

**To:** Mr. Jason Bing, Ann Arbor Public Schools

**From:** Josiah Kleinhenz and Genesis Mickel, Environmental Consulting & Technology, Inc. (ECT)

**CC:** Ryan Blankenship, CWB®, ECT  
Steve Thomas, ECT

**Date:** April 14, 2025

**Re:** Thurston Elementary School – Bat Habitat Assessment Memorandum

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### Introduction

Ann Arbor Public Schools (AAPS) contracted Environmental Consulting and Technology, Inc. (ECT) to conduct a bat habitat assessment for the federally endangered Indiana bat (*Myotis sodalis*), the federally endangered northern long-eared bat (*Myotis septentrionalis*), the federally proposed endangered tricolored bat (*Perimyotis subflavus*), and the state-threatened little brown bat (*Myotis lucifugus*) for the proposed tree clearing and transplanting within approximately 9.55 acres (action) as part of the 25.10-acre New Thurston Elementary School Rebuild Project (Project) in Ann Arbor, Washtenaw County, Michigan (Township 02S, Range 06E, Section 14 and 15). The Project Area is illustrated in **Attachment A**. ECT has prepared this memorandum to summarize potential suitable summer habitat for these listed bat species in compliance with the U.S. Fish and Wildlife Service's (USFWS) Endangered Species Act of 1973 (ESA) conservation measures. These opinions are based on ECT's understanding of the life history of the species and our professional interpretation of their preferred potential suitable summer habitat.

### Project Screening

Federally listed species are protected under federal law by the Endangered Species Act of 1973 (ESA; 16 U.S.C. §1531-1544). To help streamline the ESA review process, the USFWS Michigan Ecological Services Field Office developed the *Instructions for Conducting Endangered Species Act Project Reviews in Michigan Using IPaC*<sup>1</sup>. The USFWS Information for Planning and Consultation (IPaC) tool provides information regarding federally listed threatened and endangered species as well as proposed and candidate species based on known records and species ranges within the Project Area and surrounding region. According to the IPaC, the Project is within range of the Federally endangered Indiana bat and the proposed federally endangered tricolored bat. The IPaC species list is located in **Attachment B**. According to Figure 16 of Appendix L of the *2024 Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines* the Project is located within the known hibernating range of the

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<sup>1</sup> USFWS, Version 3.0, June, 2024

Indiana bat, northern long-eared bat, and tricolored bat<sup>2</sup>. The Michigan Natural Features Inventory (MNFI) was queried to identify historical records of bats near the Project Area. According to the MNFI web database search, the Project is located near historical occurrence records of the Indiana bat (1965-05-11), northern long-eared bat (2003-07-09), and little brown bat (1992-08-23)<sup>3</sup>. The MNFI web database search species list is included in **Attachment C**.

### **Listed Bat Species Habitat**

#### **Winter Habitat**

Indiana bats, northern long-eared bats, tricolored bats, and little brown bats spend the winter hibernating in the cracks and crevices of caves and mines. Indiana bats and northern long-eared bats have been documented using caves (and their associated sinkholes, fissures, and other karst features), as well as anthropogenic features such as mines and tunnels as winter hibernation habitat (i.e., hibernacula).

#### **Summer Habitat**

Suitable summer habitats for these bats consist of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures.

Suitable summer roosting habitat for the Indiana bat includes a variety of forested and wooded habitats containing trees with a diameter at breast height (DBH) of five inches or greater and exhibiting potential roosting characteristics such as crack/crevices, cavities, exfoliating bark, and canopy structure. Additionally, trees with sun exposure up to six hours or more are preferable. Snags, or dead trees, containing various roosting characteristics are also suitable. Indiana bats may also roost in man-made structures that include buildings, barns, bridges, and bat houses<sup>4</sup>.

Suitable summer roosting habitat for northern long-eared bats includes forests and woodlots containing potential roosts (i.e., live trees and/or snags  $\geq$  three [3] inches DBH that have exfoliating bark, cracks, crevices, and/or cavities), as well as linear features such as fencerows, riparian forests, and other wooded corridors. Northern long-eared bat may also roost in man-made structures<sup>5</sup>.

Suitable roosting summer habitat for tricolored bats includes various forested and wooded habitats containing trees that have clusters of live or dead leaves, often within the mid or upper canopies. Potential roost trees for tricolored bats include all species of trees with a diameter at breast height (DBH) of 4 inches or greater, a crown height of 15 feet or higher, exhibiting suitable roosting substrate

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<sup>2</sup> USFWS, "2024 Range-Wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines [March 2024]."

<sup>3</sup> MSU, "Michigan State University – Michigan Natural Features Inventory (MNFI)."

<sup>4</sup> USFWS, "Species Profile for Indiana Bat (*Myotis Sodalis*)." Environmental Conservation Online System (ECOS). 2024. <https://ecos.fws.gov/ecp/species/5949>.

<sup>5</sup> USFWS, "Species Profile for Northern Long-Eared Bat (*Myotis Septentrionalis*)." Environmental Conservation Online System (ECOS). 2024. <https://ecos.fws.gov/ecp/species/9045>

(e.g., live and dead leaf clusters of live and recently dead deciduous trees, Spanish moss (*Tillandsia usneoides*), beard lichen (*Usnea* spp.), clusters of dead pine needles, abandoned squirrel nests, and exfoliating bark), suitable roosting characteristics (e.g., snags, cracks, crevices, and cavities), and moderate to high solar exposure. Generally, tricolored bats prefer trees with larger DBHs and they may use a variety of tree species to roost in, though oak species (*Quercus* spp.) are favored<sup>6</sup>.

Little brown bats use a wide range of summer season habitats that include tree cracks and crevices, artificial structures, bat houses, and beneath rocks and piles of wood<sup>7</sup>. The preferred potential roost tree DBH of this species has not yet been specified by the USFWS.

### Field-based Habitat Assessment

ECT conducted a site visit on March 14, 2025, in accordance with Step 2 of Phase 1 of the 2024 *Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines*. A comprehensive assessment utilizing bat habitat tree stand forms for the Indiana bat, northern long-eared bat, tricolored bat, and little brown bat was conducted during the site visit. During the site visit, the biologists identified potentially suitable summer roosting habitats for the listed bats based on the habitat description provided in the 2024 *Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines*.

A comprehensive assessment utilizing tree stand forms and an inventory of incidentally observed potential roost trees (PRTs) for the Indiana bat, northern long-eared bat, tricolored bat, and little brown bat were collected during the site visit. Additionally, forested habitat within the Project Area was assessed for foraging suitability for the aforementioned bat species. An assessment or inventory of culverts or bridges where the bats could potentially roost was not conducted as part of this habitat assessment. During the site visit, the biologists identified potentially suitable bat summer roosting habitat based on the habitat descriptions provided in the 2024 *Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines*. Suitable roosting habitat characteristics assessed for the habitat assessment included a variety of forested and wooded habitats, including forests, woodlots, forested fence rows, and flight corridors. Additionally, potentially suitable foraging habitats, including forest edges, forest openings, riparian areas, and open water features were observed within the Project Area, but were not quantified. Photographs of each unique tree stand and observed PRT were collected with sub-meter accurate GPS coordinates. Stand assessment forms were collected within portions of the Project Area in which ECT identified potentially suitable bat roosting and foraging habitats during the site visit. The stand assessment forms and potential roost tree inventory form can be found in **Attachment C**. Photographs of potentially suitable bat roosting habitats and observed potential roost trees can be found in **Attachment D**.

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<sup>6</sup> USFWS, "Species Profile for Tricolored Bat (*Perimyotis Subflavus*)." ECOS: Environmental Conservation Online System [Web Application]. Environmental Conservation Online System (ECOS). 2024. <https://ecos.fws.gov/ecp/species/10515>.<sup>7</sup> USFWS, "Little Brown Bat (*Myotis Lucifugus*)." U.S. Fish & Wildlife Service. 2024. <https://www.fws.gov/species/little-brown-bat-myotis-lucifugus>.

<sup>7</sup> USFWS, "Little Brown Bat (*Myotis Lucifugus*)." U.S. Fish & Wildlife Service. 2024. <https://www.fws.gov/species/little-brown-bat-myotis-lucifugus>.

## Results

Dominant tree species within the Project Area consisted of pin oak (*Quercus palustris*), eastern cottonwood (*Populus deltoides*), American elm (*Ulmus americana*), white pine (*Pinus strobus*), honey locust (*Gleditsia triacanthos*), green ash (*Fraxinus pennsylvanica*), and river birch (*Betula nigra*). Sub-dominant tree species within the Project Area include eastern red cedar (*Juniperus virginiana*), common buckthorn (*Rhamnus cathartica*), green ash, sugar maple (*Acer saccharum*), American elm, burr oak (*Quercus macrocarpa*), Chinquapin oak (*Quercus muehlenbergii*), and black willow (*Salix nigra*).

Based on ECT's understanding of the life history requirements of the Indiana bat and tricolored bat and professional judgement, habitat quality was defined as high, moderate, or low based on the following characteristics:

- **High-quality habitat** – comprising large, contiguous tracts of mature woodland surrounding stream corridors. These areas had large-diameter deciduous trees (greater than 25 inches DBH), trees with suitable roosting characteristics, and continuity to large tracts of off-site forested habitat.
- **Moderate-quality habitat** – comprising mature stands of trees with medium to large diameter (10-to-20-inch DBH), connectivity to larger tracts of forested habitat, and trees with suitable roosting characteristics.
- **Low-quality habitat** – comprising portions of the Project Area with small to medium diameter (four-to-10-inch DBH), tracts located within 1,000 feet of contiguous forested habitat, and trees with suitable characteristics for roosting.

Stand assessment forms summarizing the characteristics of the observed tricolored bat habitat within the Project Area can be found in **Attachment D**.

Within the 25.10-acre Project Area, ECT identified a total of 9.55 acres of potentially suitable forested summer roosting habitat for both the Indiana bat, northern long-eared bat, tricolored bat, and little brown bat (**Attachment A, Figure 1**). ECT's evaluations of bat habitats identified two forested woodlots (Stand Form 02 and Stand Form 04), one group of scattered ornamental trees (Stand Form 03), and one group of scattered young oak saplings that have been planted in a young oak savannah area that is maintained by the Thurston Nature Center (Stand Form 01). (**Attachment D**). Bat habitat areas identified as having low-quality potential habitat are described in Stand Form 01 and Stand Form 03 due to having minimum to absent summer roosting characteristics ideal for supporting Indiana bats, northern long-eared bats, and little brown bats (**Attachment D**). Bat habitat areas identified as having high-quality potential habitat for tricolored bats and moderate quality for Indiana bats, northern long-eared bats, tricolored bats, and little brown bats are described in Stand Form 02 and Stand Form 04 due to the presence of significant amounts of potential roosting substrates and open water foraging sources. Photographs of potential bat habitat areas can be found in **Attachment E**.

Additionally, 18 PRTs were identified that were not ornamental scattered trees across the landscape (**Attachment D**). PRTs 01 to 08 consisted of young trees growing within the forested lot at Stand Form 02, ranging in DBH from 6 to 15 inches, that contained minimal potentially suitable roosting characteristics within the woodlot in the Project Area. PRTs 09 to 16 consisted of young trees growing within the scattered young oak saplings growing in the newly planted oak savannah at Stand Form 01,

ranging in height from 13 to 21 feet and ranging in DBH from 4 to 7 inches, that contained minimal potentially suitable roosting characteristics. PRT16 did not meet the standard minimum of 15-foot height or greater described in the *2024 Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines* to be considered a potential roost tree for tricolored bats, but it was recorded as part of the larger group of planted oak trees. PRTs 17 and 18 consisted of larger trees growing along a tree row on the east side of the Project Area on the east side of Stand Form 01, ranging in DBH from 25 to 30 inches, that contained potentially suitable roosting substrates. Due to reasons that range from tree isolation, size, limited solar exposure, or little to no roosting substrate, all 18 PRTs were considered to have low roosting potential for bats. Photographs of potential bat habitats and PRTs can be found in **Attachment E**.

In addition, two artificial bat boxes are present in the oak savannah. Bat use of these structures has been confirmed by the presence of guano and thus are considered occupied bat habitat at Thurston. Species use is unknown. These structures were relocated northward and away from future construction areas on March 26, 2025. Photos of the bat boxes have been included in **Appendix E**.

### **Conclusions**

The Project is located within the “consultation range” of the federally endangered Indiana bat and the federally proposed endangered tricolored bat. While the IPaC did not identify the federally endangered northern long-eared bat as a potential species to occur within the Project Area, the MNFI web database search identified a record of the species occurring in Washtenaw County in July 2003. The MNFI web database search also identified a record of the state-threatened little brown bat which occurred in Washtenaw County in August 1992.

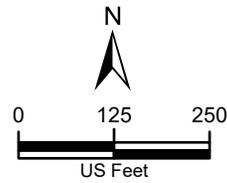
ECT conducted an on-site habitat assessment on March 14, 2025, to identify potentially suitable summer roosting habitats for the four identified species. Of the 25.10-acre Project Area, a total of 9.55 acres of potentially suitable summer habitat and 18 PRTs that were not ornamental trees were identified within the Project Area. Stand Form 01 is a bat habitat area that is identified as having low-quality potential habitat for Indiana bat, northern long-eared bat, tricolored bat, and little brown bat. Stand Form 03 is a bat habitat area that is identified as having low-quality potential habitat for all four bat species. Stand Form 02 and Stand Form 04 are bat habitat areas that were identified as having high-quality potential habitat for tricolored bats and moderate quality for Indiana bats, northern long-eared bats, tricolored bats, and little brown bats. All 18 PRTs were considered to have low roosting potential for bats.

**Attachment A**

**Figures**



- Project Area (± 25.10 Ac.)
- ♣ Roosting Trees
- ▲ Photo Location
- ▲ Bat Box Location/Photo
- Bat Habitat Area (± 9.55 .ac)



Base Layer: USDA NAIP, 2023

**Figure 1**  
**Bat Field Habitat Assessment**

Thurston Elementary School  
Washtenaw County, Michigan

Date: 4/2/2025



**Attachment B**

**Information for Planning and Conservation – Official Species List**



## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Michigan Ecological Services Field Office  
2651 Coolidge Road Suite 101  
East Lansing, MI 48823-6360  
Phone: (517) 351-2555 Fax: (517) 351-1443

In Reply Refer To:

04/02/2025 20:00:07 UTC

Project Code: 2025-0077677

Project Name: Thurston Elementary School Rebuild

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

### **Official Species List**

The attached species list identifies any Federally threatened, endangered, proposed and candidate species that may occur within the boundary of your proposed project or may be affected by your proposed project. The list also includes designated critical habitat if present within your proposed project area or affected by your project. This list is provided to you as the initial step of the consultation process required under section 7(c) of the Endangered Species Act, also referred to as Section 7 Consultation.

Under 50 CFR 402.12(e) (the regulations that implement section 7 of the Endangered Species Act), the accuracy of this species list should be verified after 90 days. You may verify the list by visiting the IPaC website (<https://ipac.ecosphere.fws.gov/>) at regular intervals during project planning and implementation. To update an Official Species List in IPaC: from the My Projects page, find the project, expand the row, and click Project Home. In the What's Next box on the Project Home page, there is a Request Updated List button to update your species list. Be sure to select an "official" species list for all projects.

### **Consultation requirements and next steps**

Section 7 of the Endangered Species Act of 1973 requires that actions authorized, funded, or carried out by Federal agencies not jeopardize Federally threatened or endangered species or adversely modify designated critical habitat. To fulfill this mandate, Federal agencies (or their designated non-Federal representative) must consult with the Fish and Wildlife Service if they determine their project may affect listed species or critical habitat.

There are two approaches to evaluating the effects of a project on listed species.

Approach 1. Use the All-species Michigan determination key in IPaC. This tool can assist you in making determinations for listed species for some projects. In many cases, the determination key

will provide an automated concurrence that completes all or significant parts of the consultation process. Therefore, we strongly recommend screening your project with the **All-Species Michigan Determination Key (Dkey)**. For additional information on using IPaC and available Determination Keys, visit <https://www.fws.gov/media/mifo-ipac-instructions> (and click on the attachment), or for a video overview, please visit: <https://www.youtube.com/watch?v=FfcerNCiL0I>. Please carefully review your Dkey output letter to determine whether additional steps are needed to complete the consultation process.

Approach 2. Evaluate the effects to listed species on your own without utilizing a determination key. Once you obtain your official species list, you are not required to continue in IPaC, although in most cases using a determination key should expedite your review. If the project is a Federal action, you should review our section 7 step-by-step instructions before making your determinations: <https://www.fws.gov/office/midwest-region-headquarters/midwest-section-7-technical-assistance>. If you evaluate the details of your project and conclude “no effect,” document your findings, and your listed species review is complete; you do not need our concurrence on “no effect” determinations. If you cannot conclude “no effect,” you should coordinate/consult with the Michigan Ecological Services Field Office. The preferred method for submitting your project description and effects determination (if concurrence is needed) is electronically to [EastLansing@fws.gov](mailto:EastLansing@fws.gov). Please include a copy of this official species list with your request.

For all **wind energy projects**, please contact this field office directly for assistance, even if no Federally listed plants, animals or critical habitat are present within your proposed project area or may be affected by your proposed project.

### **Migratory Birds**

Please see the “Migratory Birds” section below for important information regarding incorporating migratory birds into your project planning. Our Migratory Bird Program has developed recommendations, best practices, and other tools to help project proponents voluntarily reduce impacts to birds and their habitats. The Bald and Golden Eagle Protection Act prohibits the take and disturbance of eagles without a permit. If your project is near an eagle nest or winter roost area, see our Eagle Permits website at <https://www.fws.gov/program/eagle-management> to help you avoid impacting eagles or determine if a permit may be necessary.

Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your consideration of threatened and endangered species during your project

planning. Please include a copy of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

## **OFFICIAL SPECIES LIST**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Michigan Ecological Services Field Office**

2651 Coolidge Road Suite 101

East Lansing, MI 48823-6360

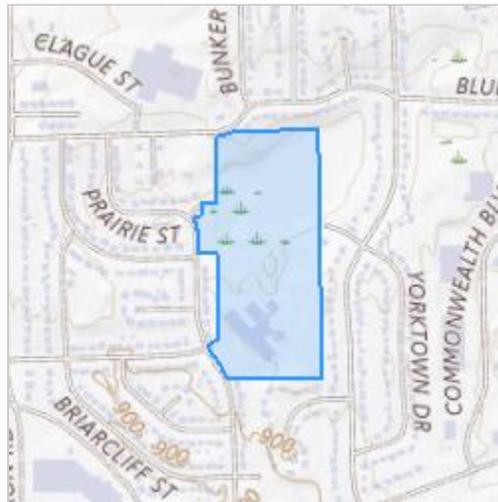
(517) 351-2555

## PROJECT SUMMARY

**Project Code:** 2025-0077677  
**Project Name:** Thurston Elementary School Rebuild  
**Project Type:** Commercial Development  
**Project Description:** Thurston Elementary School will be rebuilt on the same property in Ann Arbor, Michigan. Sixteen (16) non-landscaped trees would be transplanted further north from where they are to just south of the Thurston Nature Center. Scattered planted trees around the current location of Thurston Elementary School will also be transplanted just south of Thurston Nature Center. For the Thurston Elementary School Rebuild Project, Ann Arbor Public Schools and Environmental Consulting and Technology, Inc. have chosen to follow procedures 1-3b of the Instructions for Conducting Endangered Species Act Project Reviews in Michigan using IPaC (June 2024).

**Project Location:**

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.307831050000004,-83.70134739250035,14z>



**Counties:** Washtenaw County, Michigan

## ENDANGERED SPECIES ACT SPECIES

There is a total of 8 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

**MAMMALS**

NAME	STATUS
Indiana Bat <i>Myotis sodalis</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/5949">https://ecos.fws.gov/ecp/species/5949</a> General project design guidelines: <a href="https://ipac.ecosphere.fws.gov/project/U3PN5SNRGJB4DBFXHAQJKMUGTY/documents/generated/6982.pdf">https://ipac.ecosphere.fws.gov/project/U3PN5SNRGJB4DBFXHAQJKMUGTY/documents/generated/6982.pdf</a>	Endangered
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a>	Proposed Endangered

**BIRDS**

NAME	STATUS
Whooping Crane <i>Grus americana</i> Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/758">https://ecos.fws.gov/ecp/species/758</a>	Experimental Population, Non- Essential

**REPTILES**

NAME	STATUS
Eastern Massasauga (=rattlesnake) <i>Sistrurus catenatus</i> No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"> <li>▪ For all Projects: Project is within EMR Range</li> </ul> Species profile: <a href="https://ecos.fws.gov/ecp/species/2202">https://ecos.fws.gov/ecp/species/2202</a> General project design guidelines: <a href="https://ipac.ecosphere.fws.gov/project/U3PN5SNRGJB4DBFXHAQJKMUGTY/documents/generated/5280.pdf">https://ipac.ecosphere.fws.gov/project/U3PN5SNRGJB4DBFXHAQJKMUGTY/documents/generated/5280.pdf</a>	Threatened

**CLAMS**

NAME	STATUS
Snuffbox Mussel <i>Epioblasma triquetra</i> There is <b>proposed</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/4135">https://ecos.fws.gov/ecp/species/4135</a>	Endangered

**INSECTS**

NAME	STATUS
Mitchell's Satyr Butterfly <i>Neonympha mitchellii mitchellii</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8062">https://ecos.fws.gov/ecp/species/8062</a>	Endangered

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> There is <b>proposed</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Proposed Threatened

## FLOWERING PLANTS

NAME	STATUS
Eastern Prairie Fringed Orchid <i>Platanthera leucophaea</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/601">https://ecos.fws.gov/ecp/species/601</a>	Threatened

## CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

## USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

## BALD & GOLDEN EAGLES

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act <sup>2</sup> and the Migratory Bird Treaty Act (MBTA) <sup>1</sup>. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

- 
1. The [Bald and Golden Eagle Protection Act](#) of 1940.
  2. The [Migratory Birds Treaty Act](#) of 1918.
  3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your [project](#) area.

### Measures for Proactively Minimizing Eagle Impacts

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the [National Bald Eagle Management Guidelines](#). You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#).

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

If disturbance or take of eagles cannot be avoided, an [incidental take permit](#) may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the [Do I Need A Permit Tool](#). For assistance making this determination for golden eagles, please consult with the appropriate Regional [Migratory Bird Office](#) or [Ecological Services Field Office](#).

### Ensure Your Eagle List is Accurate and Complete

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the [Supplemental Information on Migratory Birds and Eagles](#), to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a>	Breeds Dec 1 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a>	Breeds elsewhere

## PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper



## MIGRATORY BIRDS

The Migratory Bird Treaty Act (MBTA) <sup>1</sup> prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<b>Bald Eagle</b> <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <a href="https://ecos.fws.gov/ecp/species/1626">https://ecos.fws.gov/ecp/species/1626</a>	Breeds Dec 1 to Aug 31
<b>Black-billed Cuckoo</b> <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a>	Breeds May 15 to Oct 10
<b>Bobolink</b> <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9454">https://ecos.fws.gov/ecp/species/9454</a>	Breeds May 20 to Jul 31
<b>Canada Warbler</b> <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9643">https://ecos.fws.gov/ecp/species/9643</a>	Breeds May 20 to Aug 10
<b>Cerulean Warbler</b> <i>Setophaga cerulea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/2974">https://ecos.fws.gov/ecp/species/2974</a>	Breeds Apr 22 to Jul 20
<b>Chimney Swift</b> <i>Chaetura pelagica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9406">https://ecos.fws.gov/ecp/species/9406</a>	Breeds Mar 15 to Aug 25

NAME	BREEDING SEASON
<p>Eastern Whip-poor-will <i>Antrastomus vociferus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/10678">https://ecos.fws.gov/ecp/species/10678</a></p>	Breeds May 1 to Aug 20
<p>Golden Eagle <i>Aquila chrysaetos</i>  This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.  <a href="https://ecos.fws.gov/ecp/species/1680">https://ecos.fws.gov/ecp/species/1680</a></p>	Breeds elsewhere
<p>Golden-winged Warbler <i>Vermivora chrysoptera</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/8745">https://ecos.fws.gov/ecp/species/8745</a></p>	Breeds May 1 to Jul 20
<p>Grasshopper Sparrow <i>Ammodramus savannarum perpallidus</i>  This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA  <a href="https://ecos.fws.gov/ecp/species/8329">https://ecos.fws.gov/ecp/species/8329</a></p>	Breeds Jun 1 to Aug 20
<p>Henslow's Sparrow <i>Centronyx henslowii</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/3941">https://ecos.fws.gov/ecp/species/3941</a></p>	Breeds May 1 to Aug 31
<p>Kirtland's Warbler <i>Setophaga kirtlandii</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/8078">https://ecos.fws.gov/ecp/species/8078</a></p>	Breeds May 25 to Jul 31
<p>Lesser Yellowlegs <i>Tringa flavipes</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9679">https://ecos.fws.gov/ecp/species/9679</a></p>	Breeds elsewhere
<p>Long-eared Owl <i>asio otus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/3631">https://ecos.fws.gov/ecp/species/3631</a></p>	Breeds Mar 1 to Jul 15
<p>Pectoral Sandpiper <i>Calidris melanotos</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9561">https://ecos.fws.gov/ecp/species/9561</a></p>	Breeds elsewhere
<p>Red-headed Woodpecker <i>Melanerpes erythrocephalus</i>  This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.  <a href="https://ecos.fws.gov/ecp/species/9398">https://ecos.fws.gov/ecp/species/9398</a></p>	Breeds May 10 to Sep 10

NAME	BREEDING SEASON
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9478">https://ecos.fws.gov/ecp/species/9478</a>	Breeds elsewhere
Semipalmated Sandpiper <i>Calidris pusilla</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <a href="https://ecos.fws.gov/ecp/species/9603">https://ecos.fws.gov/ecp/species/9603</a>	Breeds elsewhere
Short-billed Dowitcher <i>Limnodromus griseus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9480">https://ecos.fws.gov/ecp/species/9480</a>	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9431">https://ecos.fws.gov/ecp/species/9431</a>	Breeds May 10 to Aug 31

## PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "[Supplemental Information on Migratory Birds and Eagles](#)", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

### Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

### Breeding Season (■)

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

### Survey Effort (|)

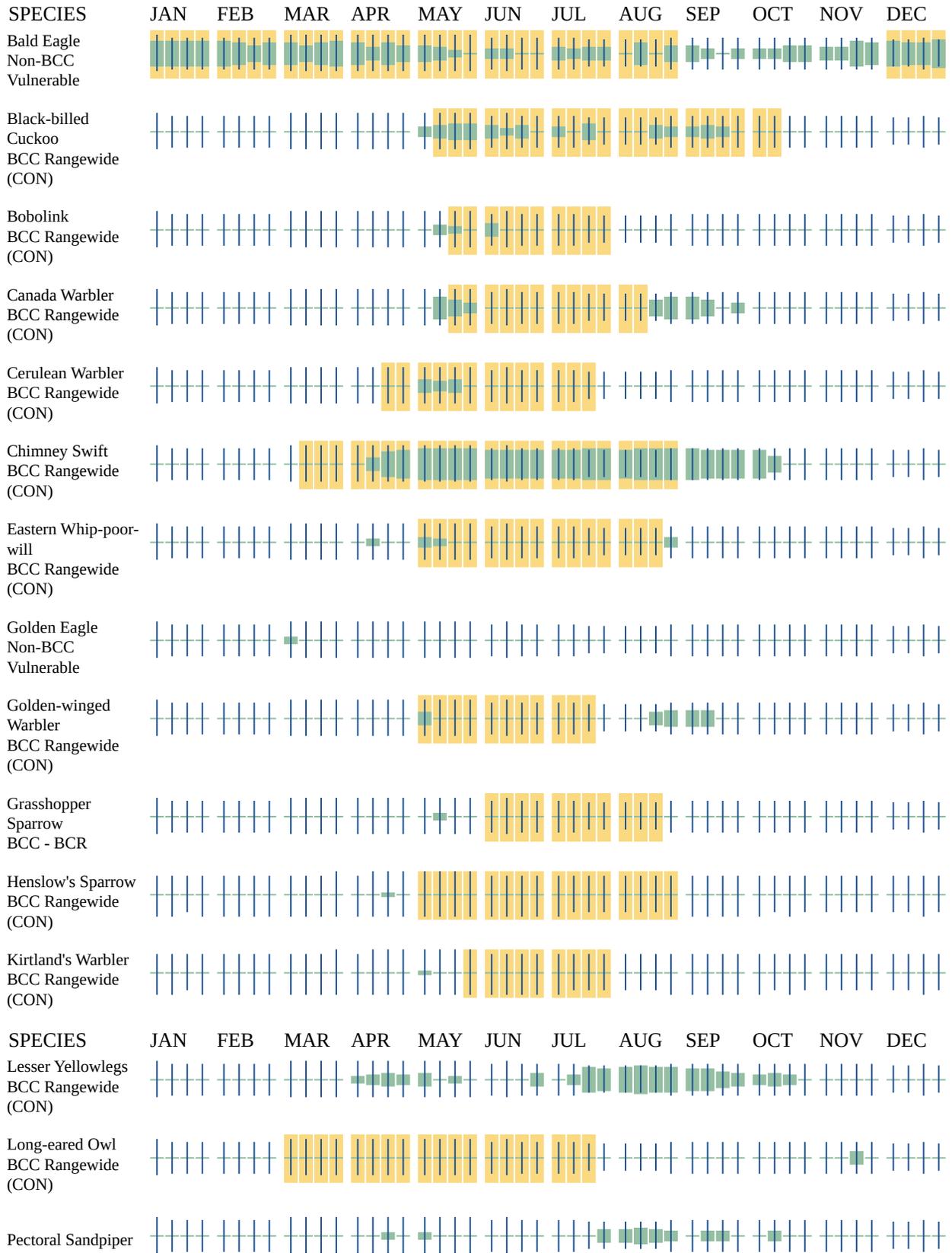
Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

### No Data (—)

A week is marked as having no data if there were no survey events for that week.

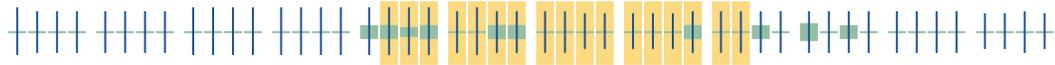
---

■ probability of presence   ■ breeding season   | survey effort   — no data



BCC Rangewide  
(CON)

Red-headed  
Woodpecker  
BCC Rangewide  
(CON)



Rusty Blackbird  
BCC - BCR



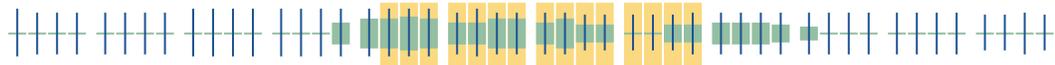
Semipalmated  
Sandpiper  
BCC - BCR



Short-billed  
Dowitcher  
BCC Rangewide  
(CON)



Wood Thrush  
BCC Rangewide  
(CON)



Additional information can be found using the following links:

- Eagle Management <https://www.fws.gov/program/eagle-management>
- Measures for avoiding and minimizing impacts to birds <https://www.fws.gov/library/collections/avoiding-and-minimizing-incident-take-migratory-birds>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC <https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action>

## WETLANDS

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

FRESHWATER POND

- PUBH

FRESHWATER EMERGENT WETLAND

- PEM1C

## **IPAC USER CONTACT INFORMATION**

Agency: Private Entity  
Name: Josiah Kleinhenz  
Address: 161 East Aurora Road  
City: Northfield  
State: OH  
Zip: 44067  
Email: jkleinhenz@ectinc.com  
Phone: 5132073011

## **LEAD AGENCY CONTACT INFORMATION**

Lead Agency: U.S. Fish and Wildlife Service

**Attachment C**

**MNFI Report**



# Michigan Natural Features Inventory

## Web Database Search

Search Results for Town 02S, Range 06E, Section 14,15

Query Results Generated on Apr 01, 2025

Displaying Record 1 to 18 of 18 Records Found

Database Updated on Mar 01, 2025

[New Search](#)

[Refine Search](#)

[◀ Previous 25 Records](#)

[Next 25 Records ▶](#)

Abstract	Common Name	Scientific Name	State Status	Federal Status	Last Observed Date	Element Category	Mapping Precision	Site of Observation	Best Documentation of EO	Town	Range	Section	County
	Hairy angelica	Angelica venenosa	SC		1924-PRE	Plant	GX	Ypsilanti	Walpole, B.A. 1924. The Flora of Washtenaw County.	02S	06E	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw
	Black and gold bumble bee	Bombus auricomus	SC		2010-06-25			Clague Elementary	Rowe, Logan, T. Wood, and D. Cuthrell. 2019. January 17 - Excel file with museum specimen data for the bumble bees of Michigan project.	02S	06E	15	Washtenaw
	Trumpeter swan	Cygnus buccinator	SC		2017-09-25	Animal		Durfee Lake/Ann Arbor Twp	Bridgland, J.W. 2017 April 12. Niswander Environmental, Brighton, MI. MDNR Threatened/Endangered Species Report (Cygnus buccinator).	02S	06E	10, 15	Washtenaw
	Showy orchis	Galearis spectabilis	T		1894-05-23	Plant	GX	ANN ARBOR		02S	06E	7, 8, 9, 10, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw
	Whiskered sunflower	Helianthus hirsutus	SC		1868-09-16	Plant	GX	PENN CENTRAL RAILROAD	Allmendinger, E.C. 1868. MICH.	02S	06E	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw
	Goldenseal	Hydrastis canadensis	T		2018-08-06	Plant	GX	Huron Parkway/Cedar Bend Nature Area	Burnham, S.H. 1898. GH.	02S	06E	1, 2, 3, 4, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw

	Copper button	Mesomphix cupreus	SC		1932-05-01	Animal		Traver Road	Unknown Surveyor. 1932-05-01. UMMZ Lot No. 57256.	02S	06E	15, 16, 21	Washtenaw
	Red mulberry	Morus rubra	T		1880-05-18	Plant	GX	HURON RIVER	Spaulding, U.M. 1880. MICH.	02S	06E	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw
	Little brown bat	Myotis lucifugus	T	UR	1992-08-23			Pittsfield Village/Ann Arbor	UMMZ online catalog for all collections of the species Myotis lucifugus, downloaded from VertNet (www.vertnet.org) 2015-06-17 for the State of Michigan. Saved in Excel spreadsheet. Also point and polygon shapefiles created from the database catalogue.	02S	06E	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw
	Northern long-eared bat	Myotis septentrionalis	T	LE	2003-07-09			Ann Arbor	Kurta, A. Bat survey and Mine database information recieved 2013-03-15. Not for public viewing. NLEB-1.shp is the spatial representation of just the NLEB.	02S	06E	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw
	Indiana bat	Myotis sodalis	E	LE	1965-05-11	Animal	GX	Ann Arbor	Kurta, A. 1980. Status of the Indiana Bat, Myotis sodalis, in Michigan.	02S	06E	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw
	American burying beetle	Nicrophorus americanus	X	LE	1916-08-07	Animal	GX	ANN ARBOR	University of Michigan Museum of Zoology. 1989. Records for Michigan Rare and Endangered Insects.	02S	06E	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw
	Depressed ambersnail	Oxyloma peoriense	SC					Ann Arbor MI	Unknown. Unknown Date. 1 collected. Field Museum, Chicago.	02S	06E	15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34	Washtenaw
	Ginseng	Panax quinquefolius	T		1867	Plant	GX	ANN ARBOR EAST		02S	06E	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw

	Jacob's ladder	Polemonium reptans	T		1982-05-20	Plant	S	GEORGETOWN AVENUE	Reznicek, A.A. 1982. #6656 MICH.	02S	06E	11, 14	Washtenaw
	Tall nut rush	Scleria triglomerata	SC		1838-06-27	Plant	GX	CITY OF ANN ARBOR	First Geological Survey (J. Wright?). 1838. MICH, MSC.	02S	06E	4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36	Washtenaw
	Compass plant	Silphium laciniatum	E		1928-06-27	Plant	GX	YPSILANT -- ANN ARBOR RR TRACKS	Walpole, B.A. 1924. Flora of Washtenaw County. Department of Natural Science, Mich. State Normal College [Eastern Michigan University], Ypsilanti, Michigan. 80 pp.	02S	06E	13, 14, 15, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 35, 36	Washtenaw
	Eastern box turtle	Terrapene carolina carolina	T		1900	Animal	G	ANN ARBOR	Tinkle, D.A. et al. 1979. Occurrence notecards for state survey of Endangered, Threatened Reptiles and Amphibians. Xerox of notecards.	02S	06E	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35	Washtenaw
<div style="display: flex; justify-content: space-around; align-items: center;"> <span><a href="#">New Search</a></span> <span><a href="#">Refine Search</a></span> <span><a href="#">◀ Previous 25 Records</a></span> <span><a href="#">Next 25 Records ▶</a></span> </div>													

**Attachment D**

**Stand Assessment Forms**

## STAND ASSESSMENT FORM

<b>Project Name/#:</b> Thurston Elementary		<b>Latitude (dd):</b> 42.307561
<b>Stand Name/#:</b> Stand Form 01	<b>Date:</b> 03/14/2024	<b>Longitude (dd):</b> -83.700537
<b>Biologist:</b> Josiah Kleinhenz	<b>Other Field Staff:</b> Stephen Thomas	
<b>Township/Range/Section:</b> S14 T2S R6E	<b>State:</b> Michigan	<b>County:</b> Washtenaw County

### PROJECT AREA:

**Description:** Forested woodland mixed with wetland and upland surrounding a large pond in the north and open maintained grass with scattered ornamental trees to the south.

<b>Total Acreage:</b> 25.09	<b>Forested Acreage:</b> 10.0	<b>Open Acres:</b> 15.09
<b>Proposed Tree Removal (acres)</b> <b>Completely Cleared:</b> N/A	<b>Partially Cleared:</b> N/A	<b>Avoided:</b> N/A
<b>Flight corridors to other forested areas (Y/N)?</b> Yes	<b>Adjacent property types:</b> Suburban and residential neighborhoods with scattered forested lots.	
<b>What is the distance (m) from the project area to forested public lands?</b> 0		

### ESTIMATED WATER SOURCE CHARACTERISTICS:

<b>Stream Type (# and length)</b>	<b>Ephemeral: #:</b> 0 <b>Length:</b> N/A	<b>Intermittent: #:</b> 0 <b>Length:</b> N/A	<b>Perennial: #:</b> 0 <b>Length:</b> N/A
<b>In-stream Pools (# and size)</b>	<b>#:</b> 0 <b>Size:</b> N/A	<b>Open and Accessible to bats (Y/N)?</b> N/A	
<b>Ponds/Tanks (# and size)</b>	<b>#:</b> 0 <b>Size:</b> N/A	<b>Open and Accessible to bats (Y/N)?</b> Yes	
<b>Wetlands (# and size)</b>	<b>Permanent: #:</b> 0 <b>Size:</b> N/A	<b>Seasonal: #:</b> 0 <b>Size:</b> N/A	<b>Open and Accessible to bats (Y/N)?</b> No
<b>Describe existing condition of water sources:</b>		Dry upland.	
<b>Water Present (Y/N):</b> No		<b>Average Water Depth:</b>	<b>Clarity (H,M,L):</b>
<b>Bank Height:</b>		<b>Channel Width:</b>	<b>Stream Width:</b>

## STAND ASSESSMENT FORM

**Substratum:**  Bedrock  Boulder  Cobble  Gravel  Sand  Silt/Clay

**VEGETATION:**

**Dominant Canopy Species (> 15 m/50 ft height)**

**Subdominant Canopy Species (> 6 m/20 ft height)**

Burr Oak

White Oak

Chinquapin Oak

**Estimated dbh range (in): Sm: Lg:**

**Estimated dbh range (in): Sm: 4 Lg: 8**

**Relative abundance of dominant vs. subdominant (ratio):** N/A

**Estimated canopy closure/density:**

Closed  Moderate  Open

**% Absolute Cover:** N/A

**Subcanopy clutter/density:**

Closed  Moderate  Open

**% Absolute Cover:** 35

**Subcanopy comprised largely of:**

Lower Branches of Canopy Trees  Saplings  Shrubs

**Subcanopy Species (< 6 m/20 ft height):**

Chinquapin Oak

Swamp White Oak

N/A

**Herbaceous Cover:**  Sparse  Moderate  Dense

Check all that apply:

<input type="checkbox"/> Mature Upland Forest	<input type="checkbox"/> Recently Logged Forest	<input type="checkbox"/> Crop/Pasture Land	<input type="checkbox"/> Other
<input checked="" type="checkbox"/> Young Upland Forest	<input type="checkbox"/> Forest Edge	<input type="checkbox"/> Stream/River	
<input type="checkbox"/> Mature Lowland Forest	<input type="checkbox"/> Woodlot	<input type="checkbox"/> Vernal Pool	
<input type="checkbox"/> Young Lowland Forest	<input type="checkbox"/> Old Field	<input type="checkbox"/> Deepwater Lake/Pond	
<b>% Trees w/ Exfoliating Bark</b>	<b>Canopy:</b>	<b>Midstory:</b> 0	<b>Understory:</b> 0
<b>Age Classes of Live Trees (%)</b>	<b>Small (3-8in dbh):</b> 100	<b>Medium (9-15in dbh):</b> 0	<b>Large (&gt;15in dbh):</b> 0
<b>Number of Observed Standing Snags:</b>	0		

## STAND ASSESSMENT FORM

SPECIES POTENTIAL:	
<b>Roost tree potential consists of:</b>	<input type="checkbox"/> Hollow <input type="checkbox"/> Large Trees <input type="checkbox"/> Snags <input checked="" type="checkbox"/> None
<b><i>M. sodalis</i> roost tree potential is:</b>	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low
<b>Roost potential comments:</b> No significant roosting substrate for the species is present.	
<b><i>M. septentrionalis</i> roost tree potential is:</b>	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low
<b>Roost potential comments:</b> No significant roosting substrate for the species is present.	
<b><i>P. subflavus</i> roost tree potential is:</b>	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low
<b>Roost potential comments:</b> Low-quality potential roosting habitat from scattered small trees.	
<b><i>M. lucifugus</i> roost tree potential is:</b>	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low
<b>Roost potential comments:</b> No significant roosting substrate for the species is present.	

## STAND ASSESSMENT FORM

<b>Project Name/#:</b> Thurston Elementary		<b>Latitude (dd):</b> 42.307846
<b>Stand Name/#:</b> Stand Form 02	<b>Date:</b> 03/14/2025	<b>Longitude (dd):</b> -83.701816
<b>Biologist:</b> Josiah Kleinhenz		<b>Other Field Staff:</b> Stephen Thomas
<b>Township/Range/Section:</b> S14 T2S R6E	<b>State:</b> Michigan	<b>County:</b> Washtenaw County

### PROJECT AREA:

**Description:** Forested woodland mixed with wetland and upland surrounding a large pond in the north and open maintained grass with scattered ornamental trees to the south.

<b>Total Acreage:</b> 25.09	<b>Forested Acreage:</b> 10.0	<b>Open Acres:</b> 15.09
<b>Proposed Tree Removal (acres)</b> <b>Completely Cleared:</b> N/A	<b>Partially Cleared:</b> N/A	<b>Avoided:</b> N/A
<b>Flight corridors to other forested areas (Y/N)?</b> Yes	<b>Adjacent property types:</b> Suburban and residential neighborhoods with scattered forested lots.	
<b>What is the distance (m) from the project area to forested public lands?</b> 0		

### ESTIMATED WATER SOURCE CHARACTERISTICS:

<b>Stream Type (# and length)</b>	<b>Ephemeral: #:</b> 1 <b>Length:</b> 25 m	<b>Intermittent: #:</b> 0 <b>Length:</b> N/A	<b>Perennial: #:</b> 0 <b>Length:</b> N/A
<b>In-stream Pools (# and size)</b>	<b>#:</b> 1 <b>Size:</b> 3 m	<b>Open and Accessible to bats (Y/N)?</b> Yes	
<b>Ponds/Tanks (# and size)</b>	<b>#:</b> 1 <b>Size:</b> 4.70 ac.	<b>Open and Accessible to bats (Y/N)?</b> Yes	
<b>Wetlands (# and size)</b>	<b>Permanent: #:</b> 0 <b>Size:</b> N/A	<b>Seasonal: #:</b> 1 <b>Size:</b> 1.40 ac	<b>Open and Accessible to bats (Y/N)?</b> No
<b>Describe existing condition of water sources:</b>	Ephemeral stream with a large plunge pool flows into large pond from the west.		
<b>Water Present (Y/N):</b> Yes	<b>Average Water Depth:</b> 0.5 m	<b>Clarity (H,M,L):</b> Moderate	
<b>Bank Height:</b> 2 m	<b>Channel Width:</b> 3 m	<b>Stream Width:</b> 2 m	

## STAND ASSESSMENT FORM

**Substratum:**  Bedrock  Boulder  Cobble  Gravel  Sand  Silt/Clay

VEGETATION:			
Dominant Canopy Species (> 15 m/50 ft height)	Subdominant Canopy Species (> 6 m/20 ft height)		
Eastern Cottonwood	Green Ash		
White Pine	American elm		
Pin Oak	Buckthorn		
<b>Estimated dbh range (in): Sm: 10 Lg: 35</b>	<b>Estimated dbh range (in): Sm: 6 Lg: 12</b>		
<b>Relative abundance of dominant vs. subdominant (ratio): 1:5</b>			
<b>Estimated canopy closure/density:</b>	<input type="checkbox"/> Closed <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Open	<b>% Absolute Cover: 60</b>	
<b>Subcanopy clutter/density:</b>	<input checked="" type="checkbox"/> Closed <input type="checkbox"/> Moderate <input type="checkbox"/> Open	<b>% Absolute Cover: 85</b>	
<b>Subcanopy comprised largely of:</b>	<input checked="" type="checkbox"/> Lower Branches of Canopy Trees <input checked="" type="checkbox"/> Saplings <input type="checkbox"/> Shrubs		
<b>Subcanopy Species (&lt; 6 m/20 ft height):</b>	Eastern Red Cedar	Eastern Cottonwood	Green Ash
<b>Herbaceous Cover:</b> <input type="checkbox"/> Sparse <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Dense			

Check all that apply:

<input type="checkbox"/> Mature Upland Forest	<input type="checkbox"/> Recently Logged Forest	<input type="checkbox"/> Crop/Pasture Land	<input type="checkbox"/> Other
<input type="checkbox"/> Young Upland Forest	<input type="checkbox"/> Forest Edge	<input checked="" type="checkbox"/> Stream/River	
<input checked="" type="checkbox"/> Mature Lowland Forest	<input type="checkbox"/> Woodlot	<input type="checkbox"/> Vernal Pool	
<input type="checkbox"/> Young Lowland Forest	<input type="checkbox"/> Old Field	<input type="checkbox"/> Deepwater Lake/Pond	
<b>% Trees w/ Exfoliating Bark</b>	<b>Canopy: 2</b>	<b>Midstory: 0</b>	<b>Understory: 0</b>
<b>Age Classes of Live Trees (%)</b>	<b>Small (3-8in dbh): 70</b>	<b>Medium (9-15in dbh): 20</b>	<b>Large (&gt;15in dbh): 10</b>
<b>Number of Observed Standing Snags:</b>		1	

## STAND ASSESSMENT FORM

SPECIES POTENTIAL:	
<b>Roost tree potential consists of:</b>	<input checked="" type="checkbox"/> Hollow <input checked="" type="checkbox"/> Large Trees <input checked="" type="checkbox"/> Snags <input type="checkbox"/> None
<b><i>M. sodalis</i> roost tree potential is:</b>	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Roost potential comments:</b> Many large trees with significant roosting substrates surround a large open pond.	
<b><i>M. septentrionalis</i> roost tree potential is:</b>	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Roost potential comments:</b> Many large trees with significant roosting substrates surround a large open pond.	
<b><i>P. subflavus</i> roost tree potential is:</b>	<input checked="" type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Roost potential comments:</b> Many large trees surround a large open pond.	
<b><i>M. Lucifugus</i> roost tree potential is:</b>	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Roost potential comments:</b> Many large trees with significant roosting substrates surround a large open pond.	

## STAND ASSESSMENT FORM

<b>Project Name/#:</b> Thurston Elementary		<b>Latitude (dd):</b> 42.306498
<b>Stand Name/#:</b> Stand Form 03	<b>Date:</b> 03/14/2025	<b>Longitude (dd):</b> -83.702207
<b>Biologist:</b> Josiah Kleinhenz		<b>Other Field Staff:</b> Stephen Thomas
<b>Township/Range/Section:</b> S14 T2S R6E	<b>State:</b> Michigan	<b>County:</b> Washtenaw County

### PROJECT AREA:

**Description:** Forested woodland mixed with wetland and upland surrounding a large pond in the north and open maintained grass with scattered ornamental trees to the south.

<b>Total Acreage:</b> 25.09	<b>Forested Acreage:</b> 10.0	<b>Open Acres:</b> 15.09
<b>Proposed Tree Removal (acres)</b> <b>Completely Cleared:</b> N/A	<b>Partially Cleared:</b> N/A	<b>Avoided:</b> N/A
<b>Flight corridors to other forested areas (Y/N)?</b> Yes	<b>Adjacent property types:</b> Suburban and residential neighborhoods with scattered forested lots.	
<b>What is the distance (m) from the project area to forested public lands?</b> 0		

### ESTIMATED WATER SOURCE CHARACTERISTICS:

<b>Stream Type (# and length)</b>	<b>Ephemeral: #: 0</b> <b>Length: N/A</b>	<b>Intermittent: #: 0</b> <b>Length: N/A</b>	<b>Perennial: #: 0</b> <b>Length: N/A</b>
<b>In-stream Pools (# and size)</b>	<b>#: 0</b> <b>Size: N/A</b>	<b>Open and Accessible to bats (Y/N)?</b> N/A	
<b>Ponds/Tanks (# and size)</b>	<b>#: 0</b> <b>Size: N/A</b>	<b>Open and Accessible to bats (Y/N)?</b> N/A	
<b>Wetlands (# and size)</b>	<b>Permanent: #: 0</b> <b>Size: N/A</b>	<b>Seasonal: #: 0</b> <b>Size: N/A</b>	<b>Open and Accessible to bats (Y/N)?</b> N/A
<b>Describe existing condition of water sources:</b>		N/A	
<b>Water Present (Y/N):</b> N/A		<b>Average Water Depth:</b> N/A	<b>Clarity (H,M,L):</b> N/A
<b>Bank Height:</b> N/A		<b>Channel Width:</b> N/A	<b>Stream Width:</b> N/A

**Substratum:**  Bedrock  Boulder  Cobble  Gravel  Sand

## STAND ASSESSMENT FORM

VEGETATION:			
Dominant Canopy Species (> 15 m/50 ft height)		Subdominant Canopy Species (> 6 m/20 ft height)	
Jack Pine		Sycamore	
White Pine		Sugar Maple	
Honey Locust		Honey Locust	
Estimated dbh range (in): Sm: 10 Lg: 18		Estimated dbh range (in): Sm: 6 Lg: 12	
Relative abundance of dominant vs. subdominant (ratio): 1:3			
Estimated canopy closure/density:	<input type="checkbox"/> Closed <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Open	% Absolute Cover: 25	
Subcanopy clutter/density:	<input type="checkbox"/> Closed <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Open	% Absolute Cover: 20	
Subcanopy comprised largely of:	<input checked="" type="checkbox"/> Lower Branches of Canopy Trees <input checked="" type="checkbox"/> Saplings <input type="checkbox"/> Shrubs		
Subcanopy Species (< 6 m/20 ft height):	Crab Apple	Honey Locust	Sugar Maple
Herbaceous Cover: <input checked="" type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Dense			

Check all that apply:

<input checked="" type="checkbox"/> Mature Upland Forest	<input type="checkbox"/> Recently Logged Forest	<input type="checkbox"/> Crop/Pasture Land	<input type="checkbox"/> Other
<input type="checkbox"/> Young Upland Forest	<input type="checkbox"/> Forest Edge	<input type="checkbox"/> Stream/River	
<input type="checkbox"/> Mature Lowland Forest	<input type="checkbox"/> Woodlot	<input type="checkbox"/> Vernal Pool	
<input type="checkbox"/> Young Lowland Forest	<input type="checkbox"/> Old Field	<input type="checkbox"/> Deepwater Lake/Pond	
% Trees w/ Exfoliating Bark	Canopy: 5	Midstory: 5	Understory: 5
Age Classes of Live Trees (%)	Small (3-8in dbh): 25	Medium (9-15in dbh): 40	Large (>15in dbh): 35
Number of Observed Standing Snags:	2		

## STAND ASSESSMENT FORM

SPECIES POTENTIAL:	
<b>Roost tree potential consists of:</b>	<input checked="" type="checkbox"/> Hollow <input checked="" type="checkbox"/> Large Trees <input type="checkbox"/> Snags <input type="checkbox"/> None
	Some snags with little exfoliating bark amid the scattered ornamental trees.
<b><i>M. sodalis</i> roost tree potential is:</b>	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low
<b>Roost potential comments:</b> Some snags with little exfoliating bark amid the scattered ornamental trees.	
<b><i>M. septentrionalis</i> roost tree potential is:</b>	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low
<b>Roost potential comments:</b> Some snags with little exfoliating bark amid the scattered ornamental trees.	
<b><i>P. subflavus</i> roost tree potential is:</b>	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low
<b>Roost potential comments:</b> leaf clusters on ornamental trees may provide low-quality roosting habitat.	
<b><i>M. lucifugus</i> roost tree potential is:</b>	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low
<b>Roost potential comments:</b> Some snags with little exfoliating bark amid the scattered ornamental trees.	

## STAND ASSESSMENT FORM

<b>Project Name/#:</b> Thurston Elementary		<b>Latitude (dd):</b> 35.814691
<b>Stand Name/#:</b> Stand Form 04	<b>Date:</b> 03/14/2025	<b>Longitude (dd):</b> -95.52816
<b>Biologist:</b> Josiah Kleinhenz		<b>Other Field Staff:</b> Stephen Thomas
<b>Township/Range/Section:</b> S14 T2S R6E	<b>State:</b> Michigan	<b>County:</b> Washtenaw County

### PROJECT AREA:

**Description:** Forested woodland mixed with wetland and upland surrounding a large pond in the north and open maintained grass with scattered ornamental trees to the south.

<b>Total Acreage:</b> 25.09	<b>Forested Acreage:</b> 10.0	<b>Open Acres:</b> 15.09
<b>Proposed Tree Removal (acres)</b> <b>Completely Cleared:</b> N/A	<b>Partially Cleared:</b> N/A	<b>Avoided:</b> N/A
<b>Flight corridors to other forested areas (Y/N)?</b> Yes	<b>Adjacent property types:</b> Suburban and residential neighborhoods with scattered forested lots.	
<b>What is the distance (m) from the project area to forested public lands?</b> 0		

### ESTIMATED WATER SOURCE CHARACTERISTICS:

<b>Stream Type (# and length)</b>	<b>Ephemeral: #:</b> 0 <b>Length:</b> N/A	<b>Intermittent: #:</b> 1 <b>Length:</b> 900 m	<b>Perennial: #:</b> 1 <b>Length:</b> 552 m
<b>In-stream Pools (# and size)</b>	<b>#:</b> 1 <b>Size:</b> 552 m	<b>Open and Accessible to bats (Y/N)?</b> Yes	
<b>Ponds/Tanks (# and size)</b>	<b>#:</b> 0 <b>Size:</b> N/A	<b>Open and Accessible to bats (Y/N)?</b> N/A	
<b>Wetlands (# and size)</b>	<b>Permanent: #:</b> 1 <b>Size:</b> 1.54 ac.	<b>Seasonal: #:</b> 0 <b>Size:</b> N/A	<b>Open and Accessible to bats (Y/N)?</b> Yes
<b>Describe existing condition of water sources:</b>	Flowing water in perennial stream channel. Small pools of water in the emergent wetland.		
<b>Water Present (Y/N):</b> Yes	<b>Average Water Depth:</b> 2 m	<b>Clarity (H,M,L):</b> High	
<b>Bank Height:</b> 5 m	<b>Channel Width:</b> 5 m	<b>Stream Width:</b> 4 m	

## STAND ASSESSMENT FORM

**Substratum:**  Bedrock  Boulder  Cobble  Gravel  Sand  Silt/Clay

VEGETATION:			
Dominant Canopy Species (> 15 m/50 ft height)	Subdominant Canopy Species (> 6 m/20 ft height)		
American sycamore (~23m)	American sycamore		
Green ash (~23m)	American elm		
River birch (~23m)	River birch		
<b>Estimated dbh range (in): Sm: 15 Lg: 30</b>	<b>Estimated dbh range (in): Sm: 6 Lg: 14</b>		
<b>Relative abundance of dominant vs. subdominant (ratio): 1:3</b>			
<b>Estimated canopy closure/density:</b>	<input type="checkbox"/> Closed <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Open	<b>% Absolute Cover: 25</b>	
<b>Subcanopy clutter/density:</b>	<input checked="" type="checkbox"/> Closed <input type="checkbox"/> Moderate <input type="checkbox"/> Open	<b>% Absolute Cover: 65</b>	
<b>Subcanopy comprised largely of:</b>	<input checked="" type="checkbox"/> Lower Branches of Canopy Trees <input checked="" type="checkbox"/> Saplings <input checked="" type="checkbox"/> Shrubs		
<b>Subcanopy Species (&lt; 6 m/20 ft height):</b>	Osage-orange	Black oak	River birch
<b>Herbaceous Cover:</b> <input checked="" type="checkbox"/> Sparse <input type="checkbox"/> Moderate <input type="checkbox"/> Dense			

Check all that apply:

<input type="checkbox"/> Mature Upland Forest	<input type="checkbox"/> Recently Logged Forest	<input type="checkbox"/> Crop/Pasture Land	<input type="checkbox"/> Other
<input type="checkbox"/> Young Upland Forest	<input type="checkbox"/> Forest Edge	<input type="checkbox"/> Stream/River	
<input checked="" type="checkbox"/> Mature Lowland Forest	<input type="checkbox"/> Woodlot	<input type="checkbox"/> Vernal Pool	
<input type="checkbox"/> Young Lowland Forest	<input type="checkbox"/> Old Field	<input type="checkbox"/> Deepwater Lake/Pond	
<b>% Trees w/ Exfoliating Bark</b>	<b>Canopy: 15</b>	<b>Midstory: 15</b>	<b>Understory: 15</b>
<b>Age Classes of Live Trees (%)</b>	<b>Small (3-8in dbh): 40</b>	<b>Medium (9-15in dbh): 35</b>	<b>Large (&gt;15in dbh): 25</b>
<b>Number of Observed Standing Snags:</b>		0	

## STAND ASSESSMENT FORM

SPECIES POTENTIAL:	
<b>Roost tree potential consists of:</b>	<input type="checkbox"/> Hollow <input checked="" type="checkbox"/> Large Trees <input type="checkbox"/> Snags <input type="checkbox"/> None
<b><i>M. sodalis</i> roost tree potential is:</b>	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Roost potential comments:</b> Moderate roosting potential in large trees surrounding perennial stream (Blue Creek).	
<b><i>M. septentrionalis</i> roost tree potential is:</b>	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Roost potential comments:</b> Moderate roosting potential in large trees surrounding perennial stream (Blue Creek).	
<b><i>P. subflavus</i> roost tree potential is:</b>	<input checked="" type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Roost potential comments:</b> Large tree leaf clusters with open sub-canopy may provide suitable roosting habitat.	
<b><i>M. lucifugus</i> roost tree potential is:</b>	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low
<b>Roost potential comments:</b> Moderate roosting potential in large trees surrounding perennial stream (Blue Creek).	



## POTENTIAL ROOST TREE INVENTORY FORM

**Project #:** 250098

**Project Name:** Thurston Elementary School

**State:** Michigan

**County:** Washtenaw

**Bat biologist(s):** Josiah Kleinhenz

**Additional biologist(s):** Stephen Thomas

**Township/Range/Section:** T02S R06E S15

**Project Actions Include: check all that apply**

Removal
  Direct Impact
  Indirect Impact
  Not Known
  Other: Tree transplanting

**Method of Inspection: check all that apply**

Visual (ground-based)
  Drone
  Thermal
  Near Infrared
  Other: \_\_\_\_\_

POTENTIAL ROOST TREES:									
PRT #/Quality	Species	Status (live/dead)	DBH (in)	Exfoliating Bark %	Crevices (Y/N)	Cavities (Y/N)	Sun Exposure (L, M, H)	Canopy Cover %	Comments
PRT01 / Low	Red Pine ( <i>Pinus resinosa</i> )	Live	9	0	N	N	M	45	Red pine at forested lot edge likely has low roosting potential for bats.
PRT02 / Low	Eastern Cottonwood ( <i>Populus deltoides</i> )	Live	14	0	N	N	M	35	Eastern cottonwood at forested lot edge likely has low roosting potential for bats.
PRT03 / Low	Eastern Cottonwood ( <i>Populus deltoides</i> )	Live	15	0	N	N	M	35	Eastern cottonwood at forested lot edge likely has low roosting potential for bats.
PRT04 / Low	Red Pine ( <i>Pinus resinosa</i> )	Dead	9	0	N	N	M	35	Red pine at forested lot edge likely has low roosting potential for bats.
PRT05 / Low	American Elm ( <i>Ulmus americana</i> )	Live	8	0	N	N	M	35	American elm at forested lot edge likely has low roosting potential for bats.

## POTENTIAL ROOST TREE INVENTORY FORM

PRT #/Quality	Species	Status (live/dead)	DBH (in)	Exfoliating Bark %	Crevice (Y/N)	Cavities (Y/N)	Sun Exposure (L, M, H)	Canopy Cover %	Comments
PRT06 / Low	Black Walnut ( <i>Juglans nigra</i> )	Live	9	0	N	N	M	45	Black walnut tree at forested lot edge likely has low roosting potential for bats.
PRT07 / Low	Butternut ( <i>Juglans cinerea</i> )	Live	6	0	N	N	M	55	Butternut tree at forested lot edge likely has low roosting potential for bats.
PRT08 / Low	Red Pine ( <i>Pinus resinosa</i> )	Dead	12	0	N	N	M	50	Dead red pine tree at forested lot edge likely has low roosting potential for bats.
PRT09 / Low	Burr Oak ( <i>Quercus macrocarpa</i> )	Live	6	0	N	N	H	100	Young burr oak sapling in planted oak savanna likely has low roosting potential for bats.
PRT10 / Low	White Oak ( <i>Quercus alba</i> )	Live	7	0	N	N	H	100	Young white oak sapling in planted oak savanna likely has low roosting potential for bats.
PRT11 / Low	Burr Oak ( <i>Quercus macrocarpa</i> )	Live	7	0	N	N	H	100	Young burr oak sapling in planted oak savanna likely has low roosting potential for bats.
PRT12 / Low	White Oak ( <i>Quercus alba</i> )	Live	5	0	N	N	H	100	Young white oak sapling in planted oak savanna likely has low roosting potential for bats.
PRT13 / Low	Swamp White Oak ( <i>Quercus bicolor</i> )	Live	7	1	N	N	H	100	Young swamp white oak sapling in planted oak savanna likely has low roosting potential for bats.
PRT14 / Low	Chinquapin Oak ( <i>Quercus muehlenbergii</i> )	Live	6	0	N	N	H	100	Young burr oak sapling in planted oak savanna likely has low roosting potential for bats.

## POTENTIAL ROOST TREE INVENTORY FORM

PRT #/Quality	Species	Status (live/dead)	DBH (in)	Exfoliating Bark %	Crevice (Y/N)	Cavities (Y/N)	Sun Exposure (L, M, H)	Canopy Cover %	Comments
PRT15 / Low	Swamp White Oak ( <i>Quercus bicolor</i> )	Live	5	0	N	N	H	100	Young swamp white oak sapling in planted oak savanna likely has low roosting potential for bats.
PRT16 / Low	Swamp White Oak ( <i>Quercus bicolor</i> )	Live	4	0	N	N	H	100	Young swamp white oak sapling in planted oak savanna likely has low roosting potential for bats.
PRT17 / Low	Silver Maple ( <i>Acer saccharinum</i> )	Live	30	8	N	Y	H	100	Large silver maple tree on the edge of Project Area is part of a scattered tree row adjacent to residential yards and likely has low roosting potential for bats.
PRT18 / Low	Black Cherry ( <i>Prunus serotina</i> )	Live	25	0	Y	Y	H	100	Large black cherry tree on the edge of Project Area is part of a scattered tree row adjacent to residential yards and likely has low roosting potential for bats.

**Attachment E**  
**Photographic Log**

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 1	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b> North	
<b>Location:</b> 42.307561°, -83.700537°	



**Description:**

Photo Description:  
Stand Form 01

Overview of low-quality potential bat habitat composed of scattered oak saplings with no canopy-height trees at Stand Form 01.

<b>Photo No.</b> 2	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b> West	
<b>Location:</b> 42.307561°, -83.700537°	



**Description:**

Photo Description:  
Stand Form 01

Overview of low-quality potential bat habitat composed of scattered oak saplings with no canopy-height trees at Stand Form 01.

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 3	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b> North	
<b>Location:</b> 42.307846°, -83.701816°	



**Description:**

Photo Description:  
Stand Form 02

Overview of the Moderate-quality young riparian deciduous forested lot surrounding a large pond at Stand Form 02.

<b>Photo No.</b> 4	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b> Northeast	
<b>Location:</b> 42.307846°, -83.701816°	



**Description:**

Photo Description:  
Stand Form 02

Overview of the Moderate-quality young riparian deciduous forested lot surrounding a large pond at Stand Form 02.

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.:</b> 250098
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<b>Photo No.:</b> 5	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b>  Northwest	
<b>Location:</b> 42.306332°, -83.701913°	

**Description:**

Photo Description:  
Stand Form 03

Representative view of the low-quality landscaped trees scattered around the school at Stand Form 03.



<b>Photo No.:</b> 6	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b>  Southeast	
<b>Location:</b> 42.306332°, -83.701913°	

**Description:**

Photo Description:  
Stand Form 03

Representative view of the low-quality landscaped trees scattered around the school at Stand Form 03.



<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 7	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> North		
<b>Location:</b> 42.309458°, -83.702297°		
<b>Description:</b> Photo Description: Stand Form 04  Representative view of the moderate-quality mature upland forested habitat at Stand Form 04.		

<b>Photo No.</b> 8	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> East		
<b>Location:</b> 42.309458°, -83.702297°		
<b>Description:</b> Photo Description: Stand Form 04  Representative view of the moderate-quality mature upland forested habitat at Stand Form 04.		

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 9	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b>  Northwest	
<b>Location:</b> 42.307838°, -83.702028°	



**Description:**

Photo Description:  
Potential Roost Tree 01

Representative view of the low-quality red pine tree at the edge of riparian woodland habitat described in Stand Form 02.

<b>Photo No.</b> 10	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b>  Northwest	
<b>Location:</b> 42.307882°, -83.702022°	



**Description:**

Photo Description:  
Potential Roost Tree 02

Representative view of the low-quality eastern cottonwood tree (on the left) at the edge of a riparian woodland habitat described in Stand Form 02.

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 11	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
Northwest

**Location:**  
42.307878°, -83.702007°



**Description:**

Photo Description:  
Potential Roost Tree 03

Representative view of the low-quality eastern cottonwood tree (on the right) at the edge of a riparian woodland habitat described in Stand Form 02.

<b>Photo No.</b> 12	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
Northwest

**Location:**  
42.307846°, -83.701816°



**Description:**

Photo Description:  
Potential Roost Tree 04

Representative view of the low-quality red pine tree at the edge of riparian woodland habitat described in Stand Form 02.

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.:</b> 250098
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<b>Photo No.:</b> 13	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> Northeast		
<b>Location:</b> 42.307854°, -83.701787°		
<b>Description:</b> Photo Description: Potential Roost Tree 05  Representative view of the low-quality American elm tree at the edge of a riparian woodland habitat described in Stand Form 02.		

<b>Photo No.:</b> 14	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> West		
<b>Location:</b> 42.307879°, -83.701754°		
<b>Description:</b> Photo Description: Potential Roost Tree 06  Representative view of the low-quality black walnut tree at the edge of a riparian woodland habitat described in Stand Form 02.		

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.:</b> 250098
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<b>Photo No.:</b> 15	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> North		
<b>Location:</b> 42.307838°, -83.702028°		
<b>Description:</b> Photo Description: Potential Roost Tree 07  Representative view of the low-quality butternut tree at the edge of a riparian woodland habitat described in Stand Form 02.		

<b>Photo No.:</b> 16	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> South		
<b>Location:</b> 42.307927°, -83.701873°		
<b>Description:</b> Photo Description: Potential Roost Tree 08  Representative view of the low-quality red pine tree at the edge of a riparian woodland habitat described in Stand Form 02.		

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 17	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b>  North	
<b>Location:</b> 42.307558°, -83.700802°	



**Description:**

Photo Description:  
Potential Roost Tree 09

Representative view of the low-quality burr oak tree in the planted young oak savanna habitat described in Stand Form 01.

<b>Photo No.</b> 18	<b>Date:</b> 03/14/2025
<b>Direction Photo Taken:</b>  Northwest	
<b>Location:</b> 42.307514°, -83.700673°	



**Description:**

Photo Description:  
Potential Roost Tree 10

Representative view of the low-quality white oak tree in the planted young oak savanna habitat described in Stand Form 01.

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 19	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
Northeast

**Location:**  
42.307494°, -83.700521°

**Description:**

Photo Description:  
Potential Roost Tree 11

Representative view of the low-quality burr oak tree in the planted young oak savanna habitat described in Stand Form 01.



<b>Photo No.</b> 20	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
North

**Location:**  
42.307585°, -83.700428°

**Description:**

Photo Description:  
Potential Roost Tree 12

Representative view of the low-quality white oak tree in the planted young oak savanna habitat described in Stand Form 01.



<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 21	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> North		
<b>Location:</b> 42.307627°, -83.700504°		
<b>Description:</b> Photo Description: Potential Roost Tree 13  Representative view of the low-quality swamp white oak tree in the planted young oak savanna habitat described in Stand Form 01.		

<b>Photo No.</b> 22	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> Northeast		
<b>Location:</b> 42.307670°, -83.700635°		
<b>Description:</b> Photo Description: Potential Roost Tree 14  Representative view of the low-quality Chinquapin oak tree in the planted young oak savanna habitat described in Stand Form 01.		

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 23	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
Northeast

**Location:**  
42.307662°, -83.700719°

**Description:**

Photo Description:  
Potential Roost Tree 15

Representative view of the low-quality swamp white oak tree in the planted young oak savanna habitat described in Stand Form 01.



<b>Photo No.</b> 24	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
North

**Location:**  
42.307712°, -83.700831°

**Description:**

Photo Description:  
Potential Roost Tree 16

Representative view of the low-quality swamp white oak tree in the planted young oak savanna habitat described in Stand Form 01.



<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 25	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
Northeast

**Location:**  
42.307496°, -83.700125°



**Description:**

Photo Description:  
Potential Roost Tree 17

Representative view of the low-quality silver maple tree in the tree row along the east side of the Project Area.

<b>Photo No.</b> 26	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
North

**Location:**  
42.307712°, -83.700831°



**Description:**

Photo Description:  
Potential Roost Tree 17

Representative view of a cavity on the silver maple tree in the tree row along the east side of the Project Area.

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.:</b> 250098
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<b>Photo No.:</b> 27	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> Northeast		
<b>Location:</b> 42.307362°, -83.700158°		
<b>Description:</b> Photo Description: Potential Roost Tree 18  Representative view of the low-quality black cherry tree in the tree row along the east side of the Project Area.		

<b>Photo No.:</b> 28	<b>Date:</b> 03/14/2025	
<b>Direction Photo Taken:</b> North		
<b>Location:</b> 42.307362°, -83.700158°		
<b>Description:</b> Photo Description: Potential Roost Tree 18  Representative view of crevices on the black cherry in the tree row along the east side of the Project Area.		

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.:</b> 250098
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<b>Photo No.:</b> 29	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
East

**Location:**  
42.307492°, -83.700751°



**Description:**

Photo Description:  
Bat Box 01

Representative view of Bat Box 01 that is located in the planted young oak savanna habitat described in Stand Form 01.

<b>Photo No.:</b> 30	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
South

**Location:**  
42.307476°, -83.700574°



**Description:**

Photo Description:  
Bat Box 01

View of the inside of Bat Box 01.

<b>Client Name:</b> Ann Arbor Public Schools	<b>Site Location:</b> Washtenaw County, MI	<b>Project No.</b> 250098
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<b>Photo No.</b> 31	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
South

**Location:**  
42.307476°, -83.700574°



**Description:**

Photo Description:  
Bat Box 02

Representative view of a Bat Box 02 that is located in the planted young oak savanna habitat described in Stand Form 01.

<b>Photo No.</b> 32	<b>Date:</b> 03/14/2025
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**Direction Photo Taken:**  
Inside bat box

**Location:**  
42.307476°, -83.700574°



**Description:**

Photo Description:  
Bat Box 02

View of the inside of Bat Box 02.