosa							1.1	1.2	2.3	1.7	1.5	3.2	2.8	2.8	5.6	0.80
Pycnanthemum virginianum	1.9	1.2	3.2							1.2	0.8	2.1	3.2	2.1	5.4	0.76
Smilacina racemosa				0.4	0.8	1.2	2.2	1.8	4.1				2.6	2.7	5.3	0.76
Carex lanuginosa										1.7	3.5	5.3	1.7	3.5	5.3	0.75
Ranunculus sp.				0.4	0.8	1.2	1.1	2.5	3.6				1.5	3.3	4.9	0.69
Senecio pauperculus	3.8	0.7	4.6										3.8	0.7	4.6	0.65
Helianthus grad T6							3.3	1.2	4.5				3.3	1.2	4.5	0.64
Carex vulpinoidea							1.1	1.2	2.3	1.2	0.8	2.1	2.4	2.1	4.5	0.64

Agrimonia gryposepala		1.2 0.7 2.0	1.2 0.8 2.1			2.5 1.6 4.2	0.59
Trillium recurvatum		1.2 0.7 2.0	0.4 1.7 2.1			1.7 2.4 4.2	0.59
Aster novae-angliae			0.8 0.8 1.7	1.1 1.2 2.3		1.9 2.1 4.0	0.57
Prunus virginiana					0.4 3.5 4.0	0.4 3.5 4.0	0.56
Elocharis sp.		1.2 2.7 4.0				1.2 2.7 4.0	0.56
Hypoxis hirsuta		1.9 0.7 2.7	0.4 0.8 1.2			2.3 1.6 4.0	0.56
Carex laxiflora		0.6 1.5 2.1			0.8 0.8 1.7	1.5 2.4 3.9	0.55
Corylus sp.			0.4 3.4 3.8			0.4 3.4 3.8	0.54
Quercus ellipsoisalis		0.6 0.7 1.4	1.2 1.1 2.4			1.9 1.9 3.8	0.54
Rosa blanda		0.6 0.7 1.4	1.2 1.1 2.4			1.9 1.9 3.8	0.54
Galium obtusum		0.6 0.7 1.4		1.1 1.2 2.3		1.7 2.0 3.7	0.53
Coreopsis tripteris		1.2 1.1 2.4	0.4 0.8 1.2			1.7 2.0 3.7	0.52
Aquilegia canadensis				1.1 1.2 2.3	0.4 0.8 1.3	1.5 2.1 3.6	0.52
Cerastium sp.				1.1 1.2 2.3	0.4 0.8 1.3	1.5 2.1 3.6	0.52
Geum canadense				1.1 1.2 2.3	0.4 0.8 1.3	1.5 2.1 3.6	0.52
Sium suave			0.4 0.8 1.2	1.1 1.2 2.3		1.5 2.1 3.6	0.51
Hystrix patula				1.1 2.5 3.6		1.1 2.5 3.6	0.51
Quercus velutina				1.1 2.5 3.6		1.1 2.5 3.6	0.51
Oxalis stricta		0.6 0.7 1.4			1.2 0.8 2.1	1.9 1.6 3.6	0.51
Erythronium albidum					0.8 2.6 3.5	0.8 2.6 3.5	0.50
Erigeron sp.				2.2 1.2 3.4		2.2 1.2 3.4	0.49
Solidago graminifolia				2.2 1.2 3.4		2.2 1.2 3.4	0.49
Solidago sp.		1.2 0.7 2.0			0.4 0.8 1.3	1.7 1.6 3.3	0.47
Silphium terebinthinaceum		1.2 0.7 2.0	0.4 0.8 1.2			1.7 1.6 3.3	0.47
Sanicula gregaria		0.6 0.7 1.4			0.8 0.8 1.7	1.5 1.6 3.1	0.44
Poa compressa		0.6 0.7 1.4	0.8 0.8 1.7			1.5 1.6 3.1	0.44
Achillea millefolium			0.4 0.8 1.2		0.8 0.8 1.7	1.2 1.7 3.0	0.43
Galium concinnum			0.8 2.1 3.0			0.8 2.1 3.0	0.42
Vitis sp.		0.6 0.7 1.4			0.4 0.8 1.3	1.0 1.6 2.7	0.38
Cirsium vulgare		0.6 0.7 1.4	0.4 0.8 1.2			1.0 1.6 2.7	0.38
Equisetum sp.		1.9 0.7 2.7				1.9 0.7 2.7	0.38
Circea sp.			0.4 0.8 1.2		0.4 0.8 1.3	0.8 1.7 2.6	0.37
Smilacina stellata			0.4 0.8 1.2		0.4 0.8 1.3	0.8 1.7 2.6	0.37
Solanum dulcamara			0.4 0.8 1.2		0.4 0.8 1.3	0.8 1.7 2.6	0.37
Rosa setigera					1.2 1.1 2.4	1.2 1.1 2.4	0.35
Carya ovata				1.1 1.2 2.3		1.1 1.2 2.3	0.33
Convolvulus sepium				1.1 1.2 2.3		1.1 1.2 2.3	0.33
Geum laciniatum				1.1 1.2 2.3		1.1 1.2 2.3	0.33
Herthcium floribunda	T6			1.1 1.2 2.3		1.1 1.2 2.3	0.33
Lysimachia ciliata				1.1 1.2 2.3		1.1 1.2 2.3	0.33
Cirsium muticum					0.4 1.7 2.2	0.4 1.7 2.2	0.31
Calamagrostis canadensis					0.8 1.3 2.2	0.8 1.3 2.2	0.31
Carex rosea					0.8 1.3 2.2	0.8 1.3 2.2	0.31
Cornus sp.		0.6 1.5 2.1				0.6 1.5 2.1	0.31
Dactylis sp.		1.2 0.7 2.0				1.2 0.7 2.0	0.29
Desmodium cuspidatum		1.2 0.7 2.0				1.2 0.7 2.0	0.29
Malus eur	T1	1.2 0.7 2.0				1.2 0.7 2.0	0.29
Zizea aurea		1.2 0.7 2.0				1.2 0.7 2.0	0.29
Aster dumosus			0.8 0.8 1.7			0.8 0.8 1.7	0.24
Aster pilosus			0.8 0.8 1.7			0.8 0.8 1.7	0.24
Circea quadrisulcata			0.8 0.8 1.7			0.8 0.8 1.7	0.24
Fraxinus pennsylvanica			0.8 0.8 1.7			0.8 0.8 1.7	0.24
Lactuca sp.			0.8 0.8 1.7			0.8 0.8 1.7	0.24
Luzula sp.			0.8 0.8 1.7			0.8 0.8 1.7	0.24
Plantago rugelii			0.8 0.8 1.7			0.8 0.8 1.7	0.24
Prunella sp.			0.8 0.8 1.7			0.8 0.8 1.7	0.24

Crateagus sp.		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Eur dock	T1	0.6 0.7 1.4				0.6 0.7 1.4	0.20
Impatiens capensis		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Panicum implicatum		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Podophyllum sp.		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Ratibida pinnata		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Rhamnus frangula		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Rhamnus sp.		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Rudbeckia hirta		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Solidago rigida		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Spartina pectinata		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Triosteum aurantiacum		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Vitis riparia		0.6 0.7 1.4				0.6 0.7 1.4	0.20
Agrimonia sp.					0.4 0.8 1.3	0.4 0.8 1.3	0.18
Anemone virginiana					0.4 0.8 1.3	0.4 0.8 1.3	0.18
Cuscuta sp.					0.4 0.8 1.3	0.4 0.8 1.3	0.18
Fraxinus americana					0.4 0.8 1.3	0.4 0.8 1.3	0.18
Hydrophyllum virginianum					0.4 0.8 1.3	0.4 0.8 1.3	0.18
Oenothera biennis					0.4 0.8 1.3	0.4 0.8 1.3	0.18
Panicum latifolium					0.4 0.8 1.3	0.4 0.8 1.3	0.18
Quercus borealis					0.4 0.8 1.3	0.4 0.8 1.3	0.18
Trifolium repens					0.4 0.8 1.3	0.4 0.8 1.3	0.18
Amphicarpa sp.			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Anemone sp.			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Asclepias syriaca			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Bidens frondosa			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Cirsium sp.			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Erigeron strigosus			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Heuchera richardsonii			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Hydrophyllum appendiculatum			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Hydrophyllum sp.			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Hypoxis sp.			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Onypalir vir	T4		0.4 0.8 1.2			0.4 0.8 1.2	0.18
Oxalis violacea			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Plantago major			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Quercus macrocarpa			0.4 0.8 1.2			0.4 0.8 1.2	0.18
Rubus strigosus			0.4 0.8 1.2			0.4 0.8 1.2	0.18
dirt		0.6 6.2 6.8	0.4 0.8 1.2		1.2 1.1 2.4		
bare soil		1.9 1.5 3.4					
leaf		6.4 7.1 13.	7.3 4.2 11.	4.4 7.5 11.	6.0 7.1 13.		
leaf		0.6 0.7 1.4	5.6 3.5 9.1				
wood		0.6 0.7 1.4	3.4 0.8 4.3	2.2 1.2 3.4	1.2 1.7 3.0		
		98. 96. 194	100 100 200	100 100 200	100 100 200	356 351 707	100

TABLE 16. Mean density and standard deviation for numbers of live and dead trees by size class (inches) from transects at Middlefork Savanna, Lake County, Illinois.

		0-2				2-6				6-10				10-14				14-18			
		A		D		A		D		A		D		A		D		A		D	
T9	DOGWOOD	28.0	18.3	17.3	17.0																
ST1	WHITE ASH	1.3	1.1																		
ST1	SHAGBARK HICKORY	6.0	10.4	4.6	8.1																
ST1	HONEYSUCKLE	2.7	4.6	2.7	4.6																
ST1	PIN OAK	5.3	5.0	0.7	1.1	0.7	1.1														
ST1	HAZELNUT	6.0	10.4	9.3	8.3																
ST1	WHITE OAK																				0.
ST1	BUCKTHORN	20.0	29.6	4.7	8.1																
T6	BUCKTHORN		0.0		0.0																
T6	DOGWOOD		0.0		0.0																
T6	WHITE ASH		0.0		0.0																
T6	PIN OAK		0.0		0.0		0.0			0.0											
T6	BURR OAK		0.0		0.0		0.0														
T6	SHAGBARK HICKORY		0.0		0.0																
T6	COTTONWOOD		0.0		0.0																

		0-2				2-6				6-10				10-14				14-18			
		A		D		A		D		A		D		A		D		A		D	
MF1	WHITE ASH	1.0	1.4	1.0	1.4																
MF1	EUROPEAN BUCKTHORN	3.0	1.4	1.0	1.4																
MF1	BURR OAK																				
MF1	DOGWOOD	31.0	43.8	65.0	91.9																
MF1	CHOKE CHERRY	2.0	2.8																		
MF1	HAWTHORN	1.0	1.4	1.0	1.4	1.5	2.1														
MF1	QUAKING ASPEN																				

		0-2				2-6				6-10				10-14				14-18			
		A		D		A		D		A		D		A		D		A		D	
MF2	DOGWOOD	36.7	27.1	36.3	26.3																
MF2	BURR OAK	22.3	23	20	23.6																
MF2	PIN OAK	13.3	15.3	5.3	7.6	0.67	0.58	0.67	1.2	1.3	1.5										
MF2	NORTHERN RED OAK	1.3	2.3																		
MF2	WHITE OAK																				
MF2	HAZEL NUT	3.3	5.8	13.7	23.7																
MF2	SHAGBARK HICKORY	0.67	1.2	1.3	2.3	0.33	0.58														
MF2	HONEYSUCKLE	4.7	6.4																		
MF2	EUROPEAN BUCKTHORN	0.67	1.2																		
MF2	GLOSSY BUCKTHORN	1.3	2.3																		
MF2	WHITE ASH	1.3	2.3																		

18-22 D A 22-26 D A 26-30 D

3 0.6

0.0

18-22 D A 22-26 D A 26-30 D

18-22 D A 22-26 D A 26-30 D

0.33 0.58

0.33 0.58

TABLE 11. RELATION BETWEEN WOODY CANOPY COVER, SPECIES RICHNESS, AND MEAN NATURAL QUALITY AT REED TURNER NATURE PRESERVE

	EAST WOODS	CENTER WOODS	YARD
CANOPY	CLOSED	CLOSED	OPEN
UNDERSTORY	CLOSED	MIXED	OPEN
RELATIVE IMPORTANCE VALUE			
WOODY PLANTS	33.75	16.00	17.75
LEAF LITTER	32.00	30.00	8.00
WOODY LITTER	10.75	11.25	5.50
SPECIES RICHNESS ( ) = MEAN NO. SPECIES/METER SQUARE			
TOTAL SPECIES	36 (6.65)	54 (6.41)	69 (14.25)
WOODY SPECIES	17 (2.5)	19 (1.07)	20 (2.625)
NON-WOODY SPECIES	19 (4.15)	35 (5.34)	49 (11.625)
NATURAL QUALITY INDEX (BURN/ NON-BURN)	7.0/7.4	6.8/8.0	9.4/12
NO. OF QUADRATS	26	68	16