

An Inventory of Vascular Plant Species of Trillium Trails  
Wildflower Preserve of the Hamilton County Park District,  
Hamilton County, Ohio.

Final report for the O.D.N.R. research grant, contract  
encumbrance number 910121 to Marjorie S. Becus.

1985

## INTRODUCTION

Trillium Trails Wildflower Preserve of the Hamilton County Park District is noted for its profusion of wildflowers as well as some unusual planted species. In 1985, a vegetation study was conducted. The first objective was to document all species occurring in the wooded area of the Preserve while collecting herbarium specimens of the herbaceous plants, and second, to search for species considered rare or endangered in Ohio. It was anticipated that the Preserve was a prime location for interesting plants because of the geological history of the immediate area and the diversity of plants already known to be present. The species inventory and collections provide valuable information for the Hamilton County Park District of the flora of 1985 for the purposes of public education through wildflower walks, continuing research, and land management. In addition, these are a contribution to the knowledge of the flora of Hamilton County and the State of Ohio.

## STUDY AREA (map, p. 4)

Trillium Trails Wildflower Preserve is located in the Village of Woodlawn, Springfield Township, Hamilton County, Ohio at the latitude of  $39^{\circ}15'25''$  and longitude of  $84^{\circ}28'57''$ . Of the 86 acres, an area of nearly 23 acres (22.91 acres) has been designated a State Interpretive Nature Preserve, selected because of its uniqueness, and protected against encroachment

and destruction. Approximately two thirds of the 23 acres is wooded and the remainder is park-maintained grassland. This study was conducted within the wooded area. The woodland covers hills which arise from the West Fork of the Mill Creek, 1000 ft. distant to the north with most of the slopes north or east facing. A local relief of 85 ft. is within the woodland, with the highest altitude at 725 ft. The Preserve lies barely within the area of the Wisconsin glaciation, the southern margin of which and the transition to Illinoian-age till are less than one-half mile away.

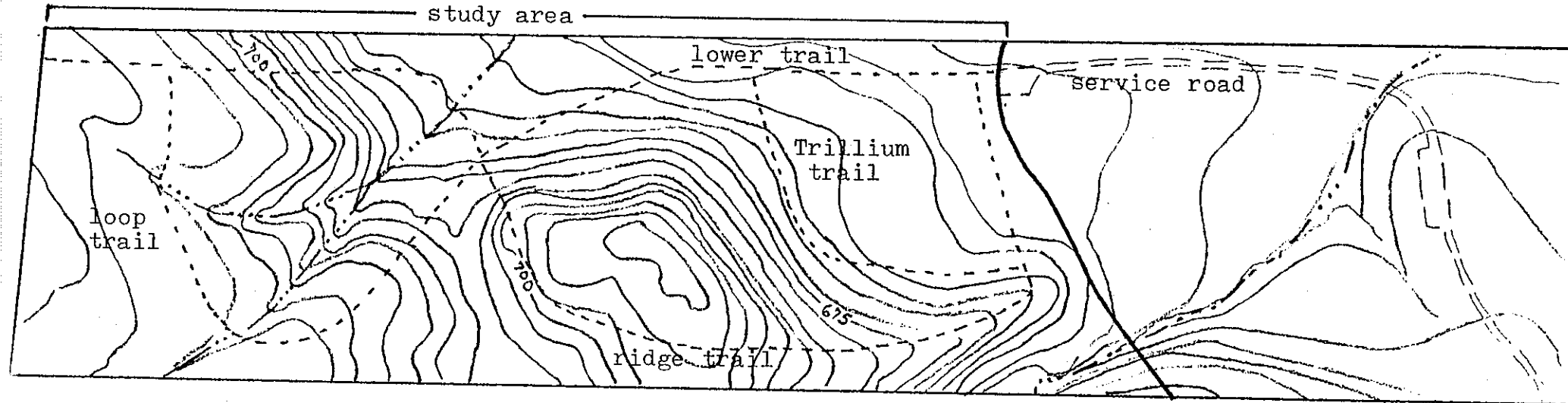
The all-aged forest is mixed with codominants of black walnut, white ash, yellow oak and hackberry. Several large (2 ft. dbh) Ohio buckeyes are present with numerous smaller trees. The eastern part of the wooded area appears to be the oldest and least disturbed area, with large (3 ft. dbh) yellow oaks growing along the top of the ridge. A deeply cutting meandering stream is at the base of this ridge and is the only constantly flowing stream within the Preserve. Small intermittent streams drain the slopes.

Pasture land borders the north boundary and private residences border the west and south. Winds across this open pasture are probably responsible for the large number of fallen trees, which leave openings in the canopy through which much direct sunlight reaches the forest floor. A closed canopy would be expected in a mature forest.

TRILLIUM TRAILS WILDFLOWER PRESERVE

State Interpretive Nature Preserve

study area



stream - · · · -

trail - - - - -

0 200 400 600 800 1000 Feet

Scale 1:2400

Contour Interval 5 Feet

Copied from City of Cincinnati and Hamilton County 1967.  
Metropolitan topographic surv. sheet no. 358.

Limestone fragments protrude from the soil throughout the woodland, especially on slopes and in the stream beds, and scattered granite erratics are on the soil surface. No outcropping has been observed. The soil is dark gray and granular, apparently with considerable clay because of cracking during dry periods. Virtually no leaf litter is present by late summer. The soil has been classified as Xenia silt loam in the low areas, Russell silt loam on the slopes and Miamian-Hennepin silt loam on the hill tops. All were formed in loess and in the underlying calcareous Wisconsinan glacial till, and all are calcareous soils (Lerch, 1982).

#### METHODS

In early April 1985, permission was received from the Hamilton County Park District to collect plants for scientific research, and the proper permits were forthcoming. Frequent trips to the Preserve were made in April and May, in order to observe the quickly changing floral array of this unseasonably warm spring. There after, the Preserve was visited at least every other week throughout the summer and fall. With each visit a walk was taken on all paths and through other areas off the paths, while a search was made for all plants in flower. It is necessary to collect the plants at the time of flowering for proper identification. A list was compiled of all woody plants observed. Two specimens of each species of herbaceous plant found growing in the Preserve, were collected, identified

and pressed for accession into the University of Cincinnati Herbarium, with the exceptions of planted species or species with too few individuals to warrant removal. These herbarium specimens provide a record of the flora of 1985 which can be reexamined at anytime in the future, and can be used for comparisons to aid in the identification of other plants.

## RESULTS

The plant inventory includes 119 species. Four were species known to have been planted, 37 were woody species which were not collected except Ohio Buckeye, sweet cherry, and Menispermum canadensis. Seventy-four herbaceous species were collected and seven additional were listed.

One species, Panax quinquefolium, potentially threatened in Ohio (Cooperrider, 1982) was present in a colony of about 20 individuals (Appendix II).

Scientific nomenclature is according to Gleason and Cronquist (1963) except when superceded by Braun (1961,1967). Common names are according to Gleason and Cronquist (1963) and Weishaupt (1971). Frequency of occurrence is rated subjectively as abundant, common, occasional, locally common, the number of plants or special situation. Collection dates are included and these are usually the time of earliest flowering. Alien species are designated by an asterisk(\*). Species and genera are listed alphabetically under families also in alphabetical order.

## THE VASCULAR PLANTS

of Trillium Trails Wildflower Preserve, Hamilton County, Ohio.

## PTERIDOPHYTA

## OPHIOGLOSSACEAE

Botrychium multifidum (Gmel.) Rupr. Leather grape-fern.  
Two plants, not collected.

Botrychium virginianum L. Rattlesnake fern. Two plants,  
not collected.

## POLYPODIACEAE

Athyrium pycnocarpon (Spreng.) Tidestr. Narrow-leaved  
spleenwort. Two colonies in the low area at the base of the  
ridge, collected August 21.

Cystopteris fragilis (L.) Bernh. Fragile fern. Abundant  
throughout, collected May 4.

Dryopteris austriaca (Jacq.) Woyнар. One plant near the  
entrance, collected July 28.

## SPERMATOPHYTA

## ACERACEAE

Acer nigrum Michx. f. Black maple. Abundant throughout,  
not collected.

Acer saccharum Marsh. Sugar maple. Abundant throughout,  
not collected.

## AMMONACEAE

Asimina triloba (L.) Dunal. Pawpaw. Scattered colonies, flowering not observed, not collected.

## ANACARDIACEAE

Rhus radicans L. Poison ivy. Occasional, not collected.

## ARACEAE

Arisaema triphyllum (L.) Schott. Jack-in-the-pulpit. Thirteen sterile plants at the base of the ridge, not collected.

## ARALIACEAE

Panax quinquefolium L. Ginseng. One colony near the southern boundary fence, about 20 plants, collected September 20, in seed, potentially threatened in Ohio.

## ARISTOLOCHIACEAE

Asarum canadense L. Wild ginger. Abundant along the northern slope of the ridge, collected April 26.

## BALSAMINACEAE

Impatiens pallida Nutt. Touch-me-not, Jewel-weed. Occasional plants near the intermittent stream at the top of the hill, collected June 26.

## BERBERIDACEAE

Podophyllum peltatum L. May-apple. Occasional plants throughout, not observed flowering in 1985, collected May 23.

## BETULACEAE

Ostrya virginiana (Mill.) K. Koch. Hop-hornbeam, ironwood. Occasional small tree, not collected.



## CAMPANULACEAE

Campanula americana L. Tall bellflower. Occasional plants along the ridge trail, collected July 12.

## CAPRIFOLIACEAE

\* Lonicera maackii Maxim. Honeysuckle. Dense shrub thickets at the western end of the Preserve, occasional elsewhere, not collected.

## CARYOPHYLLACEAE

\* Stellaria media (L.) Cyrill. Common chickweed. Occasional, collected April 23.

Stellaria pubera Michx. Star chickweed. Several colonies along the lower trail, collected April 18.

## CELASTRACEAE

Euonymus obovatus Nutt. Running strawberry-bush. Occasional colonies, not collected.

\* Euonymus alatus (Thunb.) Sieb. Burning bush. One small shrub near the entrance, not collected.

## COMMELINACEAE

\* Commelina communis L. Dayflower. Several vegetative plants along the lower trail, not collected.

## COMPOSITAE

Ambrosia trifida L. Ragweed. One plant at the entrance to the woods. Part of this plant collected September 20.

Aster cordifolius L. Occasional, collected October 3.

Aster divaricatus L. Several plants along the ridge, collected October 10.

Aster lateriflorus (L.) Britt. Occasional, collected October 3.

Aster shortii Lindl. Occasional, collected October 3.

Erigeron philadelphicus L. Philadelphia fleabane. Occasional throughout, collected May 23.

Eupatorium rugosum Houtt. White snakeroot. Occasional, collected August 21.

Polymnia canadensis L. Leafcup. Abundant throughout, collected June 26.

Senecio sp. Ragwort. One plant at the top of the ridge, not collected.

#### CRASSULACEAE

Sedum ternatum Michx. Stonecrop. Locally common along the main stream, collected May 8.

#### CRUCIFERAE

\* Alliaria officinalis Andrz. Garlic mustard. Abundant, flowering from mid-April until June, collected April 23.

Dentaria laciniata Muhl. Cutleaf toothwort. Occasional throughout, collected April 12.

Iodanthus pinnatifidus (Michx.) Steud. Purple rocket. Few scattered plants on the top of the ridge, collected May 17.

## CYPERACEAE

Carex blanda Dewey. Common, but scattered, collected May 8.

Carex sp. Occasional, collected May 8, too immature for identification.

## EUPHORBIACEAE

Acalypha sp. Three-seeded mercury. Several plants along the lower trail, collected September 3. Species to be identified.

## FAGACEAE

Fagus grandifolia Ehrh. Beech. Occasional, not collected.

Quercus alba L. White oak. Occasional large tree, not collected.

Quercus borealis Michx. f. Red oak. Occasional, not collected.

Quercus muehlenbergii Engelm. Chinquapin oak, yellow oak. Occasional, several trees 3 ft. dbh along the top of the ridge.

## FUMARIACEAE

Corydalis flavula (Raf.) DC. Pale corydalis. Occasional, collected April 12.

Dicentra canadensis (Goldie) Walp. Squirrel-corn. Locally common on the north slope of the ridge, collected May 23.

Dicentra cucullaria (L.) Dornh. Dutchman's britches. Abundant, collected April 12.

#### GRAMINEAE

Elymus virginicus L. Virginia wild-rye. Locally common near the entrance, collected May 29.

Leersia virginica Willd. White grass. Occasional, collected September 20.

Poa sylvestris Gray. Occasional, collected May 8.

#### HIPPOCASTANACEAE

Aesculus glabra Willd. Ohio buckeye. Several large (2 ft. dbh) trees, saplings abundant, collected May 18.

#### HYDROPHYLLACEAE

Hydrophyllum appendiculatum Michx. Appendaged waterleaf. Abundant, collected April 26.

Hydrophyllum canadense L. Canadian waterleaf. Abundant, forming dense colonies, collected May 8.

Hydrophyllum macrophyllum Nutt. Large-leaf waterleaf. Occasional, collected May 17.

Phacelia purshii Buckl. Miami mist. Locally common in low areas, collected April 26.

#### JUGLANDACEAE

Carya cordiformis (Wang.) K. Koch. Bitternut hickory. Occasional sapling, not collected.

Carya glabra (Mill.) Sweet. Pignut. Occasional, not collected.

Carya ovata (Mill.) K. Koch. Shagbark hickory. Occasional, not collected.

Juglans nigra L. Black walnut. Abundant, especially in the low areas. In the autumn, the ground is nearly covered with the walnuts. Many of the trees are large, tall and appear healthy. Not collected.

#### LABIATAE

Blephilia hirsuta (Pursh.) Benth. Hairy wood-mint. One colony on the ridge north of the trail, peppermint fragrance, collected July 12.

\* Glechoma hederacea L. Ground-ivy. Occasional, not collected.

Prunella vulgaris L. Self-heal. Occasional, collected May 18.

#### LEGUMINOSAE

Gleditsia triacanthos L. Honey-locust. Occasional, not collected.

Gymnocladus dioica (L.) K. Koch. Kentucky coffee-tree.

One large tree on the ridge, not collected.

Robinia pseudo-acacia L. Black locust. Common throughout, not collected.

#### LILIACEAE

Allium tricoccum Ait. Wild leek, ramp. Locally common in scattered colonies along the ridge, collected June 10.

Camassia scilloides (Raf.) Cory. Wild hyacinth. One colony in a wet area near the southern boundary and another along a stream bank. Most plants did not flower in 1985. Collected April 26.

Erythronium albidum Nutt. White fawn lily. One large colony on a east-facing stream bank, collected April 12.

Polygonatum biflorum (Walt.) Ell. Solomon's seal. Scattered, but common throughout, collected May 17.

Polygonatum commutatum (Schult. f.) Dietr. Large Solomon's seal. Two or three plants along the north-flowing stream, collected May 29.

Smilacina racemosa (L.) Desf. False Solomon's seal. Common, collected May 8.

Smilax sp. Greenbriar. Occasional small vines, not observed in flower, not collected.

\* Trillium luteum. Four plants in flower at the beginning of the ridge trail. This species was planted at this location, not collected.

Trillium flexipes Raf. Drooping trillium. One hundred or more plants in the low area near the base of the ridge, collected April 23.

Trillium sessile L. Wake-robin. Abundant throughout the Preserve, most are maroon, a few are brown and one yellow-flowered plant was observed along the ridge trail, collected April 12.

Uvularia grandiflora Sm. Large-flowered bellwort. One colony near a beech tree where the ridge trail comes down the hill by the north-flowing stream, collected April 18.

#### MENISPERMACEAE

Menispermum canadensis L. Moonseed. Vines climbing on trees. Locally common near the entrance to the woods, collected May 23.

#### MORACEAE

Morus rubra L. Mulberry. One sapling, not collected.

#### OLEACEAE

Fraxinus americana L. American ash. Common throughout, not collected.

Fraxinus quadrangulata Michx. Blue ash. One sapling, not collected.

## ORCHIDACEAE

Aplectrum hyemale (Muhl.) Torr. Putty-root, Adam and Eve. Abundant and vigorous. Clusters of seven flowering scapes each were present at two different locations with other colonies having two or three. Flowering observed on May 17, collected at this date. In October the winter leaves were numerous along the ridge.

## PAPAVERACEAE

Sanguinaria canadensis L. Bloodroot. Common, but scattered. Some plants appear to have atypical leaves which are very deeply lobed. Collected April 12, although flowering was finished in most plants.

Stylophorum diphyllum (Michx.) Nutt. Wood poppy, Celéndine poppy. This species was planted in the Preserve and survives in two large colonies near the lower trail. Not collected.

## PHYTOLACCACEAE

Phytolacca americana L. Poke weed. Occasional plants in sunny areas, collected July 28.

## PLATANACEAE

Plantanus occidentalis L. Sycamore. Occasional, not collected.

## POLEMONIACEAE

Phlox divaricata L. Phlox. Common, but scattered, collected April 12.



## POLYGONACEAE

Polygonum hydropiperoides Michx. Occasional, collected October 20.

Polygonum virginianum L. Virginia knotweed. Occasional, collected August.

## PORTULACACEAE

Claytonia virginica L. Spring beauty. Common, scattered, collected April 12.

## RANUNCULACEAE

Anemonella thalictroides (L.) Spach. Rue-anemone. Common, but scattered with two or three plants at a location, collected April 12.

Cimicifuga racemosa (L.) Nutt. Black cohosh. Few plants at the base of the ridge, not flowering in 1985, collected May 23.

\* Ranunculus ficaris L. Lesser celandine. Planted along the lower trail at the entrance to the woods. It appears to be spreading into the woods and may become a problem. Not collected.

Ranunculus micranthus Nutt. Occasional, collected April 12.

## ROSACEAE

Geum canadense Jacq. Occasional, collected June 26.

\* Prunus avium L. Sweet cherry. Probably escaped from cultivation. One tall tree 17 in. dbh beside a stream. It appears to be dying. Two smaller dead trees are presumed to be the same species. Leaves collected May 17.

Prunus serotina Michx. Black cherry. Occasional, not collected.

## RUBIACEAE

Galium aparine L. Bedstraw. Occasional, collected April 23.

Galium triflorum Michx. Uncommon, along the stream at the southwest corner of the Preserve, occasional elsewhere, collected June 26.

## SAXIFRAGACEAE

Ribes sp. Gooseberry. One shrub on a hillside and another (possibly cultivated) along the west boundary. No flowering observed, not collected.

## SCROPHULARIACEAE

\* Veronica hederaefolia L. Speedwell. Locally common along the lower trail, collected April 18.

## SIMARUBACEAE

\* Ailanthus altissima (Mill.) Swingle. Tree of Heaven. Several small trees near the entrance, could become a problem, not collected.

## TILIACEAE

Tilia americana L. Basswood. Occasional, not collected.

## ULMACEAE

Celtis occidentalis L. Hackberry. Abundant, one of the dominant tree species, not collected.

Ulmus americana L. American elm. Occasional, not collected.

Ulmus rubra Muhl. Slippery elm. Occasional, not collected.

#### URTICACEAE

Pilea pumila (L.) Gray. Locally common at the intersection of the trails, occasional elsewhere, collected August 21.

Laportea canadensis (L.) Gaud. Wood-nettle. Abundant, collected June 26.

#### UMBELLIFERAE

Chaerophyllum procumbens (L.) Crantz. Chervil. Occasional, collected April 18.

Cryptotaenia canadensis (L.) DC. Honewort. Few plants along the loop trail, collected May 29.

Erigenia bulbosa (Michx.) Nutt. Harbinger-of-spring. Abundant. Observed in flower March 14, but not collected.

Osmorhiza claytoni (Michx.) Clarke. Occasional, collected May 4.

Osmorhiza longistylis (Torr.) DC. Sweet cicely. Occasional, collected May 4.

Sanicula gregaria Bickn. Black snakeroot. Occasional, collected May 29.

Sanicula trifloriata Bickn. Black sankeroot. Occasional,  
collected June 10.

## VIOLACEAE

Viola eriocarpa Schw. Smooth yellow violet. Abundant,  
collected April 12.

Viola papilionacea Pursh. Purple violet. Abundant, collected  
April 12.

Viola striata Ait. White violet. Occasional, collected April 23.

## VITACEAE

Parthenocissus quinquefolia (L.) Planch. Virginia creeper.  
Occasional, not collected.

Vitis aestivalis Michx. Summer grape. Occasional vine, not  
collected.

## DISCUSSION:

In the early spring, the wooded hillsides are carpeted with wildflowers and the Hamilton County Park District can take pride in owning this Preserve. Trillium sessile, Dicentra cucullaria, Viola pubescens, and V. eriocarpa are especially abundant with scattered plants or colonies of Anemonella thalictroides, Claytonia virginica, Erythronium albidum, Uvularia grandiflora, and Camassia scilloides. Two spring-flowering species, Hydrastis canadensis and Jeffersonia diphylla, said to occur here were never located although an intensive search was made. Plants of Trillium sessile are numerous throughout the entire wooded area and one yellow-flowered plant was discovered as well as several brown-flowered plants. This represents all three phenotypes in this species. The occurrence of the yellow-flowered T. sessile is uncommon.

Aplectrum hyemale appears to be particularly well-adapted to this location and numerous plants occur throughout most of the woods. Many were observed in flower in 1985.

One species, potentially threatened in Ohio (Cooperrider, 1982) found in the Preserve, is Panax quinquefolia which was represented by 20 or more plants.

By the end of April, Alliaria officinalis covers almost the entire woods, obscuring one's view of Trillium's and other native plants in flower. The shading and crowding of these plants at the times of flowering and seed production are probably not advantageous to the continuation of these species.

Persons familiar with the Preserve over the years report that this condition is of recent occurrence. By May, numerous plants of Hydrophyllum appendiculatum appear to replace much of the A. officinalis and by June, H. canadensis begins to flower. This latter species, although native, appears to be particularly undesirable, as these plants cover large areas in a monoculture. By late summer Polymnia canadensis is abundant. This species was considered to be a threat several years ago when a group of Park personnel and volunteers attempted eradication by pulling up the plants. Another potential threat is Lonicera maackii which thickly covers the western end of the Preserve. If these plants continue to propegate unchecked, the future of Trillium Trails as a wildflower preserve is questionable.

Several factors which probably have contributed to the spread of these species are the small size of the woods with the pasture bordering it, and a spotty canopy cover because of fallen trees, which allows much sunlight to reach the forest floor. Perhaps the particular combination of climatic events of 1985 and the preceeding years enhanced the spread of these species, and with luck the weather of 1986 will act to inhibit some.

Two suggestions have been made of ways to control the undesirable plants. One method would be to hand pull the plants. This would create a disturbance to the soil, and pioneer species which would grow on the disturbed soil are the very ones which should be eradicated. Cutting the plants before

flowering would be preferable. Either method would involve a large number of man-hours, should be repeated on a yearly basis and would result in the trampling of the soil and plants. Perhaps a small marked-off area could be clipped of all undesirable plants over several years to see if the native plants will thrive. Any suggestions from O.D.N.R. would be appreciated.

This author believes that man's intervention into the balance of nature may give unexpected and perhaps undesirable results, since we really know so little about the interrelationships within a forest community.

#### ACKNOWLEDGEMENTS

This study was funded by the Ohio Department of Natural resources and the Hamilton County Park District.

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## APPENDIX I

Species known to be planted in the Preserve according to Elizabeth Wells(1985).

Bergamot, not found in 1985.

Butternut, not found.

Coralberry, not found.

Celandine poppy, Stylophorum diphyllum (Michx.) Nutt. Two colonies near the lower trail.

Geranium, not found.

Hawthorne, Two trees by the parking area.

Hepatica, not found.

Lesser celandine, Ranunculus ficaria L. Locally common along the lower trail.

Sawtooth oak, growing in the field.

Snowberry, not found.

Showy orchid, not found.

Virginia blue bells, Mertensia virginica (L.) I. M. Johnston. Growing near the lower trail.

Yellow trillium, Trillium luteum, four plants.

## APPENDIX II

### Reporting a rare species.

#### Panax quinquefolium L.

Two plants collected on September 20, 1985, in seed, from a colony of about 20. These plants were located near the southwest corner of Trillium Trails Wildflower Preserve, Village of Woodlawn, Springfield Township, Hamilton County, Ohio.

The specimens will be deposited in the University of Cincinnati Herbarium (CINC), Cincinnati, Ohio 45221-0006.