



Marshall County Parks & Recreation Natural Features Inventory Report

The Trails at Mill Pond
Marshall County Memorial Forest
Marshall County, Indiana 238101076

January 30, 2023



now



1 Project Overview

Marshall County Parks and Recreation Board (MCPRB)
Natural Features Inventory; Mill Pond and Memorial Forest

Table 1-1 Contact Information

MCPRB Contact	Consultant / Agent
Adam Thada	Crystal Renskers
18542 14 th Rd.	3901 Industrial Boulevard
Culver, Indiana, 46511	Indianapolis, Indiana 46254
MCPRB	Cardno now Stantec
616-730-1580	317-981-4991

Cardno now Stantec (Stantec) conducted surveys to assess and map natural features within both of the Marshall County Parks and Recreation (MCPR) properties, The Trails at Mill Pond (Mill Pond) and the Marshall County Memorial Forest (Memorial Forest), in Marshall County, Indiana. The goal of the surveys and assessments are to inform stewardship of the properties and potential future plans toward the overall mission to “preserve, protect, and steward the County’s natural, cultural, and recreational resources.”

The Mill Pond property is approximately 35 acres of mixed plant communities consisting primarily of mesic upland forest, emergent marsh/wetland, and floodplain forest. Central to the site is a Right of Way (ROW) of which ongoing maintenance has influenced a shrubby fen environment. The Memorial Forest site is approximately 75 acres and is a mixture of mesic flatwoods, sedge meadow, a freshwater pond, large areas of row-planted conifers, and an area of upland mesic sand prairie with the ROW. Both sites are mixed recreational use with walking/hiking trails, dirt bike trails, and horse trails.

Ecologists Adam Balzer and Matt Harmon performed the surveys at the Mill Pond and Marshall County Memorial Forest properties three times throughout the Spring, Summer, and early Fall of 2022. Each visit consisted of two days of meander surveys of each property in their entirety. Visits throughout the growing season assisted in increasing the probability of detection for all species and provided opportunities to see habitats throughout seasonal plant growth stages. A comprehensive assessment of invasive species populations was performed at each visit. Invasive plant communities were assessed and graded on a scale of 1 to 3 (1 being low risk and 3 being high risk), based on severity of infestation, threat to surrounding natural ecosystems and to overall management goals. Additionally, a similar assessment of plant communities was performed and mapped and graded on a scale of 1 to 5 (1 being lowest quality and 5 being highest quality, ecologically). Representative site photographs were taken throughout the year to document site conditions and features.

The three comprehensive surveys were performed on the following dates:

- May 11 and 20, 2022
- June 6 and 7, 2022
- September 15 and 16, 2022

2 Plant Communities

Mill Pond Plant Communities:

Overview – Mill Pond

The Mill Pond property is approximately 35 acres of mixed plant communities consisting primarily of mesic upland forest, emergent marsh/wetland, and floodplain forest. The site is adjacent to Zehner Mill pond, a feature that enhances the overall diversity of the site with emergent wetlands along the lake edges. The Mill Pond has a dam structure on the Northwest section, off the MCPR property, which connects it to Lake Latonka.

The perimeter of Zehner Mill Pond within the MCPR Mill Pond site is primarily emergent wetland, and in one small area, fen. The fen, located at the base of the open maintained turf grass and parking area within the ROW, is a site of particular interest. Within this area, floating peat and moss flats have formed over time and have created conditions in which native orchids (*Platanthera* spp.), sedges (*Carex* spp.), poison sumac (*Toxicodendron radicans*), and buttonbush (*Cephalanthus occidentalis*) have thrived. The canopy remains clear and open due to the maintenance of the ROW, allowing for the fen to remain open to sunlight, which in turn allows the low growing poison sumac and buttonbush to thrive. Sometime shortly before the fall visit in mid-September, the poison sumac was heavily sprayed with an herbicide application, killing back much of the woody vegetation (poison sumac and buttonbush) within that area of the ROW.

Much of the Mill Pond site is low lying, consisting mostly of mesic floodplain woodlands and emergent wetlands. A small portion of the site on the Western edge consists of planted rows of conifer trees, including eastern white pine (*Pinus strobus*) and red pine (*Pinus resinosa*). Within these row-planted areas, upland invasive plants have begun to establish, including Asian bittersweet (*Celastrus orbiculatus*) and bush honeysuckle (*Lonicera* spp.). The lower lying areas with mesic designation play a vital role in amphibian reproduction within the property. These ephemeral (seasonal) wetlands and floodplains serve as nurseries to breeding populations of salamanders and frogs, including red-backed salamanders (*Plethodon cinereus*), gray treefrogs (*Hyla chrysoscelis*), spring peepers (*Pseudacris crucifer*), and green frogs (*Rana clamitans*), as noted in Table D-3 of this report.

Dominant Plants – Mill Pond

Plant dominance was determined by visual estimation of quantity and quality of plant species within each site and plant community. Typical of bottomland floodplain forests, the Mill Pond site includes a range of deciduous tree communities with overstory dominants that include mature maples (*Acer* spp.) and oaks (*Quercus* spp.). In upland portions of the site not dominated by conifer species, spicebush (*Lindera benzoin*) dominates the shrub layer where the diverse mixture of newer growth upland and lowland hardwoods have not yet closed the canopy, an indication of historical logging activities. In the Spring, the woodland floors, open to sunlight, are host to a myriad of Spring ephemeral plants and flowers; jack-in-the-pulpit (*Arisaema triphyllum*), may apple (*Podophyllum peltatum*), red trillium (*Trillium recurvatum*), skunk cabbage (*Symplocarpus foetidus*), and wild leeks (*Allium tricoccum*) all thrive within the damp bottomland soils. As you emerge from the floodplain forests within the site, emergent wetlands dominate the landscape along the edge of Zehner Mill Pond. Sedges and spike rushes (*Eleocharis* spp.) dominate along with populations of the highly invasive purple loosestrife (*Lythrum salicaria*).

Qualitative Assessment – Mill Pond

During each survey at the site, a grade of 1 to 5 was given to each plant community and subsequently averaged to produce the final grade. An additional grade was established, which was grade 0 (Figures 7). Areas with a grade of 0 are areas that are not plant communities, rather, are maintained turf grass areas or parking areas. A plant community with a grade 1 is a community of plants lacking overall diversity and generally dominated by plants (dominance determined by visual estimation) with lower conservation values, or “C-value,” as noted in Appendix A-1. An area with a grade of 5, the highest grade given to a plant community in this qualitative assessment, is a plant community rich in overall diversity of species and higher overall C-value of dominant species, as determined by visual estimation. On Figure 7, each plant community is mapped and color-coded according to its score on the scale.

The Mill Pond site plant communities are graded primarily in the mid-to-low quality range of grades 2 to 3. Much of the upland areas (areas not considered wetland or floodplain) fall within grade 2, meaning, these areas were observed as having often open or somewhat open canopy, likely due to lingering impacts of the emerald ash borer beetle (*Agrilus planipennis*) on mature ash trees, as well as historical logging activities and generally lack diversity of plants. These areas are now dominated primarily by spicebush (*Lindera benzoin*) and other mid-to-low quality understory shrubs. Central to the site in the mesic upland forest community, larger populations of invasive bush honeysuckle (Figure 10) occur, and therefore, bring the overall grade for the area down. Along the edge of the Zehner Mill pond, the emergent marsh plant community is highest quality, however direct and immediate threats to this area include small unmapped populations of individual purple loosestrife plants. These are unmapped as they are individual plants or pockets, not large enough to be populations, but do pose an ecological threat to the high-quality lake edge if left untreated. This area of the Mill Pond site hosts some of the highest plant diversity between the Mill Pond and Memorial Forest sites, including the populations of state threatened log sedge (*Carex decomposita*).



green twayblade orchid (*Liparis loeselii*)

Overall, the Mill Pond site is providing larger functionality/benefit through plant community diversity and interplay with surrounding land uses and is considered mid-to-high quality. Much of the site serves as an important overflow during flood periods for Zehner Mill Pond and according to the National Wetlands Inventory (NWI), roughly 50% of the site is considered wetlands by United States Geological Survey (USGS) standards (Figure 5). NWI's are subject to ground confirmation, often through official wetland delineations. Even though an official delineation of wetlands was not performed, the efforts made in mapping plant communities within the two sites, along with field observations, line up closely with the maps of the USGS NWI's. Wetlands are cornerstone ecosystems that often harbor diverse plants and animals and play a critical role in absorbing pollutants as sediment traps for runoff. Most importantly, wetlands sequester carbon by holding it within living vegetation as well as in peat, leaf litter, and sediments that have built up over hundreds and even thousands of years. Much of the mature hardwood canopy tree species within the Mill Pond site, such as American sycamore (*Platanus occidentalis*), maples (*Acer* spp.), American beech (*Fagus grandifolia*), and oaks (*Quercus* spp.), are untouched by previous logging practices which promotes a richer understory environment for plants to thrive in and diversify over time.

Memorial Forest Plant Communities:

Overview – Memorial Forest

The Memorial Forest site is approximately 75 acres and is a mixture of mesic flatwoods, sedge meadow surrounding a freshwater pond, and large areas of row-planted conifers. Central to this site is another maintained ROW in which the primary substrate is sand, creating an upland mesic sand prairie. A freshwater pond on the Eastern edge of the site takes on run-off from an agricultural field Northwest of the site and features an outflow structure often dammed by the beaver population within this freshwater pond. Due to the proximity to an agricultural field, nutrients within the pond may at times be unbalanced, potentially impacting the diversity of plants within the surround sedge meadow. The Western half of the site was reforested in the mid-to-late 1940's, while the Eastern portion of the site has been historically untouched and consists of remnant mesic flatwoods, mesic upland forest, and sedge meadow (Figure 8).

The western portion of this site is dominated by a variety of conifers, having been historically part of the planted memorial forest. Some areas have oak regeneration to a limited extent. Some of these areas are contained within what is historically referred to as "sand blow holes" from early drawings of the site (Figure 5-52). These appear to be areas that became concave within the landscape as a result of the wind historically moving sand prior to the reforestation efforts. The majority of the site has been logged up until recent decades, but it seems that these low-lying areas were forgotten at some point, in favor of logging the flat ground. With that said, the small population of the state endangered plant, pipsissewa (*Chimaphila umbellata*), was located within these small pockets less impacted by logging practices in previous decades.

Separating the Western and Eastern halves of the property is upland mesic sand prairie, a window into what the conifer plantation portions of the site looked like at the time of reforestation in the 1940's according to the 2004 "Antiquarian & Historical Society" Winter newsletter featuring an article/drawing originally created by Robert Kyle and re-printed in the 2004 newsletter (Figure 5-52). The sandy prairie features species not found anywhere else in the site, including the unique clasping milkweed (*Asclepias amplexicaulis*) shown in Figure 5-46.

Dominant Plants – Memorial Forest

Just as was protocol in the Mill Pond site, plant dominance was determined at the Memorial Forest site by visual estimation of quantity and quality of plant species within each site and plant community. In the Western portion of the site, various mature conifers dominate the landscape, including red pine and eastern white pine with club mosses such as ground pine (*Dendrolycopodium obscurum*) and trailing ground pine (*Diphasiastrum digitatum*) covering much of the woodland floor. Within the Southwest portion of the site, while still part of the conifer plantation, less disturbance has occurred over the years. The concave and hilly features to the area have promoted a build-up of soil structure from that lack of disturbance, making it possible for woodland plants like Pennsylvania sedge (*Carex pensylvanica*), purple-sheathed graceful sedge (*Carex gracillima*), may apple, and pipsissewa to increase in dominance along the woodlands floor.

Within the mesic flatwoods of the site (Figure 8), the canopy is made up of mature hickories (*Carya* spp.), swamp white oak (*Quercus bicolor*), silver maple (*Acer saccharinum*), American beech (*Fagus grandifolia*), black gum (*Nyssa sylvatica*), and tulip poplar (*Liriodendron tulipifera*). Woodland sedges (*Carex* spp.), blueberry shrubs (*Vaccinium* spp.), regal fern (*Osmunda regalis*), sensitive fern (*Onoclea sensibilis*), and cinnamon fern (*Osmundastrum cinnamomeum*) are abundant and dominate the seasonally wet flatwoods habitat as seen in photo stations 5, 6, and 8. (Figures 5-28 through 35 and 5-40 through 43). These mesic flatwoods, like the emergent wetlands of the Mill Pond site, when inundated with water, serve as seasonal breeding pools for amphibians. In addition to amphibians, eastern box turtles (*Terrapine carolina*), a species of special concern in Indiana, are abundant within these areas of the site (Figures 5-50 and 5-51).

The sedge meadow surrounding the freshwater pond (Figure 8) on the Eastern side of the site consists of dense buttonbush along the edges along with swamp loosestrife (*Decodon verticillatus*) and poison sumac. The seasonally wet sedge meadow (Figures 5-36 through 5-39) plant community changes abruptly to wetland sedges (*Carex* spp.), blunt spike rush (*Eleocharis obtusa*), great spike rush (*Eleocharis palustris*), and three-way sedge

(*Dulichium arundinaceum*). However, purple loosestrife is abundant, and currently out-competing other native plants that typically make-up a more ecologically diverse sedge meadow.

The ROW categorized as upland mesic sand prairie, which roughly splits the site in half, features an abundance of little blue stem grass (*Schizachyrium scoparium*) as well as sand St. John's wort (*Hypericum majus*), clasp milkweed, and starved witch grass (*Dichanthelium depauperatum*). On the Northern-most edge of the ROW within the property, the sand abruptly shifts into a wetland (Figures 5-24 through 5-27) at the base of the hill that features lance-leaved violet (*Viola lanceolata*), various panic grasses (*Panicum* spp.), and deer-tongue grass (*Dichanthelium clandestinum*). Found within this small wetland was also a ribbon snake (*Thamnophis saurita*) (Figure 5-48).

Qualitative Assessment – Memorial Forest

During each surveying visit to the site, a grade of 1 to 5 was given to each plant community and subsequently averaged to produce the final grade. An additional grade was established, which was grade 0 (Figure 8). Areas with a grade of 0 are areas that are not plant communities, rather, are maintained turf grass areas or parking areas. A plant community with a grade of one is a community of plants lacking overall diversity and generally dominated by plants (dominance determined by visual estimation) with lower conservation values, or "C-value," as noted in Appendix A-6. An area with a grade of 5, the highest grade given to a plant community in this qualitative assessment, is a plant community rich in overall diversity of species and higher overall C-value of dominant species, as determined by visual estimation. On Figure 8, each plant community is mapped and color-coded according to its grade on the scale.



The mesic flatwoods within the site are considered remnant, as they are mostly untouched by historical logging and agriculture. This is likely due to the fact that the area is primarily wetlands, according to the USGS wetlands inventory (Figure 6) with permanent to seasonal fluctuations of water levels. The area is rich with ferns and sedges along the woodland floors with the protection of the mature growth of an array of hardwoods in the canopy.



ground pine (*Dendrolycopodium obscurum*)

Overall, the Memorial Forest site is mid-to-high quality in remnant areas. Within the mesic flatwoods of the site, the variety of mature hardwood trees have restricted the spread of many invasive plants, therefore the area is categorized as a grade 4. However, much of the remainder of the property is considered low quality (grades 3 and below), likely due to areas of open canopy which often allows for populations of invasive plants to establish. In the case of the sedge meadow, an extensive monoculture of the invasive purple loosestrife has impacted the score of the area to grade 1. Without immediate action within the sedge meadow plant community, the quality of the area will only continue to degrade and potentially spread invasive plants to other areas of the site.

Table 2.1: Indiana State Listed Species¹

<p><i>Carex decomposita</i> (Location: Figure 5-9) Broad-leaved panicked sedge, log sedge Photo: Figure 5-44</p>	<p>State Threatened</p>
<p>Community Description: Growing within established sections of Mill Pond's shallow lake edge. The established areas consist of larger hummocks where this species grows. It was only found in areas with a shrub canopy cover on the top third of the hummocks. The shrubs were mostly poison sumac and swamp rose (<i>Rosa palustris</i>), and buttonbush to a lesser extent which generally provided 20-50% canopy cover. In addition to being located in these areas, this species seems to grow only on certain hummocks limiting its extent within the area even further.</p>	
<p>Direct Threats:</p> <ul style="list-style-type: none"> • The lake level is controlled by a single outflow structure to Lake Latonka. This outflow structure is at a fixed level by poured concrete. It is small in size and any prolonged blockage causing lake levels to rise could affect this population. • Purple loosestrife is abundant along the entirety of the lake edge and located near this species. Overabundance could outcompete this species, as well as poorly applied herbicide if management begins at this location. • A number of the documented plants are directly adjacent to active beaver runs. In many cases if the beaver widened their run for any reason, it would directly impact this species. The only spot this does not apply is within the fen at the base of the parking area under the ROW. 	
 <p>Log sedge (<i>Carex decomposita</i>)</p>	
<p><i>Chimaphila umbellata</i> (Location: Undisclosed) Pipsissewa, umbellate wintergreen Photo: Figure 5-47</p>	<p>State Endangered</p>
<p>Community Description: The tree canopy in this area of Memorial Forest is dense (85-90% cover) and predominantly oaks with minimal shrub understory. The herbaceous understory is fairly limited to scattered sedges and grasses with dense leaf litter. This species is growing under a single highbush blueberry (<i>Vaccinium corymbosum</i>) with a barrier of fallen trees and branches, presumably limiting the herbivory of this species. No other locations for this species have been found within the same site despite the efforts to find more.</p>	
<p>Direct Threats:</p> <ul style="list-style-type: none"> • Herbivory may be a threat to this species. • A lack of site management may lead to the area being overrun with the extensive honeysuckle nearby. The dense canopy may be limiting the spread of this honeysuckle into this particular area, but a decrease in canopy cover could change that. • Poor management methods could also lead to a decline (e.g., prescribed burn without reducing the leaf litter around this species would likely lead to a hotter burn risking the recovery post-burn). 	
 <p><i>Chimaphila umbellata</i> in bloom</p>	

¹ Indiana Department of Natural Resources. *Indiana County Endangered, Threatened and Rare Species List*. PDF File. January 13, 2023.
<https://www.in.gov/dnr/nature-preserves/files/np-Indiana-County-Endangered-Threatened-Rare-Species-List.pdf>

3 Invasive Species

Overview:

According to the USGS², an invasive species is an introduced, non-native organism (disease, parasite, plant, or animal) that begins to spread or expand its range from the site of its original introduction and that has the potential to cause harm to the environment, the economy, or to human health. Throughout the surveys, various populations of invasive plants were located and mapped, as shown in Figures 10 and 11.

Populations of bush honeysuckle, purple loosestrife, Asian bittersweet, common reed (*Phragmites australis*), and tree-of-heaven (*Ailanthus altissima*) were noted throughout the two properties. Of these five most dominant invasive plant species, bush honeysuckle and purple loosestrife pose the greatest risks to management goals and natural ecosystems of the two sites due to population sizes and proximity to at-risk plant communities.

Invasive Species Populations Discussion/Qualitative Assessment:

Mill Pond – Invasive Species Assessment

The Mill Pond site has less threat of invasive plants than the Memorial Forest site, however, the invasives present potentially threaten the success and diversity of the lake edge in particular. Individual plants of purple loosestrife are making their way into the areas along the northern boundary of the site where the log sedge populations are primarily found. Special care must be taken when treating this area, as overspray or inaccurate application of herbicide may impact the state threatened sedges as well as water quality along the lake edge. Actions should be taken to treat purple loosestrife along the lake edge and within the fen community central to the site.

Within the upland woodlands of the Mill Pond site, populations of woody invasives like Asian bittersweet and bush honeysuckle can be found. Most populations, as noted on Figure 11, are low threat; graded at grade 1 for most of the honeysuckle populations and grade 2 for the small area of bittersweet in the northwest corner of the site. These areas have a scattered range of mature shrubs to seedling plants which requires less intensive labor and herbicide application for reduction and removal. As is the trend with both sites, the road edges pose a threat of invasive species spread, as noted on Figure 10, along the Western boundary where a population of bush honeysuckle has been noted and graded at level 3, the highest risk level. This area is denser than any other population within the site and poses a greater threat to the neighboring woodlands as the canopy ages and degrades over time. A single tree-of-heaven was also noted at the site and should be removed to prevent further spread of this species.

The Mill Pond site's immediate threats in terms of invasive plant dispersal are primarily within roadside edges where roadside maintenance and activity has created ideal upland conditions for bush honeysuckle and Asian bittersweet to thrive. Regular monitoring should be performed along the lake edge and within the fen community to ensure purple loosestrife does not outcompete native vegetation.

Memorial Forest - Invasive Species Assessment

The Memorial Forest site consists largely of remnant mesic flatwoods that are generally free of large sections of invasive plants. However, within the reforested conifer plantation on the Western side of the ROW, bush honeysuckle thrives in areas where the canopy has degraded below roughly 40% cover and sunlight is able to reach the woodland floor. Additionally, a large tree-of-heaven was noted (Figure 11). If left untreated, this species will proliferate within those open portions of canopy, much like bush honeysuckle.

A small population of common reed is found West of the Northern boundary of the sedge meadows where the canopy is open (roughly 60% canopy cover) and the soils are often saturated. Treatment of this area will lower the

² "What is an invasive species and why are they a problem?" USGS, 10 January 2023, <https://www.usgs.gov/faqs/what-invasive-species-and-why-are-they-problem>.

risk that this highly invasive species in wetland environments does not establish within the neighboring sedge meadow community. Further discussion of management can be found in section 4 of this report.

The sedge meadow on the Eastern side of the Mill Pond site has potential to be some of the most diverse habitat within either site, however, this area is dominated by purple loosestrife and will require extensive remediation of a period of 5 years or more. This area also hosts a population of bush honeysuckle, and likely other individual small populations of other invasive plants, on the top of what appears to be a spoils pile of a previous dredge in this area of the freshwater pond. This hill, noted on Figure 11, is graded at a level 3 and is roughly 0.73 acres. Other areas of bush honeysuckle are less dense with fewer mature shrubs; however, seedling shrubs should be treated to prevent further spread.

The Memorial Forest site's immediate threats in terms of invasive plant dispersal are primarily within the reforested plant community on the Western edge of the property, along the perimeter of the property where roadside maintenance and activity has promoted invasive plants to establish, and within the sedge meadows where purple loosestrife is dominating.

4 Management Recommendations/Conclusions

Mill Pond Recommendations:

The lake edge and emergent wetlands harbor much of the diversity within the Mill Pond site. Most notably, the log sedge previously covered within this report is believed to be an entirely new population and likely the northern-most population recorded at this time in North America, as stated by the Indiana State Botanist. Direct threats include competition by invasive purple loosestrife, sustained periods of high water levels, and beaver activity. Eliminating beavers from the area is not reasonable, therefore, monitoring the flow of the dam to Lake Latonka and Mill Pond for blockages caused by beaver is more realistic. Limiting human activity along the lake edge with “no boating” signs and clearly marked walking/biking trails should aid in overall negative impact on this specific species. Application of herbicide to the emerging purple loosestrife along the entire lake edge within the MCPR Mill Pond property is strongly encouraged. However, herbicide applicators skilled in limiting negative impact to surrounding plants/water bodies (i.e., hand wicked herbicide application method versus broadly spraying plants) is strongly encouraged in order to lessen any unintended impacts of herbicide use. Very little success has been documented through other control methods of purple loosestrife, and therefore, use of herbicide is seen as “best practice” for a successful reduction of this invasive plant. Peak control time for purple loosestrife is before flower, in mid-to-late June. Multiple application visits recommended.

With the overall composition of the Mill Pond site listed as some form of wetland, herbicide application of any sort should be monitored, and only skilled licensed applicators should be utilized to avoid potential harmful impacts on the amphibians documented within the floodplains and vernal breeding pools. Invasive woody species (generally plant species with bark), occur all around the upland areas of this site, specifically within the mesic upland forests and the planted conifer areas. In the winter dormancy months (November through January), invasive shrubs and vines (bush honeysuckle and Asian bittersweet) should be cut back to roughly two inches from the base and a topical herbicide treatment applied to the cambium of the stump within 20 minutes of cut. In the spring and early summer, a team should follow-up with two to three foliar herbicide application treatments of resprouts for any shrubs or vines not killed by the initial cut/stump treatment. This foliar treatment should be performed for at least the next three to five years to ensure success, with annual maintenance to be performed for an indefinite number of years.

If expansion of bike trails or walking/hiking trails is intended for this site, regular upkeep of trail surfaces is recommended to lower the risk of invasive plant growth within the disturbed soils of the paths. Continuously changing trails will impact the long-term health of the natural layering of decomposition within the soils and opens opportunities for non-native plants to germinate on bare, disturbed soils. If expansion of trails is to occur, it is suggested that trails remain on higher ground within the noted upland areas of the site (Figure 7) so as to lower potential for impact on breeding amphibians and shore birds within the low-lying floodplains and lake edge. A preliminary survey of plant life within proposed new trail routes is also highly encouraged.

Memorial Forest Recommendations:

The Memorial Forest site has a very distinct separation of high quality and low quality habitat, delineated by the ROW that features the upland mesic sand prairie. West of the ROW, the reforested conifer plantation community boasts less diversity than anywhere else in this report. However, in a few Southern portions of this community, some natural soil regeneration has occurred, and therefore woodland sedges, ferns, and the Indiana State Endangered pipsissewa plant has been able to naturally re-establish over a period of multiple decades. Further disturbance, such as additional trails within these rebounding natural areas, would likely cause further degradation of the recovering plant communities. If plans for additional recreational uses of the site are proposed, a study of the individual proposed areas is recommended to decrease potential negative impact on sensitive plants and animals. To further decrease negative impact, invasive species control should be performed by canvassing areas on foot and eliminating individual plants by foliar herbicide application. For woody invasive species, such as bush honeysuckle, the cut/stump treatment method should be utilized for removal in order to decrease unintended consequences of increased human activity within the areas of regenerating soils.

The sedge meadows have some of the highest potential for species diversity within this site. The high density of purple loosestrife within this area must be addressed in order to protect existing native flora and fauna and create opportunity for increased ecological diversity including improved habitat for migratory wading and songbirds. Purple loosestrife is a resilient wetland plant that will require regular treatments for 3-5 years in order to eliminate resprouts from the seedbank within the soils. An aggressive application of herbicide by way of Marshmaster equipment in the late spring to early summer for the first one to two years is recommended to reduce overall coverage of purple loosestrife within the sedge meadows. Once existing purple loosestrife populations have reduced in coverage, a supplemental seeding of a diverse sedge meadow seed mix should be dispersed within the treatment area (1 to 2 years following the reduction of target species) to increase native perennial coverage. Once native cover begins to increase within the sedge meadow, targeted treatment of individual emerging purple loosestrife plants should be continued annually until the species is eliminated, or greatly reduced, within the sedge meadow and native perennial vegetation has been re-established.

The small population of common reed found within the site can be managed by applying herbicide to individual stems just before the plant fully matures and flowers in early July. The most appropriate application of herbicide to this sparse population is hand wicking individual plants, ensuring the surrounding vegetation is unimpacted by the use of herbicide on the common reed.

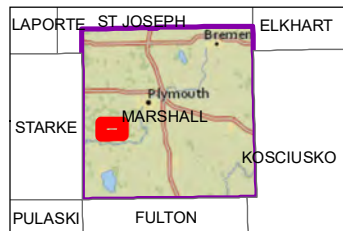
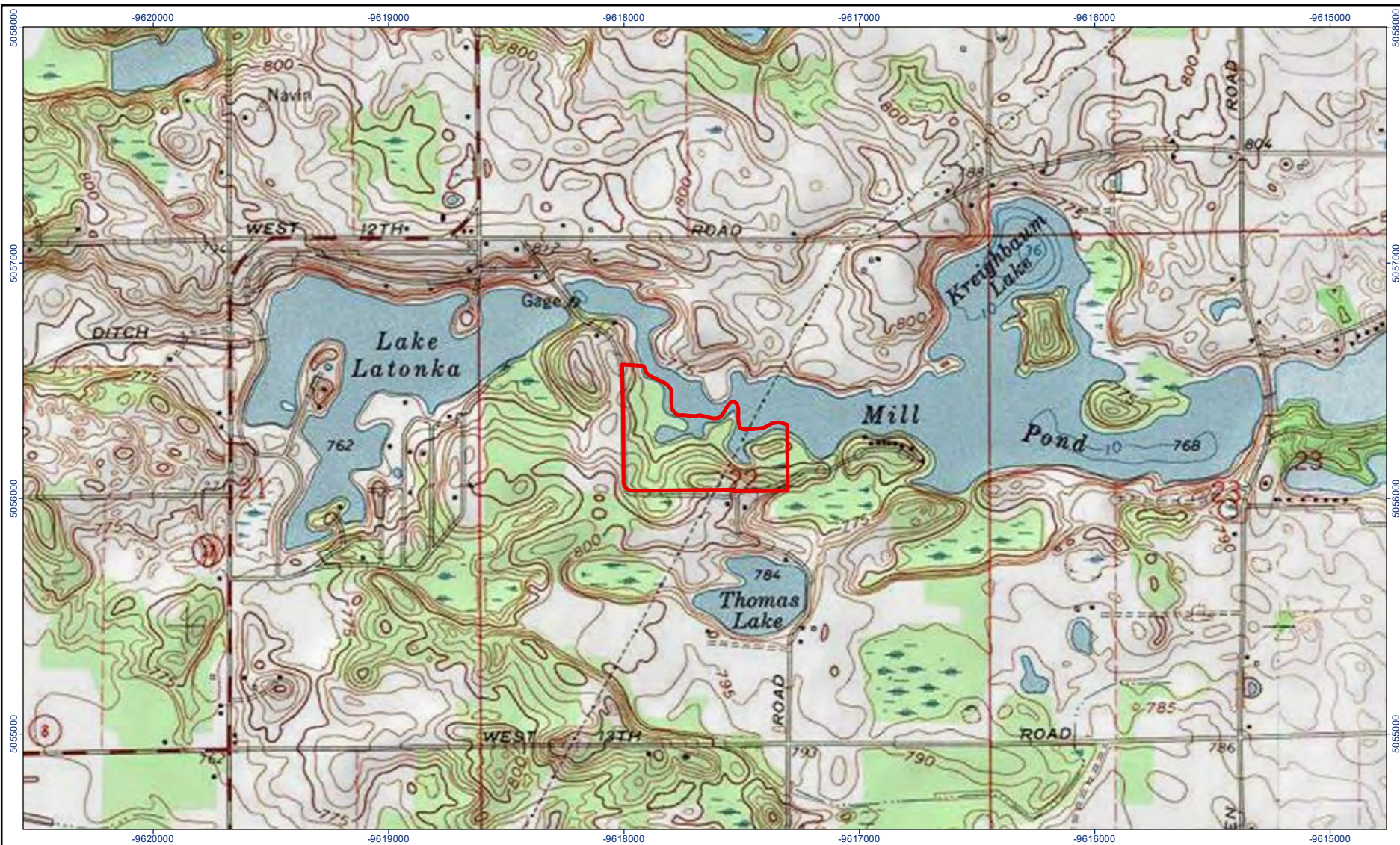
Prescribed fire is a useful tool for most management goals. Fire provides overall benefit by reducing or thinning woody species presence and removing excess leaf litter and other organic material thus expediting the growth of species whose seeds are dormant in the soil. These benefits would be particularly beneficial to consider for the sedge meadow habitat as the removal of standing vegetation and duff would increase light penetration to the short growing herbaceous layer and encourage germination of the seed bank. Similar benefits could be achieved in the conifer habitat helping to preserve the conifers through their natural lifecycle and other species dependent upon them (flora and fauna). Conversely, a long-term lack of fire may allow development towards maples and other associates with an increase in the shrub layer, likely comprised of non-native and native species. Particularly for red pine, excessive duff and needle build-up can lend to more intense fires causing increased mortality directly or indirectly via the intense hot air column killing the vegetative growth at the crown and negatively impacting seed development and viability. Smaller intensity-controlled burns, in a mosaic, can balance the benefits and hazards of pine forest burns.

Prescribed fire can also aid in invasive control in most all habitats; however, they must be planned and coordinated based on invasive species(s) present, population levels and long-term management goals. A burn is unlikely to kill all individuals allowing resprouts from the root collar. Frequency of the burn is also important to consider as it is a significant disturbance to the ecosystem which can initially create openings for introduced species to move in if native species are unable to rebound quickly from either regrowth or seed development. Some species, particularly common reed, have been shown to positively respond to fire and can take quick advantage of the opening created by the fire ahead of the desired native species.

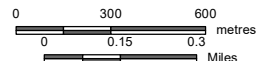
Any use of fire within this site must be carefully timed in order to ensure fragile plant species and eastern box turtle populations are unharmed. During the various site visits, a number of individual eastern box turtles were located, indicating a larger than typical population of the species with the Memorial Forest site. In the case of fragile plant species, a fire break should be constructed around populations to manage head intensity and levels. For fragile reptile populations, like the eastern box turtle, application of fire should be timed according to winter hibernation and burrowing activities by the species.

5 Figures: Maps and Photographs

Maps of the mitigation site can be found on the following twelve pages. These maps include a location maps, soil maps, NWI maps, plant communities' maps, endangered species maps, and invasive species maps. (Figures 1 through 11). Figures 5-12 through 5-43 are photographs of the site and Figures 5-44 through 5-52 are additional photographs.



 Area of Interest



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources:
3. Background: Copyright © 2013 National Geographic Society, Inc. National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Project Location
T33N, R1E, S22
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

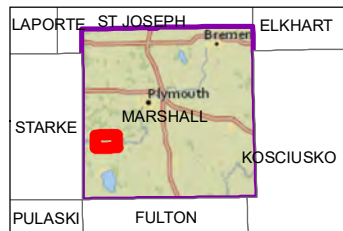
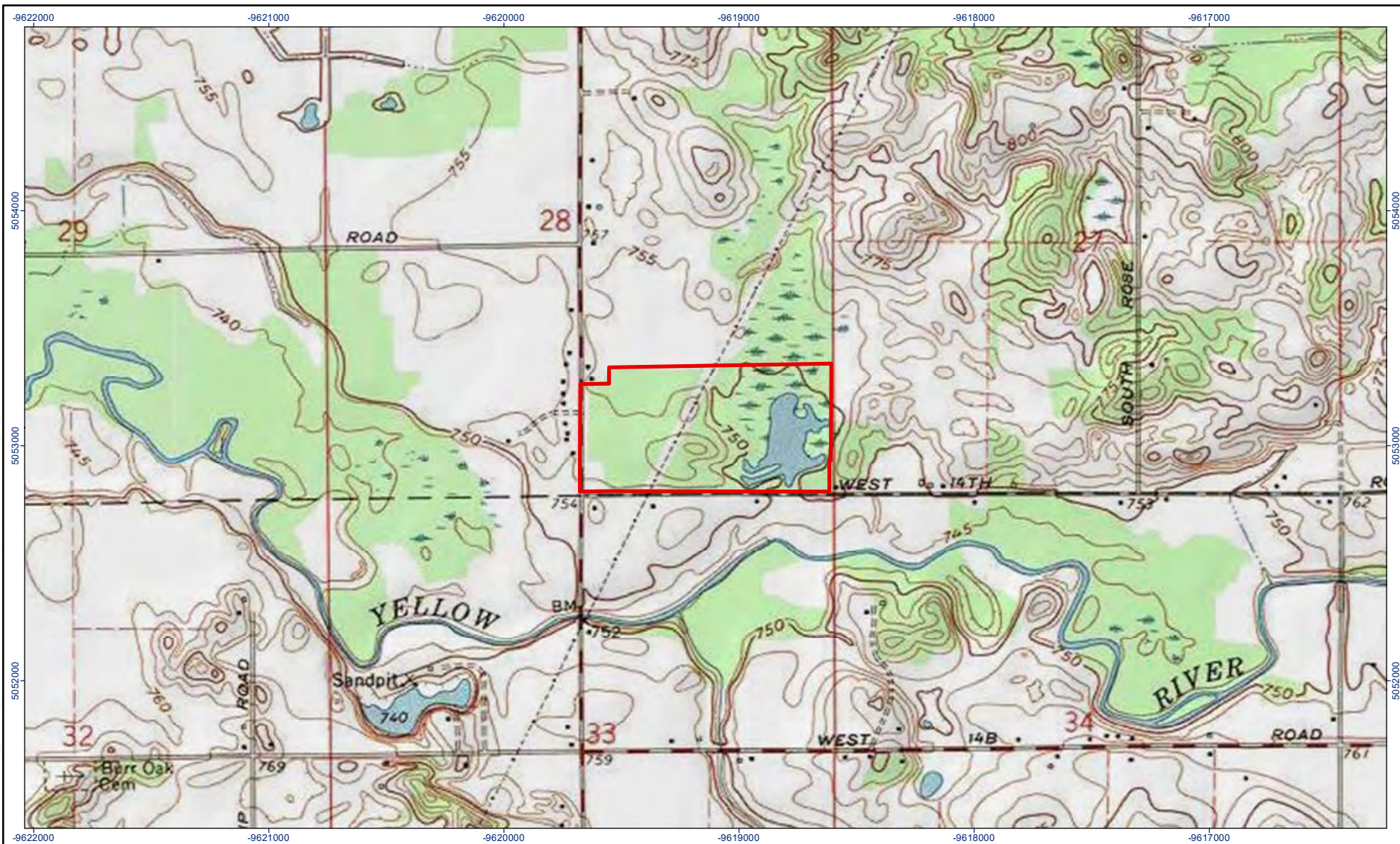
Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

Figure No.

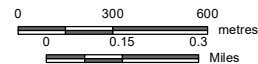
1

Title

Project Location - Mill Pond



 Area of Interest



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources:
3. Background: Copyright © 2013 National Geographic Society, Inc. National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Project Location
T33N, R1E, S28
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

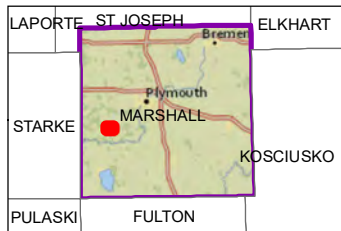
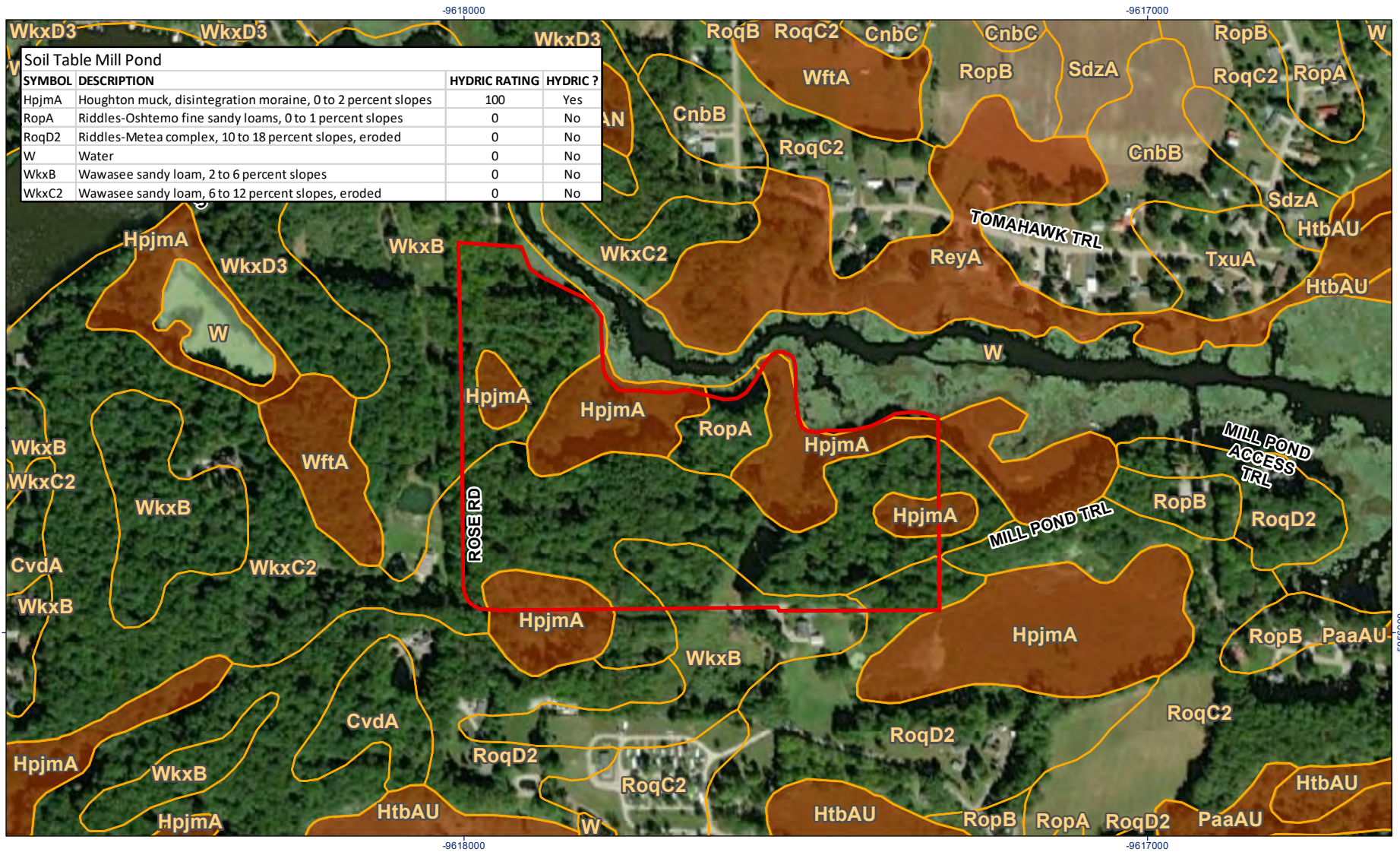
Figure No.

2

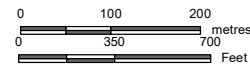
Title

Project Location - Memorial Forest

R:\Projects\22\221\221006000_MCPRD_NaturalFeaturesInventory_MillPond_MemorialForest\GIS\MXD\Inventory Report 2023\20230111_F3_SoilMap.mxd Revised: 2023-01-12 By: Christine Dittmar



- Area of Interest
- Soil Unit
- Soil Unit - Hydric



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources:
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Project Location
T33N, R1E, S22
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

Figure No.

3

Title

Soil Map - Mill Pond

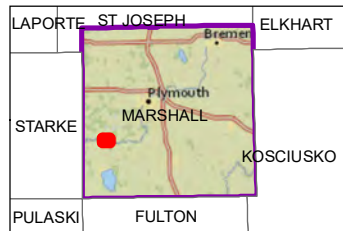
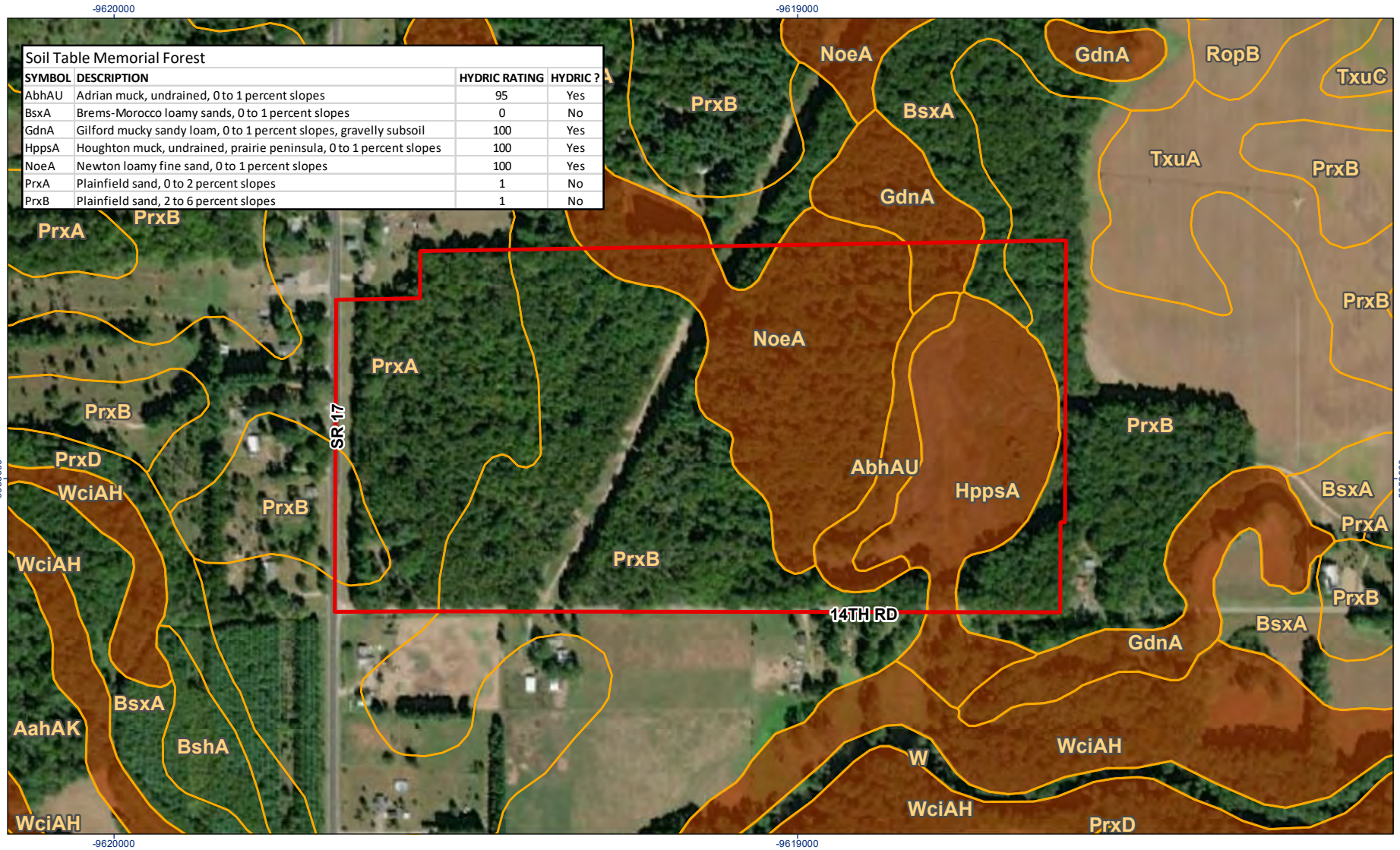
Disclaimer: This document has been prepared based on information provided by others as cited in the Notes section. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result. Stantec assumes no responsibility for data supplied in electronic format, and the recipient accepts full responsibility for verifying the accuracy and completeness of the data.

Date: 1/12/2023

File Path: R:\Projects\22\221\221006000_MCPRD_NaturalFeaturesInventory_MillPond_MemorialForest\GIS\MXD\Inventory Report 2023\20230111_F3_SoilMap.mxd

Saved By: Christine Dittmar

R:\Projects\22\221\221006000_MCPRD_NaturalFeaturesInventory_MillPond_MemorialForest\GIS\MXD\Inventory Report 2023\20230111_F4_SoilMap.mxd Revised: 2023-01-12 By: Christine Dittmar



- Area of Interest
- Soil Unit
- Soil Unit - Hydric



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
 2. Data Sources:
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
- National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Project Location
T33N, R1E, S28
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

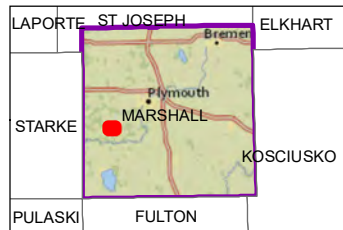
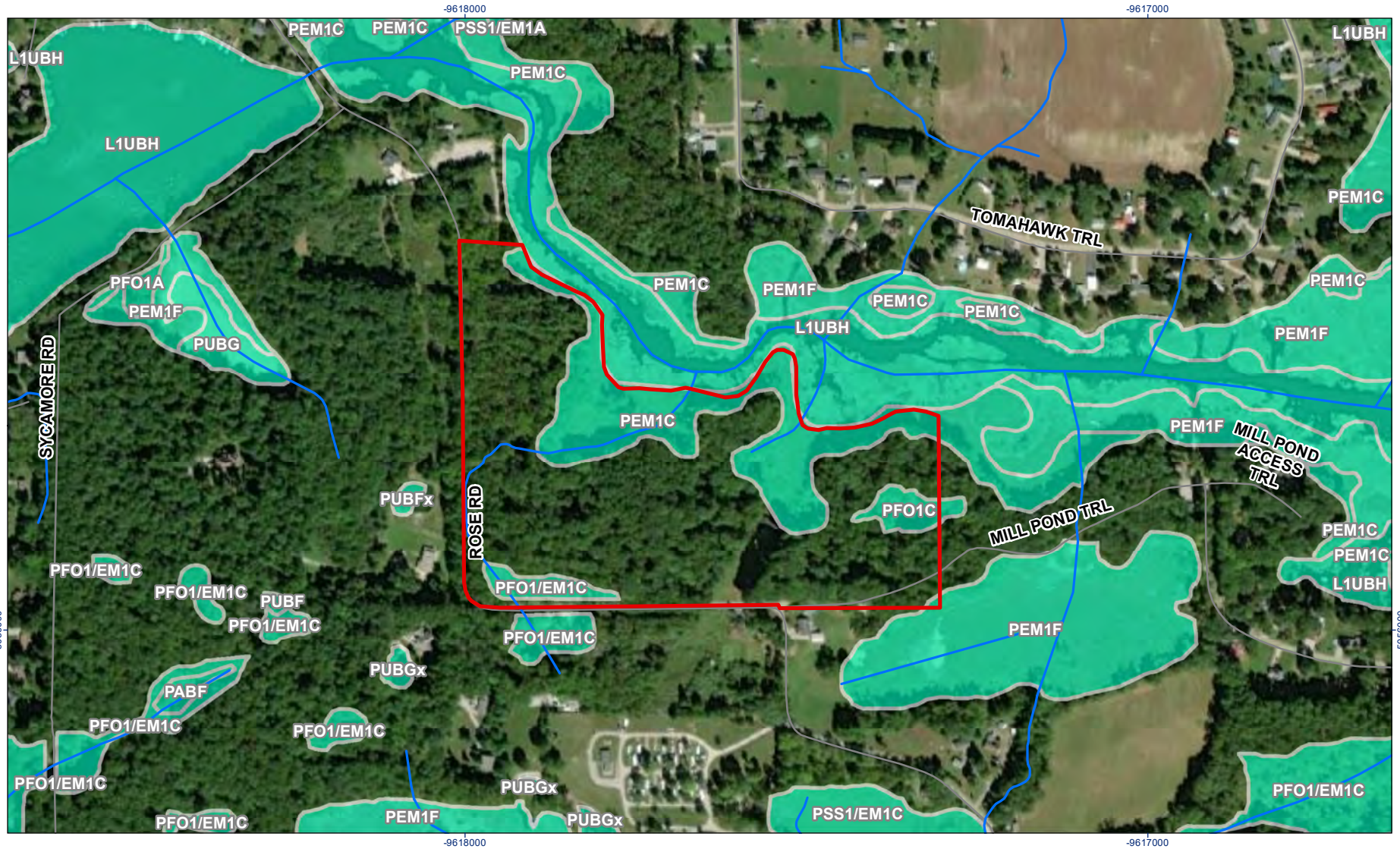
Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

Figure No.

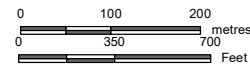
4

Title

Soil Map - Memorial Forest



- Area of Interest
- NHD
- NWI



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
 2. Data Sources:
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
- National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.

Project Location
T33N, R1E, S22
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

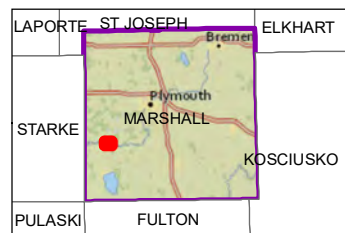
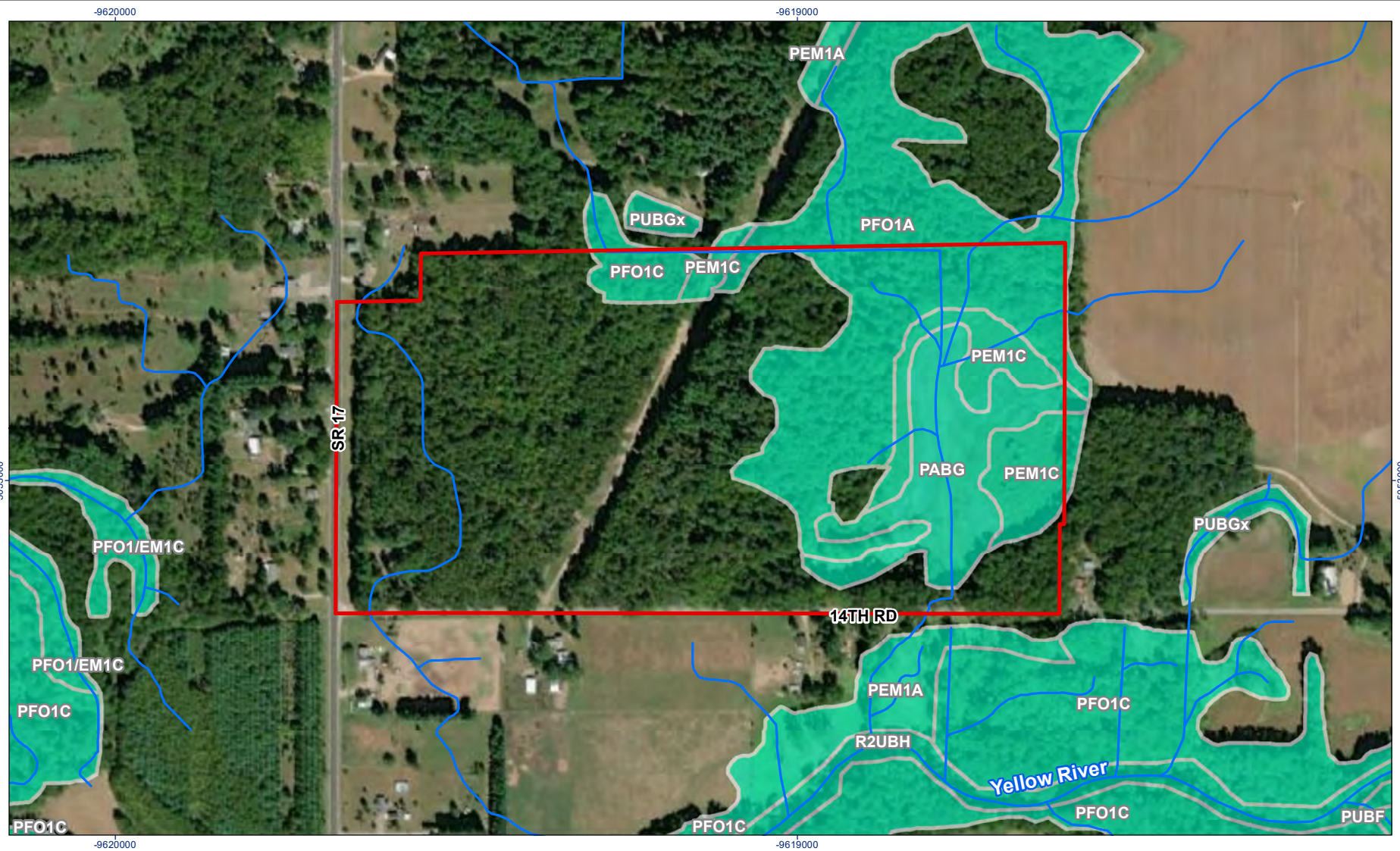
Figure No.

5

Title

National Wetland Inventory - Mill Pond





- Area of Interest
- NHD
- NWI



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
 2. Data Sources:
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
- National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Project Location
T33N, R1E, S28
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

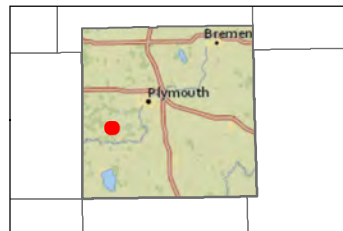
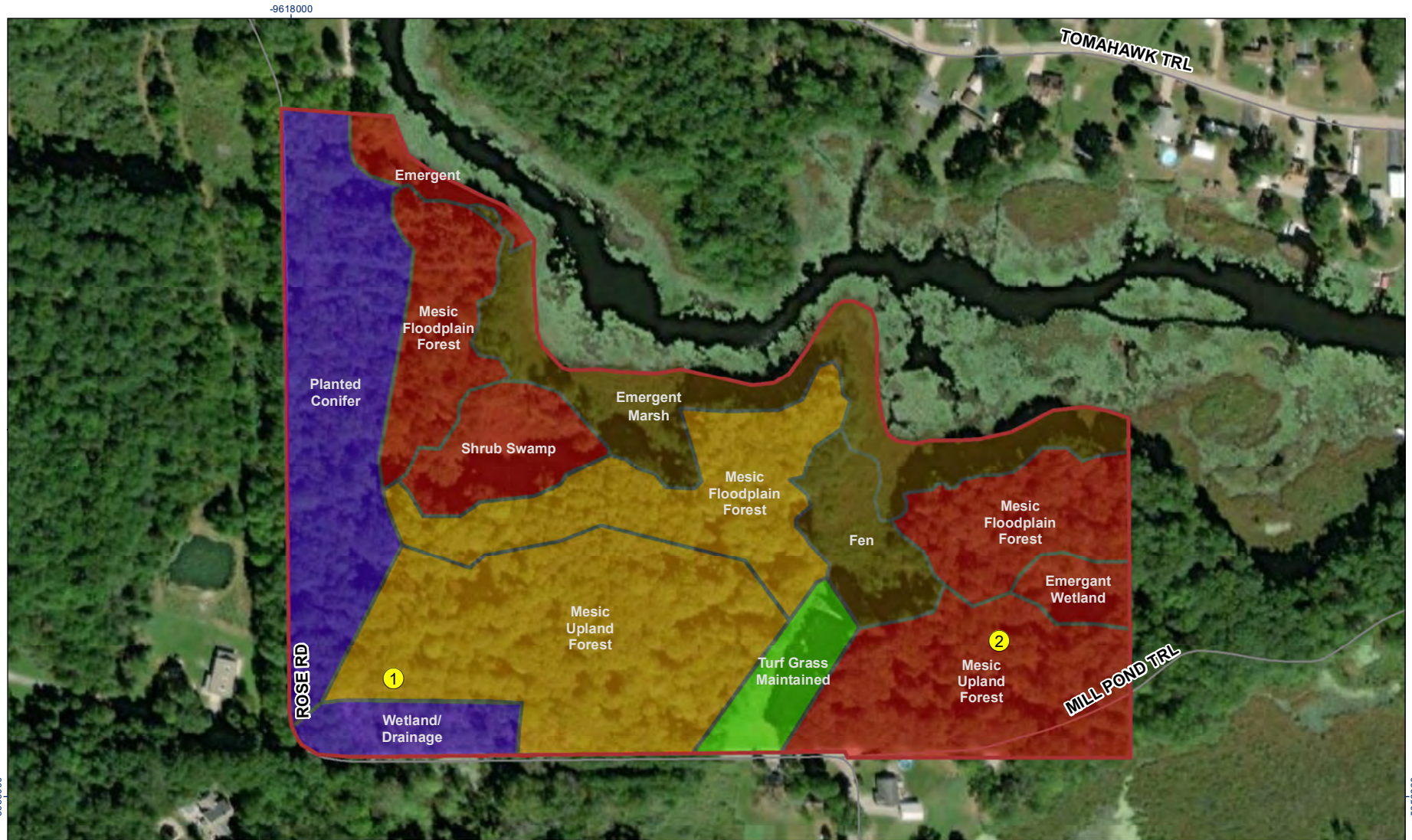
Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

Figure No.

6

Title

**National Wetland Inventory
Memorial Forest**



- Photo Station
- Grade 0
- Grade 1
- Grade 2
- Grade 3
- Grade 4
- Grade 5
- Open Water
- Area of Interest

Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
3. Background: Source: Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



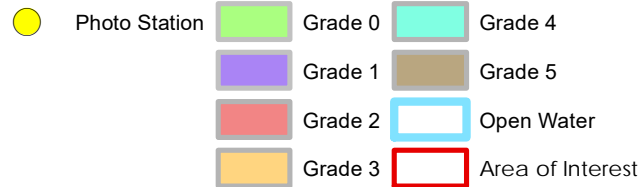
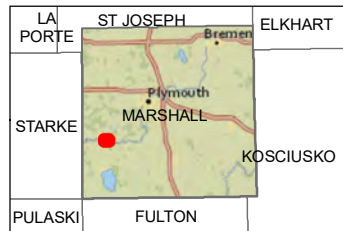
Project Location
T33N, R1E, S22
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

Figure No.
7

Title
Plant Communities - Mill Pond



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources:
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



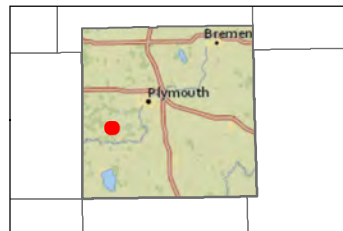
Project Location
T33N, R1E, S28
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

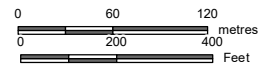
Figure No.
8

Title
Plant Communities - Memorial Forest



★ *Carex decomposita*

□ Area of Interest



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
 2. Data Sources:
 3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
- National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Project Location
T33N, R1E, S22
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

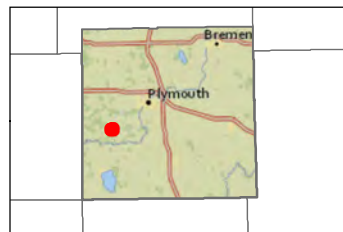
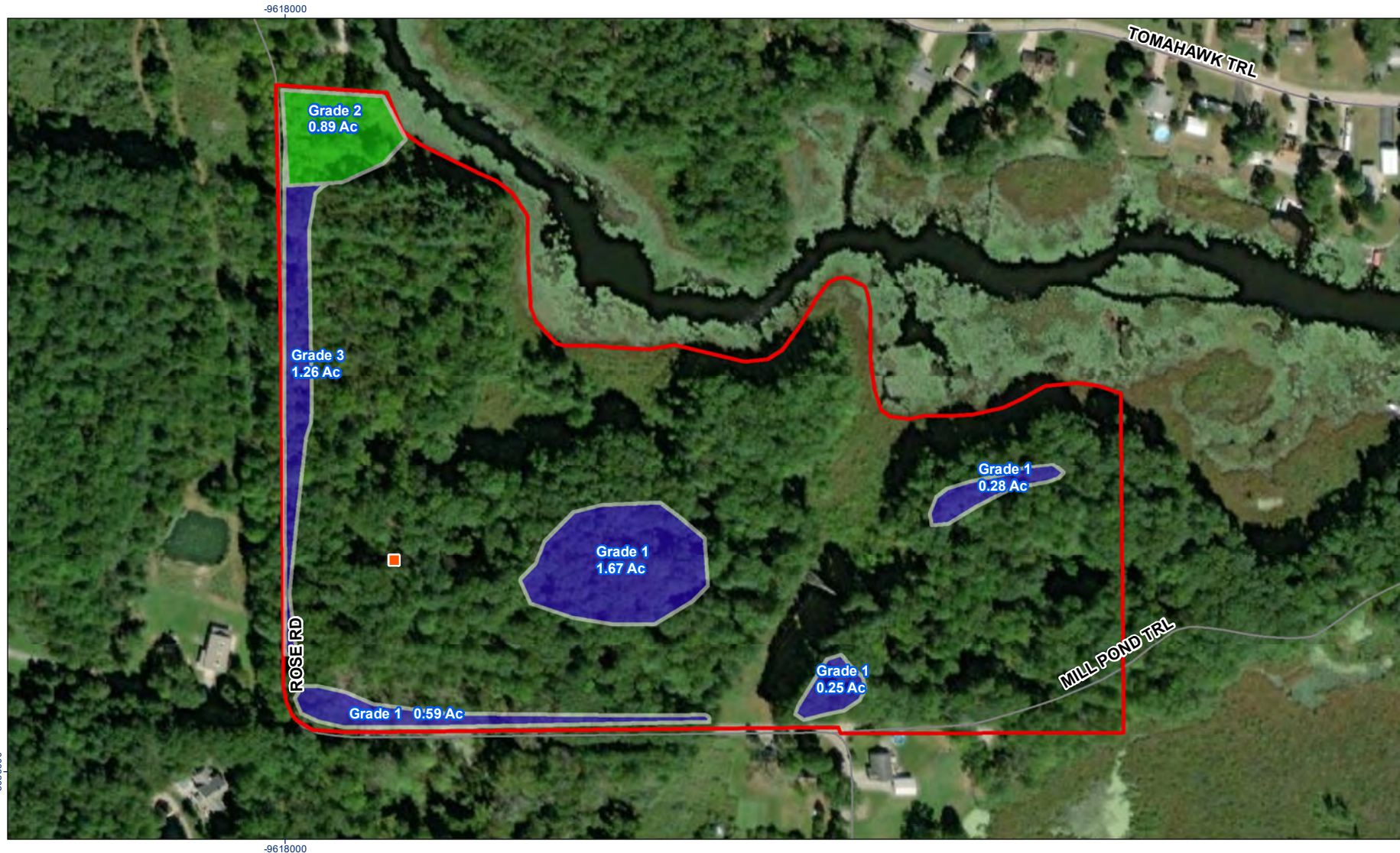
Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

Figure No.

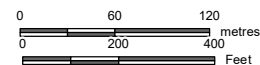
9

Title

**State and Federally Listed Species
Mill Pond**



- Asian Bittersweet
- Bush Honeysuckle
- Area of Interest
- Tree of Heaven



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources:
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
- National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Project Location
T33N, R1E, S22
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

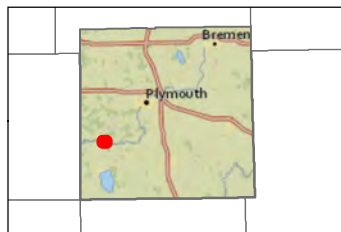
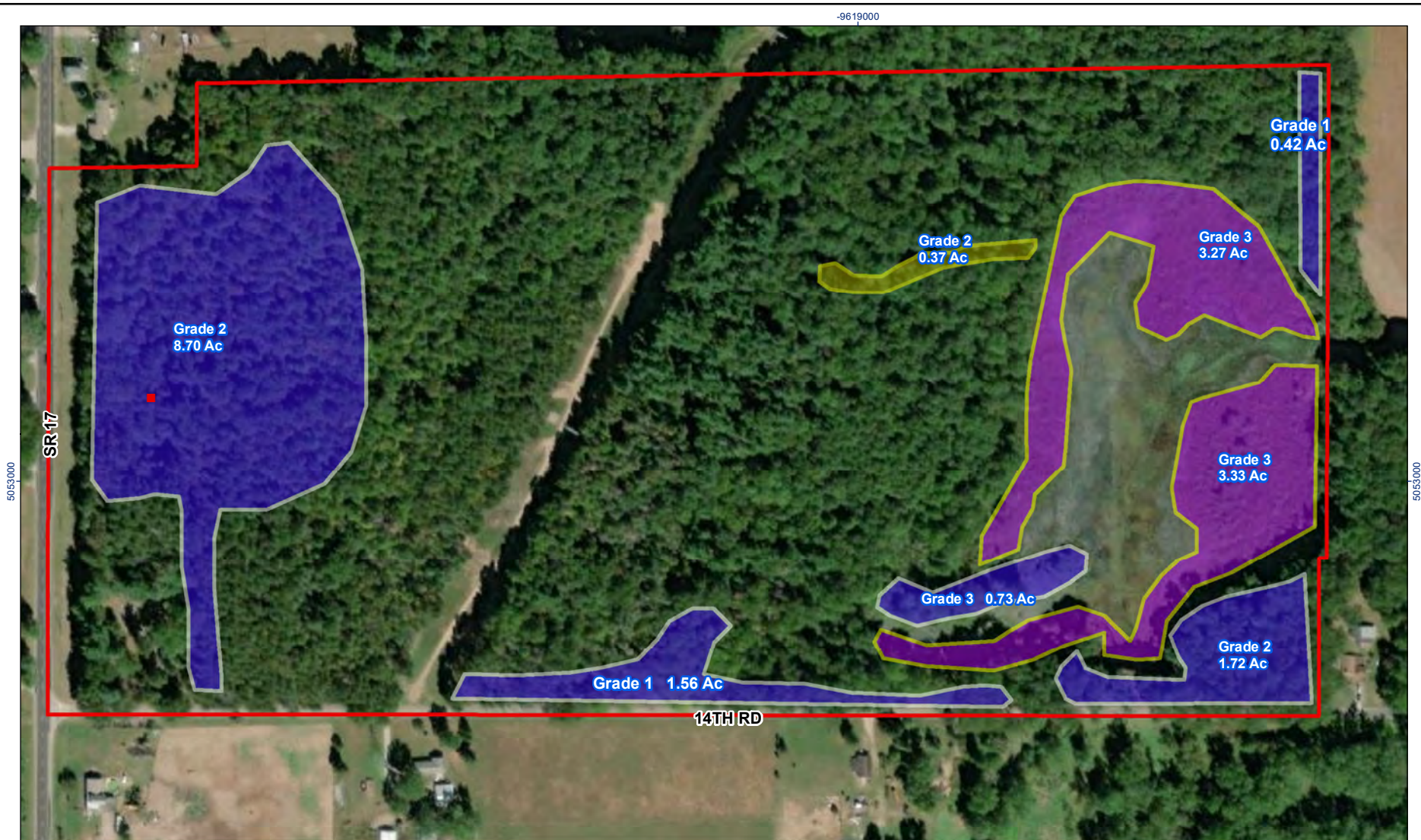
Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

Figure No.

10

Title

Invasive Species - Mill Pond



- Tree of Heaven
- Bush Honeysuckle
- Common Reed
- Purple Loosestrife
- Area of Interest



Notes

1. Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
2. Data Sources:
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



Project Location
T33N, R1E, S28
Marshall County, Indiana

Prepared by COD
TR by MRH
IR Review by CDR

Natural Features Inventory
Parks and Recreation Department
Marshall County, Indiana

Figure No.

11

Title

Invasive Species - Memorial Forest



Figure 5-12. Photo Station 1. Facing North. Sept. 15, 2022



Figure 5-13. Photo Station 1. Facing East. Sept. 15, 2022



Figure 5-14. Photo Station 1. Facing South. Sept. 15, 2022



Figure 5-15. Photo Station 1. Facing West. Sept. 15, 2022

Project Number::
238101076

Mill Pond Photo Stations

Marshall County Parks and Recreation Board
Natural Features Inventory; Mill Pond and Memorial Forest
Marshall County, Indiana

 
708 Roosevelt Rd., Walkerton, IN 46574 USA
Phone (+1) 574 586 3400 Fax (+1) 574 586 3446
www.cardno.com



Figure 5-16 Photo Station 2. Facing North. Sept. 15, 2022



Figure 5-17. Photo Station 2. Facing East. Sept. 15, 2022



Figure 5-18. Photo Station 2. Facing South. Sept. 15, 2022



Figure 5-19. Photo Station 2. Facing West. Sept. 15, 2022

Project Number::
238101076

Mill Pond Photo Stations

Marshall County Parks and Recreation Board
Natural Features Inventory; Mill Pond and Memorial Forest
Marshall County, Indiana

 
708 Roosevelt Rd., Walkerton, IN 46574 USA
Phone (+1) 574 586 3400 Fax (+1) 574 586 3446
www.cardno.com



Figure 5-20 Photo Station 3. Facing North. Sept. 16, 2022



Figure 5-21. Photo Station 3. Facing East. Sept. 16, 2022



Figure 5-22. Photo Station 3. Facing South. Sept. 16, 2022



Figure 5-23. Photo Station 3. Facing West. Sept. 16, 2022

Project Number::
238101076

Memorial Forest Photo Stations

Marshall County Parks and Recreation Board
Natural Features Inventory; Mill Pond and Memorial Forest
Marshall County, Indiana

 
708 Roosevelt Rd., Walkerton, IN 46574 USA
Phone (+1) 574 586 3400 Fax (+1) 574 586 3446
www.cardno.com



Figure 5-24. Photo Station 4. Facing North. May 20, 2022



Figure 5-25. Photo Station 4. Facing East. May 20, 2022



Figure 5-26. Photo Station 4. Facing South. May 20, 2022



Figure 5-27. Photo Station 4. Facing West. May 20, 2022

Project Number::
238101076

Memorial Forest Photo Stations

Marshall County Parks and Recreation Board
Natural Features Inventory; Mill Pond and Memorial Forest
Marshall County, Indiana

Cardno now **Stantec**
708 Roosevelt Rd., Walkerton, IN 46574 USA
Phone (+1) 574 586 3400 Fax (+1) 574 586 3446
www.cardno.com



Figure 5-28. Photo Station 5. Facing North. Sept. 16, 2022



Figure 5-29. Photo Station 5. Facing East. Sept. 16, 2022



Figure 5-30. Photo Station 5. Facing South. Sept. 16, 2022



Figure 5-31. Photo Station 5. Facing West. Sept. 16, 2022

Project Number::
238101076

Memorial Forest Photo Stations

Marshall County Parks and Recreation Board
Natural Features Inventory; Mill Pond and Memorial Forest
Marshall County, Indiana

 
708 Roosevelt Rd., Walkerton, IN 46574 USA
Phone (+1) 574 586 3400 Fax (+1) 574 586 3446
www.cardno.com



Figure 5-32. Photo Station 6. Facing North. Sept. 16, 2022



Figure 5-33. Photo Station 6. Facing East. Sept. 16, 2022



Figure 5-34. Photo Station 6. Facing South. Sept. 16, 2022



Figure 5-35. Photo Station 6. Facing West. Sept. 16, 2022

Project Number::
238101076

Memorial Forest Photo Stations

Marshall County Parks and Recreation Board
Natural Features Inventory; Mill Pond and Memorial Forest
Marshall County, Indiana

 
708 Roosevelt Rd., Walkerton, IN 46574 USA
Phone (+1) 574 586 3400 Fax (+1) 574 586 3446
www.cardno.com



Figure 5-36. Photo Station 7. Facing North. Sept. 16, 2022



Figure 5-37. Photo Station 7. Facing East. Sept. 16, 2022



Figure 5-38. Photo Station 7. Facing South. Sept. 16, 2022



Figure 5-39. Photo Station 7. Facing West. Sept. 16, 2022

Project Number::
238101076

Memorial Forest Photo Stations

Marshall County Parks and Recreation Board
Natural Features Inventory; Mill Pond and Memorial Forest
Marshall County, Indiana

 
708 Roosevelt Rd., Walkerton, IN 46574 USA
Phone (+1) 574 586 3400 Fax (+1) 574 586 3446
www.cardno.com



Figure 5-40. Photo Station 8. Facing North. Sept. 16, 2022



Figure 5-41. Photo Station 8. Facing East. Sept. 16, 2022



Figure 5-42. Photo Station 8. Facing South. Sept. 16, 2022



Figure 5-43. Photo Station 8. Facing West. Sept. 16, 2022

Project Number::
238101076

Memorial Forest Photo Stations

Marshall County Parks and Recreation Board
Natural Features Inventory; Mill Pond and Memorial Forest
Marshall County, Indiana

 
708 Roosevelt Rd., Walkerton, IN 46574 USA
Phone (+1) 574 586 3400 Fax (+1) 574 586 3446
www.cardno.com



Figure 5-44. log sedge (*Carex decomposita*)



Figure 5-45. log sedge (*Carex decomposita*)

Project Number::
238101076

**Additional
Photos**

Marshall County Parks and Recreation Board
Natural Features Inventory; Mill Pond and Memorial Forest
Marshall County, Indiana

Cardno now **Stantec**
708 Roosevelt Rd., Walkerton, IN 46574 USA
Phone (+1) 574 586 3400 Fax (+1) 574 586 3446
www.cardno.com



Figure 5-46. clasp milkweed (*Asclepias amplexicaulis*)



Figure 5-47. pipsissewa (*Chimaphila umbellata*)



Figure 5-48. Ribbon Snake (*Thamnophis saurita*)



Figure 5-49. Eastern Box Turtle (*Terrapene carolina*)



Figure 5-50. Eastern Box Turtle (*Terrapene carolina*)



Figure 5-51. Eastern Red-Backed Salamander (*Plethodon cinereus*)

APPENDIX

A

Plant and Wildlife Inventories

Mill Pond Inventory 2022

Table A-1 Inventory Summary	
Total Species	298
Native Species	252
Non-native Species	46
Total Mean C	3.5
Native Mean C	4.2
Total FQI	60.4
Native FQI	66.7
Adjusted FQI:	38.6
Mean Wetness:	-0.3
Native Mean Wetness:	-0.6

Table A-2 Site Inventory - Mill Pond						
Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Acalypha rhomboidea</i>	native	0	FACU	forb	annual	three-seeded mercury
<i>Acer rubrum</i>	native	5	FAC	tree	perennial	red maple
<i>Acer saccharinum</i>	native	1	FACW	tree	perennial	silver maple
<i>Acer saccharum</i>	native	4	FACU	tree	perennial	sugar maple
<i>Achillea millefolium</i>	native	0	FACU	forb	perennial	common milfoil
<i>Actaea pachypoda</i>	native	7	FACU	forb	perennial	dolls-eyes
<i>Ageratina altissima</i>	native	2	FACU	forb	perennial	white snakeroot
<i>Agrimonia gryposepala</i>	native	2	FACU	forb	perennial	tall agrimony
<i>Agrimonia parviflora</i>	native	4	FACW	forb	perennial	swamp agrimony
<i>Agrostis gigantea</i>	non-native	0	FACW	grass	perennial	red top
<i>Ailanthus altissima</i>	non-native	0	FACU	tree	perennial	tree-of-heaven
<i>Alliaria petiolata</i>	non-native	0	FAC	forb	biennial	garlic mustard
<i>Allium canadense</i>	native	1	FACU	forb	perennial	wild garlic
<i>Allium tricoccum</i>	native	6	FACU	forb	perennial	narrow-leaf wild leek
<i>Ambrosia artemisiifolia</i>	native	0	FACU	forb	annual	common ragweed
<i>Ambrosia trifida</i>	native	0	FAC	forb	annual	giant ragweed
<i>Amelanchier laevis</i>	native	8	UPL	tree	perennial	allegheny service-berry
<i>Amphicarpaea bracteata</i>	native	5	FAC	vine	annual	hog-peanut
<i>Anemone americana</i>	native	8	UPL	forb	perennial	round-leaved hepatica
<i>Anemone quinquefolia</i>	native	7	FAC	forb	perennial	wood anemone
<i>Apios americana</i>	native	3	FACW	vine	perennial	ground nut
<i>Aralia racemosa</i>	native	8	FACU	forb	perennial	American spikenard

Table A-2 Site Inventory - Mill Pond

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Arctium minus</i>	non-native	0	FACU	forb	biennial	common burdock
<i>Arisaema triphyllum</i>	native	4	FACW	forb	perennial	Indian turnip
<i>Asplenium platyneuron</i>	native	3	FACU	fern	perennial	ebony spleenwort
<i>Athyrium filix-femina</i>	native	6	FAC	fern	perennial	lady fern
<i>Berberis thunbergii</i>	non-native	0	FACU	shrub	perennial	Japanese barberry
<i>Betula nigra</i>	native	2	FACW	tree	perennial	river birch
<i>Bidens cernua</i>	native	2	OBL	forb	annual	nodding bur marigold
<i>Bidens discoidea</i>	native	5	FACW	forb	annual	swamp beggars ticks
<i>Bidens frondosa</i>	native	1	FACW	forb	annual	common beggars ticks
<i>Boehmeria cylindrica</i>	native	3	OBL	forb	perennial	false nettle
<i>Boehmeria cylindrica</i>	native	3	UPL	forb	perennial	Drummond's false nettle
<i>Botrypus virginianus</i>	native	4	FACU	fern	perennial	rattlesnake fern
<i>Calamagrostis canadensis</i>	native	5	OBL	grass	perennial	blue joint grass
<i>Calystegia sepium</i>	native	1	FAC	vine	perennial	American bindweed
<i>Cardamine concatenata</i>	native	4	FACU	forb	perennial	toothwort
<i>Cardamine hirsuta</i>	non-native	0	FACU	forb	annual	hairy bitter cress
<i>Cardamine pensylvanica</i>	native	2	FACW	forb	biennial	Pennsylvania bitter cress
<i>Carex alata</i>	native	10	OBL	sedge	perennial	winged oval sedge
<i>Carex albursina</i>	native	7	UPL	sedge	perennial	blunt-scaled wood sedge
<i>Carex blanda</i>	native	1	FAC	sedge	perennial	common wood sedge
<i>Carex canescens</i>	native	10	OBL	sedge	perennial	hoary sedge
<i>Carex cephalophora</i>	native	3	FACU	sedge	perennial	short-headed bracted sedge
<i>Carex comosa</i>	native	6	OBL	sedge	perennial	bristly sedge
<i>Carex crinita</i>	native	8	OBL	sedge	perennial	fringed sedge
<i>Carex davisii</i>	native	3	FAC	sedge	perennial	awned graceful sedge
<i>Carex decomposita</i> ¹ ST	native	10	OBL	sedge	perennial	broad-leaved panicked sedge
<i>Carex digitalis</i>	native	7	UPL	sedge	perennial	narrow-leaved wood sedge
<i>Carex gracillima</i>	native	7	FACU	sedge	perennial	purple-sheathed graceful sedge
<i>Carex grisea</i>	native	3	FAC	sedge	perennial	common gray sedge
<i>Carex hirtifolia</i>	native	5	FACU	sedge	perennial	hairy wood sedge
<i>Carex hystericina</i>	native	5	OBL	sedge	perennial	porcupine sedge
<i>Carex interior</i>	native	8	OBL	sedge	perennial	prairie star sedge
<i>Carex jamesii</i>	native	4	UPL	sedge	perennial	grass sedge
<i>Carex lacustris</i>	native	7	OBL	sedge	perennial	common lake sedge
<i>Carex laxiculmis</i>	native	5	FACU	sedge	perennial	spreading sedge
<i>Carex longii</i>	native	5	OBL	sedge	perennial	longs oval sedge
<i>Carex lurida</i>	native	4	OBL	sedge	perennial	bottlebrush sedge
<i>Carex normalis</i>	native	3	FACW	sedge	perennial	spreading oval sedge

¹ ST – State Threatened

Table A-2 Site Inventory - Mill Pond

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Carex pellita</i>	native	2	OBL	sedge	perennial	common woolly sedge
<i>Carex pensylvanica</i>	native	5	UPL	sedge	perennial	Pennsylvania oak sedge
<i>Carex rosea</i>	native	5	FACU	sedge	perennial	curly-styled bracted sedge
<i>Carex scoparia</i>	native	4	FACW	sedge	perennial	lance-fruited oval sedge
<i>Carex sparganioides</i>	native	4	FAC	sedge	perennial	loose-headed bracted sedge
<i>Carex stipata</i>	native	2	OBL	sedge	perennial	common fox sedge
<i>Carex stricta</i>	native	5	OBL	sedge	perennial	common tussock sedge
<i>Carex swanii</i>	native	4	FACU	sedge	perennial	downy green sedge
<i>Carex tribuloides</i>	native	5	OBL	sedge	perennial	broad-leaved oval sedge
<i>Carex vulpinoidea</i>	native	2	OBL	sedge	perennial	brown fox sedge
<i>Carpinus caroliniana</i>	native	5	FAC	tree	perennial	blue beech
<i>Carya cordiformis</i>	native	5	FACU	tree	perennial	bitternut hickory
<i>Carya ovata</i>	native	4	FACU	tree	perennial	shagbark hickory
<i>Catalpa speciosa</i>	native	0	FACU	tree	perennial	cigar tree
<i>Celastrus orbiculatus</i>	non-native	0	UPL	vine	perennial	oriental bittersweet
<i>Celtis occidentalis</i>	native	3	FAC	tree	perennial	hackberry
<i>Cephalanthus occidentalis</i>	native	5	OBL	shrub	perennial	buttonbush
<i>Ceratophyllum demersum</i>	native	1	OBL	forb	perennial	coontail
<i>Ceratophyllum echinatum</i>	native	10	OBL	forb	perennial	spiny coontail
<i>Cercis canadensis</i>	native	3	FACU	tree	perennial	eastern redbud
<i>Cicuta bulbifera</i>	native	8	OBL	forb	perennial	bulblet water hemlock
<i>Cicuta maculata</i>	native	6	OBL	forb	biennial	common water hemlock
<i>Cinna arundinacea</i>	native	4	FACW	grass	perennial	common wood reed
<i>Circaea canadensis</i>	native	2	FACU	forb	perennial	enchancers nightshade
<i>Cirsium arvense</i>	non-native	0	FACU	forb	perennial	field thistle
<i>Cirsium discolor</i>	native	3	FACU	forb	biennial	pasture thistle
<i>Cirsium vulgare</i>	non-native	0	FACU	forb	biennial	bull thistle
<i>Claytonia virginica</i>	native	2	FACU	forb	perennial	spring beauty
<i>Conium maculatum</i>	non-native	0	FACW	forb	biennial	poison hemlock
<i>Conyza canadensis</i>	native	0	FACU	forb	annual	horseweed
<i>Cornus florida</i>	native	4	FACU	tree	perennial	flowering dogwood
<i>Cornus stolonifera</i>	native	4	FACW	shrub	perennial	red osier dogwood
<i>Corylus americana</i>	native	4	FACU	shrub	perennial	American filbert
<i>Cyperus esculentus</i>	native	0	FACW	sedge	perennial	field nut sedge
<i>Cyperus strigosus</i>	native	0	FACW	sedge	perennial	long-scaled nut sedge
<i>Dactylis glomerata</i>	non-native	0	FACU	grass	perennial	orchard grass
<i>Daucus carota</i>	non-native	0	UPL	forb	biennial	Queen Anne's lace
<i>Decodon verticillatus</i>	native	8	OBL	shrub	perennial	swamp loosestrife
<i>Desmodium paniculatum</i>	native	2	FACU	forb	perennial	panicked tick trefoil
<i>Dichanthelium acuminatum</i>	native	2	FAC	grass	perennial	hemlock witch grass
<i>Dichanthelium latifolium</i>	native	6	FACU	grass	perennial	broad-leaved witch grass

Table A-2 Site Inventory - Mill Pond

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Dioscorea villosa</i>	native	4	FAC	vine	perennial	wild yam
<i>Doellingeria umbellata</i>	native	8	FACW	forb	perennial	flat-top aster
<i>Dryopteris carthusiana</i>	native	6	FACW	fern	perennial	spinulose wood fern
<i>Dryopteris cristata</i>	native	10	OBL	fern	perennial	crested wood fern
<i>Dulichium arundinaceum</i>	native	10	OBL	sedge	perennial	three-way sedge
<i>Echinocystis lobata</i>	native	3	FACW	vine	annual	wild cucumber
<i>Elaeagnus umbellata</i>	non-native	0	FACU	shrub	perennial	autumn olive
<i>Eleocharis palustris</i>	native	7	OBL	sedge	annual	great spike rush
<i>Elodea canadensis</i>	native	3	OBL	forb	perennial	common waterweed
<i>Elymus hystrix</i>	native	5	FACU	grass	perennial	bottlebrush grass
<i>Elymus virginicus</i>	native	3	FACW	grass	perennial	Virginia wild rye
<i>Endodeca serpentaria</i>	native	8	UPL	forb	perennial	birthwort
<i>Enemion biternatum</i>	native	5	FAC	forb	perennial	false rue anemone
<i>Equisetum arvense</i>	native	1	FAC	fern	perennial	common horsetail
<i>Erechtites hieraciifolius</i>	native	2	FACU	forb	annual	fireweed
<i>Erigeron philadelphicus</i>	native	3	FACW	forb	perennial	marsh fleabane
<i>Erigeron strigosus</i>	native	2	FACU	forb	perennial	daisy fleabane
<i>Euonymus alata</i>	non-native	0	UPL	shrub	perennial	winged euonymus
<i>Eupatorium perfoliatum</i>	native	4	OBL	forb	perennial	common boneset
<i>Eupatorium serotinum</i>	native	0	FAC	forb	perennial	late boneset
<i>Euthamia graminifolia</i>	native	3	FACW	forb	perennial	grass-leaved goldenrod
<i>Eutrochium maculatum</i>	native	5	OBL	forb	perennial	spotted joe pye weed
<i>Fagus grandifolia</i>	native	8	FACU	tree	perennial	American beech
<i>Fallopia scandens</i>	native	0	FAC	vine	perennial	climbing false buckwheat
<i>Festuca subverticillata</i>	native	4	FACU	grass	perennial	nodding fescue
<i>Fraxinus pennsylvanica</i>	native	2	FACW	tree	perennial	green ash
<i>Galium aparine</i>	native	1	FACU	forb	perennial	sticky-willy
<i>Galium circaeazans</i>	native	6	FACU	forb	perennial	wild licorice
<i>Galium tinctorium</i>	native	6	OBL	forb	perennial	stiff bedstraw
<i>Geranium maculatum</i>	native	4	FACU	forb	perennial	wild geranium
<i>Geum canadense</i>	native	1	FAC	forb	perennial	white avens
<i>Geum vernum</i>	native	1	FACU	forb	perennial	spring avens
<i>Glechoma hederacea</i>	non-native	0	FACU	forb	perennial	ground ivy
<i>Glyceria striata</i>	native	4	OBL	grass	perennial	fowl manna grass
<i>Hackelia virginiana</i>	native	0	FACU	forb	biennial	stickseed
<i>Helianthus divaricatus</i>	native	5	UPL	forb	perennial	woodland sunflower
<i>Hesperis matronalis</i>	non-native	0	FACU	forb	perennial	dames rocket
<i>Huperzia lucidula</i>	native	5	FACW	fern	perennial	shining clubmoss
<i>Hylodesmum glutinosum</i>	native	6	UPL	forb	perennial	pointed tick trefoil
<i>Hypericum perforatum</i>	non-native	0	FACU	forb	perennial	common St. john's wort
<i>Ilex verticillata</i>	native	8	FACW	shrub	perennial	winterberry
<i>Impatiens capensis</i>	native	2	FACW	forb	annual	spotted touch-me-not

Table A-2 Site Inventory - Mill Pond

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Iris virginica</i>	native	5	OBL	forb	perennial	southern blue flag
<i>Juglans nigra</i>	native	2	FACU	tree	perennial	black walnut
<i>Juncus effusus</i>	native	3	OBL	rush	perennial	common rush
<i>Juncus tenuis</i>	native	0	FAC	rush	perennial	path rush
<i>Juniperus virginiana</i>	native	2	FACU	shrub	perennial	eastern red cedar
<i>Lactuca canadensis</i>	native	2	FACU	forb	biennial	wild lettuce
<i>Laportea canadensis</i>	native	2	FACW	forb	perennial	Canada wood nettle
<i>Lathyrus palustris</i>	native	7	FACW	vine	perennial	marsh vetchling
<i>Leersia oryzoides</i>	native	2	OBL	grass	perennial	rice cut grass
<i>Leersia virginica</i>	native	4	FACW	grass	perennial	white grass
<i>Lemna trisulca</i>	native	6	OBL	forb	perennial	forked duckweed
<i>Lemna turionifera</i>	native	3	OBL	forb	perennial	perennial duckweed
<i>Leucanthemum vulgare</i>	non-native	0	UPL	forb	perennial	ox-eye daisy
<i>Lilium michiganense</i>	native	5	FACW	forb	perennial	Michigan lily
<i>Lindera benzoin</i>	native	5	FACW	shrub	perennial	hairy spicebush
<i>Liparis loeselii</i>	native	4	FACW	forb	perennial	green twayblade
<i>Lobelia siphilitica</i>	native	3	OBL	forb	perennial	great blue lobelia
<i>Lonicera maackii</i>	non-native	0	UPL	shrub	perennial	amur honeysuckle
<i>Luzula multiflora</i>	native	6	FACU	rush	perennial	common wood rush
<i>Lycopus americanus</i>	native	3	OBL	forb	perennial	common water horehound
<i>Lysimachia nummularia</i>	non-native	0	FACW	forb	perennial	moneywort
<i>Lysimachia thyrsiflora</i>	native	7	OBL	forb	perennial	tufted loosestrife
<i>Lythrum salicaria</i>	non-native	0	OBL	forb	perennial	purple loosestrife
<i>Maianthemum stellatum</i>	native	6	FAC	forb	perennial	starry false solomon seal
<i>Mitchella repens</i>	native	8	FACU	forb	perennial	partridge berry
<i>Morus alba</i>	non-native	0	FAC	tree	perennial	white mulberry
<i>Muhlenbergia frondosa</i>	native	3	FACW	grass	perennial	common satin grass
<i>Myosotis scorpioides</i>	non-native	0	OBL	forb	perennial	common forget-me-not
<i>Nabalus albus</i>	native	5	FACU	forb	perennial	lions foot
<i>Narcissus pseudonarcissus</i>	non-native	0	UPL	forb	perennial	common daffodil
<i>Nuphar advena</i>	native	6	OBL	forb	perennial	spatterdock
<i>Nymphaea odorata</i>	native	6	OBL	forb	perennial	fragrant water lily
<i>Onoclea sensibilis</i>	native	4	FACW	fern	perennial	sensitive fern
<i>Osmorhiza claytonii</i>	native	3	FACU	forb	perennial	hairy sweet cicely
<i>Osmorhiza longistylis</i>	native	3	FACU	forb	perennial	anise root
<i>Osmunda regalis</i>	native	8	OBL	fern	perennial	regal fern
<i>Osmundastrum cinnamomeum</i>	native	9	FACW	fern	perennial	cinnamon fern
<i>Oxalis stricta</i>	native	0	FACU	forb	perennial	tall wood-sorrel
<i>Packera glabella</i>	native	0	FACW	forb	biennial	butterweed
<i>Parthenocissus quinquefolia</i>	native	2	FACU	vine	perennial	Virginia creeper
<i>Peltandra virginica</i>	native	6	OBL	forb	perennial	arrow arum
<i>Persicaria amphibia</i>	native	4	OBL	forb	perennial	water heartsease

Table A-2 Site Inventory - Mill Pond

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Persicaria longiseta</i>	non-native	0	FAC	forb	annual	bristly lady's thumb
<i>Persicaria maculosa</i>	non-native	0	FACW	forb	annual	lady's thumb
<i>Persicaria pensylvanica</i>	native	0	FACW	forb	annual	pinkweed
<i>Persicaria punctata</i>	native	3	OBL	forb	annual	smartweed
<i>Persicaria sagittata</i>	native	4	OBL	forb	annual	arrow-leaved tear-thumb
<i>Persicaria virginiana</i>	native	3	FAC	forb	perennial	jumpseed
<i>Phalaris arundinacea</i>	non-native	0	FACW	grass	perennial	reed canary grass
<i>Phegopteris hexagonoptera</i>	native	7	FACU	fern	perennial	broad beech fern
<i>Phlox divaricata</i>	native	5	FACU	forb	perennial	blue phlox
<i>Phryma leptostachya</i>	native	4	UPL	forb	perennial	lopseed
<i>Phytolacca americana</i>	native	0	FACU	forb	perennial	pokeweed
<i>Pilea pumila</i>	native	2	FACW	forb	annual	Canada clearweed
<i>Pinus resinosa</i>	non-native	0	FACU	tree	perennial	red pine
<i>Pinus strobus</i>	native	5	FACU	tree	perennial	eastern white pine
<i>Plantago major</i>	non-native	0	FACU	forb	perennial	great plantain
<i>Poa palustris</i>	native	6	FACW	grass	perennial	fowl blue grass
<i>Poa pratensis</i>	non-native	0	FAC	grass	perennial	Kentucky blue grass
<i>Podophyllum peltatum</i>	native	3	FACU	forb	perennial	may apple
<i>Pogonia ophioglossoides</i>	native	10	OBL	forb	perennial	rose pogonia
<i>Polygonatum biflorum</i>	native	4	FACU	forb	perennial	small solomons seal
<i>Polygonatum pubescens</i>	native	8	FACU	forb	perennial	downy solomons seal
<i>Populus deltoides</i>	native	1	FAC	tree	perennial	eastern cottonwood
<i>Potamogeton crispus</i>	non-native	0	OBL	forb	perennial	curly pondweed
<i>Potentilla simplex</i>	native	2	FACU	forb	perennial	common cinquefoil
<i>Prunella vulgaris</i>	native	1	FAC	forb	perennial	self heal
<i>Prunus serotina</i>	native	1	FACU	tree	perennial	wild black cherry
<i>Prunus virginiana</i>	native	3	FACU	shrub	perennial	common choke cherry
<i>Pteridium aquilinum</i>	native	5	FACU	fern	perennial	bracken fern
<i>Pyrola elliptica</i>	native	8	FACU	forb	perennial	large-leaved shinleaf
<i>Quercus alba</i>	native	5	FACU	tree	perennial	white oak
<i>Quercus bicolor</i>	native	7	FACW	tree	perennial	swamp white oak
<i>Quercus macrocarpa</i>	native	5	FAC	tree	perennial	burr oak
<i>Quercus palustris</i>	native	3	FACW	tree	perennial	pin oak
<i>Quercus rubra</i>	native	4	FACU	tree	perennial	northern red oak
<i>Ranunculus abortivus</i>	native	0	FACW	forb	perennial	little-leaf buttercup
<i>Ranunculus hispidus</i>	native	7	FAC	forb	perennial	rough buttercup
<i>Rhus typhina</i>	native	2	FACU	shrub	perennial	staghorn sumac
<i>Ribes cynosbati</i>	native	4	FAC	shrub	perennial	prickly wild gooseberry
<i>Rosa multiflora</i>	non-native	0	FACU	shrub	perennial	Japanese rose
<i>Rosa palustris</i>	native	5	OBL	shrub	perennial	swampy rose
<i>Rubus allegheniensis</i>	native	2	FACU	shrub	perennial	common blackberry
<i>Rubus occidentalis</i>	native	1	UPL	shrub	perennial	black raspberry

Table A-2 Site Inventory - Mill Pond

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Rumex britannica</i>	native	7	OBL	forb	perennial	great water dock
<i>Rumex crispus</i>	non-native	0	FAC	forb	perennial	curly dock
<i>Rumex verticillatus</i>	native	5	OBL	forb	perennial	swamp dock
<i>Sagittaria latifolia</i>	native	3	OBL	forb	perennial	common arrowhead
<i>Salix discolor</i>	native	3	FACW	shrub	perennial	pussy willow
<i>Salix nigra</i>	native	3	OBL	tree	perennial	black willow
<i>Sambucus canadensis</i>	native	2	FAC	shrub	perennial	common elderberry
<i>Sanicula canadensis</i>	native	2	FACU	forb	perennial	Canadian black snakeroot
<i>Sanicula marilandica</i>	native	6	FACU	forb	perennial	black snakeroot
<i>Sanicula odorata</i>	native	2	FAC	forb	perennial	clustered black snakeroot
<i>Sassafras albidum</i>	native	1	FACU	forb	perennial	sassafras
<i>Sceptridium dissectum</i>	native	3	FAC	fern	perennial	bronze fern
<i>Schoenoplectus tabernaemontani</i>	native	4	OBL	sedge	perennial	great bulrush
<i>Scirpus cyperinus</i>	native	4	OBL	sedge	perennial	wool grass
<i>Scrophularia lanceolata</i>	native	5	FACU	forb	perennial	early figwort
<i>Scutellaria galericulata</i>	native	4	OBL	forb	perennial	marsh skullcap
<i>Setaria pumila</i>	non-native	0	FACU	grass	annual	pigeon grass
<i>Setaria viridis</i>	non-native	0	UPL	grass	annual	green foxtail grass
<i>Smilax rotundifolia</i>	native	4	FAC	vine	perennial	catbrier
<i>Solanum dulcamara</i>	non-native	0	FAC	vine	perennial	bittersweet nightshade
<i>Solidago altissima</i>	native	0	FACU	forb	perennial	tall goldenrod
<i>Solidago caesia</i>	native	7	FACU	forb	perennial	bluestem goldenrod
<i>Solidago gigantea</i>	native	4	FACW	forb	perennial	late goldenrod
<i>Solidago rugosa</i>	native	6	FAC	forb	perennial	rough goldenrod
<i>Spiraea tomentosa</i>	native	4	FACW	shrub	perennial	hardhack
<i>Spirodela polyrhiza</i>	native	5	OBL	forb	perennial	great duckweed
<i>Staphylea trifolia</i>	native	5	FAC	shrub	perennial	bladdernut
<i>Stellaria media</i>	non-native	0	FACU	forb	annual	common chickweed
<i>Symphyotrichum lanceolatum</i>	native	3	FAC	forb	perennial	panicled aster
<i>Symphyotrichum lateriflorum</i>	native	3	FACW	forb	perennial	side-flowering aster
<i>Symphyotrichum pilosum</i>	native	0	FACU	forb	perennial	hairy aster
<i>Symphyotrichum puniceum</i>	native	7	OBL	forb	perennial	bristly aster
<i>Symphyotrichum urophyllum</i>	native	4	UPL	forb	perennial	arrow-leaved aster
<i>Symplocarpus foetidus</i>	native	8	OBL	forb	perennial	skunk cabbage
<i>Taraxacum officinale</i>	non-native	0	FACU	forb	perennial	common dandelion
<i>Teucrium canadense</i>	native	3	FACW	forb	perennial	American germander
<i>Thalictrum thalictroides</i>	native	7	FACU	forb	perennial	rue anemone
<i>Thelypteris palustris</i>	native	7	OBL	fern	perennial	marsh shield fern
<i>Tilia americana</i>	native	5	FACU	tree	perennial	American linden
<i>Toxicodendron radicans</i>	native	1	FAC	vine	perennial	eastern poison ivy
<i>Toxicodendron vernix</i>	native	10	OBL	shrub	perennial	poison sumac
<i>Triadenum virginicum</i>	native	10	OBL	forb	perennial	marsh St. John's wort

Table A-2 Site Inventory - Mill Pond

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Tridens flavus</i>	native	1	UPL	grass	perennial	common purpletop
<i>Trifolium hybridum</i>	non-native	0	FACU	forb	perennial	alsike clover
<i>Trifolium repens</i>	non-native	0	FACU	forb	perennial	white clover
<i>Trillium recurvatum</i>	native	4	FACU	forb	perennial	red trillium
<i>Triosteum perfoliatum</i>	native	5	UPL	forb	perennial	late horse gentian
<i>Typha angustifolia</i>	non-native	0	OBL	forb	perennial	narrow-leaved cattail
<i>Typha x glauca</i>	non-native	0	OBL	forb	perennial	hybrid cattail
<i>Ulmus americana</i>	native	3	FACW	tree	perennial	American elm
<i>Urtica dioica</i>	native	1	FACW	forb	perennial	tall stinging nettle
<i>Utricularia macrorhiza</i>	native	5	OBL	forb	perennial	common bladderwort
<i>Vaccinium angustifolium</i>	native	5	FACU	shrub	perennial	early low blueberry
<i>Vaccinium corymbosum</i>	native	9	FACW	shrub	perennial	highbush blueberry
<i>Verbascum thapsus</i>	non-native	0	UPL	forb	biennial	woolly mullein
<i>Verbena urticifolia</i>	native	3	FAC	forb	perennial	white vervian
<i>Verbesina alternifolia</i>	native	3	FACW	forb	perennial	wingstem
<i>Vernonia missurica</i>	native	4	FAC	forb	perennial	Missouri ironweed
<i>Veronica officinalis</i>	non-native	0	UPL	forb	perennial	common speedwell
<i>Viburnum acerifolium</i>	native	8	UPL	shrub	perennial	maple-leaved arrowwood
<i>Viburnum lentago</i>	native	5	FAC	shrub	perennial	nannyberry
<i>Viburnum opulus</i>	non-native	0	FAC	shrub	perennial	European bush cranberry
<i>Vicia cracca</i>	non-native	0	UPL	vine	perennial	cow vetch
<i>Viola blanda</i>	native	8	FACW	forb	perennial	smooth white violet
<i>Viola cucullata</i>	native	9	OBL	forb	perennial	marsh blue violet
<i>Viola nephrophylla</i>	native	8	FACW	forb	perennial	northern blue violet
<i>Viola pubescens</i>	native	5	FACU	forb	perennial	downy yellow violet
<i>Viola sororia</i>	native	1	FAC	forb	perennial	woolly blue violet
<i>Vitis aestivalis</i>	native	4	FACU	vine	perennial	summer grape
<i>Vitis labrusca</i>	native	6	FACU	vine	perennial	fox grape
<i>Vitis riparia</i>	native	1	FACW	vine	perennial	riverbank grape

Mill Pond Wildlife Inventory 2022

Additional Data for Bird Inventory (Table A-3) collected on May 9, 2022 by:

Mark Gidley
Carol Goodall

Table A-3 Bird Inventory			
Scientific Name	Common Name	Scientific Name	Common Name
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	<i>Leiothlypis ruficapilla</i>	Nashville Warbler
<i>Antigone canadensis</i>	Sandhill Crane	<i>Melanerpes carolinus</i>	Red-bellied Woodpecker
<i>Ardea herodias</i>	Great Blue Heron	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker
<i>Baeolophus bicolor</i>	Tufted Titmouse	<i>Molothrus ater</i>	Brown-headed Cowbird
<i>Branta canadensis</i>	Canada Goose	<i>Piranga olivacea</i>	Scarlet Tanager
<i>Buteo lineatus</i>	Red-shouldered Hawk	<i>Poecile atricapillus</i>	Black-capped Chickadee
<i>Cardinalis cardinalis</i>	Northern Cardinal	<i>Sayornis phoebe</i>	Eastern Phoebe
<i>Cathartes aura</i>	Turkey Vulture	<i>Setophaga citrina</i>	Hooded Warbler
<i>Catharus guttatus</i>	Hermit Thrush	<i>Setophaga coronata</i>	Yellow-rumped Warbler
<i>Catharus ustulatus</i>	Swainson's Thrush	<i>Setophaga fusca</i>	Blackburnian Warbler
<i>Certhia americana</i>	Blue-gray Gnatcatcher	<i>Setophaga pensylvanica</i>	Chestnut-sided Warbler
<i>Colaptes auratus</i>	Northern Flicker	<i>Setophaga petechia</i>	Yellow Warbler
<i>Contopus virens</i>	Eastern Wood-Pewee	<i>Setophaga ruticilla</i>	American Redstart
<i>Corvus brachyrhynchos</i>	American Crow	<i>Sialia sialis</i>	Eastern Bluebird
<i>Cyanocitta cristata</i>	Blue Jay	<i>Spinus tristis</i>	American Goldfinch
<i>Dryobates pubescens</i>	Downy Woodpecker	<i>Spizella passerina</i>	Chipping Sparrow
<i>Dryocopus pileatus</i>	Pileated Woodpecker	<i>Turdus migratorius</i>	American Robin
<i>Dumetella carolinensis</i>	Gray Catbird	<i>Tyrannus tyrannus</i>	Eastern Kingbird
<i>Empidonax minimus</i>	Least Flycatcher	<i>Vermivora cyanoptera</i>	Blue-winged Warbler
<i>Empidonax virens</i>	Acadian Flycatcher	<i>Vireo flavifrons</i>	Yellow-throated Vireo
<i>Geothlypis trichas</i>	Common Yellowthroat	<i>Vireo griseus</i>	White-eyed Vireo
<i>Icterus galbula</i>	Baltimore Oriole	<i>Vireo olivaceus</i>	Red-eyed Vireo
<i>Leiothlypis peregrina</i>	Tennessee Warbler	<i>Vireo philadelphicus</i>	Philadelphia Vireo

Table A-4 Mammal Inventory	
Scientific Name	Common Name
<i>Odocoileus virginianus</i>	white-tailed deer
<i>Sciurus carolinensis</i>	gray squirrel
<i>Tamias striatus</i>	eastern chipmunk
<i>Tamiasciurus hudsonicus</i>	red squirrel

Table A-5 Herptiles	
Scientific Name	Common Name
<i>Chrysemys picta</i>	painted turtle
<i>Hyla chrysoscelis/versicolor</i>	gray treefrogs
<i>Plethodon cinereus</i>	eastern red-backed salamander
<i>Pseudacris crucifer</i>	spring peeper
<i>Rana catesbeiana</i>	American bullfrog
<i>Rana clamitans</i>	green frog

Memorial Forest Inventory 2022

Table A-6 Inventory Summary	
Total Species	314
Native Species	257
Non-native Species	57
Total Mean C	3.2
Native Mean C	3.9
Total FQI	56.7
Native FQI	62.5
Adjusted FQI:	35.3
Mean Wetness:	0.3
Native Mean Wetness:	-0.2

Table A-7 Site Inventory - Memorial Forest						
Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Acalypha rhomboidea</i>	native	0	3	forb	annual	three-seeded mercury
<i>Acer rubrum</i>	native	5	0	tree	perennial	red maple
<i>Acer saccharinum</i>	native	1	-3	tree	perennial	silver maple
<i>Achillea millefolium</i>	native	0	3	forb	perennial	common milfoil
<i>Agalinis purpurea</i>	native	6	-3	forb	annual	purple false foxglove
<i>Ageratina altissima</i>	native	2	3	forb	perennial	white snakeroot
<i>Agrimonia parviflora</i>	native	4	-3	forb	perennial	swamp agrimony
<i>Agrostis gigantea</i>	non-native	0	-3	grass	perennial	red top
<i>Ailanthus altissima</i>	non-native	0	3	tree	perennial	tree-of-heaven
<i>Alisma subcordatum</i>	native	2	-5	forb	perennial	common water plantain
<i>Alliaria petiolata</i>	non-native	0	0	forb	biennial	garlic mustard
<i>Ambrosia artemisiifolia</i>	native	0	3	forb	annual	common ragweed
<i>Ambrosia trifida</i>	native	0	0	forb	annual	giant ragweed
<i>Amphicarpaea bracteata</i>	native	5	0	vine	annual	hog-peanut
<i>Andropogon virginicus</i>	native	1	3	grass	perennial	broom sedge
<i>Anemone virginiana</i>	native	4	3	forb	perennial	tall anemone
<i>Apios americana</i>	native	3	-3	vine	perennial	ground nut
<i>Aquilegia canadensis</i>	native	5	3	forb	perennial	columbine
<i>Arabidopsis lyrata</i>	native	7	3	forb	biennial	lyre-leaved rock cress
<i>Arctium minus</i>	non-native	0	3	forb	biennial	common burdock
<i>Aristida purpurascens</i>	native	7	3	grass	perennial	arrow feather
<i>Artemisia vulgaris</i>	non-native	0	5	forb	perennial	mugwort

Table A-7 Site Inventory - Memorial Forest

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Asclepias amplexicaulis</i>	native	7	5	forb	perennial	sand milkweed
<i>Asclepias syriaca</i>	native	1	3	forb	perennial	common milkweed
<i>Asimina triloba</i>	native	6	0	tree	perennial	papaw
<i>Asplenium platyneuron</i>	native	3	3	fern	perennial	ebony spleenwort
<i>Berteroa incana</i>	non-native	0	5	forb	annual	hoary alyssum
<i>Betula alleghaniensis</i>	native	10	0	tree	perennial	yellow birch
<i>Betula nigra</i>	native	2	-3	tree	perennial	river birch
<i>Bidens cernua</i>	native	2	-5	forb	annual	nodding bur marigold
<i>Bidens trichosperma</i>	native	5	-5	forb	annual	tall swamp marigold
<i>Botrypus virginianus</i>	native	4	3	fern	perennial	rattlesnake fern
<i>Bromus inermis</i>	non-native	0	3	grass	perennial	Hungarian brome
<i>Bromus tectorum</i>	non-native	0	5	grass	annual	cheat grass
<i>Calamagrostis canadensis</i>	native	5	-5	grass	perennial	blue joint grass
<i>Calystegia sepium</i>	native	1	0	vine	perennial	American bindweed
<i>Campanulastrum americanum</i>	native	4	0	forb	biennial	American bellflower
<i>Cardamine bulbosa</i>	native	4	-5	forb	perennial	bulb bittercress
<i>Cardamine hirsuta</i>	non-native	0	3	forb	annual	hairy bitter cress
<i>Carduus nutans</i>	non-native	0	3	forb	biennial	musk bristle thistle
<i>Carex albicans</i>	native	5	5	sedge	perennial	sharp-scaled oak sedge
<i>Carex blanda</i>	native	1	0	sedge	perennial	common wood sedge
<i>Carex comosa</i>	native	6	-5	sedge	perennial	bristly sedge
<i>Carex crinita</i>	native	8	-5	sedge	perennial	fringed sedge
<i>Carex davisii</i>	native	3	0	sedge	perennial	awned graceful sedge
<i>Carex gracillima</i>	native	7	3	sedge	perennial	purple-sheathed graceful sedge
<i>Carex granularis</i>	native	2	-3	sedge	perennial	pale sedge
<i>Carex grayi</i>	native	5	-3	sedge	perennial	common bur sedge
<i>Carex grisea</i>	native	3	0	sedge	perennial	common gray sedge
<i>Carex hystericina</i>	native	5	-5	sedge	perennial	porcupine sedge
<i>Carex interior</i>	native	8	-5	sedge	perennial	prairie star sedge
<i>Carex intumescens</i>	native	8	-3	sedge	perennial	shining bur sedge
<i>Carex lurida</i>	native	4	-5	sedge	perennial	bottlebrush sedge
<i>Carex muehlenbergii</i>	native	5	5	sedge	perennial	sand bracted sedge
<i>Carex pellita</i>	native	2	-5	sedge	perennial	common woolly sedge
<i>Carex pennsylvanica</i>	native	5	5	sedge	perennial	Pennsylvania oak sedge
<i>Carex rosea</i>	native	5	3	sedge	perennial	curly-styled bracted sedge
<i>Carex scoparia</i>	native	4	-3	sedge	perennial	lance-fruited oval sedge
<i>Carex sparganioides</i>	native	4	0	sedge	perennial	loose-headed bracted sedge
<i>Carex stipata</i>	native	2	-5	sedge	perennial	common fox sedge
<i>Carex striatula</i>	native	7	5	sedge	perennial	lined sedge
<i>Carex swanii</i>	native	4	3	sedge	perennial	downy green sedge

Table A-7 Site Inventory - Memorial Forest

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Carex tribuloides</i>	native	5	-5	sedge	perennial	broad-leaved oval sedge
<i>Carpinus caroliniana</i>	native	5	0	tree	perennial	blue beech
<i>Carya glabra</i>	native	4	3	tree	perennial	pignut hickory
<i>Carya ovata</i>	native	4	3	tree	perennial	shagbark hickory
<i>Celastrus orbiculatus</i>	non-native	0	5	vine	perennial	oriental bittersweet
<i>Celtis occidentalis</i>	native	3	0	tree	perennial	hackberry
<i>Cephalanthus occidentalis</i>	native	5	-5	shrub	perennial	buttonbush
<i>Ceratophyllum demersum</i>	native	1	-5	forb	perennial	coontail
<i>Cercis canadensis</i>	native	3	3	tree	perennial	eastern redbud
<i>Chelidonium majus</i>	non-native	0	5	forb	biennial	celandine
<i>Chenopodium album</i>	non-native	0	3	forb	annual	lambs quarters
<i>Chimaphila umbellata</i>²SE	native	10	5	forb	perennial	Pipsissewa
<i>Cicuta bulbifera</i>	native	8	-5	forb	perennial	bulblet-bearing water hemlock
<i>Cicuta maculata</i>	native	6	-5	forb	biennial	common water hemlock
<i>Cinna arundinacea</i>	native	4	-3	grass	perennial	common wood reed
<i>Cirsium discolor</i>	native	3	3	forb	biennial	pasture thistle
<i>Coleataenia rigidula</i>	native	4	-3	grass	perennial	red-top cut-throat grass
<i>Comandra umbellata</i>	native	7	3	forb	perennial	bastard toadflax
<i>Commelina communis</i>	non-native	0	3	forb	annual	common day flower
<i>Conium maculatum</i>	non-native	0	-3	forb	biennial	poison hemlock
<i>Convallaria majalis</i>	non-native	0	5	forb	perennial	lily-of-the-valley
<i>Conyza canadensis</i>	native	0	3	forb	annual	horseweed
<i>Cornus florida</i>	native	4	3	tree	perennial	flowering dogwood
<i>Cornus stolonifera</i>	native	4	-3	shrub	perennial	red osier dogwood
<i>Corylus americana</i>	native	4	3	shrub	perennial	American filbert
<i>Crocianthemum canadense</i>	native	7	5	forb	perennial	common rockrose
<i>Croton glandulosus</i>	native	0	5	forb	annual	sand croton
<i>Cyperus lupulinus</i>	native	4	3	sedge	perennial	great plains flat sedge
<i>Cyperus strigosus</i>	native	0	-3	sedge	perennial	long-scaled nut sedge
<i>Dactylis glomerata</i>	non-native	0	3	grass	perennial	orchard grass
<i>Daucus carota</i>	non-native	0	5	forb	biennial	Queen Anne's lace
<i>Decodon verticillatus</i>	native	8	-5	shrub	perennial	swamp loosestrife
<i>Dendrolycopodium obscurum</i>	native	6	3	fern	perennial	ground pine
<i>Dianthus armeria</i>	non-native	0	5	forb	annual	deptford pink
<i>Dichanthelium acuminatum</i>	native	8	0	grass	perennial	Columbia witch grass
<i>Dichanthelium clandestinum</i>	native	3	-3	grass	perennial	deer-tongue grass
<i>Dichanthelium depauperatum</i>	native	6	5	grass	perennial	starved witch grass
<i>Digitaria cognata</i>	native	2	5	grass	perennial	fall witch grass
<i>Digitaria ischaemum</i>	non-native	0	3	grass	annual	smooth crab grass

² SE – State Endangered

Table A-7 Site Inventory - Memorial Forest

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Diphasiastrum digitatum</i>	native	2	5	fern	perennial	trailing ground pine
<i>Draba verna</i>	non-native	0	5	forb	annual	mouse-eared whitlow cress
<i>Dryopteris carthusiana</i>	native	6	-3	fern	perennial	spinulose wood fern
<i>Dulichium arundinaceum</i>	native	10	-5	sedge	perennial	three-way sedge
<i>Echinochloa crus-galli</i>	non-native	0	-3	grass	annual	barnyard grass
<i>Elaeagnus umbellata</i>	non-native	0	3	shrub	perennial	autumn olive
<i>Eleocharis obtusa</i>	native	1	-5	sedge	perennial	blunt spike rush
<i>Eleocharis palustris</i>	native	7	-5	sedge	annual	great spike rush
<i>Elymus canadensis</i>	native	5	3	grass	perennial	Canada wild rye
<i>Equisetum arvense</i>	native	1	0	fern	perennial	common horsetail
<i>Eragrostis spectabilis</i>	native	3	5	grass	perennial	purple love grass
<i>Erechtites hieraciifolius</i>	native	2	3	forb	annual	fireweed
<i>Erigeron strigosus</i>	native	2	3	forb	perennial	daisy fleabane
<i>Euonymus alata</i>	non-native	0	5	shrub	perennial	winged euonymus
<i>Eupatorium perfoliatum</i>	native	4	-5	forb	perennial	common boneset
<i>Eupatorium serotinum</i>	native	0	0	forb	perennial	late boneset
<i>Euphorbia corollata</i>	native	4	5	forb	perennial	flowering spurge
<i>Euphorbia maculata</i>	native	0	3	forb	annual	spotted creeping spurge
<i>Eutrochium maculatum</i>	native	5	-5	forb	perennial	spotted joe pye weed
<i>Fallopia scandens</i>	native	0	0	vine	perennial	climbing false buckwheat
<i>Festuca subverticillata</i>	native	4	3	grass	perennial	nodding fescue
<i>Fimbristylis autumnalis</i>	native	3	-5	sedge	annual	autumn sedge
<i>Fragaria virginiana</i>	native	2	3	forb	perennial	wild strawberry
<i>Fraxinus pennsylvanica</i>	native	2	-3	tree	perennial	green ash
<i>Froelichia floridana</i>	native	5	5	forb	annual	cottonweed
<i>Galium aparine</i>	native	1	3	forb	perennial	sticky-willy
<i>Galium circaeans</i>	native	6	3	forb	perennial	wild licorice
<i>Gaultheria procumbens</i>	native	8	3	forb	perennial	checkerberry
<i>Gaylussacia baccata</i>	native	7	3	shrub	perennial	black huckleberry
<i>Geranium maculatum</i>	native	4	3	forb	perennial	wild geranium
<i>Geum canadense</i>	native	1	0	forb	perennial	white avens
<i>Glechoma hederacea</i>	non-native	0	3	forb	perennial	ground ivy
<i>Gleditsia triacanthos</i>	native	1	3	tree	perennial	honey locust
<i>Glyceria striata</i>	native	4	-5	grass	perennial	fowl manna grass
<i>Goodyera pubescens</i>	native	5	0	forb	perennial	rattlesnake plantain
<i>Hackelia virginiana</i>	native	0	3	forb	biennial	stickseed
<i>Hamamelis virginiana</i>	native	5	3	shrub	perennial	witch hazel
<i>Helianthus divaricatus</i>	native	5	5	forb	perennial	woodland sunflower
<i>Hesperis matronalis</i>	non-native	0	3	forb	perennial	dames rocket
<i>Hibiscus moscheutos</i>	native	4	-5	forb	perennial	crimson-eye rose-mallow
<i>Hieracium gronovii</i>	native	5	5	forb	perennial	hairy hawkweed
<i>Holcus lanatus</i>	non-native	0	3	grass	perennial	velvet grass

Table A-7 Site Inventory - Memorial Forest

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Hordeum jubatum</i>	non-native	0	-3	grass	perennial	squirrel-tail grass
<i>Hylodesmum glutinosum</i>	native	6	5	forb	perennial	pointed tick trefoil
<i>Hypericum majus</i>	native	6	-3	forb	perennial	sand St. John's wort
<i>Hypericum perforatum</i>	non-native	0	3	forb	perennial	common St. John's wort
<i>Ilex verticillata</i>	native	8	-3	shrub	perennial	winterberry
<i>Impatiens capensis</i>	native	2	-3	forb	annual	spotted touch-me-not
<i>Iris virginica</i>	native	5	-5	forb	perennial	southern blue flag
<i>Juglans nigra</i>	native	2	3	tree	perennial	black walnut
<i>Juncus canadensis</i>	native	7	-5	rush	perennial	Canadian rush
<i>Juncus dudleyi</i>	native	2	-3	rush	perennial	Dudley's rush
<i>Juncus effusus</i>	native	3	-5	rush	perennial	common rush
<i>Juncus tenuis</i>	native	0	0	rush	perennial	path rush
<i>Juniperus virginiana</i>	native	2	3	shrub	perennial	eastern red cedar
<i>Krigia biflora</i>	native	5	3	forb	perennial	two-flower false dandelion
<i>Krigia virginica</i>	native	4	5	forb	annual	Virginia dwarf dandelion
<i>Lactuca canadensis</i>	native	2	3	forb	biennial	wild lettuce
<i>Lamium purpureum</i>	non-native	0	5	forb	annual	purple dead nettle
<i>Leersia oryzoides</i>	native	2	-5	grass	perennial	rice cut grass
<i>Leersia virginica</i>	native	4	-3	grass	perennial	white grass
<i>Lemna turionifera</i>	native	3	-5	forb	perennial	perennial duckweed
<i>Leonurus cardiaca</i>	non-native	0	5	forb	perennial	motherwort
<i>Lespedeza capitata</i>	native	4	3	forb	perennial	round-headed bush clover
<i>Leucanthemum vulgare</i>	non-native	0	5	forb	perennial	ox-eye daisy
<i>Lindera benzoin</i>	native	5	-3	shrub	perennial	hairy spicebush
<i>Liquidambar styraciflua</i>	native	4	-3	tree	perennial	sweet gum
<i>Liriodendron tulipifera</i>	native	4	3	tree	perennial	tulip poplar
<i>Lithospermum caroliniense</i>	native	8	5	forb	perennial	hairy puccoon
<i>Lonicera maackii</i>	non-native	0	5	shrub	perennial	amur honeysuckle
<i>Luzula multiflora</i>	native	6	3	rush	perennial	common wood rush
<i>Lycopodium clavatum</i>	native	4	0	fern	perennial	running ground pine
<i>Lycopus americanus</i>	native	3	-5	forb	perennial	common water horehound
<i>Lycopus rubellus</i>	native	8	-5	forb	perennial	stalked water horehound
<i>Lycopus uniflorus</i>	native	5	-5	forb	perennial	northern bugle weed
<i>Lythrum salicaria</i>	non-native	0	-5	forb	perennial	purple loosestrife
<i>Maianthemum canadense</i>	native	8	0	forb	perennial	Canada mayflower
<i>Maianthemum racemosum</i>	native	4	3	forb	perennial	feathery false solomon seal
<i>Maianthemum stellatum</i>	native	6	0	forb	perennial	starry false solomon seal
<i>Menispermum canadense</i>	native	3	0	vine	perennial	moonseed
<i>Micranthes pennsylvanica</i>	native	10	-5	forb	perennial	swamp saxifrage
<i>Mitchella repens</i>	native	8	3	forb	perennial	partridge berry
<i>Morus alba</i>	non-native	0	0	tree	perennial	white mulberry
<i>Muhlenbergia frondosa</i>	native	3	-3	grass	perennial	common satin grass

Table A-7 Site Inventory - Memorial Forest

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Myriophyllum sibiricum</i>	native	7	-5	forb	perennial	spiked water milfoil
<i>Nuphar advena</i>	native	6	-5	forb	perennial	spatterdock
<i>Nuttallanthus canadensis</i>	native	2	5	forb	annual	blue toadflax
<i>Nymphaea odorata</i>	native	6	-5	forb	perennial	fragrant water lily
<i>Nyssa sylvbluatica</i>	native	5	0	tree	perennial	black gum
<i>Oenothera biennis</i>	native	0	3	forb	biennial	common evening primrose
<i>Oenothera laciniata</i>	native	2	3	forb	annual	ragged evening primrose
<i>Onoclea sensibilis</i>	native	4	-3	fern	perennial	sensitive fern
<i>Osmorhiza claytonii</i>	native	3	3	forb	perennial	hairy sweet cicely
<i>Osmunda regalis</i>	native	8	-5	fern	perennial	regal fern
<i>Osmundastrum cinnamomeum</i>	native	9	-3	fern	perennial	cinnamon fern
<i>Oxalis stricta</i>	native	0	3	forb	perennial	tall wood-sorrel
<i>Packera aurea</i>	native	4	-3	forb	perennial	golden ragwort
<i>Packera glabella</i>	native	0	-3	forb	biennial	butterweed
<i>Panicum dichotomiflorum</i>	native	0	-3	grass	annual	fall panicum
<i>Panicum flexile</i>	native	5	-3	grass	annual	slender panic grass
<i>Panicum virgatum</i>	native	4	0	grass	perennial	prairie switch grass
<i>Parthenocissus quinquefolia</i>	native	2	3	vine	perennial	Virginia creeper
<i>Paspalum setaceum</i>	native	3	3	grass	perennial	hairy lens grass
<i>Perideridia americana</i>	native	9	5	forb	perennial	thicket parsley
<i>Persicaria amphibia</i>	native	4	-5	forb	perennial	water heartsease
<i>Persicaria lapathifolia</i>	native	0	-3	forb	annual	curlytop ladys thumb
<i>Persicaria maculosa</i>	non-native	0	-3	forb	annual	ladys thumb
<i>Persicaria pensylvanica</i>	native	0	-3	forb	annual	pinkweed
<i>Persicaria punctata</i>	native	3	-5	forb	annual	smartweed
<i>Persicaria sagittata</i>	native	4	-5	forb	annual	arrow-leaved tear-thumb
<i>Persicaria virginiana</i>	native	3	0	forb	perennial	jumpseed
<i>Phalaris arundinacea</i>	non-native	0	-3	grass	perennial	reed canary grass
<i>Phytolacca americana</i>	native	0	3	forb	perennial	pokeweed
<i>Pilea pumila</i>	native	2	-3	forb	annual	Canada clearweed
<i>Pinus resinosa</i>	non-native	0	3	tree	perennial	red pine
<i>Pinus strobus</i>	native	5	3	tree	perennial	eastern white pine
<i>Plantago lanceolata</i>	non-native	0	3	forb	perennial	English plantain
<i>Plantago major</i>	non-native	0	3	forb	perennial	great plantain
<i>Plantago virginica</i>	native	2	3	forb	annual	dwarf plantain
<i>Platanus occidentalis</i>	native	3	-3	tree	perennial	American sycamore
<i>Poa palustris</i>	native	6	-3	grass	perennial	fowl blue grass
<i>Poa pratensis</i>	non-native	0	0	grass	perennial	Kentucky blue grass
<i>Podophyllum peltatum</i>	native	3	3	forb	perennial	may apple
<i>Polygonatum biflorum</i>	native	4	3	forb	perennial	small solomons seal
<i>Polygonum tenue</i>	native	4	5	forb	annual	slender knotweed
<i>Polystichum acrostichoides</i>	native	5	5	fern	perennial	christmas fern

Table A-7 Site Inventory - Memorial Forest

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Potentilla simplex</i>	native	2	3	forb	perennial	common cinquefoil
<i>Proserpinaca palustris</i>	native	4	-5	forb	perennial	false mermaidweed
<i>Prunella vulgaris</i>	native	1	0	forb	perennial	self heal
<i>Prunus serotina</i>	native	1	3	tree	perennial	wild black cherry
<i>Prunus virginiana</i>	native	3	3	shrub	perennial	common choke cherry
<i>Pseudognaphalium obtusifolium</i>	native	2	5	forb	biennial	old-field balsam
<i>Pteridium aquilinum</i>	native	5	3	fern	perennial	bracken fern
<i>Quercus alba</i>	native	5	3	tree	perennial	white oak
<i>Quercus bicolor</i>	native	7	-3	tree	perennial	swamp white oak
<i>Quercus macrocarpa</i>	native	5	0	tree	perennial	burr oak
<i>Quercus palustris</i>	native	3	-3	tree	perennial	pin oak
<i>Quercus rubra</i>	native	4	3	tree	perennial	northern red oak
<i>Quercus velutina</i>	native	4	5	tree	perennial	black oak
<i>Ranunculus abortivus</i>	native	0	-3	forb	perennial	little-leaf buttercup
<i>Ranunculus sceleratus</i>	native	3	-5	forb	annual	cursed crowfoot
<i>Rhamnus cathartica</i>	non-native	0	0	tree	perennial	common buckthorn
<i>Rhexia virginica</i>	native	5	-5	forb	perennial	handsome harry
<i>Rhus copallinum</i>	native	3	5	shrub	perennial	dwarf sumac
<i>Ribes cynosbati</i>	native	4	0	shrub	perennial	prickly wild gooseberry
<i>Rosa multiflora</i>	non-native	0	3	shrub	perennial	Japanese rose
<i>Rosa palustris</i>	native	5	-5	shrub	perennial	swampy rose
<i>Rubus allegheniensis</i>	native	2	3	shrub	perennial	common blackberry
<i>Rubus flagellaris</i>	native	2	3	shrub	perennial	common dewberry
<i>Rubus hispidus</i>	native	6	-3	shrub	perennial	swampy dewberry
<i>Rubus occidentalis</i>	native	1	5	shrub	perennial	black raspberry
<i>Rumex acetosella</i>	non-native	0	3	forb	perennial	field sorrel
<i>Rumex verticillatus</i>	native	5	-5	forb	perennial	swamp dock
<i>Sagittaria latifolia</i>	native	3	-5	forb	perennial	common arrowhead
<i>Sambucus canadensis</i>	native	2	0	shrub	perennial	common elderberry
<i>Sanicula odorata</i>	native	2	0	forb	perennial	clustered black snakeroot
<i>Saponaria officinalis</i>	non-native	0	3	forb	perennial	bouncing bet
<i>Sassafras albidum</i>	native	1	3	forb	perennial	sassafras
<i>Sceptridium dissectum</i>	native	3	0	fern	perennial	bronze fern
<i>Schizachyrium scoparium</i>	native	4	3	grass	perennial	little bluestem
<i>Schoenoplectus tabernaemontani</i>	native	4	-5	sedge	perennial	great bulrush
<i>Scirpus cyperinus</i>	native	4	-5	sedge	perennial	wool grass
<i>Scrophularia lanceolata</i>	native	5	3	forb	perennial	early figwort
<i>Setaria faberi</i>	non-native	0	3	grass	annual	giant foxtail grass
<i>Setaria pumila</i>	non-native	0	3	grass	annual	pigeon grass
<i>Silene stellata</i>	native	5	5	forb	perennial	starry campion
<i>Smilax illinoensis</i>	native	6	5	vine	perennial	Illinois carrion-flower
<i>Smilax rotundifolia</i>	native	4	0	vine	perennial	catbrier

Table A-7 Site Inventory - Memorial Forest

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Solanum carolinense</i>	native	0	3	forb	perennial	horse nettle
<i>Solidago caesia</i>	native	7	3	forb	perennial	bluestem goldenrod
<i>Solidago canadensis</i>	native	0	3	forb	perennial	Canada goldenrod
<i>Solidago rugosa</i>	native	6	0	forb	perennial	rough goldenrod
<i>Sphenopholis intermedia</i>	native	3	0	grass	perennial	slender wedge grass
<i>Spiraea alba</i>	native	4	-3	shrub	perennial	meadowsweet
<i>Spiraea tomentosa</i>	native	4	-3	shrub	perennial	hardhack
<i>Spiranthes cernua</i>	native	3	-3	forb	perennial	nodding ladies tresses
<i>Spirodela polyrhiza</i>	native	5	-5	forb	perennial	great duckweed
<i>Stellaria media</i>	non-native	0	3	forb	annual	common chickweed
<i>Symphyotrichum lateriflorum</i>	native	3	-3	forb	perennial	side-flowering aster
<i>Symphyotrichum pilosum</i>	native	0	3	forb	perennial	hairy aster
<i>Symphyotrichum urophyllum</i>	native	4	5	forb	perennial	arrow-leaved aster
<i>Symplocarpus foetidus</i>	native	8	-5	forb	perennial	skunk cabbage
<i>Taraxacum officinale</i>	non-native	0	3	forb	perennial	common dandelion
<i>Taxodium distichum</i>	native	10	-5	tree	perennial	bald cypress
<i>Thalictrum dasycarpum</i>	native	4	-3	forb	perennial	purple meadow rue
<i>Thelypteris palustris</i>	native	7	-5	fern	perennial	marsh shield fern
<i>Thlaspi arvense</i>	non-native	0	3	forb	annual	field penny cress
<i>Toxicodendron radicans</i>	native	1	0	vine	perennial	eastern poison ivy
<i>Tragopogon dubius</i>	non-native	0	5	forb	biennial	sand goats beard
<i>Triadenum virginicum</i>	native	10	-5	forb	perennial	marsh St. john's wort
<i>Tridens flavus</i>	native	1	5	grass	perennial	common purpletop
<i>Trifolium hybridum</i>	non-native	0	3	forb	perennial	alsike clover
<i>Trifolium repens</i>	non-native	0	3	forb	perennial	white clover
<i>Trillium recurvatum</i>	native	4	3	forb	perennial	red trillium
<i>Turritis glabra</i>	native	3	5	forb	biennial	tower mustard
<i>Typha x glauca</i>	non-native	0	-5	forb	perennial	hybrid cattail
<i>Ulmus americana</i>	native	3	-3	tree	perennial	American elm
<i>Urtica dioica</i>	native	1	-3	forb	perennial	tall stinging nettle
<i>Vaccinium angustifolium</i>	native	5	3	shrub	perennial	early low blueberry
<i>Vaccinium corymbosum</i>	native	9	-3	shrub	perennial	highbush blueberry
<i>Verbascum thapsus</i>	non-native	0	5	forb	biennial	woolly mullein
<i>Verbena urticifolia</i>	native	3	0	forb	perennial	white vervian
<i>Verbesina alternifolia</i>	native	3	-3	forb	perennial	wingstem
<i>Vernonia missurica</i>	native	4	0	forb	perennial	Missouri ironweed
<i>Veronica officinalis</i>	non-native	0	5	forb	perennial	common speedwell
<i>Veronica peregrina</i>	native	0	-3	forb	annual	smooth purslane speedwell
<i>Viburnum recognitum</i>	non-native	0	0	shrub	perennial	smooth arrowwood
<i>Viola lanceolata</i>	native	7	-5	forb	perennial	lance-leaved violet
<i>Viola sororia</i>	native	1	0	forb	perennial	woolly blue violet
<i>Viola striata</i>	native	4	-3	forb	perennial	common white violet

Table A-7 Site Inventory - Memorial Forest

Scientific Name	Native	C	W	Physiognomy	Duration	Common Name
<i>Vitis aestivalis</i>	native	4	3	vine	perennial	summer grape
<i>Vitis labrusca</i>	native	6	3	vine	perennial	fox grape
<i>Vitis riparia</i>	native	1	-3	vine	perennial	riverbank grape

Memorial Forest Wildlife Inventory 2022

Additional Data for Bird Inventory (Table A-8) collected on May 9, 2022 by:
Mark Gidley
Carol Goodall

Table A-8 Bird Inventory			
Scientific Name	Common Name	Scientific Name	Common Name
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	<i>Myiarchus crinitus</i>	Great Crested Flycatcher
<i>Aix sponsa</i>	Wood Duck	<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak
<i>Ardea herodias</i>	Great Blue Heron	<i>Pipilo erythrophthalmus</i>	Eastern Towhee
<i>Baeolophus bicolor</i>	Tufted Titmouse	<i>Piranga olivacea</i>	Scarlet Tanager
<i>Buteo lineatus</i>	Red-shouldered Hawk	<i>Sayornis phoebe</i>	Eastern Phoebe
<i>Butorides virescens</i>	Green Heron	<i>Setophaga dominica</i>	Yellow-throated Vireo
<i>Cardinalis cardinalis</i>	Northern Cardinal	<i>Setophaga petechia</i>	Yellow Warbler
<i>Cathartes aura</i>	Turkey Vulture	<i>Setophaga pinus</i>	Pine Warbler
<i>Catharus guttatus</i>	Hermit Thrush	<i>Sitta carolinensis</i>	White-breasted Nuthatch
<i>Catharus ustulatus</i>	Swainson's Thrush	<i>Spizella passerina</i>	Chipping Sparrow
<i>Charadrius vociferus</i>	Killdeer	<i>Spizella pusilla</i>	Field Sparrow
<i>Colaptes auratus</i>	Northern Flicker	<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow
<i>Contopus virens</i>	Eastern Wood-Pewee	<i>Thryothorus ludovicianus</i>	Carolina Wren
<i>Dryobates pubescens</i>	Downy Woodpecker	<i>Tringa solitaria</i>	Solitary Sandpiper
<i>Dumetella carolinensis</i>	Gray Catbird	<i>Troglodytes aedon</i>	House Wren
<i>Geothlypis trichas</i>	Common Yellowthroat	<i>Tyrannus tyrannus</i>	Eastern Kingbird
<i>Leiostyris peregrina</i>	Tennessee Warbler	<i>Vireo gilvus</i>	Warbling Vireo
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	<i>Vireo griseus</i>	White-eyed Vireo
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	<i>Zonotrichia leucophrys</i>	White-crowned Sparrow
<i>Melospiza melodia</i>	Song Sparrow		

Table A-9 Mammal Inventory	
Scientific Name	Common Name
<i>Odocoileus virginianus</i>	white-tailed deer
<i>Tamiasciurus hudsonicus</i>	red squirrel

Table A-10 Herptile Inventory	
Scientific Name	Common Name
<i>Bufo americanus</i>	American toad
<i>Chrysemys picta</i>	painted turtle
<i>Hyla chrysoscelis/versicolor</i>	gray treefrogs
<i>Rana catesbeiana</i>	American bullfrog
<i>Rana clamitans</i>	green frog
<i>Terrapene Carolina</i>	Eastern box turtle
<i>Thamnophis saurita</i>	ribbon snake

Table A-11 Insect Inventory	
Scientific Name	Common Name
<i>Papilio glaucus</i>	eastern tiger swallowtail