JAMES WOODWORTH PRAIRIE PRESERVE (PEACOCK PRAIRIE): THE FLORA.

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ABSTRACT

A total of 207 plant species were identified during a study conducted in 1979, 1980 and 1981 at the 5.31 acre (2.14 ha) James Woodworth Prairie Preserve between Niles and Glenview, Illinois. Forty-five of these are reported for the first time. Ten species reported in 1929, 1969 and 1974 were not found during the study. The differences in the number and character of species reported at various times reflect different sampling techniques and environmental change.

INTRODUCTION

In the fall of 1926, Ruth Paintin (then on the faculty of Northwestern University) noted the "outstanding brilliancy of the flora and the frequency of unusual species "on" a piece of apparently unbroken farm land" located on Milwaukee Avenue near Glenview in northern Cook County. Her interest aroused, she subsequently conducted a study of the floristics and soil moisture characteristics of documented quadrat stations on this prairie remnant (Paintin, 1929).

This same piece of land was used by Park, Auerbach and Wilson (1949, 1953) for entomological studies leading to the development of a proposed life-history for prairie Pselaphid beetles, and also by Auerbach (1959) in and assessment of the centipede species populations in the Chicago area. These authors called this property the "Peacock Prairie" after the family name of the owners. A subsequent study was made in 1966 by Betz and Cole (1969) of unidentified quadrat samples augmenting the floristics and refining the taxonomic nomenclature of the vegetation. Their study revealed not only unreported species but also that a respectable number of plant species reported forty years earlier by Paintin were still in existence on Peacock prairie despite the fact that the area had been reduced from 9.81 acres (3.97 ha) to 5.31 acres (2.14 ha). Recently, Hamilton (1973, 1981) and Hamilton & Kuritsky (1981) used the prairie for studies on the life-histories of the Head Cutter weavil and Eastern Rose Curculio.

A full historical survey of this tract of land will be documented in another paper. In brief, the property represents a relatively small part of an original 126 acre land patent of prairie covered land issued in 1845 to pioneer settler George Peacock. It remained untouched by the plow or grazing through subsequent ownership (1869-1913) by the Long family, descendents of which still reside in Glenview, and again by the Peacock family (1913-1956), through ownership (1956-68) by the McIntosh family land developers. It was eventually purchased in 1968 by the University of Illinois with matching grants from the Federal Land & Water Fund and the Chicago Community Trust. It was completely fenced during the fall of 1969. The university legally named this natural area the James Woodworth Prairie Preserve and has used it in conjunction with a privately funded interpretation center for educational and scientific purposes.

This paper on the flora begins a series of reports resulting from intensive ecological studies of Woodworth Prairie initiated in 1979.

METHODS

In 1978 two-hundred and thirty permanent one square-meter quadrats were established in a grid based on permanent survey markers laid down in 1976. Each grid point was marked by a steel stake which is serving as the center of each permanent quadrat sampling area. Annual qualitiative and quantitative sampling of the vegetation in each quadrat was begun in July 1979. The data in this report are based primarily on quadrat monitoring from 1979-1981, although some observations from other years were also used.

Quadrat data are being stored and processed for subsequent analysis at the University of Illinois computer system. Computer output includes isopleth maps of distributions and cover importance, and also computations for quantitatively sampled species. In order to minimize disturbance in this small preserve, no voucher specimens were collected during these studies.

RESULTS AND DISCUSSION

A total of 207 plant species were identified (Table 1). Forty-five of these were new to the preserve (Table 2). Ten previously reported species were either not found during this study or were not observed since 1975 (Table 3).

The species in Table 2 reflect the changes in the character of the suburban environment surrounding this prairie island during the past half-century. The present surroundings include housing to the north, highways on its west and east boundaries include housing to the north, highways on its west and east boundaries, and commercial development to the south. All have contributed their share of environmental pressure, including the introduction of non-indigenous and cultivated species to the region.

The present study sampled a large proportion of the land area of the property, including its borders. The Betz & Cole (1969) study sampled only those parts of the property deemed 'typical' prairie, and did not consider several disturbed areas in the property. It is not surprising, therefore, that more species were encountered during this study, despite the apparent loss of ten species mentioned previously.

The quantitative and qualitative characteristics of the vegetational changes

that have taken place on this nature preserve can only be partially understood by studying the changes in its floristic component. Indeed it will also be necessary to examine the vegetation dynamics and species distributions in time and space. The nature and extent of disturbances, especially the anthropogenic, within and outside the property bounds, must all be given careful consideration. With this in mind, forthcoming articles will cover the contributing factors to vegetation change.

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LITERATURE CITED

Auerbach, Stanley I. 1951. The centipedes of the Chicago area with special reference to their ecology. Ecol. Mon. 21:97-124.

Betz, Robert F. & Marion H. Cole. 1969. The Peacock Prairie—a study of a virgin Illinois mesic black-soil prairie forty years after initial study. Trans. Ill. Acad. Sci. 62:44-53.

Paintin, Ruth D. 1929. The morphology and nature of a prairie in Cook County, Illinois Trans. Ill. Acad. Sci. 21:152-175.

Park, Orlando, Auerbach, Stanley I. & Marie Wilson. 1949. Pselaphid beetles of an Illinois prairie: the fauna, and its relation to the prairie peninsula hypothesis. Bull. Chicago Acad. Sci. 8:267-276.

_____. 1953. Pselaphid beetles of an Illinois prairie: the population. Ecol. Mon. 23:1-15.

Hamilton, Robert W. 1973. Observations on the biology of *Haplorhynchites aenus*. (Boheman) (Coleoptera: Rhynchitidae). Coleop. Bull. 27:83-85.

_____. 1981. Description of the larvae and pupae of *Haplorhynchites aenus* (Coleoptera: Curculionoida, Rhynchitidae). Jour. Kansas Ent. Soc. 54:616-62

Hamilton, R. W. & S. S. Kuritsky. 1981. The immature stages of the rose curculio, *Merhynchites biocolor* (Fabricius). Coleop. Bull. 35:189-195.

Table 1. Flora reported in the James Woodworth Prairie Preserve (Peacock Prairie) based on Paintin (1929), Betz & Cole (1969), and our field observations. Plants observed since 1979 are starred.

Family Species
Aceraceae
* Acer negundo
* Acer saccharinum
Amaryllidaceae
Hypoxis Hirsuta
Apocynaceae
* Apocynum sibiricum
Asclepiadceae
* Asclepias incarnata
* Asclepias purpurescens
* Asclepias Sullivantii
* Asclepias syriaca
* Asclepias tuberosa
* Asclepias verticillata
Boraginaceae
* Lithospermum canescens
Caprifoliaceae
* Lonicera tatarica
Caryophyllaceae
* Arenaria lateriflora
Chenopodiaceae
* Chenopodium album
Commelinaceae
* Tradescantia ohiensis
Compositae
* Achillea Millefolium
* Ambrosia artemesiifolia
* Ambrosia trifida
* Antennaria neglecta
* Aster azureus

* Aster ericoides
* Aster laevis
* Aster novae-angliae
* Aster pilosus
  Aster ptarmicoides
* Aster simplex
* Bidens frondosa
* Cacalia tuberosa
* Chrysanthemum leucanthemum
* Cichorium intybus
* Cirsium discolor
  Cirsium Hillii
* Cirsium vulgare
* Coreopsis palmata
* Coreopsis tripteris
* Erigeron annuus
* Erigeron philadelphicus
* Erigeron strigosus
* Eupatorium altissimum
* Helianthus grosseserratus
* Helianthus rigidus
* Krigia biflora
* Lactuca canadensis
* Liatris aspera
* Liatris spicata
* Parthenium integrifolium
* Prenanthes aspera
* Prenanthes racemosa
* Ratibida pinnata
* Rudbeckia hirta
* Senecio pauperculus
* Silphium integrifolium
* Silphium laciniatum
* Silphium terebinthinaceum
* S. terebinthinaceum x laciniatum
* Solidago altissima
* Solidago canadensis
* Solidago gigantea
* Solidago graminifolia
* Solidago juncea
* Solidago nemoralis
* Solidago riddellii
* Solidago rigida
* Sonchus arvensis
* Taraxacum officinale
* Tragopogon pratense
* Xanthium pennsylvanicum

Convolvulaceae

* Convolvulus arvensis
* Convolvulus sepium

Cornaceae

* Cornus racemosa

Crassulaceae

Penthorum sedoides

Cruciferae

* Barbarea vulgaris
* Capsella bursa-pastoris
* Lepidium campestre
* Rorippa islandica Fernaldiana

Cyperaceae

* Carex brevior
* Carex Buxbaumii
* Carex lanuginosa
* Carex Crawei
* Carex Sartwellii
* Carex stricta
* Carex vulpinoidea
* Eleocharis palustris
* Scirpus lineatus

Equisetaceae

* Equisetum arvense

Gentianaceae

* Gentiana Andrewsii
* Gentiana puberulenta

Gramineae

* Agropyron repens
* Agropyron repens subulatum
* Agropyron subsecundatum
* Agropyron trachycaulum unilaterale
* Agrostis alba
* Andropogon Gerardi
* Andropogon scoparius
* Bromus Kalmii
* Calamagrostis canadensis
* Dactylis glomerata
* Elymus canadensis
* Glyceria striata
* Hordeum jubatum
* Koeleria cristata
* Panicum lanuginosum
* Panicum Leibergii
* Panicum virgatum
* Phalaris arundinacea
* Phleum pratense
* Poa compressa
* Poe pratensis

* Sorghastrum nutans
* Spartina pectinata
* Sphenopholis obtusata
* Sporobolus cryptandrus
* Sporobolus heterolepis
* Stipa spartea

Hypericaceae

Hypericum canadense
* Hypericum punctatum

Iridaceae

* Sisyrinchium albidum

Juncaceae

* Juncus acuminatus
* Juncus balticus littoralis
* Juncus dudleyi
* Juncus lineatus
* Juncus tenuis
* Juncus Torreyi

Labiatae

* Glechoma hederacea
* Lycopus americana
* Monarda fistulosa
* Nepeta cataria
* Prunella vulgaris lanceolata
* Pycnanthemum virginianum
* Scutellaria parvula Leonardi
* Stachys hispida

Stachys palustris

Leguminosae

* Amorpha canescens
* Apiosios americana
* Baptisa leucantha
* Baptisia leucophaea
* Coronilla varia
* Desmodium canadense

Lathyrus palustris
* Lathyrus venosus
* Lespedeza capitata
* Medicago lupulina
* Melilotus alba
* Meliotus officinalis
* Petalostemum candidum
* Petalostemum purpureum
* Psoralea tenuiflora
* Trifolium pratense
* Trifolium procumbens
* Trifolium repens
* Vicia americana

Liliaceae

* Allium canadense
* Allium cernuum
* Hemerocallis fulva
* Lilium michiganense
* Lilium philadelphicum andinum
* Smilacina stellata

Lobeliaceae

* Lobelia spicata

Lythraceae

* Lythrum alatum
* Lythrum salicaria

Oleaceae

* Fraxinus pennsylvanica
* Syringa vulgaris

Onagraceae

Ludwigia polycarpa
* Oenothera biennis
* Oenothera tetragona longistipata

Orchidaceae

Spiranthes cernua

Oxalidaceae

* Oxalis stricta
* Oxalis violacea

Plantaginaceae

* Plantago major
* Plantago Rugellii

Polemoniaceae

* Phlox glaberrima
* Phlox pilosa

Polygalaceae

* Polygala senega

Polygonaceae

* Polygonum amphibium stipulaceum
* Polygonum aviculare
* Polygonum persicaria
* Rumex crispus

Primulaceae

* Dodecatheon meadia
* Lysimachia ciliata

Lysimachia quadriflora

Ranunculaceae

* Anemone cylindrica
* Thalictrum dasycarpum

Rhamnaceae

* Rhamnus cathartica

Rosaceae

* Fragaria virginiana

* Geum canadense
* Geum strictum
Geum triflorum
* Malus sp.
* Potentilla arguta
* Potentilla simplex
* Rosa carolina
* Rosa multiflora
* Rubus occidentalis
Rubiaceae
* Galium boreale
* Galium obtusum
Santalaceae
* Comandra Richardsiana
Saxifragaceae
* Heuchera Richardsonii
Scrophulariaceae
Gerardia aspera
Gerardia tenuifolia
* Pedicularis canadensis
* Verbascum thapsus
* Veronica peregrina
* Veronicastrum virginicum
Solanaceae
* Physalis subglabrata
* Solanum dulcamara
Typhaceae
* Typha angustifolia
* Typha latifolia
Ulmacea
* Ulmus pumila
* Ulmus rubra
Umbelliferae
* Cicuta maculata
* Daucus carota
* Eryngium yuccifolium
* Oxypolis rigidior
* Zizia aurea
Valerianaceae
* Valeriana ciliata
Verbenaceae
* Verbena hastata
Violaceae
* Viola papilionacea
* Viola pedatifida
Vitaceae
* Vitis sp.
Bryophytes
* Fissidens sp.
* Atrichum sp.
* Bracathecium sp.

Table 2. Plants that were previously unreported in the James Woodworth Prairie Preserve. Listed plants were quantitatively sampled or observed in the summers of 1979, 1980, or 1981.

Acer negundo L.
Acer saccharinum L.
Agropyron repens (L) Beauv.
Agropyron trachycaulum unilaterale (Cassidy) Malte.
Apocynum sibiricum (Formerly identified as A. cannibinum) Jacq.
Arenaria lateriflora L.
Asclepias purpurescens L.
Asclepias verticillata L.
Atricum P. Beauv.
Barbarea vulgaris R. Br.
Brachythecium BSG.
Carex brevior (DEW.) Mackenz.
Carex lanuginosa Michx.
Carex Sartwellii Dew.
Carex stricta Lam.

Cichorium intybus L.
Cirsium discolor (Muhl.) Spreng.
Cirsium vulgare (Savi.) Tenore.
Coreopsis tripteris L.
Coronilla varia L.
Dactylis glomerata L.
Daucus carota L.
Fissidens Hedw.
Geum canadense Jacq.
Geum vernum (Raf.) T. & G.
Glechoma hederacea L.
Hemerocallis fulva L.
Hypericum punctatum Lam.
Lepidium campestre (L.) R. BR.
Lonicera tatarica L.
Lythrum salicaria L.
Melilotus alba Desr.
Melilotus officinalis (L.) Lam.
Nepeta cataria L.
Oenothera tetragona longistipata (Pennell) Munz.
Phalaris arundinacea L.
Physalis subglabrata Mackenz. & Bush.
Plantago major L.
Rorippa islandica Fernaldiana Butt. & Abbe.
Roas multiflora Thunb.
Silphium terebinthinaceum (Jacq.) x laciniatum (L). (An apparent hybrid.)
Solanum dulcamara L.
Sporobolous cryptandrus (Torr.) Gray.
Syringa vulgaris L.
Ulmus pumila L.
Verbascum thapsus L.

Table 3. Plants recorded in the prairie but presently believed to be extirpated.
Codes used include: P = Paintin
B&C = Betz & Cole
R = Rouffa (photographed)

	Last reported
Corylus americana Walt.	P. 1929
Crataegus sp.	P. 1929
Maclura pomifera (Raf.) Schneid.	P. 1929
Populus tremuloides Michx.	P. 1929
Salix sp.	P. 1929
Geum triflorum Pursh.	B&C 1969
Spiranthes cernua (L.) Richard	R. 1974
Gerardia aspera Dougl.	B&C. 1969
Ludwigia polycarpa Short & Peter	B&C 1969
Penthorum sedoides L.	B&C. 1969