Vascular Flora of Thompson Woods, Jackson County, Illinois

Mark A. Basinger
Department of Plant Biology, Southern Illinois University
Carbondale, Illinois 62901

Current Address: Department of Biological and Physical Sciences, Barton College, Wilson, North Carolina 27893

ABSTRACT

The vascular flora of Thompson Woods, a 7.3 ha old-growth forest remnant, was surveyed during the 1999-2001 growing seasons. A total of 338 species in 223 genera of 88 families were identified. This included 8 pteridophytes, 4 gymnosperms, 71 monocots, and 255 dicots. The families with the largest numbers of species were the Asteraceae and Poaceae with 28 each. The genera with the largest numbers of species were Carex (17) and Quercus (14). The dominant growth forms were woody plants followed by C₃ perennial forbs, and 79% of all species were perennial plants. Hemicyrtophytes and phanerophytes were the dominant life forms and over 97% of all species had the C₃ photosynthetic pathway. Over 80% of all species were infrequent or rare, with only 9 species considered abundant. The forest has shifted, primarily over the past 21 years due to two severe windstorms and lack of subsequent management, from an overstory dominated by Quercus spp. to one dominated by a mixture of Acer saccharum, Fagus grandifolia, and Prunus serotina. Shade-tolerant native and invasive non-native species dominate the understory at present.

INTRODUCTION

Thompson Woods is located in east central Jackson County in the approximate center of the Southern Illinois University at Carbondale (SIUC) campus. The 7.3 ha (18-acre) forest was clear-cut between 1840 and 1850 when part of the public domain, and the lumber was used locally for building projects. The Thompson family purchased the forest in 1868 and they built a home at the south end of the woods and raised cattle on the property. Some Quercus alba were selectively removed for stave bolts for barrels in 1914. The woods were sold to SIUC in 1940 from Lavinia Thompson for $6,250.00, with a gentleman’s agreement that the forest remains in a natural condition. The forest was a popular place for picnicking in the 1940’s and there was once a row of houses on the northeast corner of the woods at the intersection of Chautauqua and South Thompson streets (O’Malley 1993). Thompson Woods was identified by the Illinois Natural Areas Inventory during the 1970’s as one of the finest upland old-growth Quercus velutina Lam. stands in the state, with trees estimated at 120 years old (White and Madany 1978). Two severe windstorms in 1980 resulted in a 42.5% decrease in Quercus velutina in the canopy (from 200 to 115 trees; Faulkner 1983, O’Malley 1993). Subsequent decisions by
SIUC administration not to manage the forest as a natural area has led to increases in mesophytic species in the canopy, little oak regeneration, and an understory dominated by invasive woody species such as Euonymus fortunei (Turcz.) Hand.-Maz., Lonicera japonica Thunb., and L. maackii (Ruhr.) Maxim. Currently, a SIUC management committee is trying to restore the forest to its 1970's appearance with a combination of invasive and mesophytic plant control and planting of oak seedlings and saplings.

The objectives of the present study were to document the vascular flora of Thompson Woods and describe the flora in terms of growth forms, life forms, photosynthetic pathways, and dominant vegetation.

**STUDY AREA**

Thompson Woods is located in the Mount Vernon Hill Country Section of the Southern Till Plain Division (NE/4 NW/4 Sec. 28 T9S R1W), which represents the southernmost extent of Illinoian glaciation (Schwegman et al. 1973). The Mount Vernon Hill County Section is characterized by hilly, rolling topography and was primarily forested in pre-settlement time dominated by *Quercus* spp. Upland soils of this section have developed from a combination of loess and glacial till and usually have a well-developed claypan or fragipan near the soil surface (Schwegman et al. 1973).

Soils of Thompson Woods are composed of Hosmer silt loam and Hosmer silty clay loam, which are moderately well drained upland soils with an underlying fragipan (typic fragiudalfs). Hosmer soils are formed from Peoria loess and are found on ridgetops and side slopes that range from two to 18 percent slope (Herman et al. 1979).

Climate in southern Illinois is continental with warm summers and mild winters. Thornthwaite (1948) considered the climate to be humid mesothermal with little to no water deficit in any season and a potential annual evapotranspiration of 76.2 cm. Average yearly precipitation in Carbondale is 113.5 cm, with extremes of 78.1 and 189.2 cm, and is evenly distributed throughout the year, although extended periods of drought can occur during the summer months. The mean January temperature is 2 °C while the mean July temperature is 25 °C at Carbondale. The average number of frost free days ranges from 193 to 206, extending between 7 April and 30 October (Herman et al. 1979).

**METHODS**

The flora of Thompson Woods was surveyed from May 1999 to August 2001 to collect voucher specimens and abundance information for each species. Special attention was given to areas with high species richness such as the forest edge and margins of paths. Voucher specimens were deposited at the Illinois Natural History Survey Herbarium (ILLS). Identifications, along with criteria for plant duration, were made using Fernald (1950), Radford et al. (1968), Mohlenbrock (1986), Gleason and Cronquist (1991), Swink and Wilhelm (1994), and Yatzkievych (1999). Nomenclature follows Mohlenbrock (1986).

Abundance ratings were defined to give a relative quantification to field observations and were modified from Lortie et al. (1991), Looney et al. (1993), Joyner and Chester (1994),
and Basinger and Robertson (1997). Abundance rating refers to abundance of a species within Thompson Woods and included: 1) abundant, species dominant throughout the woods, 2) frequent, species co-dominant or present in large numbers throughout the woods, 3) occasional, species in moderate numbers in scattered populations in the woods, 4) infrequent, species in small numbers in scattered populations in the woods, and 5) rare, species known from one individual, population, or a restricted area in the woods.

Plant life form (chamaephyte, cryptophyte, hemicyryptophyte, phanerophyte, therophyte; Raunkiaer 1934) was determined for each species using information in Ennis (1928), MacDonald (1937), Oosting (1942), Hansen (1952), Gibson (1961), and Baskin et al. (1995). The predominant life cycle (annual, biennial, perennial) was determined using the above identification sources. Graminoids included Cyperaceae, Juncaceae, and Poaceae, while forbs included all non-woody and non-graminoid vascular plants. Woody plants included all trees, shrubs, and lianas, while ferns and fern allies were listed as pteridophytes.

Photosynthetic pathway \( (C_3/C_4) \) was determined from published information in Downtown (1975), Raghavendra and Das (1978), Waller and Lewis (1979), and Baskin et al. (1995). Photosynthetic pathway was inferred at the family or genus level using the above references for species whose pathway had not been determined. Woody plants were assumed to have the \( C_3 \) pathway, following Baskin et al. (1995).

**RESULTS AND DISCUSSION**

The flora of Thompson Woods consists of 338 species and subspecific taxa in 223 genera of 88 families. The Coniferophyta and Pteridophyta were poorly represented, accounting for only 4 species (1.2% of all species) and 8 species (2.4%), respectively. Among angiosperms, monocots accounted for 71 species in 41 genera of 9 families (21.0%), whereas dicots accounted for 255 species in 171 genera of 73 families (75.4%). The families with the largest numbers of species were Asteraceae (28), Poaceae (28), Cyperaceae (17), Fagaceae (15), Rosaceae (13), and Lamiaceae (10). The genera with the largest numbers of species were *Carex* (17), *Quercus* (14), *Viburnum* (6), *Acer* (5), *Polygonum* (5), *Carya* (4), *Galtia* (4), and *Solidago* (4). Genera with 3 species included *Aster*, *Cornus*, *Dichanthelium*, *Elymus*, *Euonymus*, *Eupatorium*, *Festuca*, *Ilex*, *Magnolia*, *Plantago*, *Poa*, *Prunus*, *Ranunculus*, *Ulmus*, and *Viola*. Appendix 1 provides a listing of all species reported from Thompson Woods in this study.

The flora of Thompson Woods was dominated by woody plants (115 species; 34.0% of all species) and \( C_3 \) perennial forbs (103 species; 30.5%). There were 169 forbs, 115 woody plants, 46 graminoids, and 8 pteridophytes. The majority of the species were perennial (267), followed by annual (58) and biennial (13). The predominant photosynthetic pathway was \( C_3 \) (330 species; 97.6% of all species). There were only 8 species (2.4%), 7 of these members of the Poaceae, that had the \( C_4 \) photosynthetic pathway (Table 1).

Life forms of the 338 species identified from Thompson Woods are as follows: hemicyryptophyte (131 species; 38.8% of all species), phanerophyte (115 species; 34.0%), therophyte (57 species; 16.9%), cryptophyte (33 species; 9.8%), and chamaephyte (2 spe-
cies; 0.6%). It is well documented that hemicryptophytes dominate the flora of North America (MacDonald 1937, Oosting 1942, Hansen 1952, Gibson 1961).

Abundance ratings of the Thompson Woods flora indicate that 9 species (2.7% of all species) are abundant, 21 species (6.2%) are frequent, 33 species (9.8%) are occasional, 122 species (36.1%) are infrequent, and 153 species (45.3%) are rare. Other floristic surveys in Illinois that include abundance information indicate that most species within a defined area are either infrequent (=uncommon) or rare (Basinger and Robertson 1997, Edgin and Ebinger 2001).

Using the natural community classification system of White and Madany (1978), Thompson Woods would be classified as dry-mesic upland forest. *Quercus velutina, Q. falcata* Michx., and *Q. stellata* Wangh. prior to the two severe windstorms dominated this forest in 1980 (Faulkner 1983, O’Malley 1993). *Acer saccharum* Marsh., *Fagus grandifolia* Ehrh., and *Prunus serotina* Ehrh. in the overstory, *Lonicera maackii* in the sapling stratum, and *Euonymus fortunei, Eupatorium rugosum* Houtt., *Lonicera japonica, Parthenocissus quinquefolia* (L.) Planch., *Podophyllum peltatum* L. and *Toxicodendron radicans* (L.) Kuntze in the ground layer currently dominate the forest. It is hoped that this baseline study will be used to examine how the flora of Thompson Woods changes in response to management practices and continued planting efforts.

ACKNOWLEDGEMENTS

Terry Miller provided assistance with plant collections in 1999. Students in the 2001 Flora of Southern Illinois course (PLB 451) added several additional species to the flora. The comments of two anonymous reviewers improved the content and quality of the manuscript.

LITERATURE CITED


Yatskievych, G. 1999. Steyermark’s flora of Missouri. Volume 1, the Missouri Department of Conservation, Jefferson City, Missouri, in cooperation with the Missouri Botanical Garden Press, St. Louis, Missouri.
Appendix 1. The flora of Thompson Woods is arranged alphabetically by family, genus, and species within each specific phylum. Common name [following Mohlenbrock (1986) and Swink and Wilhelm (1994)], an abundance statement (A = abundant, F = frequent, O = occasional, I = infrequent, R = rare), life form (Ch = chamaephyte, Cr = cryptophyte, H = hemicyrptophyte, Ph = phanerophyte, Th = therophyte), photosynthetic pathway, and collection number are listed for each species after the binomial and authority.

### PHYLUM PTERIDOPHYTA
#### ASPLENIACEAE
*Onoclea sensibilis* L.  Sensitive fern.  R, Cr, C₃, 12370.

#### OPHIOGLOSSACEAE
*Botrychium dissectum* Spreng. var. *obliquum* (Muhl.) Clute  Grape fern.  R, Cr, C₃, 12574.
*Botrychium virginianum* (L.) Sw.  Rattlesnake fern.  I, Cr, C₃, 12358.

### PHYLUM CONIFEROPHYTA
#### CUPRESSACEAE
*Juniperus virginiana* L.  Red cedar.  I, Ph, C₃, 11912.

#### GINKGOACEAE
*Ginkgo biloba* L.  Gingko.  R, Ph, C₃, 11857.

#### PINACEAE

#### TAXACEAE

### PHYLUM ANTHOPHYTA: LILIOPSIDA
#### ARACEAE
*Arisaema dracontium* (L.) Schott  Green dragon.  F, Cr, C₃, 11800.
*Arisaema triphyllum* (L.) Schott  Jack-in-the-pulpit  F, Cr, C₃, 11801.
*Arun italicum* L.  Italian arum.  I, Cr, C₃, 11931.

#### COMMELINACEAE
*Commelina communis* L.  Common dayflower.  I, Th, C₃, 11805.

#### CYPERACEAE

Dioscoreaceae


Iridaceae


Juncaceae


Liliaceae

Allium canadense L. Wild onion.  I, Cr, C, 3, 11898.
Allium vineale L. Field garlic.  I, Cr, C, 3, 11898.


Narcissus sp. Daffodil.  I, Cr, C, 3, not collected.

Trillium flexipes Raf. White trillium.  R, Cr, C, not collected.

Poaceae


Chasmanthium latifolium (Michx.) Yates Sea oats.  R, Cr, C, 3, 11947.


Glyceria striata (Lam.) Hitchc. Fowl manna grass. O, H, C₃, 11846.
Poa annua L. Annual bluegrass. I, Th, C₃, 11809.
Poa pratensis L. Kentucky bluegrass. I, H, C₃, 11836.
Poa sylvestris Gray Woodland bluegrass. I, H, C₃, 11922.

SMILACACEAE

PHYLUM ANTHOPHYTA: MAGNOLIOPSIDA
ACERACEAE
Acer negundo L. Box-elder. F, Ph, C₃, 11886.
Acer saccharinum L. Silver maple. I, Ph, C₃, 11825.
Acer saccharum Marsh. Sugar maple. A, Ph, C₃, 11824.

AMARANTHACEAE

ANACARDIACEAE
Rhus aromatica L. Aromatic sumac. I, Ph, C₃, 11806.
Rhus copallina L. Winged sumac. I, Ph, C₃, 11904.
Toxicodendron radicans (L.) Kuntze Poison ivy. A, Ph, C₃, 11923.

ANNONACEAE
Asimina triloba (L.) Dunal Pawpaw. O, Ph, C₃, 11952.

APIACEAE
Cryptotaenia canadensis (L.) DC. Honewort. F, H, C₃, 11829.
Daucus carota L. Queen Anne’s lace. I, H, C₃, 11967.
Sanicula canadensis L. Canadian black snakeroot. F, H, C₃, 11834.

APOCYNACEAE
Vinca minor L. Perwinkle. R, Ch, C₃, 12201.

AQUIFOLIACEAE
Ilex decidua Walt. Deciduous holly. I, Ph, C₃, 11818.
Ilex opaca L. American holly. I, Ph, C₃, 11958.
Ilex verticillata L. Winterberry. R, Ph, C₃, 11954.

ARALIACEAE
Aralia spinosa L. Devil’s walking-stick. R, Ph, C₃, 11998, 12333.
Hedera helix L. English ivy. R, Ph, C₃, 12314.
Panax quinquefolius L. Ginseng. R, Cr, C₃, 12367.
ARISTOLOCHIACEAE

Aristolochia serpentaria L.  Virginia snakeroot.  R, Cr, C, 12315.

ASCLEPIADACEAE


ASTERACEAE

Eclipta prostrata (L.) L.  Yerba-de-tajo.  R, Th, C, 12057.
Eupatorium serotinum Michx.  Late boneset.  I, H, C, 12070.

BALSAMINACEAE


BERBERIDACEAE

Podophyllum peltatum L.  Mayapple.  A, Cr, C, 11803.

BETULACEAE

Betula nigra L.  River birch.  I, Ph, C, 11924.

BIGNONIACEAE


BORAGINACEAE

**Myosotis macrosperma** Engelm. Scorpion grass. I, Th, C₃, 11831.

**BRASSICACEAE**

**Allaria petiolata** (Bieb.) Cavara & Grande Garlic mustard. R, H, C₃, 11850.


**Cardamine hirsuta** L. Bitter cress. I, Th, C₃, 11903, 12199.

**Dentaria laciniata** Muhl. Toothwort. I, Cr, C₃, 12184.

**Draba brachycarpa** Nutt. Short-fruited whitlow grass. R, Th, C₃, 12191.

**Eriophila verna** (L.) Chev. Vernal whitlow grass. R, Th, C₃, 12202A.


**CAESALPINIACEAE**

**Cassia marilandica** L. Maryland senna. R, H, C₃, 12064.

**Cercis canadensis** L. Redbud. F, Ph, C₃, 11847.

**Gleditsia triacanthos** L. Honey locust. I, Ph, C₃, 11911.

**Gymnocladus dioica** (L.) K. Koch Kentucky coffee-tree. I, Ph, C₃, 12331.

**CALLITRICHACEAE**

**Callitriche terrestris** Raf. Terrestrial starwort. O, Th, C₃, 11854.

**CALYCANTHACEAE**

**Calycanthus floridus** L. Strawberry bush. R, Ph, C₃, 12215.

**CAMPANULACEAE**

**Lobelia inflata** L. Indian tobacco. R, Th, C₃, 12014.


**CAPRIFOLIACEAE**


**Lonicera maackii** (Rupr.) Maxim. Amur honeysuckle. A, Ph, C₃, 11868.

**Sambucus canadensis** L. Elderberry. F, Ph, C₃, 11945.


**Viburnum dentatum** L. Southern arrowwood. I, Ph, C₃, 12357.

**Viburnum opulus** L. European highbush cranberry. I, Ph, C₃, 12289.

**Viburnum recognitum** Fern. Smooth arrowwood. R, Ph, C₃, 11890.

**Viburnum rhytidophyllum** Thunb. Leatherleaf viburnum. R, Ph, C₃, 11968.

**Viburnum rufidulum** Raf. Southern black haw. I, Ph, C₃, 11870.

**CARYOPHYLLACEAE**

**Cerastium glomeratum** Thuill. Clammy mouse-ear chickweed. R, Th, C₃, 12195A.

**Cerastium vulgatum** L. Common mouse-ear chickweed. R, H, C₃, 12219.

**Holosteum umbellatum** L. Jagged chickweed. R, Th, C₃, 12193.

**Paronychia fastigiata** (Ait.) Fern. Forked chickweed. R, Th, C₃, 12328.


**Stellaria media** (L.) Vill. Common chickweed. O, Th, C₃, 11876.

**CELASTRACEAE**

**Celastrus scandens** L. Bittersweet. R, Ph, C₃, 12320.

**Euonymus alata** Thunb. Winged euonymus. F, Ph, C₃, 11862.

**Euonymus atropurpurea** Jacq. Wahoo. R, Ph, C₃, 11866.

**Euonymus fortunei** (Turcz.) Hand.-Maz. Climbing euonymus. A, Ph, C₃, 12017, 12122.
CHENOPODIACEAE

CORNACEAE
Cornus florida L.  Flowering dogwood.  I, Ph, C, 11869.

CORYLACEAE

EBENACEAE
Diospyros virginiana L.  Persimmon.  O, Ph, C, 12319.

ELAEAGNACEAE

EUPHORBIACEAE
Poinsettia dentata (Michx.) Kl. & Garcke Wild poinsettia.  R, Th, C, 12051.

FABACEAE
Robinia pseudoacacia L.  Black locust.  I, Ph, C, 11934.

FAGACEAE
Fagus grandifolia Ehrh. var. caroliniana (Loud.) Fern. & Rehd.  American beech.  F, Ph, C, 11910.
Quercus alba L.  White oak.  O, Ph, C, 11908.
Quercus falcata Michx. Southern red oak.  O, Ph, C, 12324.
Quercus imbricaria Michx. Shingle oak.  I, Ph, C, 11909.
Quercus prinoides Willd. var. acuminata (Michx.) Gl.  Yellow chestnut oak.  I, Ph, C, 11917.
Quercus rubra L.  Red oak.  I, Ph, C, 12291.
Quercus shumardii Buckley  Shumard oak.  R, Ph, C, 12373.
Quercus stellata Wangh.  Post oak.  I, Ph, C, 12578.

GERANIACEAE
HAMAMELIDACEAE

Liquidambar styraciflua L.  Sweet gum.  O, Ph, C3, 11918.

HIPPOCASTANACEAE

Aesculus hippocastanum L.  Horse chestnut.  R, Ph, C3, 11808.
Aesculus pavia L.  Red buckeye.  O, Ph, C3, 11807.

HYDROPHYLLACEAE


HYPERICACEAE


JUGLANDACEAE

Carya laciniosa (Mill.) K. Koch Kingnut hickory.  I, Ph, C3, 12296.
Carya glabra (Mill.) Sweet Pignut hickory.  I, Ph, C3, 12374.
Carya ovata (Mill.) K. Koch Shagbark hickory.  I, Ph, C3, 11951.
Carya tomentosa (Poir.) Nutt.  Mockernut hickory.  I, Ph, C3, 11959.
Juglans nigra L.  Black walnut.  I, Ph, C3, 12332.

LAMIACEAE


LAURACEAE

Lindera benzoin (L.) Blume Spicebush.  R, Ph, C3, 12335.
Sassafras albidum (Nutt.) Nees  Sassafras.  F, Ph, C3, 11965.

MAGNOLIACEAE

Liriodendron tulipifera L.  Tulip tree.  O, Ph, C3, 11942.

MALVACEAE

Hibiscus syriacus L.  Rose-of-sharon.  I, Ph, C3, 11972.

MENISPERMACEAE

Menispermum canadense L. Moonseed.  I, Ph, C3, 12376.

MIMOSACEAE


MORACEAE

Maclura pomifera (Raf.) Schneider Osage orange.  O, Ph, C3, 11943.
Morus alba L.  White mulberry.  O, Ph, C3, 11823.
Morus rubra L.  Red mulberry.  O, Ph, C3, 12299.
NYSSACEAE


OLEACEAE

Fraxinus americana L.  White ash.  F, Ph, C3, 12300.
Fraxinus pennsylvanica Marsh.  Green ash.  I, Ph, C3, 11817.

ONAGRACEAE


OXALIDACEAE


PAPAVERACEAE

Corydalis flavula (Raf.) DC.  Pale corydalis.  O, Th, C3, 12198.
Sanguinaria canadensis L.  Bloodroot.  R, Cr, C3, 11962.

PASSIFLORACEAE


PHILADELPHACEAE

Philadelphus coronarius L.  Mock-orange.  I, Ph, C3, 12322.

PHRYMACEAE


PHYTOLACCACEAE

Phytolacca americana L.  Pokeweed.  F, Cr, C3, 11937.

PLANTAGINACEAE


PLATANACEAE


POLEMONIACEAE


POLYGONACEAE

Polygonum cespitosum Blume var. longisetum (DeBruyn) Stewart  Creeping Smartweed.
I, Th, C3, 11863.

PORTULACACEAE

Claytonia virginica L.  Spring beauty.  I, Cr, C3, 12186.

PRIMULACEAE

RANUNCULACEAE

Hydrastis canadensis L.  Goldenseal.  R, C3, 12366.

ROSACEAE

Prunus cerasus L.  O, Ph, C3, 1894.
Prunus nigra L.  I, Ph, C3, not collected.
Rosa multiflora Thunb.  Multiflora rose.  I, Ph, C3, 11913.

RUBIACEAE


SAPINDACEAE


SCROPHULARIACEAE

Veronica arvensis L.  Corn speedwell.  I, Th, C3, 11815.
Veronica peregrina L.  White speedwell.  I, Th, C3, 11840.

SOLANACEAE

Physalis heterophylla Nees  Clammy ground cherry.  R, Cr, C3, 12123.
Solanum ptycanthum Dunal  Black nightshade.  I, Th, C3, 12053.

STYRACACEAE


TILIACEAE

Tilia americana L.  Basswood.  R, Ph, C3, 12376.

ULMACEAE

Celtis laevigata Willd.  Sugarberry.  I, Ph, C3, 11926.
Celtis occidentalis L.  Hackberry.  O, Ph, C3, 11933.
Ulmus americana L.  American elm.  F, Ph, C3, 12302.
Ulmus rubra Muhl.  Slippery elm.  I, Ph, C3, 12303.

URTICACEAE
Boehmeria cylindrica (L.) Sw.  False nettle.  I, Cr, C3, 12006.
Parietaria officinalis L.  Erect pellitory-of-the wall.  R, H, C3, 11920A.
Pilea pumila (L.) Gray  Clearweed.  I, Th, C3, 12326.

VALERIANACEAE

VERBENACEAE

VIOLACEAE
Viola pubescens Ait. var. eriocarpa (Schwein.) Russell  Yellow violet.  I, H, C3, 11811.

VITACEAE
Ampelopsis cordata Michx.  Raccoon grape.  I, Ph, C3, 11944.
Vitis cinerea Engel.  Winter grape.  O, Ph, C3, 11957.
Vitis vulpina L.  Frost grape.  O, Ph, C3, 11961.
Table 1. Summary of growth forms in the flora of Thompson Woods, Jackson County, Illinois.

<table>
<thead>
<tr>
<th>Growth Form</th>
<th>Annual</th>
<th>Biennial</th>
<th>Perennial</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C_3$ Graminoid</td>
<td>1</td>
<td></td>
<td>39</td>
</tr>
<tr>
<td>$C_4$ Graminoid</td>
<td>4</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>$C_3$ Forb</td>
<td>52</td>
<td>13</td>
<td>103</td>
</tr>
<tr>
<td>$C_4$ Forb</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Woody</td>
<td></td>
<td></td>
<td>115</td>
</tr>
<tr>
<td>Pteridophyte</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Totals</td>
<td>58</td>
<td>13</td>
<td>267</td>
</tr>
</tbody>
</table>