

THE FLORA AND VEGETATION
OF
ABRAHAM LINCOLN BIRTHPLACE
NATIONAL HISTORIC SITE
1993

Kentucky State Nature Preserves Commission

by

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
LIST OF FIGURES	iii
ABSTRACT	1
INTRODUCTION	2
DESCRIPTION OF STUDY AREA	2
LOCATION AND SIZE	2
PHYSIOGRAPHY, TOPOGRAPHY, AND GEOLOGY	4
SOILS	4
CLIMATE	4
REGIONAL VEGETATION PATTERNS	4
METHODS	5
RESULTS	5
VEGETATIVE COMMUNITY ANALYSIS	5
LANDSCAPED GROUNDS	6
OLD FIELD	6
CEDAR FOREST	6
AMERICAN ASH/SUGAR MAPLE FOREST	7
OAK FOREST	7
FLORISTIC ANALYSIS	9
MANAGEMENT IMPLICATIONS	24
LITERATURE CITED	25

LIST OF FIGURES

1. Abraham Lincoln Birthplace National Historic Site,
Larue County, Kentucky. 3
2. Vegetative communities of Abraham Lincoln
Birthplace National Historic Site. 1. landscaped
grounds, 2. old field, 3. cedar forest, 4. American
ash/sugar maple forest, and 5. oak forest. 8

ABSTRACT

A one-year floristic inventory and vegetative community analysis was conducted of Abraham Lincoln Birthplace National Historic Site. Two hundred and six vascular plants were documented from the site. Vegetation was divided into five distinct communities, including 1. landscaped grounds, 2. old field, 3. cedar forest, 4. American ash/sugar maple forest, and 5. oak forest. Both hardwood forests contained significant components of old-growth conditions. No rare plants were encountered.

INTRODUCTION

The importance of the National Park System to maintaining biological diversity throughout the United States is well-known. All too often, the resources needed to thoroughly document the flora and fauna of our National Parks and Historic Sites have been minimal while human pressures on these areas grow yearly. Abraham Lincoln Birthplace National Historic Site memorializes one of our nation's greatest leaders. This site, while it was developed to protect the birthplace of this great leader, also harbors biological resources that needed to be better understood. The documentation of all life forms and their respective habitats on public lands is essential for managing agencies if they are to make informed planning decisions. This information is essential for accommodating increases in visitation while minimizing impacts on natural resources.

This project was initiated to assist the management and staff of the Abraham Lincoln Birthplace National Historic Site by providing an inventory of the vascular plants and plant communities of the site. This information will provide data to assist in better managing the entire spectrum of biological diversity found within its boundaries.

This report presents the results of a one year study of the vegetation and flora of the Abraham Lincoln Birthplace National Historic Site. Specific goals were to document the vascular plants and to delineate and map the vegetative communities occurring on this historically significant site.

A cooperative agreement (No. CA-5530-2-9003) between the National Park Service, United States Department of the Interior and the Commonwealth of Kentucky was entered into on the 8th of September, 1992. Specifically, the agreement was made by and between Mammoth Cave National Park on behalf of the Abraham Lincoln Birthplace National Historic Site and the Commonwealth of Kentucky on behalf of the Kentucky State Nature Preserves Commission.

DESCRIPTION OF THE STUDY AREA

LOCATION AND SIZE

Abraham Lincoln Birthplace National Historic Site encompasses approximately 116 acres in the central portion of Larue County. Specifically, it lies along U. S. Highway 31E and KY state route 61 approximately 3 miles south of Hodgenville, Kentucky (Figure 1).

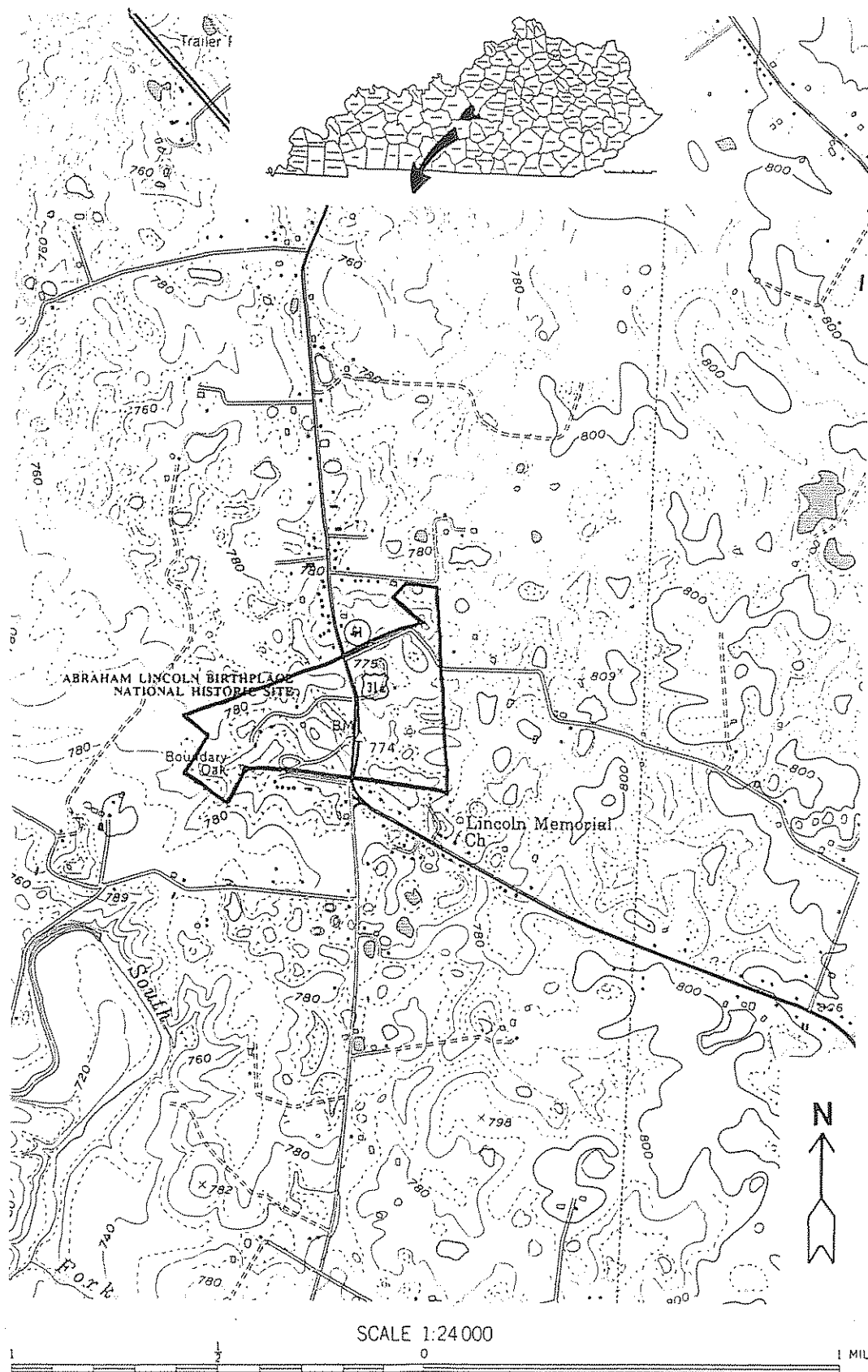


Figure 1. Abraham Lincoln Birthplace National Historic Site, Larue County, Kentucky.

PHYSIOGRAPHY, TOPOGRAPHY, AND GEOLOGY

Abraham Lincoln Birthplace National Historic Site lies within the Elizabethtown Subsection of the Highland Rim Section of the Interior Low Plateau Physiographic Province as described by Quarterman and Powell (1978). Physiographically, the area may also be referred to as the Mississippian Plateau (Braun 1950).

Topographically, the site is within an area presenting undulating to nearly level uplands. Narrow floodplains and steep slopes are typical along drainageways. Karst topography is apparent with numerous sinks and small depressions (Arms et. al. 1979). The site itself presents a gently undulating landscape with elevations ranging from 750 to 780 feet above sea level.

The St. Louis Limestone Formation of the Mississippian Period is the underlying bedrock. St. Louis Limestone is usually exposed in this area only along streams and gullies. This formation includes both thick to thin bedded calcium carbonate or magnesium carbonate (dolomitic) limestones. Zones of chert and limy shale occur sporadically (Moore 1968).

SOILS

Soils of the site are of the Crider-Pembroke-Cumberland Association. This association is characterized by deep, well-drained silt loams on 2-20% slopes (Arms et. al. 1979).

CLIMATE

The temperate climate of the region presents hot summer conditions to moderately cold winters. Rainfall averages 48 inches per year with the greatest amount occurring throughout the winter months. In winter, the average temperature is 37 degrees fahrenheit while the summer months average 76 degrees fahrenheit. Average humidity is 60%, and average wind speed is 10 mph (Arms et. al. 1979).

REGIONAL VEGETATION PATTERNS

This site lies within the Western Mesophytic Forest Region (Braun 1950), a region characterized by a mosaic of forest types. In general, mesic forests occur along lower slopes and ravines and are usually dominated by a variety of species such as sugar maple, beech, tulip poplar, and white ash. Drier forest communities are dominated by a variety of oaks and hickories including white and northern red oaks, and shagbark and bitternut hickories.

As with much of Kentucky, intensive development over the last 200 years has left little of the natural landscape undisturbed. Under the influence of this development, tracts of forests have been maintained in an individualistic manner, a concept that was set forth by Gleason

(1926) and Whittaker (1951). This trend, in combination with a discontinuous pattern of occurrence and secondary succession, has allowed dominant and subordinate species to vary to some degree from site to site.

While infrequent, scattered patches of bottomland hardwood swamp forests occur in the region. These forests are dominated by such species as pin oak, cherrybark oak, swamp white oak, American elm, green ash, and cottonwood.

While not associated with this particular site, other vegetative communities found within this physiographic province include native grasslands (prairies, barrens) and glades. The native grasslands were more abundant and widespread during presettlement times, but today remain as only a few small remnants. This community was dominated by a variety of native grasses such as big bluestem, little bluestem, and Indian grass. This landscape was also dotted by a variety of broadleaf herbs.

Glades are openings characterized by the presence of bare rock or shallow soil that occur among rather sparsely wooded areas (Baskin et. al. 1968). A mixture of native grasses and broadleaf herbs are associated with this community including dropseed, cone flower, agave, St. John's wort, and prickly pear cactus.

METHODS

Field studies were conducted from March through October, 1993. Visits were made at approximately three week intervals. The entire area was searched during each visit. All vascular plants encountered were documented by representative collections in duplicate, if at all possible. Special attention was given to delineating the vegetative communities. Dominant species in each were noted, and general boundaries for each community were mapped. Taxonomy and nomenclature with little exception follows Gleason and Cronquist (1991). The first set of plant specimens collected during this study will be provided to the management staff of this site. Duplicate specimens will be deposited in the herbarium of Eastern Kentucky University.

RESULTS

VEGETATIVE COMMUNITY ANALYSIS

In general, the entire site was significantly impacted by human development before its induction into the national park system. Natural succession has been altered by the construction of facilities to interpret the historical significance of the site. Much of the acreage has been altered and managed in a well-landscaped condition.

Vegetation patterns were divided into separate communities including both natural and altered states (Figure 2). These are as follows:

1. Landscaped Grounds
2. Old Field
3. Cedar Forest
4. American Ash/Sugar Maple Forest
5. Oak Forest

1. LANDSCAPED GROUNDS

Approximately 36 acres are maintained in a frequently mowed, well-landscaped condition. This includes roadsides, picnic area, and all grounds around constructed facilities. These areas yield a variety of grasses and broadleaf herbs, most of which are non-native (exotic) species. Dominant grasses include spear grass (*Poa annua* L.), Kentucky blue grass (*Poa pratensis* L.), tall fescue (*Festuca elatior* L.), northern crabgrass (*Digitaria sanguinalis* (L.) Scop.), and bermuda grass (*Cynodon dactylon* (L.) Pers.).

Dominant broadleaf herbs include dandelion (*Taraxacum officinale* Weber.), bittercress (*Cardamine hirsuta* L.), common chickweed (*Stellaria media* (L.) Villars.), white clover (*Trifolium repens* L.), and common speedwells (*Veronica officinalis* L. and *V. persica* Poir.).

2. OLD FIELD

At the southern end of the site's boundary and bordering U. S. Highway 31E on the eastern side lies approximately 15 acres of an early successional old field. Unmowed and untended for several years, this field, while still dominated by its herbaceous flora, is being invaded by woody pioneering species such as eastern red cedar (*Juniperus virginiana* L.), winged sumac (*Rhus copallinum* L.), black cherry (*Prunus serotina* Ehrh.), and black locust (*Robinia pseudo-acacia* L.).

Dominant herbaceous flora include a variety of grasses such as fescue (*Festuca* spp.) and blue grasses (*Poa* spp.). Otherwise, frequent broadleaf herbs include yarrow (*Achillea millefolium* L.), red sorrel (*Rumex acetosella* L.), sedge (*Carex vulpinoidea* Michx. var. *ambigua* F. Boott.), English plantain (*Plantago lanceolata* L.), daisy fleabane (*Erigeron annuus* (L.) Pers.), and bouncing Bet (*Saponaria officinalis* L.).

3. CEDAR FOREST

Along the western border of the site west of U. S. Highway 31E lies an eastern red cedar (*Juniperus virginiana* L.) dominated forest. There is also a small patch of red cedar forest east of Highway 31E adjacent to the northern end of the picnic grounds. This is a later old field successional stage which, if left alone, will succeed to a red cedar/hardwood forest and eventually to a hardwood dominated condition. This community type encompasses

approximately 13 acres. While several hardwoods do occur, such as sugar maple (*Acer saccharum* Marsh.), red oak (*Quercus rubra* L.), American ash (*Fraxinus americana* L.), and black cherry (*Prunus serotina* Ehrh.), none have reached co-dominant status. Ground cover is sparse and dominated by Japanese honeysuckle (*Lonicera japonica* Thunb.), trumpet creeper (*Campsis radicans* (L.) Seemann.), common violet (*Viola sororia* Willd. var. *sororia*), and rattlesnake fern (*Botrychium virginianum* (L.) Sw.).

4. AMERICAN ASH/SUGAR MAPLE FOREST

The majority of the wooded acreage, approximately 43 acres, on both sides of U. S. Highway 31E may be classified as an American ash (*Fraxinus americana* L.)/sugar maple (*Acer saccharum* Marsh.) association. In general, this forest may be considered as maturing second growth and may be thought of as an example of the calcareous sub-xeric forest type proposed by Evans (1991, unpublished manuscript). Average dbh (diameter at breast height) for the canopy species is between two to two and one-half feet. At this size, the age of the canopy will range from 100 to 125 years. Subordinate species which may seem to dominate in sporadic patches include tulip poplar (*Liriodendron tulipifera* L.), black cherry (*Prunus serotina* L.), white and red oak (*Quercus alba* L. and *Q. rubra* L.), and bitternut hickory (*Carya cordiformis* (Wang.) K. Koch.). Common dogwood (*Cornus florida* L.) is common in the understory.

The groundcover is dominated by a variety of vascular plants including poison ivy (*Toxicodendron radicans* (L.) Krantz.), orange touch-me-not (*Impatiens capensis* Meerb.), mayapple (*Podophyllum peltatum* L.), Japanese honeysuckle (*Lonicera japonica* Thunb.), coralberry (*Symphoricarpos orbiculatus* Moench.), blackberry (*Rubus* spp.), bedstraws (*Galium* spp.), lopseed (*Phryma leptostachya* L.), Virginia creeper (*Parthenocissus quinquefolia* (L.) Planch.), wild grapes (*Vitis* spp.), and catbrier (*Smilax bona-nox* L.).

5. OAK FOREST

The extreme northeastern section of the site covering approximately 9 acres and the only acreage north of Keith Road is an impressive old-growth oak forest and once again may be thought of as one example of the calcareous sub-xeric forest type as proposed by Evans (1991, unpublished manuscript). The forest canopy ranges from two and one-half to three and one-half feet dbh (diameter at breast height). Canopy age ranges from 125 to nearly 200 years old. The thought that many of these magnificent trees were here as young saplings during the time of Abraham Lincoln's birth makes them especially impressive.

Dominant oaks include white (*Quercus alba* L.), northern red (*Q. rubra* L.), and black (*Q. velutina* Lam.). Major subordinates include sugar maple (*Acer saccharum* Marsh.), American ash (*Fraxinus americana* L.), and black cherry (*Prunus serotina* L.). Groundcover is similar to that of the American ash/sugar maple forest above.

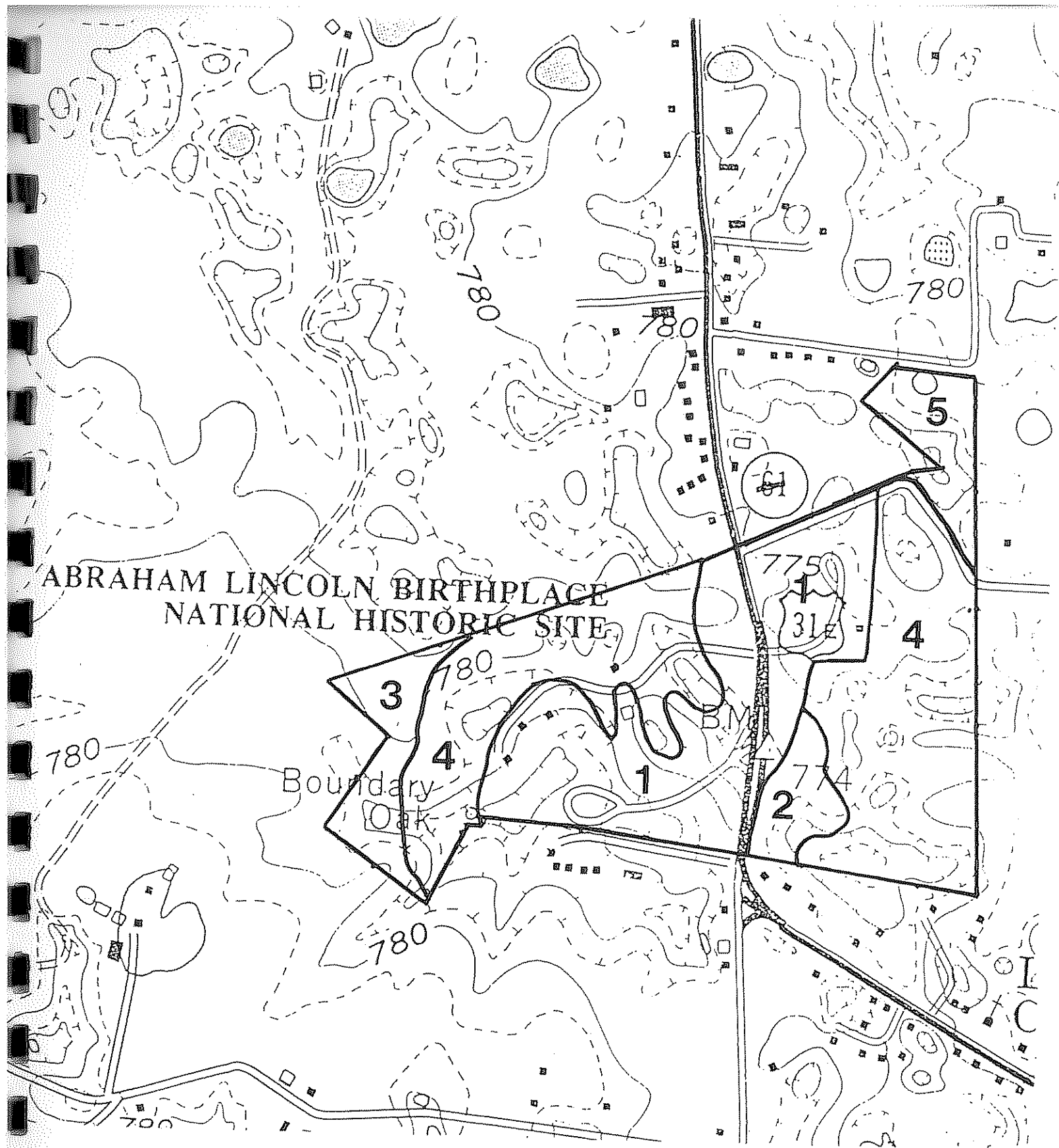


Figure 2. Vegetative communities of Abraham Lincoln Birthplace National Historic Site. 1. landscaped grounds, 2. old field, 3. cedar forest, 4. American ash/sugar maple forest, and 5. oak forest.

FLORISTIC ANALYSIS

The annotated checklist of vascular plants of Abraham Lincoln Birthplace National Historic Site is arranged phylogenetically by division for ferns and evergreens and by division and class for all other vascular plants based on Gleason and Cronquist (1991). Otherwise, family, genus, and species are listed alphabetically. For consistency, nomenclature follows the same work.

The format of the checklist is as follows. The species and authority are listed first followed by the most appropriate common name as indicated by Gleason and Cronquist (1991). Those species known to be exotic (non-native) species are indicated by **bold type**. Following the common name is the author's perception of abundance based on the terminology of common, infrequent, and rare. In this context, rare implies a species abundance only as it applies to this site and not necessarily in Kentucky or throughout its known range. Habitat descriptions follow the abundance category. Habitat is presented in very broad terms except for several species that were very habitat specific. In several instances, species were sampled that, while native to Kentucky, are not thought to be native to the study area. These are indicated as planted. While none were encountered, rare or endemic species would have been noted appropriately.

The flora of Abraham Lincoln Birthplace National Historic Site includes 206 species representing 143 genera and 65 families of vascular plants. The largest families include the grass family (*Poaceae*)-22 species, the aster family (*Asteraceae*)-16 species, the rose family (*Rosaceae*)-13 species, and the sedge family (*Cyperaceae*)-11 species. The largest genera include sedges (*Carex*)-11 species, oaks (*Quercus*)-8 species, and clovers (*Trifolium*)-4 species.

POLYPODIOPHYTA

ASPLENIACEAE

- ✓ *Asplenium platyneuron* (L.) Oakes. Ebony spleenwort, infrequent, woods.
- ✓ *Cystopteris bulbifera* (L.) Bernh. Bublet bladder-fern, rare, Sinking Spring.
- ✓ *Dryopteris carthusiana* (Villars.) H. P. Fuchs. Toothed wood-fern, infrequent, low woods.
- ✓ *Polystichum acrostichoides* (Michx.) Schott. Christmas-fern, common, woods.

OPHIOGLOSSACEAE

5. ✓ *Botrychium dissectum* Spreng. Grape-fern, rare, woods.
✓ *B. virginianum* (L.) Sw. Rattlesnake-fern, infrequent, woods.

PINOPHYTA

CUPRESSACEAE

- ✓ *Juniperus virginiana* L. Red cedar, common, woods and wasteground.

PINACEAE

- ✓ *Pinus strobus* L. White pine, rare, wasteground, planted.

MAGNOLIOPHYTA

MAGNOLIOPSIDA

ACANTHACEAE

- ✓ *Ruellia carolinensis* (Walter) Steudel. Ruellia, rare, open woods.

ACERACEAE

- ✓ *Acer negundo* L. Box elder, infrequent, edge of woods.
✓ *A. rubrum* L. Red maple, infrequent, low woods.
✓ *A. saccharum* Marshall. Sugar maple, frequent, woods.

added to NPS species

# - TSN	
NPS	McKinstry
Abundant	Frequent
Common	common
Uncommon	Infrequent
Rare	Rare
Scarce	infrequent
Unknown	unusual only

ANACARDIACEAE

- 13 *Rhus copallinum* L. Shinning sumac, frequent, wasteground.
14 *Toxicodendron radicans* (L.) Krantz. Poison ivy, frequent, woods.

APIACEAE

- 15 *Chaerophyllum procumbens* (L.) Crantz. Spreading chervil, infrequent, woods.
16 *Cryptotania canadensis* (L.) DC. Honewort, infrequent, woods.
29477 17 *Daucus carota* L. Queen Anne's lace, common, wasteground.
18 *Sanicula canadensis* L. Black snakeroot, infrequent, woods.

Bld Kent = Exotic
Non Native

APOCYNACEAE

- 30238 19 *Vinca minor* L. Periwinkle, common, wasteground and highly disturbed woods.

AQUIFOLIACEAE

- 20 *Ilex opaca* Ait. American holly, rare, wasteground and woods, planted and escaped.

ASTERACEAE

- 1 *Achillea millefolium* L. Common yarrow, common, wasteground.

- 36496 2 *Ambrosia artemisiifolia* L. Common ragweed, infrequent, wasteground.

- 36331 3 *Anthemis arvensis* L. Dogfennel, rare, wasteground.

- 4 *Aster ontarionis* Wieg. Bottomland aster, infrequent, low woods.

- 5 *Aster pilosus* Willd. Owl aster, common, wasteground and old fields. -35630

- 35786 6 *Carduus nutans* L. Nodding thistle, infrequent, wasteground.

- 7 *Chrysanthemum leucanthemum* L. Ox-eye daisy, infrequent, wasteground.

use *leucanthemum vulgare*

510896
37903

8 *Conyza canadensis* (L.) Cronq. Horseweed, infrequent, old field.

9 *Elephantopus carolinianus* Willd. Elephant's foot, rare, open woods.

30 *Erigeron annuus* (L.) Pers. Daisy fleabane, common, wasteground.

1 *E. philadelphicus* L. Daisy fleabane, infrequent, wasteground.

Ageratina altissima

var.

altissima

~~513545~~

182398

~~1~~ *Eupatorium rugosum* Houtt. White snakeroot, rare, woods.

3 *Lactuca canadensis* L. Wild lettuce, infrequent, wasteground.

4 *Senecio glabellus* Poir. Ragwort, rare, open woods and wasteground.

5 *Solidago juncea* Ait. Early goldenrod, common, wasteground.

36213 4 *Taraxacum officinale* Weber. Dandelion, common, wasteground.

BALSAMINACEAE

7 *Impatiens capensis* Meerb. Orange touch-me-not, common, low woods.

BERBERIDACEAE

8 *Podophyllum peltatum* L. Mayapple, common, woods.

BETULACEAE

9 *Carpinus caroliniana* Walt. Hornbeam, rare, low woods.

40 *Corylus americana* Walt. American hazelnut, rare, woods.

BIGNONIACEAE

1 *Campsis radicans* (L.) Seemann. Trumpet-creeper, common, woods and wasteground.

BORAGINACEAE

2 *Cynoglossum virginianum* L. Wild comfrey, rare, woods.

BRASSICACEAE

3 *Cardamine concatenata* (Michx.) D. Schwarz. Toothwort, infrequent, woods.

4 *C. douglassii* Britton. Bittercress, rare, low woods.

22797
5 *C. hirsuta* L. Bittercress, common, wasteground.

22923
6 *Draba verna* L. Whitlow-grass, infrequent, wasteground.

CAESALPINACEAE

7 *Cercis canadensis* L. Redbud, common, woods.

8 *Gymnocladus dioica* (L.) K. Koch. Kentucky coffee-tree, rare, woods.

CAMPANULACEAE

9 *Campanula americana* L. Tall bellflower, rare, open woods. 54974

507 *Lobelia inflata* L. Indian tobacco, infrequent, open woods.

*Campanulastrum
americanum
501172*

CAPRIFOLIACEAE

35283
8 *Lonicera japonica* Thunb. Japanese honeysuckle, common, woods and wasteground.

2 *Sambucus canadensis* L. Elderberry, infrequent, wasteground.

S. nigra 54974
525079

9 *Symphoricarpos orbiculatus* Moench. Coralberry, frequent, woods.

10 *Viburnum acerifolium* L. Maple-leaf viburnum, rare, wasteground, planted.

11 *V. prunifolium* L. Blackhaw, rare, woods.

12 *V. rufidulum* Raf. Southern blackhaw, rare, woods.

CARYOPHYLLACEAE

13 *Saponaria officinalis* L. Bouncing bet, rare, wasteground.

- 8 14 20169 *Stellaria media* (L.) Villars. Common chickweed, common, wasteground.

CELASTRACEAE

- 9 13 *Celastrus scandens* L. Bittersweet, rare, open woods.
69 *Florissinus americanus* L. Strawberry-bush, infrequent, woods.

502577
USE
E. AMERICANA

CLUSIACEAE

- 1 16 *Hypericum mutilum* L. St. John's wort, rare, low, open woods.
2 17 *H. punctatum* Lam. St. John's wort, rare, open woods.

CORNACEAE

- 7 18 *Cornus florida* L. Dogwood, common, woods.

ERICACEAE

- 9 19 *Rhododendron catawbiense* Michx. Rose bay, rare, wasteground, planted.

FABACEAE

- 20 *Desmodium glabellum* (Michx.) DC. Tick-trefoil, old field.
u *Desmodium nudiflorum* (L.) DC. Naked tick-trefoil, infrequent, woods.
25898 *Lespedeza cuneata* (Dum. Cours.) G. Don. Chinese lespedeza, common, wasteground.
9 *L. procumbens* Michx. Downy trailing lespedeza, rare, old field.
26149 *Medicago alba* Medikus. White sweet clover, rare, wasteground. 26149
70 *Robinia pseudo-acacia* L. Black locust, infrequent, woods and wasteground.
26231 *Trifolium campestre* Schreber. Pinnate hop clover, infrequent, wasteground.
2 *T. dubium* Sibth. Little hop clover, infrequent, wasteground.

210313³
4 *T. pratense* L. Red clover, infrequent, wasteground.

T. repens L. White clover, common, wasteground.

FAGACEAE

5 *Fagus grandifolia* Ehrh. American beech, infrequent, woods.

6 *Quercus alba* L. White oak, common, woods.

7 *Q. falcata* Michx. Southern red oak, infrequent, woods.

9 *Q. imbricaria* Michx. Shingle oak, rare, open woods.

9 *Q. lyrata* Walt. Overcup oak, rare, planted.

8 *Q. marilandica* Muench. Blackjack oak, rare, open woods.

1 *Q. palustris* Muench. Pin oak, rare, wasteground, planted.

2 *Q. rubra* L. Northern red oak, common, woods.

3 *Q. velutina* Lam. Black oak, common, woods.

GERANIACEAE

29135
4 *Geranium dissectum* L. Crane's bill, infrequent, wasteground.

HAMAMELIDACEAE

5 *Hamamelis virginiana* L. Witch-hazel, infrequent, woods.

6 *Liquidambar styraciflua*, Sweetgum, infrequent, low woods.

HYDRANGEACEAE

7 *Hydrangea arborescens* L. American hydrangea, rare, Sinking Spring.

HYDROPHYLLACEAE

- 4 *Hydrophyllum macrophyllum* Nutt. Hairy waterleaf, rare, low woods.

JUGLANDACEAE

- 9 *Carya cordiformis* (Wang.) K. Koch. Bitternut hickory, infrequent, woods.
40 *C. glabra* (Miller) Sweet. Pignut hickory, rare, woods.
1 *C. ovata* (Mill.) K. Koch. Shagbark hickory, infrequent, woods.
2 *Juglans nigra* L. Black walnut, rare, woods.

LAMIACEAE

- 50240 *Glechoma hederacea* L. Ground ivy, rare, open woods and wasteground.
32434 *Perilla frutescens* (L.) Britt. Perilla-mint, infrequent, open woods.
32381 *Prunella vulgaris* L. var. *vulgaris*, Selfheal, infrequent, open woods and wasteground.
4 *Pycnanthemum pycnanthemoides* (Leavenw.) Fern. Mountain mint, rare, woods.
1 *Salvia lyrata* L. Lire-leaf sage, common, wasteground.

LAURACEAE

- 4 *Lindera benzoin* (L.) Blume. Spice-bush, infrequent, low woods.
1 *Sassafras albidum* (Nutt.) Nees. Sassafras, infrequent, woods.

MAGNOLIACEAE

- 10 *Liriodendron tulipifera* L. Tulip poplar, frequent, woods.

MENISPERMACEAE

- 1 *Menispermum canadense* L. Moonseed, rare, woods.

MORACEAE

- 2 *Morus rubra* L. Red mulberry, infrequent, woods.

OLEACEAE

- 3 *Fraxinus americana* L. White ash, common, woods.

ONAGRACEAE

- 4 *Cyclopogon quadrifidus* (Maxim.) Franch. & Sav. Enchanter's nightshade, infrequent, woods.

Same as *C. lutea*?
Used?

27568

OXALIDACEAE

- 5 *Oxalis dillenii* Jacq. Southern yellow wood sorrel, common, woods and wasteground.

PAPAVERACEAE

- 6 *Stylophorum diphyllum* (Michx.) Nutt. Celandine-poppy, rare, woods.

PHYTOLACCACEAE

- 7 *Phytolacca americana* L. Pokeweed, infrequent, wasteground.

PLANTAGINACEAE

- 32874
8 *Plantago lanceolata* L. English plantain, common, wasteground.
9 *P. rugelii* Decne. American plantain, common, wasteground.

PLATANACEAE

- 116 *Platanus occidentalis* L. Sycamore, infrequent, low woods.

POLYGONACEAE

- 20852
11 *Polygonum caespitosum* Blume. Smartweed, infrequent, wasteground and woods.
12 *P. punctatum* Ell. Smartweed, rare, low, open woods.
13 *P. virginianum* L. Jumpseed, infrequent, woods.
20934
14 *Rumex acetosella* L. Red sorrel, infrequent, wasteground.
20939
15 *R. obtusifolius* L. Bitterdock, infrequent, open woods and wasteground.

PYROLACEAE

- 16 *Chimaphila maculata* (L.) Pursh. Spotted wintergreen, rare, woods.

RANUNCULACEAE

- 17 *Anemone virginiana* L. Thimbleweed, rare, open woods.
18 *Ranunculus abortivus* L. Small flowered crowfoot, infrequent, open woods and wasteground.
19 *R. recurvatus* Poir. Hooked crowfoot, rare, low woods.

RHAMNACEAE

- 20 ~~*Rhamnus caroliniana*~~ Walter. Carolina buckthorn, infrequent, woods. *Frangula*
caroliniana
506986

ROSACEAE

- 1 *Agrimonia rostellata* Wallr. Agrimony, infrequent, woods.
2 *Amelanchier arborea* (Michx. f.) Fern. Downy serviceberry, rare woods.
25163
3 *Duchesnea indica* (Andr.) Focke. Indian strawberry, common, wasteground.
4 *Fragaria virginiana* Duchesne. Wild strawberry, wasteground and open woods.
5 *Geum vernum* (Raf.) T. & G. Avens, infrequent, woods.

24742

- 6 *Potentilla recta* L. Sulphur cinquefoil, rare, wasteground.
- 7 *P. simplex* Michx. Cinquefoil, infrequent, open woods and wasteground.
- 8 *Prunus serotina* Ehrh. Black cherry, common, woods.
- 9 *Rosa carolina* L. Carolina rose, infrequent, wasteground.

24833

- 10 *R. multiflora* Thunb. Multiflora rose, common, woods and wasteground.
- 1 *Rubus argutus* Link. Southern blackberry, infrequent, open woods and wasteground.
- 2 *R. flagellaris* L. Northern dewberry, infrequent, open woods and wasteground.
- 3 *R. occidentalis* L. Black raspberry, rare, open woods.

RUBIACEAE

- 4 *Galium aparine* L. Bedstraw, infrequent, woods.
- 5 *G. circaezans* Michx. Bedstraw, infrequent, woods.
- 6 *G. pilosum* Aiton. Bedstraw, infrequent, woods.
- 7 ~~*Houstonia missouriensis*~~ *Hedysotis caerulea* (L.) Hook. Bluet, rare, open woods. *same one* 35038
- 8 *H. purpurea* (L.) T. & G. Houstonia, rare, open woods.

SCROPHULARIACEAE

- 9 *Penstemon pallidus* Small. Beard-tongue, rare, open woods.
- 33409 *Veronica agrestis* L. Speedwell, infrequent, wasteground.
- 33398 *V. officinalis* L. Common speedwell, common, wasteground.
- 33405 *V. persica* Poir. Common speedwell, common, wasteground.

SOLANACEAE

- 1 *Solanum carolinense* L. Horse nettle, infrequent, wasteground.

ULMACEAE

- U *Celtis occidentalis* L. Northern hackberry, frequent, woods.
- U *Ulmus americana* L. American Elm, infrequent, woods.
- U *U. rubra* Muhl. Red elm, rare, woods.

URTICACEAE

- U *Laportea canadensis* (L.) Webb. Wood nettle, infrequent, low woods.
- U *Pilea pumila* (L.) Gray. Clear-weed, infrequent, woods.

VERBENACEAE

- U *Phryma leptostachya* L. Lopseed, frequent, woods.
- U *Verbena urticifolia* L. White vervain, infrequent, open woods.

VIOLACEAE

- 21 U *Viola palmata* L. Wood violet, rare, woods. 22125
- U *V. pubescens* Ait. var. *pubescens*, Yellow forest violet, rare, woods.
- U *V. sororia* Willd. var. *sororia*, common, woods.

VITACEAE

- U *Parthenocissus quinquefolia* (L.) Planch. Virginia creeper, common, woods.
- U *Vitis cinerea* Engelm. Wild grape, infrequent, woods.
- U *V. labrusca* L. Fox grape, infrequent, woods.
- U *V. riparia* Michx. Frost grape, infrequent, woods.

LILIOPSIDA

AGAVACEAE

- 8 *Yucca filamentosa* L. Adam's needle, rare, planted, woods.

ARACEAE

- 9 *Arisaema triphyllum* (L.) Schott var. *triphyllum*, Jack-in-the-pulpit, rare, woods.

COMMELINACEAE

- 39 60 *Commelina communis* L. Common dayflower, rare, open woods.

CYPERACEAE

- 1 *Carex albicans* Willd. var. *albicans*, Sedge, rare, woods.
2 *C. amphibola* Steud. Sedge, infrequent, woods.
3 *C. blanda* Dewey. Sedge, infrequent, woods.
4 *C. grvida* L. Bailey var. *grvida*, Sedge, rare, open woods.
5 *C. hirsutella* Mack. Sedge, infrequent, open woods.
6 *C. jamesii* Schw. Sedge, infrequent, woods.
7 *C. laxiflora* Lam. var. *Laxiflora*, Sedge, rare, woods.
8 *C. leavenworthia* Dewey. Sedge, rare, wasteground.
9 *C. retroflexa* Muhl. Sedge, rare, wasteground.
10 *C. rugosperma* Mack. Sedge, rare, woods.
11 *C. vulpinoidea* Michx. var. *ambigua*, Sedge, rare, wasteground.

IRIDACEAE

- 2 *Sisyrinchium montanum* Greene. Blue-eyed grass, rare, open woods.

JUNCACEAE

- 3 *Juncus effusus* L. Rush, rare, low woods.
 4 *J. tenuis* Willd. Path rush, common, compacted soil, open woods.
 6 *Luzula multiflora* (Retz.) Lej. Wood rush, infrequent, woods.

LILIACEAE

426846 *Allium oleraceum* L. Field garlic, rare, wasteground.

42637 *A. vineale* L. Field garlic, common, wasteground.

42754 *Ornithogalum umbellatum* L. Star of Bethlehem, rare, open woods.

7 *Polygonatum biflorum* (Walt.) Ell. Solomon's seal, rare, woods.

✓ *Smilacina racemosa* (L.) Desf. False Solomon's seal, rare, woods. → *racemosa* sp

ORCHIDACEAE

40 *Spiranthes cernua* (L.) Rich. Rare, old fields.

1 *Tipularia discolor* (Pursh) Nutt. Crane-fly orchid, rare, woods.

POACEAE

2 *Andropogon virginicus* L. Broom sedge, common, old fields.

41493 *Cynodon dactylon* (L.) Pers. Bermuda grass, common, wasteground.

40637 *Digitaria ischaemum* (Schreber) Muhl. Smooth crabgrass, infrequent, wasteground.

40645 *Digitaria sanguinalis* (L.) Scop. Crabgrass, common, wasteground.

193446

6 *Dactylis glomerata* L. Orchidgrass, infrequent, wasteground.

7 *Elymus hystrix* L. Bottlebrush grass, rare, woods.

8 *E. virginicus* L. Virginia wild rye, infrequent, woods.

9 ~~*Festuca elatior*~~ L. Tall fescue, common, wasteground. → *Lolium pratense* -507983

89 ~~*F. ovina*~~ L. Sheep fescue, infrequent, wasteground. → 40804

409 ~~*F. rubra*~~ L. Red fescue, common, old fields.

2 *Microstegium vimineum* (Trin.) A. Camus. Microstegium, common, woods.

3 *Muhlenbergia cuspidata* (Torr.) Rydb. Muhly, rare, woods.

4 *M. sobolifera* (Muhl.) Trin. Muhly, rare, open woods.

5 *Panicum anceps* Michx. Panic grass, infrequent, old fields.

6 *Phalaris arundinacea* L. Reed canary grass, rare, low woods.

7 *Poa annua* L. Spear grass, common, wasteground.

8 *P. pratensis* L. Kentucky bluegrass, common, wasteground.

9 *P. sylvestris* Gray. Bluegrass, infrequent, wasteground and old fields.

209 ~~*Setaria glauca*~~ (L.) P. Beauv. Yellow foxtail, infrequent, old fields. added → *S. pumila* 505192

47211 *Sorghum halepense* (L.) Pers. Johnson-grass, infrequent, old fields.

2 *Sphenopholis obtusata* (Michx.) Scribn. var. *obtusata*, Wedgegrass, infrequent, woods.

7 *Tridens flavus* (L.) Hitchc. Purpletop, infrequent, old fields.

SMILACACEAE

4 *Smilax bona-nox* L. Catbrier, frequent, woods.

6 *S. herbacea* L. var. *herbacea*, Carrion flower, rare, low woods.

MANAGEMENT IMPLICATIONS

The plant communities of Abraham Lincoln Birthplace National Historic Site are in various stages of successional growth from an early successional old field to a climax oak forest. The forest communities, while exhibiting an old-growth nature, have been noticeably impacted by human development. Much of the ground cover within these forests shows signs of prior disturbance as indicated by dominant weedy species such as Japanese honeysuckle (*Lonicera japonica* Thunb.), multiflora rose (*Rosa multiflora* Thunb.), and periwinkle (*Vinca minor* L.). Numerous patches of undergrowth lack little in the way of native flora and generally the native flora present is of low diversity. Any active management should target the removal of these non-native exotics with the restoration of native components known to be common to the general vicinity.

Some of the characteristics of old-growth mixed mesophytic forests according to Martin (1992) that are applicable to western mesophytic forests as well, are as follows:

1. Uneven-aged with canopy species in several size classes
2. Several large canopy trees (2-3 per acre)
3. Large, high quality, commercially important trees
4. Oldest trees 200 or more years old
5. Logs and snags

The oak forest of this site appears to exhibit these characteristics as does some parts of the American ash/sugar maple forest.

Besides the noticeable impact from human development, equally devastating was the wind storm which occurred earlier this year on the 4th of June. The forests of the site were hit particularly hard with numerous canopy trees blown down or partially severed. While this would be expected from extremely high winds in any old-growth situation, the impact for such a small area was quite noticeable. The necessary removal of such a large volume of downed trees will likely promote further intrusion of invasive exotics.

As for managing old-growth, in general, the best management is to do nothing. To manipulate the stand of old-growth by thinning or removal of dead or diseased trees is neither necessary nor desirable (Martin 1992). However, with the system of trails throughout these forests, removal of potential hazards across or along the trails is necessary.

These recommendations are made in very broad terms. Specific recommendations for managing the natural communities and restoring certain natural components are beyond the scope of this study.

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