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A Survey of Herbaceous Vegetation in Baber Woods

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A SURVEY OF HERBACEOUS VEGETATION IN BABER WOODS

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BY

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A SURVEY OF HERBACEOUS VEGETATION IN BABER WOODS

Baber Woods is located in Edgar County, five miles southeast of Kansas, Illinois, and is the remnant of a once larger forest on the Shelbyville Moraine. The Baber family purchased the first portion of the timber in 1835, and by 1894, had acquired more than 61 acres in the original tract. Due to a road built in 1900, 10 acres of the original tract lies separated to the west. This small area has been cleared of trees and is reverting to prairie vegetation.

Since 1900, the woods has been disturbed very little. Previous to 1900, however, trees were removed for firewood and fenoes and some herbs (ginseng) were removed. The woods has never been completely cut except for a three acre lot in the southwest corner. At this site once stood a one room cabin and a small log barn. According to the present owner, Mr. Adin Baber, these were not in use in 1903 and the buildings were hauled away for firewood. The woods has never been pastured during the Baber ownership.

Description of the Area

Baber Woods is located in the E½ NW¼ NW¼ and the NE¼ NW¼ of Section 18, T 12N, R 13W, Edgar County, Illinois. This area is a part of the Shelbyville Moraine which traverses this region of the State in an east-west direction and represents the southern extent of the Wisconsin glaciation. The topography is

rolling and ranges from 755-800 feet above sea level. The woods is well drained and except for a few depressions there is no standing water even during wet periods.

Several depressions can clearly be seen in the woods where earlier roads and trails existed (Fig. 1). The old road to Grandview, Illinois, passed from the southwest corner to the middle of the north edge. This has left a depression in the north part as wide as a wagon and more than 4 feet deep. Another road entered the west edge about 70 meters north of the stream and soon branched, one branch continued east crossing the old Grandview road and continuing to the house opposite the east edge of the woods. The other branch angled southeast, crossed the old Grandview road and continued to the southeast corner. In some places these roads have left deep depressions. At one place a few feet from the road is a curious depression which may mark the position of an earlier spring which was known to have been in the woods. The old Grandview road was closed in 1900 when the new road to the west dissected away the ten acres. A few years later a parallel road on the east border allowed the remaining roads to be closed.

According to McClain and Ebinger (1968) three distinct vegetation types exist in the woodlot (Fig. 1). In the northwest corner and along the ravine at the center of the west edge in the moist, low drainage pattern is an area of oak-maple overstory.

This comprises an area of about 4½ acres. The second area, consisting of disturbed vegetation, is in the southwest corner where two log buildings once stood. This area of approximately 3 acres is characterized by a large number of small diameter trees and has a relative dominance of less than 25% oak and hickory. The third area comprises the remainder of the woodlot with an overstory having a relative dominance of 50% white oak and 75% oak and hickory.

A number of small streams have their origins in the woodlot (Fig. 1). Three of these are relatively large and create the relief of the area. Toward the northwest corner in the oak-maple area a stream descends rapidly to the 755 foot level creating a ravine. Similarly, in the oak-maple area along the west edge of the woodlot, another stream descends rapidly to the 765 foot level creating a ravine. The third major stream drains toward the center of the east edge and also rapidly descends to the 755 foot level. A few smaller streams have their origin in the woods. All of the streams are soon dry following a rain.

Other ecological studies of the Baber Woods were conducted by Thudium (1962) who made three line transects, followed by a complete inventory of the woody plants by W. E. McClain and J. E. Ebinger (1968).

Method of Study

This study was conducted during the summers of 1966 and

1967. During the first summer the author made 20 trips through the woodlot, collecting the different species that occurred in the area. Observations were made as to habitat, date of flowering and abundance in the woodlot. Voucher sheets were prepared for deposit in the Stover Herbarium of Eastern Illinois University.

In the second year of study, 1967, the stakes of the original 50-meter-square quadrats used by McClain and Ebinger (1968) were remarked and stakes were designated in a west to east direction from 1 to 10 and in a north to south direction from A to H. These stakes were then used as permanent markers for circular plots with an area of one square meter to study the herbaceous vegetation. A total of 80 circular plots were examined in the woodlot, 7 in the disturbed area and 13 in the oak-maple area and the remainder in the oak-hickory area.

During the period from 15 April through 2 September at bi-weekly intervals all the plants in each of the one meter plots were identified and counted. From the data obtained the density (average number of individuals per quadrat) and frequency (percentage of quadrats occupied by a species) was computed for each species using the formulae outlined by Phillips (1959):

$$\text{Density} = \frac{\text{Total number of individuals of a species in all plots}}{\text{Total number of plots examined}}$$

$$\text{Frequency} = \frac{\text{Plots of occurrence of a species}}{\text{Total number of plots examined}} \times 100$$

The density and frequency of each species was determined for the woodlot as a whole as well as for each vegetation zone of the woodlot (Table 1).

Results

A total of 147 herbaceous species in 46 families was observed in the woodlot. Of these, 50 were observed in the one meter circular plots. The species encountered, with their collecting number, general distribution and occurrence in the woods are shown in an annotated checklist at the end of this paper. An additional listing of the species encountered in the survey plots, along with their density and frequency, is shown in Table 1. Also given are the density and frequency of each species in the three overstory vegetation areas that exist in the woodlot.

Disturbed area.--The disturbed area, located in the southwest corner of the woods, consists of about 3 acres which were completely cut over and used as a home site until about 1900. This relatively dry, open area is gently rolling with no developed streams and varies about 10 feet in elevation. Throughout this region the relative density and relative dominance of the white and black oaks and the pignut and shagbark hickories are very low, usually below 25 per cent. The woody vegetation of this region is dominated by numerous small diameter trees of white ash, slippery elm, bitternut hickory, sugar maple and

black walnut. The sapling, shrub, and seedling layers are dominated by white ash, sugar maple, slippery elm, and poison ivy.

The most common herbaceous species found in the plots of the disturbed area are Claytonia virginica, Impatiens biflora, Potentilla simplex, Delphinium tricorne, Solidago altissima, Geum canadense, Poa pratensis, and Achillea millefolium. All of these averaged more than one individual per quadrat. The frequency of these species is very low, less than 30 per cent, attesting to the great diversity of this small area. Most of these species commonly occur in open woods, though Potentilla simplex and Achillea millifolium are more commonly associated with dry open fields. Both were situated on a well-drained, east-sloping, open hillside which apparently offered a suitably dry habitat. Eleven other species also occurred in the plots of this area, but had a very low density and frequency. All are commonly associated with open woods and waste places.

Present in the area, but not in the quadrats examined, were Stellaria media, Cirsium arvense, Erigeron philadelphicus, Vernonia missurica, Carex blanda, Carex jamesii, Carex hirsutella, Carex hirtifolia, Carex rosea, Monarda fistulosa, Pycnanthemum pilosum, Ophioglossum vulgatum, and Osmorhiza longistylis. These herbs survive in a variable to dry environment and usually in open woods.

Of particular interest in the disturbed area is the species Ophioglossum vulgatum which occurs in some abundance in the gently

southeast sloping edge of the area. This plant is considered rare in Illinois.

Oak-hickory area.--The oak-hickory overstory occupies most of the woodlot. This area, a total of 44 acres, is relatively moist and well-drained. A number of small streams drain the area and one, on the east side of the woods, has created a V-shaped valley about 15 feet deep. The topography of this area is gently rolling with a maximum difference in elevation of about 25 feet. In this area the relative dominance of white oak is usually greater than 50 per cent and the oaks and hickories together exceed 75 per cent (McClain and Ebinger, 1968). Other trees common to this area include white ash, slippery elm, sugar maple and to a lesser extent black walnut, sassafras, red mulberry, black cherry, and hackberry. The saplings and seedlings of this area are dominated by sugar maple, white ash, slippery elm, and black cherry. Numerous understory shrub and woody vines include poison ivy, virginia creeper, climbing bittersweet, pawpaw, hazelnut, and wild hydrangea.

The most common herbaceous species associated with the oak-hickory overstory are Claytonia virginica, Dentaria laciniata, Arisaema triphyllum, Podophyllum peltatum, Galium concinnum, and Smilacina racemosa. All of these individuals had a density of greater than one individual per plot and a frequency of greater than 20 per cent (Table 1).

Claytonia virginica was the most common species encountered in this area, having an average of 16 individuals per plot and a frequency of 61 per cent. Also, Dentaria laciniata and Arisaema triphyllum were extremely abundant, averaging about 4 individuals per quadrat and with a frequency greater than 50 per cent.

Thirty-three other species were recorded in the plots in the oak-hickory area, but these had a very low density and frequency. Of these, many were found exclusively in the oak-hickory area. These include Cystopteris fragilis, Dryopteris hexagonoptera, Viola cucullata, Circea latifolia, Phlox divaricata, Ellisia nyctelea, Polygonatum commutatum, Silene stellata, Elymus villosus, Ranunculus septentrionalis, Eupatorium pupureum, Carex hirsutella, Dioscorea villosa, Desmodium nudiflorum, Desmodium glutinosum, and Trillium recurvatum.

A number of other species were observed in this area and are included in the annotated checklist at the end of this paper. Most of this latter group were found near the south and east edges of the woodlot.

Oak-maple area.--The oak-maple region which occurs in the northwestern and western parts of the woods is relatively moist and well-drained. The streams which traverse these two small areas (Fig. 1) have created small V-shaped valleys that are the deepest in the woods. In this region the relative dominance of

sugar maple exceeds 30 per cent of the stand and its relative density usually exceeds 50 per cent. Other trees common here include white and black oak, pignut and shagbark hickory and to a lesser extent, slippery elm, chestnut oak, black walnut, and white ash. The saplings and seedlings are dominated by sugar maple and slippery elm and very few of the other woody species.

The most common herbaceous species associated with the maple-oak overstory are Claytonia virginica, Dentaria laciniata, Arisaema triphyllum, and Podophyllum peltatum. All of these species had a density of greater than two individuals per plot and a frequency of greater than 46 per cent (Table 1). Claytonia virginica was the most important species encountered, having an average of 15 individuals per plot and a frequency of 84 per cent.

Fifteen other species were recorded in the plots in the oak-maple area, but these had a very low density and were observed in only a few of the plots.

Of these species, all are expected inhabitants of the moist woods environment except Galium concinnum and Specularia perfoliata which require a dry habitat. It is to be noted, however, that these appear in low frequency and occupy small areas in the well-drained edges of the region.

Other species observed in this area, yet not occurring in the plots examined were Aster pilosus, Eupatorium purpureum,

Carex pensylvanica, Bromus inermis, Hystrix patula, Panicum commutatum, Botrychium virginianum, and Phlox divaricata.

Discussion and Conclusions

The eight herbaceous species appearing with the greatest density in the entire woodlot are: Claytonia virginica, Dentaria laciniata, Arisaema triphyllum, Podophyllum peltatum, Galium concinnum, Smilacina racemosa, Impatiens biflora, and Potentilla simplex. Of these species, all were found in the oak-hickory area and their densities and frequencies were similar to that found in the entire woodlot. Four of the top species were not found in the disturbed area (Table 1). These species, Dentaria laciniata, Arisaema triphyllum, Galium concinnum, and Smilacina racemosa are common inhabitants of moist woodlands and would not be expected in the drier, open conditions that exist in this area. Nearly all of the top species encountered were found in the oak-maple area. Only Impatiens biflora and Potentilla simplex did not occur in the plots examined. Potentilla simplex is usually associated with drier, more open areas, while Impatiens biflora is usually in a much wetter situation than is present in this area.

The density of Claytonia virginica in the entire woodlot is comparable to the density found in the oak-maple and the oak-hickory areas. In the disturbed area it is among the top three in density. Dentaria laciniata and Arisaema triphyllum were

second and third in density in the entire area as well as in the oak-maple and oak-hickory areas, yet these did not appear at all in the plots examined in the disturbed area.

A small number of Podophyllum peltatum was found in the disturbed area, but in the oak-maple and oak-hickory areas it appeared in a greater incidence, comparable to its occurrence in the entire woodlot. Galium concinnum was of comparable occurrence in the oak-hickory area and in the entire woodlot, yet it did not appear at all in the disturbed area, and was only of minor importance in the oak-maple area.

A few species appeared only in one area, or were of extremely high density and frequency. In the disturbed area, Achillea millifolium, Liparis lilifolia, Trifolium pratense, and Ambrosia trifida were observed in the plots, while they were not found in the remainder of the woods. Furthermore, Potentilla simplex, Delphinium tricorne, Solidago altissima, Geum canadense, Poa pratensis, Lactuca floridana, and Oxalis stricta were found at a much higher density and frequency than for the entire woods. All of these species are associated with disturbed and open areas and most are summer-flowering species which require more sunlight than is present in woods at that time of the year.

The herbaceous vegetation of the oak-hickory and oak-maple areas of the woods is very similar, but does differ in some of

the less important species. Both Galium concinnum and Smilacina racemosa had a much higher density in the oak-hickory area, and Impatiens biflora and Potentilla simplex did not occur in the oak-maple area. Twenty-four other species were found in the plots of the oak-hickory area, but were not observed in the oak-maple area. This is probably the result of the larger sample area, but is also an indication of the more immature forest and the more open, slightly drier conditions that exist in the oak-hickory part of the woodlot.

Of the eight most common species observed in the plots, all but Impatiens biflora and Potentilla simplex are spring-flowering plants. As a result, the herbaceous layer in the oak-hickory and oak-maple areas is relatively sparse in mid- and late-summer. In those areas only the most shade-tolerant species occur late in the season. In contrast, the more open condition of the disturbed area produces a more suitable habitat for sun-tolerant plants. While there was a variety of species present in these conditions, each species was relatively sparse. The predominance of spring-flowering plants and paucity of summer-flowering plants except in the more open, disturbed area express the character of the herbaceous plants in this woodlot.

Annotated Checklist of Vascular Plants of Baber Woods with the occurrence and General Distribution

The total number of herbaceous taxa of vascular plants thus far recorded from Baber Woods is 147. Seven of these are fern or fern-allies, while 35 are monocots and 105 are dicots. The largest family is the Compositae with 16 taxa, followed by the Graminae with 12.

In the following list the nomenclature follows that of Jones (1963). In this list each species is followed by the collecting number of the author and then by its general distribution and occurrence in the woodlot.

APOCYNACEAE

Apocynum cannabinum L. 95. Near the edge of the woods; frequent.

ARACEAE

Arisaema triphyllum (L.) Schott 10. In the oak-maple and oak-hickory areas; frequent.

Arisaema dracontium (L.) Schott 54. In the oak-maple and oak-hickory areas; locally abundant.

ARALIACEAE

Panax quinquefolius L. 311. In the oak-hickory area; rare.

ASCLEPIADACEAE

Asclepias exaltata (L.) Muhl. 87. Near the north

edge of woods; rare.

Asclepias syrica L. 125. Near the west edge of the woods; rare.

BALSAMINACEAE

Impatiens biflora Walt. 121. In moist parts of the oak-hickory and disturbed areas; frequent.

BERBERIDACEAE

Podophyllum peltatum L. 22. Throughout the woods; frequent.

BORAGINACEAE

Hackelia virginiana (L.) I. M. Johnst. 180. In the oak-hickory area; rare.

CAMPANULACEAE

Campanula americana L. 255. Along the south edge of the woods; locally abundant.

Specularia perfoliata (L.) A. DC. 250. West edge in the oak-hickory and oak-maple areas; rare.

CARYOPHYLLACEAE

Saponaria officinalis L. 120. Edge of woods; rare.

Silene stellata (L.) Ait. f. 141. Edge of disturbed area near road; rare. In oak-hickory area; occasional.

Stellaria media (L.) Vill. 65. In open part of oak-hickory area; occasional.

COMMELINACEAE

Tradescantia virginica L. 162. In an open disturbed area; locally occasional.

COMPOSITAE

Achillea millefolium L. 85. In an open disturbed area; locally frequent.

Ambrosia trifida L. 315. In the west edge of the disturbed area; occasional.

Aster pilosus Willd. 215. Near old road at edge of the oak-maple area; occasional.

Aster sagittifolius Wedem. 213. Near west edge in disturbed area; rare.

Cirsium arvense (L.) Scop. 304. Along the road in the disturbed area; occasional.

Erigeron annuus (L.) Pers. 112. At south edge of disturbed area; locally occasional.

Erigeron philadelphicus L. 75. In the disturbed area; occasional.

Eupatorium purpureum L. 195. In the oak-hickory area; occasional.

Eupatorium rugosum Houtt. 217. At south edge of disturbed area; occasional.

Helianthus divaricatus L. 187. West edge in the oak-hickory area; occasional.

Lactuca floridana (L.) Gaertn. 210. At southeast edge of oak-hickory area in old road, and in open part of disturbed area; occasional.

Solidago altissima L. 204. In the disturbed area; frequent. In oak-maple and oak-hickory areas; occasional.

Solidago ulmifolia Muhl. 206. In old road at southeast corner; rare.

Solidago nemoralis Ait. 219. At west edge of woods; rare.

Taraxacum officinale Wiggers 14. At foot of south-facing slope in the disturbed area; occasional.

Vernonia missurica Raf. 197. In disturbed area; occasional.

CONVOLVULACEAE

Ipomoea pandurata (L.) G. F. W. May. 170. Along west edge of woods; occasional.

CRUCIFERAE

Dentaria laciniata Muhl. 1. In oak-hickory and oak-maple areas; locally abundant.

CYPERACEAE

Carex blanda Dewey 91. In the oak-hickory area near the old road; rare.

Carex cephalophora Muhl. 240. In the disturbed area; rare.

Carex hirsutella Mack. 227. In the disturbed and oak-hickory areas; rare.

Carex hirtifolia Mack. 225. In the oak-hickory area; rare.

Carex jamesii Schw. 228. In the oak-hickory area; rare.

Carex pensylvanica Lam. 35. In the oak-maple area; occasional.

Carex rosea Schk. 72. In the disturbed area; occasional.

Carex sparganioides Muhl. 231. In the oak-hickory area near stream; rare.

DIOSCOREACEAE

Dioscorea villosa L. 79. In the oak-hickory area; rare.

FUMARIACEAE

Dicentra cucullaria (L.) Bernh. 6. In the oak-maple area; occasional.

GENTIANACEAE

Frasera caroliniensis Walt. 129. In upland oak-hickory area; rare.

GERANIACEAE

Geranium carolinianum L. 221. On the bank of stream in the south edge of the oak-hickory area; rare.

Geranium maculatum L. 21. In the oak-hickory and disturbed areas; occasional.

GRAMINEAE

Brachyelytrum erectum (Schreb.) Beauv. 248. In the oak-maple area; rare.

Bromus inermis Leyss. 279. At the edge of the oak-maple area; occasional.

Bromus kalmii A. Gray. 238. In dry parts of the oak-hickory area; occasional.

Bromus purgans L. 100. In the oak-maple and oak-hickory area; occasional.

Elymus villosus Muhl. 232. On the banks of stream and edge of the oak-hickory area; rare.

Festuca obtusa Bieler 78. In the oak-hickory area; rare.

Hystrix patula Moench. 235. In the oak-hickory and oak-maple areas; frequent.

Panicum huachucae Ashe 134. In the open part of the disturbed area; frequent.

Panicum latifolium L. 312. In the oak-maple area; rare.

Poa compressa L. 244. In the oak-hickory area; rare.

Poa pratensis L. 242. In the disturbed and oak-hickory areas; occasional.

Sphenopholis obtusata (Michx.) Scribn. 229. In the open part of oak-hickory area; rare.

HYDROPHYLLACEAE

Hydrophyllum virginianum L. 63. In the upland part of the oak-hickory area; rare.

Ellisia nyctelea L. 223. In the upland part of the oak-hickory area; rare.

JUNCACEAE

Juncus tenuis Willd. 236. Along the road in the oak-hickory area; rare.

LABIATAE

Agastache scrophulariaefolia (Willd.) Ktze. 266. Near road in the oak-hickory area; rare.

Monarda bradburiana Beck 96. West edge of the disturbed area; rare.

Monarda fistulosa L. 286. In open part of the disturbed area; rare.

Prunella vulgaris L. 190. Near the east edge of the oak-hickory area; rare.

Pycnanthemum pilosum Nutt. 203. In the old road through the disturbed area; rare.

Scutellaria incana Biehler 277. Near the stream in south part of the oak-hickory area; occasional.

LEGUMINOSAE

Desmodium glutinosum (Muhl.) Wood 132. West edge of

of the oak-maple and in oak-hickory area; rare.

Desmodium nudiflorum (L.) DC. 154. In the oak-hickory area; locally occasional.

Medicago lupulina L. 116. West edge of oak-maple area; occasional.

Melilotus alba Desr. 113. West edge of oak-maple area; occasional.

Trifolium hybridum L. 114. West edge of oak-hickory area; occasional.

Trifolium pratense L. 140. In the disturbed area; occasional.

LILIACEAE

Erythronium albidum Nutt. 12. In the oak-hickory area; locally occasional.

Erythronium americanum Ker. 20. In the oak-hickory area; locally abundant.

Ornithogalum umbellatum L. 220. In the disturbed area; locally abundant.

Polygonatum commutatum (Schultes) Dietr. 69. In the oak-hickory area; occasional.

Smilacina racemosa (L.) Desf. 11. In the oak-hickory and oak-maple areas; frequent.

Smilax lasioneura Hook. 61. Near the stream in the east edge of the oak-hickory area and disturbed area; occasional.

Trillium recurvatum Beck 16. In the oak-hickory area; occasional.

Uvularia grandiflora Sm. 23. In the south edge of the oak-hickory area near the stream and in the oak-maple area; rare.

LOBELIACEAE

Lobelia inflata L. 191. In the disturbed area on a south-facing slope; occasional.

ONAGRACEAE

Circaea latifolia Hill 104. In the oak-hickory area; occasional.

OPHIOGLOSSACEAE

Botrychium dissectum Spreng. 303. In the oak-hickory area; locally abundant.

Botrychium virginianum (L.) Sw. 98. In the north part of the oak-hickory area; locally frequent.

Ophioglossum vulgatum L. 39. In parts of the disturbed area; locally frequent.

ORCHIDACEAE

Corallorhiza wisteriana Conrad 50. In the oak-hickory area; rare.

Liparis lilifolia (L.) Rich. 251. In parts of the disturbed area; locally frequent.

OXALIDACEAE

Oxalis stricta L. 245. Throughout the woods; occasional.

PAPAVERACEAE

Sanguinaria canadensis L. 5. In the oak-maple area near streams; occasional.

PLANTAGINACEAE

Plantago lanceolata L. 117. West edge in the oak-maple area; rare.

POLEMONIACEAE

Phlox divaricata L. 7. Throughout the woods; occasional.

Polemonium reptans L. 40. In open part of the oak-hickory area; rare.

POLYGALACEAE

Polygala senega L. 138. In the old road at west edge of the oak-maple area; rare.

POLYGONACEAE

Polygonum punctatum Ell. 198. Near stream in south part of oak-hickory area; rare.

Polygonum scandens L. 259. Near east edge of oak-hickory area; occasional.

Polygonum virginianum L. 275. In southeast corner of oak-hickory area near old road; occasional.

Rumex crispus L. 94. In oak-hickory area on an open, east-facing slope; rare.

POLYPODIACEAE

Adiantum pedatum L. 247. In the north part of the

oak-hickory area in a 1 square meter area; rare.

Asplenium platyneuron (L.) Oakes 226. In moist part of the oak-hickory area; rare.

Cystopteris fragilis (L.) Bernh. 97. In moist parts of the oak-maple and oak-hickory areas; occasional.

Dryopteris hexagonoptera (Michx.) C. Chr. 45. Near stream in south edge of the oak-hickory area; locally abundant.

PORTULACACEAE

Claytonia virginica L. 3. Throughout woods; abundant.

RANUNCULACEAE

Anemone virginiana L. 230. Near old road in west part of the oak-hickory area; rare.

Delphinium tricorne Michx. 15. In the disturbed and oak-hickory areas; frequent.

Isopyrum biternatum (Raf.) Torr. & Gray 30. In the moist part of the oak-hickory area; occasional.

Ranunculus abortivus L. 17. In the oak-hickory area; occasional.

Ranunculus recurvatus Poir. 34. In the oak-hickory area; locally frequent.

Ranunculus septentrionalis Poir. 38. On banks of stream in south part of the oak-hickory area; frequent.

Thalictrum dioicum L. 9. In moist part of oak-hickory area; locally frequent.

ROSACEAE

Agrimonia gryposepala Wallr. 137. In the old road in the oak-hickory area; occasional.

Geum canadense Jacq. 139. In the old road in the oak-hickory area; locally frequent.

Potentilla simplex Michx. 93. In south part of the disturbed and oak-hickory areas on well-drained slopes; locally frequent.

RUBIACEAE

Galium aparine L. 68. In the oak-hickory area; occasional.

Galium circaezans Michx. 88. In the oak-hickory and oak-maple areas; frequent.

Galium concinnum Torr. & Gray 81. In the oak-hickory and oak-maple areas; locally frequent.

SCROPHULARIACEAE

Mimulus alatus Ait. 199. Near a shallow ravine in the oak-hickory area; rare.

Verbascum thapsus L. 126. West edge of the disturbed area; rare.

UMBELLIFERAE

Cryptotaenia canadensis (L.) DC. 107. In old road in the oak-hickory area; rare.

Daucus carota L. 166. Near the old road in the oak-hickory area; rare.

Osmorhiza longistylis (Torr.) DC. 80. Throughout the woods; locally frequent.

Pastinaca sativa L. 110. In the west edge of the disturbed area; occasional.

Sanicula canadensis L. 82. In the oak-hickory and oak-maple areas; occasional.

Sanicula gregaria Bickn. 76. In the oak-hickory and oak-maple areas; occasional.

URTICACEAE

Parietaria pennsylvanica Muhl. 243. Near old road in the oak-hickory area; rare.

VERBENACEAE

Verbena stricta Vent. 135. Along the west edge of woods; occasional.

VIOLACEAE

Viola cucullata Ait. 8. In the oak-hickory area; locally frequent.

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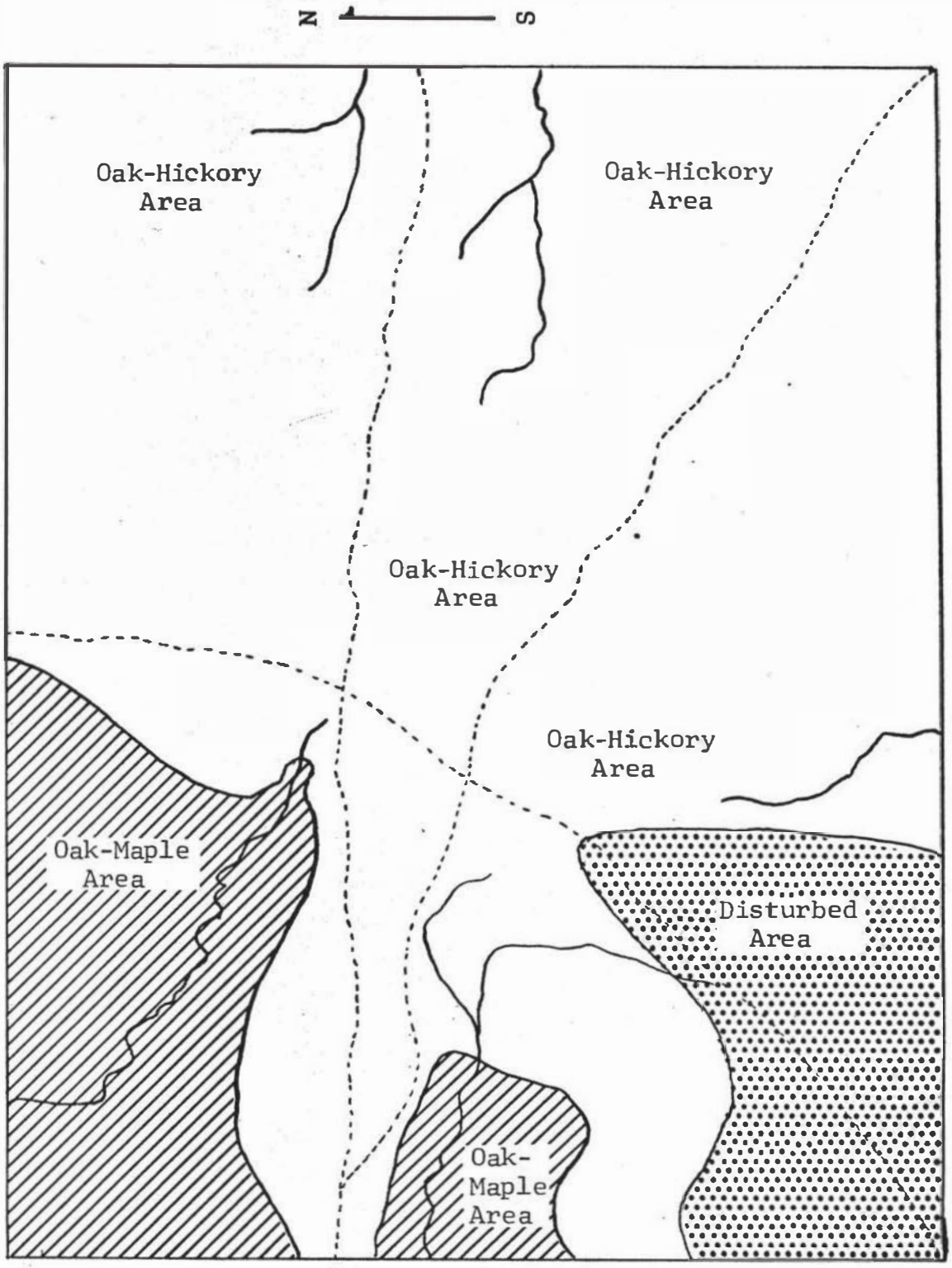

Figure 1.--Map of Baber Woods showing drainage patterns, old roads and trails, and the overstory vegetation patterns.

Table 1.--List of species encountered in the plots studied in Baber Woods. Also given are the density and frequency of each species in the three overstory vegetation areas that exist in the woodlot as well as for the entire woodlot.

Species	Density				Frequency %			
	Disturbed Area	Oak-Hickory	Oak-Maple	Total Area	Disturbed Area	Oak-Hickory	Oak-Maple	Total Area
Claytonia virginica	2.42	16.76	15.30	15.06	14	61	84	60
Dentaria laciniata		4.48	4.00	4.01		53	53	49
Arisaema triphyllum		3.26	3.07	2.99		60	46	53
Podophyllum peltatum	0.28	1.71	2.61	1.74	18	35	46	35
Galium concinnum		1.51	0.07	1.15		21	7	18
Smilacina racemosa		1.08	0.23	0.85		20	23	19
Impatiens biflora	1.85	0.88		0.83	28	16		15
Potentilla simplex	4.42	0.28		0.60	28	6		8
Arisaema dracontium		0.55	0.46	0.49		15	7	13
Carex spp.		0.35	0.38	0.41	28	11	23	15
Delphinium tricorne	3.71	0.03		0.35	28	1		4
Cystopteris fragilis		0.33		0.34		1		1
Solidago altissima	1.28	0.15	0.61	0.33	28	3	15	8
Geum canadense	2.00	0.08		0.24	42	1		5
Dryopteris hexagonoptera		0.26		0.26		1		1
Viola cucullata		0.23		0.24		8		9
Specularia perfoliata		0.26	0.07	0.22		1	7	3
Poa pratensis	1.71	0.06		0.20	14	30		4
Circaea latifolia		0.18		0.19		2		3
Smilax lasioneura	0.42	0.18		0.18	28	15		14
Geranium maculatum	0.14	0.20		0.16	14	5		5
Phlox divaricata		0.13		0.14		2		3
Uvularia grandiflora		0.15	0.07	0.13		3	7	4
Dicentra cucullaria			0.76	0.13			7	1
Sanicula canadensis			0.07	0.11			7	1
Galium circaezans		0.06	0.38	0.11		3	23	6
Achillea millifolium	1.14			0.10	14			1
Ellisia nyctelea		0.10		0.10		1		1

Table 1 (Continued)

Species	Disturbed Area	Oak-Hickory	Oak-Maple	Total Area	Disturbed Area	Oak-Hickory	Oak-Maple	Total Area
Polygonatum commutatum		0.10		0.10		3		4
Sanicula gregaria	0.14	0.11		0.10	14	5		5
Silene stellata		0.08		0.09		2		3
Lactuca floridana	0.71	0.01		0.08	28	1		4
Elymus villosus		0.07		0.08		2		3
Oxalis stricta	0.42	0.05	0.15	0.06	14	1	7	3
Ranunculus septentrionalis		0.06		0.06		2		3
Eupatorium purpureum		0.05		0.05		1		1
Carex hirsutella		0.05		0.05		1		1
Bromus purgans	0.14	0.05		0.05	14	3		4
Liparis lilifolia	0.57			0.05	14			1
Dioscorea villosa		0.03		0.04		1		1
Desmodium nudiflorum		0.03		0.04		2		3
Brachyelytrum erectum			0.15	0.03	7			1
Trifolium pratense	0.28			0.03	14			1
Agrimonia gryposepala			0.15	0.03			7	1
Ambrosia trifida	0.14			0.01	14			1
Hystrix patula			0.07	0.01			7	1
Panicum huachucae	0.14			0.01	14			1
Desmodium glutinosum		0.01		0.01		1		1
Trillium recurvatum		0.01		0.01		1		1
Sanguinaria canadensis			0.07	0.01			7	1