

FINAL REPORT:
THE 2016-2017 ROADSIDE VEGETATION SURVEY
OF SCOTT COUNTY, IOWA

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Bob Bryant photographs Sullivant's Milkweed in a Scott County roadside. Sullivant's Milkweed is uncommon, but, like other milkweeds, it attracts Monarch butterflies for egg-laying and food. Bob joined the survey in 2016 and 2017 as a field assistant and expert on the county's flora and botanical history.



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TABLE OF CONTENTS

Executive Summary

Acknowledgements

Introduction

General description of Scott County

Past botanical studies

The landscape: Former ecosystems, geology, & topography

Methods

GIS data capture & data fields

From-the-vehicle observations

On-foot methods

What is a remnant?

Results

Invasive species

Indigenous species

Possible misidentifications

Woody growth in ROWs

Residential encroachments

Conclusions

Roadsides as habitat

Biogeography of Scott County plants

Roadsides as seed resources

Other uses of survey data

Bibliography

Appendices

Scott County RVS Species Inventory, 2016 & 2017

Scott County Plant Communities Based on Survey Findings

10th Avenue Corridor: Remnant Plants & Plant Communities

EXECUTIVE SUMMARY

A Roadside Vegetation Survey (RVS) of Scott County, Iowa, was conducted by Leeward Solutions, LLC, under contract with Scott County Secondary Roads Department (SCSRD). The RVS occurred in two phases, with hard-surfaced roads surveyed in 2016 and gravel roads driven in 2017. Level B and C roads were not included, with only a few exceptions. The field component was completed in early September 2017. This final report contains information and conclusions based on both phases.

The survey began on July 25, 2016, with training on GPS equipment. The county GIS Department set up a data capture system with ESRI Collector software that showed quarter-mile segments on the paved roads and allowed data entry for each segment. In addition, the software allowed creation of data points with additional information, stored by latitude and longitude position with approximately 30-in. (submeter) accuracy. Data for each segment and point consisted of dominant exotic (nonnative) and native plant communities, native-plant species, bare soil, erosion, and encroachments in the rights-of-way (ROWs).

The primary method of observation was the “windshield survey” described in the Integrated Roadside Vegetation Management (IRVM) Technical Manual, supplemented by on-foot traverses of sites judged to have significant indigenous plant diversity. Four field personnel, Leland Searles (supervisor), Bob Bryant (vegetation consultant), Brian Burkholder (Secondary Roads Department), and Elana Gingerich (assistant) conducted the survey using a GPS antenna, receiver, and ESRI Collector to log data points on an iPad tablet.

The results include precisely located road segments that consist of

- only or almost entirely nonnative species that require management by the SCSR, such as Autumn Olive (*Eleagnus umbellifera*), Canada Thistle, Plume Grass (*Miscanthus* sp.), Poison Hemlock (*Conium maculatum*), and others.
- stretches of pervasive exotic grasses, such as Kentucky Bluegrass (*Poa pratensis*), Reed Canarygrass (*Phalaris arundinacea*), and Smooth Brome (*Bromus inermis*) that are candidates for planting under the IRVM program.
- locations of ditch segments that have significant growth of woody shrubs and trees that could present hazards for motorists.
- native plant communities and species in the right-of-way that are substantial remnants of prairie, savannah, wetland, and woodland ecosystems. These account for 5% or less of the vegetation cover in the roadways. (Some 259 vascular plant genera and species, out of a total of 349, comprise the list of observed native flora.)
- locations of actual or potential erosion, ranked by severity.
- locations of bare soil in need of seeding, ranked by severity.
- locations of encroachments that potentially violate county or other rules or could amount to hazards or nuisances.

Numerous erosion points and bare soil patches were recorded, ranging in priority from low to high. Remarks about the position of these spots (bank below fence, ditch, bank below shoulder, shoulder) and the type of erosion will help guide prioritization for repair.

Observed encroachments were few. Their locations will aid in decisions as to whether to address them.

An important finding is the abundance of native species still extant along the secondary roads. Management of these for enhancement, local seed supply, preservation, and further study is recommended. Some species have high conservation priority in Iowa, as indicated in the species list by a Coefficient of Conservatism greater than or equal to eight (and including a few with a rank of seven). Some state-listed Endangered, Threatened, or Special Concern species were noted. On a county level, some species with a Coefficient of five, six, or seven may be less common than statewide assessments suggest.

The reasons for survival of so many native plant species and communities of relatively high biodiversity are many, but an important one likely is the time at which the roadway was first made. Early roads and roadcuts in Scott County that are still in use would have had adjacent plant communities and ecosystems that were less damaged than in 2017. Native pastures, wetlands, sedge meadows, woodlands, and other ecosystems likely contributed seed to fencelines and roadways, and it is the descendants of these plants that were manifest in the RVS. In addition, the long history of agriculture and the introduction of exotic species for landscaping and other uses was not enough to cause the extirpation of the native plants from the ROWs.



Sawtooth Sage (Artemisia serrata), found in two widespread locations in Scott County. This species is a rare inhabitant of mesic and xeric prairies, with a Coefficient of Conservatism of 10.

Acknowledgements

Bob Bryant for extensive knowledge of the county's vascular plants, a nearly photographic memory for Guldner's 1963 work on the botany of Muscatine and Scott Counties, and an understanding of the history of settlement, as well as resources for the three counties of Clinton, Muscatine, and Scott.

Curtis Lundy for the initial contact, high interest in and support for the project, and sense of humor, along with members of the Steering Committee.

Jon Burgstrum for strong support and coordination of the project.

The 2016/2017 Board of Supervisors for approval and support.

Ray Weiser and Sunny Shang for creative and responsive technical support from start to finish and beyond.

Brian Burkholder for his appreciation of the value of native plants and quick learning as the new Roadside Manager.

Roger Keane and Dave Murcia for project support and housing arrangements in beautiful settings.

Mike Wagner for discussions of county fauna and flora.

Elana Gingrich for her endurance of long, hot summer hours along the roads.

Survey work benefitted from a sedge workshop by Bill Norris and Tom Rosburg.

John Pearson (Iowa Department of Natural Resources) for occasional plant identifications when I was stumped.

Residents of Scott County with whom I had conversations about the survey, the land, and the plants.

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Final Report on the 2016 Roadside Vegetation Survey Of Scott County, Iowa: Hard-Surfaced Roads

Introduction

Leeward Solutions, LLC, was contacted in March 2016 by Curtis Lundy (IRVM Steering Committee) regarding a floral survey of roadsides for Scott County. Leland Searles, owner and consultant, was planning at that time to conduct a survey of Marion County for Iowa Heartland Resource Conservation and Development (hereafter IHRC&D). Informal meetings between Bob Bryant, Curtis, and Searles took place to advance plans for a similar survey of Scott County's secondary road system. A contract was signed in July 2016, immediately prior to the start date of July 25.

The purpose of a county roadside survey is to begin or continue involvement in the Iowa Roadside Vegetation Management (IRVM) program, a multiagency effort to plant native plant species in the rights-of-way (ROWs) of Iowa's road system. The program's goals, methods, and successes are described in a manual (Brandt, Henderson, & Uthe 2015). Survey methods consist of assessments of plant communities and species in quarter-mile segments along every mile of included road, resulting in data that reflect a cross-section of vascular plant life at the landscape scale and that allow very precise actions regarding noxious weeds and other problems.

The results of such survey allow a participating agency to identify (1) key remnant ecosystems that can be enhanced or preserved, and (2) road segments in which plantings can occur to supplant entirely or largely exotic plant communities and species. Surveys for IRVM participation fulfill a requirement of eligibility for grant funding to implement roadside establishment of native plant communities. Further goals include (3) identification of management concerns such as encroachments, erosion, and woody growth that require action by SCSR. D.

In addition to these objectives and purposes, a Roadside Vegetation Survey (RVS) may locate federal- and state-listed Endangered and Threatened Species and Species of Special Concern. Supplemented by such information as the Coefficient of Conservation and wetland status of each species, it is possible to assess not only overall plant diversity but also (1) the relative scarcity and sensitivity of a given species to land use changes and (2) that species' presence in an assemblage of plants that share similar habitats and are known collectively as a *plant community* (Daubenmire 1968 and subsequent work).

General Description of Scott County. The county encompasses 458 sq. mi. of land (365,440 acres), with 564 miles of roadway under county jurisdiction (<https://www.scottcountyiowa.com/roads/general-information>, accessed 10/31/17). Of the total road miles, 219 miles are paved or seal-coated, and the remaining 339 miles are mainly gravel. A small cumulative length is comprised of B- and C-level roads that are minimally or not maintained and, for C-level, that are gated to prevent vehicle access. A complete survey includes

all these except the C-level roads. The contract between Leeward Solutions, LLC, and SCSR D limited the work to regularly maintained gravel roads, and it divided RVS into two phases, with Phase I consisting of the hard-surfaced roads, surveyed in 2016, and Phase II including the gravel roads, in 2017.

Past botanical studies. A compilation of earlier work appears in Guldner (1960), whose work achieved some note for its inclusion of locations and classification by plant communities. Guldner's treatise provides a baseline for likely occurrences and parts of the county. However, the survey did not find all species listed, in part because some require specialized ecological settings that do not occur in or adjacent to ROWs, and in part because some species are very rare. What is more, several species were found that Guldner did not include, apparently because these are more recent introductions. While not a required part of the project, the final plant list notes if species found during the survey were included in Guldner's work. One more note: Guldner relied on older species nomenclature that has been revised in the intervening decades. The survey relied on updated species names, for example, substituting the genus names *Euthamia* and *Oligoneuron* for two goldenrods formerly grouped in *Solidago*.

In addition, Bob Bryant provided expertise on his own floral inventories at locations such as Cameron Timber and Nahant Marsh. A plant survey of the Wapsipinicon River corridor highlighted Sherman Park (Clinton County) and the Wapsi Environmental Education Center, as well as the overall river valley, and these were sometimes useful to confirm a species' presence in the county and its margins.

The landscape: former ecosystems, geology, & topography. Scott County lies in two Iowa landform regions (Prior 1991), the Mississippi Alluvial Plain and the Southern Iowa Drift Plain. The Southern Iowa Drift Plain encompasses about half of the land surface in the far northwestern corner, the south-central area around Buffalo and northward, and the eastern half except for the Mississippi Alluvial Plain. Plant communities and soils in the Drift Plain region formed in glacial deposits older than 300,000 years (the pre-Illinoian period), and the land surface is dissected by well-developed drainage networks.

The Mississippi Alluvial Plain formed at a time when ice jams blocked the Mississippi River in its present course, forcing it to seek a new channel. The surface evidence of that channel is found in southern Jackson County, western Scott County, and west-central Muscatine County, where it isolated the Muscatine Island between the two channels. In Scott County, the former channel forms a broad valley in which Mud Creek now flows as an "underfit"¹ stream.

Part of the Mississippi Alluvial Plain in Scott County also contained the northern waters of Lake Calvin (Schoewe 1920), an extinct lake on the west side of the Muscatine Island. The lake may have served as a biological barrier, such that plant communities on the east and west sides of it

¹ An "underfit" stream is too small at present to account for the breadth and/or depth of its valley. This condition is evidence for a much greater flow at some past point.

diverged in the species assemblages on either side. The lake itself may have brought about a higher inland diversity of plant species that normally populate lakeshores and the riparian and aquatic zones of large streams. For example, *Carex lacustris* (Lake Sedge) was found at several points well away from its typical habitat and in the Alluvial Plain in western Scott.

There is evidence from the Roadside Vegetation Survey that today's plant communities were influenced by these past geological influences. For example, the northwest corner of the county has several prairie remnants in the roadsides with unique species and unique plant communities. These remnants consist of mesic to wet-mesic species, and at one time these probably transitioned to wet prairie, wetland fringes, and shallow wetlands along Mud and Rock Creeks. They suggest a prairie ecosystem that is more like those to the west, rather than to the east into Illinois. Other evidence suggests at least some of the species that populated wetter ecosystems or a different prairie system in the central and eastern parts of Scott County.

The data from the survey lend themselves to a landscape-scale study of plant biogeography – the distribution of plant communities and species on the land surface – by ecosystem, and such a study may gain some time depth if largescale geographic changes such as glaciation and alternate river courses are correlated to these geographically variable distributions. Additional evidence would come from plant inventories conducted at several natural areas in and adjacent to Scott County: Cameron Woods State Preserve, Nahant Marsh, Sherman Park (Clinton County), Wapsi Environmental Education Center (Clinton and Scott Counties), the Wapsipinicon River corridor, and perhaps privately owned lands.

Methods

The field methods used were variations of the “windshield only” survey described for the IRVM (Brant, Henderson, & Uthe 2015). Two reasons justified this departure: (A) field experience in Marion County, Iowa, during a 2016 survey showed that considerable native plant diversity existed in the secondary road rights-of-way that would have been missed without excursions from the vehicle. In many cases, these were less common species with higher Coefficients of Conservatism that warranted some protection from or integration with IRVM plantings.

(B) The Steering Committee and interested citizens in Scott County wanted a fuller accounting of the biodiversity in the ROWs, based in part on the awareness that such biodiversity did exist. Prior studies had shown a rich diversity of vascular plants in the county, notably Guldner (1963), and nearby botanical inventories of locations in Clinton and Muscatine Counties had demonstrated such diversity. As an example, Pink Turtlehead (*Chelone obliqua*) is primarily known in Iowa from a few locations in Scott County along the Mississippi River valley; it is listed as an endangered species in the Iowa Code.

GIS data capture and data fields. As a result, the Global Information System Department coordinated with Leeward Solutions on the types of data collection hardware and software and

the input fields in order to capture the anticipated plant species and locations. The hardware included a Trimble R-1 GNSS Receiver and an Apple iPad with ESRI Collector and GIS software. Sunny Shang with the GIS Department programmed ESRI Collector according to Leeward's specifications to include various categories, described further below.

These input fields were available for programmed field segments that usually conformed to the quarter-mile intervals specified in the IRVM Technical Manual. The R-1 receiver usually maintained an accuracy of between nineteen and thirty-four inches, and it was used to record special features, such as erosion points and ecological remnants.

The database in ESRI Collector was set up with these categories:

Ditch ID, a code assigned to each road segment; segments were set up on each side of the road.

RteLbl, a field for those roads assigned a County Road designation, such as F33.

StrLbl, the name of the road, as Territorial Road or 290th Street.

Ecosystem, a field for a broad characterization of the vegetation in a given segment.

ErosionLevel, a field that described erosion as Low, Medium, or High, or else was left blank.

BareSoil, an input field for Low, Medium, or High (or no description) that was independent of erosion.

Encroach, a 140-character field for description of woody growth, dumped garbage, or other circumstances considered as encroachments on the ROW. In addition, this field was used to enter additional plant species if these exceeded the columns allowed for Dominant, Major, and/or Minor Species.

Reference_Common, a field by which the botanical code and species name could be accessed during the survey by entering the common name, scientific name, or plant code.

DominantSpec1, a field for recording a native species that had a surface cover percentage of about 70% or higher over an area of about 200 square feet or more. A given segment could have more than one dominant species, so additional fields existed for DominantSpec2 through DominantSpec4.

MajorSpec1, a data field for native species with about 30 to 70% surface cover as a single patch of about 100 square feet or scattered throughout a segment. Three similarly named fields were created for additional Major Species.

MinorSpec1, a data field for native species with less than about 30% surface cover, including those that had only a single individual plant in a given segment. Three additional fields were made for further species.

ExoticSpec1, an entry field for notable introduced and invasive species, especially those that are currently being managed under the county's herbicide spray program. Five additional fields allowed for a total of six invasives in a given segment.

Personnel, a field that was intended to record field personnel. During 2016 the field was often forgotten.

Collection Date, a field that recorded date and time at which the segment was surveyed. During 2016 this field often was left blank by accident.

Shape_Length, a static note about the actual length of a given segment.

Late in the 2017 season, the following fields were added:

SprayCondition, for the new Roadside Vegetation Manager, Brian Burkholder, to use during herbicide application activities. One of two autofill options, “No Spray Area,” was used by Leeward to note landowner/resident postings that apply to county spraying.

Comment, which was used late in 2017 to make entries unrelated to encroachments that had been placed in the Encroach field.

Finally, upon conclusion of the survey, Ray Weiser (county GIS) added a field to indicate if the segment was gravel or paved.

There are a number of conditions that database users should consider when interpreting that data. Among these conditions, the Ecosystem characterizations often reflect the season as much as the actual dominance of forbs or grass. Early in the summer, a given segment may be recorded as “ExoticGrass” because cool-season grasses such as Smooth Brome (*Bromus inermis*) or Reed Canarygrass (*Phalaris arundinacea*) hide seedlings of forbs. Surveyed later in the summer, the same segment might be recorded as “ExoticMixed” because Wild Parsnip (*Pastinaca sativa*) or Queen Anne’s Lace (*Daucus carota*) were in bud, flower, or seed.

The segment designation, “ExoticGrass,” is an inclusive description. Depending on relative elevation, adjacent land use, and soil moisture, Smooth Brome, Reed Canarygrass, and/or Kentucky Bluegrass (*Poa pratensis*) might be the dominant grass species. Plumegrass (genus *Miscanthus*) may be a minor to dominant exotic in some of these segments; if so, it is also entered in an ExoticSpec field. These segments were observed to have less than 25 to 30% forb cover. Forbs present often included pasture legumes, Wild Parsnip, Queen Anne’s Lace, and others. Initial inspection at the start of a segment led to this choice, which was occasionally modified as necessary.

A segment characterized as “ExoticMixed” consisted of about 25 to 75% forbs on observation from the vehicle. Depending on moisture, soils, topography, and other factors, these might include Queen Anne’s Lace, Poison Hemlock (*Conium maculatum*), Wild Parsnip, Canada Thistle (*Cirsium arvense*), Bull Thistle (*Cirsium vulgare*), Water-Hemp (*Amaranthus tuberculatus*), and others. Pasture legumes often were present as well.

The label, “ExoticForbs,” was not used often because few road segments had 70-75% forb dominance.

From-the-vehicle observations. Vehicle movement depended on whether Searles was the sole driver, survey observer, and data recorder, or if a driver freed Searles for observation and data entry. In 2016 Bob Bryant and Elana Gingerich were hired as subcontractors. Elana quickly learned data entry using the R-1, iPad, and Collector, so Searles drove and coached her on plant

codes and observing techniques. She had worked as an independent survey assistant for Leeward in Marion County and established her proficiency there.

Bob's experience in Clinton and Scott Counties in conservation work and plant documentation made him a valuable asset in describing historical events and people who altered or preserved Scott County's plants and public lands. In 2016 Bob shared driving with Searles, while in 2017 he occupied the driver's seat entirely, and during some hot, tiresome summer afternoons.

In general, each road segment (labeled with a DitchID code) began with an initial rapid evaluation of its ecosystem and its continuity from any previous segment. A slow, stop-and-start assessment allowed the observers to view the banks and ditch bottoms closely for bare soil, encroachments, and erosion. These were recorded when necessary, along with descriptions to aid county crews in finding less obvious problems, such as hidden erosion in a deep ditch or erosion on the less visible bank below the road bed.

The low vehicle speed permitted close inspection of plants and plant communities. Many plants are conspicuous, some even to relatively untrained eyes, while others require practice to recognize. For example, Common Milkweed (*Asclepias syriaca*) is easy to spot at most stages in its growth, but Tall Dropseed (*Sporobolus asper*) has thin leaves and inconspicuous flowering stems that make it difficult to see among Smooth Brome, some forbs, and other native grasses. With practice it becomes easier to see because of the curvature of its spreading leaves, in contrast with most other grasses.

On-foot methods. When an observer observed roadside conditions or several plant species that indicated a possible remnant community (see discussion of "remnant" below), the vehicle was stopped safely on the shoulder, in a field entrance, or in another spot so that both occupants could traverse the spot. This allowed for observation of more species than could be readily observed from the car, and in particular it permitted the use of a jeweler's loupe to distinguish some more difficult species (the genera *Carex*, *Dichanthelium*, and *Solidago* are examples). Many of these are members of the "understory" of a given ecosystem, i.e., plants that are partly hidden by showier or taller species, or that blend readily with exotic species. An example is Wirestem Muhly Grass (*Muhlenbergia frondosa*), which usually can be recognized from a vehicle with practice, but often blends with Smooth Brome. In some larger remnants, more than one ecosystem or ecosystem subtype was present, contributing to the diversity of the site.

Particularly diverse segments might require that species be entered in the Encroach field or that one or more lat/long data points be created to capture the species richness and assign the proper ecosystem label and species status (Dominant, Major, Minor).

Some erosion problems were not apparent from the vehicle, such as those in deeper ditches or along the bank below the roadbed.

Attention to plant communities often allowed for the recognition of remnant communities in the ROWs. The presence of Dark-Green Bulrush (*Scirpus atrovirens*) in quantities greater than a few stems would lead to closer evaluation of that spot for other WetFringe or PrairieWet plants. In many segments, Dark-Green Bulrush was the conspicuous species among two to three sedges such as Normal Sedge (*Carex normalis*), Troublesome Sedge (*C. molesta*), and other possibilities. In the same soil, Fringed Loosestrife (*Lysimachia ciliata*), Dudley's Rush (*Juncus dudleyi*), Path Rush (*J. tenuis*), and/or Torrey's Rush (*J. torreyi*) might be found, while nearby a patch of Cattail (*Typha* sp.) could grow with Rice Cutgrass (*Leersia oryzoides*), Woolly Sedge (*Carex pellita*), and Purple Meadow Rue (*Thalictrum dasycarpum*).

Other examples of remnant communities are given in Appendix 3 on the 10th Avenue Corridor, Liberty Township.

What is a remnant? It is important to realize that “remnant” can apply to any ecosystem. The popular use of the word has almost made it equivalent to “prairie remnant,” which is a mistaken notion. In the case of Scott County, four major ecosystems are recognizable in the roadsides: Prairie, Savannah, Wetland, and Woodland. Each has subtypes, and while many plants can grow in a relatively wide range of conditions, even these species prefer certain conditions over others. That is, most species have “preferences” because these conditions result in the best chances at reproductive success. Those with the narrowest range of acceptable growth and reproductive conditions are likely to have higher Coefficients of Conservatism – that is, to require little or no disturbance and circumstances (moisture, soil, topography) close to their ideal.

Under circumstances of extreme disturbance – historical and recent road construction, agricultural cropping, residential development – what constitutes a “remnant”? As a working definition, Professor Thomas Rosburg considered southern Iowa pastures to be remnants if five or more native prairie species were present (personal communication, T. Rosburg, 2015). This also assumes that relatively little disturbance of topsoil has taken place, other than minimal erosion from livestock and wind and some compaction from large livestock and machinery. However, remnants in roadsides occur almost always on much more disturbed soils.

For the survey, a working definition of a “remnant” consists of a plant community with several (roughly five or more in most cases) native species that would have naturally occurred in the same moisture conditions, soil, and topographical position in a presumed presettlement state. Roadside remnants resulted from seed distribution by animals, water, and/or wind from an adjacent tract at some historical point. The disturbance may have been acute, such as a road cut through a ridge, but stability returned to the location within a few years, in time to provide a seed bed for the adjacent remnant. On the basis that they preserve native plant biodiversity, they are considered to be remnants.

Another concern is the difference between a remnant as just described and a more recent intentional planting by humans. Here the types of plants are key. There are a number of species for which the seed is (A) difficult to capture with any cost efficiency, (B) within the limitations

of equipment and human effort, and (C) subject to human biases against non-showy or “charismatic” species. The presence of these species strongly suggests that these communities are, in fact, holdovers from a natural condition at some earlier time. Examples include most sedges in the genus *Carex*, Fringed Loosestrife, Nodding Spurge (*Euphorbia nutans*), Prairie Spiderwort (*Tradescantia bracteata*), Scribner’s Panic Grass (*Dichanthelium oligosanthes scribnerianum*), and several others, depending on ecosystem.

In contrast, native plantings tend to favor prairie species heavily, as opposed to wetland and woodland species. Prairie plantings and restorations like the one on either side of the gravel portion of Allens Grove Road are rather easy to identify. The presence of Purple Coneflower (*Echinacea purpurea*) is a giveaway in most parts of Iowa; the somewhat less showy Pale Purple Coneflower (*Echinacea pallida*) usually is not preferred except by careful restorationists. Typically these plantings include: Big Bluestem (*Andropogon gerardi*), Black-Eyed Susan (*Rudbeckia hirta*), Calico Aster (*Symphyotrichum lateriflorum*), Indiangrass (*Sorghastrum nutans*), New England Aster (*Symphyotrichum novae-angliae*), Ohio Spiderwort (*Tradescantia ohioensis*), Rattlesnake-Master (*Eryngium yuccifolium*), Sideoats Grama (*Bouteloua curtipendula*), Stiff Goldenrod (*Oligoneuron rigidum*), and others. All these are native to Scott County and almost all occur in what Searles regards as remnants, but the combination of these more charismatic plants in seed mixes helps differentiate plantings from remnants.

Results

A total of 349 vascular plant species and genera were found and identified in the roadsides. Of these, 90 are exotic or introduced species and 259 are native to Iowa and Scott County (see Appendix A for a final plant inventory from the survey). Overall, the secondary road system has preserved a surprisingly diverse sample of the county’s pre-settlement plant life. This has several implications. The study of plant biogeography and the partial reconstruction of pre-settlement biogeographic distribution was mentioned above.

In most cases, the taxonomic labels are taken from the *Flora of North America*. The scientific species names from Eilers and Roosa (1994), Gleason and Cronquist (1991), Guldner (1960), Newcomb (1989), and many other treatments are considered to be out of date. Thus the panic grasses are divided into two genera, *Dichanthelium* and *Panicum*, rather than included in the single genus *Panicum*. The goldenrod genus *Solidago* has been divided into *Euthamia*, *Oligoneuron*, and *Solidago*. Other examples of changes are too numerous to list.

Invasive species. Populations of especially problematic invasive species were identified in the road segments. In addition to those included in ecosystem labels such as “ExoticMixed,” certain ones were also recorded in one of the six exotic species groups. Usually these species are of interest for control through spraying, native plantings, or other measures.

An important note is that exotic species, like native plants, follow seasonal cycles. For the most part, mustards disappear from the survey by mid-summer because they have dropped seed and

died back, or else their basal leaves are hidden by other growth. Queen Anne's Lace (Wild Carrot) does not appear until early to mid summer, when it emerges from surrounding vegetation.

These exotic or invasive species were specifically documented because of their prevalence and need for control:

- Autumn Olive, *Eleagnus umbellifera*
- Black Locust, *Robinia pseudoacacia* (native to North America, but not Iowa)
- Bull Thistle, *Cirsium vulgare*
- Canada Thistle, *Cirsium arvense* (native to North America, but not Iowa)
- Common Burdock, *Arctium minus*
- Crown Vetch, *Securigera varia* (was *Coronilla varia*)
- Cut-Leaved Teasel, *Dipsacus laciniatus*
- Dame's Rocket, *Hesperis matronalis*
- Daylily, *Hemerocallis fulva*
- Garlic Mustard, *Alliaria petiolata*
- Hemp, *Cannabis sativa*
- Multiflora Rose, *Rosa multiflora*
- Musk or Russian Thistle, *Carduus nutans*
- Plumegrass (misnamed Pampas Grass), *Miscanthus saccharinus*²
- Poison Hemlock, *Conium maculatum*
- Tartarian Honeysuckle, *Lonicera tatarica*
- Tree-of-Heaven, *Ailanthus altissima*
- Wild Parsnip, *Pastinaca sativa*

Of these, only Dame's Rocket, Garlic Mustard, and Hemp do not occur with frequency or in dense stands that warrant attention. Of course, Hemp may be subject to laws concerning the growth of controlled substances, although all locations but one appear to be "ditchweed," i.e., plants left from the World War II era, when farmers grew these plants for rope making.

In some instances, a species was recorded in one of these data fields to assure that it was documented in the final survey list of species, and not because it caused a significant problem. Among these are Bouncing Bet (Soapwort, *Saponaria officinalis*), Cow Vetch (*Vicia cracca*), Goatsbeard (Oysterplant, *Tragopogon pratensis*), White and Yellow Sweetclover (*Melilotus alba* and *M. officinalis*), and others. These are not currently considered to be noxious weeds that require herbicide application, although some, some as the Sweetclovers, are pervasive in roadsides.

In other cases, the species constitutes a significant agricultural weed, although it may not be problematic in ROWs. Examples include Giant Foxtail (*Setaria faberi*), Ivy-Leaved

² A few identifications settled on this species as the prevalent one, and not *Miscanthus sinensis*. Realistically both may be present in ROWs. They are similarly noxious, spreading primarily by rhizomes.

Morningglory (*Ipomoea hederacea*), Velvetleaf (Butterprint, *Abutilon theophrasti*), and Water-Hemp (*Amaranthus tuberculatus*). These were not consistently logged during the survey.

Confusion can occur between two St. Johnsworts (genus *Hypericum*), the one introduced and the other native. Spotted St. Johnswort (*H. perforatum*) can occur in prairie remnants, but it originates in Europe. It is nearly identical to *H. pubescens*, an indigenous plant. The first was documented in an exotic species data field.

Some species recorded as exotics may or may not be introduced. There is conflicting information about Common Horsetail (*Equisetum arvense*) and Narrow-Leaved Cattail (*Typha angustifolia*). These were inconsistently recorded as invasives (mostly in 2016) or natives (mostly in 2017)

In planning for invasive control, the data allow the Secondary Roads Department to determine which herbicides it requires for suppression. In addition, planning for spray trips to treat multiple species at once leads to an economy of materials and time based on the plants in each township, section, or other unit. And this planning can have a time element based on the seasonally variable susceptibility of each species to various herbicides and combinations of chemicals.

While herbicide application will play a crucial role in noxious plant management into the future, data concerning the locations of important native plants and plant communities will aid in avoiding these sites or using spot application when needed. It may be that prescribed fire can be used for managing some communities in the ROWs, given favorable conditions such as wind direction, humidity, fuel load, and other variables. The Roadside Vegetation Manager should become aware of accidental and intentional methods that have led to the survival of these plants and communities in order to replicate them. In some cases, mowing may be an effective preservation method, if it does not cut plants too low or at a poor time in their life cycle.

--location of segments with dominant exotic forbs and grasses that can be considered for IRVM plantings and management.

Indigenous species. A list of the most conservative plants (the species most sensitive to disturbance, competitive pressures from exotics, and altered climate and weather) in the ROWs provides some insight into the plants that once grew in Scott County prior to settlement. A reconstruction of the four main ecosystems and their subtypes is possible within limitations. As long as these limitations are taken seriously, the conservative species and the overall list of native plant diversity is good evidence for familiar and lesser-known species that should be planted in roadsides and other restoration projects in the county.

The top natives are listed here, ranked from the most conservative Coefficient of Conservatism (CofC). The CofC is a rough guide to the scarcity of these species for the survey, and it is an approximation of the species' scarcity in undisturbed, presettlement times.³ If the Roadside Vegetation and IRVM programs are able, these should be targeted for seed collection, with the seed added to or planted separately from IRVM mixes. This effort assures that the roadsides will

³The Coefficient is a statewide average. In constructing this list, I have also used my judgment based on the frequency of each species as observed in Scott County.

continue to reflect at least some of the unique biodiversity that the county once had, and it assures that the germplasm of each remains at hand for potential future uses.

- Early Oak Sedge, *Carex umbellata*, 10
- Sawtooth Sage, *Artemisia serrata*, 10
- Prairie Dropseed, *Sporobolus heterolepis*, 9
- Bebb's Sedge, *Carex bebbii*, 8
- Fescue Sedge, *Carex festucacea*, 8
- Hairy-Fruited Lake Sedge, *Carex trichocarpa*, 8
- Leadplant, *Amorpha canescens*, 8
- New Jersey Tea, *Ceanothus americana*, 8
- Ninebark, *Physocarpus opulifolius*, 8
- Short's Sedge, *Carex shortiana*, 8
- Sweetflag, *Acorus calamus*, 8
- Dwarf St. Johnswort, *Hypericum mutilum*, 7
- Eastern Wahoo, *Euonymus atropurpureus*, 7
- Lake Sedge, *Carex lacustris*, 7
- Pale Purple Coneflower, *Echinacea pallida*, 7
- Panicked Tick-Trefoil, *Desmodium paniculatum*, 7
- Prairie Coreopsis, *Coreopsis palmata*, 7
- Purple Milkweed, *Asclepias purpurascens*, 7
- Soft Fox Sedge, *Carex conjuncta*, 7
- Sullivant's Milkweed, *Asclepias sullivanti*
- Thimbleweed, *Anemone cylindrica*, 7
- Butterfly or Orange Milkweed, *Asclepias tuberosa*, 6
- Buttonbush, *Cephalanthus occidentalis*, 6
- Common Boneset, *Eupatorium perfoliatum*, 6
- Dotted Bee-Balm, *Monarda punctata*, 6
- False Dragonhead (Obedient Plant), *Physostegia virginiana*, 6
- Golden Alexanders, *Zizia aurea*, 6
- Halberd-Leaved Rose Mallow, *Hibiscus laeve*, 6
- Indian Tobacco, *Lobelia inflata*, 6
- Prairie False Indigo, *Baptisia lactea* (was *B. alba*), 6
- Sensitive-Fern, *Onoclea sensibilis*, 6
- Smoothcone Sedge, *Carex laeviconica*, 6
- Water-Willow, *Justicia americana*, 6
- Wild Onion, *Allium canadense*, 6
- Canada Bluejoint Grass, *Calamagrostis canadensis*, 5
- Crested Sedge, *Carex cristatella*, 5
- Grass-Leaved Goldenrod, *Euthamia graminea* (was *Solidago graminifolia*), 5
- Indigo Bush, *Amorpha fruticosa*, 5

- Missouri Goldenrod, *Solidago missouriensis*, 5
- Slender Bush-Clover, *Lespedeza virginiana*, 5
- Starry False Solomon-Seal, *Maianthemum stellatum* (was *Smilacina stellata*), 5
- Maximilian's Sunflower, *Helianthus maximiliani*, 4
- Sand Milkweed, *Asclepias amplexicaulis*, 4
- Seedbox, *Ludwigia alternifolia*, 4
- Swamp Milkweed, *Asclepias incarnata*, 4

Possible misidentifications. There is high confidence in most plant identifications. Unfamiliar species usually were identified in the field, using Newcomb (1989) and Gleason and Cronquist (1991). Some more difficult species were checked with the online *Flora of North America* or other sources.

The following is a summary of potentially problematic identifications:

- Purple Meadow Rue (*Thalictrum dasycarpum*) versus Waxy Meadow Rue (*Thalictrum revolutum*): with one exception, all plants that were keyed in the field were *T. dasycarpum*, with the lone exception being *T. revolutum*. From the vehicle, all plants were assumed to be *T. dasycarpum*, except in the area of the single *T. revolutum*.
- Giant Sunflower (*Helianthus giganteus*) versus Sawtooth Sunflower (*Helianthus grosseserratus*): both species grow in wet soils. From the vehicle, the two were tentatively distinguished by habitat (*H. grosseserratus* in wet, prairie-like settings; *H. giganteus* on the margins of streams) and, with aid of binoculars, by the size of teeth on the leaves.
- Canada, Giant, and Tall Goldenrods (*Solidago canadensis*, *S. giganteus*, *S. altissimus*): field identification is based in part on whether the stem is coarsely hairy and where the hairy is located. Unless lighting is favorable, and the lower half of the stems is visible, this feature is not useful from a vehicle. Most plants were identified based on topographic location and plant community, with *S. altissimus* assumed to grow on higher, well-drained sites and *S. giganteus* assumed to grow in lower, moist positions. However, actual identification suggests that *S. giganteus* may be more prevalent in Scott County roadsides than *S. altissimus*. For the most part, *S. canadensis* was distinguished only from hand inspection of features.
- sedges, genus *Carex*: ideally, identification is done with mature seed spikes and, for some, foliage. The form of growth (dispersed from rhizomes or clumped stems from a single seed) sometimes is helpful. One species was misidentified in 2016 as *Carex vesicaria*, but Thomas Rosburg (personal communication, 2017) noted that this species is restricted in distribution and habitat. It is very likely that any sedges coded as this species (CXVESI) are actually *Carex laeviconica* (CXLAEC). Most 2017 identifications reflect this correction.

Woody growth in ROWs. Many road segments contained woody growth, ranging from shrub and tree seedlings to early-mature trees. Some stands had been killed with herbicide, and these showed no signs of regrowth from the roots. In one segment, the only roadside colony of Eastern

Wahoo (*Euonymus atropurpureus*) found during the survey grew in a dense stand of apparent sucker stems, with older growth up to seven feet and bearing unripe seeds. In most cases, woody-stemmed species consisted of either common native species (e.g., Black Walnut, Common Hackberry, Dogwood) or clearly exotic species (Black Locust, Buckthorn, Honeysuckle, and others).

Residential encroachments. Encroachments created by residents did not occur very often, but usually they were very evident. Examples were bare soil at a new, culverted driveway to a house construction site; stacked construction material at an existing residence; brushpiles that may have been created for burning; and bagged and unbagged residential trash. At one rural farmstead, an electric wire had been along a shoulderless gravel road to allow livestock to graze. At times trash thrown from vehicles was observed, especially near public areas.

Conclusions

Roadsides as habitat. The diversity of vascular plants growing in Scott County's rights of way indicates a good potential for wildlife habitat, including food and shelter. Notably the Thirteen-Lined Ground Squirrel (*Spermophilus tridecemlineatus*) showed up during the 2017 survey in substantial numbers, suggesting that it inhabits gravel roadways more than paved, and/or its plant resources were more abundant.

However, the county appears to suffer from the plight of most of the Corn Belt. The last few years have seen a decline in gamebird and songbird habitats as fencelines are removed for more row crop, given high grain prices. Overhead utility lines also being removed, in part as fiber optic lines run underground. No-till results in higher reliance on herbicides to control weeds, resulting in plant diversity declines and accompanying losses in macroinvertebrate and vertebrate species. (There is growing research to support these statements; it will not be cited here.)

Among important food species remaining in ROWs are:

- genus *Physalis*, the ground-cherries or husk-tomatoes, eaten by rabbits, small to mid-sized mammals, and small gamebirds from mid- to late summer.
- genus *Rosa*, the roses, with three native species in the county, eaten in autumn and winter by larger songbirds and small mammals.
- Showy native forbs, visited by a wide variety of pollinating insects. Among those are approximately 300 species of native bees, mid-sized to large moths, butterflies, skippers, many species of flower or hover fly (family Syrphidae), and some types of beetles. In addition, pollinating insects provide food to indigenous predatory insects and spiders, among them the familiar garden spiders, dragonflies, and wasps.
- Among the native forbs, milkweeds stand out as the larval food for the Monarch butterfly, as well as nectar for adults when in bloom. Outside of the bloom periods of milkweeds, the primary factor in attracting gravid female Monarchs to milkweeds is the

presence of an assortment of flowering plants throughout the growing season that serve as nectar sources.

- Native grasses and sedges, the seeds of which are food for gamebirds and many overwintering songbirds.
- Various native plants that are hosts for microinvertebrates, including borer moths, leaf miners, gall wasps, and other largely ignored or unknown groups of arthropods.

Remnant plant communities and IRVM plantings will provide important critical habitat.

Biogeography of Scott County plants. The more obvious association of plant species and plant communities makes up part of the basic ecosystems of prairie, savannah, wetlands, and woodlands. Each of has numerous subtypes that are organized on the basis of soil moisture during the growing season (wet, mesic, and xeric), plant heights (mid-sized forbs and grasses, tallgrass prairie and associated forbs), or other criteria.

In general, these map onto the topography of the land, from the highest upland points in the northwest part of the county to the margins of the Mississippi River. Upland areas upper slopes would have had prairie and oak savannah, lower slopes would have featured woodland, and streams would have had wetlands or woods. However, this is only a crude description. The facing direction of a slope (north, south, etc.), groundwater depth, glacial potholes and other glacial processes and features, and other details all made the pre-settlement plantscape more complex.

Out of all these conditions the “original” (pre-settlement) plant communities took shape. After settlement, various changes occurred, with agricultural uses the most prominent. Cropping required drainage of pothole and seep wetlands, and stream straightening helped alter groundwater and surface runoff conditions. In the ROWs, the survival of remnant plant communities depended on the age of road establishment, occurrence of native or invasive plants on adjacent lands, and width of roads and roadcuts.

As agricultural practices changed from initial drainage practices to tiling in the early 1900s, then from open-pollinated corn and hayland to hybrid corn, and yet again to modern hybrids with intensive chemical usage, the plants in the secondary road system were subject to additional stresses. Expansion of the urban fringes and smaller towns affected the extent of species and plant communities. For example, the tract that now has Cameron Woods once covered some 500 acres to the east (R. Bryant, personal communications, 2016 & 2017).

One example of limited distribution in the county is Lake Sedge (*Carex lacustris*). It was recorded at six locations in total, roughly between Maysville and Durant. Further, it grows within a limited elevation on the topography, between 684 and 707 ft ASL. It seems unlikely that Lake Sedge might trace 300,000-year old riparian and lacustrine boundaries from a glacially diverted Mississippi River and the northernmost fingers of the naturally impounded Lake Calvin, and yet this is one possible explanation. (This is not equivalent to saying that the sedge actually grew that long ago in this part of the county, but rather that it occupies the specific landscape position of the lake edge, no matter what grew there at the time.)

Two locations are along 80th Avenue south of Maysville, in the drainage of a tributary of Hickory Creek, which flows into the broad valley of Mud Creek. Four locations are found to the northeast of Durant, with two apiece on 210th and 220th Streets. Those on 210th are in a small hillslope drainage to the “other” Mud Creek that flows to the Cedar River, south of Highway 6 on Mohawk Avenue, Muscatine County. The last two are in a roadside along a high stream terrace above Big Elkhorn Creek, also a tributary of Mud Creek and the Cedar River.

Taken together, these locations tie two watersheds together that otherwise flow in very different directions, and they connect two major streams that empty into the Mississippi at different points. They are divided by ridges of up to 100 ft. elevation, except for a broad saddle between Big Elkhorn and the northern Mud Creek watersheds of only 20 to 30 ft. difference in elevation, in western Cleona Township, and another broad area of low elevation difference in Hickory Grove Township along and south of the I-80 corridor near Walcott. These saddles are part of the evidence for an old Mississippi diversion channel.

Lake Sedge tends to favor shallow but relatively permanent water along lakeshores, in marshes, in wet prairies, and in other ecological niches (see the Illinois Wildflower web page http://www.illinoiswildflowers.info/grasses/plants/lake_sedge.html, accessed Sept. 24, 2017). It can tolerate shade in riparian wet woods, and so the very limited occurrence in Scott County poses questions about the factors leading to that restriction. Why doesn't it occur in the floodplain of the Wapsi, which is abundant with shallow water and other sedges such as Smoothcone Sedge (*Carex laeviconica*), or along the floodplain areas of the Mississippi Valley?⁴ Guldner (1960) recorded it only outside the county, near Rochester (Cedar County) and apparently on the low terrace of the Cedar River, at least twelve miles from the surveyed locations.

One impression of the area of the county west of Davenport to Bluegrass, Walcott, and the Muscatine border is that this area was once marshy, even though it appears to have had good surface drainage. At one time in the early historic period (and as a result of erosional and hydrological processes on an ancient postglacial surface), this area may have been an almost exclusive host to the species due to standing water in relatively deep upland potholes and poorly drained marshy habitat.

Another example of biogeographic interpretation, and one with somewhat more evidence, is the distribution of oak savannah. Oak savannah consists of open grasslands with scattered Bur and/or White Oaks (*Quercus macrocarpa*, *Q. alba*). The total shade cover from mature trees is usually well under 60%, and the presence of fire-stunted “grub oaks” may have been common. Mature, savannah-grown oaks (especially *Q. macrocarpa*) show a sprawling branch structure with horizontal limbs. The diameter of the tree's dripline may equal or exceed the tree's height. Today, savannah-like cover may be observed in the county in overgrown woodlands that still

⁴ In a botanical survey of the Wapsipinicon River Corridor, Lake Sedge was listed for the overall inventory, but it was not found at Sherman Park (Clinton County, on the left bank of the Wapsi) or Wapsi Environmental Education Center (Clinton and Scott Counties, right bank of the Wapsi). Document provided to the author by Bob Bryant, but citation information lacking.

have open-grown, sprawling oaks among the taller, thinner woodland trees, or in close-cropped pastures that have significant tree cover.

The primary indicator species from the survey plant list is Smooth Solomon-Seal (*Polygonatum biflorum*). It grows in widespread locations that often are adjacent to mid-slope, high slope, or low ridgetop positions. Its use as a savannah indicator is tentative, and yet the data from road segments and data points are very suggestive of continuous bands of savannah along upland waterways and slopes above larger streams. Other potential savannah indicators found during the survey include several dogwoods (*Cornus* sp.), Wild Plum (*Prunus americana*), and Smooth Sumac (*Rhus glabra*). These small trees provided important wildlife food and shelter, and as woody species they helped make savannahs distinct from prairies.

Savannahs often were treated as transitional areas between prairies and woods, but evidence urges that they be considered as distinct ecosystems. The evidence consists largely of differences in animal and plant community composition, and to a lesser degree of plant species that were adapted to the specific conditions of savannahs: varying amounts of shade, a mix of prairie and woodland species, and unique bird and mammal residents. Among these plant species are the small trees and shrubs given just above, and perhaps shrubs such as New Jersey Tea (*Ceanothus americana*) and forbs like Purple Milkweed (*Asclepias purpurascens*).

These are only two examples of the uses of survey data for reconstruction of past ecosystems. The data also have important uses for roadside management, in regard to recreating roadside ecosystems that are unique to Scott County, and for survival of less common species.

Roadsides as seed sources. Ecosystem restoration often emphasizes the use of “local ecotype” seed. The roadsides of Scott County hold important remnants of locally adapted plants.

Definitions of “local ecotype” vary from the geographically broad one offered by the Iowa Department of Natural Resources – seed collected within 200 miles east or west of the planting site, or within 100 miles north or south – to very localized definitions offered by some restorationists, e.g., collected within ten miles of the planting site (T. Wilson, personal communication, 2015). Availability and expense of seed and seed mixes often drive the definition, rather than botanical or genetic features.

Still, the existence of such diversity in the county offers a rather unique opportunity to collect, grow, and maintain truly local ecotypes (understood as found in the watersheds of the county and adjacent drainage basins outside the county). These can (1) enhance the biodiversity of IRVM seed mixes with additional species and germplasms; (2) be used to establish variant ecosystems such as wet prairies, mid-height prairies, sedge meadows, lakeshore aquatic communities, and the like; and (3) be planted in seed production gardens for public restoration projects.

A limitation on collecting some of these species is the equipment that can be used. Some species, such as the panic grasses (genus *Dichanthelium*) often are short and their seeds small. These qualities may make mechanical harvest expensive or impossible. Others are found in substantial remnants that may be damaged by harvesting machinery. Hand labor is useful in these cases, but it requires familiarity with less well-known species. In some counties, conservation boards

organize seed harvests for volunteers, offering a meal or other incentive to participate. The obstacles to obtaining seeds from the range of plants in the roadsides are not insurmountable, but they may require creative thinking and planning.

Other uses of survey data. Several other uses for planning herbicide applications, obtaining landowner cooperation, training Secondary Roads employees, and other functions of the county roads department follow from discussions with Brian Burkholder, Jon Burgstrum, and members of the Steering Committee and Board of Supervisors. These will not be covered in detail in this report. Some additional detail is available in the presentations given by Burkholder and Searles in 2017.

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Appendices

Scott County RVS Species Inventory, 2016 & 2017

Scott County Plant Communities Based on Survey Findings

10th Avenue Corridor: Remnant Plants & Plant Communities

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SCOTT COUNTY RVS SPECIES INVENTORY, 2016 & 2017

Species Code	Genus	Species	Subspecies	Common Name	Native Status	Wetland Status	CofC	Plant Community	Guldner
ABUTHE	Abutilon	theophrasti		Velvetleaf, Buttonweed, Butterprint	E	FACU	*	Disturbed Soil	x
AGRGIG	Agrostis	gigantea		Redtop	E	FACW	*	Wet Fringe	x (A. alba)
AILALT	Ailanthus	altissima		Tree-of-Heaven	E	UPL	*		x
ALLPET	Alliaria	petiolata		Garlic Mustard	E	FAC	*		NO
AMAHYB	Amaranthus	hybridus		Green or Smooth Amaranth or Pigweed	E	UPL	*	Disturbed Soil	x
AMARET	Amaranthus	retroflexus		Beetroot or Redroot Amaranth or Pigweed	E	FACU	*	Disturbed Soil	x
AMATUB	Amaranthus	tuberculatus		Rough-Fruited Amaranth or Water-Hemp	E	OBL	*		x (Acnida altissima)
ARCMIN	Arctium	minus		Common Burdock	E	UPL	*		x
ASPOFF	Asparagus	officinalis		Wild or Garden Asparagus	E	FACU	*	Roadsides	x
BARVUL	Barbarea	vulgaris		Yellow Rocket	E	FAC	*	Disturbed Soil	x
BROINE	Bromus	inermis		Smooth Brome	E	FACU	*	Upland Pasture, Prairies	x
CAMRAP	Campanula	rapunculoides		Creeping or European Bellflower	E	UPL	*		x
CAMRAD	Campsis	radicans		Trumpetflower or Trumpetvine	E	FACU	*		x
CANSAT	Cannabis	sativa		Hemp or Marijuana	E	FAC	*		x
CAPBUR	Capsella	bursa-pastoris		Shepherd's Purse	E	FAC	*		x
CARNUT	Carduus	nutans		Musk or Russian Thistle	E	FACU	*		x
CATSPE	Catalpa	speciosa		Northern Catalpa	E	FACU	*		x
CELORB	Celastrus	orbiculatus		Asian Bittersweet	E	UPL	*		x
CHEALB	Chenopodium	album		Lambs-Quarters	E	FACU	*	Disturbed Soil	x
CICINT	Cichorium	intybus		Chicory or Cornflower	E	FACU	*	Roadsides	x
CIRARV	Cirsium	arvense		Canada Thistle	E	FACU	*		x
CIRVUL	Cirsium	vulgare		Bull Thistle	E	FACU	*		x
CORTIN	Coreopsis	tinctoria		Golden Coreopsis	E	FAC	*		x
COMCOM	Commelina	communis		Asiatic Dayflower	E	FACU	*		x
CONMAC	Conium	maculatum		Poison Hemlock	E	FACW	*	Wet Fringe	x
CONARV	Convolvulus	arvensis		Field Bindweed, Creeping Jenny	E	UPL	*		x
DACGLO	Dactylis	glomerata		Orchard Grass	E	FACU	*	Upland Pasture, Prairies	x
DAUCAR	Daucus	carota		Queen-Anne's-Lace, Wild Carrot	E	UPL	*	Pastures, roadsides, edges	x
DIGSAN	Digitaria	sanguinale		Common Crabgrass	E	FACU	*	Lawns, roadsides	x
DIPFUL	Dipsacus	fullonum		Teasel	E	FACU	*	Roadsides, pastures	x
ECHFRU	Echinochloa	crus-galli		Barnyard Grass	E	FACW	*	Wet Fringe	x
ECHCRU	Echinochloa	cf frumentacea		Billion-Dollar Grass	E	FACW	*		x (E. c. var. frumentosa)
ELEUMB	Eleagnus	umbellifera		Autumn Olive	E	UPL	*		? Included in A. angustifolia?
ELEIND	Eleusine	indica		Goosegrass	E	FACU	*	Roadsides	x
EUPULU	Euphorbia	esula		Leafy Spurge	E	UPL	*		NO
FESIVI	Festuca	ovina		Sheep Fescue	E	UPL	*	Upland Pasture, Prairies	x
GAIPUL	Gaillardia	pulchella		Firewheel	E	FACU	*		x
HEMFUL	Hemerocallis	fulva		Daylily	E	UPL (??)	*	Roadsides	x
HIBTRI	Hibiscus	trionum		Flower-of-an-Hour	E	UPL	*		x
Hieracium	cf. Hieracium			Hawkweed	E		*		x
HYPPER	Hypericum	perforatum		Common St. Johnswort	E	UPL	*		x
IPOHED	Ipomoea	hederacea		Ivy-Leaved Morningglory	E	FAC	*		x
IPOPUR	Ipomoea	purpurea		Annual Morningglory	E	FACU	*		x
LACSER	Lactuca	serriola		Prickly Lettuce	E	FACU	*		x (L. scariola)

LATLAT	Lathyrus	latifolius		Everlasting Pea	E		*		x
LEOCAR	Leonurus	cardiaca		Motherwort	E	UPL	*		x
LEPCAM	Lepidium	campestre		Field Peppergrass	E	UPL	*		x
Lilium	Lilium	lancifolium		Tiger Lily	E		*		NO
LOLPER	Lolium	perenne		Annual Ryegrass	E	FACU	*		x
LONTAT	Lonicera	tatarica		Tartarian Honeysuckle	E	FACU	*	Edges, woods understory	x
LOTCOR	Lotus	corniculatus		Birdsfoot Trefoil	E	FAC	*	Pastures, Prairies, Savannahs	x
LYTSAL	Lythrum	salicaria		Purple Loosestrife	E	OBL	*	Wet Fringe	x
MACPOM	Maclura	pomifera		Osage-Orange or Hedge-Apple	E	FACU	*		x
MEDLUP	Medicago	lupulina		Black Medic	E	FACU	*	Pastures, Prairies, Savannahs	x
MEDSAT	Medicago	sativa		Alfalfa or Lucerne	E	FACU	*	Hayfields, old pastures, roadsides	x
MELALB	Melilotus	alba		White Sweetclover	E	FACU	*	Pastures, Prairies, Savannahs	x
MELOFF	Melilotus	officinalis		Yellow Sweetclover	E	FACU	*	Pastures, Prairies, Savannahs	x
MISSAC	Miscanthus	sacchariflorus		Plume Grass or Miscanthus	E	UPL	*		x
MORALB	Morus	alba		White Mulberry	E	FAC	*	Old farmsteads	x
NEPCAT	Nepeta	cataria		Catnip	E	FAC	*		x
PASSAT	Pastinaca	sativa		Wild Parsnip	E	UPL	*	Pastures, roadsides, edges	x
PERMAC	Persicaria	maculosa		Lady's Thumb	E	FACW	*	Disturbed, damp soil	x (Polygonum persicaria)
PHAARU	Phalaris	arundinacea		Reed Canarygrass	E	FACW	*	Wet Fringe	x
PHLPRA	Phleum	pratense		Timothy Grass	E	FACU	*	Upland Pasture	x
PHLPAN	Phlox	paniculata		Garden Phlox	E	FACU	*		x
PHRAUS	Phragmites	australis		Common or Giant Reed	E	FACW	*	Wet Fringe	x
PLALAN	Plantago	lanceolata		Lance-Leaved Plantain or Buckhorn	E	FACU	*	Pastures	x
PLAMAJ	Plantago	major		Common Plantain	E	FAC	*	Lawns, pastures, roadsides	x
POAPRA	Poa	pratensis		Kentucky Bluegrass	E	FAC	*	Lawns, pastures, roadsides	x
PRUVUL	Prunella	vulgaris	hispidia	Heal-all or Selfheal	E	FAC	*		x
RHACAT	Rhamnus	cathartica		European Buckthorn	E	FAC	*		x
ROBHIS	Robinia	hispidia		Bristly Locust	E	n/a	*		x
ROBPSE	Robinia	pseudoacacia		Black Locust	E	FACU	*		x
ROSMUL	Rosa	multiflora		Multiflora Rose	E	FACU	*	Edges, open woods, roadsides	x
RUMCRI	Rumex	crispus		Curly or Sour Dock	E	FAC	*	Mesic to wet ditches & roadsides	x
SALFRA	Salix	fragilis		Crack Willow	E	FAC	*	Wet ditches	x
SAPOFF	Saponaria	officinalis		Bouncing-Bet or Soapwort	E	OBL	*	Roadsides	x
SECVAR	Securigera	varia		Crown Vetch	E	UPL	*	Roadsides, old stabilization slopes	x
SETFAB	Setaria	faberi		Giant Foxtail	E	FACU	*	Disturbed Soil	x
SETITA	Setaria	italica		Bristly Foxtail	E	FACU	*	Upland Pasture	x
SILVUL	Silene	vulgaris		Bladder Campion	E	n/a	*	Roadsides	x (S. cucubalis)
SONARV	Sonchus	arvensis		Field Sowthistle	E	FACU	*	Disturbed soil, roadsides	x
SPIJAP	Spiraea	japonica		Japanese Spiraea	E	UPL	*		x
TANVUL	Tanacetum	vulgare		Tansy	E	UPL	*		x
TAROFF	Taraxacum	officinale		Common Dandelion	E	FACU	*	Lawns, roadsides	x
TRAPRA	Tragopogon	pratensis		Yellow Goatsbeard	E	UPL	*	Roadsides	x
TRIHYP	Trifolium	hybridum		Alsike Clover	E	FACU	*	Upland Pasture	x
TRIPRA	Trifolium	pratense		Red Clover	E	FACU	*	Upland Pasture	x
TRIREF	Trifolium	repens		White Clover	E	FACU	*	Upland Pasture	x
TYPANG	Typha	angustifolia		Narrow-Leaved Cattail	E	OBL	*	Wet Fringe	x
TYPGLA	Typha	x glauca		Hybrid Cattail	E	OBL	*	Wet Fringe	x
ULMPUM	Ulmus	pumila		Siberian Elm	E	UPL	*	Fencerows, Farmsteads	x

VERTHA	Verbascum	thapsus		Common Mullein	E	UPL	*	Roadsides, Old Pastures	x
VIBOPU	Viburnum	opulus		Guelder Rose	E	FAC	*		x
VICCRA	Vicia	cracca		Cow Vetch	E	UPL	*	Dry Pastures, Prairies	NO
XANSTR	Xanthium	strumarium		Cocklebur	E	FAC	*	Disturbed wet soil	x (X. speciosum)
YUCFIL	Yucca	filamentosa		Spanish Bayonet	E		*	Farmsteads, adjacent ditches	x
ZEAMAY	Zea	mays		Field Corn or Maize	E	UPL	*		NO
ACARHO	Acalypha	rhomboidea		Three-Seeded Mercury	N	FACU		6 Disturbed Soil	x
ACENEG	Acer	negundo		Boxelder or Ashleaf Maple	N	FACW		0 Riparian woods	x
ACESAI	Acer	saccharinum		Silver or Soft Maple	N	FACW		1 Riparian woods	x
ACESAU	Acer	saccharum		Sugar Maple	N	FACU		5 Woods	x
ACHMIL	Achillea	millefolium		Yarrow	N	FACU		0 Prairies, Savannahs	x
ACOCAL	Acorus	cf. calamus		Sweetflag	N	OBL		8	x
ALISUB	Alisma	subcordata		American Water-Plantain	N	OBL		3 Wet Shallow	x
ALLCAN	Allium	canadense		Wild Onion	N	FACU		6 Savannahs, Woods	x
AMBART	Ambrosia	artemisiifolia		Common Ragweed	N	FACU		0 Disturbed Soil	x
AMBPSI	Ambrosia	psilostachya		Western Ragweed	N	FAC		2	x
AMBTRI	Ambrosia	trifida		Giant Ragweed, Horseweed	N	FAC		0 Disturbed Soil	x
AMOCAN	Amorpha	canescens		Leadplant	N	UPL		8 Mesic prairies	x
AMOFRF	Amorpha	fruticosa		Indigo Bush	N	FACW		5 Mesic & wet prairies	x
AMPBRB	Amphicarpaea	bracteata		Hog Peanut	N	FAC		4 Woods	x
ANDGER	Andropogon	gerardi		Big Bluestem	N	FAC		4 Prairies	x
ANECAN	Anemone	canadensis		Canada Anemone	N	FACW		2 Wet roadsides	x
ANECYL	Anemone	cylindrica		Thimbleweed	N	UPL		7 Prairies	x
APIAME	Apios	americana		Groundnut	N	FACW		4	x
APOCAN	Apocynum	cannabinum		Indian Hemp or Dogbane	N	FAC		1	x
APOSIB	Apocynum	sibiricum		Indian Hemp or Dogbane	N	FAC		1	x
ARITRI	Arisaema	triphillum		Jack-in-the-Pulpit	N	FACW		4 Mesic woods	x
ARTLUD	Artemisia	ludoviciana		Prairie Sage or Wormwood	N	UPL		2 Mesic to dry prairies, roadsides	x
ARTSER	Artemisia	serrata		Sawtooth Sage or Wormwood	N	UPL		10	x
ASCAMP	Asclepias	amplexicaulus		Blunt-Leaved or Sand Milkweed	N	UPL		4 Sandy, mesic prairies, roadsides	x
ASCINC	Asclepias	incarnata		Rose or Swamp Milkweed	N	OBL		4 Wet Fringe, Wet Shallow	x
ASCPUR	Asclepias	purpurescens		Purple Milkweed	N	FACU		7 Mesic to wet-mesic prairies, roadsides	x
ASCSUL	Asclepias	sullivanti		Sullivant's Milkweed	N	UPL		7 Mesic prairies, roadsides	x
ASCSYR	Asclepias	syriaca		Common Milkweed	N	FAC		0 Prairies, Wet Fringe	x
ASCTUB	Asclepias	tuberosa		Butterfly Milkweed	N	UPL		6 Prairies	x
ASCVER	Asclepias	verticillata		Whorled Milkweed	N	FACU		0 Dry-mesic to wet-mesic prairies, roadsides	x
ASTCAN	Astragalus	canadensis		Canada Milk Vetch	N	FAC		4	x
ATHFIL	Athyrium	filix-femina		Lady-Fern	N	FAC		7 Mesic woods	x
BAPLEU	Baptisia	lactaea		Prairie False Indigo	N	FACU		6 Mesic prairies	x (B. leucantha)
BETNIG	Betula	nigra		River Birch	N	FACW		6	x
BIDFRO	Bidens	frondosa		Swamp Beggarticks	N	FACW		3 Wet Fringe	x
BOLAST	Boltonia	asteroides		False Aster	N	FACW		5 Wet fringe, shallow wetlands	x (B. latisquama)
BOUCUR	Bouteloa	curtipendula		Sideoats Grama	N	UPL		6 Dry Prairies	x
BRIEUP	Brickellia	eupatorioides		False Boneset	N	UPL		5	x (Kuhnia e.)
CALCAN	Calamagrostis	canadensis		Canada Bluejoint Grass	N	OBL		5	x
CALSEP	Calystegia	sepium		Hedge Bindweed	N	FAC		0 Roadsides, edges	x (Convolvulus s.)
CAMAME	Campanulastrum	americanum		Tall Bellflower	N	FAC		4 Woods	x (Campanula a.)
CXANNX	Carex	annectens	xanthocarpa	Large Yellow Fox Sedge	N	FACW		6 Wet Fringe	NO

CXBEBB	Carex	bebbii		Bebb's Sedge	N	OBL	8		x
CXBREV	Carex	brevier		Shortbeak or Plains Oval Sedge	N	FAC	4	Prairies, Savannahs	x
CXCONJ	Carex	conjuncta		Soft Fox Sedge	N	FACW	7		x
CXCRIS	Carex	cristatella		Crested Oval Sedge	N	FACW	5	Wet Prairies, Wet Fringe	x
CXDAVI	Carex	davisii		Awned Graceful or Davis's Sedge	N	FAC	4	Savannahs, woods edges	x
CXFEST	Carex	festucea		Fescue Oval Sedge	N	FAC	8		x
CXFRAN	Carex	frankii		Frank's or Bristly Cattail Sedge	N	OBL	8	Mesic Prairies, roadsides	NO
CXGRIS	Carex	grisea		Gray Sedge	N	UPL	4		x
CXGRVG	Carex	gravida		Heavy Sedge	N	FACU	1	Dry to Mesic Prairies	x
CXLACU	Carex	lacustris		Lake Sedge	N	OBL	7		x
CXLAEC	Carex	laeviconica		Smoothcone Sedge	N	OBL	6	Wet Shallow	x
CXMOLE	Carex	molesta		Troublesome Sedge	N	FAC	2	Mesic to Wet Prairies, Wet Fringe	x
CXNORM	Carex	normalis		Greater Straw or Spreading Oval Sedge	N	FACW	5	Wet Prairies, Wet Fringe	x
CXPELL	Carex	pellita		Woolly Sedge	N	OBL	4	Wet Fringe	x (C. lanuginosa)
CXRADI	Carex	radiata		Eastern Star Sedge	N	FAC	*	Wet Prairies, Wet Fringe	NO
CXSCOP	Carex	scoparia		Pointed Broom Sedge	N	FACW	5		x
CXSHOR	Carex	shortiana		Short's Sedge	N	FACW	8		x
Carex	Carex	sp.		Sedge	N				x
CXSTIP	Carex	stipata		Common Fox Sedge	N	OBL	5		x
CXTRIC	Carex	trichocarpa		Hairy-Fruited Lake Sedge	N	OBL	8		x
CXUMB	Carex	umbellata		Early Oak Sedge	N	UPL	10		NO
CXVULP	Carex	vulpinoidea		Fox Sedge	N	FACW	3	Wet Prairies, Wet Fringe	x
CAROVT	Carya	ovata		Shagbark Hickory	N	FACU	5	Savannahs, mesic woods	x
CEAAME	Ceanothus	americana		New Jersey Tea	N	UPL	8		x
CEPOCC	Cephalanthus	occidentalis		Buttonbush	N	OBL	6	Wet Shallow	x
CERCAN	Cercis	canadensis		Redbud	N	FACU	3		x
CHAFAS	Chamaecrista	fasciculata		Partridge-Pea	N	FACU	1	Disturbed Soil	x (Cassia f.)
CIRDIS	Cirsium	discolor		Field Thistle	N	FACU	1	Disturbed Soil, pastures, roadsides	x
CLEVIR	Clematis	virginiana		Virgin's-Bower	N	FAC	2	Mesic woods	x
CONCAN	Conyza	canadensis		Canada Fleabane, Mare's-tail, Horseweed	N	FACU	0	Pastures, Dry to Mesic Prairies	x (Erigeron c.)
CORPAL	Coreopsis	palmata		Prairie Coreopsis	N	UPL	7	Mesic to wet prairies	x
CORDRU	Cornus	drummondii		Rough-Leaved Dogwood	N	FAC	6		x
CORFOE	Cornus	foemina	racemosa	Gray Dogwood	N	FAC	1		x (C. racemosa)
CRYCAN	Cryptotaenia	canadensis		Honewort	N	FAC	4	Mesic woods	x
CYNLAE	Cynanchum	laeve		Honeyvine	N	FAC	0		x (Ampelamus albidus)
CYPESC	Cyperus	esculentus		Yellow Nutsedge	N	FACW	0	Wet Fringe	x
DESILL	Desmanthus	illinoense		Illinois Bundleflower	N	FAC	4	Wet Fringe	NO
DESPAN	Desmodium	paniculatum		Panicked Tick-Trefoil	N	FACU	8		x
DICOLS	Dichanthelium	oligosanthes	scribnerianum	Scribner's Panic Grass	N	FACU	5		x (Panicum scribnerianum)
Dichanthelium	Dichanthelium	sp.		Panic Grass	N				x (Panicum sp.)
ECHPAL	Echinacea	pallida		Pale Purple Coneflower	N	UPL	7	Prairie remnants, restorations	x
ECHPUR	Echinacea	purpurea		Purple Coneflower	N	UPL	9	Prairie restorations	x
ELECOM	Eleocharis	compressa		Flatstem Spike-Rush	N	OBL	7	Wet Shallow	x
ELEERY	Eleocharis	erythropoda		Bald or Red-Footed Spike-Rush	N	OBL	4	Wet Shallow	x (E. calva)
ELEOBT	Eleocharis	obtusa			N	OBL		Wet Shallow	x
ELEPAL	Eleocharis	palustris		Common Spike Rush	N	OBL		Wet Shallow	x
Eleocharis	Eleocharis	sp.		Spike-Rush					x
ELYCAN	Elymus	canadensis		Canada Wild Rye	N	FACU	5	Prairie remnants, restorations	x

EPICIL	Epilobium	cf. ciliatum		Northern Willow-Herb	N	FACU	3 Roadsides	NO
EQUARV	Equisetum	arvense		Common Horsetail	E	FAC	0 Wet Fringe, Mesic to Wet Prairie	x
EQLAE	Equisetum	laevigatum		Smooth Horsetail or Scouring-Rush	N	FACW	6 Wet Fringe, Mesic to Wet Prairie	x
ERASPE	Eragrostis	spectabilis		Purple Lovegrass	N			x
EREHIE	Erechtites	hieracifolia		American Burnweed	N	FACU	0	x
ERIANN	Erigeron	annuus		Daisy Fleabane	N	FACU	0 Dry to Mesic Prairies	x
ERIPHI	Erigeron	philadelphicus		Philadelphia Fleabane	N	FACW	2 Wet Prairies, Wet Fringe	x
ERYYUC	Eryngium	yuccifolium		Rattlesnake Master	N	UPL	8	x
EUOATR	Euonymus	atropurpureus		Eastern Wahoo	N	FAC	7 Wood Mesic	x
EUPPER	Eupatorium	perfoliatum		Common Boneset, Thoroughwort	N	OBL	6 Prairie Wet, Wet Fringe	x
EUPCOR	Euphorbia	corollata		Flowering Spurge	N	UPL	3 Mesic to dry prairies, roadsides	x
EUPDEN	Euphorbia	dentata		Toothed Spurge	N	UPL	0 Roadsides	x
EUPNUT	Euphorbia	nutans		Eyebane or Nodding Spurge	N	FACU	0 Mesic Prairies, roadsides	x (E. preslii)
EUTGRA	Euthamia	graminifolia		Grass- or Lance-Leaved Goldenrod	N	FACW	5 Mesic to Wet Prairies	x (Solidago graminea)
EUTMAC	Eutrochium	maculatum		Spotted Joeepyweed	N	OBL	5 Prairie Wet, Wet Fringe	x
FRAAME	Fraxinus	americana		White Ash	N		Mesic to dry woods	x
GRAPEP	Fraxinus	pennsylvanica	lanceolata	Green Ash	N	FACW	1 Damp edges, pastures, roadsides	x
GAUBIE	Gaura	biennis		Biennial Gaura	N	FACU	3	x
GENALB	Gentiana	alba		Cream Gentian	N	FACU	4 Mesic Prairies	x (G. flavida)
GLETRI	Gleditsia	triacanthos		Honeylocust	N	FAC	0 Pastures, savannahs, fencerows	x
Habenaria	Habenaria	sp.		Rein Orchid	N			x
HACVIR	Hackelia	virginiana		Beggar's-Lice or Stickseed or Tickseed	N	FACU	0 Woods, woods edges	x
HELDIV	Helianthus	divaricatus		Woodland Sunflower	N	UPL	5 Dry Woods	x
HELGIG	Helianthus	giganteus		Giant or Tall Sunflower	N	FACW	Prairie Wet, Wet Fringe	x
HELGRO	Helianthus	grosseserratus		Sawtooth Sunflower	N	FACW	4 Wet Prairies, Wet Fringe	x
HELMAX	Helianthus	cf maximiliani		Maximilian's Sunflower	N	UPL	4 Mesic to dry prairies	x
HELTUB	Helianthus	tuberosus		Jerusalem Artichoke	N	FACU	0 Dry to Mesic Prairies	x
HELHEL	Heliopsis	helianthoides		False Sunflower or Oxeye	N	UPL	4	x
HIBLAE	Hibiscus	laevis		Halberd-Leaved Rose Mallow	N	OBL	6 Marsh edges	x (H. militaris)
HORJUB	Hordeum	jubatum		Squirreltail Barley	N	FAC	0 Disturbed Soil	x
HUMLUP	Humulus	lupulus		Common Hopvine	N	FACU	3 Old pastures, woods edges	x
HYPELL	Hypericum	ellipticum		Pale St Johnswort	N	*		NO
HYPMUT	Hypericum	mutilum		Dwarf St Johnswort	N	FACW	7	x
IMPCAP	Impatiens	capensis		Spotted Jewelweed or Touch-Me-Not	N	FACW	3 Wet woods	x
Impatiens	Impatiens	sp.		Jewelweed or Touch-Me-Not	N	FACW		x (I. biflora)
IMPPAL	Impatiens	pallida		Pale Jewelweed or Touch-Me-Not	N	FACW	5 Wet woods	x
JUGNIG	Juglans	nigra		Black Walnut	N	FACU	4 Mesic to wet woods	x
JUNACU	Juncus	acuminatus		Sharp-Fruited Rush	N	OBL	5 Wet shallow	x
JUNDUD	Juncus	dudleyi		Dudley's Rush	N	FAC	2 Wet fringe	x
JUNTEN	Juncus	tenuis		Path or Poverty Rush	N	FAC	0 Wet fringe	x
JUNTOR	Juncus	torreyi		Torrey Rush	N	FACW	3 Wet Fringe	x
JUNVIR	Juniperus	virginiana		Eastern Red Cedar	N	FACU	1 Shrub savannahs	x See Errata
JUSAME	Justicia	americana		Water-Willow	N	OBL	6	NO
LACBIE	Lactuca	biennis		Tall Lettuce	N	FAC	2	x
LACCAN	Lactuca	canadensis		Wild Blue Lettuce	N	FACU	1 Open woods, woods edges	x
LEEORY	Leersia	oryzoides		Rice Cutgrass	N	OBL	2 Wet Fringe understory	x
Lemna	Lemna	sp.		Duckweed	N	OBL	Wet Deep & Shallow	x
LEPVIR	Lepidium	virginicum		Poor-Man's-Pepper	N	FACU	0 Field edges, roadsides, disturbed areas	x

LESCAP	Lespedeza	capitata		Round-Headed Bush Clover	N	FACU	3 Mesic to dry prairies	x
LESVIR	Lespedeza	virginica		Slender Bush Clover	N	UPL	5 Savannahs, Woods	x
LIAPYC	Liatris	pycnostachya		Prairie Blazingstar	N	FAC	6 Wet prairies	x
LOBCAR	Lobelia	cardinalis		Cardinalflower	N	OBL	5 Wet Fringe	x
LOBSIP	Lobelia	siphilitica		Giant Blue Lobelia	N	FACW	3	x
LOBINF	Lobelia	inflata		Indian Tobacco	N	FAC	6	x
LUDALT	Ludwigia	alternifolia		Seedbox	N	OBL	4	x
LYCAME	Lycopus	americana		American Water Horehound	N	OBL	4 Wet Fringe & Shallow	x
LYSCIL	Lysimachia	ciliata		Fringed Loosestrife	N	FACW	4 Wet Fringe	x
LYTALA	Lythrum	alatum		Winged Loosestrife	N	OBL	3	x
MAISTE	Maianthemum	stellatum		Starry False Solomon-Seal	N	FAC	5 Oak savannahs	x (Smilacina s.)
MIMRIN	Mimulus	ringens		Monkeyflower	N	OBL	3 Wet Shallow	x
MIRNYC	Mirabilis	nyctaginea		Wild Four-o'Clock	N	UPL	0	x
MONFIS	Monarda	fistulosa		Wild Bergamot or Horsemint	N	FACU	2	x
MONPUN	Monarda	punctata		Dotted or Spotted Bee-Balm or Bergamot	N	UPL	6	x
MORRUB	Morus	rubra		Red Mulberry	N	FAC	4 Shrub savannahs	x
MUHASP	Muhlenbergia	asperifolia		Scratchgrass or Alkali Grass	N	FACW	3	NO
MUHFRO	Muhlenbergia	frondosa		Wirestem Muhly Grass	N	FACW	3 Wet Prairies, Wet Fringe	x
OENBIE	Oenothera	biennis		Common Evening Primrose	N	FACU	0 Dry to Mesic Prairies	x
OLIRIG	Oligoneuron	rigidum		Stiff Goldenrod	N	FACU	4 Dry to Wet Prairies	x (Solidago r.)
ONOSEN	Onoclea	sensibilis		Sensitive-Fern	N	FACW	6	x (Onocles s.)
PANCAP	Panicum	capillare		Witchgrass	N	FAC	0	x
PANVIR	Panicum	virgatum		Switchgrass	N	FAC	5 Prairies	x
PARINS	Parthenocissus	inserta		Woodbine	N			x (P. vitacea)
PARQUI	Parthenocissus	quinquefolia		Virginia Creeper	N	FACU	2	x
AGRSMS	Pascopyrum	smithii		Western Wheatgrass	N	FACU	2	x (Agropyron s.)
PASSET	Paspalum	setaceum		Beadgrass	N	FAC	4	x (P. ciliatifolium)
PENDIG	Penstemon	digitalis		Foxglove Penstemon	N	FAC	4	x
PENSED	Penthorum	sedoides		Ditch Stonecrop	N	OBL	3	x
PERAME	Persicaria	amphibia	emersum	Water Smartweed	N	OBL	3 Wet Shallow	x (Polygonum a.)
PERAMS	Persicaria	amphibia	stipulacea	Water Smartweed	N	OBL	3 Wet Prairies, Wet Fringe	x (Polygonum a.)
PERHYD	Persicaria	hydropiper		Mild Waterpepper	N	OBL	3	x (Polygonum h.)
PERLAP	Persicaria	lapathifolia		Dock-Leaved or Pale Smartweed	N	FACW	0	x (Polygonum l.)
PERPEN	Persicaria	pennsylvanica		Pinkweed or Pennsylvania Smartweed	N	FACW	0 Wet Prairies, Wet Fringe	x (Polygonum p.)
PHYLAN	Phyla	lanceolata		Fogfruit	N	OBL	3 Wet Shallow	x (Lippia l.)
PHYHET	Physalis	heterophylla		Clammy Groundcherry	N	UPL	2 Dry Prairies	x
PHYLON	Physalis	longifolia		Smooth Groundcherry	N	UPL	Dry Prairies	x
PHYOPU	Physocarpus	opulifolius		Ninebark	N	FACW	8	x
PHYVIR	Physostegia	virginiana		False Dragonhead or Obedient Plant	N	FACW	6	x
PHYAME	Phytolacca	americana		Pokeweed	N	FAC	0	x
PILPUM	Pilea	pumila		Clearweed	N	FACW	3	x
POLBIF	Polygonatum	biflorum		Common Solomon's-Seal	N	FACU	4 Savannahs, Woods	x (P. canaliculatum)
POPDEL	Populus	deltoides		Eastern Cottonwood	N	FAC	1 Riparian Terraces	x
POTNOR	Potentilla	norvegica		Norwegian Cinquefoil	N	FAC	2	x
PRUVUL	Prunella	vulgaris	lanceolata	Self-Heal	N	FAC	0	x
PRUAME	Prunus	americana		Wild Plum	N	FACU	2 Savannahs	x
PRUSER	Prunus	serotina		Black Cherry	N	FACU	3 Mesic woods	x
PRUVIR	Prunus	virginiana		Chokecherry	N	FAC	2	x

PTETRT	Ptelea	trifolia		Hoptree or Wafer-Ash	N	FACU	3	x
PYCINC	Pycnanthemum	incanum		Hairy Mountain Mint	N	UPL	5	NO
PYCVIR	Pycnanthemum	virginianum		Virginia Mountain-Mint	N	FACW	4	x
QUEMAC	Quercus	macrocarpa		Bur Oak	N	FAC	4	Savannahs, mesic woods x
RATPIN	Ratibida	pinnata		Gray-Headed Coneflower	N	UPL	4	Dry Prairies x
RHUGLA	Rhus	glabra		Smooth Sumac	N	UPL	0	Savannahs x
RHUTYP	Rhus	typhina		Staghorn Sumac	N	UPL	3	Savannahs NO
RIBMIS	Ribes	cf. missouriense		Missouri Gooseberry	N	UPL	3	Mesic woods x
RORPAL	Rorippa	palustris		Marsh Cress	N	OBL	7	Wet Shallow x
ROSARS	Rosa	arkansana		Arkansas Rose	N	FACU	4	Dry to Mesic Prairie x
ROSBLA	Rosa	blanda		Smooth Rose	N	FACU	4	Dry to Mesic Prairie x
ROSCAR	Rosa	carolina		Carolina Rose	N	FACU	4	Dry to Mesic Prairie x
RUBALL	Rubus	alleghehiensis		Allegheny Blackberry	N	FACU	2	Shrub savannahs x
RUBOCC	Rubus	occidentalis		Black Raspberry	N	UPL	1	Open woods, woods edges x
RUDHIR	Rudbeckia	hirta		Black-Eyed Susan	N	FACU	2	Dry to Mesic Prairie x
RUDLAC	Rudbeckia	laciniata		Cutleaf or Yellow Coneflower	N	FACW	4	Woods Wet x
RUMALT	Rumex	altissimus		Pale Dock	N	FACW	0	Wet Fringe x
RUMVER	Rumex	verticillatus		Swamp Dock	N	OBL	4	Wet Shallow x
SAGLAT	Sagittaria	latifolia		Broad-Leaved Arrowhead	N	OBL	4	Wet Shallow x
SALAMY	Salix	amygdaloides		Peachleaf Willow	N	FACW	1	x
SALINE	Salix	interior	exigua	Sandbar Willow	N	FACW	0	Riparian Terraces, Wet Fringe x
SALNIG	Salix	nigra		Black Willow	N	OBL	3	Wet fringe, shallow wetlands x
SAMNIG	Sambucus	nigra		Common Elderberry	N	FACW	1	Riparian Terraces, Wet Fringe x (S. canadensis)
SANCAS	Sanicula	marilandica		Maryland Snakeroot	N	UPL	5	x
SCHSCO	Schizachyrium	scoparium		Little Bluestem	N	FACU	5	Dry to Mesic Prairie x
SCHFLU	Schoenoplectus	fluviatilis		River Bulrush	N	OBL	5	Wet Shallow x (Scirpus f.)
SCHTAB	Schoenoplectus	tabernaemontani		Softstem Bulrush	N	OBL	3	Wet Shallow x (Scirpus validus)
SCIATV	Scirpus	atrovirens		Dark-Green Bulrush	N	OBL	1	Wet Fringe, Wet Shallow x
SCICYP	Scirpus	cyperinus		Woolgrass	N	OBL	4	Wet Shallow x
SCRMAR	Scrophularia	marilandica		Carpenter's-Square, Maryland Figwort	N	FACU	4	x
SICANG	Sicyos	angulatus		One-Seeded Bur-Cucumber	N	FACW	2	x
SILSTE	Silene	stellata		Starry Campion	N	UPL	4	x
SILINT	Silphium	integrifolium		Rosinweed	N			x
SILLAC	Silphium	laciniatum		Compassplant	N	FACU	7	x
SILPER	Silphium	perfoliatum		Cupplant	N	FACW	1	Wet Prairies x
SMIECI	Smilax	ecirrhata		Upright Carrionflower	N	UPL	6	Woods, edges x
SMIHER	Smilax	herbacea		Carrionflower	N	FAC	5	Savannahs NO
SMIHIS	Smilax	hispida		Bristly Greenbrier or Chinaflower	N	FAC	4	x
SMIROT	Smilax	rotundifolia		Round-Leaved Greenbrier	N			x
SOLCAR	Solanum	carolinense		Carolina Nightshade or Horsenettle	N	FACU	0	Dry to Mesic Prairie x
SOLALT	Solidago	altissima		Late or Tall Goldenrod	N	FACU	0	Dry to Mesic Prairie x
SOLCAN	Solidago	canadensis		Canada Goldenrod	N	FACU	0	Dry to Mesic Prairie x (S. gilvocanescens)
SOLMIS	Solidago	missouriensis		Missouri Goldenrod	N	UPL	5	x
SOLGIG	Solidago	cf uliginosa		Swamp Goldenrod	N	OBL	10	see p. 182
SOLULI	Solidago	gigantea		Giant or Early Goldenrod	N	FACW	3	Wet Prairies, Wet Fringe x
SORNUT	Sorghastrum	nutans		Indiangrass	N	FACU	4	Dry to Mesic Prairie x
SPAPEC	Spartina	pectinata		Prairie Cordgrass, Bullgrass, Cutgrass	N	FACW	4	Wet Prairies, Wet Fringe x
SPOASP	Sporobolus	asper		Tall Dropseed	N	UPL	3	Dry Prairies x

SPOCLA	Sporobolus	clandestinus		Rough Dropseed	N	UPL	3		NO
SPOHET	Sporobolus	cf. heterolepis		Prairie Dropseed	N	FACU	9	Dry to Mesic Prairie	x
STAHIS	Stachys	palustris		Hairy Hedge Nettle	N	OBL	4		x
STRHEL	Strophostyles	helvola		Trailing Wild Bean	N	FAC	5	Mesic Prairies, roadsides	x
ASTERI	Symphyotrichum	ericoides		Heath Aster	N	FACU	3	Dry to Mesic Prairie	x (Aster e.)
ASTLAT	Symphyotrichum	lateriflorum		Calico Aster	N	FACW	4	Wet Prairies	x (Aster l.)
ASTNOV	Symphyotrichum	novae-angliae		New England Aster	N	FACW	3	Mesic to Wet Prairies	x
TEUCAN	Teucrium	canadense		American Germander	N	FACW	4	Wet Prairies, Wet Fringe	x
THADAS	Thalictrum	dasycarpum		Purple Meadowrue	N	FACW	4		x
TILAME	Tilia	americana		American Basswood or Linden	N	FACU	5		x
TOXRAD	Toxicodendron	radicans	negundo	Poison Ivy	N	FAC	0	Generalist, mostly disturbed soil	x (Rhus r.)
TRABRA	Tradescantia	bractata		Prairie or Small Spiderwort	N	FACU	4		x
TRAOHI	Tradescantia	ohiense		Ohio Spiderwort	N	FACU	4		x
TRIPEM	Triodanis	perfoliata		Venus's Looking-Glass	N	FAC	3		s (Specularia fabricius)
TRIFLA	Tridens	flavus		Purpletop or Tall Redtop	N	UPL	0		x (Triodia f.)
TYPLAT	Typha	latifolia		Common Cattail	N	OBL	1	Wet Fringe	x
ULMRUB	Ulmus	rubra		Red or Slippery Elm	N	FAC	2		x
URTDIO	Urtica	dioica		Stinging Nettle	N	FAC	0	Wet Fringe	x
VERHAS	Verbena	hastata		Blue Vervain	N	FACW	3	Wet Prairies	x (U. procera)
VERSTR	Verbena	stricta		Hoary Vervain	N	UPL	1	Dry Prairies	x
VERURT	Verbena	urticifolia		White Vervain	N	FAC	2	Prairies	x
Viola	Viola	sp		Violet	N				x
VITAES	Vitis	aestivalis		Summer Grape	N	FACU	5		NO
VITRIP	Vitis	riparia		Riverbank Grape	N	FACW	1	Mesic to Wet Prairies, Wet Fringe	x
ZIZAUR	Zizia	aurea		Golden Alexanders	N	FAC	6		x

Scott County Plant Communities Based on Survey Findings

NOTE: Within each subcategory, species are alphabetized by scientific name. Some species occur in more than one community because they have a range of preferred habitats.

I. Wetlands

A. Deep Wetlands (2-6 ft.)

- Duckweed (*Lemna* sp.)
- Swamp Dock (*Rumex verticillatus*)

B. Shallow Wetlands (0-2 ft.)

- American Water-Plantain (*Alisma subcordatum*)
- Buttonbush (*Cephalanthus occidentalis*)
- Frank's Sedge (*Carex frankii*)
- Lake Sedge (*Carex lacustris*)
- Smoothcone Sedge (*Carex laeviconica*)
- Woolly Sedge (*Carex pellita*)
- Common Boneset (*Eupatorium perfoliatum*)
- Halberd-Leaved Rose Mallow (*Hibiscus laeve*)
- Duckweed (*Lemna* sp.)
- Bushy Seedbox or Rattlebox (*Ludwigia alternifolia*)
- Monkeyflower (*Mimulus ringens*)
- Sensitive-Fern (*Onoclea sensibilis*)
- Ditch Stonecrop (*Penthorum sedoides*)
- Water Smartweed (*Persicaria amphibia* var. *emersa*)
- Pinkweed or Pennsylvania Smartweed (*Persicaria pensylvanica*)
- Fogfruit (*Phyla lanceolata*)
- Grass-Leaved Arrowhead (*Sagittaria graminea*)
- Broad-Leaved Arrowhead (*Sagittaria latifolia*)
- River Bulrush (*Schoenoplectus fluviatilis*)
- Softstem Bulrush (*Schoenoplectus tabernaemontani*)

C. Wetland Fringes or Margins

- Groundnut (*Apios americana*)
- Indian Hemp (*Apocynum sibiricum*)
- Swamp Milkweed (*Asclepias incarnata*)
- False Aster (*Boltonia asteroides*)
- Yellowfruit Sedge (*Carex annectens*)
- Soft Fox Sedge (*Carex conjuncta*)
- Crested Sedge (*Carex cristatella*)
- Spreading Oval Sedge (*Carex normalis*)
- Yellow Nut Sedge (*Cyperus esculentus*)
- Smooth Scouring Rush (*Equisetum laevigatum*)

Philadelphia Fleabane (*Erigeron philadelphicum*)
Common Boneset (*Eupatorium perfoliatum*)
Giant Sunflower (*Helianthus giganteus*)
Sawtooth Sunflower (*Helianthus grosseserratus*)
Dudley Rush (*Juncus dudleyi*)
Torrey Rush (*Juncus torreyi*)
Rice Cutgrass (*Leersia oryzoides*)
Cardinalflower (*Lobelia cardinalis*)
Great Blue Lobelia (*Lobelia siphilitica*)
American Water Horehound (*Lycopus americana*)
Fringed Loosestrife (*Lysimachia ciliata*)
Monkeyflower (*Mimulus ringens*)
Wirestem Muhly Grass (*Muhlenbergia frondosa*)
Sensitive-Fern (*Onoclea sensibilis*)
Water Smartweed (*Persicaria amphibia* var. *stipulacea*)
Pale Smartweed (*Persicaria lapathifolia*)
Pinkweed (*Persicaria pensylvanica*)
Fogfruit (*Phyla americana*)
Pale Dock (*Rumex altissima*)
Softstem Bulrush (*Schoenoplectus tabernaemontani*)
Dark-Green Bulrush (*Scirpus atrovirens*)
Woolgrass (*Scirpus cyperinus*)
Cup-Plant (*Silphium perfoliatum*)
Giant or Early Goldenrod (*Solidago gigantea*)
Prairie Cordgrass (*Spartina pectinata*)
Marsh Hedge-Nettle (*Stachys palustris*)
Narrow-Leaved Cattail (*Typha angustifolia*)
Common Cattail (*Typha latifolia*)
Stinging Nettle (*Urtica dioica*)
Blue Vervain (*Verbena hastata*)

II. Prairies

A. Wet Prairies

Big Bluestem (*Andropogon gerardi*)
Canada Anemone (*Anemone canadensis*)
Groundnut (*Apios americana*)
Indian Hemp (*Apocynum sibiricum*)
Common Milkweed (*Asclepias syriaca*)
Canada Bluejoint Grass (*Calamagrostis canadensis*)
Yellowfruit Sedge (*Carex annectens*)
Crested Sedge (*Carex cristatella*)
Troublesome Sedge (*Carex molesta*)
Spreading Oval Sedge (*Carex normalis*)
Brown Fox Sedge (*Carex vulpinoidea*)

Smooth Scouring-Rush (*Equisetum laevigatum*)
Daisy Fleabane (*Erigeron annuus*)
Philadelphia Fleabane (*Erigeron philadelphicum*)
Grass-Leaved Goldenrod (*Euthamia graminea*)
Giant Sunflower (*Helianthus giganteus*)
Sawtooth Sunflower (*Helianthus grosseserratus*)
Jerusalem Artichoke (*Helianthus tuberosus*)
Tall Lettuce (*Lactuca biennis*)
Great Blue Lobelia (*Lobelia siphilitica*)
Wild Bergamot *or* Horsemint (*Monarda fistulosa*)
Wirestem Muhly Grass (*Muhlenbergia frondosa*)
Common Evening-Primrose (*Oenothera biennis*)
Stiff Goldenrod (*Oligoneuron rigidum*)
Switchgrass (*Panicum virgatum*)
Water Smartweed (*Persicaria amphibia* var. *stipulacea*)
Smooth Groundcherry (*Physalis longifolia*)
Obedient Plant *or* False Dragonhead (*Physostegia virginiana*)
Virginia Mountain-Mint (*Pycnanthemum virginianum*)
Pale Dock (*Rumex altissima*)
Compass-Plant (*Silphium laciniatum*)
Cup-Plant (*Silphium perfoliatum*)
Tall *or* Late Goldenrod (*Solidago altissimum*)
Canada Goldenrod (*Solidago canadensis*)
Giant *or* Early Goldenrod (*Solidago gigantea*)
Showy Goldenrod (*Solidago speciosa*)
Heath Aster (*Symphyotrichum ericoides*)
Calico Aster (*Symphyotrichum lateriflorum*)
New England Aster (*Symphyotrichum novae-angliae*)
American Germander (*Teucrium canadense*)
Purple Meadowrue (*Thalictrum dasycarpum*)
Purpletop Grass (*Tridens flava*)
Stinging Nettle (*Urtica dioica*)
Golden Alexanders (*Zizia aurea*)

B. Mesic Prairies

Big Bluestem (*Andropogon gerardi*)
Indian Hemp (*Apocynum cannabinum*)
Prairie Sage (*Artemisia ludoviciana*)
Common Milkweed (*Asclepias syriaca*)
Whorled Milkweed (*Asclepias verticillata*)
Prairie False Indigo (*Baptisia lactea*)
Sideoats Grama (*Bouteloua curtipendula*)
False Boneset (*Brickellia eupatorioides*)
Plains Oval *or* Shortbeak Sedge (*Carex brevior*)

Heavy Sedge (*Carex gravida*)
Eastern Star Sedge (*Carex radiata*)
Partridge-Pea (*Chamaecrista fasciculata*)
Field Thistle (*Cirsium discolor*)
Panicked Tick-Trefoil (*Desmodium paniculatum*)
Scribner's Panic-Grass (*Dichanthelium oligosanthes* var. *scribnerianum*)
Canada Wild Rye (*Elymus virginiana*)
Smooth Scouring-Rush (*Equisetum laevigatum*)
Rattlesnake-Master (*Eryngium yuccifolium*)
Flowering Spurge (*Euphorbia corollata*)
Jerusalem Artichoke (*Helianthus tuberosus*)
Path Rush (*Juncus tenuis*)
Tall Lettuce (*Lactuca biennis*)
Round-Headed Bush Clover (*Lespedeza capitata*)
Slender Bush Clover (*Lespedeza virginiana*)
Wild Bergamot (*Monarda fistulosa*)
Common Evening-Primrose (*Oenothera biennis*)
Stiff Goldenrod (*Oligoneuron rigidum*)
Switchgrass (*Panicum virgatum*)
Clammy Groundcherry (*Physalis heterophylla*)
Smooth Groundcherry (*Physalis longifolia*)
Smooth Solomon's Seal (*Polygonatum biflorum*)
Norwegian Cinquefoil (*Potentilla recta*)
Virginia Mountain-Mint (*Pycnanthemum virginianum*)
Arkansas Rose (*Rosa arkansana*)
Smooth Rose (*Rosa blanda*)
Carolina Rose (*Rosa carolina*)
Allegheny Blackberry (*Rubus allegheniensis*)
Black-Eyed Susan (*Rudbeckia hirta*)
Little Bluestem (*Schizachyrium scoparium*)
Tall or Late Goldenrod (*Solidago altissimum*)
Canada Goldenrod (*Solidago canadensis*)
Indiangrass (*Sorghastrum nutans*)
Tall Dropseed (*Sporobolus asper*)
Prairie Dropseed (*Sporobolus heterophylla*)
Heath Aster (*Symphyotrichum ericoides*)
Purpletop Grass (*Tridens flava*)

C. Xeric (Dry) Prairie

Big Bluestem (*Andropogon gerardi*)
Prairie Sage (*Artemisia ludoviciana*)
Sawtooth Sage (*Artemisia serrata*)
Sand Milkweed (*Asclepias amplexicaulis*)
Common Milkweed (*Asclepias syriaca*)

Whorled Milkweed (*Asclepias verticillata*)
Prairie False Indigo (*Baptisia lactea*)
Sideoats Grama (*Bouteloua curtipendula*)
False Boneset (*Brickellia eupatorioides*)
Partridge-Pea (*Chamaecrista fasciculata*)
Field Thistle (*Cirsium discolor*)
Panicked Tick-Trefoil (*Desmodium paniculatum*)
Scribner's Panic-Grass (*Dichanthelium oligosanthes* var. *scribnerianum*)
Pale Purple Coneflower (*Echinacea pallida*)
Canada Wild Rye (*Elymus canadensis*)
Daisy Fleabane (*Erigeron annuus*)
Rattlesnake-Master (*Eryngium yuccifolium*)
Flowering Spurge (*Euphorbia corollata*)
Maximilian's Sunflower (*Helianthus maximilianii*)
Jerusalem Artichoke (*Helianthus tuberosus*)
Round-Headed Bush Clover (*Lespedeza capitata*)
Slender Bush Clover (*Lespedeza virginiana*)
Wild Bergamot (*Monarda fistulosa*)
Dotted Bergamot (*Monarda punctata*)
Common Evening-Primrose (*Oenothera biennis*)
Clammy Groundcherry (*Physalis heterophylla*)
Hairy Mountain-Mint (*Pycnanthemum tenuifolium*)
Gray-Headed Coneflower (*Ratibida pinnata*)
Rosinweed (*Silphium integrifolium*)
Tall Goldenrod (*Solidago altissimum*)
Tall Dropseed (*Sporobolus asper*)
Prairie Dropseed (*Sporobolus heterophylla*)
Heath Aster (*Symphyotrichum ericoides*)
Purpletop Grass (*Tridens flava*)
Hoary Vervain (*Verbena stricta*)

III. Savannahs

A. Oak Savannahs

Yarrow (*Achillea millefolium*)
Wild Onion (*Allium canadense*)
Common Milkweed (*Asclepias syriaca*)
Butterfly Milkweed (*Asclepias tuberosa*)
Shortbeak Sedge (*Carex brevior*)
Davis's Sedge (*Carex davisii*)
Gray Sedge (*Carex grisea*)
Shagbark Hickory (*Carya ovata*)
Daisy Fleabane (*Erigeron annuus*)
Woodland Sunflower (*Helianthus divaricatus*)
Slender Bushclover (*Lespedeza virginica*)

Indian Tobacco (*Lobelia inflata*)
Starry False Solomon's-Seal (*Maianthemum stellatum*)
Self-Heal (*Prunella vulgaris*)
White Oak (*Quercus alba*)
Bur Oak (*Quercus macrocarpa*)
Smooth Sumac (*Rhus glabra*)
American Germander (*Teucrium canadense*)

B. Shrub Savannahs

Groundnut (*Apios americana*)
Hedge Bindweed (*Calystegia sepium*)
Gray Dogwood (*Cornus drummondii*)
Honeylocust (*Gleditsia triacanthos*)
Eastern Redcedar (*Juniperus virginiana*)
Red Mulberry (*Morus rubra*)
Pokeweed (*Phytolacca americana*)
Wild Plum (*Prunus americana*)
Hoptree (*Ptelea trifolia*)
Smooth Sumac (*Rhus glabra*)
Allegheny Blackberry (*Rubus allegheniensis*)
Maryland Figwort (*Scrophularia marilandica*)
One-Seeded Bur Cucumber (*Sicyos angulatus*)
Carrionflower (*Smilax herbacea*)
Riverbank Grape (*Vitis riparia*)

IV. Woodlands

A. Wet Woods

Boxelder (*Acer negundo*)
Silver Maple (*Acer saccharinum*)
Common Hackberry (*Celtis occidentalis*)
Eastern Wahoo (*Euonymus atropurpureus*)
Green Ash (*Fraxinus pensylvanica lanceolata*)
Spotted Jewelweed (*Impatiens capensis*)
Pale Jewelweed (*Impatiens pallida*)
Eastern Cottonwood (*Populus deltoides*)
Cutleaf Coneflower (*Rudbeckia laciniata*)
Peachleaf Willow (*Salix amygdaloides*)
Black Willow (*Salix nigra*)
Common Elderberry (*Sambucus nigra*)
American Basswood (*Tilia americana*)
Slippery Elm (*Ulmus rubra*)

B. Mesic Woods

Sugar Maple (*Acer saccharum*)
Hog Peanut (*Amphicarpaea bracteata*)
Jack-in-the-Pulpit (*Arisaema triphyllum*)

Lady-Fern (*Athyrium filix-femina*)
American Bellflower (*Campanulastrum americanum*)
Virgin's-Bower (*Clematis virginiana*)
Shagbark Hickory (*Carya ovata*)
Honewort (*Cryptotaenia canadensis*)
Stickseed (*Hackelia virginiana*)
Woodland Sunflower (*Helianthus divaricatus*)
Black Walnut (*Juglans nigra*)
Wild Blue Lettuce (*Lactuca canadensis*)
Woodbine (*Parthenocissus inserta*)
Virginia Creeper (*Parthenocissus virginiana*)
Black Cherry (*Prunus serotina*)
Bur Oak (*Quercus macrocarpa*)
Missouri Gooseberry (*Ribes missouriense*)
Black Raspberry (*Rubus occidentalis*)
Upright Carrionflower (*Smilax ecirrhata*)
Bristly Greenbriar (*Smilax hispida*)
Summer Grape (*Vitis aestivalis*)

C. Xeric (Dry) Woods

White Ash (*Fraxinus americana*)
Maryland Snakeroot (*Sanicula marilandica*)

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10TH AVENUE CORRIDOR: REMNANT PLANTS & PLANT COMMUNITIES

ALL CAPITALS = Major species

“DP” = Data Point recorded as a GPS feature

“spp.” = species (plural)

10th Avenue south of Rock Creek to 31st Street: 30 spp. (north of Rock Creek has sparse prairie species)

West side (wet-mesic, 21 spp.)

LITTLE BLUESTEM

GOLDEN ALEXANDERS

TALL GOLDENROD (*Solidago altissima*)

FOXGLOVE PENSTEMON

White False or Prairie Indigo (*Baptisia leucophaea*)

Canada Anemone

False Sunflower or Oxeye (*Heliopsis helianthoides*)

Wild Bergamot (*Monarda fistulosa*)

Arkansas Rose (*Rosa arkansana*)

Hoary Vervain (*Verbena stricta*)

Heavy Sedge (*Carex gravida*)

Prairie Coreopsis

Partridge Pea

Rough Dogwood (*Cornus drummondii*)

Pale Purple Coneflower (*Echinacea pallida*)

Orange Milkweed

Smooth Solomon-Seal

Rough Dropseed

Virginia Mountain-Mint

Bramble (*Rubus* sp.)

Plains Oval or Shortbeak Sedge (*Carex brevior*)

Wirestem Muhly (*Muhlenbergia frondosa*)

East side (mesic conditions, 22 spp.):

LITTLE BLUESTEM

FIELD HORSETAIL (*Equisetum arvense*)

GOLDENROD (probably MISSOURI)

Swamp Milkweed

Wild Bergamot

Compass Plant

Smooth Solomon-Seal

Golden Alexanders

Leadplant

Prairie Coreopsis

Big Bluestem

Rattlesnake-Master

Partridge-Pea

Gray-Headed Coneflower

Hedge Bindweed (*Calystegia sepium*)

Black-Eyed Susan

Stiff Goldenrod (*Oligoneuron rigidum*)

Rough Dropseed

False Sunflower

Daisy Fleabane

Dwarf St. Johnswort (*Hypericum mutilum*)

308th Street west ¼ mile from 10th Avenue: 23 spp.

South side (4 spp.):

Purple Meadow Rue

Field Thistle

Common Milkweed

Tall Goldenrod

DP 41.75337163N 90.88046538W (9 spp., woodland-savannah edge)

Heavy Sedge

Honewort (*Cryptotaenia canadensis*)

Dogwood species

Clammy Groundcherry (*Physalis heterocarpa*)

Gray Sedge (*Carex grisea*)

Maryland Snakeroot (*Sanicula marilandica*)

DP 41.75336989N 90.87998763W (10 spp., mesic prairie)

Leadplant

Tall Dropseed (*Sporobolus clandestinum*)
Round-Headed Bush-Clover
Jerusalem Artichoke
Compass Plant
False Sunflower
Wild Bergamot

Carrion-Flower (*Smilax herbacea*)
Stiff Goldenrod
Gray-Headed Coneflower
Allegheny Blackberry
Golden Alexanders
Bebb Sedge (*Carex bebbii*)

10th Avenue south ¼ mile from 308th Street (sparse prairie species from last segment)

West side (wet to mesic, 32 spp.):

INDIGO BUSH (*Amorpha fruticosa*)
ROUND-HEADED BUSH-CLOVER
GOLDEN ALEXANDERS
RIVERBANK GRAPE
Canada Anemone
Compass Plant
Virginia Mountain-Mint
Plains Oval Sedge
Fringed Loosestrife
False Sunflower
Rattlesnake-Master
Sawtooth Sunflower
Illinois Bundleflower (*Desmanthus
illinoensis*)
Heavy Sedge
White False Indigo
Stiff Goldenrod

Orange Milkweed
Pale Purple Coneflower
Rough Dropseed
Jerusalem Artichoke
Indiangrass
Foxglove Penstemon
Allegheny Blackberry
Wild Bergamot
Field Thistle
Gray-Headed Coneflower
Violet (*Viola* sp., not Prairie Violet)
Staghorn Sumac
Switchgrass
Little Bluestem
Canada Wild Rye
Arkansas Rose
Prairie Blazingstar

10th Avenue for ¼ mile north of 300th Street: ten wet-mesic to dry-mesic species on each side, all repeat species for above

300TH Street for ¼ mile west of 10th Avenue: 22 spp.

North side (wet-mesic to mesic):

GOLDEN ALEXANDERS
LITTLE BLUESTEM
White False Indigo
Compass Plant
Plains Oval Sedge
Canada Anemone
Prickly Sedge (*Carex stipata*)
Virginia Mountain-Mint
Prairie Spiderwort (*Tradescantia
bracteata*)
Stiff Goldenrod

Foxglove Penstemon
Common Milkweed
Heavy Sedge
Fringed Loosestrife
Crested Sedge (*Carex cristatella*)
Rough Dropseed
False Sunflower
Wild Bergamot
Panicked Ticktrefoil
Gray-Headed Coneflower
Smooth Groundcherry
Orange Milkweed

10th Avenue for ¼ mile south of 300th Street, east side only: fifteen mesic species, all repeats

10th Avenue for ¼ mile south of last segment

West side (wet to wet-mesic, 12 spp.):

Fringed Loosestrife
False Sunflower
Wild Bergamot
Arkansas Rose
Golden Alexanders
White False Indigo
Black-Eyed Susan
Tall Dropseed
Foxglove Penstemon
Rattlesnake-Master
Stiff Goldenrod
Common Milkweed

East side (wet-mesic to dry-mesic, 11 spp.):

LITTLE BLUESTEM
Eastern Redcedar
Switchgrass
Golden Alexanders
Prairie Spiderwort
Black-Eyed Susan
Foxglove Penstemon
Pale Purple Coneflower
Rattlesnake-Master
Common Milkweed
Indiangrass

10th Avenue for ¼ mile south of last segment, east side only (16 spp.)

LITTLE BLUESTEM	Indiangrass
SWITCHGRASS	False Sunflower
ROUGH DOGWOOD	Plains Oval Sedge
Heavy Sedge	Ohio Spiderwort
Golden Alexanders	Common Milkweed
Prairie Spiderwort	Wild Bergamot
Purple Meadow-Rue	Black-Eyed Susan
Eastern Redcedar	
Rattlesnake-Master	

10th Avenue for ¼ mile north of 290th St. (CR F-31), east side only (west side has fewer species)

Narrow-Leaved Cattail	Early Goldenrod (<i>Solidago gigantea</i>)
Sawtooth Sunflower	Black-Eyed Susan
Smooth Scouring-Rush (<i>Equisetum laevigatum</i>)	

SUMMARY: On this three-mile stretch of 10th Avenue, in Liberty Township, sixty-seven species of native vascular plants were identified in June 2017. Nearly all occur in significant plant communities that appear to constitute true remnants, or plants that grew from undisturbed remnants in the rights-of-way. At this point in time, those remnants no longer exist.

Open savannah and savannah-woodland edge accounts for some of the remnants, what with Gray Sedge, Honewort, Maryland Snakeroot, Smooth Solomon-Seal, and others present.

The range of preferred prairie settings for the plants strongly suggests that they once grew in several prairie plant communities along 10th Avenue:

- wet prairie (Fringed Loosestrife, Indigo Bush, Sawtooth Sunflower, Swamp Milkweed),
- wet-mesic prairie (Canada Anemone, Compass Plant, Early Goldenrod, Golden Alexanders, Heavy Sedge, Prairie Spiderwort, Purple Meadow-Rue, Stiff Goldenrod, Virginia Mountain-Mint),
- mesic prairie (Arkansas Rose, Canada Wild Rye, Dwarf St. Johnswort, False Sunflower, Indiangrass, Orange Milkweed, Pale Purple Coneflower, Prairie Coreopsis, Rattlesnake-Master, Rough Dropseed, Leadplant, Smooth Scouring-Rush, White False Indigo), and
- dry-mesic prairie (Little Bluestem, Hoary Vervain, Plains Oval Sedge, Round-Headed Bush-Clover, Tall Sunflower).

Some species are generalists, found in two or more of these prairie types: Big Bluestem, Black-Eyed Susan, Common Milkweed, Daisy Fleabane, Ohio Spiderwort, Riverbank Grape, Switchgrass, Wild Bergamot). It is likely that Liberty Township once held all these plant communities, along with oak savannah, possible wet sedge meadows, and woodlands. The transition from one to another would not have been abrupt in many cases, and a quarter-mile traverse could have encountered up to four of the major ecosystems and their variants, depending on ground water, seed dispersal methods, soils, north- and south-facing topography, and other factors.

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