

New Records of Plant Species for Switzerland County, Indiana

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Introduction

Quantitative and qualitative sampling of a study area in southeastern Indiana uncovered some significant additions to the recorded flora of Switzerland County. Six distinct vegetation types were studied over the period of 1 year. Many species were found to be restricted to one type, possessing suitable growth characteristics. This presentation of new plant records for Switzerland County, Indiana is directed toward updating and adding to the local and regional flora.

Study Area

The vegetation study area is located in Switzerland County, Indiana which forms a portion of the southeastern corner of the state. Switzerland County falls within the Western Mesophytic Forest Region and in particular, the area of Illinoian glaciation (2). The study site occupies 883 acres and is located along the eastern edge of the county, bordered to the east by the Ohio River. Located in T1N, R1E, Sec. 5 and 6, and T2N, R1E, Sec. 31, the western boundary of the study site borders the First Principal Meridian. The town of Patriot, Indiana is located approximately 4 miles south of the site. On site, topographic relief varies from an elevation of 455 feet (138.6 meters) to 580 feet (176.78 meters) above mean sea level (m.s.l.). First and second bottoms within the Ohio River floodplain predominate on the site, with moderately steep hillside lands found in the western portion of the site. The soils supporting the vegetation of the study site consist of two major types, soils of the first bottoms and soils of the second bottoms (9) (12). The concept of the representative habitat (vegetation type) was employed throughout the field survey. Utilizing this concept, both quantitative and qualitative data were obtained for the vegetation types found on the site. The actual onsite cover types included upland woods, grazed woods, advanced oldfield, oldfield, riparian, and riverbank.

Methods and Materials

The overstory and understory vegetation sampling within the forested vegetation types of the site was accomplished utilizing the point-centered quarter (PCQ) method (4) (13). This method provides quantitative information concerning relative density, frequency, dominance, species frequency and total basal area.

Ground level vegetation was studied using the microplot-quadrat method (5) (11). Additional methods employed included the 1/10 acre area plot used in the advanced oldfield, and increment core analysis used in determining

successional trends. All of these methods coupled with observations and records taken in the field provided input to a detailed analysis of the study site.

To conduct a comprehensive study, reference maps of the county were obtained and evaluated. Several regional vegetation maps were used to categorize the major stand type (2) (7). Taxonomic sources consulted provided a rich source of information including Deam (6), Braun (1), Britton and Brown (3), and Gleason and Cronquist (8). Deam (6) was considered to be the most applicable to the vegetation of the southeastern Indiana study site.

The upland woods sampling location was situated in the extreme western portion of the study site and was found on well-drained ridges, hilltops and upslopes. The grazed woods sampling location was in the western portion of the site. A pronounced browse line was observed along the outer perimeter of this woods. The major portion of this sampling location consisted of dense woods with thick understory and ground cover vegetation. The vegetation of the grazed woods location included both mesophytic and xerophytic species with specific occurrence related to degree of slope.

The advanced oldfield sampling location was within the western portion of the site. It was at a successional stage between incipient oldfield and wooded vegetation types. This location had no true overstory; instead it contained a developing woody understory. The oldfield sampling area was located in the west central portion of the site amidst cropland and pastureland. This oldfield was estimated to be 7 to 10 years old and in the past was subject to light, incidental grazing.

The riparian study area followed a small creek in the northern portion of the site. This community had a sparse understory and overstory vegetation. The riverbank sampling consisted of a narrow ribbon of hydrophytic vegetation adjacent and parallel to the Ohio River. Agricultural lands on site including crop and pastureland were not quantitatively sampled due to the intensive cultivation practices used on site.

Results and Discussion

Table I includes 162 plant species identified from the study area which had not previously been reported for Switzerland County (10). The listed species were recorded and tabulated on the basis of the six predominant vegetation types of the site. In addition, the season and stratum in which the species were observed are recorded. Throughout the seasonal field study, a total of 253 plant species, representative of 189 genera and 75 families recorded. Of the total recorded species, the 162 species presented here, had not previously been reported for Switzerland County. It is probable that the number of new records presented here is not reflective of an influx of new species, but rather represents new records for a county in which there has been a paucity of previous studies.

Switzerland County possesses a recorded flora of 337 plant species (10). These additional records should expand the flora of Switzerland County to 501 taxa.

TABLE I New vegetation species of Switzerland County study site

Scientific Name Common Name	Sampling Area (Upland Woods Vegetation Type)	Sampling Area (Grazed Woods Vegetation Type)	Sampling Area (Advanced Oldfield Vegetation Type)	Sampling Area (Oldfield Vegetation Type)	Sampling Area (Riparian Vegetation Type)	Sampling Area (Riverbank Vegetation Type)
<i>Abutilon theophrasti</i> Medic.						
Velvet-leaf	—	—	C, D	C, D	—	—
<i>Adiantum pedatum</i> L.						
Maidenhair fern	E	—	—	—	—	—
<i>Aesculus octandra</i> Marsh.						
Yellow buckeye	—	—	—	—	—	E
<i>Agastache nepetoides</i> (L.) Ktze.						
Giant hyssop	—	—	—	—	—	E
<i>Agrimonia parviflora</i> Ait.						
Smallflower agrimony	—	—	—	—	E	—
<i>Allium canadense</i> L.						
Meadow garlic	C	—	—	—	—	E
<i>Allium stellatum</i> Ker.						
Wild onion	—	—	—	—	—	D
<i>Alnus serrulata</i> (Ait.) Willd.						
Smooth alder	—	—	—	—	E	—
<i>Ambrosia bidentata</i> Michx.						
Lanceleaf ragweed	—	—	—	C	—	—
<i>Ambrosia trifida</i> L.						
Great ragweed	—	—	C	—	E	E
<i>Arisaema triphyllum</i> (L.) Schott.						
Jack-in-the-pulpit	E	—	—	—	—	—
<i>Artemisia absinthium</i> L.						
Common wormwood	—	—	—	—	—	E
<i>Aruncus dioicus</i> (Walt.) Fern.						
Common goatsbeard	—	—	—	E	—	—
<i>Asarum reflexum</i> Bickn.						
Curly wildginger	—	E	—	—	—	—

TABLE I New vegetation species of Switzerland County study site (Continued)

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<i>Asclepias variegata</i> L. White milkweed	—	—	—	D	D	D
<i>Asplenium platyneuron</i> (L.) Oakes						
Ebony spleenwort	E	—	—	—	C	—
<i>Aster novae-angliae</i> L.						
New England aster	—	—	—	E	—	—
<i>Avena fatua</i> L.						
Wild oat	—	—	—	—	D	—
<i>Avena sativa</i> L.						
Oat	—	—	—	—	—	E
<i>Betula nigra</i> L.						
River birch	—	—	—	—	A	A, B
<i>Bidens bipinnata</i> L.						
Spanish needles	—	—	—	—	—	C
<i>Bidens frondosa</i> L.						
Bidens	C	C	—	—	—	—
<i>Bromus latiglumis</i> (Shear) Hitchc.						
Bromegrass	—	—	—	—	—	E
<i>Bromus tectorum</i> L.						
Downy chess	—	—	—	E	—	—
<i>Campsis radicans</i> (L.) Seem.						
Trumpet-creeper	C	—	—	D	D	C, D
<i>Carduus nutans</i> L.						
Musk thistle	—	—	—	E	—	—
<i>Carum carvi</i> L.						
Caraway	—	—	—	—	—	E
<i>Carya ovaia</i> (Mill.) K. Koch						
Shagbark hickory	A, B	A, B	E	—	—	—

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<i>Carya tomentosa</i> (Lam.) Nutt. Mockernut	A, B	A, B	—	—	—	—
<i>Celtis occidentalis</i> L. Hackberry	A, B	A, B	—	—	A, B	A, B
<i>Chenopodium album</i> L. Pigweed	—	—	C, D	—	—	E
<i>Chrysanthemum leucanthemum</i> L. var <i>pinnatifidum</i> Lecoq & LaMotte Oxeye daisy	—	—	C, D	C, D	—	E
<i>Cichorium intybus</i> L. Chicory	—	—	—	E	—	—
<i>Cirsium discolor</i> (Muhl.) Spreng. Field thistle	—	—	—	—	E	—
<i>Cirsium vulgare</i> (Savi) Airy-Shaw Bull thistle	—	—	—	E	—	—
<i>Clematis virginiana</i> L. Virgins-bower	—	—	—	E	—	—
<i>Commelina communis</i> L. Common dayflower	—	—	—	E	—	—
<i>Convolvulus arvensis</i> L. Field bindweed	—	—	—	C	—	D
<i>Convolvulus sepium</i> L. Hedge bindweed	—	—	C	—	—	C, D
<i>Coreopsis major</i> Walt. Large coreopsis	—	—	—	D	—	—
<i>Cornus florida</i> L. Flowering dogwood	—	—	—	—	B	—

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<i>Cynodon dactylon</i> (L.) Pers.						
Bermuda grass	—	—	—	E	—	—
<i>Cyperus strigosus</i> L.						
Umbrella sedge	—	—	—	—	—	E
<i>Datura stramonium</i> L.						
Jimson-weed	—	—	—	—	E	—
<i>Delphinium ajacis</i> L.						
Rocket larkspur	E	—	—	—	—	—
<i>Desmanthus illinoensis</i> (Michx.) MacM.						
Illinois mimosa	—	—	—	—	—	E
<i>Dianthus armeria</i> L.						
Deftford pink	—	—	—	E	—	—
<i>Dicentra canadensis</i> (Goldie) Walp.						
Squirrel corn	D	D	—	—	—	—
<i>Dicentra cucullaria</i> (L.) Bernh.						
Dutchman's-breeches	E	—	—	—	—	—
<i>Diervilla lonicera</i> Mill.						
Bush-honeysuckle	—	—	—	D	E	—
<i>Digitaria ischaemum</i> (Schreb.) Muhl.						
Smooth crabgrass	—	—	E	E	—	—
<i>Dioscorea villosa</i> L.						
Wild yam-root	E	—	—	—	—	—
<i>Dipsacus sylvestris</i> Huds.						
Common teasel	—	—	C	E	—	—
<i>Echinochloa crusgalli</i> (L.) Beauv.						
Barnyard grass	—	—	—	—	—	E
<i>Elymus canadensis</i> L.						
Canada wild-rye	—	—	C	C	—	C

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<i>Eryngium yuccaeifolium</i> Michx. Button-snakeroot	—	—	—	E	—	—
<i>Erythronium americanum</i> Ker. Common trout lily	—	D	—	—	—	—
<i>Euonymus atropurpureus</i> Jacq. Wahoo	—	—	—	—	—	E
<i>Eupatorium fistulosum</i> Barratt. Joe-pye-weed	—	—	E	D, E	—	—
<i>Euphorbia corollata</i> L. Flowering spurge	—	—	—	—	—	D
<i>Festuca elatior</i> L. Meadow fescue	C, D	—	C, D	C	C, D	D
<i>Fragaria virginiana</i> Duchesne. Virginia strawberry	C, D	C, D	C, D	C	—	D
<i>Fraxinus lanceolata</i> Borkh. Green ash	—	A	—	—	A, B	—
<i>Geum canadense</i> Jacq. White avens	C, D	C, D	—	C, D	—	D
Soy-bean	—	—	—	—	—	C
<i>Helopsis helianthoides</i> (L.) Sweet Sunflower heliopsis	—	—	—	E	—	—
<i>Ipomoea hederacea</i> Jacq. Ivyleaf morning-glory	—	—	—	—	E	—
<i>Ipomoea purpurea</i> (L.) Roth Common morning-glory	—	—	—	—	—	E
<i>Jeffersonia diphylla</i> (L.) Pers. Twinleaf	—	D	—	—	—	—

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<i>Lactuca canadensis</i> L. var. <i>latifolia</i> O. Ktze						
Wild lettuce	—	—	D	C, D	—	D
<i>Lactuca scariola</i> L.						
Prickly lettuce	—	—	—	—	—	E
<i>Laportea canadensis</i> (L.) Gaud.						
Canada nettle	C, D	C, D	—	—	D	—
<i>Lepidium densiflorum</i> Schrad.						
Common pepperwort	—	—	—	—	—	D
<i>Lepidium virginicum</i> L. var. <i>typicum</i> C. L. Hitchcock						
Peppergrass	—	—	—	E	—	—
<i>Lespedeza cuneata</i> (Dumont) G. Don.						
Silky lespedeza	—	—	—	—	—	E
<i>Lespedeza repens</i> (L.) Bart.						
Creeping bushclover	—	—	—	—	E	—
<i>Ligustrum vulgare</i> L.						
European privet	D	—	—	—	—	—
<i>Linaria vulgaris</i> Hill.						
Common toadflax	—	—	—	E	C	—
<i>Lindera benzoin</i> (L.) Blume.						
Spice bush	B	B	—	—	B	—
<i>Lonicera japonica</i> Thunb.						
Japanese honeysuckle	C, D	C	—	—	—	E
<i>Lycopodium flabelliforme</i> (Fern) Blanchard						
Clubmoss	C	—	—	—	—	—
<i>Maclura pomifera</i> (Raf.) Schneid.						
Osage-orange	—	—	E	—	—	A, B
<i>Malus coronaria</i> (L.) Mill.						
Wild sweet crab	—	—	—	—	A, B	—

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<i>Malva moschata</i> L. Musk mallow	—	—	—	—	E	—
<i>Malva neglecta</i> Wallr. Cheeseweed	—	—	—	—	D	—
<i>Matricaria matricarioides</i> (Less.) Porter Rayless camomile	—	—	—	—	E	—
<i>Medicago lupulina</i> L. Black medic	—	—	—	E	—	—
<i>Medicago sativa</i> L. Alfalfa	—	—	E	E	—	—
<i>Melilotus officinalis</i> (L.) Lam. Yellow sweetclover	—	—	C, D	—	—	—
<i>Menispermum canadense</i> L. Common moonseed	E	—	—	—	—	—
<i>Mentha arvensis</i> L. Field mint	—	—	—	—	C	—
<i>Morus rubra</i> L. Red mulberry	A, B	B	E	—	—	B
<i>Muhlenbergia schreberi</i> J. F. Gmel. Nimblewill	—	—	—	—	—	D
<i>Ornithogalum umbellatum</i> L. Common star-of-Bethlehem	—	—	—	—	—	E
<i>Ostrya virginiana</i> (Mill.) K. Koch Hop-hornbeam	A, B	A, B	—	—	—	—
<i>Oxalis europaea</i> Jordan Lady's sorrel	—	C, D	C, D	C, D	C, D	C, D
<i>Parthenocissus quinquefolia</i> (L.) Planch. Virginia creeper	C, D	C, D	E	C, D	C, D	D

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<i>Paspalum pubescens</i> Muhl.						
Paspalum	—	—	—	C	—	—
<i>Passiflora incarnata</i> L.						
Maypop	—	—	—	—	—	E
<i>Phlox maculata</i> L.						
Sweet William phlox	E	—	—	—	—	—
<i>Plantago lanceolata</i> L.						
Buckhorn	—	—	C, D	C, D	D	C, D
<i>Platanus occidentalis</i> L.						
American planetree	A	—	B, E	E	A, B	E
<i>Poa pratensis</i> L.						
Kentucky bluegrass	C, D	C, D	C, D	C, D	C, D	C, D
<i>Polygonatum biflorum</i> (Walt.) Ell.						
Smooth Solomon's-seal	D	D	—	—	—	—
<i>Polygonum pennsylvanicum</i> L. var. <i>genuinum</i> Fern.						
Pennsylvania smartweed	—	—	—	—	C, D	—
<i>Populus deltoides</i> Michx.						
Cottonwood	—	—	—	—	—	E
<i>Portulaca oleracea</i> L.						
Common purslane	—	—	C, D	—	—	—
<i>Potamogeton diversifolius</i> Raf.						
Pondweed	—	—	—	—	E	—
<i>Potentilla norvegica</i> L.						
Cinquefoil	—	—	—	D	D	D
<i>Prunella vulgaris</i> L. var. <i>lanceolata</i> (Bart.) Fern						
American selfheal	—	—	C, D	D	—	D

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<i>Quercus alba</i> L. White oak	A	A	—	—	—	—
<i>Quercus borealis</i> Michx. var. <i>maxima</i> (Marsh) Ashe.						
Red oak	A, B	A, B	E	—	—	—
<i>Quercus coccinea</i> Muench. Scarlet oak	A	A	—	—	—	—
<i>Quercus prinus</i> L. Swamp chestnut	—	—	—	—	—	E
<i>Quercus velutina</i> Lam. Black oak	—	A	—	—	A	—
<i>Raphanus raphanistrum</i> L. Wild radish	—	—	—	—	—	E
<i>Robinia pseudoacacia</i> L. Black locust	—	A, B	—	—	A, B	A, B
<i>Rosa multiflora</i> Thunb. Japanese rose	—	—	C, E	E	—	—
<i>Rosa carolina</i> L. Pasture rose	—	B	—	—	—	—
<i>Rubus allegheniensis</i> Porter Allegheny blackberry	—	—	E	C, D	—	E
<i>Rubus flagellaris</i> Willd. Northern dewberry	—	—	—	E	—	—
<i>Rubus occidentalis</i> L. Common blackcap raspberry	—	—	—	E	—	—
<i>Rudbeckia hirta</i> L. Black-eyed susan	—	—	—	C	—	—

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<i>Rumex crispus</i> L.	—	—	C, D	C	D	C, D
Curly dock	—	—	—	—	—	—
<i>Salix humilis</i> Marsh	—	—	—	—	A	—
Prairie willow	—	—	—	—	—	—
<i>Salsola kali</i> var. <i>tenuiflora</i> G.F.W. Mey.	—	—	—	D	—	—
Russian thistle	—	—	—	—	—	—
<i>Sanguinaria canadensis</i> L.	—	—	—	—	—	—
Bloodroot	E	—	—	—	—	—
<i>Saxifraga virginensis</i> Michx.	—	—	—	—	—	—
Virginia saxifrage	—	—	—	—	C	—
<i>Scirpus validus</i> Vahl.	—	—	—	—	—	—
Bulrush	—	—	—	—	E	—
<i>Secale cereale</i> L.	—	—	—	—	—	—
Rye	—	—	—	—	—	D
<i>Silene cucubalus</i> Wibel.	—	—	—	—	—	—
Bladder catchfly	—	—	—	—	—	E
<i>Silphium perfoliatum</i> L.	—	—	—	—	—	—
Cup rosinweed	—	—	—	E	—	—
<i>Silphium trifoliatum</i> L.	—	—	—	—	—	—
Whorled rosinweed	—	—	—	—	E	—
<i>Smilax glauca</i> Walt. var. <i>genuina</i> Blake.	—	—	—	—	—	—
Sawbrier	—	C	—	—	—	—
<i>Smilax herbacea</i> L.	—	—	—	—	—	—
Smooth carrion-flower	E	—	—	—	—	—
<i>Solanum carolinense</i> L.	—	—	—	—	—	—
Horse nettle	—	—	—	C	—	D
<i>Solanum nigrum</i> L.	—	—	—	—	—	—
Common nightshade	—	—	—	—	—	E

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<i>Solidago latifolia</i> L.	—	—	C, D	C	D	E
Broadleaf goldenrod						
<i>Sorghastrum nutans</i> (L.) Nash.	—	—	—	—	—	E
Indian grass						
<i>Sorghum halepense</i> (L.) Pers.	—	—	—	—	D	D
Johnson grass						
<i>Spergula arvensis</i> L.	—	—	—	E	—	—
Spurrey						
<i>Strophostyles umbellata</i> (Muhl.) Britt.	—	—	—	E	—	—
Trailing wild bean						
<i>Syringa vulgaris</i> L.	—	—	—	—	—	—
Common lilac		B	E	—	—	—
<i>Tanacetum vulgare</i> L.	—	—	—	—	—	—
Common tansy				D	—	—
<i>Taraxacum officinale</i> Weber						
Common dandelion	—	D	D	C, D	—	C, D
<i>Thalictrum dioicum</i> L.						
Early meadowrue	—	E	—	—	—	—
<i>Tradescantia virginiana</i> L.						
Virginia spiderwort	E	—	—	—	—	—
<i>Trifolium arvense</i> L.	—	—	—	D	—	—
Rabbit foot clover						
<i>Trifolium pratense</i> L.	—	—	—	—	—	—
Red clover						
<i>Trifolium procumbens</i> L.	—	—	C, D	C, D	—	D, E
Low hop clover						
<i>Trifolium repens</i> L.	—	—	—	E	—	—
White clover	—	—	D	C, D	—	C, D

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<i>Tridaxis perfoliata</i> (L.) Nieuwl.	—	—	—	—	—	E
Venus' looking glass	—	—	—	—	—	—
<i>Trillium erectum</i> L.	E	—	—	—	—	—
Trillium	—	—	—	—	—	—
<i>Typha latifolia</i> L.	—	—	—	—	D	—
Common cattail	—	—	—	—	—	—
<i>Ulmus rubra</i> Muhl.	—	—	—	—	—	—
Slippery elm	B	A	—	—	A, B	A, B
<i>Verbascum blattaria</i> L.	—	—	—	E	—	—
Moth mullein	—	—	—	—	—	—
<i>Vernonia altissima</i> Nutt.	—	—	—	—	—	—
Tall ironweed	—	—	C	C, D	—	—
<i>Viola papilionacea</i> Pursh.	—	—	—	—	—	—
Butterfly violet	C, D	D	C, D	—	D	C, D
<i>Vitis aestivalis</i> Michx.	—	—	—	—	—	—
Summer grape	D	B	—	C	B, E	E
<i>Vitis riparia</i> Michx.	—	—	—	—	—	—
Riverbank grape	—	—	—	—	—	B
<i>Xanthium spinosum</i> L.	—	—	—	—	—	—
Spiny cocklebur	—	—	—	E	—	—
<i>Zanthoxylum americanum</i>	—	—	—	—	—	—
Northern prickly ash	—	E	—	—	—	—

Letter designations: A = Overstory, fall, 1976

B = Understory, fall, 1976

C = Ground cover, fall, 1976

D = Ground cover, spring, 1977

E = Observation only

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