

## **New Records of Plant Species for Posey County, Indiana**

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### **Introduction**

Floristic studies were conducted in a study area located in Posey County, in southwestern Indiana. Quantitative and qualitative sampling of this study area was conducted over a 2-year period and included seasonal surveys. Five distinct vegetation types were found to occur within the study area. The Indiana Academy of Science 1981 computer species list for Posey County was utilized for a determination of the previous plant species records.

### **Study Area**

The vegetation study area is located in Posey County, Indiana which comprises the southwestern corner of the state. The study area in Posey County is found within the Hill section of the Western Mesophytic Forest Region (1). The site lies within the Highland Rim section of the Interior Low Plateau physiographic province (14). The study site occupies approximately 681 acres (275.6 hectares) and is directly north of the Ohio River. Located in T7S, R12W, Sec. 13 and 24, the eastern edge of the study area borders the Posey-Vanderburg County line. The town of West Franklin is located approximately one-half mile southeast of the study site. The relief on site varies from an elevation of 340 feet (103.6 meters) to 467 feet (142.3 meters) above mean sea level (msl). A broad gently sloping floodplain gives way to a gradual rolling upland area of narrow ridges and moderate to steep-sided valleys. The surficial soils of the study area consist of three major types: bottomland soils, slope soils, and upland soils (15). Most of these soils consist of silt loams with varying degrees of erodability related to vegetation cover and slope gradient. For purposes of floristic investigation, the concept of the representative habitat (vegetation type) was employed. A total of five representative vegetation types were delineated and studied in detail. The five representative vegetation types included oldfield, pastureland, disturbed land (riparian), ponds, and woods types.

### **Methods and Materials**

All strata of vegetation within the five major vegetation types were surveyed. Ground cover vegetation was sampled utilizing the microplot-quadrate method (12, 5, 16). The method utilizes uniform one-tenth meter, spaced sampling plots and provides frequency, density, and dominance information. In addition, several one-tenth acre circular plots were utilized in the oldfield, pasture, and woods vegetation types. Increment core analysis was used in wooded study locations to document successional development.

Overstory and understory vegetation strata were sampled utilizing the point-centered quarter (PCQ) method (4, 16, 17). The PCQ method provides quantitative information about relative density, frequency, dominance, species frequency, and total basal area. In addition to the PCQ sampling method, qualitative inventory sampling was performed for each sampling and survey. All of these methods coupled with seasonal observations and records taken of the pond provided input to a detailed analysis of the study area.

Preliminary vegetation maps of the study site were prepared from available aerial photography. Both black and white and false-color infrared aerial photographs were taken of the site for detailed analysis and to provide a generalized picture of the major floristic types investigated and their locations within the site.

The oldfield sampling location was situated in the northeastern portion of the study site in an area of gently sloping land. Soils within this study site included primarily slope soils covered by  $\frac{1}{2}$  to  $1\frac{1}{2}$  inches (1.3 to 3.8 centimeters) of organic debris.

The pastureland sampling location was located in the northern portion of the site in an area dissected by an intermittent drainageway. Pastureland soils were similar to the soils of the oldfield area and were covered by  $\frac{1}{4}$  to  $\frac{1}{2}$  inch (0.6 to 1.3 centimeters) of organic debris. Previous mowing or spraying pressure was evident in non-wooded areas of the pastureland location.

The disturbed land sampling area was located in the central portion of the site and consisted of pastureland, woods, and oldfield vegetation types which are cleared of vegetation 1 to 2 years prior to the survey program for site development purposes. The vegetation of the disturbed land represented a wide variety of "pioneer" species which included dominant components of the other predominant vegetation types of the site. The pond sampling area was located in the northeast-central portion of the site and included two pond areas fed by an intermittent drainageway. Notable plant zonation was found around each pond location.

The remaining vegetation type consisted of woods. Within the cover type, woods was subdivided into mixed hardwoods and beech woods. The mixed hardwoods extended in an easterly direction from the western edge of the site covering slopes, valleys, and ridges within the forest. The beech woods was most commonly observed on northfacing slopes within the woodlands.

Taxonomic determinations for various field specimens were made based on comparison and validation with voucher specimens on file at the Indiana University Herbarium in Bloomington, and the University of Cincinnati Herbarium in Cincinnati.

### Results and Discussion

The Indiana Academy of Science computerized plant species list for Posey County, Indiana indicates a recorded flora of 800 species (11). This computerized listing includes both native and introduced plants which have been previously recorded from the county. In this specific vegetation investigation of Posey County, a total of 272 plant species, representative of 196 genera and 89 families were recorded. Careful comparison of the Posey County field species list with the Indiana Academy of Science computerized listing indicated that of the 272 plant species recorded, a total of 207 records represented species previously identified from Posey County. A total of 65 new plant species records were uncovered as the result of this field investigation (Table 1). The identification of 65 new plant species in Posey County should not be construed as a recent plant migration into Posey County. Rather, comparison of the field species list with surrounding county species lists indicates that several of the species are commonly found in adjacent counties and perhaps were not uncovered (although present) during the prior floristic investigations in Posey County. This vegetation survey information collected for Posey County should provide an update and addition to both the local and regional flora of southwestern Indiana.

TABLE 1. *New Plant Species of Posey County Study Area*

Scientific Name Common Name	Sampling Area 1 (Oldfield Vegetation Type)	Sampling Area 2 (Pastureland Vegetation Type)	Sampling Area 3 (Disturbed Land Vegetation Type)	Sampling Area 4 (Ponds Vegetation Type)	Sampling Area 5 (Woods Vegetation Type)
<i>Agrimonia parviflora</i> Ait. Smallflower agrimony	C, c	C	D	D	-
<i>Albizia julibrissin</i> Durazz. Albizia	-	-	-	D	-
<i>Alisma subordatum</i> Raf. Water plantain	-	-	-	D	-
<i>Allium canadense</i> L. Meadow garlic	C	C, D	D	-	C
<i>Allium vineale</i> L. Crow garlic	c	D	D	-	-
<i>Anacharis canadensis</i> (Michx.) Planch.	-	-	-	-	D
Canada waterweed	-	-	-	-	D
<i>Arctium minus</i> (Hill.) Bernh. Common burdock	-	-	-	-	C
<i>Arisaema triphyllum</i> (L.) Schott. Jack-in-the-pulpit	-	-	-	-	D
<i>Artemisia absinthium</i> L. Common wormwood	-	C	-	-	-
<i>Asclepias verticillata</i> L. Horsetail milkweed	c	-	-	-	-
<i>Ascyrum hypericoides</i> L. var. <i>multicaule</i> (Michx.) Fern. St. Andrew's cross	-	-	-	-	D
<i>Asimina triloba</i> (L.) Dunal. Papaw	-	-	-	-	b, c, D



TABLE 1. — Continued

Scientific Name Common Name	Sampling Area 1 (Oldfield Vegetation Type)	Sampling Area 2 (Pastureland Vegetation Type)	Sampling Area 3 (Disturbed Land Vegetation Type)	Sampling Area 4 (Ponds Vegetation Type)	Sampling Area 5 (Woods Vegetation Type)
<i>Fragaria virginiana</i> Duchesne. Virginia strawberry	—	—	—	—	D
<i>Hydrophyllum canadense</i> L. Broadleaf waterleaf	—	—	—	—	D
<i>Hydrophyllum macrophyllum</i> Nutt. Largeleaf waterleaf	—	—	—	—	D
<i>Ipomoea purpurea</i> Roth. Common morning-glory	—	C, D	—	—	C
<i>Juncus effusus</i> L. var. <i>solutus</i> Fern and Wieg. Soft rush	—	—	—	D	—
<i>Juncus macer</i> S.F. Gray Rush	—	—	—	D	—
<i>Juniperus virginiana</i> L. var. <i>crebra</i> Fernand & Grissom Eastern red cedar	B	—	—	—	D
<i>Lactuca scariola</i> L. Prickly lettuce	—	D	D	—	—
<i>Mentha arvensis</i> L. Field mint	—	C	D	—	—
<i>Mitella diphylla</i> L. Bishopscap	—	—	—	—	c, D
<i>Nelumbo pentapetalata</i> (Walt.) Fern American lotus	—	—	—	D	—
<i>Onoclea sensibilis</i> L. Sensitive fern	—	—	—	D	—

<i>Panax quinquefolium</i> L. American ginseng	—	—	—	—	D
<i>Phragmites communis</i> Trin. Common reed	—	—	D	—	—
<i>Plantago lanceolata</i> L. Buckhorn	C, c	C, D	C, D	D	—
<i>Poa pratensis</i> L. Kentucky bluegrass	C, c	C	C	C	C
<i>Potentilla monspeliensis</i> L. Rough cinquefoil	D	—	—	—	—
<i>Quercus borealis</i> Michx. var. <i>maxima</i> (Marsh) Ashe Red oak	—	—	—	—	A, B, D
<i>Quercus prinus</i> L. Swamp chestnut oak	—	B	—	—	—
<i>Rhus typhina</i> L. Staghorn sumac	B, D	B	D	B, D	—
<i>Rosa multiflora</i> Thunb. Japanese rose	D, c	D	—	B, C, D	C
<i>Rubus flagellaris</i> Willd. Northern dewberry	C	—	—	—	—
<i>Rubus occidentalis</i> L. Common blackcap raspberry	C, c	C, D	D	B, C, D	D
<i>Sanguinaria canadensis</i> L. Bloodroot	—	—	—	—	C, D
<i>Sassafras abidum</i> (Nutt.) Nees. Sassafras	B	—	—	D	A, B
<i>Setaria latescens</i> (Weigel) F.T. Hubb. Yellow foxtail	C	D	—	—	—
<i>Solidago canadensis</i> L. Canada goldenrod	C, c	D	D	D	—
<i>Taraxacum officinale</i> Weber Common dandelion	C	D	—	—	—

TABLE 1.—Continued

Scientific Name Common Name	Sampling Area 1 (Oldfield Vegetation Type)	Sampling Area 2 (Pastureland Vegetation Type)	Sampling Area 3 (Disturbed Land Vegetation Type)	Sampling Area 4 (Ponds Vegetation Type)	Sampling Area 5 (Woods Vegetation Type)
<i>Trifolium pratense</i> L. Red clover	C	C, D	D	D	—
<i>Trifolium repens</i> L. White clover	c	—	D	—	—
<i>Trillium sessile</i> L. Sessile-flower trillium	—	—	—	—	D
<i>Ulmus rubra</i> Muhl. Slippery elm	B, c	B, C	—	B, D	A, B, C, D
<i>Urtica procera</i> Muhl. in Willd. Tall nettle	—	C	—	—	—
<i>Verbena hastata</i> L. Blue vervain	—	—	—	D	—
<i>Virburnum prunifolium</i> L. Blackhaw	—	—	—	—	B
<i>Vinca minor</i> L. Common periwinkle	—	—	—	—	D
<i>Viola striata</i> Ait. Cream violet	—	—	—	—	C, D

Letter designations:

- A = Overstory, spring
- B = Understory, spring
- b = Understory, fall
- C = Ground Cover, spring
- c = Ground Cover, fall
- D = Observation Only

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