Plant Inventory of Ward's Grove, a Dedicated Illinois Nature Preserve Jo Daviess County, Illinois

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Introduction

Ward's Grove Nature Preserve is a 335 acre dry to mesic woodland located in southeastern Jo Daviess County, Illinois. The woodland lies in the Freeport Section of the Rock River Hill Country Natural Division near the eastern edge of the Wisconsin Driftless region. Ward's Grove was dedicated as a nature preserve in May 1987 to serve primarily as habitat for area sensitive bird species including Acadian flycatchers, ovenbirds, American warblers, scarlet tanagers, and black and white warblers. (Mc Fall, 1991) Research on the vegetation of the woodland has been limited to a tree survey and description of the natural communities conducted by Randy Nyboer. (Nyboer, 1986) This report represents the first attempt to document the floristic composition of Ward's Grove.

Historical Background

Ward's grove is named after Bernard Ward, a pioneer who settled on the north side of the grove in 1836 and lived there until his death in 1885. At the time of Mr. Ward's death, the grandfather of Philip Keister owned part of the grove. Later the land was transferred to Philip Keister who, upon his death in 1978, willed the land to the Department of Conservation. (Nyboer, 1986)

Land use patterns typical of other woodlands in Jo Daviess County have probably occurred in Ward's Grove including grazing and logging. However, damage to the natural communities was probably reduced by the protection that the Keister family afforded the property. A portion of the woodland, approximately 10 acres was replanted by the Keister's using native, as well as, non-native trees. The principal non-native species being, Black Locust (*Robinia pseudoacacia*).

Study Area

Ward's Grove is located approximately one mile south and two miles east of Stockton, Illinois. The preserve totals 334.7 acres located in the SWQ Sec 17, Sec 20, and NEQ Sec 29, T2N, R5E 4pm in southeastern Jo Daviess County, Illinois. (Map 1)

The preserve is surrounded primarily by agricultural land including pasture and rowcrop farms. Residential development exists along the eastern and southern borders.

The woodland is situated on high ridge that extends from northwest to southeast. The ridge is composed primarily of Silurian aged dolomite with the elevation ranging from a maximum height of 1125 feet to 940 feet. (Nyboer, 1986)

Methodology

Approximately ten field days were spent collecting and identifying vascular plant specimens throughout the woodland. Plants found in bloom were collected, pressed, dried and frozen. The collected specimens were then deposited at the Chicago Botanic

Garden Herbarium. An asterisk (*) follows the scientific name of the species that were collected. (Appendix 1)

While various references were used for identification, nomenclature follows that of Swink and Wilhelm in Plants of the Chicago Region, 1994.

Results & Discussion

A total of 127 species representing 50 families of vascular plants were identified in Ward's Grove. (Appendix 1) Approximately 40 specimens were collected and deposited at the Chicago Botanic Garden Herbarium. (A majority of the shrub, tree, and cryptogam species were also previously identified by Nyboer, 1985.) Forty-seven species were native perennial forbs and 24 were native trees. The remaining species fell into various physiognomic categories. (Table 1)

Table 1. Physiognomic Categories of Plant Species in Ward's Grove.

Physiogonmy	No. of Species
Adventive Biennial Forb	2
l	3
Adventive Perennial Forb	1
Adventive Perennial Grass	1
Adventive Shrub	2
Adventive Tree	1
Adventive Woody Vine	1
Cryptogam	6
Native Annual Forb	6
Native Biennial Forb	1
Native Perennial Forb	47
Native Perennial Grass	6
Native Perennial Sedge	13
Native Shrub	9
Native Tree	24
Naitve Woody Vine	6
Total Species	127

Several plants of the genus *Prenanthes* were found in Ward's Grove, however, none were observed in bloom and therefore, species identification was not possible.

A tentative identification of a sedge specimen as *Carex laxiculmis* (Weak-Stemmed Wood Sedge) is included this inventory. *Carex laxiculmis* is listed as endangered in Illinois by Herkert (1991). The specimen is currently deposited at the Chicago Botanic Garden; it is to be verified by Gerould Wilhelm of the Morton Arboretum in the near future. After final verification an addendum will follow this report.

Of the 127 species, eight are considered adventive or not native to the region. The most notable of theses species is Garlic Mustard (*Alliaria petiolata*) which has spread throughout the woodland but seems to be more frequent and forms denser stands on the eastern half. The ability of Garlic Mustard to crowd out the native flora

has been well documented by several authors. (Nuzzo, 1993; Schwegman, 1989) It is possible that some of the more conservative woodland species have already been extirpated from the woodland due to their inability to compete with garlic mustard. Wild Geranium (Geranium maculatum) and Annual Bedstraw (Galium aparine) were the predominate species observed growing within the garlic mustard stands although they tended to exist in a reduced form.

The presence of Black Locust (*Robinia pseudoacacia*), in the woodland which Nyboer (1985) described as occurring occasional and restricted to a successional plantation area, is the result of intentional plantings by the Keister family. Black Locust would probably now be considered common in several parts of the woodland.

The majority of native species found would be classified as occurring in mesic to moist woodlands. However, fourteen species found in Ward's Grove are restricted wetland plants. (Table 2) These occur in a small, approximately 2 acre, wetland on the eastern edge of the property, just south of the parking area. The wetland originates from a broad seep area on its northwestern side and eventually coalesces into a small stream on its southeastern side that empties to the ditch of South Willow Road.

Table 2: Obligate Wetland Species Occuring in Ward's Grove.

Scientific Name	Common Name
Asclepias incarnata	SWAMP MILKWEED
Calamagrostis canadensis	BLUE JOINT GRASS
Caltha palustris	MARSH MARIGOLD
Carex aquatilis altior	LONG-BRACTED TUSSOCK SEDGE
Carex pellita	BROAD-LEAVED WOOLLY SEDGE
Carex stricta	COMMON TUSSOCK SEDGE
Helenium autumnale	SNEEZEWEED
Leersia oryzoides	RICE CUT GRASS
Lycopus americanus	COMMON WATER HOREHOUND
Mimulus ringens	MONKEY FLOWER
Polygonum hydropiperoides	MILD WATER PEPPER
Scirpus atrovirens	DARK GREEN RUSH
Scirpus cyperinus	WOOL GRASS
Scirpus validus creber	GREAT BULRUSH

While most of the property is mesic woodland or forest, certain areas would probably be considered savanna or open oak woodland. This is due, in part, to the presence of large oak trees with wide spreading branches that matured in the absence of competing trees. The occurrence of savanna indicator species (Pruka, 1995; Packard, 1985) also suggests a past savanna influence. (Table 3) Strong savanna indicator species that were found in Ward's Grove include: Carex pensylvanica, Desmodium cuspidatum longifolium, Camassia scilloides, Anemone virginiana, and Ranunculus fascicularis.

Table 3: Savanna Indicator Species Present in Ward's Grove.

Scientific Name	Common Name
Strong Savanna Indicator Species	
Anemone virginiana	TALL ANEMONE
Camassia scilloides	WILD HYACINTH
Carex pensylvanica	COMMON OAK SEDGE
Desmodium cuspidatum longifolium	HAIRY BRACTED TICK TREFOIL
Ranunculus fascicularis	EARLY BUTTERCUP
Moderate to Weak Savanna Indicator Species	
Actaea pachypoda	WHITE BANEBERRY
Agrimonia pubescens	SOFT AGRIMONY
Aquilegia canadensis	WILD COLUMBINE
Carex hirtifolia	HAIRY WOOD SEDGE
Desmodium glutinosum	POINTED TICK TREFOIL
Eupatorium purpureum	PURPLE JOE PYE WEED
Pycnanthemum virginianum	COMMON MOUNTAIN MINT
Smilacina stellata	STARRY FALSE SOLOMON'S SEAL
Solidago nemoralis	OLD-FIELD GOLDENROD

Several large patches of the woodland were observed to contain sparse to no understory vegetation. These areas coincided with dense stands of Sugar Maples (Acer saccharum) and Basswood (Tilia americana) which form a dense shade that reduces sunlight to the forest floor. The majority of these Sugar Maple and Basswood trees exist in the intermediate canopy range. While there are a few larger and older maples and basswoods, most are probably less than 50 years old. Prior to settlement, most of the woodlands in our region were probably savannas or open oak woodlands which allowed adequate sunlight to reach their associated understory vegetation. The lack of vegetation in these shaded areas may indicate that the native vegetation has diminished due to the increased presense of shade producing trees. Fire was an important part of the ecology of most of our natural communities prior to European settlement of the region. (Curtis, 1959; Nuzzo, 1986; Wilhelm, 1991) Fire generally kills maples, especially during the early stages of their development. The suppression of natural and anthropogenic fires since the time of settlement has undoubtedly contributed to the increase of Sugar Maples and Basswoods in our region (Lorig, 1994), and in Ward's Grove.

Conclusions & Recommendations

The primary recommendation for future management in Ward's Grove is to reintroduce fire to the woodland's ecology. Fire would serve to reduce fire-intolerant maple and basswood seedlings and saplings. The established maples and basswoods would probably not succumb to prescribed burning due to the low-heat output of

woodland fires. In this case, mechanically removing these species would be necessary to benefit the understory vegetation.

Another benefit of prescribed burning is that it is effective in controlling Garlic Mustard. However, this species is so pervasive that fire alone will not eradicate it. Physically removing the plants, herbiciding, and prescribed burning will reduce the populations of garlic mustard. Unfortunately, the mono-cultures that are present in Ward's Grove are so large that it is probably impossible to eliminate it from the woodland. Reintroducing fire will at least help control the spread of garlic mustard before it consumes all of the native flora.

Ward's Grove, like all natural communities, was not a static system. Natural communities have always been in a state of flux due to changes in factors such as climate and frequency of fire. But these were very slow changes, occurring over several thousands of years. Our landscape and natural communities have changed drastically in the past 150 years. Instead of prairies, woodlands, and wetlands across northwestern Illinois, we now have farms and urban developments. Ward's Grove is also experiencing rapid changes. While it is possible that we overlooked the Yellow Ladyslipper, the Showy Orchis, and the Turk's Cap Lily that Nyboer reported as being present in 1986, these species were not observed during any of our visits in 1995.

Acknowledgments

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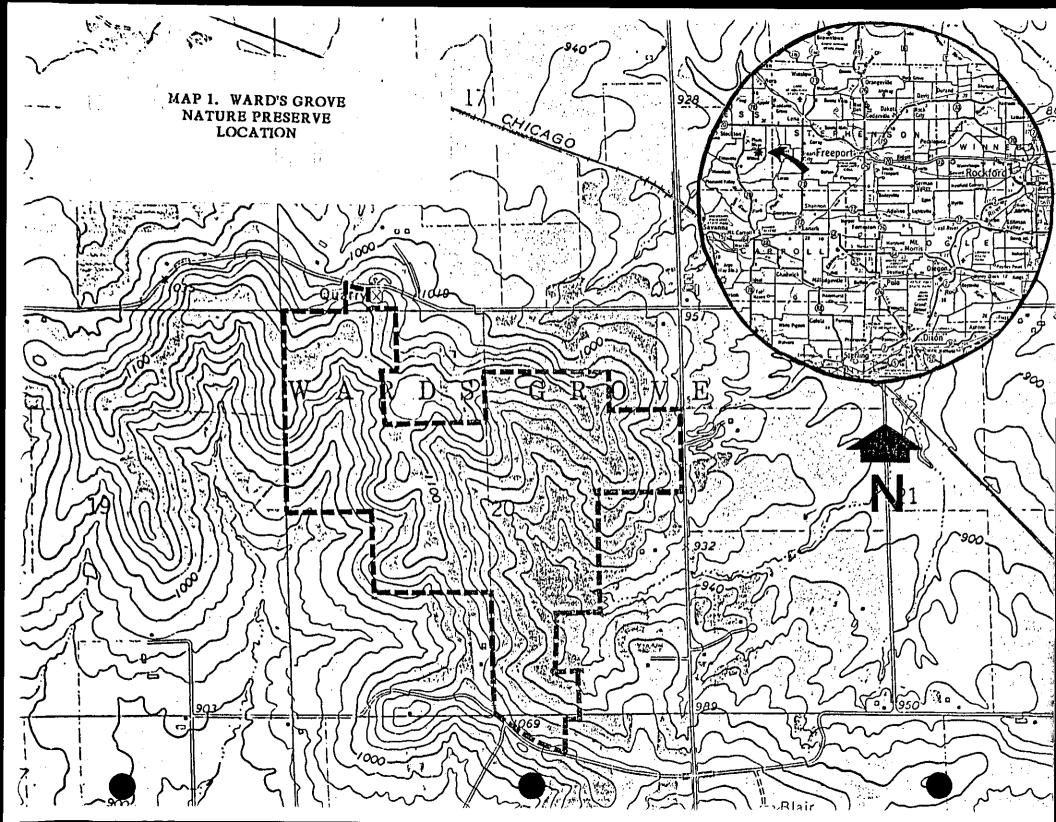
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List of Plants Found in Ward's Grove Nature Preserve -1995-

Key to Abbreviations:

A = Annual	H = Herbaceous	P = Perennial
Ad = Adventive	Nt = Native	W = Woody
B -= Biennial	* = Specimen collected	Adventives in CAPS

FAMILY	SCIENTIFIC NAME	COMMON NAME	PHYSIOGNOMY
ACERACE.	AE		
	Acer negundo	BOX ELDER	Nt TREE
	Acer saccharinum	SILVER MAPLE	Nt TREE
	Acer saccharum	SUGAR MAPLE	Nt TREE
ANACARD	IACEAE		
	Rhus glabra	SMOOTH SUMAC	Nt SHRUB
	Rhus radicans	POISON IVY	Nt W-VINE
APIACEAE			
	Osmorhiza longistylis*	SMOOTH SWEET CICELY	Nt P-FORB
ARACEAE	•		
	Arisaema triphyllum	JACK-IN-THE-PULPIT	Nt P-FORB
ASCLEPIAI	DACEAE		
	Asclepias incarnata	SWAMP MILKWEED	Nt P-FORB
	Asclepias syriaca	COMMON MILKWEED	Nt P-FORB
ASTERACE	EAE		
	Ambrosia artemisiifolia elatior	COMMON RAGWEED	Nt A-FORB
	Ambrosia trifida	GIANT RAGWEED	Nt A-FORB
	CIRSIUM ARVENSE	FIELD THISTLE	Ad P-FORB
	Cirsium discolor*	PASTURE THISTLE	Nt B-FORB
	CIRSIUM VULGARE	BULL THISTLE	Ad B-FORB
	Eupatorium perfoliatum	COMMON BONESET	Nt P-FORB
	Eupatorium purpureum	PURPLE JOE PYE WEED	Nt P-FORB
	Eupatorium rugosum	WHITE SNAKEROOT	Nt P-FORB
	Helenium autumnale	SNEEZEWEED	Nt P-FORB
	Helianthus strumosus	PALE-LEAVED SUNFLOWER	Nt P-FORB
	Prenanthes sp. (1)	WHITE LETTUCE	Nt P-FORB
	Solidago altissima	TALL GOLDENROD	Nt P-FORB
	Solidago nemoralis*	OLD-FIELD GOLDENROD	Nt P-FORB
BALSAMIN	 		
	Impatiens capensis	ORANGE JEWELWEED	Nt A-FORB

BERBERID	ACEAE		
	BERBERIS THUNBERGII	JAPANESE BARBERRY	Ad SHRUB
	Caulophyllum thalictroides	BLUE COHOSH	Nt P-FORB
	Podophyllum peltatum	MAY APPLE	Nt P-FORB
BETULACE			IN T-FORD
	Betula papyrifera	PAPER BIRCH	Nt TREE
	Ostrya virginiana	HOP HORNBEAM	Nt TREE
			111111111111111111111111111111111111111
BIGNOIACE	BAE		
	CAMPSIS RADICANS	TRUMPET CREEPER	Ad W-VINE
BRASSICA	CEAE		
	ALLIARIA PETIOLATA	GARLIC MUSTARD	Ad B-FORB
	Cardamine bulbosa*	BULBOUS CRESS	Nt P-FORB
1	Dentaria laciniata*	TOOTHWORT	Nt P-FORB
	Donatia monnata	IOOIIIWOKI	NI P-FORB
CAMPANUI	LACEAE		
	Campanula americana	TALL BELLFLOWER	Nt A-FORB
CAPRIFOLI	ACEAE		
	Lonicera prolifera	YELLOW HONEYSUCKLE	Nt W-VINE
İ		12220 W HOWE TO COME	14t 44-4 H4D
CELASTRA	CEAE		
	Euonymus atropurpureus	WAHOO	Nt SHRUB
	Celastrus scandens	CLIMBING BITTERSWEET	Nt W-VINE
CORNACEA	T.		
CORNACEA	Cornus alternifolia	PACODA DOCINOOD	M. Conne
	Cornus anermitolia	PAGODA DOGWOOD	Nt TREE
CYPERACE	AE		
	Carex alopecoidea*	BROWN-HEADED FOX SEDGE	Nt P-SEDGE
	Carex aquatilis altior*	LONG-BRACTED TUSSOCK SEDGE	Nt P-SEDGE
	Carex blanda*	COMMON WOOD SEDGE	Nt P-SEDGE
	Carex hirtifolia*	HAIRY WOOD SEDGE	Nt P-SEDGE
	Carex laxiculmis *(2)	WEAK-STEMMED WOOD SEDGE	Nt P-SEDGE
	Carex pellita*	BROAD-LEAVED WOOLLY SEDGE	Nt P-SEDGE
	Carex pensylvanica	COMMON OAK SEDGE	Nt P-SEDGE
	Carex rosea*	CURLY-STYLED WOOD SEDGE	Nt P-SEDGE
	Carex sparganioides*	LOOSE-HEADED BRACTED SEDGE	Nt P-SEDGE
1	Carex stricta	COMMON TUSSOCK SEDGE	Nt P-SEDGE
	Scirpus atrovirens*	DARK GREEN RUSH	Nt P-SEDGE
	Scirpus cyperinus	WOOL GRASS	Nt P-SEDGE
	Scirpus validus creber*	GREAT BULRUSH	Nt P-SEDGE
EAD ACC. 5			
FABACEAE	ROBINIA PSEUDOACACIA	BLACK LOCUST	A A TIDEE
1	Desmodium cuspidatum longifolium*	HAIRY BRACTED TICK TREFOIL	Ad TREE
	Desmodium glutinosum*	POINTED TICK TREFOIL	Nt P-FORB
ł	Gleditsia triacanthos	HONEY LOCUST	Nt P-FORB Nt TREE
	Oronom macammos	TIOTAL LOCUST	MINEE

FAGACEAE			
	Quercus alba	WHITE OAK	Nt TREE
	Quercus imbricaria	SHINGLE OAK	Nt TREE
	Quercus macrocarpa	BUR OAK	Nt TREE
1	Quercus rubra	RED OAK	Nt TREE
1	Quercus velutina	BLACK OAK	Nt TREE
FUMARIAC			
	Dicentra cucullaria*	DUTCHMAN'S BREECHES	Nt P-FORB
GERANIAC	FAR		
	Geranium maculatum*	WILD GERANIUM	Nt P-FORB
	Octamum maculatum	WILD GERANION	NI P-PORB
HYDROPHY	'LLACEAE		
	Hydrophyllum virginianum*	VIRGINIA WATERLEAF	Nt P-FORB
	•		
HYPERICA	CEAE		
	Hypericum punctatum	SPOTTED ST. JOHN'S WORT	Nt P-FORB
1.			
JUGLANDA			
	Carya cordiformis	BITTERNUT HICKORY	Nt TREE
	Carya ovata	SHAGBARK HICKORY	Nt TREE
	Juglans nigra	BLACK WALNUT	Nt TREE
JUNCACEA	n.		
JUNCACEA		DIDI EVIC DITOTI	M. B. EODB
	Juncus dudleyi*	DUDLEY'S RUSH	Nt P-FORB
LAMIACEAL	F.		
	Lycopus americanus	COMMON WATER HOREHOUND	Nt P-FORB
1	Pycnanthemum virginianum*	COMMON MOUNTAIN MINT	Nt P-FORB
	2 your and the summer	COMMON MOON TAIN WINT	M I -I OKD
LILIACEAE			
	Allium canadense*	WILD ONION	Nt P-FORB
	Camassia scilloides*	WILD HYACINTH	Nt P-FORB
1	Erythronium albidum*	WHITE TROUT LILY	Nt P-FORB
	Smilacina racemosa	FEATHERY FALSE SOLOMON'S SEAL	Nt P-FORB
	Smilacina stellata*	STARRY FALSE SOLOMON'S SEAL	Nt P-FORB
<u> </u>			
OLEACEAE			
1	Fraxinus americana	WHITE ASH	Nt TREE
	Fraxinus pennsylvanica subintegerrima	GREEN ASH	Nt TREE
	- -		
ONAGRACEAE			
	Circaea lutetiana canadensis	ENCHANTER'S NIGHTSHADE	Nt P-FORB
IODUIOCI OS	SACEAE		
Orniodlos	Botrychium virginianum	RATTLESNAKE FERN	

OXALIDAC	EAE.		
	Oxalis europaea	TALL WOOD SORREL	Nt P-FORB
PAPAVERA	CEAE		
	Sanguinaria canadensis*	BLOODROOT	Nt P-FORB
PHRYMACI	EAE		
	Phryma leptostachya*	LOPSEED	Nt P-FORB
PINACEAE			
	Juniperus virginiana crebra	RED CEDAR	Nt TREE
POACEAE			
	AGROSTIS ALBA	REDTOP	Ad P-GRASS
i	Brachyelytrum erectum*	LONG-AWNED WOOD GRASS	Nt P-GRASS
	Calamagrostis canadensis*	BLUE JOINT GRASS	Nt P-GRASS
ļ	Cinna arundinacea	COMMON WOOD REED	Nt P-GRASS
]	Elymus riparius*	RIVERBANK WILD RYE	Nt P-GRASS
	Festuca obtusa*	NODDING FESCUE	Nt P-GRASS
	Leersia oryzoides	RICE CUT GRASS	Nt P-GRASS
POLYGONA	CEAE		
	Polygonum hydropiperoides	MILD WATER PEPPER	Nt P-FORB
POLYPODIA	ACEAE		
	Adiantum pedatum*	MAIDENHAIR FERN	CRYPTOGAM
	Cystopteris bulbifera	BULBLET FERN	CRYPTOGAM
]	Cystopteris fragilis protrusa	FRAGILE FERN	CRYPTOGAM
1	Dryopteris marginalis	MARGINAL SHIELD FERN	CRYPTOGAM
	Onoclea sensibilis	SENSITIVE FERN	CRYPTOGAM
PORTULAC	EAE		
	Claytonia virginica*	SPRING BEAUTY	Nt P-FORB
RANUNCUL	ACEAE		
	Actaea pachypoda	WHITE BANEBERRY	Nt P-FORB
	Anemone virginiana*	TALL ANEMONE	Nt P-FORB
	Aquilegia canadensis	WILD COLUMBINE	Nt P-FORB
	Caltha palustris*	MARSH MARIGOLD	Nt P-FORB
	Ranunculus abortivus	SMALL-FLOWERED BUTTERCUP	Nt A-FORB
	Ranunculus fascicularis*	EARLY BUTTERCUP	Nt P-FORB
ROSACEAE			
	ROSA MULTIFLORA	MULTIFLORA ROSE	Ad SHRUB
	Agrimonia pubescens	SOFT AGRIMONY	Nt P-FORB
	Geum canadense*	WOOD AVENS	Nt P-FORB
	Prunus virginiana	CHOKE CHERRY	Nt SHRUB

Inocyce	E ()		
ROSACEA	The state of the s	COMMON DI ACUPERDA	, , , , , , , , , , , , , , , , , , ,
}	Rubus allegheniensis Rubus occidentalis	COMMON BLACKBERRY	Nt SHRUB
	Amelanchier arborea	BLACK RASPBERRY	Nt SHRUB
	Prunus serotina	SERVICEBERRY WILD BLACK CHERRY	Nt TREE
	r runus serouma	WILD BLACK CHERRY	Nt TREE
RUBIACEA	A		
E	Galium aparine*	ANNUAL BEDSTRAW	Nt A-FORB
RUTACEA	E		
	Ptelea trifoliata mollis	DOWNY WAFER ASH	Nt SHRUB
	Xanthoxylum americanum	PRICKLY ASH	Nt SHRUB
SALICACE	AE		
	Populus deltoides	EASTERN COTTONWOOD	Nt TREE
SAXIFRAC	SACEAE		
	Ribes americanum	WILD BLACK CURRANT	Nt SHRUB
	Ribes cynosbati	PRICKLY WILD GOOSEBERRY	Nt SHRUB
	•		THE GIRLOD
SCROPHUI	LARIACEAE		
	Mimulus ringens	MONKEY FLOWER	Nt P-FORB
	VERBASCUM THAPSUS	COMMON MULLEIN	Ad B-FORB
TILIACEAE	3		
	Tilia americana	AMERICAN LINDEN	Nt TREE
TYPHACEA	Λ Ε	•	
	Typha latifolia	BROAD-LEAVED CATTAIL	Nt P-FORB
ULMACEA	E		
	Celtis occidentalis	HACKBERRY	Nt TREE
	Ulmus rubra	SLIPPERY ELM	Nt TREE
URTICACE	AE		
	Boehmeria cylindrica	FALSE NETTLE	Nt P-FORB
VIOLACEA	E		
	Viola pubescens*	YELLOW VIOLET	Nt P-FORB
	Viola sororia*	COMMON BLUE VIOLET	Nt P-FORB
VITACEAE	•		
	Parthenocissus quinquefolia	VIRGINIA CREEPER	Nt W-VINE
	Vitis aestivalis	SUMMER GRAPE	Nt W-VINE
	Vitis vulpina	FROST GRAPE	Nt W-VINE
(1) Unable to identify to species due to	lack of flowering specimen	
) Tentative identification.	rack of nowering specimen.	
	,		