Rare Species and Natural Features Assessment of 3825 Stadium Drive, Kalamazoo, Kalamazoo County, Michigan.

Prepared for Stonefield Engineering & Design, LLC

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INTRODUCTION

In August 2019, Michigan Natural Features Inventory (MNFI) contracted with Stonefield Engineering & Design, LLC (Stonefield) to conduct a rare species and natural features assessment of a 1.33-acre parcel (photo 1) located at 3825 Stadium Drive, Kalamazoo, Kalamazoo County, MI (T02S, R11W Section 30). The proposed project involves a 4,000 square foot commercial building with parking areas. MNFI assessed the project site to determine the presence or potential habitat for the following species: the federally threatened (LT) and state special concern (SC) eastern massasauga rattlesnake (*Sistrurus catenatus*), the ST rosinweed (*Silphium integrifolium*), the ST rattlesnake master (*Eryngium yuccifolium*), the state endangered (SE) side-oats gramma grass (*Bouteloua curtipendula*), the ST lesser ladies's-tresses (*Spiranthes ovalis*), the state SC hairy angelica (*Angelica venenosa*), and the state SC eastern box turtle (*Terrapene carolina carolina*). MNFI also recorded observations of any rare species encountered during our survey. This report summarizes the methods and findings of our assessment.

METHODS

We performed a visual search of the project site on August 28 and September 13, 2019 to determine if the 1.33-acre parcel contains suitable habitat and could support the target species. The survey (i.e., random meander search) consisted of two MNFI biologists walking through the project site. The survey date occurred within a window with a reasonable possibility to observe all target plant species, and to accurately assess the suitability of habitat for target animal species.

The parcel has two portions, a building footprint with an existing single-family house (photo 2) in the north, and woodland (photo 3) sloping toward the south. The area around the house is comprised primarily of lawn and landscaping and contains little to no potential habitat for any at-risk species (Photo 4). The woodland, a disturbed dry-mesic southern forest (oak-hickory) contains a mixture of native and non-native vegetation, but is largely in a natural state, so theoretically could provide habitat for at-risk species (Photo 5). The historical right-of-way of the Fruitbelt Railroad is adjacent to the southern boundary of the property. Many railroad rights-of-way, both current and historical, harbor relictual prairie and savanna habitats, and at-risk species associated with these habitats. A more detailed description of the vegetation is found under the heading, "Plant Surveys."

The LT and SC eastern massasauga rattlesnake is Michigan's only venomous snake and occurs in a variety of wetland habitats including bogs, fens, shrub swamps, wet meadows, marshes, moist grasslands, wet prairies, and floodplain forests. Eastern massasauga rattlesnakes occur throughout the Lower Peninsula but are not found in the Upper Peninsula. Populations in southern Michigan are typically associated with open wetlands, particularly prairie fens, while those in northern Michigan are better known from lowland coniferous forests, such as cedar swamps. These snakes normally overwinter in crayfish or small mammal burrows often close to the groundwater level and emerge in spring as water levels rise. During late spring, these snakes move into adjacent uplands they spend the warmer months foraging in shrubby fields and grasslands in search of mice and voles, their favorite food.

The ST rosinweed is a rare plant that occurs in prairie remnants along roads and railroad tracks or in cemeteries. Associates include big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), prairie coreopsis (*Coreopsis palmata*), wild geranium (*Geranium maculatum*), and pale-leaved sunflower (*Helianthus strumosus*). The recommended survey period is from early July to late September. Rosinweed likely requires natural disturbances associated with prairie habitat such a fire to prevent woody plant encroachment. Many prairie remnants are susceptible to common maintenance activities such as mowing and bulldozing.

The ST rattlesnake-master is a rare plant typically found in sandy soils and wet to mesic prairies associated with former oak savannas and oak barrens, often occurring in small remnants along power lines and railroad rights-of-way. The species likely occurred historically in a variety of prairie and savanna habitats. Plant associates include sensitive fern (*Onoclea sensibilis*), golden-alexanders (*Zizia aurea*), Culver's root (*Veronicastrum virginicum*), and rosinweed. The survey window is from early July to late September. This species likely requires natural disturbances associated with prairie habitat such a fire to prevent woody plant encroachment.

The SE side-oats grama grass inhabits dry, sandy hillside prairies or open oak woodlands. This perennial, rhizomatous grass flowers in August. It produces fruit in late August and September, after which the spikelets fall. Plant associates include white oak (*Quercus alba*), black oak (*Q. velutina*), little bluestem, needle grass (*Stipa sp*.), kittentails (*Besseya bullii*) and sassafras (*Sassafras albidum*). This species requires maintenance of the savanna community through brush removal and prescribed burning, as suitable habitat is reduced through the natural succession process. Most examples of these sites are small and becoming degraded through further landscape fragmentation and lack of management.

The ST lesser ladies'-tresses is one of the few forest dwelling ladies'-tresses, but it is also adapted to successional communities and appears to do well in some disturbed communities. This small orchid inhabits moist woods and bottomlands, along with old fields and pastures. It is a perennial species that flowers in late September and October. Almost 50% of the known occurrences from Michigan are in Kalamazoo County. Plant associates include big bluestem, little bluestem, prairie coreopsis, wild geranium, and pale-leaved sunflower. Much of the habitat for this species has been lost or severely degraded.

The state SC hairy angelica inhabits upland woods, especially open oak woodlands; also known from thickets, sandy open ground, and prairie-like areas. Hairy angelica flowers from July to September. Plant associates include white oak, black oak, pignut hickory (*Carya glabra*), sassafras and black cherry (*Prunus serotina*). This species likely requires disturbance such as prescribed fires to maintain suitable open habitat conditions.

The state SC eastern box turtle is Michigan's only truly terrestrial turtle and typically prefers deciduous or mixed woodlands, especially those with sandy soils. Eastern box turtles are active from late April to late October and breeding typically occurs from late May to mid-October. Eastern box turtles are diurnal and most active in spring and fall. During the summer they may have brief activity in the morning or during falling rain showers, but otherwise spend much time buried in leaf litter, shallow burrows, under brush piles or rotting logs. Eastern box turtles consume a wide variety of plant and animal foods with a taste for raspberries and blackberries. Most eastern box turtles remain in a rather small home range (often less than 5 acres) for most of their lives, but home ranges up to 50 acres have been reported. Nesting takes place in June and early July, with eggs being buried in an open, often elevated location. Hatchlings emerge in September and October. Hibernation occurs most frequently in burrows or under leaf litter, less often submerged in a pond or stream.

FINDINGS

Animal Surveys

While eastern massasauga rattlesnakes are associated with wetland habitats, they do require drier areas for basking, foraging and other aspects of their life cycle that coincide with the timing of the surveys. The upland habitat contains some dry, south-facing slopes and could support eastern massasaugas during the active season (Photo 6), but the site appears isolated from the surrounding wetlands needed for the active and non-active seasons. Therefore, it is unlikely that the commercial

development will negatively impact eastern massasaugas as the project area and surrounding wetlands do not provide suitable habitat and/or unlikely to support this species.

The site and surrounding area could support the eastern box turtle. With home ranges of up to 40 acres, this species could potentially access the site. There are several recent observations from nearby properties. There are some brush piles and leaf litter available for cover and thermoregulation (Photo 7). It is possible that the commercial development will negatively impact eastern box turtles. As a species of special concern, eastern box turtles are not protected under state or federal endangered species legislation, but they are becoming rare throughout its range and it is protected under the authority of the Department of Natural Resources Director's Order, Regulations on the Take of Reptiles and Amphibians, dated October 12, 2001 (section 324 of PA 451).

Although not targeted in this survey, there appears to be suitable summer roost habitat for the federally endangered and SE Indiana bat (*Myotis sodalis*) and the LT and state SC northern long-eared bat (*M. septrionalis*). Indiana bats are found only in the eastern United States and are typically confined to the southern three tiers of counties in Michigan. Indiana bats that summer in Michigan winter in caves in Indiana and Kentucky. Indiana bats typically avoid houses or other artificial structures (Photo 8) and have been known to roost underneath loose bark of oak and hickory species. In Michigan, northern long-eared bats hibernate in abandoned mines and caves in the Upper Peninsula, migrating southward in summer.

Northern long-eared bats typically roost and forage in forested areas. During the summer, these bats roost singly or in colonies underneath bark, in cavities or in crevices of both living trees and dead trees, where they give birth. These bats seem to select roost trees based on suitability to retain bark or provide cavities or crevices.

Although we did not confirm the presence of either bat species at the location, we encourage you to conduct tree-cutting activities during October 1 through March 31 when possible, but you are not required by the Endangered Species Act to do so. When that is not possible, we encourage you to remove trees prior to June 1 or after July 31, as that will help to protect young bats that may be in forested areas but are not yet able to fly.

Plant Surveys

The parcel contains a small woodland along the south-facing slope in the south of the property. The woodland associated with this parcel comprises a small portion of a larger patch of woodland, when considered in the context of adjacent parcels. The description of the vegetation here, and the potential to support at-risk plant species is limited to the parcel at 3285 Stadium Drive.

The woodland contained many native species, particularly in the canopy, but was low in plant species diversity and overall very disturbed. The canopy was dominated by black oak, with codominant species including pignut hickory and wild black cherry. These are typical dominant species of dry-mesic southern forest (oak-hickory) in Michigan. However, the understory was dominated by disturbance-adapted, invasive shrubs such as honeysuckles (*Lonicera maacki, L. morrowii*), common buckthorn (*Rhamnus cathartica*), and common privet (*Ligustrum vulgare*). The ground layer was very disturbed by trampling from excessive foot traffic with limited vegetation (Photo 9).

No at-risk plant species were observed during the survey. The potential for this parcel to support any of the target plant species is low. All of the target species, which are generally associated with prairie and savanna habitats, require greater light availability than was observed at the site. Occasionally, prairie and savanna species occur on the edges of woodlands, particularly along the margins of

historical rail beds, yet we did not observe any of the target species along the edges either (Photo 10). A few native species associated with highly disturbed prairie and savanna species were associated with these edges, but given that the level of disturbance nearer to the existing structure has likely been prolonged and consistent, the occurrence of any listed species is also highly unlikely. The target species are all generally associated with less disturbed habitats, with the exception of lesser ladies-tresses.

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RELEVANT LITERATURE

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LIST OF PLANT SPECIES OBSERVED

Scientific Name	Common Name	Physiognomy	Duration
Bromus inermis	smooth brome	grass	perennial
Carex pensylvanica	sedge	sedge	perennial
Carya glabra	pignut hickory	tree	perennial
Catalpa speciosa	northern catalpa	tree	perennial
Centaurea stoebe	spotted knapweed	forb	biennial
Desmodium marilandicum	small-leaved tick-trefoil	forb	perennial
Dichanthelium oligosanthes	panic grass	grass	perennial
Geum canadense	white avens	forb	perennial
Hypericum perforatum	common st. johns-wort	forb	perennial
Juglans nigra	black walnut	tree	perennial
Ligustrum vulgare	common privet	shrub	perennial
Lonicera maackii	amur honeysuckle	shrub	perennial
Lonicera morrowii	morrow honeysuckle	shrub	perennial
Parthenocissus quinquefolia	virginia creeper	vine	perennial
Poa pratensis	kentucky bluegrass	grass	perennial
Prunus serotina	wild black cherry	tree	perennial
Quercus alba	white oak	tree	perennial
Quercus velutina	black oak	tree	perennial
Rhamnus cathartica	common buckthorn	tree	perennial
Sanicula odorata	black snakeroot	forb	perennial
Sporobolus cryptandrus	sand dropseed	grass	perennial

Figure 1. Rare Species and Natural Features Assessment took place on this 1.33-acre parcel (highlighted) located at 3825 Stadium Drive, Kalamazoo, Kalamazoo County, MI (T02SR11WS30).

Figure 2. This abandoned single-family dwelling sits on the northern part of the parcel located at 3825 Stadium Drive, Kalamazoo, Kalamazoo County, MI (taken 13 September 2019).

Figure 3. The woodland located on the southern part of the parcel at 3825 Stadium Drive, Kalamazoo, Kalamazoo County, MI (taken 13 September 2019).

Figure 4. The lawn and landscaping around the abandoned house contains little to no potential habitat for any at-risk species (taken 13 September 2019).

Figure 5. The woodland at 3825 Stadium Drive is a disturbed dry-mesic southern forest (oak-hickory) and could possibly support at-risk species (taken 13 September 2019).

Figure 6. The woodland contains areas of dry upland habitat that could support eastern massasauga rattlesnakes during the active season, but the site appears isolated from surrounding wetlands necessary for the active and non-active seasons for this species (taken 13 September 2019).

Figure 7. The available brush piles and leaf litter at the site could offer cover and thermoregulation options for the state special concern eastern box turtle (taken 13 September 2019).

Figure 8. Both Indiana bats and northern long-eared bats typically avoid houses or artifical structures for summer roosting sites, so it highly unlikely that demolishing the house at 3825 Stadium Drive will negatively impact either species (taken 13 September 2019).

Figure 9. The ground layer of the small woodland was very disturbed by trampling from excessive foot traffic and had limited vegetation (taken 13 September 2019).

Figure 10. We did not observe any prairie and savannah species that occassionally occur on woodland edges at the 3825 Stadium Drive site (taken on 13 September).