

Rare Plant Surveys for the Michigan Department of Transportation: US-24 and King Rd., Wayne County, Michigan



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Cover: Late-season lakeplain prairie blooms. Photos by Phyllis J. Higman.

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Introduction

This report provides a summary of rare plant surveys along US-24 From Carter Rd. to Pennsylvania Rd., and portions of King Rd. just east and west of its intersection with US-24. Surveys are needed prior to reconstruction and addition of a turn lane on US-24 and reconstruction of a portion of King Road and addition of new turn lands at the US-24-King Rd. intersection.

Methods

A review of the Michigan Natural Heritage database was conducted to identify species listed as endangered, threatened, or special concern, with potential to occur in the survey area shown in Figure 1. Thirteen State-listed prairie species were identified as targets, including six species that flower during mid-season and seven species that flower during late-season (Tables 1, 2). No Federally-listed species were identified as potential targets.

Table 1. Species targeted during mid-season surveys.

Scientific Name	Common Name	Listing Status
<i>Asclepias hirtella</i>	green milkweed	T
<i>Angelica venenosa</i>	hairy angelica	SC
<i>Betula populifera</i>	gray birch	SC
<i>Juncus anthelatus</i>	large path rush	Proposed SC
<i>Scleria triglomerata</i>	tall nut-rush	SC
<i>Trichophorum clintonii</i>	Clinton's bulrush	SC

*T: state threatened; SC: state special concern

Table 2. Species targeted during late-season surveys.

Scientific Name	Common Name	Listing Status
<i>Aristida longespica</i>	three-awned grass	T
<i>Gentianella quinquefolia</i>	stiff gentian	T
<i>Hypericum gentianoides</i>	orange-grass	SC
<i>Juncus brachycarpus</i>	short-fruited rush	T
<i>Juncus vaseyi</i>	Vasey's rush	T
<i>Leucospora multifida</i>	conobea	T
<i>Lycopodiella subappressa</i>	northern clubmoss	SC

*E: state endangered; T: state threatened; SC: state special concern; X: extirpated

Aerial photos of the survey area were reviewed to delineate stretches of the right-of-way that clearly lack suitable habitat, including commercial, residential, developed, mowed, maintained or cropped areas. Meander surveys were conducted throughout the remaining right-of-way from the edge of the existing mowed and maintained shoulder.

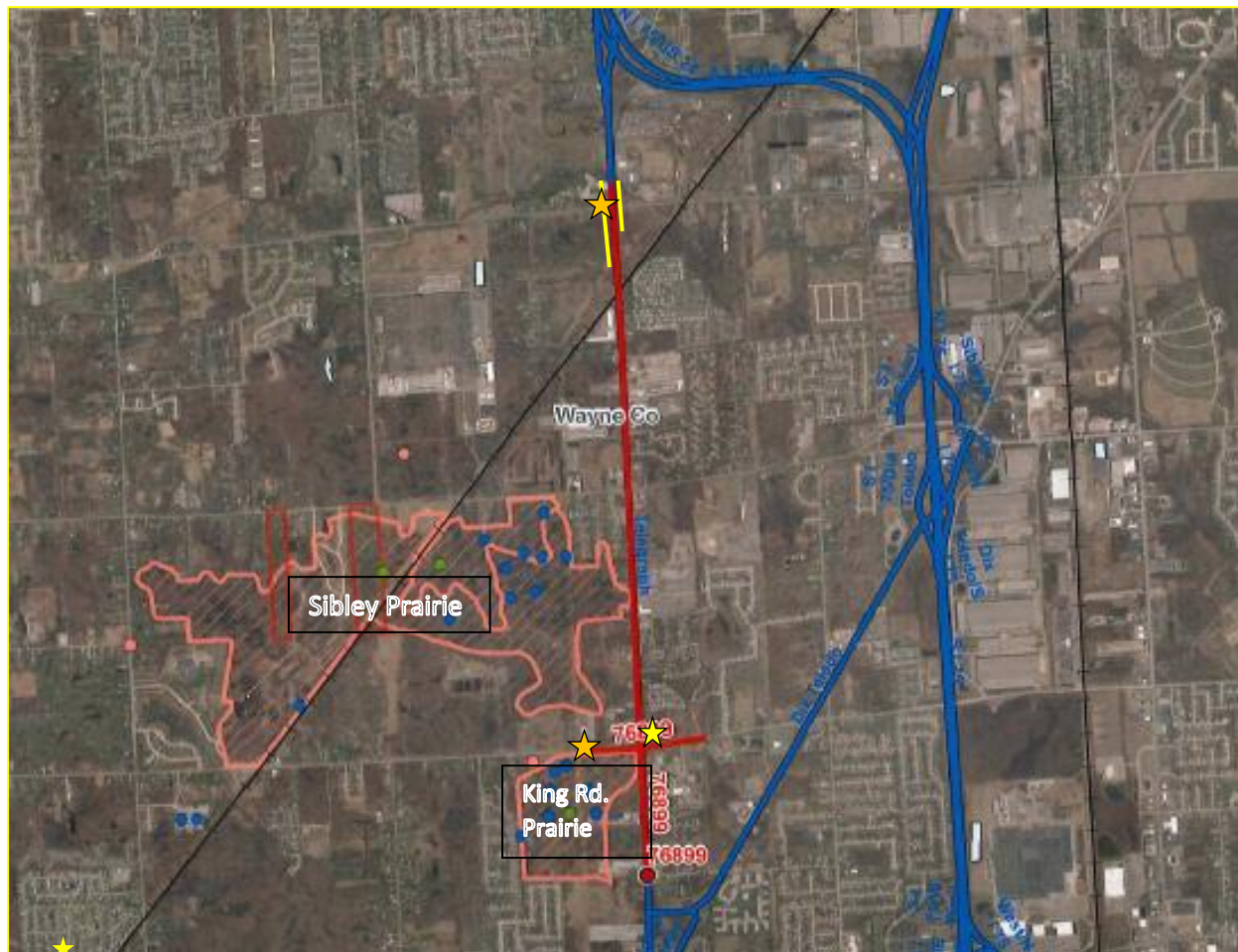


Figure 1. Project area (red), high quality lakeplain prairies (orange) and priority invasive species. (yellow stars and lines: tree-of-heaven; orange stars: Oriental bittersweet).

Due to the COVID Pandemic, clearance for travel and work in Wayne County was not received until September, thus only late-surveys were conducted. While mid-season species are best located during mid-season, they are detectable later in the season. Surveys were conducted September 24th-26th and focused on both mid and late-season targets. A Garmin-64 GPS unit was used to record occurrences of any targeted or other listed species, or any other points of interest observed during surveys, such as highly invasive species. General descriptions and dominant species for each segment of the survey area were recorded on paper.

Results

This survey area lies in the heart of southeast Michigan's historical lakeplain which had a rich array of highly diverse wetland prairies and savannas. While the vast majority of the lakeplain has been drained for agriculture and other development, two of the largest and least fragmented and degraded lakeplain prairie occurrences in the state: Sibley and King Rd. prairies, lie within a quarter mile of the project area (Figure 1). While much of the survey area appears to lack suitable habitat for target species outside of these two areas, initial reconnaissance revealed the

presence of many wet prairie species throughout the corridor. Thus, meander-surveys were conducted throughout the entire corridor to determine if any target species might be hanging on within any smaller prairie fragments. No listed species were ultimately documented; however, several notable areas were observed. These include the north and east border of King Rd. prairie, narrow strips of prairie along portions of the north side of King Rd. and a large swath of undeveloped wetlands with wet prairie pockets in the northern half of the Sibley to Pennsylvania Rd. segment, and a very small patch of degraded prairie at the southeast corner of Sibley Rd and US-24. Descriptions of the survey segments are provided below.

Summary of Survey Segments

Segment 1: Carter to King Rd.

The southern quarter of the west side and the entire east side of this segment are developed with businesses and residences, most of which have cement lots or mowed lawns (Figure 2). Ditches are dominated by non-native or weedy species such as timothy grass (*Phleum* sp.), foxtails (*Setaria* sp.), fescues (*Festuca* sp.) wild carrot (*Daucus carota*), horseweed (*Conyza canadensis*), phragmites (*Phragmites australis*), and narrow-leaved cat-tail (*Typha angustifolia*).



Figure 2. US-24 looking north from Carter Rd. (left) and south towards Carter Rd. (right).

North of the developed zone on the west side between Johnny D's Auto Detail and the U-Haul Neighborhood Dealer, there is largely undeveloped, canopied woodland dominated by cottonwood (*Populus deltoides*), green ash (*Fraxinus pensylvanica*), walnut (*Juglans nigra*), gray dogwood (*Cornus foemina*), river-bank grape (*Vitis riparia*), sandbar willow (*Salix exigua*), Virginia creeper (*Parthenocissus quinquefolia*) and autumn olive (*Elaeagnus umbellata*) (Figure 3). Invasive phragmites borders the woodland along with a diversity of native forbs including

New England aster (*Symphyotrichum novae-angliae*), panicled aster (*Symphyotrichum lanceolatum*), bog goldenrod (*Solidago uliginosa*), tall goldenrod (*Solidago altissima*), rough-leaved goldenrod (*Solidago rugosa*) grass-leaved goldenrod (*Euthamia graminifolia*), vervain (*Verbena hastata*), common mountain mint (*Pycnanthemum virginianum*), black-eyed susan (*Rudbeckia hirta*), pinkweed (*Polygonum pensylvanicum*), Vernonia missourica, common milkweed (*Asclepias syriaca*), purple-stemmed tickseed (*Bidens connata*) and Torrey's rush (*Juncus torreyi*). Narrow-leaved cat-tail, purple loosestrife (*Lythrum salicaria*), and teasel (*Dipsacus* sp.) are also established here. Shrub zones include trembling aspen (*Populus tremuloides*), balsam poplar (*Populus balsamifera*) pin oak (*Quercus palustris*), bur oak (*Quercus macrocarpa*), elm (*Ulmus* sp.), red cedar (*Juniperis virginiana*), Siberian elm (*Ulmus pumila*), and common buckthorn (*Rhamnus cathartica*).



Figure 3. Undeveloped woodland on west side of US-24, south of the King Rd. Prairie.

The northern half of US-24 south of King Rd. on the west side, borders the King Rd. prairie and many more conservative species typical of lakeplain prairie were documented here, including big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), purple top (*Tridens flavus*), marsh blazing star (*Liatris spicata*), colic root (*Aletris farinosa*), purple foxglove (*Agalinis purpurea*), bushy aster (*Symphyotrichum dumosum*), fringed gentian (*Gentianopsis crinita*), shrubby St. John's-wort (*Hypericum prolificum*), swamp agrimony (*Agrimonia parviflora*), wild bergamot (*Monarda fistulosa*), and Riddell's goldenrod (*Solidago riddellii*) (Figure 4). Native gray dogwood, pin oak and swamp white oak were scattered within. This area is an extension of the King Rd. prairie, and while the dominant vegetation is still native and diverse, autumn olive and scotch pine are established and spreading, and occasional occurrences of multiflora rose, and common buckthorn were also observed.



Figure 4. Diverse lakeplain prairie border along US-24 south of King Rd.



Figure 5. Fringed gentian at the King Rd. prairie border, US-24.

Segment 2: King Rd. East and West at US-24 Intersection

The prairie extends to King Rd at its intersection with US-24 and it is similarly dominated by lakeplain prairie species. Additional species observed here include sneezeweed (*Helenium autumnale*; Figure 6), tall coreopsis (*Coreopsis tripteris*), round-headed bush clover (*Lespedeza capitata*), bog goldenrod (*Solidago uliginosa*) and river birch (*Betula nigra*) (Figure 6). Westward the prairie transitions to forest with silver maple (*Acer saccharinum*) and Bebb's willow (*Salix bebbiana*). Much of the right-of-way at the corners of the intersection right next to the pavement and curbs is degraded with infestations of phragmites and teasel (Figure 7).



Figure 6. Sneezeweed at the northern edge of King Rd. Prairie.



Figure 7. Wild teasel and invasive phragmites are well-established at the King Rd. and US-24 intersection.

On the north side of King Rd., both west and east of US-24, native prairie grasses and several native forbs dominate along a narrow strip of the right-of-way under the power lines. These include big bluestem, little bluestem, Indian grass, ironweed, bog goldenrod, wild bergamot, tall coreopsis, common milkweed, and evening primrose (*Oenothera biennis*). Many non-native species are intermixed, including fescues, European marsh thistle (*Cirsium palustre*), bull thistle (*Cirsium vulgare*), teasel, common mullein (*Verbascum thapsus*), wild carrot, autumn olive, scotch pine, amur honeysuckle (*Lonicera maackii*) and glossy buckthorn (*Frangula alnus*).

Forests dominated by cottonwood, green ash, gray dogwood, staghorn sumac, amur honeysuckle and riverbank grape, border the prairie strips to the north and south along some portions of the northern edge of King Rd (Figure 8). The highly invasive tree-of-heaven was mapped at the edge of the woods on the northeast corner of the intersection of King Rd. and US-24. Remaining portions of the right-of-way are developed.

The south side of King Rd. east of US-24 is developed, with a fitness center and fenced playground area scattered tall trees and a manicured understory (Figure 9). Trees include shagbark hickory, bur ok, swamp white oak and silver maple.



Figure 8. Degraded prairie strips along the north side of the King Rd. right-of-way.



Figure 9. Mowed playground with large trees at the southeast corner of King Rd. and US-24.

Segment 3: King Rd. to Sibley Rd.

This segment is mostly developed or mowed, with occasional patches of vegetation, typically with phragmites and other weedy species. (Figures 9, 10). Drainage ditches are dominated by phragmites (Figure 11).



Figure 10. Weedy patch of vegetation on the west side of US-24, north of Carter Rd.

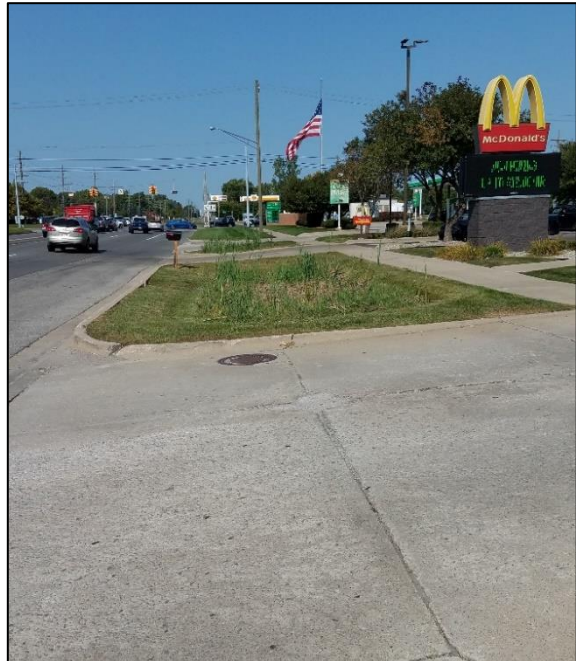


Figure 11. Developed and mowed area on the east side of US-24 north of Carter Rd.



Figure 12. Drainage ditch dominated by invasive phragmites on US-24, south of King Rd.

The central portion along the west side of US-24, has some businesses intermixed with woodlands including a small extension of the Sibley Prairie that extends eastward into the US-24 (Figure 1) right-of-way. These woods are canopied with cottonwood, walnut, green ash, and pin oak, and riverbank grape, staghorn sumac, box elder, Virginia creeper, and gray dogwood in the shrub layer. No suitable habitat for target species was detected in this area (Figure 13).



Figure 13. The portion of Sibley Prairie that extends eastward to US-24 is densely forested.

Segment 4: Sibley Rd. to Pennsylvania Rd.

The southern portion of this segment is primarily developed, with some areas of woodland that near the right-of-way. Similar to the other segments, these woods are dominated by cottonwood, green ash, box elder, American elm, riverbank grape, and amur honeysuckle. They lack suitable habitat for target species.

A dense canopied forest occurs on private property in the southwest corner of US-24 and Pennsylvania Rd; and is bordered by a mowed area with patches of weedy and invasive vegetation adjacent to the road (Figure 14). Dominant canopy species include cottonwood, black cherry, sugar maple, green ash, American elm, and catalpa and gray dogwood, riverbank grape, autumn olive and amur honeysuckle were observed along the edges. The ground flora is sparse and as observed from the outside dominated by rough-leaved goldenrod.



Figure 14. Canopied forest at the southwest corner of Pennsylvania Rd. and US-24.

The mowed zone was weedy including fescues, foxtails, wild carrot, hoary alyssum (*Berteroa incana*), and some spotted knapweed. Southward, a dense patch of woody species occurs directly in the right-of-way, with box elder, walnut, American elm, mulberry and riverbank grape and two highly invasive species: Oriental bittersweet (*Celastris orbiculata*) and tree-of-heaven (*Ailanthus altissima*) (Figure 15). The latter extends sporadically north to Pennsylvania and south to the railroad bridge on both sides of US-24. These points have been mapped (Figure 1) and are included in the shapefiles delivered with this report.



Figure 15. Amur honeysuckle and tree-of-heaven are common near Pennsylvania Rd.

Surveys under the railroad bridge on the west side revealed pockets of wet prairie dominated by big and little bluestem, Indian grass, and many prairie forbs including common mountain mint,

New England aster, bushy aster, ironweed, wild bergamot, Riddell's goldenrod, tall goldenrod, and grass-leaved goldenrod (Figure 16). Cottonwood, red cedar green ash, clumps of gray dogwood, sandbar willow, are scattered throughout. The prairie pockets are surrounded by a tangle of weedy species, many of which are encroaching into the prairie pockets, including phragmites, autumn olive, common buckthorn, and multiflora rose (Figure 17).



Figure 16. Prairie pockets below the railroad bridge along the west side of US-24.



Figure 17. The prairie pockets are surrounded by a tangle of invasive species.

The east side of US-24, moving north from the railroad bridge is dominated by trees and shrubs by the tracks (Figure 18), and then opens up into a phragmites-dominated wetland (Figure 19). Northward, it grades into canopied forest with cottonwood, trembling aspen, silver maple, green ash, American elm, black cherry, and sassafras.



Figure 18. Trees and shrubs dominate on the east side of US-24 by the railroad tracks.



Figure 19. Invasive phragmites dominates an open wetland north of the railroad tracks.

A little patch of wet prairie with big bluestem, little bluestem, Indian grass, sunflower (*Helianthus giganteus*), Riddell's goldenrod, bog goldenrod, common mountain-mint, ironweed, wild bergamot, blue vervain, swamp milkweed, and evening primrose (*Asclepias incarnata*), occurs on the southeast corner of US-24 and Pennsylvania (Figure 20). Many weedy species are established here, including amur honeysuckle, spotted knapweed, bull thistle, teasel, and redtop. As mentioned in the previous section, tree-of-heaven occurs along the east border of US-24 and extends down to the railroad track; some of these trees are substantial (Figure 21).



Figure 20. Prairie patch at southeast corner of US-24 and Pennsylvania Rd.



Figure 21. Tree-of-heaven on US-24 near Pennsylvania Rd.

North of Pennsylvania Rd. on the east side of US-24, the right-of-way is mowed to the edge of a dense forest. A church and parking lot occur on the west side and vegetated areas are mowed. Suitable habitat for target species is lacking in these areas (Figure 22).



Figure 22. US-24, north of Pennsylvania Rd. lacks suitable habitat for target species.

Discussion

No listed species were documented in the project area, however, the border of King Rd. Prairie along US-24 and King Rd. and the Sibley Prairie along US-24 are of critical importance. These are two of the largest, high quality examples of lakeplain prairie remaining in southwest Lower Michigan, and they are notable for their persistence within a largely urban area. They are also a source of regional pride, harboring numerous rare species, that lie within a quarter to a half mile from the project area. In the case of the King Rd. prairie, suitable habitat for many of the target species occurs within the project area and all measures to buffer these areas and minimize disturbance during construction should be taken. Numerous invasive species such as non-native phragmites, wild teasel, autumn olive and Scotch pine are already encroaching and treatment of these species is recommended to minimize their further spread into the high-quality areas.

Much of the rest of the project area is either developed or degraded by invasive and weedy species, although a considerable amount of native diversity still persists in the least disturbed areas. Of most concern are the occurrences of Oriental bittersweet and tree-of-heaven, which were observed on the north side of King Rd. east of US-24, and along US-24 just south of Pennsylvania. Treatment of these species is recommended to minimize further invasion and to minimize cost of future control efforts in the project area.

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