Floral Inventory of the Three-Forks Preserve

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For

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Summary of Inventoried Area

Location

The Three Forks Preserve property is located in Clay Township in Hamilton County, Indiana within the municipality of Carmel. It is on the north side of 136th Street between Ditch Road to the east and Towne Road to the west at 2020 West 136th Street. The property is bordered by residential subdivisions to the north and west and a forested greenspace to the east. A large residence exists in the center of the property. The property is scheduled to be transferred to the Hamilton County Parks and Recreation for preservation and recreation.

Soils and Geology

The Three Forks Preserve is contained within the Tipton Till Plain Geologic Area of Indiana, an area characterized by deposits of glacial till, outwash, and alluvium from the Wisconsin glaciation. The soils of the preserve are in the Brookston-Crosby soil series derived from glacial till and loess. Brookston soils occur in the depressions that tend to pond water during wet weather while Crosby soils occur in the better drained areas.

Figure 1: Large shumard oak in northern portion of the property

Present Plant Communities

Flatwoods Forest

This forest is characteristic of the flat areas on the Tipton Till Plain on the Brookston-Crosby Soil Series. It contains a variety of wet-tolerant and mesic tree species. Wet areas harbor swamp white oak, Shumard oak, pin oak, bur oak, shellbark hickory, American sycamore, box elder, silver maple, and red maple. Better drained or mesic areas support northern red oak, sugar maple, American beech, white ash, bitternut hickory, black

walnut, Ohio buckeye, tulip tree, and black cherry. Several large old trees are found on the property including a large old swamp white oak along the west boundary and a large Shumard oak in the northern portion of the woods. Spicebush (*Lindera benzoin*) is a common understory shrub throughout. Other widespread native understory shrubs include roughleaf dogwood (*Cornus drummondii*) and blackhaw (*Viburnum prunifolium*).

Figure 2: Prairie trillium in the flatwoods

The herbaceous layer in these flatwoods includes a variety of spring wildflowers in the mesic sections including yellow and white trout lilies (*Erythronium americanum* and *E. album*), prairie trillium (*Trillium recurvatum*), spring beauty (*Claytonia virginica*), cutleaf toothwort (*Cardamine concatenata*), dutchman's breeches (*Dicentra cucullaria*), mayapple (*Podophyllum peltatum*) and several violets (*Viola spp*).

The summer and fall components of the herbaceous layer are quite typical of a central Indiana flatwoods with a history of cattle grazing. Native plants typical of degraded forests such clustered black snakeroot (*Sanicula odorata*), jumpseed (*Persicaria virginiana*), white avens (*Geum canadense*), and white vervain (*Verbena urticifolia*) are common summer flowering species. Fortunately, many species of native woodland sedges have persisted in these woods. Some of the most common are common wood sedge (*Carex blanda*), awned graceful sedge (*Carex davisii*), bur sedge (*Carex grayi*), hairy wood sedge (*Carex hirtifolia*), grass sedge (*Carex jamesii*), straight-styled wood sedge (*Carex radiata*), and awl-fruited oval sedge (*Carex tribuoloides*).

While a variety of invasive plant species occur in the flatwoods, diligent stewardship efforts have prevented them from becoming the dominant cover. Removal efforts have focused on invasive shrubs such as Amur honeysuckle (*Lonicera maackii*), and multiflora rose (*Rosa multiflora*). Other invasive species present in the flatwoods include privet (*Ligustrum vulgare and L. obtusifolium*), garlic mustard (*Alliaria petiolata*), white mulberry (*Morus alba*), wintercreeper (*Euonymus fortunei*), English Ivy (*Hedera helix*), and myrtle (*Vinca minor*).

Successional Areas

These cleared and disturbed areas are undergoing old field successional and harbor both native and non-native weedy species. They consist primarily of the strips along the drive from 136th street. These areas have been planted with both a variety of woody plants as well as seed mixes.

Figure 3: Weedy non-native species such and Jimson weed and lambsquarters are common in the successional areas

Due to the high degree of heterogeneity in these areas, it is difficult to list characteristic or dominant species, but some of the more common perennial species are broomsedge (*Andropogon virginicus*), smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pratensis*), white clover (*Trifolium repens*), frost aster (*Symphyotrichum pilosum*), and tall ironweed (*Vernonia gigantea*). Roughleaf dogwood is the most common naturally recruited native woody species. A wide variety of woody species have been planted in these areas. The planted species are highlighted in yellow on the plant list in Appendix 1. Seed mixes have also been sown in these areas that contain native prairie species such as bergamot (*Monarda fistulosa*), big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyarium scoparium*), switchgrass (*Panicum virgatum*), and side-oats grama (*Bouteloua curtipendula*). Also included in these seed mixes are not locally native wildflowers including plains coreopsis (*Coreopsis tinctoria*), blanket flower (*Gaillardia pulchella*), and lemon mint (*Monarda citriodora*).

Landscape and Developed Area

This community is represented by the areas surrounding the house, the former homesite, and the drives. The circle drive in front of the house contains a stand of original Shumard oaks and other native trees spared when the house was constructed. Most of the remaining vegetation in this area has been planted, including a variety of native and non-native woody plants as well as wildflowers targeted for pollinators. Foundation plantings along the front of the house were inventoried, however anything planted within the fenced backyard was not inventoried.

Floristic Inventory Methods and Results

Meander surveys were conducted throughout the property on four days spread throughout the 2025 growing season. Surveys were conducted on April 18, June 6, July 22, and September 19th. A total of 310 species were observed during these surveys including both spontaneous and planted species. A full list of these species is contained in Appendix 1. An additional list of only the non-native invasive species is also contained in Appendix 1. GPS points were taken for the locations of all woody and herbaceous perennial species. Maps of the locations of these species are contained in Appendix 2 divided by plant type.

Figure 4: Dutchman's breeches have a C value of 6

Floristic Quality Index

A floristic quality assessment of the established plant community was performed utilizing the Universal FQA Calculator and the 2019 Indiana C values. The C values are assigned to each species and scored on a scale from 0 to 10. The higher the number, the greater the fidelity of that species to high quality natural areas. Weedy species of disturbed habitats generally have C-values of 0 or 1. Planted species were not included in the assessment as most are unlikely to occur naturally on this property and they have the potential to skew the results downward since

those that are not locally native would have a C value of 0.

The calculations included 251 spontaneous species on the property. Most species native to the flatwoods environment have C values ranging from 2 to 8. In contrast, most of the native species in the early successional areas have C-values in the range of 0-2. Further, all non-native species have a C value of zero, which lowers the mean C value in the calculations. The mean C for all spontaneous species on the property was 2.0. When only native species are included, the mean C value rises to 2.8. The formula to calculate the floristic quality index incorporates the mean C value and the total number of species to produce a value that corresponds to a level of plant community quality. Plant communities that have an FQI of under 20 are deemed to have no value as a natural area. Those that have a value between 20 and 35 have some remnant vegetation but are substantially degraded. Communities with a value between 35 and 50 possess sufficient conservatism and richness to be of profound importance from a regional perspective. Areas registering over 50 are rare and considered to be of paramount importance as a natural area.

The total floristic quality index of all spontaneous species was 31.7 while the floristic quality index of only the native species was 37.4. This indicates the presence of remnant vegetation, however with a level of degradation due to past land used practices. The results of the floristic quality assessment are contained in Appendix I following the plant lists.

Appropriate Native Additions to the Flatwoods Plant Community

While the overstory is diverse and complete, Appendix I contains recommendations for additions to the woody understory and herbaceous layers to improve the quality and diversity of this community. It is likely most of these species were locally present prior to fragmentation and degradation of the landscape.

Figure 5: Yellow trout lily in the flatwoods

Summary

The flatwoods at the Three-Forks Preserve represent an increasingly rare plant community in Hamilton County.

Most remnant flatwoods have been converted into subdivisions or were cleared for agriculture many decades ago. While the understory suffers from degradation from past livestock grazing, the tree canopy is intact and diverse. The wet hydrology is also largely intact, particularly in the northern portions of the flatwoods. The adjacent flatwoods to the east that are owned by a homeowner's association should be targeted as an addition once the land has been acquired by Hamilton County Parks and Recreation. Other recommended acquisitions that would increase the preserve by approximately 20 acres are included on a map in Appendix 2.

Figure 6: Pin (center) and shumard (right) oaks where the entrance drive enters the flatwoods

Appendix 1: Plant Lists

I. Floral Inventory Plant List
II. Invasive Plant List
III. List of recommended additions to the flatwoods plant community
IV. Floristic Quality Assessment

Three Forks Preserve Floral Inventory Species List

Planted Species highlighted

Non-native to Indiana species in italics

	Species	Common Name	Frequency	Habitat
1	*Abies balsamea*	*balsam fir*	*planted*	*successional*
2	*Abutilon theophrasti*	*velvet leaf*	*common*	*successional*
3	Acalypha rhomboidea	three-seeded mercury	common	successional
4	Acer negundo	boxelder	common	flatwoods
5	Acer rubrum	red maple	occasional	flatwoods
6	Acer saccharinum	silver maple	occasional	flatwoods
7	Acer saccharum	sugar maple	occasional	flatwoods
8	Aesculus glabra	Ohio buckeye	common	flatwoods
9	*Agastache foeniculum*	*anise hyssop*	*planted*	*landscape*
10	Agrimonia pubescens	downy agrimony	local	flatwoods
11	*Agrostis gigantea*	*redtop*	*occasional*	*successional*
12	Agrostis hyemalis	tickle grass	occasional	successional
13	*Alliaria petiolata*	*garlic mustard*	*common*	*flatwoods*
14	*Allium vineale*	*field garlic*	*occasional*	*flatwoods*
15	*Amaranthus albus*	*tumbleweed*	*common*	*successional*
16	*Amaranthus retroflexus*	*redroot pigweed*	*common*	*successional*
17	Amaranthus tuberculatus	water hemp	common	successional
18	Ambrosia artemisiifolia	common ragweed	common	successional
19	Ambrosia trifida	giant ragweed	occasional	successional
20	Ammania robusta	scarlet loosestrife	local	successional
21	*Amsonia hubrichtiii*	*blue star*	*planted*	*landscape*
22	Andropogon gerardii	big bluestem	planted	successional
23	Andropogon virginicus	broomsedge	common	successional
24	Apocynum cannibinum	hemp dogbane	common	successional
25	*Arctium minus*	*common burdock*	*occasional*	*flatwoods*
26	Arisaema dracontium	green dragon	occasional	flatwoods
27	Arisaema triphyllum	jack-in -the-pupit	occasional	flatwoods
28	Aronia melanocarpa	black chokeberry	planted	successional
29	Asclepias incarnata	swamp milkweed	planted	landscape
30	Asclepias syriaca	common milkweed	occasional	successional
31	Asclepias tuberosa	butterflyweed	planted	landscape
32	Asimina triloba	paw paw	occasional	flatwoods
33	*Barbarea vulgaris*	*yellow rocket*	*occasional*	*flatwoods and successional area*
34	Betula nigra	river birch	planted	successional
35	Boehmeria cylindrica	false nettle	occasional	flatwoods
36	Bouteloua curtipendula	side-oats grama	planted	successional
37	*Bouteloua dactyloides*	*buffalo grass*	*planted*	*landscape*
38	*Bromus inermis*	*smooth brome*	*occasional*	*successional*
39	*Bromus japonicus*	*Japanese brome*	*common*	*successional*
40	Calystegia sepium	hedge bindweed	occasional	successional
41	Campanulastrum americanum	American bellflower	occasional	flatwoods
42	Campsis radicans	trumpet creeper	occasional	flatwoods
43	Cardamine concatenata	cutleaf toothwork	common	flatwoods

44	Cardamine hirsuta	hairy bittercress	common	flatwoods and successional area
45	Carex aggregata	smooth clustered sedge	occasional	successional
46	Carex albursina	blunt-scaled wood sedge	local	flatwoods
47	Carex amphibola	gray sedge	occasional	flatwoods
48	Carex blanda	common wood sedge	common	flatwoods
49	Carex conjuncta	green-headed fox sedge	occasional	flatwoods
50	Carex cristatella	crested sedge	local	flatwoods
51	Carex davisii	awned graceful sedge	common	flatwoods
52	Carex granularis	pale sedge	occasional	flatwoods
53	Carex grayi	common bur sedge	common	flatwoods
54	Carex grisea	inflated gray sedge	occasional	flatwoods
55	Carex hirtifolia	hairy wood sedge	common	flatwoods
56	Carex jamesii	grass sedge	common	flatwoods
57	Carex laxiculmis var. copulata	green wood sedge	uncommon	flatwoods
58	Carex leavenworthii	dwarf bracted sedge	occasional	successional
59	Carex normalis	spreading oval sedge	occasional	flatwoods
60	Carex radiata	straight-styled wood sedge	common	flatwoods
61	Carex rosea	curly-styled wood sedge	occasional	flatwoods
62	Carex shortiana	short's sedge	occasional	flatwoods
63	Carex tribuloides	awl-fruited oval sedge	common	flatwoods
64	Carex vulpinoidea	brown fox sedge	occasional	flatwoods
65	Carpinus caroliniana subsp virginiana	blue beech	common	flatwoods
66	Carya cordiformis	bitternut hickory	common	flatwoods
67	Carya illinoinensis	pecan	planted	successional
68	Carya laciniosa	shellbark hickory	common	flatwoods
69	Carya ovata	shagbark hickory	occasional	flatwoods
70	*Castanea mollissima*	*Chinese chestnut*	*planted*	*successional*
71	Catalpa speciosa	northern catalpa	local	flatwoods edge
72	Celtis occidentalis	hackberry	common	flatwoods
73	*Centaurea cyanus*	*cornflower*	*planted*	*landscape*
74	Cephalanthus occidentalis	buttonbush	planted	successional
75	Chamaecrista fasciculata	partridge pea	planted	successional
76	Chamaesyce nutans	nodding spurge	occasional	successional
77	*Chenopoium album*	*lamb's quarter*	*occasional*	*successional*
78	Cinna arundinacea	wood reed	common	flatwoods
79	Circacea canadensis	enchanter's nightshade	occasional	flatwoods
80	*Cirsium arvense*	*Canada thistle*	*common*	*successional*
81	*Cirsium vulgare*	*bull thistle*	*local*	*successional*
82	Claytonia virginica	spring beauty	abundant	flatwoods
83	Clematis virginiana	virgin's bower	local	flatwoods
84	*Commelina communis*	*Asiatic dayflower*	*occasional*	*successional*
85	*Conium maculatum*	*poison hemlock*	*local*	*successional*
86	*Consolida ajacis*	*rocket larkspur*	*planted*	*successional*
87	*Convallaria majalis*	*lily-of-the-valley*	*local*	*flatwoods*
88	Conyza canadensis	mare's tail	common	successional
89	Coreopis lanceolata	lanceleaf coreopsis	planted	successional
90	*Coreopsis tinctoria*	*plains coreopsis*	*planted*	*landscape*
91	Cornus drummondii	roughleaf dogwood	abundant	flatwoods
92	*Cornus mas*	*cornellian cherry*	*planted*	*successional*

93	Cornus obliqua	silky dogwood	planted	successional
94	Cornus sericea	red osier dogwood	planted	successional
95	Crataegus mollis	downy hawthorn	common	flatwoods
96	Crataegus pruinosa	frosted hawthorn	occasional	successional
97	Cryptotaenia canadensis	honewort	occasional	flatwoods
98	Cynanchum laeve	honeyvine	occasional	successional
99	Cyperus escculentus	yellow nutsedge	common	successional
100	Cyperus strigosus	longscaled nutsedge	common	successional
101	Cystopteris protrusa	southern fragile fern	local	flatwoods
102	*Datura stramonium*	*jimsonweed*	*occasional*	*successional*
103	*Daucus carota*	*Queen Anne's lace*	*common*	*successional*
104	Desmanthus illinoiensis	Illinois bundleflower	planted	successional
105	*Dianthus barbatus*	*sweet william*	*planted*	*successional and landscape*
106	Dicentra cucullaria	dutchman's breeches	occasional	flatwoods
107	Dichanthelium huachucae	old-field panic grass	common	successional
108	*Digitaria ischaemum*	*smooth crabgrass*	*occasional*	*successional*
109	*Digitaria sanguinalis*	*hairy crabgrass*	*common*	*successional*
110	Diospyros virginiana	persimmon	planted	successional
111	*Duchesnia indica*	*mock strawberry*	*occasional*	*successional*
112	Echinacea purpurea	purple coneflower	planted	landscape
113	*Echinochloa crus-galli*	*barnyard grass*	*common*	*successional and landscape*
114	*Elaeagnus umbellata*	*autumn olive*	*occasional*	*flatwoods and successional area*
115	*Eleusine indica*	*goosegrass*	*common*	*successional*
116	Elymus virginicus	Virginia wild rye	occasional	flatwoods
117	Epilobium coloratum	willow herb	occasional	flatwoods
118	Eragrostis minor	low love grass	common	successional
119	Eragrostis pectinacea	small love grass	common	successional
120	Erechtities hieraciifolius	burnweed	occasional	flatwoods
121	Erigeron annuus	annual fleabane	common	flatwoods
122	Erigeron philidelphicus	marsh fleabane	occasional	flatwoods
123	Erythronium albidum	white trout lily	common	flatwoods
124	Erythronium americanum	yellow trout lily	common	flatwoods
125	*Euonymus fortunei*	*wintercreeper*	*local*	*flatwoods*
126	Euonymus obovatus	running strawberry bush	occasional	flatwoods
127	Eupatorium perfoliatum	boneset	local	flatwoods and landscape
128	Euphorbia maculata	spotted spurge	common	successional
129	Euthamia nuttallii	grassleaf goldenrod	local	flatwoods
130	Fagus grandiflora	American beech	occasional	flatwoods
131	*Festuca rubra*	*creeping red fescue*	*planted*	*successional*
132	*Ficaria verna*	*lesser celandine*	*local*	*flatwoods*
133	Floerkea proserpinacoides	false mermaid	abundant	flatwoods
134	Fragaria virginiana	wild strawberry	occasional	successional
135	Fraxinus americana	white ash	occasional	flatwoods and successional area
136	Fraxinus biltmoreana	biltmore ash	occasional	flatwoods
137	Fraxinus lanceolata	green ash	occasional	flatwoods and successional area
138	*Gaillardia pulchella*	*blanket flower*	*planted*	*successional*
139	Galium aparine	cleavers	common	flatwoods and successional area
140	Galium circaezans var hypomalacum	licorice bedstraw	local	flatwoods
141	Galium triflorum	fragrant bedstraw	common	flatwoods

142	Geranium carolinianum	carolina cranesbill	common	successional
143	Geum canadense	white avens	common	flatwoods
144	Geum vernuum	spring avens	occasional	flatwoods
145	*Glechoma hederacea*	*ground ivy*	*common*	*landscape*
146	Glyceria striata	fowl manna grass	occasional	flatwoods
147	Hackelia virginiana	stickseed	occasional	flatwoods
148	*Hedera helix*	*English ivy*	*local*	*flatwoods*
149	Heliopsis helianthoides	false sunflower	planted	successional
150	*Hemerocallis fulva*	*orange daylily*	*local*	*flatwoods*
151	*Hibiscus trionum*	*flower of an hour*	*occasional*	*successional*
152	*Hosta ventricosa*	*blue plantain lily*	*planted*	*landscape*
153	Ipomaea pandurata	sweet potato vine	occasional	flatwoods
154	Juglans nigra	black walnut	common	flatwoods
155	Juncus dudleyi	Dudley's rush	common	successional
156	Juncus tenuis	path rush	common	flatwoods and successional area
157	Juniperus viginiana	eastern redcedar	local	successional
158	*Lactuca serriola*	*prickly lettuce*	*occasional*	*successional*
159	*Lamium amplexicaule*	*henbit*	*occasional*	*flatwoods and successional area*
160	*Lamium purpureum*	*purple dead nettle*	*common*	*successional*
161	Leersia virginica	whitegrass	common	flatwoods
162	*Lepidium campestre*	*field pepperwort*	*common*	*successional*
163	*Leucanthemum vulgare*	*ox-eye daisy*	*occasional*	*landscape*
164	*Ligularia dentata*	*leopard plant*	*planted*	*landscape*
165	*Ligustrum obtusifolium*	*border privet*	*occasional*	*flatwoods*
166	*Ligustrum vulgare*	*common privet*	*occasional*	*flatwoods*
167	Lindera benzoin	spicebush	abundant	flatwoods
168	Liriodendron tulipifera	tulip tree	occasional	flatwoods
169	Lobelia inflata	Indian tobacco	occasional	flatwoods
170	Lobelia siphlitica	great blue lobelia	occasional	flatwoods
171	*Lolium multiflorum*	*annual ryegrass*	*planted*	*successional*
172	*Lonicera maackii*	*Amur honeysuckle*	*common*	*flatwoods*
173	*Lonicera morrowii*	*Morrow's honeysuckle*	*occasional*	*flatwoods*
174	*Lonicera X bella*	*Showy fly honeysuckle*	*occasional*	*flatwoods*
175	Ludwigia alternifolia	seedbox	local	landscape
176	Lycopus americanus	American bugleweed	occasional	flatwoods
177	Lysimachia ciliata	fringed loosestrife	occasional	flatwoods
178	*Lysimachia nummularia*	*moneywort*	*occasional*	*flatwoods*
179	*Magnolia virginiana*	*sweetbay*	*planted*	*successional*
180	*Malus floribunda*	*crabapple*	*occasional*	*flatwoods*
181	*Malus prunifolia*	*crabapple*	*local*	*successional*
182	*Malva moschata*	*musk mallow*	*planted*	*landscape*
183	*Malva neglecta*	*common mallow*	*occasional*	*successional*
184	*Medicago lupulina*	*black medic*	*common*	*successional*
185	*Melilotus alba*	*white sweet clover*	*local*	*successional*
186	Menispermum canadense	moonseed	occasional	flatwoods
187	*Microthlaspi perfoliatum*	*perfoliate pennycress*	*local*	*successional*
188	Mimulus ringens	allegheny monkeyflower	occasional	successional
189	*Monarda citriodora*	*lemon mint*	*planted*	*successional*
190	Monarda fistulosa	bergamot	occasional	successional

191	*Morus alba*	*white mulberry*	*occasional*	*flatwoods*
192	Muehlenbergia shreberi	nimberwill	common	successional and flatwoods
193	Myosotis verna	spring forget-me-not	occasional	flatwoods
194	*Narcissus pseudonarcissus*	*comon daffodil*	*occasional*	*flatwoods*
195	Oenothera biennis	common evening primrose	common	successional
196	Oenothera parviflora	northern evening primrose	occasional	successional
197	*Ornithogalum umbellatum*	*star of bethlehem*	*occasional*	*flatwoods*
198	Ostrya virginiana	hophornbeam	local	flatwoods
199	Oxalis stricta	Common yellow woodsorrel	common	flatwoods and successional area
200	*Pachysandra terminalis*	*Japanese spurge*	*local*	*flatwoods*
201	Packera aurea	golden ragwort	occasional	flatwoods
202	Packera glabella	buttertop	occasional	flatwoods
203	Panicum capillare	witchgrass	common	successional
204	Panicum dichotomiflorum	fall panicum	occasional	successional
205	Panicum virgatum	switchgrass	planted	successional
206	Parthenocissus quinquefolia	Virginia creeper	occasional	flatwoods
207	Penstemon digitalis	foxglove beardtongue	planted	landscape
208	Penthorum sedoides	ditch stonecrop	occasional	flatwoods
209	Persicaria lapathifolia	pale smartweed	occasional	successional
210	*Persicaria longiseta*	*creeping smartweed*	*common*	*flatwoods and successional area*
211	*Persicaria maculosa*	*lady's thumb*	*occasional*	*successional*
212	Persicaria punctata	dotted smartweed	common	flatwoods
213	Persicaria virginiana	jumpseed	common	flatwoods
214	*Phalaris arundincea*	*reed canary grass*	*occasional*	*successional*
215	Phlox divaricata	common blue phlox	local	flatwoods
216	Phryma leptostachya	lopseed	occasional	flatwoods
217	Phyostegia virginiana	obedient plant	planted	landscape
218	*Picea abies*	*Norway spruce*	*planted*	*flatwoods*
219	Pilea pumila	clearweed	common	flatwoods
220	Pinus strobus	white pine	planted	flatwoods
221	*Plantago lanceolata*	*English plantain*	*common*	*successional*
222	Plantago rugellii	red-stalked plantain	occasional	flatwoods and successional area
223	Platanus occidentalis	American sycamore	occasional	flatwoods
224	*Poa annua*	*annual bluegrass*	*occasional*	*landscape*
225	*Poa compressa*	*flat-stemmed bluegrass*	*occasional*	*flatwoods*
226	*Poa pratensis*	*Kentucky bluegrass*	*common*	*successional*
227	Poa sylvestris	woodland bluegrass	occasional	flatwoods
228	*Poa trivialis*	*roughstalk bluesgrass*	*occasional*	*flatwoods*
229	Podophyllum peltatum	mayapple	common	flatwoods
230	Polysticum acrostichoides	Christmas fern	planted	flatwoods
231	Populus deltoides	eastern cottonwood	occasional	flatwoods
232	Populus tremuloides	quacking aspen	planted	successional
233	Prunella vulgaris var lanceolata	self-heal	occasional	flatwoods
234	*Prunella vulgaris var vulgaris*	*lawn prunella*	*occasional*	*successional*
235	Prunus serotina	black cherry	occasional	flatwoods
236	Prunus virginiana	chokecherry	planted	successional
237	*Pyrus calleryana*	*callery pear*	*local*	*flatwoods*
238	Quercus alba	white oak	planted	successional
239	Quercus bicolor	swamp white oak	occasional	flatwoods

240	Quercus lyrata	overcup oak	planted	successional
241	Quercus macrocarpa	bur oak	common	flatwoods
242	Quercus palustris	pin oak	occasional	flatwoods
243	Quercus rubra	northern red oak	common	flatwoods
244	Quercus shumardii	Shumard oak	common	flatwoods
245	Ranunculus abortivus	little-leaf buttercup	common	flatwoods
246	*Raphanus sativus*	*radish*	*planted*	*successional*
247	*Rosa multiflora*	*multiflora rose*	*common*	*flatwoods*
248	Rubus allegheniensis	highbush blackberry	occasional	successional
249	Rubus maricus	pure dewberry	occasional	successional
250	Rubus occidentalis	black raspberry	common	flatwoods
251	Rubus rosa	rose blackberry	occasional	flatwoods
252	Rudbeckia deamii	Deam's black-eyed susan	local	flatwoods
253	Rudbeckia hirta	black-eyed susan	planted	successional
254	Ruellia strepens	smooth ruellia	occasional	flatwoods
255	*Rumex crispus*	*curly dock*	*common*	*successional*
256	Salix interior	sandbar willow	local	successional
257	Sambucus canadensis	common elderberry	common	flatwoods
258	Sanicula canadensis	Canada black snakeroot	occasional	flatwoods
259	Sanicula odorata	clustered black snakeroot	abundant	flatwoods
260	Sassafras albidum	sassafras	planted	landscape
261	Schizachyrium scoparium	little bluestem	planted	successional
262	Scrophularia marilandica	late figwort	local	flatwoods
263	*Senecio vulgaris*	*common groundsel*	*local*	*flatwoods*
264	*Setaria faberi*	*giant foxtail*	*common*	*successional*
265	*Setaria pumila*	*yellow foxtail*	*common*	*successional*
266	*Setaria viridis*	*green foxtail*	*occasional*	*landscape*
267	Smilax herbacea	smooth carrionflower	local	flatwoods
268	Solanum carolinense	horse nettle	occasional	successional
269	Solanum ptychanthum	black nightshade	occasional	successional
270	Solidago altissima	tall goldenrod	common	successional
271	Solidago canadensis	Canada goldenrod	common	successional
272	Sorghum bicolor	grain sorghum	planted	successional
273	Sphenopholis intermedia	slender wedgegrass	occasional	flatwoods
274	*Stellaria media*	*common chickweed*	*occasional*	*successional*
275	Symphyotrichum cordifolium	heart-leaf blue wood aster	occasional	flatwoods
276	Symphyotrichum lanceolatum	panicled aster	occasional	flatwoods
277	Symphyotrichum lateriflorum	calico aster	occasional	flatwoods
278	Symphyotrichum pilosum	frost aster	occasional	landscape
279	*Taraxacum officinale*	*common dandelion*	*common*	*flatwoods*
280	Teucrium candense	American germander	occasional	flatwoods
281	*Thlaspi arvense*	*field pennycress*	*common*	*successional*
282	Thuja occidentalis	eastern white cedar	planted	successional and landscape
283	Tilia americana	American basswood	common	flatwoods
284	Toxicodendron radicans	poison ivy	common	flatwoods
285	Tradescantia ohiensis	Ohio spiderwort	planted	successional
286	Tradescantia subaspera	zig-zag spiderwort	occasional	flatwoods
287	*Trifolium repens*	*white clover*	*common*	*successional and landscape*
288	Trillium recurvatum	prairie trillium	common	flatwoods

289	Tsuga canadensis	eastern hemlock	planted	flatwoods
290	Ulmus americana	American elm	occasional	flatwoods and successional area
291	Ulmus rubra	red elm	occasional	flatwoods
292	Verbena hastata	blue vervain	occasional	successional
293	Verbena urticifolia	white vervain	common	successional and flatwoods
294	Verbesina alternifolia	wingstem	occasional	flatwoods
295	Vernonia gigantea	tall ironweed	common	successional
296	*Veronica arvensis*	*field speedwell*	*common*	*successional*
297	*Veronica peregrina*	*purslane speedwell*	*occasional*	*successional*
298	*Veronica serpyllifolia*	*thyme-leaved speedwell*	*common*	*successional*
299	Viburnum lentago	nannyberry	planted	landscape
300	*Viburnum opulus*	*European cranberry viburnum*	*occasional*	*flatwoods*
301	Viburnum prunifolium	blackhaw	common	flatwoods
302	Vicia villosa	hairy vetch	planted	successional
303	*Vinca minor*	*common periwinkle*	*local*	*flatwoods*
304	Viola communis	Dooryard violet	occasional	successional
305	Viola pubescens	downy yellow violet	occasional	flatwoods
306	Viola sororia	common blue violet	common	flatwoods
307	Viola striata	cream violet	occasional	flatwoods
308	Vitis riparia	riverbank grape	occasional	flatwoods
309	Vitis vulpina	frost grape	occasional	successional
310	Zizia aurea	golden alexanders	planted	successional

Three Forks Preserve Invasive Plant List

Species	Common Name	Frequency	Habitat	Threat Level
Alliaria petiolata	garlic mustard	common	flatwoods	moderate
Allium vineale	field garlic	occasional	flatwoods	low
Cirsium arvense	Canada thistle	common	successional	moderate
Cirsium vulgare	bull thistle	local	successional	low
Commelina communis	Asiatic dayflower	occasional	successional	low
Conium maculatum	poison hemlock	local	successional	moderate
Elaeagnus umbellata	autumn olive	occasional	flatwoods and successional area	moderate
Euonymus fortunei	wintercreeper	local	flatwoods	high
Ficaria verna	lesser celandine	local	flatwoods	high
Hedera helix	English ivy	local	flatwoods	low
Hemerocallis fulva	orange daylily	local	flatwoods	low
Ligustrum obtusifolium	border privet	occasional	flatwoods	moderate
Ligustrum vulgare	common privet	occasional	flatwoods	moderate
Lonicera maackii	Amur honeysuckle	common	flatwoods	high
Lonicera morrowii	Morrow's honeysuckle	occasional	flatwoods	moderate
Lonicera X bella	Showy fly honeysuckle	occasional	flatwoods	moderate
Lysimachia nummularia	moneywort	occasional	flatwoods	low
Melilotus alba	white sweet clover	local	successional	low
Morus alba	white mulberry	occasional	flatwoods	low
Ornithogalum umbellatum	star of bethlehem	occasional	flatwoods	moderate
Pachysandra terminalis	Japanese spurge	local	flatwoods	low
Persicaria longiseta	creeping smartweed	common	flatwoods and successional area	low
Phalaris arundincea	reed canary grass	occasional	successional	moderate
Pyrus calleryana	callery pear	local	flatwoods	high
Rosa multiflora	multiflora rose	common	flatwoods	moderate
Viburnum opulus	European cranberry viburnum	occasional	flatwoods	moderate
Vinca minor	common periwinkle	local	flatwoods	low

Recommended Flatwood Additions:

Species	Common Name	Moisture
Ferns:		
Dryopteris goldieana	Goldie's wood fern	mesic
Dryopteris carthusiana	spinulose wood fern	mesic
Onoclea sensiblis	sensitive fern	wet
Shrubs and understory trees		
Cephalanthus occidentalis	buttonbush	wet
Corylus americana	American hazelnut	mesic
Dirca palustris	leatherwood	mesic
Ilex verticillata	winterberry	wet
Ptelea trifoliata	hoptree	mesic
Ribes cynosbati	prickly gooseberry	mesic
Rosa palustris	swamp rose	wet
Staphylea trifolia	American bladdernut	mesic
Zanthoxylum americanum	prickly ash	mesic
Grasses and sedges		
Bracheylectrum erectum	long-awned wood grass	mesic
Carex bromoides	brome hummock sedge	wet
Carex careyana	Carey's wood sedge	mesic
Carex hyalinolepis	shoreline sedge	wet
Carex laxiflora	beech wood sedge	mesic
Carex lupulina	hop sedge	wet
Carex muskingumensis	palm sedge	wet
Carex woodii	Wood's stiff sedge	mesic
Diarrhena obovata	obovate beak grass	mesic
Elymus hystrix	bottlebrush grass	mesic
Elymus macgregorii	early wild rye	mesic
Elymus villosus	silky wild rye	mesic
Herbaceous wildflowers		
Actaea pachypoda	doll's eyes	mesic
Anemone acutiloba	sharp-lobed hepatica	mesic
Caulophyllum thalictroides	blue cohosh	mesic

Geranium maculatum	wild geranium	mesic
Hydrophyllum appendiculatum	appendaged waterleaf	mesic
Hydrophyllum macrophyllum	largeleaf waterleaf	mesic
Lobelia cardinalis	cardinal flower	wet
Maianthemum racemosum	Solomon's plume	mesic
Mimulus alatus	winged monkeyflower	wet
Mitella diphylla	bishop's cap	mesic
Polemonium reptans	Greek valerian	mesic
Sanguinaria canadensis	bloodroot	mesic
Scutellaria incana	downy skullcap	mesic
Tradescantia subaspera	zig-zag siderwort	mesic
Trillium flexipes	bent trillium	mesic
Trillium sessile	sessile trillium	mesic
Uvularia grandiflora	large-flower bellwort	mesic

Three Forks Floral Inventory Floristic Quality Assessment

12/9/2025

Three Forks Preserve
Carmel
Hamilton
IN
United States

FQA DB Region:	Indiana
FQA DB Publication Year:	2019
FQA DB Description:	Update of 2004 Indiana database
Practitioner:	Kevin Tungesvick
Latitude:	39.987028
Longitude:	-86.196413

Conservatism-Based Metrics:

Total Mean C:	2
Native Mean C:	2.8
Total FQI:	31.7
Native FQI:	37.4
Adjusted FQI:	23.6
% C value 0:	40.6
% C value 1-3:	34.3
% C value 4-6:	21.9
% C value 7-10:	3.2
Native Tree Mean C:	3.9
Native Shrub Mean C:	3
Native Herbaceous Mean C:	2.5

Species Richness:

Total Species:	251
Native Species:	178
Non-native Species:	73

Species Wetness:

Mean Wetness:	0.9
Native Mean Wetness:	0.3

Physiognomy Metrics:

Tree:	34	13.55%
Shrub:	20	7.97%
Vine:	12	4.78%
Forb:	131	52.19%
Grass:	29	11.55%
Sedge:	22	8.76%
Rush:	2	0.80%
Fern:	1	0.40%
Bryophyte:	0	0.00%

Duration Metrics:

Annual:	49	19.52%
Perennial:	186	74.10%
Biennial:	16	6.37%
Native Annual:	22	8.76%
Native Perennial:	150	59.76%
Native Biennial:	6	2.39%

Species:

Scientific Name	Family	Native?	C	Type	Duration	Common Name
Abutilon theophrasti	Malvaceae	non-native	0	forb	annual	velvet leaf
Acalypha rhomboidea	Euphorbiaceae	native	0	forb	annual	common three-seeded mercury
Acer negundo	Sapindaceae	native	1	tree	perennial	boxelder

Acer rubrum	Sapindaceae	native	5	tree	perennial	red maple
Acer saccharinum	Sapindaceae	native	1	tree	perennial	silver maple
Acer saccharum	Sapindaceae	native	4	tree	perennial	sugar maple
Aesculus glabra var. glabra	Sapindaceae	native	5	tree	perennial	ohio buckeye
Agrimonia pubescens	Rosaceae	native	5	forb	perennial	downy agrimony
Agrostis gigantea	Poaceae	non-native	0	grass	perennial	red top
Agrostis hyemalis	Poaceae	native	2	grass	perennial	tickle grass
Alliaria petiolata	Brassicaceae	non-native	0	forb	biennial	garlic mustard
Allium vineale	Amaryllidaceae	non-native	0	forb	perennial	field garlic
Amaranthus albus	Amaranthaceae	native	0	forb	annual	tumbleweed
Amaranthus retroflexus	Amaranthaceae	non-native	0	forb	annual	redroot pigweed
Amaranthus tuberculatus	Amaranthaceae	native	1	forb	annual	tall waterhemp
Ambrosia artemisiifolia	Asteraceae	native	0	forb	annual	common ragweed
Ambrosia trifida	Asteraceae	native	0	forb	annual	giant ragweed
Ammannia robusta	Lythraceae	native	2	forb	annual	scarlet loosestrife
Andropogon virginicus var. virginicus	Poaceae	native	1	grass	perennial	broom sedge
Apocynum cannabinum	Apocynaceae	native	2	forb	perennial	hemp dogbane
Arctium minus	Asteraceae	non-native	0	forb	biennial	common burdock
Arisaema dracontium	Araceae	native	5	forb	perennial	green dragon
Arisaema triphyllum	Araceae	native	4	forb	perennial	jack-in-the-pulpit
Asclepias syriaca	Apocynaceae	native	1	forb	perennial	common milkweed
Asimina triloba	Annonaceae	native	6	tree	perennial	paw paw
Barbarea vulgaris	Brassicaceae	non-native	0	forb	biennial	yellow rocket
Boehmeria cylindrica	Urticaceae	native	3	forb	perennial	false nettle
Bromus inermis	Poaceae	non-native	0	grass	perennial	smooth brome
Bromus japonicus	Poaceae	non-native	0	grass	annual	japanese brome
Calystegia sepium	Convolvulaceae	native	1	vine	perennial	hedge bindweed
Campanulastrum americanum	Campanulaceae	native	4	forb	biennial	american bellflower
Campsis radicans	Bignoniaceae	native	1	vine	perennial	trumpet creeper
Cardamine concatenata	Brassicaceae	native	4	forb	perennial	cutleaf toothwort
Cardamine hirsuta	Brassicaceae	non-native	0	forb	annual	hairy bitter cress
Carex aggregata	Cyperaceae	native	2	sedge	perennial	smooth clustered sedge
Carex albursina	Cyperaceae	native	7	sedge	perennial	blunt-scaled wood sedge
Carex amphibola	Cyperaceae	native	8	sedge	perennial	false gray sedge
Carex blanda	Cyperaceae	native	1	sedge	perennial	common wood sedge
Carex conjuncta	Cyperaceae	native	6	sedge	perennial	green-headed fox sedge
Carex cristatella	Cyperaceae	native	3	sedge	perennial	crested oval sedge
Carex davisii	Cyperaceae	native	3	sedge	perennial	awned graceful sedge
Carex granularis	Cyperaceae	native	2	sedge	perennial	pale sedge
Carex grayi	Cyperaceae	native	5	sedge	perennial	common bur sedge
Carex grisea	Cyperaceae	native	3	sedge	perennial	inflated gray sedge
Carex hirtifolia	Cyperaceae	native	5	sedge	perennial	hairy wood sedge
Carex jamesii	Cyperaceae	native	4	sedge	perennial	grass sedge
Carex laxiculmis var. copulata	Cyperaceae	native	5	sedge	perennial	green wood sedge
Carex leavenworthii	Cyperaceae	native	1	sedge	perennial	dwarf bracted sedge
Carex normalis	Cyperaceae	native	3	sedge	perennial	spreading oval sedge
Carex radiata	Cyperaceae	native	4	sedge	perennial	straight-styled bracted sedge
Carex rosea	Cyperaceae	native	5	sedge	perennial	curly-styled bracted sedge
Carex shortiana	Cyperaceae	native	3	sedge	perennial	shorts sedge
Carex tribuloides	Cyperaceae	native	5	sedge	perennial	awl-fruited oval sedge
Carex vulpinoidea	Cyperaceae	native	2	sedge	perennial	brown fox sedge
Carpinus caroliniana subsp. virginiana	Betulaceae	native	5	tree	perennial	blue beech
Carya cordiformis	Juglandaceae	native	5	tree	perennial	bitternut hickory
Carya laciniosa	Juglandaceae	native	8	tree	perennial	big shellbark hickory
Carya ovata	Juglandaceae	native	4	tree	perennial	shagbark hickory
Catalpa speciosa	Bignoniaceae	native	0	tree	perennial	northern catalpa
Celtis occidentalis	Cannabaceae	native	3	tree	perennial	hackberry
Chamaesyce nutans	Euphorbiaceae	native	0	forb	annual	nodding spurge
Chenopodium album	Amaranthaceae	non-native	0	forb	annual	lambs quarters
Cinna arundinacea	Poaceae	native	4	grass	perennial	common wood reed
Circaea canadensis	Onagraceae	native	2	forb	perennial	enchanters nightshade
Cirsium arvense	Asteraceae	non-native	0	forb	perennial	Canada thistle

Cirsium vulgare	Asteraceae	non-native	0	forb	biennial	bull thistle
Claytonia virginica	Montiaceae	native	2	forb	perennial	spring beauty
Clematis virginiana	Ranunculaceae	native	3	vine	perennial	virgins bower
Commelina communis	Commelinaceae	non-native	0	forb	annual	Asiatic day flower
Conium maculatum	Apiaceae	non-native	0	forb	biennial	poison hemlock
Convallaria majalis	Asparagaceae	non-native	0	forb	perennial	lily-of-the-valley
Conyza canadensis	Asteraceae	native	0	forb	annual	mare's tail
Cornus drummondii	Cornaceae	native	2	shrub	perennial	rough-leaved dogwood
Crataegus mollis	Rosaceae	native	2	tree	perennial	downy hawthorn
Crataegus pruinosa	Rosaceae	native	5	tree	perennial	frosted hawthorn
Cryptotaenia canadensis	Apiaceae	native	3	forb	perennial	honewort
Cynanchum laeve	Apocynaceae	native	1	vine	perennial	honeyvine
Cyperus esculentus var. leptostachyus	Cyperaceae	native	0	sedge	perennial	yellow nut sedge
Cyperus strigosus	Cyperaceae	native	0	sedge	perennial	long-scaled nut sedge
Cystopteris protrusa	1-cystopteridaceae	native	4	fern	perennial	common fragile fern
Datura stramonium	Solanaceae	non-native	0	forb	annual	jimsonweed
Daucus carota	Apiaceae	non-native	0	forb	biennial	queen annes lace
Dicentra cucullaria	Papaveraceae	native	6	forb	perennial	dutchmans breeches
Dichanthelium huachucae	Poaceae	native	2	grass	perennial	old field panic grass
Digitaria ischaemum	Poaceae	non-native	0	grass	annual	smooth crab grass
Digitaria sanguinalis	Poaceae	non-native	0	grass	annual	hairy crab grass
Duchesnea indica	Rosaceae	non-native	0	forb	perennial	mock strawberry
Echinochloa crus-galli	Poaceae	non-native	0	grass	annual	barnyard grass
Elaeagnus umbellata	Elaeagnaceae	non-native	0	shrub	perennial	autumn olive
Eleusine indica	Poaceae	non-native	0	grass	annual	goosegrass
Elymus virginicus	Poaceae	native	3	grass	perennial	virginia wild rye
Epilobium coloratum	Onagraceae	native	3	forb	perennial	cinnamon willow herb
Eragrostis minor	Poaceae	non-native	0	grass	annual	low love grass
Eragrostis pectinacea var. pectinacea	Poaceae	native	0	grass	annual	small love grass
Erechtites hieraciifolius var. hieraciifolius	Asteraceae	native	2	forb	annual	burnweed
Erigeron annuus	Asteraceae	native	0	forb	biennial	annual fleabane
Erigeron philadelphicus var. philadelphicus	Asteraceae	native	3	forb	perennial	marsh fleabane
Erythronium albidum	Liliaceae	native	3	forb	perennial	white trout lily
Erythronium americanum subsp. americanum	Liliaceae	native	5	forb	perennial	yellow trout lily
Euonymus fortunei	Celastraceae	non-native	0	shrub	perennial	winter-creeper
Euonymus obovatus	Celastraceae	native	7	shrub	perennial	running strawberry bush
Eupatorium perfoliatum	Asteraceae	native	4	forb	perennial	common boneset
Euphorbia maculata	Euphorbiaceae	native	0	forb	annual	spotted creeping spurge
Euthamia nuttallii	Asteraceae	native	3	forb	perennial	grass-leaved goldenrod
Fagus grandifolia	Fagaceae	native	8	tree	perennial	american beech
Ficaria verna	Ranunculaceae	non-native	0	forb	perennial	lesser celandine
Floerkea proserpinacoides	Limnanthaceae	native	5	forb	annual	false mermaid
Fragaria virginiana	Rosaceae	native	2	forb	perennial	wild strawberry
Fraxinus americana	Oleaceae	native	4	tree	perennial	white ash
Fraxinus biltmoreana	Oleaceae	native	4	tree	perennial	biltmore ash
Fraxinus pennsylvanica	Oleaceae	native	2	tree	perennial	green ash
Galium aparine	Rubiaceae	native	1	forb	perennial	cleavers
Galium circaezans	Rubiaceae	native	6	forb	perennial	wild licorice
Galium triflorum	Rubiaceae	native	5	forb	perennial	fragrant bedstraw
Geranium carolinianum	Geraniaceae	native	2	forb	annual	carolina cranesbill
Geum canadense	Rosaceae	native	1	forb	perennial	white avens
Geum vernum	Rosaceae	native	1	forb	perennial	spring avens
Glechoma hederacea	Lamiaceae	non-native	0	forb	perennial	ground ivy
Glyceria striata	Poaceae	native	4	grass	perennial	fowl manna grass
Hackelia virginiana	Boraginaceae	native	0	forb	biennial	stickseed
Hedera helix	Araliaceae	non-native	0	vine	perennial	english ivy
Hemerocallis fulva	Xanthorrhoeaceae	non-native	0	forb	perennial	orange day lily
Hibiscus trionum	Malvaceae	non-native	0	forb	annual	flower-of-an-hour
Ipomoea pandurata	Convolvulaceae	native	3	vine	perennial	wild sweet potato
Juglans nigra	Juglandaceae	native	2	tree	perennial	black walnut
Juncus dudleyi	Juncaceae	native	2	rush	perennial	dudleys rush
Juncus tenuis	Juncaceae	native	0	rush	perennial	path rush

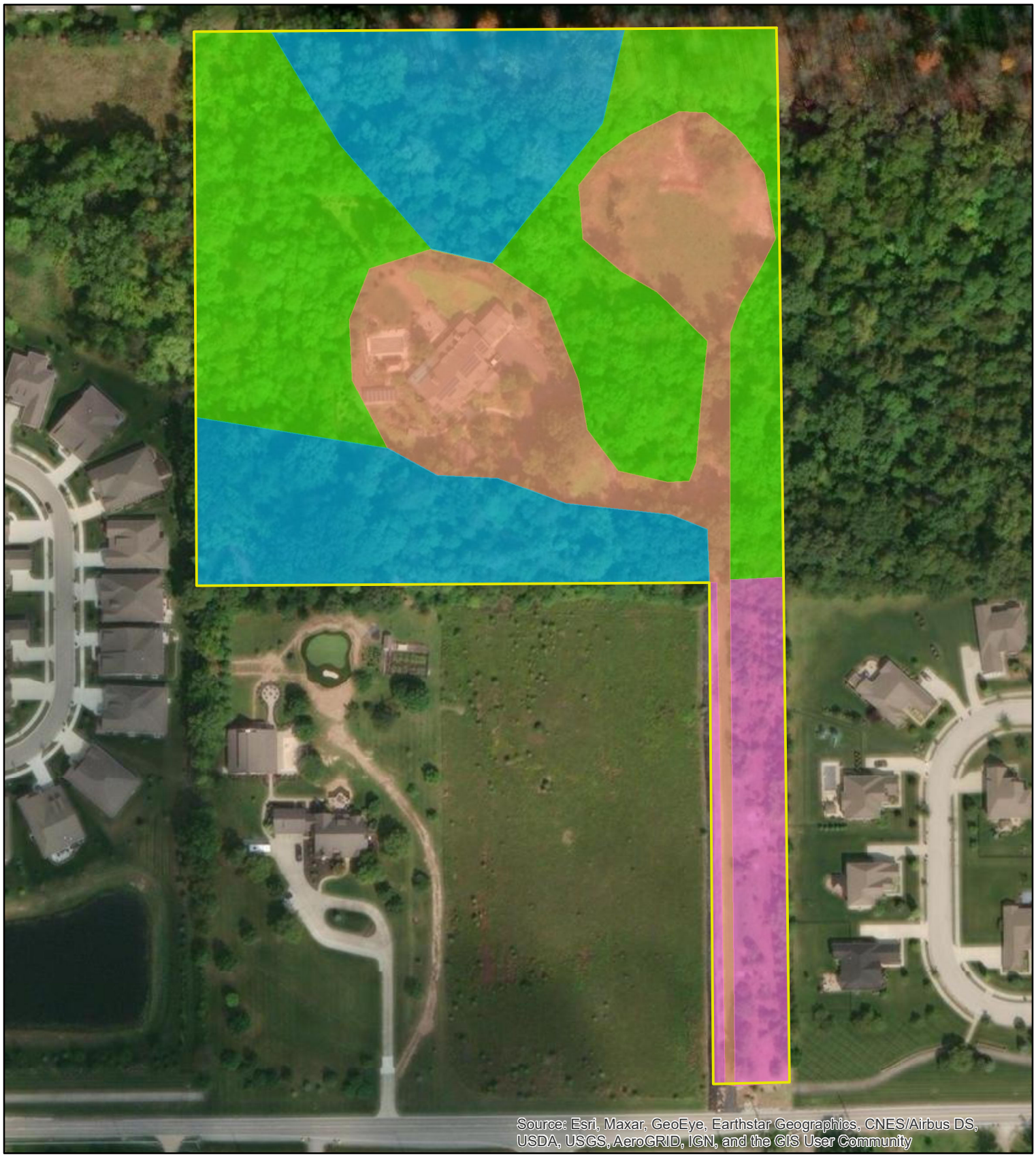
Juniperus virginiana var. virginiana	2-cupressaceae	native	2	shrub	perennial	eastern red cedar
Lactuca serriola	Asteraceae	non-native	0	forb	biennial	prickly lettuce
Lamium amplexicaule	Lamiaceae	non-native	0	forb	annual	henbit
Lamium purpureum	Lamiaceae	non-native	0	forb	annual	purple dead nettle
Leersia virginica	Poaceae	native	4	grass	perennial	white grass
Lepidium campestre	Brassicaceae	non-native	0	forb	biennial	field pepperwort
Leucanthemum vulgare	Asteraceae	non-native	0	forb	perennial	ox-eye daisy
Ligustrum obtusifolium	Oleaceae	non-native	0	shrub	perennial	border privet
Ligustrum vulgare	Oleaceae	non-native	0	shrub	perennial	common privet
Lindera benzoin	Lauraceae	native	5	shrub	perennial	hairy spicebush
Liriodendron tulipifera	Magnoliaceae	native	4	tree	perennial	tulip tree
Lobelia inflata	Lobeliaceae	native	3	forb	annual	indian tobacco
Lobelia siphilitica	Lobeliaceae	native	3	forb	perennial	great blue lobelia
Lonicera maackii	Caprifoliaceae	non-native	0	shrub	perennial	amur honeysuckle
Lonicera morrowii	Caprifoliaceae	non-native	0	shrub	perennial	morrows honeysuckle
Lycopus americanus	Lamiaceae	native	3	forb	perennial	American bugleweed
Lysimachia ciliata	Primulaceae	native	4	forb	perennial	fringed loosestrife
Lysimachia nummularia	Primulaceae	non-native	0	forb	perennial	moneywort
Malva neglecta	Malvaceae	non-native	0	forb	biennial	common mallow
Medicago lupulina	Fabaceae	non-native	0	forb	annual	black medick
Melilotus alba	Fabaceae	non-native	0	forb	biennial	white sweet clover
Menispermum canadense	Menispermaceae	native	3	vine	perennial	moonseed
Microthlaspi perfoliatum	Brassicaceae	non-native	0	forb	annual	perfoliate penny cress
Mimulus ringens	Phyrmaceae	native	4	forb	perennial	Allegheny monkey flower
Monarda fistulosa subsp. fistulosa	Lamiaceae	native	3	forb	perennial	wild bergamot
Morus alba	Moraceae	non-native	0	tree	perennial	white mulberry
Muhlenbergia schreberi	Poaceae	native	0	grass	perennial	nimblewill
Myosotis verna	Boraginaceae	native	3	forb	annual	spring forget-me-not
Narcissus pseudonarcissus	Amaryllidaceae	non-native	0	forb	perennial	common daffodil
Oenothera biennis	Onagraceae	native	0	forb	biennial	common evening primrose
Oenothera parviflora	Onagraceae	native	2	forb	biennial	northern evening primrose
Ornithogalum umbellatum	Asparagaceae	non-native	0	forb	perennial	common star of bethlehem
Ostrya virginiana	Betulaceae	native	5	tree	perennial	hop hornbeam
Oxalis stricta	Oxalidaceae	native	0	forb	perennial	common yellow woodsorrel
Pachysandra terminalis	Buxaceae	non-native	0	forb	perennial	japanese spurge
Packera aurea	Asteraceae	native	4	forb	perennial	golden ragwort
Packera glabella	Asteraceae	native	0	forb	biennial	buttertop
Panicum capillare subsp. capillare	Poaceae	native	0	grass	annual	old witch grass
Panicum dichotomiflorum	Poaceae	native	0	grass	annual	fall panicum
Parthenocissus quinquefolia	Vitaceae	native	2	vine	perennial	virginia creeper
Penthorum sedoides	Penthoraceae	native	2	forb	perennial	ditch stonecrop
Persicaria lapathifolia	Polygonaceae	native	0	forb	annual	pale smartweed
Persicaria longiseta	Polygonaceae	non-native	0	forb	annual	creeping smartweed
Persicaria maculosa	Polygonaceae	non-native	0	forb	annual	ladys thumb
Persicaria punctata	Polygonaceae	native	3	forb	annual	dotted smartweed
Persicaria virginiana	Polygonaceae	native	3	forb	perennial	jumpseed
Phalaris arundinacea	Poaceae	non-native	0	grass	perennial	reed canary grass
Phlox divaricata	Polemoniaceae	native	5	forb	perennial	blue phlox
Phryma leptostachya	Verbenaceae	native	4	forb	perennial	lopseed
Pilea pumila	Urticaceae	native	2	forb	annual	clearweed
Plantago lanceolata	Plantaginaceae	non-native	0	forb	perennial	english plantain
Plantago rugelii	Plantaginaceae	native	0	forb	perennial	red-stalked plantain
Platanus occidentalis	Platanaceae	native	3	tree	perennial	american sycamore
Poa annua	Poaceae	non-native	0	grass	annual	annual blue grass
Poa compressa	Poaceae	non-native	0	grass	perennial	flat-stemmed blue grass
Poa pratensis	Poaceae	non-native	0	grass	perennial	kentucky blue grass
Poa sylvestris	Poaceae	native	5	grass	perennial	woodland blue grass
Poa trivialis	Poaceae	non-native	0	grass	perennial	rough blue grass
Podophyllum peltatum	Berberidaceae	native	3	forb	perennial	may apple
Populus deltoides	Salicaceae	native	1	tree	perennial	eastern cottonwood
Prunella vulgaris subsp. lanceolata	Lamiaceae	native	1	forb	perennial	self heal
Prunella vulgaris subsp. vulgaris	Lamiaceae	non-native	0	forb	perennial	lawn prunella

Prunus serotina var. serotina	Rosaceae	native	1	tree	perennial	wild black cherry
Pyrus calleryana	Rosaceae	non-native	0	tree	perennial	callery pear
Quercus bicolor	Fagaceae	native	7	tree	perennial	swamp white oak
Quercus macrocarpa	Fagaceae	native	5	tree	perennial	bur oak
Quercus palustris	Fagaceae	native	3	tree	perennial	pin oak
Quercus rubra	Fagaceae	native	4	tree	perennial	northern red oak
Quercus shumardii	Fagaceae	native	7	tree	perennial	shumard oak
Ranunculus abortivus	Ranunculaceae	native	0	forb	perennial	little-leaf buttercup
Rosa multiflora	Rosaceae	non-native	0	shrub	perennial	multiflora rose
Rubus allegheniensis	Rosaceae	native	2	shrub	perennial	common blackberry
Rubus maricus	Rosaceae	native	2	shrub	perennial	pure dewberry
Rubus occidentalis	Rosaceae	native	1	shrub	perennial	black raspberry
Rubus rosa	Rosaceae	native	5	shrub	perennial	rose blackberry
Rudbeckia fulgida var. deamii	Asteraceae	native	10	forb	perennial	deams coneflower
Ruellia strepens	Acanthaceae	native	4	forb	perennial	smooth ruellia
Rumex crispus	Polygonaceae	non-native	0	forb	perennial	curly dock
Salix interior	Salicaceae	native	1	shrub	perennial	sandbar willow
Sambucus canadensis	Adoxaceae	native	2	shrub	perennial	common elderberry
Sanicula canadensis	Apiaceae	native	2	forb	perennial	canada black snakeroot
Sanicula odorata	Apiaceae	native	2	forb	perennial	clustered black snakeroot
Sassafras albidum	Lauraceae	native	1	forb	perennial	sassafras
Scrophularia marilandica	Scrophulariaceae	native	5	forb	perennial	late figwort
Senecio vulgaris	Asteraceae	non-native	0	forb	annual	common groundsel
Setaria faberi	Poaceae	non-native	0	grass	annual	giant foxtail
Setaria pumila subsp. pumila	Poaceae	non-native	0	grass	annual	yellow foxtail
Setaria viridis	Poaceae	non-native	0	grass	annual	green foxtail
Smilax herbacea	Smilacaceae	native	5	vine	perennial	smooth carrion-flower
Solanum carolinense var. carolinense	Solanaceae	native	0	forb	perennial	horse nettle
Solanum ptychanthum	Solanaceae	native	0	forb	annual	black nightshade
Solidago altissima subsp. altissima	Asteraceae	native	0	forb	perennial	tall goldenrod
Solidago canadensis	Asteraceae	native	0	forb	perennial	canada goldenrod
Sphenopholis intermedia	Poaceae	native	3	grass	perennial	slender wedge grass
Stellaria media	Caryophyllaceae	non-native	0	forb	annual	common chickweed
Symphyotrichum cordifolium	Asteraceae	native	5	forb	perennial	heart-leaved blue wood aster
Symphyotrichum lanceolatum	Asteraceae	native	3	forb	perennial	panicled aster
Symphyotrichum lateriflorum	Asteraceae	native	3	forb	perennial	calico aster
Symphyotrichum pilosum var. pilosum	Asteraceae	native	0	forb	perennial	frost aster
Taraxacum officinale	Asteraceae	non-native	0	forb	perennial	common dandelion
Teucrium canadense	Lamiaceae	native	3	forb	perennial	american germander
Thlaspi arvense	Brassicaceae	non-native	0	forb	annual	field penny cress
Tilia americana	Malvaceae	native	5	tree	perennial	american basswood
Toxicodendron radicans	Anacardiaceae	native	1	vine	perennial	eastern poison ivy
Tradescantia subaspera	Commelinaceae	native	4	forb	perennial	zig-zag spiderwort
Trifolium repens	Fabaceae	non-native	0	forb	perennial	white clover
Trillium recurvatum	Melanthiaceae	native	4	forb	perennial	prairie trillium
Ulmus americana	Ulmaceae	native	3	tree	perennial	american elm
Ulmus rubra	Ulmaceae	native	3	tree	perennial	red elm
Verbena hastata	Verbenaceae	native	3	forb	perennial	blue vervain
Verbena urticifolia	Verbenaceae	native	3	forb	perennial	white vervian
Verbesina alternifolia	Asteraceae	native	3	forb	perennial	wingstem
Vernonia gigantea	Asteraceae	native	2	forb	perennial	tall ironweed
Veronica arvensis	Plantaginaceae	non-native	0	forb	annual	field speedwell
Veronica peregrina subsp. peregrina	Plantaginaceae	native	0	forb	annual	smooth purslane speedwell
Veronica serpyllifolia subsp. serpyllifolia	Plantaginaceae	non-native	0	forb	perennial	thyme-leaved speedwell
Viburnum opulus	Adoxaceae	non-native	0	shrub	perennial	european high-bush cranberry
Viburnum prunifolium	Adoxaceae	native	4	shrub	perennial	black haw
Vinca minor	Apocynaceae	non-native	0	shrub	perennial	common periwinkle
Viola pubescens	Violaceae	native	5	forb	perennial	downy yellow violet
Viola sororia	Violaceae	native	1	forb	perennial	common blue violet
Viola striata	Violaceae	native	4	forb	perennial	cream violet
Vitis riparia	Vitaceae	native	1	vine	perennial	riverbank grape
Vitis vulpina	Vitaceae	native	3	vine	perennial	frost grape

Appendix 2: Maps

I. Plant Communities
II. Soils (see Appendix 3 for an explanation of the soil types and characteristics)
III. Native Canopy Trees
IV. Native Understory Trees, Shrubs, and Vines
V. Spring Wildflowers
VI. Summer and Fall Woodland Forbs
VII. Native Sedges and Rushes
VIII. Grasses
IX. Ferns
X. Planted Woody Species
XI. Planted Perennials
XII. Invasive Woody Species
XIII. Invasive Forbs and Weedy Ruderal Natives
XIV. Recommended Property Acquisitions

Three Forks Preserve Plant Communities



N

0 275 550 1,100 Feet

1 in = 208 feet

- Property Boundaries
- Wet Flatwoods
- Early Successional Habitats
- Developed or Landscaped Areas
- Mesic Flatwoods

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Three Forks Preserve Soils Map

Soil Type

MUSYM

- Br
- CrA
- W
- YbvA
- YclA
- YmsB2
- Property Boundaries

N

0 275 550 1,100 Feet

1 in = 208 feet

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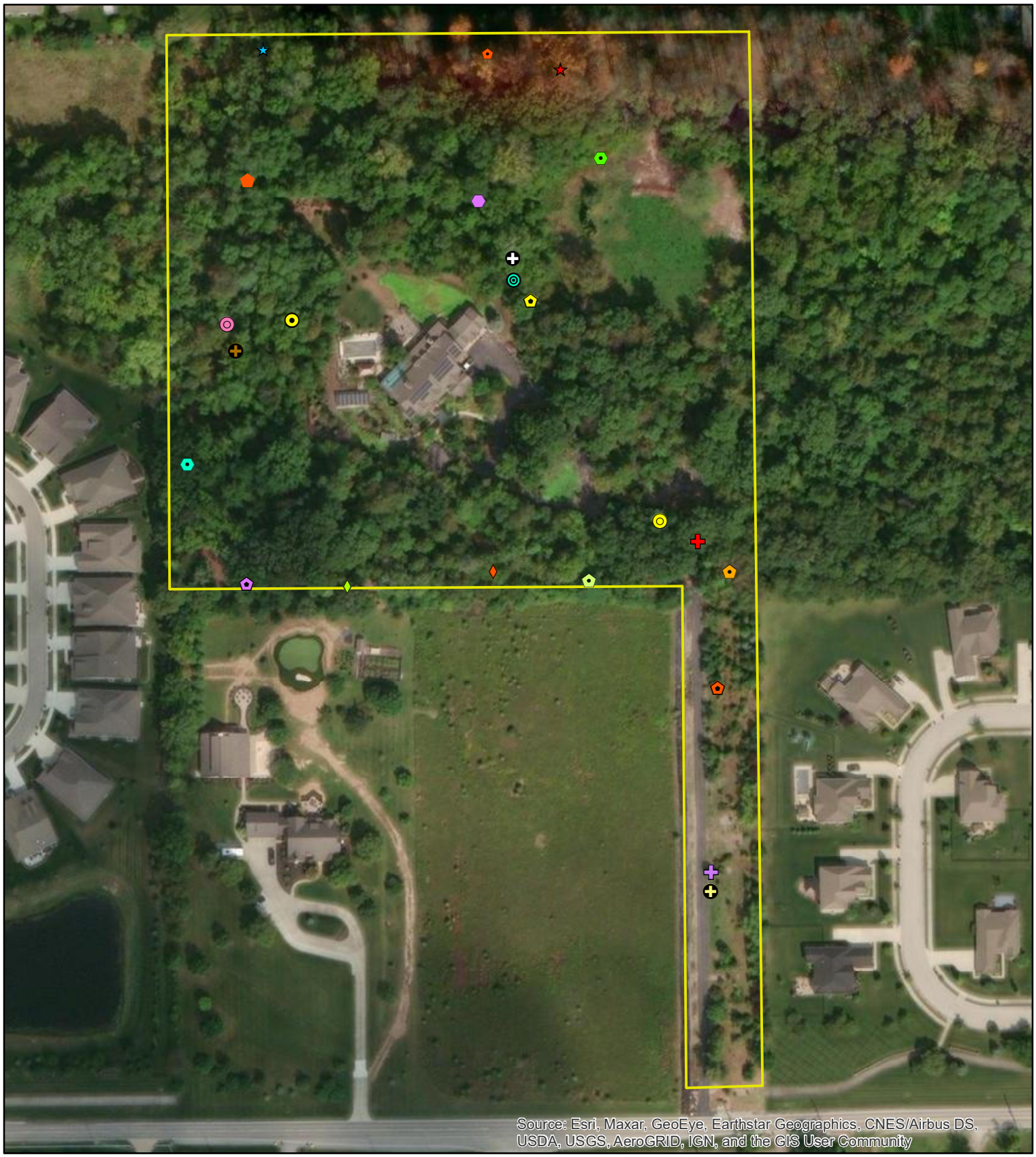
Three Forks Preserve Native Canopy Trees



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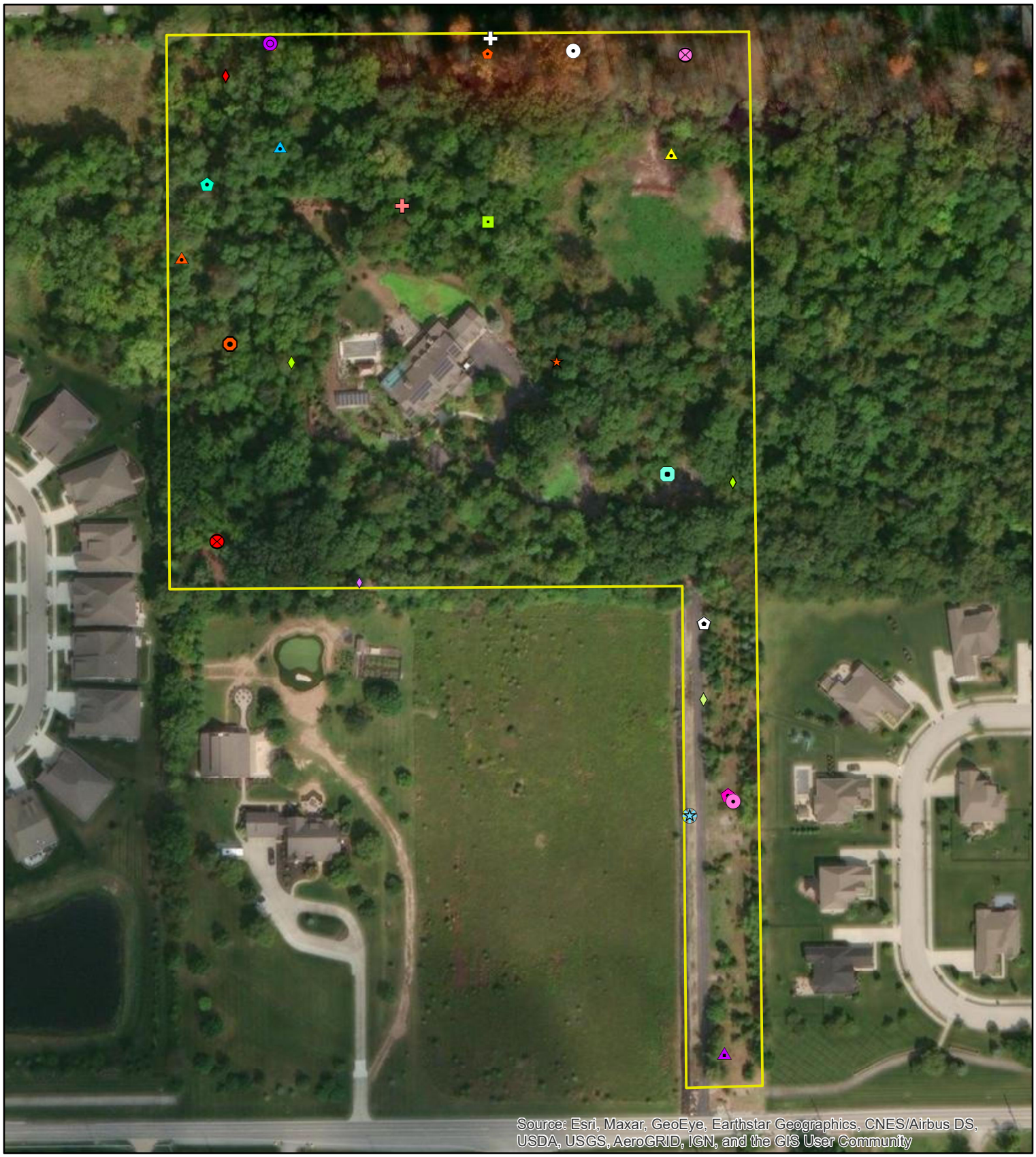
N

0 275 550 1,100 Feet

1 in = 208 feet

- Three Forks Property Boundaries
- Quercus rubra
- Quercus shumardii
- Fraxinus biltmoreana
- Carya ovata
- Ulmus americana
- Acer sacharrum
- Quercus palustris
- Fraxinus americana
- Fraxinus pennsylvanica
- Acer saccharinum
- Tilia americana
- Acer negundo
- Quercus macrocarpa
- Quercus bicolor
- Celtis occidentalis
- Carya laciniosa
- Juglans nigra
- Aesculus glabra
- Carya cordiformis
- Platanus occidentalis
- Ulmus rubra
- Liriodendron tulipifera
- Fagus grandifolia

Three Forks Preserve Native Understory Trees, Shrubs, and Vines



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N

0 275 550 1,100 Feet

1 in = 208 feet

- Three Forks Property Boundaries
- Crataegus pruinosa
- Rubus mericus
- Vitis vulpina
- Juniperus virginiana
- Clematis virginiana
- Rubus allegheniensis
- Ipomoea pandurata
- Salix interior
- Vitis riparia
- Menispermum canadense
- Rubus occidentalis
- Parthenocissus quinquefolia
- Toxicodendron radicans
- Crataegus mollis
- Campsis radicans
- Cephalanthus occidentalis
- Smilax herbacea
- Cornus drummondii
- Viburnum prunifolium
- Sambucus canadensis
- Euonymus obovatus
- Lindera benzoin
- Aesculus glabra
- Carpinus caroliniana
- Ostrya virginiana
- Asimina triloba

Three Forks Preserve Native Spring Woodland Wildflowers

N

0 275 550 1,100 Feet

1 in = 208 feet

- Property Boundaries
- Geum vernuum
- Arisaema dracontium
- Viola communis
- Viola sororia
- Claytonia virginica
- Erythronium albidum
- Ranunculus abortivus
- Arisaema triphyllum
- Packera aurea
- Cardamine concatenata
- Viola pubescens
- Viola striata
- Dicentra cucullaria
- Trillium recurvatum
- Podophyllum peltatum
- Erythronium americanum
- Phlox divaricata

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Three Forks Preserve Native Summer and Fall Woodland Forbs

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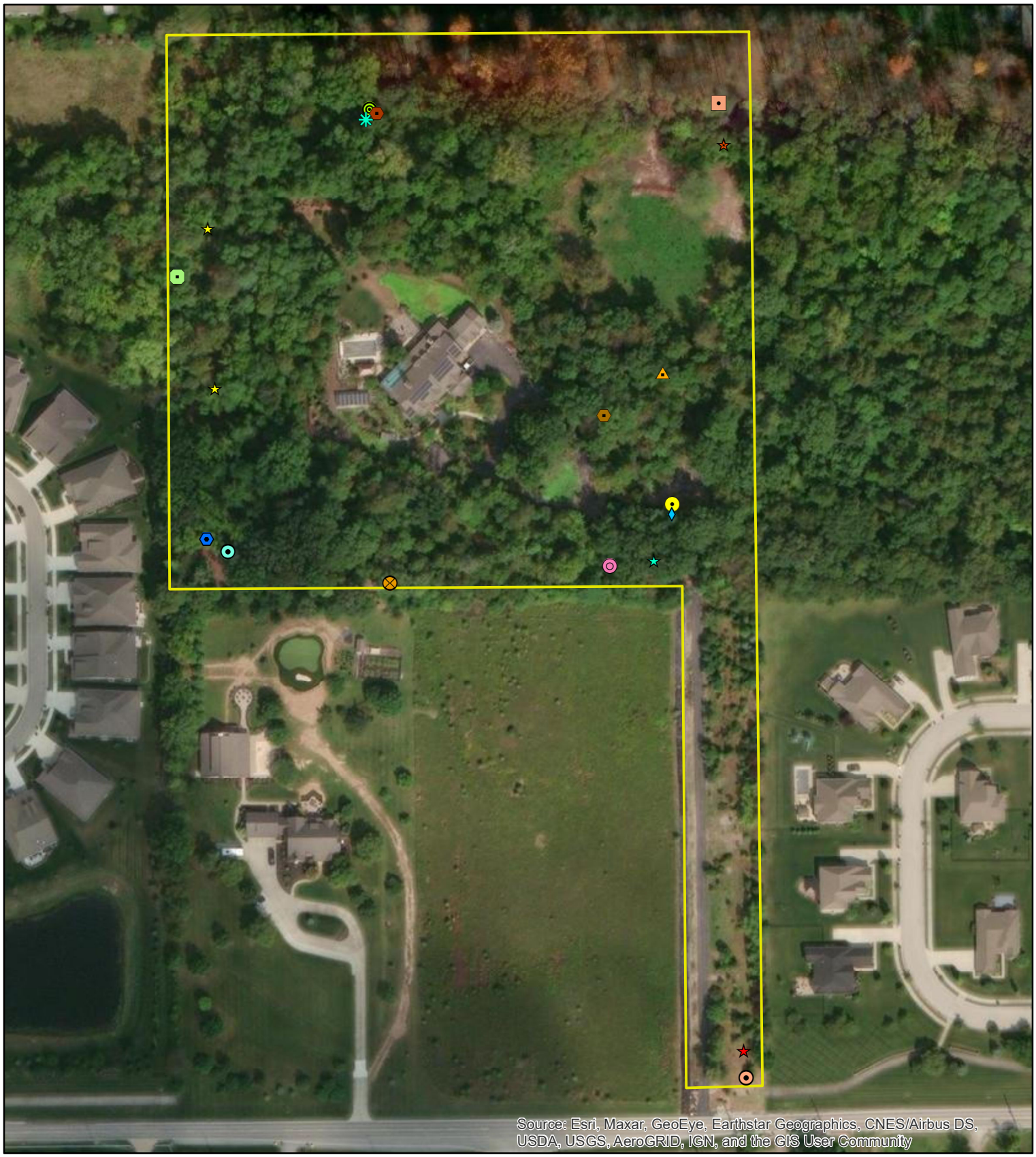
N

0 275 550 1,100 Feet

1 in = 208 feet

- Property Boundaries
- Rudbeckia deamii
- Sanicula odorata
- Mimulus ringens
- Penthorum sedoides
- Boehmeria cylindrica
- Sanicula canadensis
- Agrimonia pubescens
- Scrophularia marilandica
- Verbena urticifolia
- Symphyotrichum lanceolatum
- Erigeron philadelphicus
- Lobelia siphlitica
- Prunella vulgaris var lanceolata
- Symphyotrichum lateriflorum
- Symphyotrichum cordifolium
- Ruellia strepens
- Phryma leptostachya
- Galium circaezans var hypomalacum
- Lycopus americanus
- Myosotis verna
- Galium triflorum
- Circaea canadensis
- Tradescantia subaspera
- Geum canadense
- Cryptotaenia canadensis
- Persicaria virginiana
- Verbesina alternifolia
- Lysimachia ciliata

Three Forks Preserve Native Sedges and Rushes



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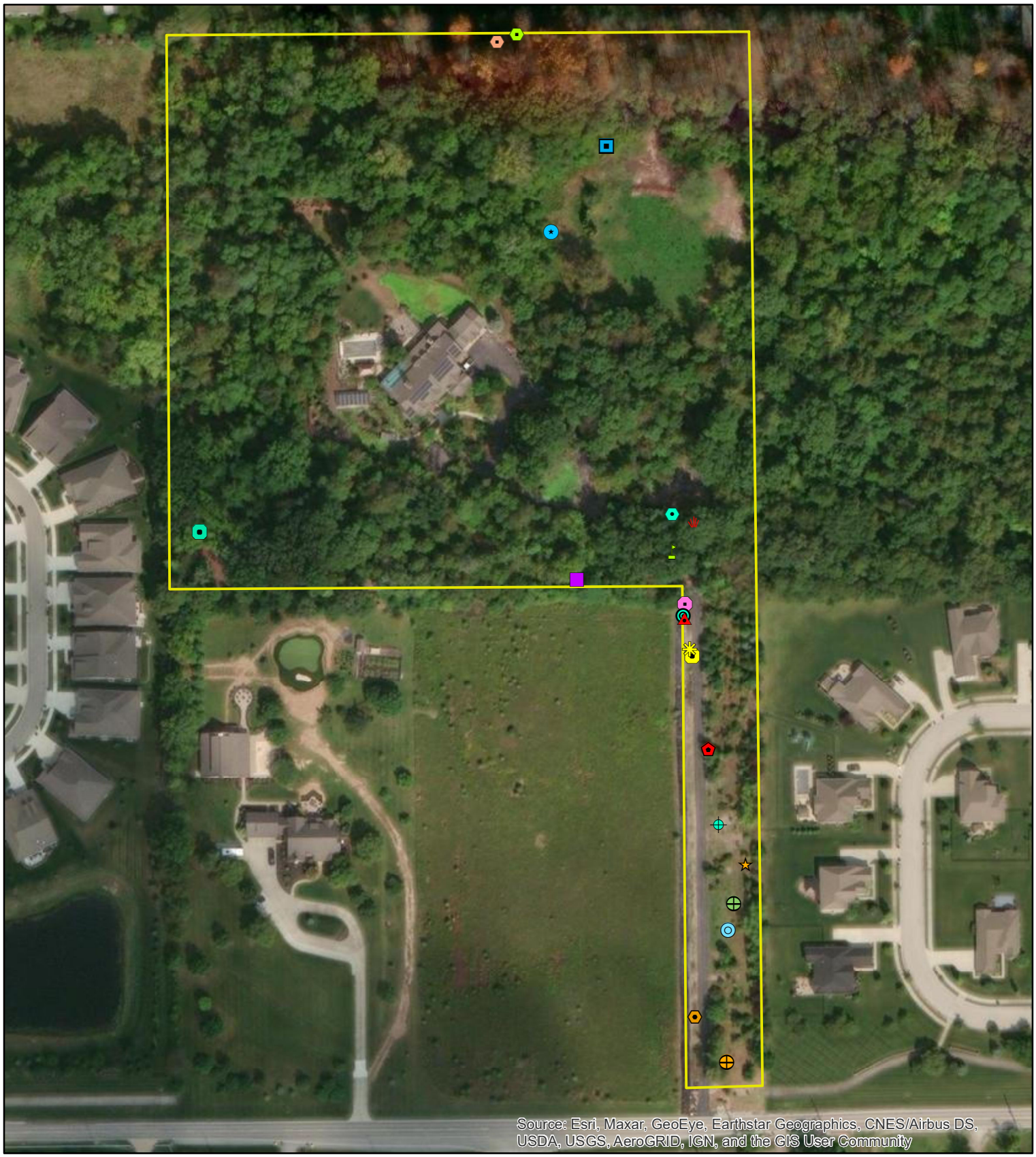
N

0 275 550 1,100 Feet

1 in = 208 feet

- Three Forks Property Boundaries
- Carex albursina
- Carex cristatella
- Carex vulpinoidea
- Carex copulata
- Carex rosea
- Juncus tenuis
- Carex normalis
- Carex granularis
- Carex aggregata
- Carex leavenworthii
- Carex shortiana
- Carex grayi
- Carex conjuncta
- Carex radiata
- Carex jamesii
- Carex grisea
- Carex davisii
- Carex tribuloides
- Carex amphibola

Three Forks Preserve Perennial Grasses



N

0 275 550 1,100 Feet

1 in = 208 feet

- Three Forks Property Boundaries
- Agrostis gigantea
- Elymus virginicus
- Muhlenbergia schreberi
- Dichanthelium huachucae
- Panicum virgatum
- Andropogon gerardii
- Bouteloua curtipendula
- Poa compressa
- Bouteloua dactyloides
- Festuca rubra
- Phalaris arundinacea
- Bromus inermis
- Agrostis hyemalis
- Leersia virginica
- Poa trivialis
- Poa sylvestris
- Cinna arundinacea
- Sphenopholis intermedia
- Glyceria striata
- Andropogon virginicus
- Schizachyrium scoparium

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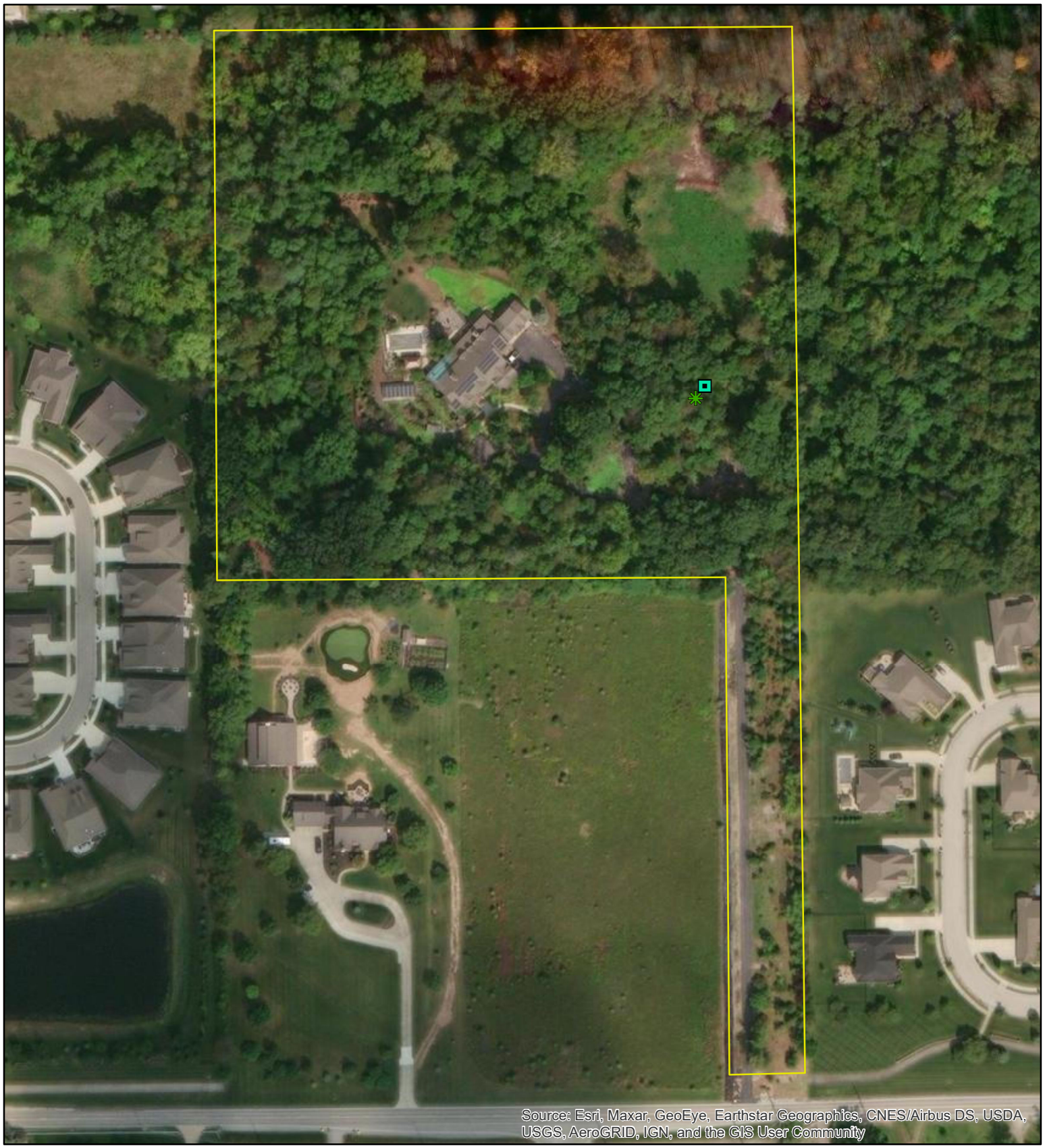
Three Forks Preserve Ferns



N

0 275 550 1,100 Feet

1 in = 208 feet

Property Boundaries

Cystopteris protrusa

Polystichum acrostichoides

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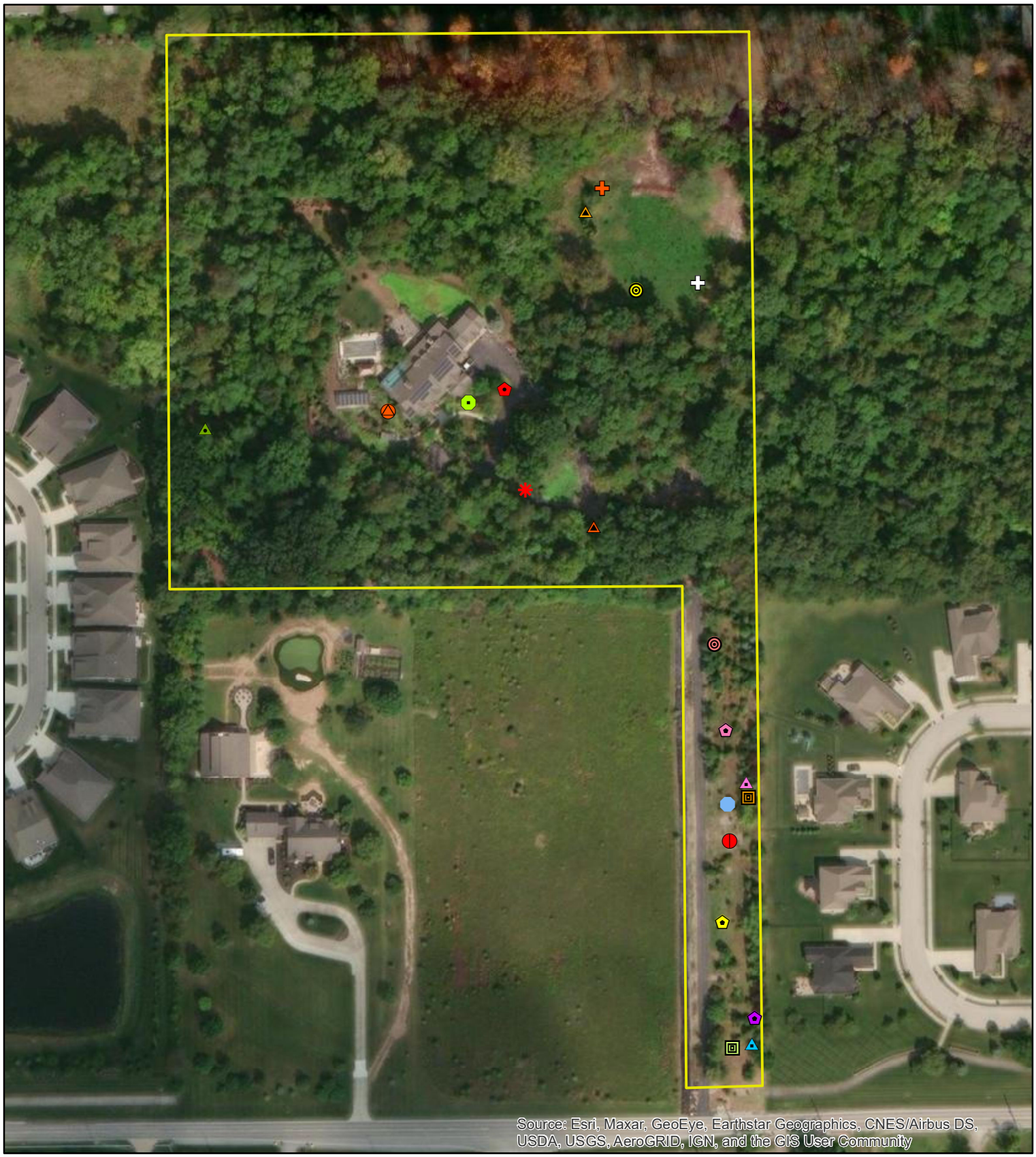
Three Forks Preserve Native and Non-native Planted Woody Species



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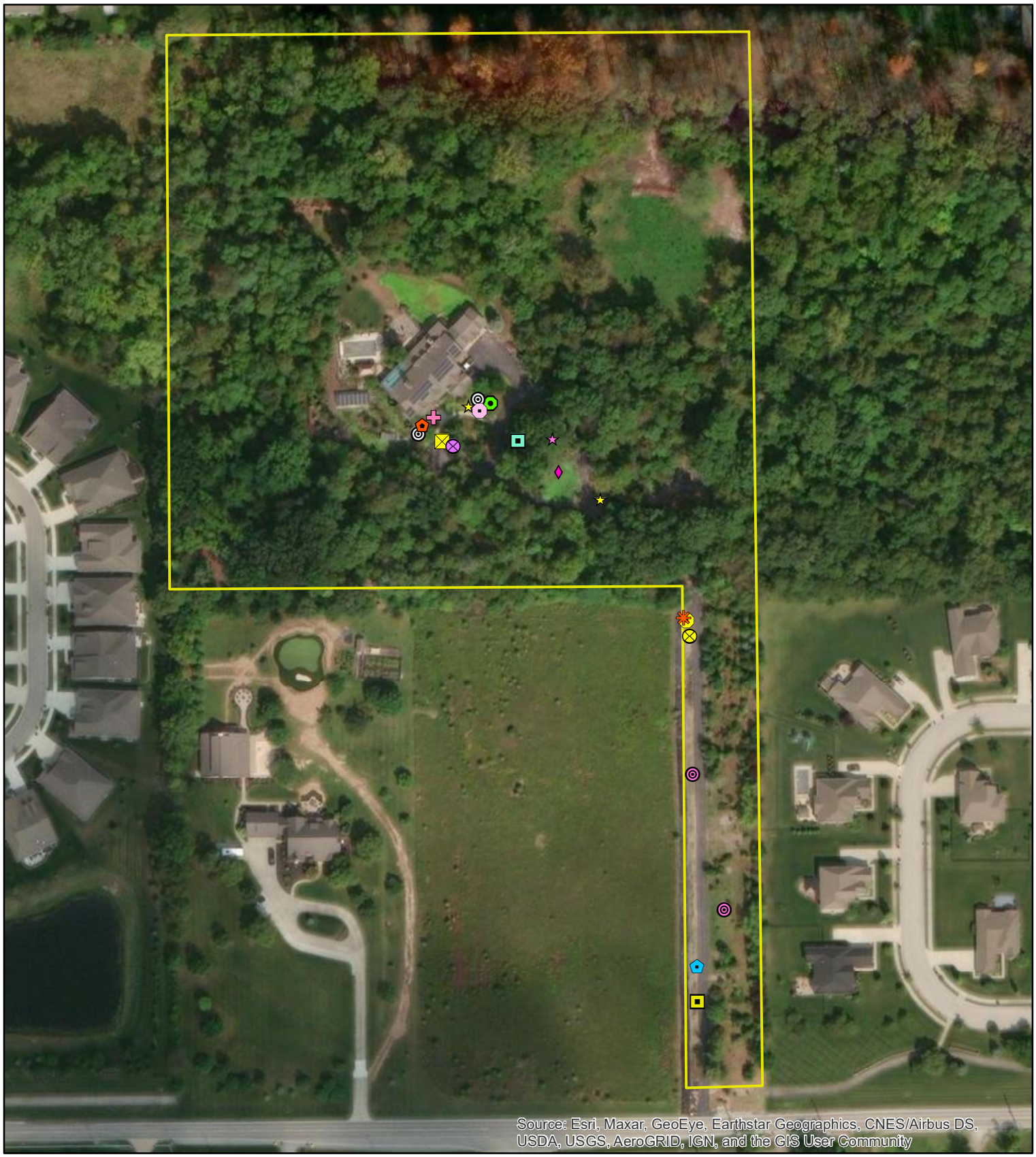
N

0 275 550 1,100 Feet

1 in = 208 feet

- Three Forks Property Boundaries
- Castanea spp
- Viburnum lentago
- Sassafras albidum
- Magnolia virginiana
- Thuja occidentalis
- Carya illinoinensis
- Quercus lyrata
- Populus tremuloides
- Quercus alba
- Betula nigra
- Abies balsamea
- Pinus strobus
- Prunus virginiana
- Cornus mas
- Acer rubrum
- Cornus sericea
- Cornus obliqua
- Diospyrus virginiana
- Picea abies
- Tsuga canadensis

Three Forks Preserve Native and Non-native Planted Perennials



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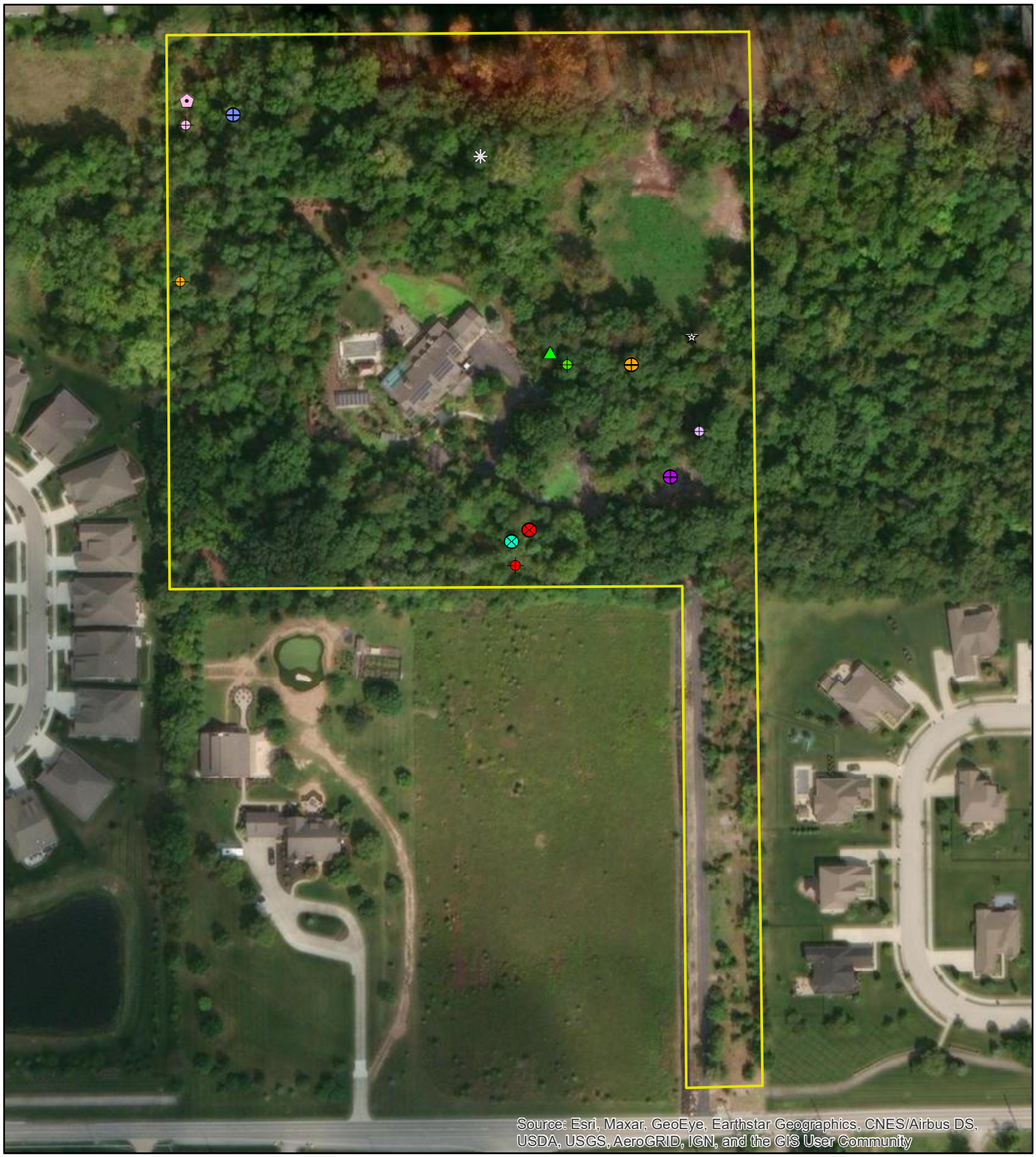
N

0 275 550 1,100 Feet

1 in = 208 feet

- Three Forks Property Boundaries
- Agastache foeniculum
- Ludwigia alternifolia
- Asclepias incarnata
- Desmanthus illinoense
- Gallardia pulchella
- Ligularia dentata
- Asclepias tuberosa
- Eupatorium perfoliatum
- Amsonia hubrichtii
- Physostegia virginiana
- Penstemon digitalis
- Coreopsis lanceolata
- Hosta ventricosa
- Echinaea purpurea
- Heliopsis helianthoides
- Monarda fistulosa
- Tradescantia ohiensis
- Rudbeckia hirta
- Dianthus barbatus
- Zizia aurea

Three Forks Preserve Invasive or Escaped Woody Plants



N

0 275 550 1,100 Feet

1 in = 208 feet

- Three Forks Property Boundaries
- Lonicera maackii
- Viburnum opulus
- Euonymus fortunei
- Hedera helix
- Ligustrum obtusifolium
- Lonicera X bella
- Catalpa speciosa
- Morus alba
- Ligustrum vulgare
- Rosa multiflora
- Lonicera morrowii
- Elaeagnus umbellata
- Pyrus calleryana
- Malus floribunda

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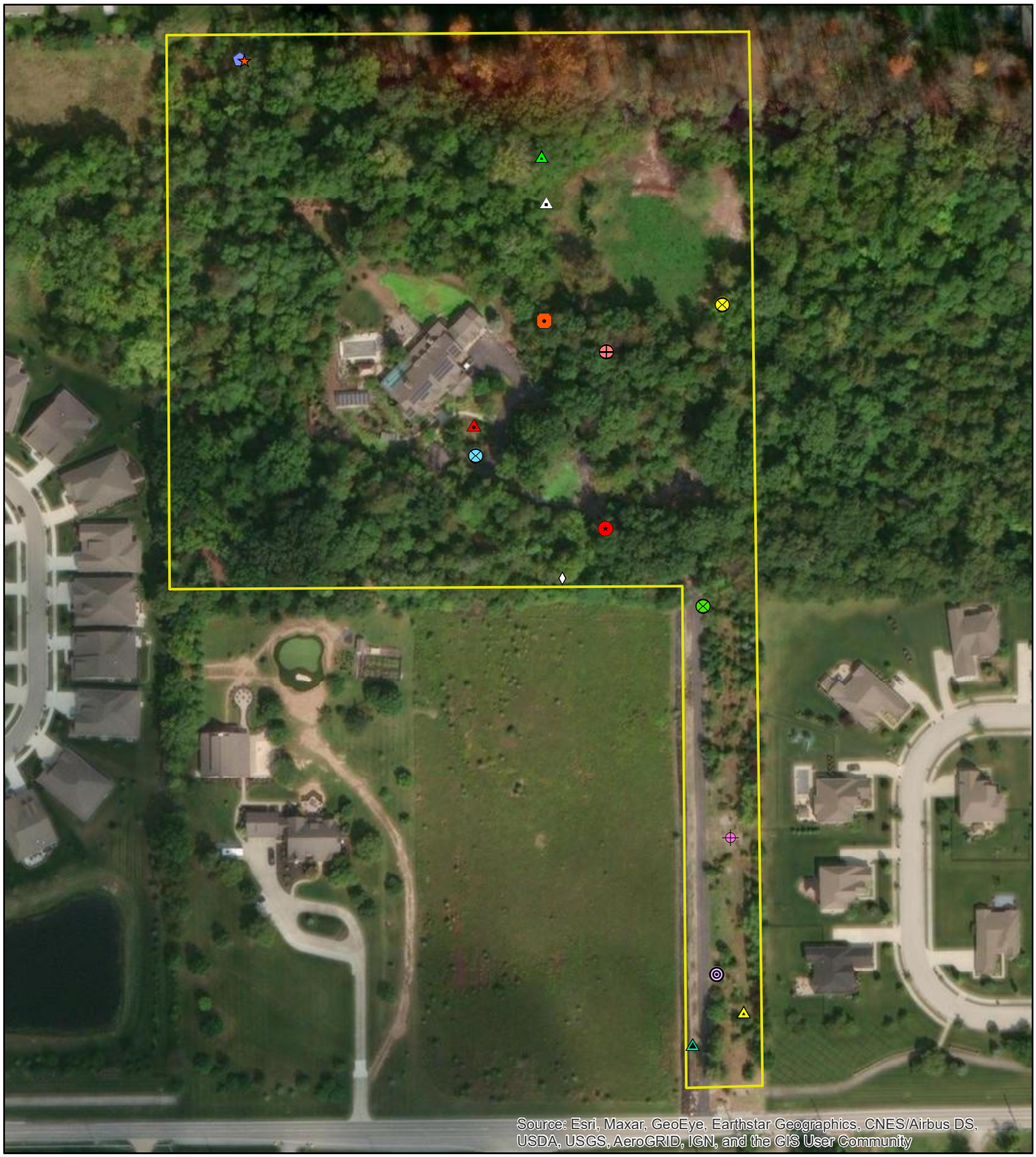
Three Forks Preserve Invasive Forbs and Weedy Ruderal Natives



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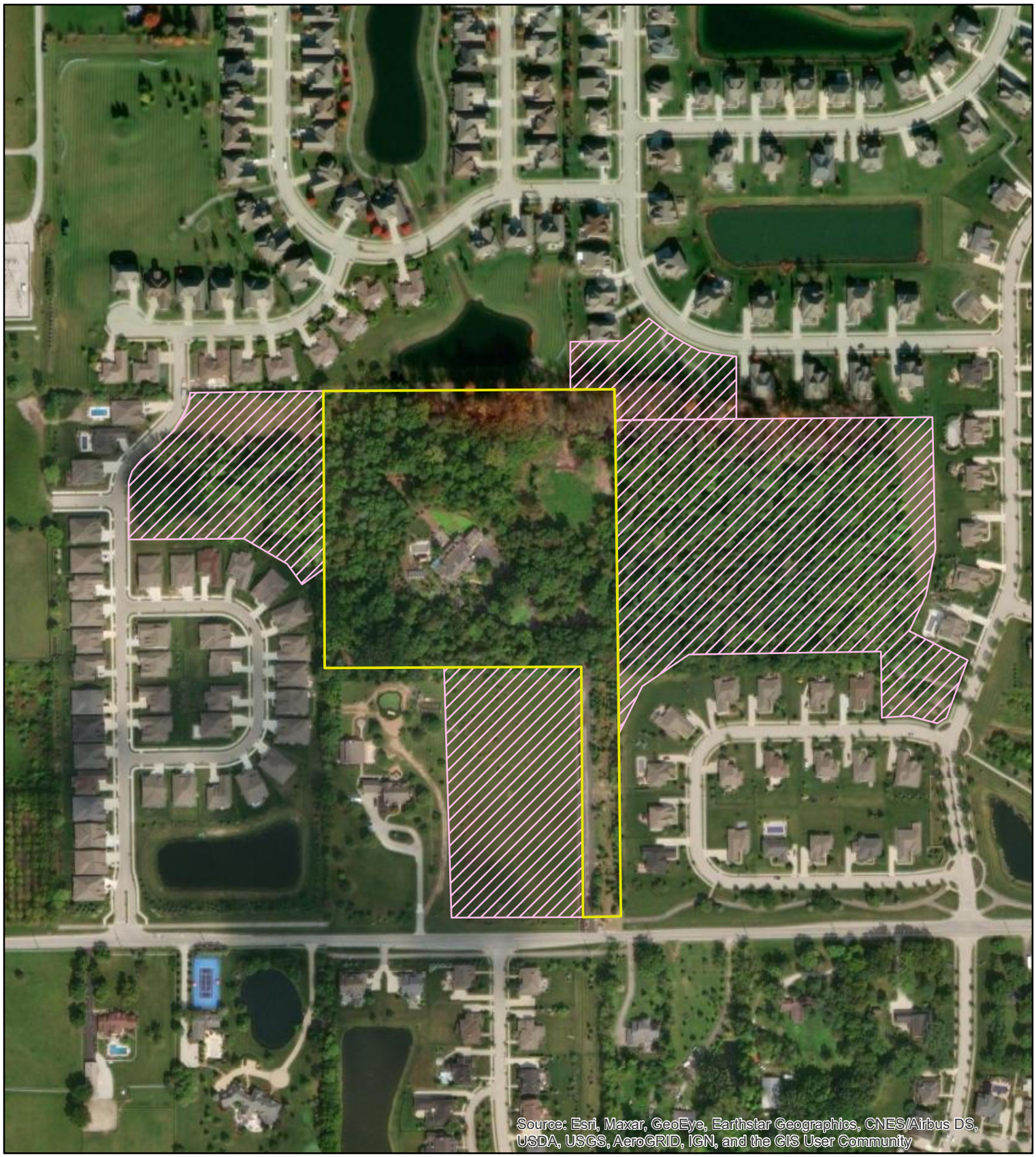
N

0 275 550 1,100 Feet

1 in = 208 feet

- Three Forks Property Boundaries
- Plantago rugelii
- Plantago lanceolata
- Cynanchum laeve
- Glechoma hederacea
- Trifolium repens
- Duchesnea indica
- Convallaria majalis
- Solidago altissima
- Ficaria verna
- Fragaria virginiana
- Geranium carolinianum
- Cirsium arvense
- Ornithogalum umbellatum
- Hemerocallis fulva
- Vinca minor
- Pachysandra terminalis

Three Forks Preserve Recommended Property Acquisitions



N

0 550 1,100 2,200 Feet

1 in = 417 feet

Three Forks Property Boundaries

Recommended Property Acquisitions

Eco Logic

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Appendix 3: Three Forks Preserve NRCS Custom Soil Report

United States Department of Agriculture

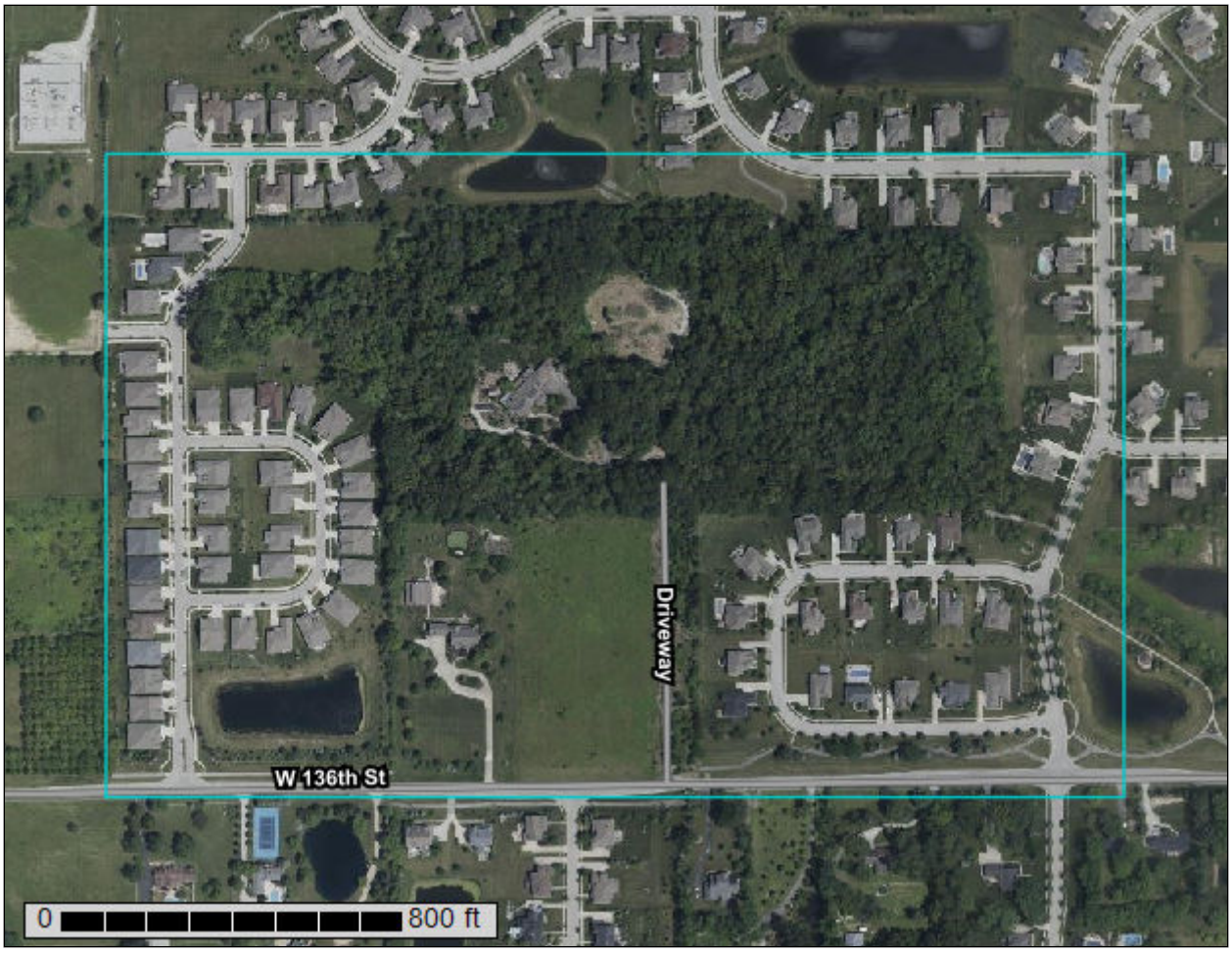
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Hamilton County, Indiana

Three Forks Preserve



December 8, 2025

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:4,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hamilton County, Indiana
Survey Area Data: Version 26, Sep 4, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2024—Jul 1, 2024

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Br	Brookston silty clay loam, 0 to 2 percent slopes	17.2	20.8%
CrA	Crosby silt loam, fine-loamy subsoil, 0 to 2 percent slopes	20.9	25.3%
YbvA	Brookston silty clay loam-Urban land complex, 0 to 2 percent slopes	23.6	28.5%
YclA	Crosby silt loam, fine-loamy subsoil-Urban land complex, 0 to 2 percent slopes	20.9	25.3%
Totals for Area of Interest		**82.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hamilton County, Indiana

Br—Brookston silty clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2t98n
Elevation: 600 to 1,260 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Brookston and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brookston

Setting

Landform: Till plains, depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Linear, concave
Across-slope shape: Concave
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 16 inches: silty clay loam
Btg1 - 16 to 32 inches: silty clay loam
Btg2 - 32 to 44 inches: loam
C - 44 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

Minor Components

Crosby

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

CrA—Crosby silt loam, fine-loamy subsoil, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2thy4
Elevation: 600 to 1,000 feet
Mean annual precipitation: 36 to 44 inches
Mean annual air temperature: 49 to 54 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Crosby and similar soils: 93 percent
Minor components: 7 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosby

Setting

Landform: Ground moraines, recessionial moraines, water-lain moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Silty material or loess over loamy till

Typical profile

Ap - 0 to 10 inches: silt loam
Btg - 10 to 17 inches: silty clay loam
2Bt - 17 to 29 inches: clay loam
2BCt - 29 to 36 inches: loam
2Cd - 36 to 79 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 24 to 40 inches to densic material
Drainage class: Somewhat poorly drained
Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 55 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

Minor Components

Williamstown, moderately eroded

Percent of map unit: 5 percent
Landform: Water-lain moraines, ground moraines, recessionial moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Treaty, drained

Percent of map unit: 2 percent
Landform: Depressions, water-lain moraines, swales
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

YbvA—Brookston silty clay loam-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w57n
Elevation: 600 to 1,260 feet
Mean annual precipitation: 37 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Brookston and similar soils: 65 percent
Urban land: 30 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brookston

Setting

Landform: Depressions, till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave, linear
Across-slope shape: Concave
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 16 inches: silty clay loam
Btg1 - 16 to 32 inches: silty clay loam
Btg2 - 32 to 44 inches: loam
C - 44 to 60 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D
Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

Minor Components

Crosby

Percent of map unit: 5 percent
Landform: Till plains
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

YclA—Crosby silt loam, fine-loamy subsoil-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w57p
Elevation: 600 to 1,040 feet
Mean annual precipitation: 36 to 46 inches
Mean annual air temperature: 48 to 55 degrees F
Frost-free period: 145 to 180 days
Farmland classification: Not prime farmland

Map Unit Composition

Crosby and similar soils: 60 percent
Urban land: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosby

Setting

Landform: Ground moraines, recessionial moraines, water-lain moraines
Landform position (two-dimensional): Summit, backslope, footslope
Landform position (three-dimensional): Interfluve, rise
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Silty material or loess over loamy till

Typical profile

Ap - 0 to 10 inches: silt loam
Btg - 10 to 17 inches: silty clay loam
2Bt - 17 to 29 inches: clay loam
2BCt - 29 to 36 inches: loam
2Cd - 36 to 79 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 24 to 40 inches to densic material
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately high (0.01 to 0.20 in/hr)
Depth to water table: About 6 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 55 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F111XA008IN - Wet Till Ridge
Hydric soil rating: No

Minor Components

Williamstown, eroded

Percent of map unit: 5 percent
Landform: Water-lain moraines, ground moraines, recessionial moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Ecological site: F111XA009IN - Till Ridge
Hydric soil rating: No

Treaty, drained

Percent of map unit: 5 percent
Landform: Depressions, water-lain moraines, swales
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope, dip
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: F111XA007IN - Till Depression Flatwood
Hydric soil rating: Yes

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